CORPORATE
OWNERSHIP & CONTROL

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www.virtusinterpress.org

Journal Corporate Ownership & Control is published four times a year, in September-November, December-February, March-May and June-August, by Publishing House "Virtus Interpress", Gagarina Str. 9, office 311, Sumy, 40000, Ukraine.

Information for subscribers: New orders requests should be addressed to the Editor by e-mail. See the section "Subscription details".

Back issues: Single issues are available from the Editor. Details, including prices, are available upon request.

Advertising: For details, please, contact the Editor of the journal.

Corporate Ownership & Control

ISSN 1727-9232 (printed version)
1810-0368 (CD version)
1810-3057 (online version)

CORPORATE OWNERSHIP & CONTROL

VOLUME 14, ISSUE 1, FALL 2016, CONTINUED - 1

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RE-ESTIMATION OF COMPANY INSOLVENCY PREDICTION MODELS: SURVEY ON ITALIAN MANUFACTURING COMPANIES

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Abstract

The global research stems from the relevance of the global economic crisis.
The research has several objectives: 1) to test the degree of effectiveness of the insolvency prediction models, most widely used in the literature, including recent works (Jackson and Wood, 2013), with reference to Italian manufacturing companies; 2) to modify the insolvency prediction models selected with the aim of identifying a company insolvency "alert model" which can be used by the various stakeholders; 3) to compare the effectiveness of the re-estimated models vis-à-vis the original ones. The following models were used, selected according to their diffusion and the statistical technique used: 1) Discriminant analysis: - Altman (1983), - Taffler (1983); 2) Logit Analysis: - Ohlson (1980). The study was carried out on a population of Italian companies (27,982 non-failed and 478 failed) with financial statements available for the years 2007-2012. It emerged that, the overall error of the original models, using the original cut-off points, is significant. The error is reduced for cut-off points different from those identified by the original authors. Furthermore, the new re-estimated models have an improved or identical effectiveness vis-à-vis the original models. In particular, the Ohlson re-estimated model is the one that improves most compared to the original model; however, the effectiveness of the Ohlson re-estimated model is lower than the Altman re-estimated model.

Keywords: Insolvency Prediction Models, Economic Crisis, Italian Companies, Financial Alert model

1. INTRODUCTION

The global research stems from the relevance of the global economic crisis which is affecting companies to an increasing extent. In particular, the frequency with which insolvency situations occur provides a stimulus for the development and analysis of themes concerning the prediction and prompt identification of situations considered to be at risk, in order to implement all the activities necessary to prevent them or to set up turnaround processes.

The success of a company turnaround obviously also depends, to a significant degree, on early identification of the insolvency symptoms with the creation, where possible, of reference categories; when these occur, the companies and the stakeholders most involved can take constructive steps to promptly identify lines of action. Once an insolvency situation has been identified, the companies must be able to deal with it effectively and with the correct timing, intervening on the causal factors which are often connected with management decisions that are not correct or are not coherent with the complexity of the competitive context.

In the light of this framework, the objectives of the paper are three: first of all, to test the degree of effectiveness of the insolvency prediction models, selected on the basis of the main statistical techniques used and their citation index, employed also in recent literature (Jackson and Wood, 2013), with reference to Italian manufacturing companies; secondly, to modify the insolvency prediction models selected with the aim of identifying a company insolvency "alert model" which can be used by the various stakeholders; lastly, to compare the effectiveness of the re-estimated models with the original ones.

The study was carried out on a population of Italian companies, with financial statements available for the years 2007-2012. The sample consisted of 28,460 companies (27,982 non-failed and 478 failed). The analysis was performed with reference to the state of health of the companies in 2014. The original models of the authors and the re-estimated models in the 3 previous years starting from the second year prior to manifestation of the crisis (i.e. 2012, 2011, 2010) were applied.

In particular, the following models were used:

1) Discriminant analysis
   1a) Altman (1983);
   1b) Taffler (1983);
2) Logit Analysis
   Ohlson (1980).

The results of this paper are interpreted according to the Stakeholder Theory (Freeman, 1984; Donaldson and Preston, 1995) which recognises that organisations have many stakeholders to whom they

relate and to whom they are accountable: primary stakeholders (shareholders, debt-holders, banks, customers, suppliers, employees) and secondary stakeholders (governments, society, community, charities). Each of these parties, in various ways, directly or indirectly undergoes the effects of the global economic crisis: therefore, the study of company insolvency and the possibility of forecasting it in advance to avoid worse consequences are of interest to civil society in general, i.e. the context in which the company operates. This happens firstly via the application of insolvency prediction models and, secondly, via the adaptation of these models to specific economic contexts, in our case Italy.

The study is also coherent with the need for an "alert model" to avert company insolvency, the importance of which has been recently highlighted in Italy by the reforms to the Bankruptcy Law (R.D. 267/42) and ongoing amendments.

The paper continues in the following order: paragraph two offers a summary of the literature on the insolvency prediction models considered in the paper; paragraph three describes the sample of companies and the research method; paragraphs four explains the results and discussion; the last paragraph presents the conclusions, implications, limitations and future evolution of the research.

2. LITERATURE REVIEW

The models selected are those used most widely in the literature, also recently (Jackson and Wood, 2013); due to their widespread use, it is important to verify their effectiveness in the current economic context, also in the light of the fact that the authors have used their original model in more recent studies. For example, Agarwal and Taffler (2007) re-apply the Taffler model (1983) to a sample of British companies; likewise, Altman, Danovi and Falini (2013) apply the Altman model (1983) to a sample of Italian companies.

The literature divides the models used for insolvency prediction into two main types:

1) Discriminant analysis

Discriminant analysis is a statistical technique which allows a company to be distinguished in the context of two or more pre-defined groups (Fisher, 1936; Teodori, 1989; Jackson and Wood, 2013), i.e. the group of non-failed companies and the group of failed companies. These groups, in the study, are defined a priori on the basis of the characteristics illustrated in par. 3.1. During the application of discriminant analysis, the linear form was chosen as it is the one most widely used in the literature up to 1980 and, also after this date, it represents a base model for the application of subsequent models (Balcaen and Ooghe, 2004; Altman and Narayanan, 1997; Aziz and Dar, 2006).

The Z-score attributed to each company represents, in one single value, the information deriving from the common variables referring to that company. Via this value, the company is classified as belonging to one of the two universes (group of non-failed companies or group of failed companies). The higher the Z-score of a company, the lower the possibility of the company being classified as a failed company.

For the purposes of this classification, a Z-score cut-off point is defined, which allows the two groups of companies (group of non-failed companies or group of failed companies) to be distinguished as clearly as possible. For application purposes, the cut-off points considered are those identified in the individual discriminant analysis models chosen in the study.

If the Z-score of a company is below the cut-off point, the company is classified as failed; if the Z-score of a company is higher than the cut-off point, it is classified as non-failed.

The choice of discriminant analysis in this study is due to the fact that this statistical technique underlies a series of authoritative studies in the literature on the subject, such as Altman (1968), Deakin (1972), Edmister (1972), Blum (1974), Libby (1975), Alberici (1975), Taffler (1976-1977), Altman, Haldeman and NaraYnan (1977), Deakin (1977), Lincoln (1984), Altman (1983), Mantoan and Mantovan (1987), (1987), Aziz et al (1988); Altman et al (1994); Back et al. (1996);.Booth (1983), Casey and Bartczak (1984), Coats and Fant (1993), Dimitras et al. (1999), El Hennawy and Morris (1983), Frydman et al. (1985), Gombola et al. (1987), Jo et al. (1997), Kahya and Theodossiou (1999), McGurr and DeVaney (1998), Moyer (1977), Piesse and Wood (1992), Pompe and Feelders (1997), Sung et al. (1999), Taffler and Tisshaw (1977), Theodossiou (1993), Yang et al. (1999). Other studies have also applied this methodology, thanks to the frequency of application in literature (Beyonon and Peel, 2001; Neophytou et al, 2001; Brockman and Turtle, 2003; Agarwal and Taffler, 2007 and 2008; Jackson and Wood, 2013).

In the context of discriminant analysis, this study analyses the models of Altman (1983) and Taffler (1983), due both to their popularity in the literature (Balcaen and Ooghe, 2004 and 2006; Reisz and Purlich, 2007; Jackson and Wood, 2013) and the possibility of applying them to a sample of non-listed companies.

2) Logit analysis

The models based on this analysis show the probability of a company belonging to the group of non-failed companies or the group of failed companies, defined a priori according to a series of characteristics.

Here again, the choice of the Logit model is due to the fact that this statistical technique underlies a series of authoritative studies in the literature, such as Ohlson (1980), Zavgren (1985), Forestieri (1986), Aziz et al. (1988), Keasey and McGuiness (1990), Dimitras et al (1999), Aziz et al (1988), Dimitras et al. (1999), Back et al. (1996), Kahya and Theodossiou (1999), Laitinen and Laitinen (1998), McGurr and DeVaney (1998), Platt and Platt (1990), Salchenberger et al. (1992), Theodossiou (1991), Ward (1994). More recent studies have also applied this methodology (Jackson and Wood (2013), Back et al., 1996; Beyonon and Peel, 2001; Neophytou et al., 2001; Foreman, 2002; Brockman and Turtle, 2003; Lin and Piesse, 2001; Westgaard and Wijst, 2001). In the ambit of the Logit model, we have chosen to adopt the Ohlson model (1980), in view of its popularity in the reference literature (Balcaen and Ooghe, 2004 and 2006; Jackson and Wood, 2013).

The literature has studied not only the theme of use of an appropriate model for the prediction of insolvency, but also the composition of the sample on which to verify the effectiveness of the models. In particular the size of the sample is important, with

particular reference to the incidence of the failed companies on the total number of companies. On this specific point the main sources of literature are cited, summarised in table 1 below.

Table 1. Bankruptcy Rate in literature

Authors	Sample analysis time period	No. Failed	No. non-failed	Bankruptcy Rate
Mario Hernandez Tinoco & Nick Wilson (2013)	1980-2011	1,254	21,964	5.40%
Jackson & Wood (2013)	2000-2009	101	6,494	1.53%
Chih-Ying Christidis & Alan Gregory (2010)	1978-2006	589	49,063	1.19%
Altman, Sabato & Wilson (2010)	2000-2007	66,833	5,749,188	1.15%
Alfaro, Garzia & Elizondo (2008)	2000-2003	590	590	50.00%
Vineet Agarwal & Richard Taffler (2007)	1980-2005	232	27,011	0.85%
Altman & Sabato (2007)	1994-2002	120	1,890	5.97%
Beaver, McNichols & Rhie (2005)	1962-2002	544	74,823	0.72%
Tyler Shumway (1999)	1962-1992	300	28,226	1.05%

Source: Personal processing

It emerges that the percentage impact of the failed companies on the total number of companies analysed is lower than 1.20%, with the exception of the cases in which:

- in addition to the failed companies, the companies in financial difficulty are also classified among the failed companies (Hernandez Tinoco & Wilson). This introduces elements of a subjective nature into the evaluation of the state of health of the company;
- the choice of the number of non-failed companies is guided by the actual bankruptcy rate at national level (Altman & Sabato – model for the SMEs US). In this case, given the national bankruptcy rate and the number of failed companies that can be analysed, a sample is chosen at random from among the non-failed companies with size such that the bankruptcy rate actually encountered at national level is reflected within the research sample;
- groups of non-failed and failed companies with the same size are considered (Alfaro et al). In the latter case, the size of the sample is limited, as it is guided by the number of failed companies actually analysed.

3. THE SAMPLE AND THE RESEARCH METHOD

3.1. The Sample

As already said, the paper has three objectives. With reference to the first objective (to test the degree of effectiveness of the insolvency prediction models, selected on the basis of the main statistical techniques used and their citation index, employed also in recent literature), the original models were applied to a sample of Italian small-medium sized enterprises, operating in the manufacturing sector, whose status (failed/non-failed) was verified at 31/12/2014. Companies that provide financial statement information not sufficient for the purposes of application of the models are not considered in the final sample.

Table 2. Sample for verification of effectiveness of original models

Region	Non-failed companies		Failed companies	
	NR	%	NR	%
Lombardy	8,941	31.95	138	28.87
Veneto	4,448	15.90	65	13.60
Emilia-Romagna	3,217	11.50	43	9.00
Piedmont	2,488	8.89	57	11.92
Tuscany	2,074	7.41	34	7.11
Campania	1,176	4.20	20	4.18
Lazio	914	3.27	20	4.18
Marches	841	3.01	19	3.97
Friuli-Venezia Giulia	803	2.87	19	3.97
Puglia	693	2.48	21	4.39
Sicily	474	1.69	8	1.67
Abruzzo	416	1.49	5	1.05
Trentino-Alto Adige	358	1.28	1	0.21
Liguria	329	1.18	12	2.51
Umbria	312	1.12	6	1.26
Sardinia	210	0.75	6	1.26
Calabria	158	0.56	3	0.63
Basilicata	55	0.20	1	0.21
Molise	48	0.17	0	0.00
Valle d'Aosta	27	0.10	0	0.00
General total for Italy	**27,982**	**100.00**	**478**	**100.00**

Source: Personal processing

The non-failed companies, identified using the Aida Bureau van Dijk database, are companies which have not been admitted to any insolvency or bankruptcy proceedings as of 31/12/2014. The failed companies were identified using the same database and are those that failed during 2014.

The sample composed as above consists of non-failed and failed companies in different numbers, in order to guarantee a sizeable sample. The validity of this method is supported by the literature (Jackson and Wood, 2013). In particular, the large size of the reference sample was supported by other studies: of these, Ohlson (1980) applied the original model to groups of companies having different numbers, commending the "size" variable of the sample; Stein (2002) maintained that the accuracy of the predictive models depends largely on the number of failed companies rather than on the number of the observations. This was supported also by the study of Falkestein, Boral and Carty (2000), according to which the hazard model of Shumway (1999) shows a high effectiveness compared to other models due to the large size of the sample examined. The sample is illustrated in table 2.

The second objective (to modify the insolvency prediction models selected with the aim of identifying a company insolvency "alert model" which can be used by the various stakeholders, in order to obtain the so-called "re-estimated models") requires the use of two samples. The first, also called training sample, is used to obtain the new formulation of the model (changing the weights of the variables with respect to the original models). To determine the training sample, a sample of small to medium sized Italian enterprises operating in the manufacturing sector is used as a starting base, whose status (failed/non-failed) is verified at 31/12/2013. The sample is composed of failed companies, identified from among those failed in 2013, and non-failed companies, i.e. those who have not resorted to insolvency proceedings by 31/12/2013 (Table 3).

Table 3 – Sample for reformulation of models

Region	Non-failed companies		Failed companies	
	NR	%	NR	%
Lombardy	9,240	32.21	128	26.02
Veneto	4,586	15.99	90	18.29
Emilia-Romagna	3,336	11.63	45	9.14
Piedmont	2,540	8.85	43	8.74
Tuscany	2,114	7.37	43	8.74
Campania	1,112	3.88	18	3.66
Marches	1,036	3.61	24	4.88
Lazio	936	3.26	14	2.85
Friuli-Venezia Giulia	769	2.68	31	6.30
Puglia	685	2.39	12	2.44
Sicily	469	1.64	9	1.83
Abruzzo	405	1.41	8	1.63
Trentino-Alto Adige	349	1.22	5	1.01
Umbria	320	1.12	6	1.22
Liguria	311	1.08	3	0.61
Sardinia	212	0.74	4	0.81
Calabria	138	0.48	5	1.02
Basilicata	60	0.21	-	0.00
Molise	43	0.15	4	0.81
Valle d'Aosta/Vallée d'Aoste	24	0.08	-	0.00
General total for Italy	**28,685**	**100.00**	**492**	**100.00**

Source: Personal processing

The second sample, also called verification sample, has the objective of verifying the effectiveness of the re-estimated models; it is the same sample as the one used to meet the first objective (illustrated in table 2). The re-estimated models are applied to this sample.

With reference to the third objective (comparison of the effectiveness of the re-estimated models vis-à-vis the original ones), the verification sample is used, illustrated in table 2.

3.2. The Research Method

The research method is illustrated by distinguishing the three stages of the research, aimed at achieving the study objectives.

First stage: verification of effectiveness of the original company insolvency prediction models

The three company insolvency prediction models were applied verifying their effectiveness over a time horizon of four years (2010-2014), three years

(2011-2014) and two years (2012-2014) prior to the default situation observed in 2014.

In order to make the results deriving from the above methods comparable, the effectiveness of the individual models is tested using the ROC Curve constructed following Gönen (2006). The cut-off points used for construction of the ROC Curve are probabilities of failure and vary from 0 to 1, with step equal to 0.01. For this purpose, the z-Scores for the Altman and Taffler model are converted into probability, actuating a logit transformation of the score following the formula: 1/(1+exp(z-score)).

The effectiveness of the model is represented by the area below the ROC Curve, defined Theta, which is estimated using the trapezium method (Hanley and McNeil, 1982). The Standard Error of Theta (Hanley and McNeil, 1982) represents an estimate of the variability of the model, or a measurement of its imprecision: the lower the Standard Error, the more the sample is representative of the population.

The formula used in quantification of the Standard Error is the following:

$$SE(\hat{\theta})=\sqrt{\frac{\hat{\theta}(1-\hat{\theta})+(n_F-1)(Q_1-\hat{\theta}^2)+(n_N-1)(Q_2-\hat{\theta}^2)}{n_F n_N}} \quad (1)$$

where:

$Q_1 = \hat{\theta}/(2-\hat{\theta})$ = Theta;

n_F = number of failed companies;

n_N = number of non-failed companies;

Q_1 = estimation of probability that two companies drawn at random from the group of failed companies both have higher values in terms of probability of failure than a company drawn at random from the group of non-failed companies.

The significance in statistical terms of the Thetas estimated for each model is tested by means of the Z test (Jackson and Wood, 2013; Barniv, Agarwal and Leach, 2002).

The test is the following:

$$z = \frac{\hat{\theta} - 0.5}{SE(\hat{\theta})} \quad (2)$$

where:

$\hat{\theta}$ = area below the ROC Curve;

$SE(\hat{\theta})$= standard error of estimate/

Another tool for evaluating the effectiveness of the models is the Accuracy Ratio (AR), calculated in relation to the study by Engelmann, Hayden and Tasche (2003) as $AR=2(\hat{\theta} - 0.5)$. The perfect model gives an AR equal to 1.

Having evaluated the accuracy, the percentages of correct classification of the non-failed companies and the failed companies are drawn up applying the models, taking as cut-off point those used by the original authors (Table 5). For this purpose, a contingency table was used (Table 4), which allows identification of type I and II errors:

Table 4. Type of errors

Prediction of result	Values observed	
	Non-failed	Failed
Non-failed	TP	FP
Failed	FN	TN

Source: Personal processing

where:

TP (True Positive): a non-failed company is correctly classified;

FP (False Positive): represents a first type error, a failed company is erroneously classified by the model as non-failed;

FN (False Negative): represents a second type error, a non-failed company is erroneously classified by the model as failed;

TN (True Negative): a failed company is correctly classified.

Table 5. Cut-off points

Models	Non-failed companies	Failed companies	Grey area
Altman (1983)	Z- Score > 2.9	Z- Score < 1.23	2.13 < Z-Score < 2.9
Taffler (2007)	Z- Score > 0	Z- Score < 0	
Ohlson (1980)	Probability < 0.5	Probability > 0.5	

Source: Personal processing

Second phase "Re-estimation of company insolvency prediction models and verification of their effectiveness"

The second part of the research entails re-estimation of both the weights of the variables of the individual models and of the cut-off point. The models are estimated using Logit analysis as the statistical technique. This choice was considered appropriate, since:

- Logit analysis does not require the persistence of the following conditions: the multivariate normal distribution of the variables forming part of the model; the equivalence of the variance and covariance matrices of the variables for the non-failed and failed companies;

- there is an absence of significant differences in the effectiveness of the models constructed by the same variables, the weights of which are determined following the multivariate discriminant analysis and the Logit analysis. In other words, the effectiveness of the Altman model (re-estimated using multivariate discriminant analysis as the statistical technique for redetermination of the weights) is very similar to the effectiveness of the same Altman model re-estimated using Logit analysis as the statistical technique for redetermination of the weights (Altman et al. 2014).

However, also the Logit models are characterised by drawbacks concerning the presence of a series of phenomena that can distort the validity of the results obtained (Balcaen & Ooghe, 2004). In particular, the phenomena are characterised by:

- multicollinearity[1], which is not easy to avoid since the financial ratios are correlated with one another (Tucker, 1996);

1 Multicollinearity is a statistical term used to describe situations in which the independent variables, i.e. the variables used in the model, are highly correlated with one another. In these cases, several variables give the same information and the model is not able to determine their contribution to explanation of the phenomenon in question, consequently providing unreliable parameters (Doumpos & Zopoudinis, 1999; Joos et al., 1998a; Ooghe et al., 1993; Ooghe et al., 1994a).

- "extreme non-normality" of the data, since the distribution of the values of a given indicator is very far from a normal distribution (non-normality is not a problem for the Logit models, but becomes a problem when the distribution is characterised by a marked non-normality, a distribution very far from the normal distribution). In these cases a transformation of the data is advisable to improve the normality of the data (McLeay & Omar, 2000);

- outliers and missing values, making revisitation of the sample necessary, i.e. the outliers and missing values must be eliminated with the appropriate techniques described in the statistical literature (Joos et al., 1998).

In order to make the estimate sample reliable, the estimate of the models via the Logit analysis required the identification of the extreme values (outliers) and the cases in which the individual variables are markedly non-normal. In the case of the outliers, after their identification, the Winsorizing method was followed, while the variables characterised by the presence of marked non-normality were transformed following the approach of Box & Cox. Subsequently, the parameters of the model were estimated using the statistical software Gretl.

In the second phase, two different methods were used to re-estimate the models:

a) method 1: aims to create re-estimated models that return as output the probability of default at 4 years, 3 years and 2 years. In this case, the re-estimated models at 4 years, 3 years and 2 years are characterised by different parameters for each year. This is the method used by Ohlson (1980);

b) method 2: aims to create re-estimated models that return as output the probability of default within the time horizon of 4 years. The model used is unique and is applied to different years to test its predictive capacity in the long term; from an *ex ante* viewpoint, however, it does not provide an estimate of the time horizon within which the event occurs. This is the method used by Altman (1983) and Taffler (1984).

The models estimated as above are first applied to the estimation reference samples, corresponding to which the cut-off point is calculated[2]. Subsequently, they are evaluated on the sample of companies used, to evaluate the predictive effectiveness on the sample on which the original models are also tested.

Third phase "Comparison of effectiveness of the re-estimated models vis-à-vis the original ones"

The effectiveness of the re-estimated models compared to the original ones was assessed using the Roc Curve. In particular, the significance of the differences encountered between the models is tested via the use of statistical tests.

The test implemented (Hanley & McNeil, 1983) has the following form:

$$test\ t = \frac{Theta_1 - Theta_2}{\sqrt{\mathrm{SETheta_1}^2 + \mathrm{SETheta_2}^2 - r * \mathrm{SETheta_1} * \mathrm{SETheta_2}}} \quad (3)$$

where:

Theta = area below the ROC curve;

SETheta = standard error of the area below the ROC curve;

r = correlation between the two ROC areas tested.

The correlation between the ROC Curves is indicated by r, determined following the formulation of Hanley & McNeil (1983).

4. FINDINGS AND DISCUSSION

The findings are illustrated below, discussing the individual phases and objectives of the research.

First phase – Verification of effectiveness of the original company insolvency prediction models

The objective of the first phase of the research is to test the degree of effectiveness of the company insolvency prediction models developed in the original version of the authors, applying them to the sample identified in this study. In order to perform a comparative analysis, the T test is used to investigate (Table 6):

- the differences that emerged in the Theta of the models in different years;

- the differences that emerged in the Theta of the different models.

Table 6. Comparison of effectiveness of the different models

Model	T test		Model	T test		
	2-3 years	3-4 years		2 years	3 years	4 years
Altman model	4.938	3.590	Altman - Taffler	7.343	8.639	6.639
Taffler model	2.536	2.096	Altman - Ohlson	6.702	4.858	3.201
Ohlson model	6.375	1.892	Ohlson - Taffler	-0.569	-4.668	-4.030

Note: The values in the reference table were calculated using the results illustrated in the appendix in Panel A table a1

The results of the tests conducted enable us to affirm that, at a significance level α = 0.05, the models show an increase in prediction effectiveness the nearer the year of manifestation of the company insolvency, with the exception of the Ohlson model which, in the 3 and 4 year prediction, highlights a statistically equivalent effectiveness. These results are confirmed also at graphic level, see figure a1 in Panel A illustrated in the appendix.

The Altman model is the one that shows the greatest discriminant capacity. In general, the discriminant analysis models, i.e. Altman (1983) and Taffler (1983), have greater effectiveness in the prediction of company insolvency than the Logit model of Ohlson (1980) in the 3 and 4 year prediction. In the 2 year insolvency prediction, the effectiveness of the Logit model of Ohlson (1980) increases significantly compared to the same at 4 and 3 years and is equivalent to the performance of the Taffler model. The Altman model is considered

2 The cut-off point is calculated, following Ohlson, as the point that minimises the overall classification error in the construction sample. In particular, initially attributing an equal weight to both errors (50% and 50%) and then attributing a greater weight to the first type error (67% e 33%).

more performing than the other two models examined in this research.

Evaluating the models via the use of different cut-off points, it emerged that the first and second type errors decrease as the insolvency event approaches, therefore the probability of default assigned to the failed companies increases and the probability of default assigned to the non-failed companies decreases as the evaluation time horizon is reduced (Panel A tables a2, a3 and a4 of the appendix). It can also be affirmed that the cut-off points selected by the authors are not the ones that minimise the overall prediction error (1st type error + 2nd type error). Observing the various models, it is deduced that at the cut-off points selected by the authors, the Ohlson model (2 year prediction) shows more balanced first and second type errors; in addition, at the cut-off points that minimise the error, the Altman model is the one with the lowest error. In general, the Altman model attributes to the companies a lower probability of failure than the Taffler and Ohlson models, whereas the Taffler model is the one that attributes to the companies a significant probability of failure (Table 7).

Table 7. First and second type errors of the models

	Original cut-off points				Cut-off points with minimum error			
	Second Type Error		First Type Error		Second Type Error		First Type Error	
	No.	%	No.	%	No.	%	No.	%
4 year prediction								
Altman model	23,365	83.50	6	1.26	4,605	26.39	101	21.13
Taffler model	13,473	48.15	54	11.30	9,354	33.43	111	23.22
Ohlson model	7,136	25.50	225	47.07	11,819	42.24	124	25.94
3 year prediction								
Altman model	23,062	82.42	8	1.67	4,466	20.76	81	16.95
Taffler model	13,700	48.96	48	8.79	6,523	23.31	118	24.69
Ohlson model	6,884	24.60	277	42.05	12,650	45.21	90	18.83
2 year prediction								
Altman model	23,217	82.97	5	1.05	3,896	13.92	71	14.85
Taffler model	13,524	48.33	29	6.07	3,354	11.99	112	23.43
Ohlson model	7,116	25.43	125	26.15	8,113	21.76	104	28.99

Second phase - "Re-estimation of company insolvency prediction models and verification of their effectiveness"

The objective of the second phase of the research is re-estimation of the models, aimed at increasing their effectiveness with reference to the sample of Italian companies.

In particular, the two methods illustrated in the methodology were used (method 1, method 2).

In order to perform a comparative analysis, the T test was used to investigate the performance of the adapted models compared to the original models (Table 8).

Table 8. Comparison of effectiveness of the different models

Model for estimation of PD within 4 years	T test			Model for estimation of PD within 2, 3, 4 years	T test		
	2 years	3 years	4 years		2 years	3 years	4 years
Altman -Altman New	-0.436	-0.483	-0.406	Altman -Altman New	1.080	-0.281	-0.696
Taffler - Taffler New	-4.395	-1.578	-0.318	Taffler - Taffler New	-.211	-1.722	-0.188
Ohlson - Ohlson New	0.840	-0.269	-0.314	Ohlson - Ohlson New	-4.785	-6.207	-2.667

Note: The values in the reference table were calculated using the results illustrated in the appendix in Panel B tables b1, b3, b5, b7, b9 and b11

Method 1.

With reference to the adapted Altman model for estimation of the probability at 4 years, 3 years and 2 years, it is observed that, with the exception of the 2 year prediction, the new models have a higher Theta than the original model. However, in all three cases, the differences between the Thetas are statistically non-significant at a significance level of 0.05, indicating that the effectiveness of the re-estimated and original models is substantially equivalent. For the Taffler model, it is observed that the effectiveness with respect to the original model increases significantly in the 2-year prediction, whereas it remains unchanged in the 3 and 4 year prediction. With reference to the adapted Ohlson model for estimation of the probability at 4 years, 3 years and 2 years, it is observed that the new models have a higher Theta than the original model. These differences are significant at a significance level of 0.05, indicating that the new model has a greater predictive effectiveness than the original model.

The same results are confirmed if we compare the first type and second type errors of the original models with those that occurred in the re-estimated models (Table 9).

Table 9. Comparison of first type and second type errors of the models re-estimated according to method 1 with the original models

	Original cut-off points				Cut-off points with minimum error				Cut-off points with minimum error in re-estimated model			
	Second Type Error		First Type Error		Second Type Error		First Type Error		Second Type Error		First Type Error	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
4 year prediction												
Altman model	23,365	83.50	6	1.26	7,384	26.39	101	21.13	5,549	19.83	127	26.57
Taffler model	13,473	48.15	54	11.30	9,354	33.43	111	23.22	7,572	27.06	143	29.92
Ohlson model	7,136	25.50	225	47.07	11,819	42.24	124	25.94	10,902	38.96	81	16.95
3 year prediction												
Altman model	23,062	82.42	8	1.67	5,809	20.76	81	16.95	5,255	18.78	96	20.08
Taffler model	13,700	48.96	48	8.79	6,523	23.31	118	24.69	8,770	31.34	86	17.99
Ohlson model	6,884	24.60	277	42.05	12,650	45.21	90	18.83	6,268	22.40	133	27.82
2 year prediction												
Altman model	23,217	82.97	5	1.05	3,896	13.92	71	14.85	4,659	16.65	55	11.51
Taffler model	13,524	48.33	29	6.07	3,354	11.99	112	23.43	5,442	19,45	84	17,57
Ohlson model	7,116	25.43	125	26.15	8,113	21.76	104	28.99	5,764	20.60	82	17.15

In general, it is observed that the adapted models exhibit second type errors which are markedly lower than the original models, if compared with the errors shown by the latter at the cut-off points originally highlighted by the authors. However, an increase in first type error is observed for the Altman and Taffler models; for the Ohlson model, on the other hand, a reduction in first type error is highlighted in the prediction of PD over a 2 and 3 year time horizon (Panel B table b2, b6 and b10 of the appendix).

Comparing the original models with the re-estimated models, using the cut-off points that minimise the errors in the reference sample, it is observed that the overall errors committed by the re-estimated models are slightly lower than those emerging from application of the original models at the cut-off point that minimises the error.

Method 2.

With reference to the re-estimated Altman model, although the new model has a higher Theta than the original model, this difference is not significant at a significance level of 0.05: substantially, there is no significant variation in effectiveness between original models and re-estimated models. For the Taffler model, the effectiveness with respect to the original model significantly increases in the 2 year prediction, whereas it remains unchanged in the 3 and 4 year prediction. The results that emerge from Table 9 for the Ohlson model indicate that the adapted model has an effectiveness substantially equivalent to the original model in the prediction of insolvency within the 4 year horizon.

The same results are confirmed if we compare the first type and second type errors of the original models with those that occurred in the re-estimated models (Table 10).

The adapted models highlight second type errors clearly lower than those of the original models, if compared with the errors exhibited by the latter at the cut-off points originally highlighted by the authors. However, an increase in first type error is observed (Panel B tables b4, b8 and b12 of the appendix).

Comparing the originals models with the re-estimated models and using the cut-off points that minimise the errors in the reference sample, the overall errors committed by the adapted models are slightly lower than those emerging from application of the original models at the cut-off point that minimises the error.

To conclude, the new re-estimated models formulated for estimation of the probability of failure at 2, 3 and 4 years have an effectiveness better than or equal to the original models. The model that improves most is the Ohlson model; however, the effectiveness of the latter is lower than the Altman model, which is the best performing one.

In addition, the new re-estimated models determine the probability of failure of a company over a horizon of 4, 3 and 2 years. This aspect does not emerge from the original models; in fact, Altman (1983) and Taffler (1984) do not determine the probability of failure of a company, whereas Ohlson (1980) determines the probability of failure of a company only up to the two years prior to manifestation of the crisis.

Table 10. Comparison of first type and second type errors of the models re-estimated according to method 2 with the original models

	Original cut-off points				Cut-off points with minimum error				Cut-off points with minimum error in re-estimated model			
	Second Type Error		First Type Error		Second Type Error		First Type Error		Second Type Error		First Type Error	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
4 year prediction												
Altman model	23,365	83.50	6	1.26	7,384	26.39	101	21.13	5,188	18,54	125	26.15
Taffler model	13,473	48.15	54	11.30	9,354	33.43	111	23.22	7,600	27.16	140	29.29
Ohlson model	7,136	25.50	225	47.07	11,819	42.24	124	25.94	8,260	29.52	187	39.12
3 year prediction												
Altman model	23,062	82.42	8	1.67	5,809	20.76	81	16.95	5,042	18.02	88	18.41
Taffler model	13,700	48.96	48	8.79	6,523	23.31	118	24.69	7,966	28.47	99	20.71
Ohlson model	6,884	24.60	277	42.05	12,650	45.21	90	18.83	7,390	26.41	179	37.45
2 year prediction												
Altman model	23,217	82.97	5	1.05	3,896	13.92	71	14.85	5,683	20.31	36	7.53
Taffler model	13,524	48.33	29	6.07	3,354	11.99	112	23.43	8,260	29.52	52	10,88
Ohlson model	7,116	25.43	125	26.15	8,113	21.76	104	28.99	4,029	14.40	165	34.52

5. CONCLUSIONS, IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH

The research has several objectives: firstly, to test the degree of effectiveness of the insolvency prediction models most widely used in the literature, including recent works (Jackson and Wood, 2013), with reference to Italian manufacturing companies; secondly, to modify the insolvency prediction models selected with the aim of identifying a company insolvency "alert model" which can be used by the various stakeholders; lastly, to compare the effectiveness of the re-estimated models with the original models.

The empirical analysis highlighted that the original models of Altman (1983) and Taffler (1984) have a high percentage of effectiveness in identification of the failed companies, but are characterised by the following aspects:

- Altman (1983) highlights a high second type error, if one single cut-off point is assumed[3]. In fact, a significant number of non-failed companies are identified as failed;
- according to Taffler (1984), one non-failed company out of two is considered a failed company.

These results suggest that, if the models are used to take decisions (for example, the granting of a loan by a bank), they would entail a reduction in the number of "potentially" reliable companies and, conversely, a high safety level concerning the probable lack of insolvency on the part of the companies granted the loan. The models therefore exhibit a very prudent and conservative approach in terms of their predictions.

With reference to the Ohlson model (1980) in the prediction of insolvencies at 2 years from the year of manifestation of the crisis, the error committed in identification of a non-failed company is roughly similar to the error committed in identification of a failed company. Furthermore, correct identification of the non-failed companies is higher than the models previously analysed, with a lower ability to predict the defaults (high first type error).

The results obtained from the empirical investigation suggest that the original models are not suited to the Italian economic context; in fact, the overall prediction error of said models significantly decreases if the cut-off point is varied with respect to the one used in the original model[4]. This may be due to different reasons:

- firstly, the original models were created in a period characterised by a different economic context from the current one, in terms of both number of companies and characteristics of their financial structure;
- the Italian economic context differs from the context (British and American) on which the original models were defined. The sample used by this study, representing the entire population of Italian manufacturing companies having the requirements illustrated in par. 3.1, is composed mostly of small to medium-sized enterprises. In fact, 99.9% of the companies in the sample have a turnover lower than 50 million Euro and 61.5% have a turnover lower than 5 million Euro.

The original models of the authors are therefore significantly improved by applying to them (with the original weights of the variables) cut-off points different from the original ones recalculated with reference to the Italian context.

Lastly, after re-estimation of the above models, a slight improvement emerges in the percentages of correct prediction of the crisis. The re-estimation of the models was obtained by calculating new weights of the variables and applying the same models to the new cut-off points.

The improvement obtained with respect to the original models nevertheless still highlights the

3 Between the two cut-off points established by the original model, 2.91 was prudently chosen to make it comparable with the others.

4 The new cut-off points are calculated with reference to the sample of Italian companies used in this study.

existence of significant errors concerning the ability to correctly classify the companies among the "non-failed companies" and the "failed" companies. It is therefore necessary to include new variables in the models or modify some of those already present.

This study makes a series of contributions to the literature:

- firstly, the effectiveness of the company insolvency prediction models is evaluated in the Italian economic context of the manufacturing companies, which have been badly affected by the crisis; therefore, it constitutes an important field of observation;

- secondly, the study highlighted a significant improvement in the models with respect to the original versions;

- thirdly, the new re-estimated models also determine the probability of failure of a company over a horizon of 4, 3 and 2 years. This aspect does not emerge from the original models: Altman (1983) and Taffler (1984) do not determine the probability of failure of a company, while Ohlson (1980) determines the probability of failure of a company only as far as the two years preceding manifestation of the crisis;

- this study has not concentrated on the effectiveness of the company insolvency prediction models one year prior to manifestation of the crisis. In the opinion of the authors, this prediction is not useful as the time span is too short to make a series of useful corrective interventions aimed at company turnaround. Consequently, an alert model one year prior to manifestation of the crisis would have no significance;

- lastly, interpreting this study in the context of the Stakeholder Theory (Freeman, 1984; Donaldson and Preston, 1995), the different stakeholder categories can better understand the company situation, i.e. to what extent the company is likely to undergo a crisis. In fact, each of these parties, in various ways, directly or indirectly undergoes the effects of the global economic crisis: therefore, the study of company insolvency and the possibility of forecasting it in advance to avoid worse consequences are of interest to civil society in general, i.e. the context in which the company operates.

The study is characterised by a series of theoretical and practical implications. The theoretical implications are also connected with the possible developments of the research via an "adaptation" of the traditional models (discriminant, logit and regressive) with some variables able to significantly contribute to improvement of their performances. This aspect derives from the awareness that, with a view to improving the first and second type errors, one choice could be that of reformulating the variables of the models, adding new variables or removing some of those already present. This activity will be the subject of future research. As regards "adaptation" of the traditional models (discriminant, logit and regressive), the work programme is to add/modify some variables in the original configuration of the models. The objective is to test the influence of some non-accounting variables (quantitative or qualitative) on the performances of the models. The non-accounting variables considered could be those that are structured and available to parties outside the companies (such as the macroeconomic variables, the sector information, etc.). Other variables could be of a non-structured type and typically not known to parties outside the company (such as the management quality, the presence of independent directors, the presence of management control systems, the R&D activity, etc.).

The practical implications of the research derive from the fact that the ability to effectively predict the manifestation of a situation of company insolvency has emphasised the role of the prediction models for the parties who, in various ways, have or will have expectations in terms of the company's results (banks, suppliers of goods and services and other stakeholders). The new characteristics of company insolvency, on the one hand, and the general ineffectiveness of the prediction models (especially in relation to second type errors), on the other, are stimulating the scholars to identify a series of correctives to the traditional models in order to improve their performance and to create new alert model.

The study has a number of limitations, namely:

- the difficulty of accurately identifying the companies in financial difficulty. The failed companies are only a part of the companies in financial difficulty. While the failed companies (or those that resort to procedures established by the Bankruptcy Law) appear in official and public documents (registration with the Chamber of Commerce), the other companies in financial difficulty are not recorded in any official source. For this reason the number of companies in financial difficulty is certainly higher than the number of failed companies;

- the number of failed companies has been considerably reduced due to non-availability of the financial statements for all the years involved in the analysis.

REFERENCES

1. Agarwal, V., & Taffler, R. J. (2007). Twenty-five years of the Taffler z-score model: Does it really have predictive ability? Accounting and Business Research, 37 (4), 285-300.
2. Agarwal, V., & Taffler, R. J. (2008). Comparing the performance of market-based and accounting-based bankruptcy. Journal of Banking and Finance, 32 (8), 1541-1551.
3. Alberici, A. (1975). Analisi dei bilanci e previsione delle insolvence. Milano: ISEDI.
4. Alfaro, E., García, N., Gámez, M., Elizondo, D. (2008). Bankruptcy forecasting: An empirical comparison of AdaBoost and neural networks. Decision Support Systems, 45(1), 110-122.
5. Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. Journal of Finance, 23(4), 589-609.
6. Altman, E. I. (1983). Corporate financial distress: A complete guide to predicting avoiding and dealing with bankruptcy. New York: John Wiley and Sons.
7. Altman, E. I., Danovi, A., Falini, A. (2013). Z-Score Models' application to Italian companies subject to extraordinary administration. Journal of Applied Finance, 23(1), 128-137.
8. Altman, E. I., Haldeman, R. C., Narayanan, P. (1977). Zeta analysis: a new model to identify bankruptcy risk of corporations. Journal of Banking and Finance, 1(1), 25-54.

9. Altman, E. I., Sabato, G. (2007). Modelling Credit Risk for SMEs: Evidence from the U.S. Market. A Journal Accounting, Finance and Business Studies, 43(3), 332-357.
10. Altman, E. I., Sabato, G., Wilson, N. (2010). The value of non-financial information in small and medium-sized enterprise risk management. The Journal of Credit Risk, 6(2), 1-33.
11. Aziz, A., Emanuel, D. C., & Lawson, G. H. (1988). Bankruptcy prediction – an investigation of cash flow based models. Journal of Management Studies, 25(5), 419-437.
12. Aziz, M., & Dar, H. (2006). Predicting corporate bankruptcy: Where we satnd. Coorporate Governance, 6(1), 18-33.
13. Back, B., Laitinen, T., Sere, K., & Wezel, M. V. (1996). Choosing bankruptcy predictors using discriminant analysis, logit analysis, and genetic algorithms. In Technical Report No. 40. Turku: Turku Centre for Computer Science.
14. Balcaen, S., & Ooghe, H. (2004). 35 years of studies on business failure: an overview of the classic statistical methodologies and their related problems. Working paper, Ghent University, 2004/248.
15. Balcaen, S., & Ooghe, H. (2006). 35 years of studies on business failure: an overview of the classic methodologies and their related problems. The British Accounting Review, 38(1), 69-93.
16. Barniv, R., Agarwal, A., Leach, R. (2002). Predicting bankruptcy resolution. Journal of Business Finance & Accounting, 29(3 & 4), 497-520.
17. Beaver, W. (1966). Financial ratios as predictors of failures. Journal of Accounting Research, 4(3), 71-102.
18. Beaver, W. (1968). Market prices, financial ratios and prediction of failures. Journal of Accounting Research, 6(2), 179-192.
19. Beaver, W. H., McNichols, M., Rhie, J. (2005). Management of the loss reserve accrual and the distribution of earnings in the property-casualty insurance industry. Review of Accounting Studies,10(1), 93-122.
20. Beynon, M. J., Peel, M. J. (2001). Variable precision rough set theory and data discretisation: an application to corporate failure prediction. Omega, 29(6), 561-76.
21. Blum, M. (1974). Failing company discriminant analysis. Journal of Accounting Research, 12(1), 1-25.
22. Booth, P. J. (1983). Decomposition measure and the prediction of financial failure. Journal of Business Finance & Accounting, 10(1), 67-82.
23. Brockman, P., Turtle, H. J. (2003). A barrier option framework for corporate security valuation. Journal of Financial Economics, 67(3), 511-29.
24. Casey, C. J., Bartczak, N. J. (1984). Cash flow – it's not the bottom line. Harvard Business Review, 62(4), 61-66.
25. Charitou, A., Neophytou, E., Charalambous, C. (2004). Predicting corporate failure: empirical evidence for the UK. European Accounting Review, 13(3), 465-497.
26. Christidis, C.Y., Gregory, A. (2010). Some New Models for Financial Distress Prediction in the UK. Centre for Finance and Investment, Discussion Paper no: 10/04.
27. Coats, P. K., Fant, L. F. (1993). Recognizing financial distress patterns using a neural network tool. Financial Management, 22(3), 142-155.
28. Deakin, E. B. (1972). A discriminant analysis of predictors of business failure. Journal of Accounting Research, 10(1), 167-179.
29. Deakin, E. B. (1977). Business failure prediction: an empirical analysis. In E. I. Altman, A.W: Sametz (Eds.). In Financial crises: Institutions and markets in a fragile environment (66-88). New York: John Wiley & Sons.
30. Dimitras, A. I., Zanakis, S. H., Zopounidis, C. (1999). A survey of business failure with an emphasis on prediction methods and industrial applications. European Journal of Operational Research, 90(3), 487-513.
31. Donaldson, T., Preston, L. E. (1995). The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications. Academy of Management Review, 20(1), 65-91.
32. Edmister, R. O. (1972). An empirical test of financial ratio analysis for small business failure prediction. Journal of Financial and Quantitative Analysis, 7(2), 1477-1493.
33. El Hennawy, R. H., Morris, R. C. (1983). The significance of base year in developing failure prediction models. Journal of Business Finance and Accounting, 10(2), 209-223.
34. Engelmann, B., Boral, A., & Tasche, D. (2003). Testing rating accuracy. Risk, 16(1), 82-86.
35. Falkestein, E., Boral, A., Carty, L. (2000). RiskCalc for private companies: Moody's default model. Moody's KMV.
36. Fisher, R. A. (1963). The Use of Multiple Measurements in Taxonomic Problems. Annals of Eugenics, 7(2), 179-188.
37. Foreman, R. D. (2002). A logistic analysis of bankruptcy within the US local telecommunications industry. Journal of Economics and Business, 6(1), 1-32.
38. Forestieri, G. (1977). La previsone delle insolvenze aziendali. Milano: Giuffrè Editore.
39. Freeman, R. E. (2010). Strategic Management A Stakeholder Approach. Cambrige: Cambrige University press.
40. Frydman, H., Altman, E. I., Kao, D. (1985). Introducing recursive partitioning for financial classification: the case of financial distress. The Journal of Finance, 40(1), 269-291.
41. Gombola, M. J., Haskins, M. E., Ketz, J. E., & Williams, D. D. (1987). Cash flow in bankruptcy prediction. Financial Management, 16(4), 55-65.
42. Gönen, M. (2006). Receiver operating characteristic (ROC) curves. In proceedings of the SAS users Group international 31 conference. San Francisco, CA: Available on the internet at http://www2.sas.com/proceedings/sugi31/210-31.pdf.
43. Hanley, J., & McNeil, B. (1982). The meaning and use of the area under a receiver operating characteristic (ROC) curve. Radiology, 143(1), 29-36.
44. Hanley, J., & McNeil, B. (1983). A Method of Comparing the Areas under Receiver Operating Characteristic Curves Derived from the Same Cases. Radiology, 148(3), 839-843.
45. Hernandez Tinoco, M., Wilson, N. (2013). Financial distress and bankruptcy prediction among listed companies using accounting, market and macroeconomic variables. International Review of Financial Analysis, 30, 394-419
46. Jackson, R., Wood, A. (2013). The performance of insolvency prediction and credit risk models in the UK: A comperative study. The British Accounting Review, 45(3), 183-202.
47. Jo, H., Han, I., Lee, H. (1997). Bankruptcy prediction using casebased reasoning, neural networks, and discriminant analysis. Expert Systems with Applications, 13(2), 97-108.

48. Joos, P., Vanhoof, K., Ooghe, H., Sierens, N. (1998), Credit classification: A comparison of logit models and decision trees, Proceedings Notes of the Workshop on Application of Machine Learning and Data 49 Mining in Finance, 10th European Conference on Machine Learning, April 24, Chemnitz (Germany), 59-72.
49. Kahya, E., Theodossiou, P. (1999). Predicting corporate financial distress: a time-series CUSUM methodology, Review of Quantitative Finance and Accounting. Review of Quantitative Finance and Accounting, 13(4), 323-345.
50. Keasey, K., McGuinness, P. (1990). The failure of UK industrial firms for the period 1976-1984: logistic analysis and entropy measures. Journal of Business Finance and Accounting, 17(1), 119-35.
51. Laitinen, E. K., Laitinen, T. (1998). Cash management behaviour and failure prediction. Journal of Business Finance and Accounting, 25(7 & 8), 893-919.
52. Libby, R. (1975). Accounting ratios and the prediction of failure: some behavioural evidence. Journal of Accounting Research, 13(1), 150-161.
53. Lin, L., Piesse, J. (2001). The Identification of Corporate Distress: A Conditional Probability Analysis Approach. Documents, Department of Management, Birbeck, University of London, London.
54. Lincoln, M. (1984). An empirical study of the usefulness of accounting ratios to describe levels of insolvency risk. Journal of Banking and Finance, 8(2), 321-340.
55. Mantoan, M., Mantovan, P. (1987). Un modello di previsione del dissesto s'impresa. Rivista Dottori Commercialisti,. Rivista Dottori Commercialisti, 135-159.
56. McGurr, P. T., DeVaney, S. A. (1998). Predicting business failure of retail firms: an analysis using mixed industry models. Journal of Business Research, 43(3), 169-176.
57. McLeay, S., Omar, A., (2000). The sensitivity of prediction models to the non-normality of bounded an unbounded financial ratios. British Accounting Review, 32(2), pp. 213-230.
58. Moyer, R. C. (1977). Forecasting financial failure: a re-examination. Financial Management, 6(1), 11-17.
59. Neophytou, E., Charitou, A., Charalambous, C. (2001). Predicting corporate failure: emprical evidence for the UK. School of Management, University of Southampton, Southampton.
60. Ohlson, J. (1980). Financial ratios and the probabilistic prediction of bankruptcy. Journal of Accounting Research, 18(1), 109-131.
61. Piesse, J., Wood, D. (1992). Issues in assessing MDA models of corporate failure: a research note. British Accounting Review, 24(1), 33-42.
62. Platt, H. D., Platt, M. B. (1990). Development of a class of stable predictive variables: the case of bankruptcy prediction. Journal of Banking, Finance and Accounting, 17(1), 31-51.
63. Pompe, P., Feelders, A. (1997). Using machine learning, neural networks, and statistics to predict corporate bankruptcy. Microcomputers in Civil Engineering, 12(4), 267-276.
64. Reisz, A., Purlich, C. (2007). A market based framework for bankruptcy prediction. Journal of Financial Stability, 3(2), 85-131.
65. Salchenberger, L. M., Cinar, E. M., Lash, N. A. (1992). Neural networks: a new tool for predicting thrift failures. Decision Sciences, 23(4), 899-916.
66. Shumway, T. (1999). Forecasting bankruptcy more accurately: A simple hazard model. University of Michigan : Available on the internet at http://www-personal.umich.edu/~shumway/papers.dir/forcbank.pdf.
67. Stein, R. (2007). Benchmarking default prediction models: pitfalls and remedies in model validation. Journal of Risk Model Validation, 1(1), 77-113.
68. Sung, T. K., Chang, N., Lee, G. (1999). Dynamics of modelling in data mining: interpretive approach to bankruptcy prediction. Journal of Management Information Systems, 16(1), 63-85.
69. Taffler, R. J. (1982). Forecasting company failure in the U.K: using discriminant analysis and financial ratio data. Journal of Royal Statistical Sociaty, 145(3), 342-358.
70. Taffler, R. J. (1983). The assessment of company solvency and performance using a statistical model. Accounting and Business Research, 15(52), 295-308.
71. Taffler, R. J., Tisshaw, H. (1977). Going, going, gone – four factors which predict. Accountancy, 88(1003), 50-54.
72. Teodori, C. (1989). Modelli di previsione nell'analisi economico-aziendale. Torino : G. Giappichelli Editore.
73. Theodossiou, P. T. (1991). Alternative models for assessing the financial condition of business in Greece. Journal of Business Finance and Accounting, 18(5), 697-720.
74. Theodossiou, P. T. (1993). Predicting shifts in the mean of a multivariate time series process: an application in predicting business failures. Journal of the American Statistical Association, 88(422), 441-449.
75. Tucker, J. (1996). Neural networks versus logistic regression in financial modelling: a methodological comparison. Paper published in Proceedings of the 1996 World First Online Workshop on Soft Computing (WSC1), Nagoya University, Japan, August 19-30, 1996.
76. Ward, T. J. (1994). An empirical study of the incremental predictive ability of Beaver's naıve operating flow measure using four-state-ordinal models of financial distress. Journal of Business Finance and Accounting, 21(4), 547-561.
77. Westgaard, S., Wijst, N. (2001). Default probabilities in a corporate bank portfolio: a logistic model approach. European Journal of Operational Research, 135(2), 338-349.
78. Yang, Z. R., Platt, M. B., Platt, H. D. (1999). Probabilistic neural networks in bankruptcy prediction. Journal of Business Research, 44(2).
79. Yeh, S.-T. (2002). Using trapezoidal rule for the area under a curve calculation. In proceedings of the SAS users Group international 27 conference. San Francisco, CA: Available on the internet at http://www2.sas.com/proceedings/sugi31/210-31.pdf.
80. Zavgren, C. V. (1985). Assessing the vulnerability to failure of American industrial firms: a logistic analysis. Journal of Banking and Finance, 12(1), 19-45.

APPENDIX

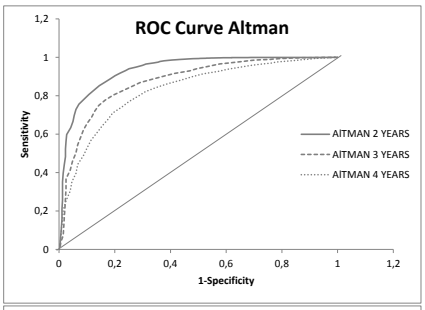
Below, the results are distinguished according to the research objectives that were achieved via the first two phases of the research, while the third phase of the research is included under the discussion.

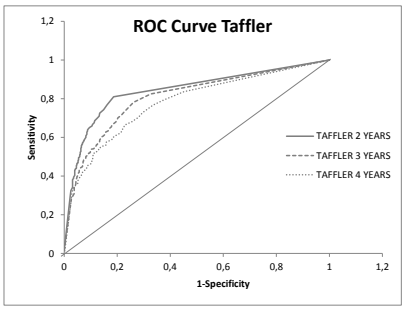
Panel A. Verification of effectiveness of the original company insolvency prediction models

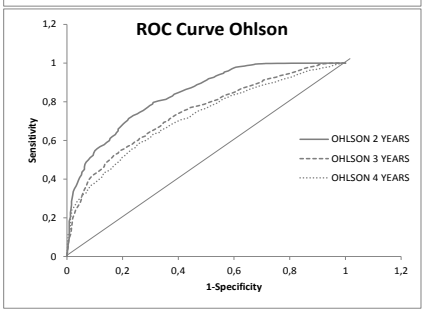
Table A.1. Effectiveness of original models estimated via Theta

Models	Theta	SETheta	Z	AR
Altman 4 year prediction	82.87%	0.012	28.260	0.66
Taffler 4 year prediction	77.92%	0.013	22.154	0.56
Ohlson 4 year prediction	71.39%	0.013	15.957	0.43
Altman 3 year prediction	87.38%	0.010	35.960	0.75
Taffler 3 year prediction	80.83%	0.012	25.533	0.62
Ohlson 3 year prediction	74.22%	0.013	18.475	0.48
Altman 2 year prediction	92.86%	0.008	52.368	0.86
Taffler 2 year prediction	84.28%	0.011	30.364	0.69
Ohlson 2 year prediction	83.47%	0.011	29.135	0.67

Figure A.1. ROC Curve of original models







The results of the application of the original individual prediction models are shown below.

A) Altman model

Table A.2. First and second type errors for the Altman model

	2 year prediction				3 year prediction				4 year prediction			
	Non-Failed		Failed		Non-Failed		Failed		Non-Failed		Failed	
Cut-off	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error
0.05	17.03	82.97%	98.95	1.05%	17.58	82.42%	98.33	1.67%	16.50	83.50%	98.74	1.26%
0.1	39.69	60.31%	98.54	1.46%	41.18	58.82%	96.03	3.97%	39.60	60.40%	93.93	6.07%
0.2	75.59	24.41%	92.89	7.11%	77.74	22.26%	83.47	16.53%	77.02	22.98%	74.90	25.10%
0.3	94.10	5.90%	74.90	25.10%	95.06	4.94%	47.28	52.72%	94.86	5.14%	35.15	64.85%
0,4	98.75	1.25%	57.95	42.05%	99.10	0.90%	23.22	76.78%	99.11	0.89%	9.83	90.17%
0,5	99.67	0.33%	45.19	54.81%	99.73	0.27%	14.02	85.98%	99.77	0.23%	3.77	96.23%
0,6	99.87	0.13%	36.82	63.18%	99.90	0.10%	6.69	93.31%	99.94	0.06%	1.88	98.12%
0,7	99.94	0.06%	28.66	71.34%	99.97	0.03%	3.97	96.03%	99.97	0.03%	1.26	98.74%
0,8	99.96	0.04%	21.13	78.87%	99.98	0.02%	2.30	97.70%	99.99	0.01%	0.84	99.16%
0,9	99.97	0.03%	15.48	84.52%	99.99	0.01%	2.09	97.91%	100.00	0.00%	0.42	99.58%

The percentages of correct prediction and the first and second type errors at the various cut-off points used for construction of the curve are illustrated in the table. The cut-off points analysed vary from 0.1 to 0.9 with step 0.1. They also comprise one of the cut-off points identified by the author, the 2.91 cut-off point, which indicates a probability of default equal to 1/(1+exp(2.9)) = 0.05166.

B) Taffler model

Table A.3. First and second type errors for the Taffler model

	2 year prediction				3 year prediction				4 year prediction			
	Non-Failed		Failed		Non-Failed		Failed		Non-Failed		Failed	
Cut-off	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error
0.1	39.94	60.06%	96.23	3.77%	38.55	61.45%	95.40	4.60%	39.01	60.99%	94.35	5.65%
0.2	43.96	56.04%	95.40	4.60%	42.76	57.24%	94.35	5.65%	43.33	56.67%	92.26	7.74%
0.3	46.79	53.21%	94.77	5.23%	45.91	54.09%	92.89	7.11%	46.69	53.31%	89.75	10.25%
0.4	49.29	50.71%	94.56	5.44%	48.54	51.46%	92.68	7.32%	49.20	50.80%	89.12	10.88%
0.5	51.67	48.33%	93.93	6.07%	51.04	48.96%	91.21	8.79%	51.85	48.15%	88.70	11.30%
0.6	54.22	45.78%	93.72	6.28%	53.63	46.37%	89.75	10.25%	54.50	45.50%	86.40	13.60%
0.7	56.92	43.08%	93.10	6.90%	56.43	43.57%	87.45	12.55%	57.54	42.46%	84.10	15.90%
0.8	60.35	39.65%	91.84	8.16%	60.18	39.82%	85.98	14.02%	61.44	38.56%	79.71	20.29%
0.9	65.87	34.13%	89.54	10.46%	66.27	33.73%	82.01	17.99%	67.51	32.49%	75.31	24.69%

The cut-off point identified by the Author is equal to zero which, converted into probability, corresponds to 0.5 (1/(1+exp(0))=0.5).

C) Ohlson model

Table A.4. First and second type errors for the Ohlson model

	2 year prediction				3 year prediction				4 year prediction			
	Non-Failed		Failed		Non-Failed		Failed		Non-Failed		Failed	
Cut-off	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error
0.1	28.51	71.49%	98.33	1.67%	27.87	72.13%	95.19	4.81%	26.74	73.26%	95.40	4.60%
0.2	43.64	56.36%	94.56	5.44%	43.71	56.29%	88.91	11.09%	41.94	58.06%	85.77	14.23%
0.3	55.73	44.27%	89.12	10.88%	55.73	44.27%	79.29	20.71%	54.29	45.71%	76.78	23.22%
0.4	65.89	34.11%	81.59	18.41%	66.38	33.62%	67.57	32.43%	64.79	35.21%	66.11	33.89%
0.5	74.57	25.43%	73.85	26.15%	75.40	24.60%	57.95	42.05%	74.50	25.50%	52.93	47.07%
0.6	82.97	17.03%	62.13	37.87%	83.60	16.40%	42.68	57.32%	83.32	16.68%	40.17	59.83%
0.7	91.23	8.77%	49.79	50.21%	92.01	7.99%	27.20	72.80%	91.52	8.48%	21.97	78.03%
0.8	97.50	2.50%	39.96	60.04%	98.01	1.99%	12.55	87.45%	97.53	2.47%	7.53	92.47%
0.9	99.65	0.35%	29.92	70.08%	99.82	0.18%	6.07	93.93%	99.84	0.16%	1.46	98.54%

The cut-off point identified by the Author is equal to 0.5.

Panel B. Re-estimation of company insolvency models and verification of their effectiveness

A) Altman model

Table B.1. Effectiveness of the adapted Altman model estimated via Theta following method 1

Models	Theta	SETheta	Z	AR
Altman 4 year prediction training	80.68%	0.012	25.718	0.61
Altman 4 year prediction validation	83.75%	0.011	29.546	0.67
Altman 3 year prediction training	87.39%	0.010	36.441	0.75
Altman 3 year prediction validation	87.70%	0.010	36.636	0.75
Altman 2 year prediction training	91.88%	0.009	48.308	0.84
Altman 2 year prediction validation	91.82%	0.009	48.172	0.84

Table B.2. First and second type errors for the Altman model following method 1

	2 year prediction				3 year prediction				4 year prediction			
	Non-Failed		Failed		Non-Failed		Failed		Non-Failed		Failed	
Cut-off	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error
p. 1	83.35	16.65%	88.49	11.51%	81.22	18.78%	79.92	20.08%	80.17	19.83%	73.43	26.57%
p. 2	72.42	27.58%	93.72	6.28%	60.28	39.72%	92.47	7.53%	58.39	41.61%	88.08	11.92%

The table illustrates the first and second type errors at the point p. 1 which minimizes the overall error (1st type error + 2nd type error) giving equal weight to both the errors. The cut-off point p. 2 corresponds to the point that minimizes the classification error, attributing 2/3 weight to the first type error (i.e. incorrect classification of a failed company) and 1/3 weight to the second type error (i.e. incorrect classification of a non-failed company).

Table B.3. Effectiveness of the adapted Altman model estimated via Theta following method 2

Models	Theta	SETheta	Z	AR
Altman prediction training	87.31%	0.006	62.810	0.75
Altman 2 year prediction validation	93.24%	0.008	54.144	0.86
Altman 3 year prediction validation	87.92%	0.010	37.120	0.76
Altman 4 year prediction validation	83.39%	0.012	29.003	0.67

Table B.4. First and second type errors for the Altman model following method 2

	2 year prediction				3 year prediction				4 year prediction			
	Non-Failed		Failed		Non-Failed		Failed		Non-Failed		Failed	
Cut-off	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error
p. 1	79.69	20.31%	92.47	7.53%	81.98	18.02%	81.59	18.41%	81.46	18.54%	73.85	26.15%
p. 2	65.35	34.65%	96.03	3.97%	67.46	32.54%	89.33	10.67%	66.71	33.29%	84.10	15.90%

B) Taffler model

Table B.5. Effectiveness of adapted Taffler model estimated via Theta following method 1

Models	Theta	SETheta	Z	AR
Taffler 4 year prediction training	81.20%	0.012	25.933	0.62
Taffler 4 year prediction validation	78.22%	0.013	22.489	0.56
Taffler 3 year prediction training	84.48%	0.011	31.054	0.69
Taffler 3 year prediction validation	83.50%	0.011	29.172	0.67
Taffler 2 year prediction training	91.06%	0.009	45.429	0.82
Taffler 2 year prediction validation	90.05%	0.009	42.418	0.80

Table B.6. First and second type errors for the Taffler model following method 1

	2 year prediction				3 year prediction				4 year prediction			
	Non-Failed		Failed		Non-Failed		Failed		Non-Failed		Failed	
Cut-off	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error
p. 1	80.55	19.45%	82.43	17.57%	68.66	31.34%	82.01	17.99%	72.94	27.06%	70.08	29.92%
p. 2	71.96	28.04%	88.08	11.92%	47.88	52.12%	94.77	5.23%	50.43	49.57%	88.28	11.72%

Table B.7. Effectiveness of adapted Taffler model estimated via Theta following method 2

Models	Theta	SETheta	Z	AR
Taffler prediction training	85.36%	0.006	56.353	0.71
Taffler 2 year prediction validation	90.21%	0.009	42.899	0.80
Taffler 3 year prediction validation	83.25%	0.012	28.810	0.67
Taffler 4 year prediction validation	78.44%	0.013	22.729	0.57

Table B.8. First and second type errors for the Taffler model following method 2

	2 year prediction				3 year prediction				4 year prediction			
	Non-Failed		Failed		Non-Failed		Failed		Non-Failed		Failed	
Cut-off	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error
p. 1	70.48	29.52%	89.12	10.88%	71.53	28.47%	79.29	20.71%	72.84	27.16%	70.71	29.29%
p. 2	51.92	48.08%	94.98	5.02%	51.84	48.16%	92.47	7.53%	52.73	47.27%	87.45	12.55%

C) Ohlson model

Table B.9. Effectiveness of adapted Ohlson model estimated via Theta following method 1

Models	Theta	SETheta	Z	AR
Ohlson 4 year prediction training	81.69%	0.012	26.941	0.63
Ohlson 4 year prediction validation	78.60%	0.012	22.902	0.57
Ohlson 3 year prediction training	90.42%	0.009	44.063	0.81
Ohlson 3 year prediction validation	84.12%	0.011	30.120	0.68
Ohlson 2 year prediction training	89.42%	0.010	41.233	0.79
Ohlson 2 year prediction validation	89.91%	0.009	42.024	0.80

Table B.10. First and second type errors for the Ohlson model following method 1

	2 year prediction				3 year prediction				4 year prediction			
	Non-Failed		Failed		Non-Failed		Failed		Non-Failed		Failed	
Cut-off	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error
p. 1	79.40	20.60%	82.85	17.15%	77.60	22.40%	72.18	27.82%	61.04	38.96%	83.05	16.95%
p. 2	68.26	31.74%	90.79	9.21%	73.59	26.41%	77.41	22.59%	50.93	49.07%	89.75	10.25%

Table B.11. Effectiveness of adapted Ohlson model estimated via Theta following method 2

Models	Theta	SETheta	Z	AR
Ohlson prediction training	73.57%	0.008	31.275	0.47
Ohlson 4 year prediction validation	71.93%	0.013	16.422	0.44
Ohlson 3 year prediction validation	74.68%	0.013	18.900	0.49
Ohlson 2 year prediction validation	82.27%	0.012	27.418	0.65

Table B.12. First and second type errors for the Ohlson model following method 2

	2 year prediction				3 year prediction				4 year prediction			
	Non-Failed		Failed		Non-Failed		Failed		Non-Failed		Failed	
Cut-off	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error	% Non-Failed	2nd Type Error	% Failed	1st Type Error
p. 1	85.60	14.40%	65.48	34.52%	73.59	26.41%	62.55	37.45%	70.48	29.52%	60.88	39.12%
p. 2	58.84	41.16%	89.33	10.67%	42.07	57.93%	92.05	7.95%	41.22	58.78%	92.26	7.74%

THE LEVEL OF RISK DISCLOSURE IN LISTED BANKS: EVIDENCE FROM SAUDI ARABIA

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Abstract

This study contributes to the existing risk disclosure literature in emerging economies, in particular Saudi Arabia (SA), by examining the levels of risk disclosure in the annual reports of both Islamic and non-Islamic listed banks. This investigation uses a manual content analysis method to examine all Saudi listed banks from 2009 to 2013. This study also develops two holistic risk disclosure indices to measure the levels of risk disclosure in both Islamic and non-Islamic banks. The empirical analysis shows that Islamic banks report less risk information than non-Islamic banks. However, the analysis also reveals that both Islamic and non-Islamic banks report relatively the same amount of risk information regarding the banks' universal items. Furthermore, the empirical analysis shows that Islamic banks report very low risk disclosure items. The study's findings have practical implications. They inform the regulators about the current level of risk disclosure in all Saudi listed banks (Islamic and non-Islamic). For example, the findings show that Islamic banks report less risk information than their non-Islamic counterparts. The practical implications for managers from these findings are that in order to keep investors satisfied, banks with low levels of risk disclosure should enhance their reporting practices. This will help investors when making investment decisions. To the best of the researchers' knowledge, no prior research has previously been conducted on the levels of risk disclosure in Saudi Arabian listed banks. Therefore, this is the first study to examine the levels of risk disclosure in the context of Saudi Arabia.

Keywords: Banks, Saudi Arabia, Risk Disclosure Levels, Universal and Islamic Risk Disclosure Indices

1. INTRODUCTION

Recently, considerable attention has been paid to investigating and improving corporate risk disclosure (CRD) (Oliveira et al., 2013). The goal of a great number of companies is to disclose sufficient information in their annual reports to satisfy their various shareholders' needs. However, there is a developing debate on the inadequacy of risk disclosure and the lack of full transparency from companies in this respect (Oliveira et al., 2011a; 2013). There have been demands for even greater disclosure to reduce asymmetries of access to corporate information and ensure shareholders are fully able to assess information on a company's performance (Oliveira et al., 2013). Risk disclosure is one aspect of these disclosure demands. Shareholders have become more interested in risk profiles to better understand the risks a company faces and how the managers are dealing with those risks as well as to improve the measurement and disclosure of risk-related matters (Beretta and Bozzolan, 2004; Konishi and Mohobbot, 2007; Oliveira et al., 2013).

To date, there has been an inadequate amount of research on corporate risk disclosures (Beasley et al., 2005; Lajili and Zeghal, 2005; Lajili, 2009). However, this lack of research is even greater in developing countries since all of the risk disclosure investigations have been restricted to the developed world, for example, German, Dutch and Anglo-Saxon countries (see Rajgopal, 1999; Linsmeier et al., 2002; Jorion, 2002; Solomon et al., 2000; Dhanani, 2003; Lajili and Zeghal, 2005; Linsley, Shrives and Crumpton, 2006; Linsley and Lawrence, 2007; Abraham and Cox, 2007; Deumes and Knechel, 2008; Iatridis, 2008; Lajili, 2009; Elshandidy et al., 2013) and Europe and Latin America (see Beretta and Bozzolan, 2004; Thuelin, Henneron and Touron, 2006; Lopes and Rodrigues, 2007; Oliveira, Rodrigues and Craig, 2011; 2013; Madrigal et al., 2012; Miihkinen, 2013; Maffei et al., 2014). Notwithstanding the work of Amran et al. (2009), Mokhtar and Melett (2013), Elkelish and Hassan (2014) Hassan (2009; 2014) and Al-Shammari (2014), who investigated the determinants of risk disclosure in the UAE and Kuwait, very little attention has been given to the risk reporting practices of publicly listed banks in emerging economies. Therefore, little is known about the CRD in Arab countries in general and Saudi in particular. This study seeks to investigate the levels of risk disclosure in Saudi listed banks in an attempt to fill the gap.

As discussed above, most previous risk disclosure work has concentrated on developed economies. However, it would be beneficial to investigate risk disclosure practices in a developing economy since developing markets have larger behavioural variations, and thus any research on them would contribute to the disclosure literature. Developed economies are efficient, have greater compliance, robust regulatory structures, developed corporate governance structures and financial reporting systems. Conversely, developing markets

are less efficient and suffer from a lack of compliance, regulations, enforcement and transparency (Richardson and Welker, 2001). However, this research aims to contribute to the existing literature and fill the gap by examining the extent of risk disclosure in a sample of Saudi listed banks in the context of an emerging economy, Saudi Arabia. Furthermore, what makes this research even more interesting is that Saudi Arabia has a secretive culture, where corporations release little information regarding their business affairs and risk disclosures (Roberts and Kamla, 2010).

Saudi Arabia is the focus of this study because of its unique socio-economic context. Firstly, Saudi Arabia is the largest emerging capital market that adopts an open economic philosophy based on the market economy and liberalization of trade (AMF, 2013). Secondly, the Saudi government has initiated several far-reaching reforms at the Saudi Stock Exchange (Tadawal) to mobilize domestic savings and attract foreign capital investment. These measures include the privatization of state corporations. Thirdly, Saudi Arabia has become one of the largest emerging economies in the world, having the largest stock market in the Middle East (Piesse *et al.,* 2012). Also, the Saudi stock market is now the largest in the Arab world as far as capitalization is concerned and is becoming an important capital market in the region. Fourthly, compared to other countries with advanced capital markets, the Saudi accountancy profession is lagging behind in terms of offering professional certificates. Finally, the Saudi regulatory framework incorporates different legislation that requires the disclosure of risk related information in the corporations' annual reports. All the above reasons make investigating the extent of risk disclosure in Saudi Arabia an important issue.

Furthermore, this study makes some important contributions to the field. Firstly, it contributes to the understanding of the nature of risk disclosure in Saudi Arabia. Secondly, it contributes to existing risk reporting literature by being the first study to investigate the levels of risk disclosure in Saudi listed banks. Thirdly, it contributes to the literature on risk disclosure by investigating the differences between the risk disclosure practices of Islamic and non-Islamic banks in a rapidly developing emerging market.

This paper is organized as follows: section 2 describes risk disclosure in Saudi Arabia; section 3 discusses the theoretical framework; section 4 reviews previous literature on the quantity of risk disclosure; section 5 discusses the methodology, criteria for the selection of the sample banks, the employment of annual reports and the data collection procedure; section 6 presents and analyses the empirical findings; and section 7 outlines the conclusion, limitations and further research.

2. RISK DISCLOSURE IN SAUDI ARABIA

Financial reporting regulations in Saudi Arabia are created and managed by the government. They focus on protecting investors and other users of financial reports. The main bodies issuing rules are the Ministry of Commerce and Industry, the Capital Market Authority (CMA), the Saudi Stock Exchange (Tadawul), the Saudi Arabian Monetary Agency (SAMA) and Companies Law (1965). The latter are considered to be the main bodies monitoring publicly traded Saudi companies. Regulating, supervising and registering are some of the most important responsibilities of the above-mentioned bodies, which ensure that Saudi companies comply with national regulations. Moreover, the Ministry of Commerce and Industry indirectly performs a supervisory role over many monitoring devices, such as the Saudi Capital Market Authority (CMA), the Saudi Stock Exchange and the Saudi Arabian Monetary Agency (SAMA).

Furthermore, the role of the CMA is to regulate and develop Saudi companies by providing appropriate rules and regulations that contribute to increasing investment and enhancing transparency and disclosure standards as well as protecting investors and dealers from illegal activities in the market (CMA, 2007). Regulations on transparency and disclosure are the most important to have been issued by the Capital Market Authority.

Saudi Arabia has become one of the largest emerging economies in the world, and it has the largest stock market in the Middle East (Piesse et al., 2012). Also, the Saudi stock market is now the largest in the Arab world as far as capitalization is concerned, and Saudi Capital Market growth between 1996 and 2005 was high, with a huge increase in the number of transactions, volume and value trading. For example, listed firms increased in number from 77 in 2005 to 145 in December 2010, with a market capitalization of about $353bn, representing nearly 44% of the total Arab stock market capitalization (SFG, 2009; Hearn et al., 2011; Tadawul, 2012). Accordingly, the Saudi market may not be active in terms of corporate risk disclosure and may suffer from greater information deficits in comparison with established markets, such as the US, the UK and Europe. Although the Saudi stock market is very large compared to the markets of other developing countries, recent studies have found that, like those of most developing countries, it is not efficient (Dahel, 1999; Onour, 2004).

This study looks at Saudi Arabia because very little is known about the financial risk reporting in this country. Some cultural characteristics of Saudi Arabia, such as the strong hierarchical social structure, the importance of kinship and personal relationships, religion, the importance of professionalism, accountability and trust, and the nature of some of its socio-economic institutions, are similar to other developing countries and can provide insights into those countries that share similar characteristics. The findings of this research should be of interest not only to academic researchers interested in examining the uniqueness of risk disclosure issues in a country but also to practitioners and policy makers in Saudi Arabia and other Middle-Eastern and developing countries that share a similar socio-economic environment as it has important policy implications.

The study is justified on the following grounds. Firstly, it provides a starting point for research involving corporate risk disclosure in the Saudi context. It is one of the first empirical studies to use the unweighted disclosure index approach to investigate the levels of voluntary corporate risk disclosures in the annual reports of listed Saudi

banks. Secondly, relatively little is known about risk disclosure in Saudi Arabia, and thus it may make a general contribution to this area. Thirdly, this empirical investigation could benefit investors and regulators. Fourthly, it may help in studying other capital markets in the area, especially the Gulf Co-Operation Council (GCC) member states and other Middle-Eastern countries, and thus may contribute to the accounting literature in emerging markets.

3. THEORETICAL FRAMEWORK

As argued earlier in the theoretical framework chapter a number of scholars have defined risk disclosure differently. Therefore, it is important to take on a fit for purpose definition here since taking on an inappropriate definition could lead to different analysis and results. Moreover, risk disclosure practices profoundly rest on numerous factors such as, culture, legal, political, economic and regulations. The ICAEW (1999) indicated that risk divulging in annual reports should include "information about risks in the broadest sense, about actions to manage them and relevant measures". Though, some researchers have defined risk reporting as informative news in annual financial reports concerning managers' estimates, judgments and reliance on market based accounting policies, such as impairment, derivative hedging, financial instruments, economic, political, financial, management of risks and internal control of risks (Hassan 2009 and Miihkinen 2012).

Therefore, for the purpose of this study, the investigator has chosen a well-defined and appropriate risk disclosure definition by Linsley and Shrives (2006, p.3), who defined risk reporting as "If the reader is informed of any opportunity or prospect or of any hazard, danger, harm, threat, or exposure, which has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity prospect, hazard, harm, threat or exposure". The subsequent section considers the theory selected for the purpose of this examination.

Signaling theory has been developed by Spence (1973) as a means of describing people's behaviour in labour markets (see Watts and Zimmerman, 1986). It has also been a universal phenomenon valid in any market with information asymmetries (Morris, 1987). A number of academic researchers have employed signaling theory in previous empirical disclosure investigations to explain why managers are motivated to report more information news in annual report narratives (Linsley and Shrives, 2006; Hassan, 2009; Al-Shammari, 2014). Based on this theory, managers disclose adequate information in the financial reports to convey specific signals to current and potential users. Hughes (1986) argued that this kind of communication is credible to the investors because they know that managers who send out fraudulent signals will be penalized. In this investigation, signaling theory is used to explain the possible variations in the level of voluntary risk disclosure in the annual reports of the sampled banks.

Descriptive risk disclosure is recognized as an important element in making firm reporting more valuable to shareholders (Miihkinen, 2012; Mokhtar and Mellet, 2013; Maffei et al, 2014). In order to improve firm descriptive risk disclosure, regulators and standard setters have attempted to advance a compound set of standards, demanding more information on different forms of risks (Dobler et al., 2011). However, firms still offer inadequate risk information (ICAEW, 2011). Similarly, the far-reaching research on this subject agrees that risk reporting practices are not beneficial for investors as such practices are not really comprehensive, in depth, forward-looking or adequate for the valuation of the total risk profile (Paaple and Spekle, 2012; Magna and Markarian, 2011) nor are they relevant for decision-making procedures (Beretta and Bozzolan, 2004). Also, there is general agreement in the literature regarding the inadequacies of current risk reporting. The literature on this issue is far from complete (Woods et al., 2007; Maffei et al, 2014) since very little of the current research on risk reporting has empirically examined risk disclosure (Linsley and Shrives, 2006; Miihkinen, 2012).

4. LITERATURE REVIEW

The literature on the measurement of risk disclosure is profuse (Dobler, Lajili and Zeghal, 2011; Oliveira, Rodrigues and Craig, 2011b; Miihkinen, 2012; Barakat and Hussainey, 2013; Elshandidy, et al., 2013; Nitm, Lindop and Thomas, 2013; Al-Shammari, 2014; Lipunga, 2014; Campbell et al., 2014; Elshandidy, et al., 2015; Abdallah, Hassan and McClelland, 2015). However, none of the previous studies have measured the levels of voluntary risk disclosure in Saudi Arabia. Thus, this is the first study that measures risk disclosure levels in Saudi Arabia. Many studies have measured risk disclosure in developed economies as this is what the generally rely upon (Beretta and Bozalan, 2004; Lajili and Zeghal, 2005; Mohobbot, 2005; Linsley and Shrives, 2006; Abraham and Cox, 2007; Deumes and Knechel, 2008; Hassan, 2009; Elzahar and Hussainey, 2012). Similarly, there were some studies in emerging markets, which mostly rely upon voluntary risk disclosure (Amran, Bin and Hassan, 2009; Hassan, 2009; Hemrit and Ben Arab, 2011; Mokhtar and Mellett, 2013; Nitm, Lindop and Thomas, 2013; Soodanian, Navid and Kheirollahi, 2013; Al-Shammari, 2014 Abdallah, Hassan and McClelland, 2015). However, none of the previous studies have examined voluntary risk disclosure in Saudi Arabian banks. Hence, this investigation will contribute to the existing literature on developing economies by examining voluntary risk disclosure in a new environment, namely Saudi Arabia.

While nonfinancial and mixed institutions in developed countries have been widely researched and reported upon in the literature (Linsley and Shrives, 2005; Lajili and Zeghal, 2005; Combes-Thuelin, Henneron and Touron, 2006; Abraham and Cox, 2007; Deumes and Knechel, 2008; Oliveira, Rodrigues and Craig, 2011b; Dobler, Lajili and Zeghal, 2011; Elzahar and Hussainey, 2012; Elshandidy, Fraser and Hussainey, 2015), only a few studies have focused on banks and financial institutions in developed countries (Solomon et al., 2000; Linsley, Shrives and Crumpton, 2006; Oliveira, Rodrigues and Craig, 2011a; Barakat and Hussainey, 2013; Maffei et al., 2014) and no prior investigations have been conducted purely on banks or financial institutions in developing markets (Amran, Bin and

Hassan, 2009; Hassan, 2009; Abdallah and Hassan, 2013; Mousa and Elamir 2013; Al-Shammari, 2014; Abdallah, Hassan and McClelland, 2015). Therefore, this is the only study that investigates the levels of voluntary risk disclosure in banks in developing economies, particularly in Saudi Arabia.

Furthermore, whilst a small number of studies have examined risk disclosure over more than a one year period in developed economies (Cabedo and Tirado, 2004; Deumes, 2008; Deumes and Knechel, 2008; Rajab and Schachler, 2009; Elshandidy, Fraser and Hussainey, 2015), none have examined risk disclosure over more than a one year period in developing economies (Amran, Bin and Hassan, 2009; Hassan, 2009; Abdallah and Hassan, 2013; Mousa and Elmir, 2013; Al-Shammari, 2014; Abdallah, Hassan and McClelland, 2015). Therefore, the current study is the only study that examines voluntary risk disclosure over a period of five years in developing economies.

Preceding literature examining the level of risk disclosure is very limited and focuses on research carried out in the West. This could be attributed to the early implementation of regulatory measures by firms and increased complexity of making investment decisions by investors in these countries. A comprehensive review of the literature shows that two methods are generally used to measure the level of risk reporting. The first method employs words as a recording unit to measure risk reporting levels (Abraham and Cox, 2007), and the second approach employs self-constructed indices (Aljifri and Hussainey, 2007; Alshammari, 2014). Therefore, this investigation aims to quantify voluntary risk disclosure in Saudi listed banks by using a self-constructed risk disclosure index. This approach is based on an un-weighed content analysis method, which counts risk words (which have been previously identified in the self-constructed risk disclosure index - see appendix) within banks' annual reports to measure the level voluntary of risk disclosure. This is consistent with a number of prior studies (Al-Shammari, 2014; Elzahar and Hussainey, 2012; Dobler et al., 2011; Oliveira et al., 2011a; Amran et al., 2009; Linsley and Shrives, 2006; Lajili and Zeghal, 2005).

Linsley and Shrives (2003) confirmed that German and UK firms report equal levels of risk information. Yet, the authors revealed that only a few quantitative disclosures are reported in the annual reports of the firms from both countries. They also documented that the most reported category is "non-monetary/future".

Beretta and Bozzolan (2004) examined risk disclosure practices in 85 annual reports of non-financial firms listed on the Italian Stock Market. They concentrated on the Management Discussion and Analyst section (MDA). The authors identified 75 risk items that are reported in the MDA section and documented that firms avoid conveying any anticipated effect of risks and the economic direction of the firms in quantitative terms. They also illustrated that firms are not willing to show whether reported future risks will affect them positively or negatively and affirmed that such firms were prone to report past and present risks rather than future risks.

Linsley and Shrives (2005) investigated 79 annual reports of non-financial UK listed firms employing a content analysis method. They reported that the most reported risk categories are strategic, financial and integrity risks. They also stated that there is minimal exposure of quantified risk information and a considerable quantity of risk exposure is incorporated in the general statements on their risk policy.

Mohobbot's (2005) study included 90 non-financial corporations, which were randomly selected from the Tokyo stock market. He documented that most corporations would rather report descriptive risk information and are not willing to quantify risks in their annual reports. The author also reported large variations in the levels of risk disclosure practices among the sample corporations.

Lajili and Zeghal (2005) examined risk disclosure in the annual reports of 300 TSE Canadian corporations against 12 risk factors. They reported significant variations in disclosure quantity on risk sources and management and a lack of uniformity, quantification and forward-looking risk disclosure. They also showed that financial risk was the most regularly reported by the sample firms, which consisted of information on operations in foreign currencies. This study also documented that firms' disclosures were almost always qualitative in nature and lacked specificity and depth.

Linsley and Shrives (2006) explored risk disclosure in the annual reports of 79 non-financial FTSE 100 firms. The authors disaggregated risk disclosure into two categories. Firstly, according to six risk factors: financial, operational, empowerment, information processing and technology, integrity and strategy. Secondly, according to three narrative groups: upside/downside risk, monetary/non-monetary risk and past/future risk. By employing a content analysis method to measure the level of risk disclosure, they quantified 6,168 risk sentences that were consistent with the prior study undertaken by Lajili and Zeghal (2005). Most of the sample firms' disclosures were qualitative, with only a few being quantitative, the majority of reported statements were on general risk management policy and there was a dearth of coherence in the risk narratives, indicating that risk information gaps are existent. With such reporting, shareholders are unable to effectively evaluate the risk profile of a firm.

Linsley et al. (2006) studied risk disclosure in the baking industry through an examination of the annual reports of 18 UK and Canadian banks. The authors constructed a cording grid based upon the risk disclosure groups set forth by the Basel committee in pillar 3 "Market Discipline". They reported that the characteristics known to be more beneficial relative to risk information disclosures are quantitative and future-oriented information, which are reported less frequently than qualitative and past information in the annual reports of the sample banks of both countries.

Konishi and Mohobbot (2007) investigated factors influencing the level of risk disclosure in 100 non-financial Japanese firms listed on the Tokyo stock exchange market. They employed a manual content analysis method to measure the extent of risk disclosure. They discovered that firms almost always reported descriptive risk information and were unwilling to quantify risk. They also

documented that the sample firms disclosed more good news than bad/neutral news.

Amran et al. (2009) investigated risk disclosure in 100 non-financial Malaysian corporation annual reports, repeating the methodology employed by Linsley and Shrives (2006) in the UK. They also relied on counting the number of sentences dedicated to the discussion of risk information as a representation of the level of risk exposure. They employed the stakeholder theory to connect corporations' attributes to the amount of risk exposure and explain their empirical findings. The total number of sentences dedicated to discussion of risk information by the sampled Malaysian firms was very low when compared with a 2006 study done by Linsley and Shrives in the UK.

Oliveira, Rodrigues and Craig (2011a) claimed that the implementation of IAS/IFRS had led to a better flow of risk related information but still had not guaranteed better transparency in the Portuguese banking sector. Although most banks revealed information about how they quantified and evaluated performance in managing market risks, only about one third reported quantitative information on market risk exposure and performance.

Oliveira, Rodrigues and Craig (2011b) affirmed that the implementation of IAS/IFRS and the European Union's Modernisation Directive in 2005 did not have a positive impact on the quantity and quality of risk disclosure in listed Portuguese corporations. Their disclosures were generic, qualitative and backward looking. Although the authors claimed that quantitative and forward looking information would be more appropriate to shareholders' decision needs, they found that such disclosures were less common due to potential inaccuracy and exposure to litigation costs.

Dobler et al. (2011) examined the extent of risk exposure in 160 non-financial corporations from the US, Canada, the UK and Germany. Using a content analysis method for designated annual reports, they reported a consistent pattern where risk exposure was most dominant in management. The report focused on financial risk categories and contained little quantitative and forward looking exposure across the sample countries. In terms of risk exposure quantity, US corporations generally led, followed by German then UK ones.

Elzahar and Hussainey (2012) examined the extent of risk disclosure in 72 non-financial companies in the UK. Content analysis was used to quantify risk disclosure. They found that large companies were more likely to report more risk related-information in their narratives.

Mousa and Elamir (2013) explored the nature of risk disclosure within the annual reports of 46 listed firms on the Bahrain Bourse. Their study concentrated on all narrative sections in the annual reports, including the notes and accounts, and only examined the quantity of risk disclosure rather than the quality. One of the main findings of their study was that risk disclosures are very limited in the annual reports of the examined Bahraini firms.

Al-Shammari (2014) investigated firm specific traits and corporate risk disclosure in the annual reports of a sample of 109 Kuwaiti listed non-financial companies. The author employed a manual content analysis approach to measure risk disclosure by counting the number of risk-related sentences in annual reports. The findings of this study indicated that the quantity of risk disclosures for all categories of risks was very limited in the annual reports of the sampled companies.

5. METHODOLOGY

This section describes the research methodology of the study, including the selection of representative banks, criteria, data collection and techniques employed.

5.1. Research paradigm

Understanding the philosophical stance or research paradigm is essential since it provides the researcher with guidance to identify which research design is fit for purpose to accomplish the research objectives (Easterby-Smith et al., 1994). Therefore, the preferred choice of paradigm for this research is the positivism paradigm, which claims that knowledge is best expressed objectively using determined theories that are based upon laws and facts. Such a paradigm prefers to measure knowledge using quantitative methods to approve or disprove theories (Saunders et al., 2009). Therefore, this investigation takes a quantitative approach to examining the levels of voluntary risk disclosure in Saudi listed banks over a 5-year period.

5.2. Sample

There are 24 banks in Saudi Arabia which are divided into two sets of banks. The first set of banks represents the 12 local banks. The second set of banks represents the 12 subsidiaries' of foreign banks licensed to operate in the kingdom. The second set of banks is excluded from this study since their annual reports are a part of the mother bank, thus there is not a separate annual report dedicated to the subsidiaries (SAMA, 2014).

Moreover, the sample of the current investigation consists of 12 local listed banks on Tadawul in Saudi Arabia. Where, listed Islamic banks from Saudi Arabia will form the foundation of the Islamic bank's data sources, while non-Islamic banks will form the foundation of the conventional bank's data sources. According to the Saudi Arabian Monetary Agency, there are only 12 listed local banks on the Saudi exchange market today. Four of these are entirely Islamic, and the other eight are conventional with Islamic banking windows. Accordingly, the researcher can state that a total of 12 listed banks meet the selection criteria for this investigation.

This study covers a five-year period to examine voluntary risk disclosure levels in Saudi listed banks. This allows the researcher to identify any changes in the levels of risk disclosure that may have occurred over the period. The selected annual reports are from 2009 to 2013.

5.3. Data collection

The nature of this investigation dictates the use of secondary data. As argued by Bryman and Bell

(2011), secondary data sources deliver good quality data and involve minimal resources when executing the data collection phase. Therefore, it is the researcher's belief that the examination of secondary data will provide the required answers for this investigation.

Annual reports for the 12 listed Saudi banks are downloaded from the banks' websites and the Saudi Arabian Stock market (Tadawul).

5.3.1. The employment of annual reports as the main source of research data

Prior investigations in the field of risk disclosure have concentrated on the employment of annual report narratives as the main source of data (e.g. Kothari et al., 2009; Li, 2010; Dobler, Lajili and Zeghal, 2011; Miihkinen, 2012; Barakat and Hussainey, 2013; Elshandidy, et al., 2013; Al-Shammari, 2014; Elshandidy, et al., 2015). Moreover, they are the fundamental form of communications that organizations employ to convey messages to their investors (Lang and Lundholm, 1993; Holland, 1998).

Furthermore, there is a substantial amount of support in the accounting disclosure literature for the examination of disclosure exercises through employing annual report narratives. Accordingly, Gray, Kouhy and lavers (1995a; 1995b) stated that constitutional regulations oblige organizations to publish their annual reports periodically due to their significance and the provision of their consistent historical image of a company. Moreover, Hines (1988) claimed that annual reports are the most pivotal document for providing a company's social picture. A complementary argument was put forward by Tilt (1994), who stated that organizations can symbolically communicate views and values to appropriate investors through their reports. Campbell (2000) presented two more reasons to support the employment of annual reports. Firstly, annual reports are the most extensively distributed of all other documents of an organization made public. Secondly, the organization's management has comprehensive editorial power over the voluntary disclosure of information in the published annual reports. Also, Tay and Parker (1990) confirmed that genuine disclosure practices can be measured more accurately from annual report narratives.

5.4. Content Analysis

Content analysis has been broadly used in social accounting research (Guthrie and Parker, 1989; Milne and Adler, 1999; Parker, 2005; Kamla, 2007). These studies analyse the information content disclosed in annual reports and acknowledge definite words and themes within the textual material (Beattie et al., 2004; Brennan, 2001). When analysing the content of a written document, words, phrases and sentences are coded against a specific schema of interest (Bowman, 1984). Krippendorff (1980: p. 21) described content analysis as "a research technique for making replicable and valid inferences from data". Furthermore, Bowman (1984) claimed that content analysis is able to collect rich data since it can reveal relationships that other techniques cannot. However, a weakness of content analysis is that it is subjective (Linsley and Shrives, 2006). Therefore, validation practices are often used to override this problem (Bowman, 1984).

Additionally, content analysis can be carried out using either manual or automatic methods or a combination of the two. Many studies have used the manual method to conduct content analysis (Hackston and Milne, 1996; Beretta and Bozzolan, 2004; Linsley and Shrives, 2006) despite the labour-intensive data collection process, which limits the sample size (Beattie and Thomson, 2007). Automated content analysis was first used in the 1980s, and with the creation of different content analysis software, it is constantly developing. It is often the method chosen when the sample size is larger (Frazier, Ingram and Tennyson, 1984; Breton and Taffler, 2001; Kothari, Li and Short, 2009). Other researchers have used both manual and automated content analysis methods (Hussainey, Schleicher and Walker, 2003; Clatworthy and Jones, 2003; Beattie and Thomson, 2007). Hence, this paper employs a manual content analysis method to examine the level of voluntary risk disclosure in Saudi listed bank.

5.4.1. Development of Risk Disclosure indices

For this investigation to examine the level of voluntary risk disclosure in Saudi listed banks a risk disclosure index, which is a checklist of different disclosure items included in banks' annual reports, was required (Arvidsson, 2003). For the purpose of constructing the risk disclosure indexes, an extensive review of prior studies was undertaken (e.g. Hassan, 2009; Al-Shammari, 2014; Abdullah et al., 2015). Therefore, for an item to be included, it must have been used in previous published disclosure studies. Hence, the following steps were taken as the basis for the development of the risk disclosure indices for this study:

Step 1: A comprehensive review of the prior risk disclosure literature was undertaken (e.g. ICAEW, 1997, 2000; Hassan, 2009; Lopes and Rodrigues, 2007; Al-Shammari, 2014; Lipunga, 2014; Abdullah et al., 2015). Based on this, the researcher identified some items which were used in previous studies. Therefore, the annual reports of listed Saudi banks should contain and disclose.

Step 2: A review of the Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI, 2014) and Islamic Financial Services Board (IFSB, 2007) risk disclosure sections to identify the risk disclosure items that should be included in listed Islamic banks' annual reports was undertaken. Due to the nature of the sample of this study, an Islamic index had to be developed.

Step 3: The two indices were reviewed with 2 independent researchers who deal with both Islamic and conventional bank reports and specialize in the area of disclosure and financial reporting to enhance the validity of the study, indexes and results.

Therefore, two risk disclosure indices were developed solely for the purpose of measuring the level of voluntary risk disclosure in Saudi listed banks. This is similar to the approach used by prior voluntary risk disclosure investigations (e.g. Hassan, 2009; Abdullah et al., 2015). The two indices included between them a total of 67 items that were expected to be published in the annual reports of the sample banks. The non-Islamic risk disclosure

index included 54 items, which were divided across 8 categories: accounting policies, financial and other risks, derivative hedging and general risks, financial instruments, reserves, segment information, business risk and compliance with regulations. While, the Islamic risk disclosure index included 67 items, which were distributed across 10 categories: accounting policies, financial and other risks, derivative hedging and general risks, financial instruments, reserves, segment information, business risk, compliance with regulations, Islamic bank risk characteristics and AAIOFI standards. This categorization of the two crafted risk disclosure indexes is due to the nature of the listed Saudi banks, where listed banks represent two sets of banks, namely Islamic banks and conventional banks, which are vigorously offering banking services in Saudi Arabia. Moreover, one of the important issues during crafting the disclosure index was deciding whether some items should be weighted more heavily (i.e. important) than others. In accounting research, both weighted and un-weighted disclosure indices are utilized (Cooke, 1989; Marston and Shrives, 1991; Owusu-Ansah, 1998; Raffournier, 1995). For the purpose of this study, the un-weighted disclosure index was chosen because the study does not focus on a particular user group (Alsaeed, 2006; Naser et al., 2006). Instead the study addresses all users of annual reports, and therefore there is no need to confer different importance levels to the disclosed risk items (Oliveira et al., 2006). The contents of each bank's annual reports were compared to the items listed in the Appendix, and on the basis of a dichotomous model they were coded as 1 if disclosed or 0 if otherwise. This index coincides with other studies that quantify the extent of disclosure (Al-Razeen and Karbhari, 2004; Barako et al., 2006; Alsaeed, 2006; Owusu-Ansah, 1998; Oliveira et al., 2006).

The total score for a bank is:

$$TD = \sum_{i=1}^{n} d_i \quad (1)$$

where, d = 1 if the item is disclosed; 0 = if the item is not disclosed; n = number of items.

5.4.2. Reliability and Validity of Disclosure Indices

Weber (1988) argued that the classification procedure should be reliable and valid. The reliability and validity of content analysis approaches need to be reviewed carefully. In human-scored schemes, reliability, that is the reproducibility of the measurement, is a major concern (Marston and Shrives, 1991; Healy and Palepu, 2001). The preceding studies argued that content analysis is not reliable if it is conducted only once or only by one specific person (Neuendorf, 2002). Consequently, to ensure the content validity of the initial research instrument, it was reviewed independently by two other researchers. Subsequently, after the researcher received the independent researcher's comments and suggestions. A fourth experienced academic was required to discuss any ambiguities raised. The final disclosure checklist included 67 items. In terms of validity the research instruments (disclosure indices) are valid if they can measure what they claim to measure (Field, 2009). In this study the indices have measure what they claimed to measure, therefore the researcher can safely claim that the research instruments are valid. To ensure the reliability of the research instrument, the author and the two independent researchers scored three randomly selected banks. Then, the results from the three researchers were compared. Given that the final research disclosure indices were agreed by all researchers, differences in the compliance scores from the researchers were insignificant. This method was adopted by Marston and Shrives (1991), who argued that the index scores awarded to firm could be considered reliable if other researchers could replicate the same results. The final disclosure checklists are presented in the following table 1:

Table11. Ensuring validity of research instrument

Categories	Items suggested by author	Items suggested by first independent researcher	Items suggested by second independent researcher	Final index after consultation	Weight
Accounting Policies	12	13	9	10	15%
Financial risks	15	18	10	15	22.5%
Derivatives hedging and General Risk Info	1	3	2	11	16.5%
Financial instruments	3	2	3	2	3%
Reserves	4	3	2	3	4%
Segment information	2	2	2	2	3%
Business risk	5	3	4	5	7.5%
Compliance with regulations	7	11	3	6	9%
Islamic Bank Risk characteristics	9	9	9	9	13.5%
AAIOFI Standards	5	4	4	4	6%
Total	73	75	56	67	100%

The weight is calculated based on final items for each standard dividend into total items (67). For example: weight of Accounting Policies = 10/67*100= 15%.

5.5. Descriptive analysis and Discussion

This section presents the results of the analysis and the resultant discussion. The results are generally based on the outcome of the descriptive statistics of disclosure levels and rankings related to the risk categories.

Recently, there has been an increase in users' demands for corporate information. The literature reveals that companies have been put under immense pressure to make even greater disclosures of corporate information, especially in relation to risks and uncertainties. This is the background against which the results of this study should be interpreted. This study sets out to examine the levels of risk disclosure amongst listed Saudi banks. Tables 2 and 3 display the results of the content analysis. The tables show that all banks in the sample disclosed risk-relevant information. Furthermore, the results displayed in tables 4, 5 and 6 below show that on average the level of risk disclosure steadily increased across the period under study, rising from 52% in 2009 to 77% in 2013; however, the highest score recorded was 78% in 2011 by Banque Saudi Fransi. This provides evidence that there was an upward trend in the average amount of risk disclosure being published by the sampled banks over the period from 2009 to 2013. The average disclosure, regardless of the universal items or Islamic items, increased overall.

Table 2. Average risk disclosure level for Non-Islamic Banks (2009 – 2013)

Categories	Saudi Investment Bank	Arab National Bank	National Commercial Bank	Banque Saudi Fransi	SAMBA	Saudi Hollandi Bank	SAAB	Riyad Bank	Average
Accounting Policies	66%	73%	77%	69%	64%	82%	66%	73%	71%
Financial and other Risks	100%	81%	87%	91%	60%	90%	92%	93%	87%
Derivative Hedging and General Risks	45%	58%	36%	73%	18%	47%	49%	49%	47%
Financial Instruments	50%	50%	100%	50%	50%	50%	50%	50%	56%
Reserves	67%	100%	67%	100%	100%	100%	66%	100%	88%
Segment Information	100%	100%	100%	50%	50%	50%	100%	50%	75%
Business Risk	60%	52%	60%	52%	60%	60%	40%	44%	54%
Compliance with Regulations	67%	66%	67%	76%	67%	67%	83%	67%	70%
Average	69%	73%	74%	70%	59%	68%	68%	66%	68%

Note: The disclosure score for each risk disclosure level is calculated as a ratio of the actual total items disclosed in the annual reports for each bank divided by the 54 items included in the risk disclosure index for non-Islamic and divided by the 67 items included in the risk disclosure index for the Islamic banks.

Table 2 shows the descriptive analysis for the level of corporate risk disclosure and its categories in the annual reports of all listed non-Islamic banks in Saudi Arabia. In general, what should be noted when observing the table above is that, from a merely quantitative point of view, the total risk disclosure per index reveals that Saudi non-Islamic banks on average reported more risk disclosure than their Islamic counterparties. This is consistent with Abdallah et al. (2015). Furthermore, the results indicate that the total risk disclosure in non-Islamic banks was 68%, with the most common risk disclosure categories in the annual reports of the sampled banks being reserves (88%), financial and other risks (87%), segment information (75%), accounting policies (71%), compliance with regulations (70%), financial instruments (56%), business risk (54%) and derivative hedging (47%).

However, in terms of reporting risk disclosure levels per category for all non-Islamic banks in Saudi Arabia, the Saudi Hollandi bank scored the highest in the first category namely accounting policies (82%). In second place, came the National Commercial bank by scoring (77%). Where, in third place, came jointly the Arab National bank and Riayd bank by obtaining a score of (73%). The Banque Saudi Fransi came fourth in the accounting policies category by scoring (69%). In fifth place, jointly came the Saudi Investment bank and SAAB bank by achieving a score of (66%). SAMBA bank came last in the accounting policies category by achieving an overall score of (64%). While, in the second category financial and other risks, the Saudi Investment banks achieved the highest score (100%), secondly, came Riyad bank (93%), thirdly SAAB bank acquiring a score of (92%), fourthly came the Banque Saudi Fransi at (91%), next came the Saudi Hollandi bank at (90%), then the National Commercial bank came by obtaining a score of (87%), in seventh place, the National Arab bank came by scoring (81%) in the financial risk category, where SAMBA also came last in this category by a large difference (60%). Moreover, the third category is the derivative hedging, which is the lowest category where most non-Islamic banks scored below the (49%). It also has the lowest average of all non-Islamic banks at (47%). The fourth category is the financial instruments category, which is the only category where all non-

Islamic banks from this study's sample achieved a score of (50%) except the National Commercial bank which have achieved a score of (100%). Next comes the reserves category where the Arab National bank, Banque Saudi Fransi, SAMBA, Saudi Hollandi bank and Riyad bank acquired in this category (100%), while secondly came together the Saudi investment bank and the National Commercial bank at a score of (67%) which is low compared to the first 5 banks in this category, lastly in the reserves category came SAAB bank at (66%). In the sixth category, namely segment information the banks split into two groups where Saudi investment bank, Arab National bank, National Commercial bank and SAAB obtained a score of (100%), while Banque Saudi Fransi, SAMBA, Saudi Hollandi bank and Riyad bank achieved a score of (50%). In the business risk category, the Saudi Investment banks, the National Commercial bank, SAMBA and the Saudi Hollandi bank all achieved a score of (60%), while the Arab National bank and the Banque Saudi Fransi together scored (52%). In this category Riyad bank achieved (44%), also in the same category SAAB bank obtained (40%). Finally in the compliance with regulations category, the highest score was acquired by SAAB bank at (83%), the second highest score was achieved by Banque Saudi Fransi at (76%). While in this category Saudi investment bank, National Commercial bank, SAMBA, Saudi Hollandi bank and Riyad bank all scored the same at (67%), the Arab National bank scored (66%) in the compliance with regulations category.

However, looking at it in terms of the average risk disclosure reporting per bank of the 8 non-Islamic banks listed on the Saudi stock market the National Commercial Bank was the highest, scoring 74%, followed by the National Arab Bank came second, scoring 73%, then the Banque Saudi Fransi at 70%, fourthly the Saudi Investment bank at a score of 69%. Also, in terms of average risk reporting the Saudi Hollandi bank and SAAB bank scored the same at 68%, followed by Riyad bank with little difference between them (66%). Finally, SAMBA Bank came last, scoring only 59% in the overall average of all categories per bank.

Table 3. Average risk disclosure level for Islamic Banks (2009 – 2013)

Categories	ALJAZIRA	ALRAJHI	ALINMA	ALBILAD	Average	
Accounting Policies	64%	75%	71%	83%	73%	67%
Financial and other Risks	68%	72%	70%	72%	71%	
Derivative Hedging and general risks	55%	69%	56%	29%	52%	
Financial Instruments	100%	80%	50%	40%	68%	
Reserves	100%	100%	67%	67%	84%	
Segment Information	60%	70%	50%	80%	65%	
Business Risk	44%	48%	48%	60%	50%	
Compliance with regulations	70%	83%	77%	66%	74%	
Islamic Bank Risk Characteristics	73%	54%	44%	49%	55%	38%
AAOIFI Standards	30%	25%	0%	25%	20%	
Average	66%	68%	53%	57%	61%	

Table 3 shows that the average risk disclosure among Islamic banks was 61%, while on average the most frequently reported risk categories amongst listed Islamic banks in Saudi Arabia were reserves (84%), compliance with regulation (74%), accounting policies (73%), financial and other risks (71%), financial instruments (68%), segment information (65%), Islamic bank risk characteristics (55%), derivative hedging and general risks (52%), business risk (50%) and Islamic standards (20%). However, the most frequently reported categories among all banks (Islamic banks as well as non-Islamic banks) were reserves (88%), financial and other risks (87%) for non-Islamic (see tables 2) and reserves and compliance with regulations (74%) for Islamic banks (see tables 3). The two most infrequently reported categories among the Islamic banks were Islamic standards (20%) and business risk (50%) and for non Islamic were derivative hedging and general risks (47%) and business risk (54%), (see table 2).

However, in terms of reporting risk disclosure levels per category for all Islamic banks in Saudi Arabia, the Albilad bank achieved the highest score in the first category namely accounting policies at a score of (83%), while, Alrajhi bank, which is the largest Islamic banks in the country came second in the accounting policies category by achieving a score of (75%). In third place came the Alinma bank, which is the newest bank in Saudi Arabia, being established in 2008 scoring (71%), (Alinma bank, 2015). While, in last place came Aljazira bank, which in 2007 shifted from being a conventional bank to a fully sharia-compliant bank by scoring (64%), (Aljazira bank, 2015). The second category is the financial and other risks. In this category Albilad bank and Alrajhi bank jointly scored the highest among the Islamic at (72%). Secondly, the Alinma bank achieved in this category a score of (70%), where Aljazira bank came last by acquiring a score of (68%). However, in the derivative hedging and general risk information, Alrajhi bank scored the highest at (69%), in second place Alinma bank scored (56%), followed by Aljazira bank by a very close score at (55%) and coming last at a very low score at this category is Albilad bank (29%). In the financial instruments category, Aljazira bank topped all Islamic banks by obtaining a score of (100%). Alrajhi bank scored second top at (80%), while Alinma bank and Aljazira bank score considerably low at the financial instruments category at (50%), (40%) respectively. Moreover, Aljazira and Alrajhi banks jointly acquired the highest scores in the reserves category (100%). This could be attributed to large size both banks enjoy, where both banks had the largest total assets over the sample period. Also, in the same category Alinma and Albilad banks jointly acquired a score of

(67%). In the segment information category, Albilad bank came first with a score of (80%), followed by Alrajhi bank with a score of (70%), then Aljazira bank with a score of (60%), and followed by Alinma bank with a score of (50%). While, in the business risk category Albilad scored (60%), where in second place came jointly Alrajhi and Alinma banks at (48%), followed by Aljazira bank with a score of (44%). Whereas, in the compliance with regulations Alrajhi bank scored the highest score at (83%), then Alinma bank came second with a score of (77%), followed by Aljazira bank with a score of (70%) and in fourth place came Albilad bank at (66%). Moreover, in the Islamic bank risk characteristics category, Aljazira bank acquired the highest score of (73%), in second place came Alrajhi bank with a score of (54%), and followed by in third place Albilad bank with a score of (49%), then by Alinma bank with a score of (44%). In the last category, named the AAOIFI standards Aljazira scored the highest at (30%), followed by jointly Alrajhi and Albilad banks with a score of (25%) and in last place came Alinma bank with zero percent.

However, over the sampled period, amongst the Islamic banks Alrajhi Bank had on average the highest score at 68% in terms of risk disclosure per bank. In second place in terms of risk reporting per bank, Aljazira bank achieved a score of (66%). Thirdly, Albilad bank on average per bank scored (57%), while Alinma Bank had the lowest score of (53%).

6. FURTHER DISCUSSION

Table 2 shows the descriptive analysis for the level of corporate risk disclosure and its categories in the annual reports of listed non-Islamic banks in Saudi Arabia. In general, what should be noted when observing the table above is that, from a merely quantitative point of view, the total risk disclosure per index reveals that Saudi non-Islamic banks on average reported more risk disclosure than their Islamic counterparties. This could be a reflection of the inherently conservative nature of the principles that guide Islamic financial institutions, which aim to provide financial products that serve the interests of society more broadly than do non-Islamic banks, which are more likely to be oriented towards the pursuit of profit maximization. Furthermore, the results indicate that the total risk disclosure in non-Islamic banks was 68%.

On the other hand, table 3 illustrates the descriptive analysis for the level of corporate risk disclosure and its categories in the annual reports of listed Islamic banks. It reveals that the average level of risk disclosure among Islamic banks was 61%. However, table 2 and 3 indicate that Islamic banks were more likely to report risk disclosure than non-Islamic banks in the areas of accounting policies, derivatives hedging and general risk information, financial instruments and compliance with regulations categories. This is concurrent with Abdallah et al. (2015). It is worth noting, however, that the difference in the risk disclosure between Islamic banks and non-Islamic banks is not momentous for the overall and all-risk categories. Generally, this suggests that on average the two groups reported a similar amount of risks. However, when comparing the overall risk disclosure levels of all 12 listed Saudi banks in this study with disclosure levels in previous studies, such as Amran et al. (2008) (74.5%), Deumes and Kneckel (2008) (87.3%) and Maffei et al. (2014) (84.8%), the sample banks' score was relatively low at 64%. This signifies that listed Saudi banks still have to improve upon their corporate risk disclosure levels so as to improve the overall risk disclosure practices among the banking industry, which will result in well-informed investors and more effective decision making practices. This was confirmed by the ICAEW (1999), who advised quantifying risk whenever possible to improve the quality of risk reporting. Basically, the quantification of risk by managers in the annual reports results in the overall enhancement of risk disclosure quality. This leads to investors being able to make more informed investment decisions. Moreover, Islamic banks (67%) and non-Islamic banks (68%) disclosed almost the same amount of risk in terms of the universal items, which are the first 8 categories of the risk disclosure index (see appendix). Islamic banks only reported (38%) regarding Islamic items, the last two categories of the Islamic banks risk disclosure index (see appendix).

It is evident that the sample banks reported more non-financial information then specific financial information. Looking at the above tables, on average the total number of banks examined for the purpose of this investigation reported most on the same nonfinancial category, namely, reserves. Empirical studies in different contexts have provided similar results (Rajab and Schachler, 2009; Woods and Reber, 2003, Mokhtar and Mellett, 2013). The total Saudi banks scored 79% on financial and other risks category, which is more than the average reported by previous studies, such as Mokhtar and Mellett (2013) (4.55%) and Maffei et al. (2014) (30%). The tables below show the average per year over the entire sample period of all banks.

Table 4. Average risk disclosure of each Islamic bank (per year)

ALJAZIRA					ALRAJHI					ALINMA					ALBILAD				
2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
68%	66%	64%	64%	71%	75%	74%	67%	55%	67%	52%	52%	51%	56%	56%	53%	53%	54%	66%	60%

Table 5. Average risk disclosure of each Non-Islamic bank (per year)

SAMBA					Saudi Hollandi Bank					SAAB					Riyad Bank				
2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
59%	59%	59%	59%	59%	67%	67%	67%	70%	70%	66%	72%	68%	68%	68%	65%	65%	67%	66%	66%

Table 6. Average risk disclosure of each Non-Islamic bank (per year)

Saudi Investment Bank					Arab National Bank					National Commercial Bank					Banque Saudi Fransi				
2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
68%	69%	69%	74%	67%	67%	72%	69%	77%	77%	74%	74%	74%	75%	75%	70%	66%	78%	74%	62%

Tables 4, 5 and 6 present the descriptive statistics for the scores of the risk disclosure levels for each year of the sample period for the individual banks. Table 2 displays the average risk disclosure of each Islamic bank per year. It can be seen from this table that Aljazira Bank witnessed a drop in terms of reporting risk disclosure from 68% in 2009 to 64% in 2012 before increasing up again to 71% in 2013. Such fluctuations in risk reporting over the period could be attributed to new board members joining or due to new corporate governance measures adopted. However, as demonstrated in table 2 Alrajhi bank witnessed a decrease throughout the entire period, despite being the largest bank in terms of total assets and profitability. This decrease effect could be attributed to other corporate governance factors, such as changes in disclosure policy or changes in the top management. Albilad bank witnessed a steady increase in the levels of risk disclosure over the first 4-years of the period before decreasing to 60% in 2013. This effect could be due to steady profitability levels over the latter 4 years of the examined period. While, Alinma bank witnessed the no changer effect in the levels of voluntary risk disclosure for the first 2-year, followed by a very little decrease in the subsequent year before soaring up again over the last 2-year of the period. This could be only attributed to trying new reporting strategy by management.

On the other hand, tables 3 and 4 demonstrate that most of the individual non-Islamic banks witnessed overall steady increases in the levels of risk disclosure over the sample period, which could be attributed to the same levels of profitability of these banks. However, Banque Saudi Fransi witnessed large changes over the period in its risk reporting levels, starting in 2009 at 70%, followed by a slight decrease to 66% in 2010, then soaring up to 78% in 2011, scoring the highest score of the entire sample through the whole period, then once again dropping to 74% in 2012 and reaching the lowest score 62% in 2013. This could be due to changes in the board of directors, since some board members tend to lean toward a specific disclosure strategy. Contrastingly, SAMBA Bank observed no changes in its reporting levels over the sample period.

Overall, the above tables indicate that the majority of banks witnessed an increase in their risk reporting levels over the 5-year period. This provides evidence that there was an upward trend in the average amount of risk disclosure being published by the sampled banks over the period from 2009 to 2013. There is only one possible explanation for this trend, which is that all of the sampled banks were following the international financial reporting standards as well as the national accounting standards (IFRS, 2011), requiring them to apply the IFRS7, which makes it categorically clear that disclosure is mandatory. This could be confirmation that regulation is the most powerful driver of the increases in the levels of corporate risk disclosure (Adamu, 2013; Lipunga, 2014). Furthermore, some studies have documented that the amount of information disclosed by organizations has increased substantially over the past few years in part due to regulations (Oliveira et al., 2011a; Leuz, 2010) and that there has been a rise in voluntary information provided by companies (Oliveira et al., 2011a; Campbell and Slack, 2008). In addition, other studies have reported that firms react to new requirements (Miihkinen, 2012) by increasing the amount of disclosure relating to either specific risk items (Roulstone, 1999) or specific sections of their annual reports.

As can be observed from the table above, the National Commercial Bank is the highest ranked bank in terms of its voluntary risk disclosure score over the entire sample period. It is also the largest listed bank on the Saudi stock market in terms of size (total assets). This result shows that the level of risk disclosure is positively correlated with size. This is consistent with previous risk disclosure studies that employed annual reports, such as Beretta and Bozzolan (2004), Linsley and Shrives (2006), Konishi and Mohobbot (2007), Lopes and Rodrigues (2007), Vandemele et al. (2009) and Mousa and Elamir (2013), which confirmed that size is positively correlated with the level of risk disclosure. This outcome is also in line with signalling theory. According to signalling theory, larger companies rely more on external finance. Hence, they are incentivized to disclose more risk information in order to send a good signal to investors and creditors regarding their ability to manage risk.

Table 7. Banks Descriptive Information

Banks	Disclosure Level	Year	Firm-Specific Characteristics Variables			
			LOG Size	Profitability	Leverage	Auditor Dummy (1-0)
ALJAZIRA	68%	2009	7.48	0.1%	8.98%	1
ALRAJHI	75%		8.23	4.06%	3.57%	1
ALINMA	52%		7.24	1.78%	0	1
ALBILAD	53%		7.24	-1.48%	1.14%	1
SAMBA	59%		8.27	2.52%	4.96%	1
Saudi Hollandi Bank	67%		7.77	0.22%	13.76	1
SABB	66%		8.10	1.78%	57.67%	1
Riyad Bank	65%		8.25	1.78%	57.67%	1
Saudi Investment Bank	68%		7.70	1.78%	57.67%	1
Arab National Bank	67%		8.04	2.08%	10.99%	1
National Commercial Bank	74%		8.41	1.78%	57.67%	1
Banque Saudi Fransi	70%		8.08	1.78%	57.67%	1
ALJAZIRA	66%	2010	7.52	0.09%	1.18%	1
ALRAJHI	74%		8.27	3.81%	2.93%	1
ALINMA	52%		7.43	0.07%	8.45	1
ALBILAD	53%		7.32	1.78%	57.67%	1
SAMBA	59%		8.27	2.39%	11.57%	1
Saudi Hollandi Bank	67%		7.73	1.48%	9.08%	1
SAAB	72%		8.10	1.78%	8.23%	1
Riyad Bank	65%		8.24	1.78%	57.67%	1
Saudi Investment Bank	69%		7.71	1.78%	57.67%	1
Arab National Bank	72%		8.06	1.71%	14.56%	1
National Commercial Bank	74%		8.45	1.78%	57.67%	1
Banque Saudi Fransi	66%		8.09	1.78%	57.67%	1
ALJAZIRA	64%	2011	7.59	0.9%	5.93%	1
ALRAJHI	67%		8.34	3.64%	3.18%	1
ALINMA	51%		7.57	1.36%	6.64%	1
ALBILAD	54%		7.44	1.78%	1.52%	1
SAMBA	59%		8.29	2.27%	10.7%	1
Saudi Hollandi Bank	67%		7.76	1.93%	8.99%	1
SAAB	68%		8.14	2.3%	7.24%	1
Riyad Bank	67%		8.26	1.78%	3.55%	1
Saudi Investment Bank	69%		7.72	1.78%	11.79%	1
Arab National Bank	69%		8.07	1.88%	10.95%	1
National Commercial Bank	74%		8.48	1.78%	57.67%	1
Banque Saudi Fransi	78%		8.15	1.78%	57.67%	1
ALJAZIRA	64%	2012	7.71	1.17%	8.41%	1
ALRAJHI	55%		8.43	3.23%	0.84%	1
ALINMA	56%		7.73	1.61%	8.24%	1
ALBILAD	66%		7.47	3.28%	1.92%	1
SAMBA	59%		8.30	2.21%	6%	1
Saudi Hollandi Bank	70%		7.84	2.08%	11.77%	1
SAAB	68%		8.19	2.27%	6.75%	1
Riyad Bank	66%		8.28	1.87%	3.24%	1
Saudi Investment Bank	74%		7.77	1.69%	14%	1
Arab National Bank	77%		8.14	1.89%	9.15%	1
National Commercial Bank	75%		8.54	1.78%	57.67%	1
Banque Saudi Fransi	74%		8.20	1.78%	9.24%	1
ALJAZIRA	71%	2013	7.78	1.78%	57.67%	1
ALRAJHI	67%		8.45	2.72%	1.3%	1
ALINMA	56%		7.80	1.72%	32.84%	1
ALBILAD	60%		7.56	1.78%	57.67%	1
SAMBA	59%		8.31	2.23%	3.64%	1
Saudi Hollandi Bank	70%		7.91	2.13%	13.03%	1
SAAB	68%		8.25	2.33%	5.17%	1
Riyad Bank	66%		8.31	2%	5.64%	1
Saudi Investment Bank	67%		7.91	1.9%	14.69%	1
Arab National Bank	77%		8.14	1.78%	6.76%	1
National Commercial Bank	75%		8.58	1.78%	57.67%	1
Banque Saudi Fransi	62%		8.23	1.58%	6.35%	1

As has been established by prior investigation, leverage could affect the level of risk disclosure since the level of risk disclosure and the leverage ratio simultaneously increase or decrease. Moreover, firms with higher leverage are more likely to have a higher level of voluntary risk disclosure in their annual reports than those with lower leverage (Deumes and Knechel 2008; Hassan 2009; Marshall and Weetman 2007; Taylor et al., 2010). The table above shows that Alrajhi Bank's risk disclosure levels decreased in tandem with the leverage ratio year by year over the entire sample period, confirming the above argument. This is also concurrent with signalling theory, whereby managers tend to provide more risk management information to send a good signal to debt holders regarding corporate ability to meet obligations (Oliveira et al., 2011b).

The banks descriptive table above shows that SAMBA Bank had a consistent level of risk disclosure throughout the whole sample period. Yet, its profitability levels decreased year by year. This non-directional relationship illustrates that there is a negative association between the two variables. This is concurrent with Mousa and Elamir (2013), who reported a negative relationship between profitability and risk disclosure levels. Furthermore, applying signalling theory could mean that those firms that are better at risk management will have higher levels of relative profitability and would want to signal their superior risk management abilities to the market place via voluntary disclosures in the annual report.

Auditor type has been suggested as a factor in explaining variations in voluntary risk disclosure levels (Al-Shammari, 2014). Furthermore, Jensen and Meckling (1976) argued that larger audit firms are less likely to be associated with clients that disclose lower levels of information in their annual reports. Chalmers and Godfrey (2004) claimed that these larger and better known auditing firms tend to encourage their clients to disclose more risk information to maintain their own reputation. The international Big 4 auditing firms are more likely to pressure their clients to disclose risk information in their annual reports to assure the shareholders regarding the quantity of risk that their companies face. However, the consistently changing levels of voluntary risk disclosure over the examined period, as can be seen from the table above, indicate that auditor type had no effect on the levels of voluntary risk disclosure in the sample banks of this study. Indeed, one of the Big 4 accounting firms audited all banks included in this investigation, which proves that there is no correlation between auditor type and the level of voluntary risk disclosure in Saudi listed banks. Nevertheless, the choice of an external auditor can serve as one signal of a firms' value. For example, Craswell and Taylor (1992) showed that listed firms are more likely to choose one of the Big 4 auditing firms. Such a choice signals to investors that the auditing of the contents of the annual reports is of high quality.

7. CONCLUSION

In conclusion, the ICAEW (1999) advised firms to quantify risk whenever possible to improve the quality of risk reporting. Basically, the quantification of risk by managers in annual reports results in the overall enhancement of risk disclosure quality. It improves the bank's image and sends a good signal to investors and creditors, which attracts more capital. It also enhances investors' decision-making practices. Finally, it is an opportunity for managers to show their skills and abilities in relation to quantifying risk information in their annual reports to the market, which can improve their career prospects.

This study sought to empirically investigate the level of voluntary risk disclosure in the annual reports of all listed banks on the Saudi stock market from 2009 to 2013. This study used the manual content analysis approach to measure voluntary risk disclosure by counting the number of words disclosed by the sample banks in their annual reports. The empirical analysis showed that overall Islamic banks reported less risk information than non-Islamic banks. However, the analysis also revealed that both types of banks reported relatively the same amount of risk information regarding the banks' universal items and Islamic banks reported very little risk information on the Islamic risk disclosure items. Based on this, the following conclusion can be made: Islamic banks disclose less voluntary risk information than their non-Islamic counterparties. This outcome could be a reflection of the inherently conservative nature of the principles that guide Islamic financial institutions, which aim to provide financial products that serve the interests of society more broadly than non-Islamic firms, which are more likely to be oriented towards the pursuit of profit maximization.

This investigation results have important implications for regulators in Saudi Arabia as they attempt to ensure information adequacy and the increased efficiency of the most rapidly developing capital market. The study is significant in that it sheds light on the voluntary risk-disclosing practices of banks that operate in an environment that is often considered to be opaque.

Several limitations should be noted in this investigation. Firstly, this study used content analysis to measure voluntary risk disclosure by creating a risk disclosure index through simply adding up the number of risk-related words. Secondly, this study relied only on annual reports to measure risk disclosure levels. However, information about risk can be provided in sources other than annual reports, such as interim reports, press releases, conference calls, web sites or prospectuses. Thirdly, this study ignored the influence of corporate governance and corporate-specific characteristics on risk disclosure by financial and non-financial institutions as well as ignoring the determinants of voluntary risk disclosure. Future studies may examine these financial and non-financial institutions to provide a bigger picture of the impact of corporate governance and corporate specific characteristics on the levels of voluntary risk disclosure in Saudi Arabia. In spite of the noted limitations, the study did offer substantial insights into voluntary risk disclosure in Saudi Arabia.

This study suggests a number of other openings for future research. In the field of corporate risk disclosure in the Middle East, research could extend this study over a longer period of time or alternatively involve comparative studies with other Arab countries, such as the Gulf Co-Operation Council (GCC) member states. Such studies could investigate the changes in corporate risk disclosures across time and compare potential variation in nations with different social, political and economic systems. This may also help researchers to understand why managers choose to disclose certain parts of risk information and withhold other parts. Additional research could be also undertaken to examine the economic consequences of risk reporting in annual reports (e.g., the effect on prices leading earnings, cost of capital, analyst following, firm value and characteristics of analysts' forecasts).

REFERENCES

1. Abdallah, A. A. N., & Hassan, M. K. (2013). 'The Effects of Corporation/Country Characteristics and the Level of Corporate Governance on Corporate Risk Disclosure', The Case of the Gulf Cooperative Council (GCC) Countries.
2. Abdallah, A., Hassan, M., McClelland, P. (2015). 'Islamic Financial Institutions, Corporate Governance, and Corporate Risk Disclosure in Gulf Cooperation Council Countries.' Journal of Multinational Financial Management.
3. Abraham S. & Shrives P.J. (2014) "Improving the relevance of risk factor disclosure in corporate annual reports" The British Accounting Review, 46(1), 91–107.
4. Al-Razeen, A. and Karbhari, Y. (2004), "Interaction between compulsory and voluntary disclosure in Saudi Arabian corporate annual reports", Managerial Auditing Journal, Vol. 19 No. 3, pp. 351-60.
5. Al-Shammari, B. (2014). 'Kuwait Corporate Characteristics and Level of Risk Disclosure: A Content Analysis Approach', Journal of Contemporary Issues in Business Research 3 (3): 128–153.
6. Aljifri, K. and Hussainey, K. (2007). The determinants of forward-looking information in annual reports of UAE companies. Managerial Auditing Journal, 15 (9), 881-94.
7. Alsaeed, K. (2006), "The association between firm-specific characteristics and disclosure: the case of Saudi Arabia", Managerial Auditing Journal, Vol. 21 No. 5, pp. 476-96.
8. Amran, A., Bin, A. M. R., Hassan, B. C. H. M. (2009). 'An exploratory study of risk management disclosure in Malaysian annual reports'. Managerial Auditing Journal, 24(1), 39–57.
9. Arvidsson, S. (2003), Demand and Supply of Information on Intangibles: The Case of Knowledge-Intense Companies. PhD dissertation, Department of Business Administration, Lund University, Sweden.
10. Baraket, A., Hussainey, K. (2013). 'Bank governance, regulation, supervision, and risk reporting: Evidence from operational risk disclosures in European banks'. International Review of Financial Analysis. 30 (2013) 254–273.
11. Barako, D., Hancock, P. and Izan, H. (2006), "Factors influencing voluntary corporate disclosure by Kenyan companies", Corporate Governance, Vol. 14 No. 2, pp. 107-25.
12. Beasley, M.S., Clune, R. and Hermanson, D.R., (2005). 'Enterprise risk management: An empirical analysis of factors associated with the extent of implementation'. Journal of Accounting and Public Policy, vol. 24, no. 6, pp. 521-531.
13. Beattie, V., & Thomson, S. (2007). Lifting the lid on the use of content analysis to investigate intellectual capital disclosures. Accounting Forum, 31(2), 129-163.
14. Beattie, V., McInnes, B., Fearnley, S. (2004). A methodology for analyzing and evaluating narratives in annual reports: a comprehensive descriptive profile and metrics for disclosure quality attributes. Accounting Forum, 28, 205-236.
15. Beretta, S., Bozzolan, S. (2004). 'A framework for the analysis of firm risk communication'. International Journal of Accounting, 39, 265-288.
16. Bowman, E. H. (1984). Content analysis of annual reports for corporate strategy and risk. Interfaces, 14(1), 61-71.
17. Brennan, N. (2001). Reporting intellectual capital in annual reports: evidence from Ireland. Accounting, Auditing & Accountability Journal, 14(4), 423-436.
18. Breton, G., & Taffler, R.J. (2001). Accounting information and analyst stock recommendation decisions: a content analysis approach. Accounting and Business Research, 31(2), 91-101.
19. Cabedo, J. D., Tirado, J. M. (2004). The disclosure of risk in financial statements, Accounting Forum 28, 181-200.
20. Campbell, D. and Slack, R. (2008), "Narrative reporting: analysts perceptions of its value and relevance", available at: www.accaglobal.com /pubs/economy/analysis/acca/technical_ papers /tech_3.pdf (accessed 02/14).
21. Campbell, D.J. (2000), 'Legitimacy theory or managerial reality Construction? Corporate social disclosure in Marks and Spencer Plc corporate reports, 1969-1997' Accounting Forum, Vol. 24 No.1, p. 80-100.
22. Campbell, J. L., Chen, H., Dhaliwal, D. S., Lu, M., & Steele, L. B. (2014). 'The information content of mandatory risk factor disclosures in corporate filings'. Review Accounting Study,19, 396–455.
23. Capital Market Authority. (2007). Available at: http://www. cma.org.sa.
24. Chalmers, K. & Godfrey, J.M. (2004). 'Reputation costs: the impetus of voluntary derivative financial instrument reporting'. Accounting, Organizations and Society29 (2): 95-125.
25. Clatworthy, M., & Jones, M. J. (2003). Financial reporting of good news and bad news: evidence from accounting narratives. Accounting and Business Research, 33(3), 171-185.
26. Combes-Thuelin, E., Henneron, S. and Touron, P., (2006) 'Risk regulations and financial disclosure', Corporate Communications'. An International Journal, vol. 11 no. 3, p. 25.
27. Cooke, T.E. (1989a), 'Voluntary corporate disclosure by Swedish companies', Journal of International Financial Management and Accounting Vol. 1 No. 2, p.
28. Craswell, A. T. and Taylor, S. L. (1992). Discretionary disclosure of reserve by oil and gas companies. Journal of Business Finance and Accounting, 19 (2), 295-308.
29. Dahel, R. (1999). Volatility in Arab stock markets. Paper presented at the workshop on 'Arab stock markets: recent trends and performance', organised by the Arab Planning Institute, Kuwait, March 15-16, 1999.
30. Deumes, R. (2008). 'Corporate Risk Reporting: A Content Analysis of Corporate Risk Disclosures in Prospectuses'. Journal of Business Communication 45 (2): 120–157.
31. Deumes, R., Knechel, R. W. (2008). 'Economic incentives for voluntary reporting on internal risk management and control systems'. Auditing: a Journal of Practice & Theory, 27 (1), 35-66.
32. Dhanani, A. (2003). 'Foreign currency exchange risk management: a case of the mining industry'. British Accounting Review, 35, 35-63.
33. Dobler, M., Lajili, K., Zeghal, D. (2011). 'Attributes of corporate risk disclosure: An international investigation in the manufacturing sector'. Journal of International Accounting Research, 10(2), 1-22.
34. Elkelish, W., Hassan, M.K., (2014). Organizational culture and corporate risk disclosure: an empirical investigation for UAE listed companies, International Journal of Commerce and Management 24(4), 277-299.
35. Elshandidy, T., Fraser, I., Hussainey, K. (2013). 'Aggregated, voluntary, and mandatory risk disclosure incentives: evidence from UK FTSE all-

share companies'. International Review of financial Analysis, accepted manuscript in press.
36. Elshandidy, T., Fraser, I., & Hussainey, K. (2015). What drives mandatory and voluntary risk reporting variations across Germany, UK and US?. The British Accounting Review.
37. Elzahar, H. and Hussainey, K. (2012). Determinants of narrative risk disclosures in UK interim reports. Journal of Risk Finance, 13 (92), 133-147. Finance Journal, 7 (1): 123-130.
38. Field, A (2009). Discovering statistics using SPSS, third ed. London: Sage.
39. Frazier, K.B., Ingram, R.W., & Tennyson, B.M. (1984). A methodology for the analysis of narrative accounting disclosures. Journal of Accounting Research, 22(1), 318–331.
40. Gray, R., Kouhy, R. and Lavers, S. (1995a) 'Corporate social and environmental reporting: a review of the literature and a longitudinal study of UK disclosure', Accounting, Auditing and Accountability, Vol. 8 No. 2, p. 47-77.
41. Gray, R., Kouhy, R. and Lavers, S. (1995b), 'Methodology themes: Constructing a research database of social and environmental reporting by UK companies', Accounting, Auditing and Accountability Journal, Vol. 8 No. 2, p. 78-101.
42. Guthrie, J., & Parker, L. D. (1989). Corporate social reporting: a rebuttal of legitimacy theory. Accounting and business research, 19(76), 343-352.
43. Hackston, D., & Milne, M. J. (1996). Some determinants of social and environmental disclosures in New Zealand companies. Accounting, Auditing and Accountability Journal, 9 (1), 77-108.
44. Hassan, M. K. (2008). 'The level of corporate risk disclosure in UAE'. Proceedings of the British Accounting Association conference, Paramount Imperial Horal, Blackpool.
45. Hassan, M.K. (2009). 'UAE corporations-specific characteristics and level of risk disclosure'. Managerial Auditing Journal, 24 (7), 668-687.
46. Hassan, M.K., (2014). Risk narrative disclosure strategies to enhance organizational legitimacy: evidence from UAE financial institutions. Int. J. Discl. Govern. 11 (1), 1–17.
47. Healy, P. and Palepu, K. (2001). 'Information asymmetry, corporate disclosure, and the capital markets: a review of the empirical disclosure literature'. Journal of Accounting and Economics, 31(1-3), 405-440.
48. Hearn, B. Piesse, J. and Strange, R. (2011). 'The Role of the Stock Market in the Provision of Islamic Development Finance: Evidence from Sudan', Emerging Markets Review, Vol. 12, No. 4, Pp.338-353.
49. Hemrit, W., and M. Ben Arab. (2011). "The Disclosure of Operational Risk in Tunisian Insurance Companies." The Journal of Operational Risk 6 (2): 69–111.
50. Hines, R. (1988), 'Popper's methodology of falsification and accounting research; The Accounting Review, Vol. 63 No. 4, p. 657-662.
51. Holland, J. (1998), 'Private Disclosure and Financial Reporting,' Accounting and Business Research 28(4) p. 255–269.
52. Hughes, P. J. (1986). Signalling by direct disclosure under asymmetric information. Journal of Accounting and Economics, 8 (2), 119-142.
53. Hussainey, K., Schleicher, T., Walker, M. (2003). Undertaking large-scale disclosure studies when AIMR-FAF ratings are not available: the case of prices leading earnings. Accounting and Business Research, 33(4), 275-294.
54. Iatridis, G. (2008). 'Accounting disclosure and firms' financial attributes: evidence from the UK stock market'. International Review of Financial Analysis, 17, 219 241.
55. ICAEW (2002), Perspective Financial Information: Guidance for UK Directors, ICAEW, London.
56. ICAEW (2011), "Reporting business risks: meeting expectations", Information for Better Markets Initiative, ICAEW, Edinburgh.
57. ICAEW. (1999). No surprises: Risk reporting: The case for better risk reporting. London: ICAEW.
58. Jensen, M. C. and Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3 (4): 305-360.
59. Jorion, P. (2002). 'How informative are value at risk disclosures?'. Accounting Review, 77(4), 911-931.
60. Kamla, R. (2007). Critically Appreciating Social Accounting and Reporting in the Arab MiddleEast: A Postcolonial Perspective. Advances in International Accounting, 20, 105-177.
61. Konishi, N., Ali, M. (2007). 'Risk reporting of Japanese companies and its association with corporate characteristics'. International Journal of Accounting and Performance Evaluation, 4 (3), 263-285.
62. Kothari, P., Li, X. and Short, E. (2009), 'The effect of disclosures by management, analysts, and business press on cost of capital, return volatility, and analyst forecasts: a study using content analysis', Accounting Review, Vol.84, No.5, pp. 1639–1670.
63. Krippendorff, K. (1980). Content Analysis: An Introduction to Its Methodology. London: Sage.
64. Lajili, K., (2009). 'Corporate Risk Disclosure and Corporate Governance'. Journal of Risk and Financial Management, vol. 2, pp. 94-117.
65. Lajili, K., Zeghal, D. (2005). 'A content analysis of risk management disclosures in Canadian annual reports'. Canadian Journal of Administrative Sciences, 22 (2), 125-142.
66. Lang, M.H. and R.J. Lundholm (1993), 'Cross-sectional determinants of analyst legitimacy: evidence from UAE financial institutions. International Journal of disclosure and Governance, 11 (1), 1-12.
67. Leuz, C. (2010), "Different approaches to corporate reporting regulation: how jurisdictions differ and why", Accounting and Business Research, Vol. 40 No. 3, pp. 229-256.
68. Li, F. (2010a). Textual analysis of corporate disclosures: A survey of literature. Journal of Accounting Literature, 29, 143-165.
69. Linsley, P. M., & Shrives, P. J. (2003). Risk reporting by German and UK companies: hot air or meaningful disclosure. Paper presented at Financial Reporting and Business Communication conference, Cardiff, United Kingdom.
70. Linsley, P., Shrives, P. (2005). 'Examining risk reporting in UK public companies'. Journal of Risk Finance, 6 (4), 292-305.
71. Linsley, P., Shrives, P. (2005). 'Examining risk reporting in UK public companies'. Journal of Risk Finance, 6 (4), 292-305.
72. Linsley, P., Shrives, P. (2006). 'Risk reporting: a study of risk disclosure in the annual reports of UK companies'. British Accounting Review, 38, 387-404.
73. Linsley, P.M, and M.J. Lawrence. (2007). 'Risk reporting by the largest UK companies: readability and lack of obfuscation'. Accounting, Auditing & Accountability Journal, 20 (4), pp. 620-627.

74. Linsley, P.M., P.J. Shrives, and M. Crumpton. (2006). 'Risk disclosure: an exploratory study of UK and Canadian banks'. Journal of Banking Regulation, 7 (3/4), pp. 268-282.
75. Linsmeier, T., Thornton, D., Venkatachalam, M., Welker, M. (2002). 'The effect of mandated market risk disclosure on trading volume sensitivity to interest rate, exchange rate, and commodity price movements'. Accounting Review, 77(2), 343-377.
76. Lipunga, A. (2014). "Risk Disclosure Practices of Malawian Commercial Banks." Journal of Contemporary Issues in Business Research 3 (3): 154–167.
77. Lopes, P. T., and Rodrigues, L. L. (2007). 'Accounting for financial instruments: An analysis of the determinants of disclosure in the Portuguese stock exchange'. International Journal of Accounting 42(1): 25–56.
78. Madrigal, M., Blanco-Dopico, M., Aibar-Guzman, B., (2012). The influence of mandatory requirements on risk disclosure practices in Spain, International Journal of Disclosure and Governance 9(1), 78-99.
79. Maffei, M., Aria, M., Fiondella, C., Zagaria, R, (2014). Unuseful risk disclosure: explanation from the Italian banks, Managerial Auditing Journal 29(7), 621-648.
80. Magnan, M. and Markarian, G. (2011), "Accounting, governance and the crisis: is risk the missing link?", European Accounting Review, Vol. 20 No. 2, pp. 215-231.
81. Marshall, A. and Weetman, P. (2007). Modeling transparency in disclosure: the case of foreign exchange risk management. Journal of Business Finance and Accounting, 34 (5 & 6): 705-739.
82. Marston, C. L., & Shrives, P.J. (1991). The use of disclosure indices in accounting research: a review article. British Accounting Review, 23 (3) (September), 195-210.
83. Miihkinen, A. (2012). 'What drives quality of firm risk disclosure? The impact of a national disclosure standard and reporting incentives under IFRS'. The International Journal of Accounting, 47 (4), 437-468.
84. Milne, M.J., & Adler, R.W. (1999). Exploring the reliability of social and environmental disclosures content analysis. Accounting, Auditing & Accountability Journal, 12 (2), 237-256.
85. Mohobbot, A. (2005). 'Corporate risk reporting practices in annual reports of Japanese companies'. Japanese Journal of Accounting, 16 (1), 113-133.
86. Mokhtar, E.S., and Mellett, H. (2013), "Competition, corporate governance, ownership structure and risk reporting", Managerial Auditing Journal, Vol. 28 No. 9, pp. 838-865.
87. Mousa, G. and Elamir, E. (2013). Content analysis of corporate risk disclosure: the case of Bahraini capital market. Global Review of Accounting and Finance 4 (1): 27-54.
88. Naser, K., Al-Hussaini, A., Al-Kwari, D. and Nuseibeh, R. (2006), "Determinants of corporate social disclosure in developing countries: the case of Qatar", Advances in International Accounting, Vol. 19, pp. 1-23.
89. Neuendorf, K. A. (2002). The content analysis guidebook (Vol. 300). Thousand Oaks, CA: Sage Publications.
90. Nitm, C. G., Lindop, S., and Thomas, D. A. (2013). 'Corporate governance and risk reporting in South Africa: a study of corporate risk disclosures in the pre- and post-2007/2008 global financial crisis period'. International Review of Financial Analysis 30: 363-383.
91. Oliveira, J. S., L. L. Rodrigues, and R. Craig. (2013). Risk Reporting: A Literature Review. Working paper Number 1/2013, University of Aveiro, Aveiro, Portugal.
92. Oliveira, J., Rodrigues, L.L. and Craig, R. (2011b), "Voluntary risk reporting to enhance institutional and organizational legitimacy: evidence from Portuguese bank", Journal of Financial Regulation and Compliance, Vol. 19 No. 3, pp. 271-289.
93. Oliveira, J., Rodrigues, L.L. and Craig, R., (2011). 'Risk-related disclosures by non-finance companies: Portuguese practices and disclosure characteristics'. Managerial Auditing Journal, vol. 26, no. 9, pp. 817-839.
94. Oliveira, L., Rodrigues, L. L. and Craig, R. (2013). Technical note: company risk-related disclosures in a code law country: a synopsis. Australasian Accounting Business.
95. Oliveira, L., Rodrigues, L.L. and Craig, R. (2006), "Firm-specific determinants of intangibles reporting: evidence from the Portuguese stock market", Journal of Human Resources Costing, Vol. 10 No. 1, pp. 11-33.
96. Onour, I. (2004). Testing weak-form efficiency of Saudi stock exchange market. Saudi Arabia: Ministry of Economy and Planning. Available: http://ssrn.com/abstract=611209. Accessed 22nd April, 2009.
97. Owusu-Ansah, S. (1998), "The impact of corporate attributes on the extent of mandatory disclosure and reporting by listed companies: Zimbabwe", The International Journal of Accounting, Vol. 33, pp. 605-31.
98. Paaple, L. and Spekle, R.F. (2012), "The adoption and design of enterprise risk management practices: an empirical study", European Accounting Review, Vol. 21 No. 3, pp. 533-564.
99. Piesse, J. Strange, R. and Toonsi, F. (2012). 'Is there a Distinctive MENA Model of Corporate Governance?', Journal of Management & Governance, Vol. 16, No. 4, Pp.645 681.
100. PriceWaterhouseCoopers (PWC) (2008), "Accounting for change: transparency in the midst of turmoil", A survey of banks' 2007 Annual Reports, PWC, London.
101. Raffournier, B. (1995), "The determinants of voluntary financial disclosure by Swiss listed companies", European Accounting Review, Vol. 4 No. 2, pp. 261-80.
102. Rajab, B., Handley-Schachler, M. (2009). ,Corporate risk disclosure by UK firms: trends and determinants'. World Review of Entrepreneurship, Management and Sustainable Development, 5 (3), 224-243.
103. Rajgopal, S. (1999). 'Early evidence on the informativeness of the SEC"s market risk disclosure: the case of commodity price risk exposure of oil and gas producers'. Accounting Review, 74(3), 251-280.
104. Richardson, A., & Welker, M. (2001). 'Social Disclosure, Financial Disclosure and the Cost of Equity Capital'. Accounting, Organizations and Society, 26(7/8), 597-616.
105. Roberts, C. & Kamla, R. (2010). 'The global and the local: Arabian Gulf States and imagery in annual reports'. Accounting, Auditing & Accountability Journal, vol. 23, no. 4, pp. 449-481.
106. Roulstone, D. T. (1999). Effect of SEC financial reporting release no. 48 on derivative and market risk disclosures. Accounting Horizons 13 (4): 343–363.
107. Saudi Arabia: Ministry of Economy and Planning. Available: http://ssrn.com/abstract=611209 .

108. Schrand, C., Elliott, J. (1998). 'Risk and financial reporting: A summary of the discussion at the 1997 AAA/FASB conference'. Accounting Horizon, 12(3), 271-282.
109. SFG (2009). The Saudi Stock Market: Structural Issues, Recent Performance and Outlook, Samba Financial Group, Riyadh, Saudi Arabia.
110. Solomon, J.F., Solomon, A., Norton, S.D., Joseph, N.L. (2000). 'A conceptual framework for corporate risk disclosure emerging from the agenda for corporate governance reform'. British Accounting Review, 32 (4), 447-478.
111. Soodanian, l. S., J. Navid, and F. Kheirollahi. (2013). "The Relationship between Firm Characteristics and Internal Control Weaknesses in the Financial Reporting Environment of Companies Listed on the Tehran Stock Exchange." Journal of Applied Environmental and Biological Sciences 3 (11): 68–74.
112. Spence, M. (1973). Job Market Signaling. The Quarterly Journal of Economics, 87(3), 355-374.
113. Tay, H.Y. and Parker, R.H. (1990), 'Measuring international harmonisation and standarisation', Abacus Vol. 26 No. 1, p. 71-88.
114. The Companies Act (1965). The Saudi Companies Act, Ministry of Commerce and Industry, Riyadh, Saudi Arabia.
115. The Listings Rules (2004). The Saudi Tadawul's Listings Rules, The Saudi Stock Exchange (Tadawul), Riyadh, Saudi Arabia.
116. The Saudi Stock Exchange (Tadawul). (2012). Available at: http://www.Tadawul.com.sa.
117. Tilt, C.A. (1994), 'The influence of external pressure groups on corporate social disclosure: Some empirical evidence', Accounting, Auditing and Accountability Journal Vol. 7 No. 4, p. 47-72.
118. Uba Adamu, M. (2013). "Risk Reporting: A Study of Risk Disclosures in the Annual Reports of Listed Companies in Nigeria." Research Journal of Finance and Accounting 4 (16): 140–147.
119. Vandemaele, S., Vergauwen, P., Michels, A. (2009). 'Management Risk Reporting Practices and their Determinants: A Study of Belgian Listed Firms'. Working Paper, Hasselt University.
120. Woods, M., Kajuter, P. and Linsley, P.M. (2007), Risk Management Systems, Internal Control and Corporate Governance, Butterworth Heinemann, London.

APPENDIX

Table A.1. Islamic Risk Disclosure Index

Category and type of reported risks	References
Accounting Policies	
Risk Management	Abdullah et al., 2015; Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000
Objective of Holding Derivatives/ instruments	Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Abdullah et al., 2015
Use of Estimates	Abdullah et al., 2015; Alfredson et al., 2007; ICAEW, 1997, 2000; Hassan, 2009
Collateral Assets against Loans	Alfredson et al., 2007; Abdullah et al., 2015; Hassan, 2009
Financial Assets Impairment	Abdullah et al., 2015; Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Hassan, 2009
Other Assets Impairment	Alfredson et al., 2007; Abdullah et al., 2015; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Hassan, 2009
Contingent Liabilities	Alfredson et al., 2007; ICAEW, 1997, 2000; Abdullah et al., 2015; Hassan, 2009
Contingent Assets	Alfredson et al., 2007; ICAEW, 1997, 2000; Abdullah et al., 2015; Hassan, 2009
Detailed risk management	Lopes and Rodrigues, 2007; Alfredson et al., 2007
Contingency	Abdullah et al., 2015; Hassan, 2009
Financial and other risks	
Pricing Risk	ICAEW, 1997, 2000; Abdullah et al., 2015, Lipunga, 2014
Commodity risk	Abdullah et al., 2015;
Liquidity risk	Abdullah et al., 2015; Alfredson et al., 2007; ICAEW, 1997, 2000; Lipunga, 2014; Hassan, 2009
Credit risk	Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Lipunga, 2014
Capital Adequacy	Lipunga, 2014; Abdullah et al., 2015
Changes in Interest Rates	Abdullah et al., 2015
Credit Risk Exposure	Abdullah et al., 2015
Operational Risk	Abdullah et al., 2015; ICAEW, 1997, 2000; Lipunga, 2014
Insurance Risk	Abdullah et al., 2015; ICAEW, 1997, 2000
Market Risk	Abdullah et al., 2015; Ahmed et al., 2004; Lipunga, 2014
Interest Rate	Lipunga, 2014; Abdullah et al., 2015;
Currency risk	Lipunga, 2014
Exchange Rate	Abdullah et al., 2015
Sustainability Risk	
Sensitivity Analysis	Abdullah et al., 2015; Ahmed et al., 2004
Derivatives hedging and general risks	
Cash flow Hedge	Alfredson et al., 2007; Lopes and Rodrigues, 2007; Abdullah et al., 2015
Equity Risk	Abdullah et al., 2015
Customer Satisfaction	Abdullah et al., 2015
Competition (Service Market)	Abdullah et al., 2015; ICAEW, 1997, 2000
Natural Disasters	ICAEW, 1997, 2000; Abdullah et al., 2015; Lipunga, 2014
Communications	Abdullah et al., 2015
Outsourcing	Abdullah et al., 2015
Reputation	Abdullah et al., 2015; Lipunga, 2014
Reputation risk	Abdullah et al., 2015; Lipunga, 2014
Physical disasters (Explosions and Fire)	Lipunga, 2014
Changes in Technology	Abdullah et al., 2015
Financial instruments	
Derivatives	Hassan, 2009; Abdullah et al., 2015
Cumulative Change in Fair value	Lopes and Rodrigues, 2007; Alfredson et al., 2007; Abdullah et al., 2015
Reserves	
General Reserves	Hassan, 2009; Abdullah et al., 2015
Statutory Reserves	Hassan, 2009; Abdullah et al., 2015
Other Reserves	Hassan, 2009; Abdullah et al., 2015

Table A.1. continued

Category and type of reported risks	References
Segment information	
Geographical Concentration	Alfredson et al., 2007; Abdullah et al., 2015; ICAEW, 1997, 2000
Customer Concentration	Hassan, 2009; Abdullah et al., 2015; ICAEW, 1997, 2000
Business risk	
General Financial Problems	Hassan, 2009
Regional Financial Problems	Hassan, 2009
Political risk	Abdullah et al., 2015
Diversification	
Performance	Abdullah et al., 2015
Compliance	
Compliance with listing rules	Lipunga, 2014
Compliance with financial regulations	Lipunga, 2014
Compliance with companies act requirements	Lipunga, 2014
Compliance with other regulations and laws	Lipunga, 2014
Litigation risk	Lipunga, 2014
Health and Safety	Lipunga, 2014
Category and type of reported risks	**References**
Accounting Policies	
Risk Management	Abdullah et al., 2015; Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000
Objective of Holding Derivatives/ instruments	Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Abdullah et al., 2015
Use of Estimates	Abdullah et al., 2015; Alfredson et al., 2007; ICAEW, 1997, 2000; Hassan, 2009
Collateral Assets against Loans	Alfredson et al., 2007; Abdullah et al., 2015; Hassan, 2009
Financial Assets Impairment	Abdullah et al., 2015; Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Hassan, 2009
Other Assets Impairment	Alfredson et al., 2007; Abdullah et al., 2015; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Hassan, 2009
Contingent Liabilities	Alfredson et al., 2007; ICAEW, 1997, 2000; Abdullah et al., 2015; Hassan, 2009
Contingent Assets	Alfredson et al., 2007; ICAEW, 1997, 2000; Abdullah et al., 2015; Hassan, 2009
Detailed risk management	Lopes and Rodrigues, 2007; Alfredson et al., 2007
Contingency	Abdullah et al., 2015; Hassan, 2009
Financial and other risks	
Pricing Risk	ICAEW, 1997, 2000; Abdullah et al., 2015, Lipunga, 2014
Commodity risk	Abdullah et al., 2015
Liquidity risk	Abdullah et al., 2015; Alfredson et al., 2007; ICAEW, 1997, 2000; Lipunga, 2014; Hassan, 2009
Credit risk	Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Lipunga, 2014
Capital Adequacy	Lipunga, 2014; Abdullah et al., 2015
Changes in Interest Rates	Abdullah et al., 2015
Credit Risk Exposure	Abdullah et al., 2015
Operational Risk	Abdullah et al., 2015; ICAEW, 1997, 2000; Lipunga, 2014
Insurance Risk	Abdullah et al., 2015; ICAEW, 1997, 2000
Market Risk	Abdullah et al., 2015; Ahmed et al., 2004; Lipunga, 2014
Interest Rate	Lipunga, 2014; Abdullah et al., 2015
Currency risk	Lipunga, 2014
Exchange Rate	Abdullah et al., 2015
Sustainability Risk	
Sensitivity Analysis	Abdullah et al., 2015; Ahmed et al., 2004
Derivatives hedging and general risks	
Cash flow Hedge	Alfredson et al., 2007; Lopes and Rodrigues, 2007; Abdullah et al., 2015
Equity Risk	Abdullah et al., 2015
Customer Satisfaction	Abdullah et al., 2015
Competition (Service Market)	Abdullah et al., 2015; ICAEW, 1997, 2000
Natural Disasters	ICAEW, 1997, 2000; Abdullah et al., 2015; Lipunga, 2014
Communications	Abdullah et al., 2015
Outsourcing	Abdullah et al., 2015
Reputation	Abdullah et al., 2015; Lipunga, 2014
Reputation risk	Abdullah et al., 2015; Lipunga, 2014
Physical disasters (Explosions and Fire)	Lipunga, 2014
Changes in Technology	Abdullah et al., 2015
Financial instruments	
Derivatives	Hassan, 2009; Abdullah et al., 2015
Cumulative Change in Fair value	Lopes and Rodrigues, 2007; Alfredson et al., 2007; Abdullah et al., 2015
Reserves	
General Reserves	Hassan, 2009; Abdullah et al., 2015
Statutory Reserves	Hassan, 2009; Abdullah et al., 2015
Other Reserves	Hassan, 2009; Abdullah et al., 2015
Segment information	
Geographical Concentration	Alfredson et al., 2007; Abdullah et al., 2015; ICAEW, 1997, 2000
Customer Concentration	Hassan, 2009; Abdullah et al., 2015; ICAEW, 1997, 2000
Business risk	
General Financial Problems	Hassan, 2009
Regional Financial Problems	Hassan, 2009
Political risk	Abdullah et al., 2015
Diversification	
Performance	Abdullah et al., 2015
Compliance with regulations	
Compliance with listing rules	Lipunga, 2014
Compliance with financial regulations	Lipunga, 2014
Compliance with companies act requirements	Lipunga, 2014

Table A.1. continued

Category and type of reported risks	References
Compliance with other regulations and laws	Lipunga, 2014
Litigation risk	Lipunga, 2014
Health and Safety	Lipunga, 2014
Islamic Bank Risk characteristics	
Mudarabah risk	IFSB 2007
Musharakah risk	IFSB 2007
Murabaha risk	IFSB 2007
Ijarah risk	IFSB 2007
Qard Hasan risk	IFSB 2007
Al-Istisna risk	IFSB 2007
Salam risk	IFSB 2007
Sukuk risk	IFSB 2007
Wakalah risk	IFS B2007
AAIOFI Standards	
Unusual supervisory restrictions	AAIOFI 2014
Earnings or expenditures prohibited by shari'a law	AAIOFI 2014
The method used by the Islamic bank to allocate investment profits (loss) between unrestricted investment account holders or their equivalent and the Islamic bank as a Mudarib or as an investment with its own funds	AAIOFI 2014
Statement of restricted investments	AAIOFI 2014

Table B.1. Non-Islamic Risk Disclosure Index

Category and type of reported risks	References
Accounting Policies	
Risk Management	Abdullah et al., 2015; Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000
Objective of Holding Derivatives/ instruments	Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Abdullah et al., 2015
Use of Estimates	Abdullah et al., 2015; Alfredson et al., 2007; ICAEW, 1997, 2000; Hassan, 2009
Collateral Assets against Loans	Alfredson et al., 2007; Abdullah et al., 2015; Hassan, 2009
Financial Assets Impairment	Abdullah et al., 2015; Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Hassan, 2009
Other Assets Impairment	Alfredson et al., 2007; Abdullah et al., 2015; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Hassan, 2009
Contingent Liabilities	Alfredson et al., 2007; ICAEW, 1997, 2000; Abdullah et al., 2015; Hassan, 2009
Contingent Assets	Alfredson et al., 2007; ICAEW, 1997, 2000; Abdullah et al., 2015; Hassan, 2009
Detailed risk management	Lopes and Rodrigues, 2007; Alfredson et al., 2007
Contingency	Abdullah et al., 2015; Hassan, 2009
Financial and other risks	
Pricing Risk	ICAEW, 1997, 2000; Abdullah et al., 2015, Lipunga, 2014
Commodity risk	Abdullah et al., 2015
Liquidity risk	Abdullah et al., 2015; Alfredson et al., 2007; ICAEW, 1997, 2000; Lipunga, 2014; Hassan, 2009
Credit risk	Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Lipunga, 2014
Capital Adequacy	Lipunga, 2014; Abdullah et al., 2015
Changes in Interest Rates	Abdullah et al., 2015
Credit Risk Exposure	Abdullah et al., 2015
Operational Risk	Abdullah et al., 2015; ICAEW, 1997, 2000; Lipunga, 2014
Insurance Risk	Abdullah et al., 2015; ICAEW, 1997, 2000
Market Risk	Abdullah et al., 2015; Ahmed et al., 2004; Lipunga, 2014
Interest Rate	Lipunga, 2014; Abdullah et al., 2015
Currency risk	Lipunga, 2014
Exchange Rate	Abdullah et al., 2015
Sustainability Risk	
Sensitivity Analysis	Abdullah et al., 2015; Ahmed et al., 2004
Derivatives hedging and general risks	
Cash flow Hedge	Alfredson et al., 2007; Lopes and Rodrigues, 2007; Abdullah et al., 2015
Equity Risk	Abdullah et al., 2015
Customer Satisfaction	Abdullah et al., 2015
Competition (Service Market)	Abdullah et al., 2015; ICAEW, 1997, 2000
Natural Disasters	ICAEW, 1997, 2000; Abdullah et al., 2015; Lipunga, 2014
Communications	Abdullah et al., 2015
Outsourcing	Abdullah et al., 2015
Reputation	Abdullah et al., 2015; Lipunga, 2014
Reputation risk	Abdullah et al., 2015; Lipunga, 2014
Physical disasters (Explosions and Fire)	Lipunga, 2014
Changes in Technology	Abdullah et al., 2015
Financial instruments	
Derivatives	Hassan, 2009; Abdullah et al., 2015
Cumulative Change in Fair value	Lopes and Rodrigues, 2007; Alfredson et al., 2007; Abdullah et al., 2015
Reserves	
General Reserves	Hassan, 2009; Abdullah et al., 2015
Statutory Reserves	Hassan, 2009; Abdullah et al., 2015
Other Reserves	Hassan, 2009; Abdullah et al., 2015
Segment information	
Geographical Concentration	Alfredson et al., 2007; Abdullah et al., 2015; ICAEW, 1997, 2000
Customer Concentration	Hassan, 2009; Abdullah et al., 2015; ICAEW, 1997, 2000
Business risk	
General Financial Problems	Hassan, 2009

Table B.1. continued

Category and type of reported risks	References
Regional Financial Problems	Hassan, 2009
Political risk	Abdullah et al., 2015
Diversification	
Performance	Abdullah et al., 2015
Compliance	
Compliance with listing rules	Lipunga, 2014
Compliance with financial regulations	Lipunga, 2014
Compliance with companies act requirements	Lipunga, 2014
Compliance with other regulations and laws	Lipunga, 2014
Litigation risk	Lipunga, 2014
Health and Safety	Lipunga, 2014
Category and type of reported risks	**References**
Accounting Policies	
Risk Management	Abdullah et al., 2015; Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000
Objective of Holding Derivatives/ instruments	Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Abdullah et al., 2015
Use of Estimates	Abdullah et al., 2015; Alfredson et al., 2007; ICAEW, 1997, 2000; Hassan, 2009
Collateral Assets against Loans	Alfredson et al., 2007; Abdullah et al., 2015; Hassan, 2009
Financial Assets Impairment	Abdullah et al., 2015; Alfredson et al., 2007; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Hassan, 2009
Other Assets Impairment	Alfredson et al., 2007; Abdullah et al., 2015; Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Hassan, 2009
Contingent Liabilities	Alfredson et al., 2007; ICAEW, 1997, 2000; Abdullah et al., 2015; Hassan, 2009
Contingent Assets	Alfredson et al., 2007; ICAEW, 1997, 2000; Abdullah et al., 2015; Hassan, 2009
Detailed risk management	Lopes and Rodrigues, 2007; Alfredson et al., 2007
Contingency	Abdullah et al., 2015; Hassan, 2009
Financial and other risks	
Pricing Risk	ICAEW, 1997, 2000; Abdullah et al., 2015, Lipunga, 2014
Commodity risk	Abdullah et al., 2015
Liquidity risk	Abdullah et al., 2015; Alfredson et al., 2007; ICAEW, 1997, 2000; Lipunga, 2014; Hassan, 2009
Credit risk	Lopes and Rodrigues, 2007; ICAEW, 1997, 2000; Lipunga, 2014
Capital Adequacy	Lipunga, 2014; Abdullah et al., 2015
Changes in Interest Rates	Abdullah et al., 2015
Credit Risk Exposure	Abdullah et al., 2015
Operational Risk	Abdullah et al., 2015; ICAEW, 1997, 2000; Lipunga, 2014
Insurance Risk	Abdullah et al., 2015; ICAEW, 1997, 2000
Market Risk	Abdullah et al., 2015; Ahmed et al., 2004; Lipunga, 2014
Interest Rate	Lipunga, 2014; Abdullah et al., 2015
Currency risk	Lipunga, 2014
Exchange Rate	Abdullah et al., 2015
Sustainability Risk	
Sensitivity Analysis	Abdullah et al., 2015; Ahmed et al., 2004
Derivatives hedging and general risks	
Cash flow Hedge	Alfredson et al., 2007; Lopes and Rodrigues, 2007; Abdullah et al., 2015
Equity Risk	Abdullah et al., 2015
Customer Satisfaction	Abdullah et al., 2015
Competition (Service Market)	Abdullah et al., 2015; ICAEW, 1997, 2000
Natural Disasters	ICAEW, 1997, 2000; Abdullah et al., 2015; Lipunga, 2014
Communications	Abdullah et al., 2015
Outsourcing	Abdullah et al., 2015
Reputation	Abdullah et al., 2015; Lipunga, 2014
Reputation risk	Abdullah et al., 2015; Lipunga, 2014
Physical disasters (Explosions and Fire)	Lipunga, 2014
Changes in Technology	Abdullah et al., 2015
Financial instruments	
Derivatives	Hassan, 2009; Abdullah et al., 2015
Cumulative Change in Fair value	Lopes and Rodrigues, 2007; Alfredson et al., 2007; Abdullah et al., 2015
Reserves	
General Reserves	Hassan, 2009; Abdullah et al., 2015
Statutory Reserves	Hassan, 2009; Abdullah et al., 2015
Other Reserves	Hassan, 2009; Abdullah et al., 2015
Segment information	
Geographical Concentration	Alfredson et al., 2007; Abdullah et al., 2015; ICAEW, 1997, 2000
Customer Concentration	Hassan, 2009; Abdullah et al., 2015; ICAEW, 1997, 2000
Business risk	
General Financial Problems	Hassan, 2009
Regional Financial Problems	Hassan, 2009
Political risk	Abdullah et al., 2015
Diversification	
Performance	Abdullah et al., 2015
Compliance with regulations	
Compliance with listing rules	Lipunga, 2014
Compliance with financial regulations	Lipunga, 2014
Compliance with companies act requirements	Lipunga, 2014
Compliance with other regulations and laws	Lipunga, 2014
Litigation risk	Lipunga, 2014
Health and Safety	Lipunga, 2014

ENVIRONMENTAL MANAGEMENT ACCOUNTING: A CONCEPTUAL MODEL FOR THE REPORTING OF ENVIRONMENTAL COSTS

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Abstract

The overall aim of this study was to identify factors that affect the use of EMA by the hotel sector in South Africa. The research was an exploratory study and qualitative in nature using a single case study with embedded units approach. ABC Hotel Management Group along its 3 hotels located in the province of KwaZulu-Natal, South Africa, met the selection criteria and thus formed part of this study. There were 10 participants in this case study. Additional documents were analysed which included financial statements, policy documents, the Group website, the hotels' websites, Group Energy Profile Analysis (GEPA) programme, and Building Monitoring Systems (BMS). The results of this research established a number of factors that affect the use of EMA by the hotel sector in South Africa. The adoption of a prototype EMA model by the hotel sector is then suggested by the study.

Keywords: Developing Economy, EMA Model, Environmental Costs, Environmental Reporting, Hotel Sector

1. INTRODUCTION

As the business world endeavours to respond to increasing pressure from various stakeholders to reduce the impact of its activities on the physical environment, the need for new techniques to assist managers in meeting the challenge of environmental sustainability becomes apparent. One method suggested as being able to align corporate activities with the environmental agenda more closely is EMA (Christ and Burritt, 2013: 163). Moreover, these pressures have forced organisations to have ER practices in place which are seen as the vehicle for providing environmental data designed to satisfy the accountability relationships and to indicate corporate consciousness through a moral discourse on environmental issues (Sumiani, Haslinda, and Lehman, 2007: 896). According to Boutena and Hoozée (2013: 334), there is a relationship between ER and EMA, meaning that procedural changes in one may elicit procedural changes in the other. Despite the positive outcomes that emerge from implementing EMA tools, the EMA adoption rate for environmental reporting is still low in the developing economies such as South Africa (Nyide and Lekhanya, 2016: 482).

2. PROBLEM STATEMENT

Research indicates that ER has become part of companies' daily affairs, where the question now is no longer whether to report or not, but how to report (Hsieh, 2012: 113). In terms of Assaf, Josiassen, and Cvelbar (2012: 597), ER has the potential to give the hotel sustainable competitive advantage because an increase in the firm's ER often contributes positively in environmental performance. However, several studies maintain that there are no consistent environmental reporting standards that have been established in the hotel industry (Hsieh, 2012: 109; Rao, Tilt, and Lester, 2012: 144; Ni, Chan and Wong, 2012: 189). This problem might be a contributing factor towards the hotel sector's slow response rate to the call to disclose environmental costs. Therefore, this study seeks to propose the adoption of an EMA model to enhance the reporting of environmental costs by the hotel sector.

3. RESEARCH AIM AND OBJECTIVES

3.1. Aim

The main aim of this research is to identify the existing critical factors affecting the use of EMA by the hotel sector in South Africa and then propose the adoption of an EMA model to improve the reporting of environmental costs by this sector.

3.2. Objectives

- To identify internal and external factors affecting the use of EMA by the hotel sector in South Africa.
- To suggest a prototype EMA model to improve the reporting of environmental cost by the South African hotel sector.

4. ENVIRONMENTAL REPORTING IN THE HOTEL SECTOR

ER is broadly defined as a means of providing information relating to the environmental implications of the firm's operations (Rao et al.,

2012: 143). This information is often disclosed in corporate environmental reports, which Hsieh (2012: 109) describes as publicly available, freestanding documents that companies use to communicate environmental performance to their stakeholders. These reports often contain information regarding the company's policy, overall position with regard to the environment, progress towards specific targets established in previous reports, and new targets to improve performance. Traditionally, these reports have been produced in hard copy annually and freely distributed to selected recipients or have been available on request. Assaf et al. (2012: 596) point out that ER is integrated to triple bottom line (TBL) reporting – a comprehensive approach to achieve sustainability as it integrates reporting on environmental, social and financial issues. Rao et al. (2012: 144) assert that there is a growing trend for organisations throughout the world to provide information that relate to their environmental activities. However, some countries do not have mandatory requirements for organisations to disclose their financial performance. In the study conducted by Hsieh (2012: 112), 50 hotel chains were sampled and these companies have 45 245 hotel units worldwide, and it was discovered that only 46 percent of the sampled hotels include environmentally-related information on their web sites. Of those, 69 percent were Europe-based hotel companies, 37 percent were North America-based hotel companies, and 33 percent were based in Asia. The European trend towards greater environmental reporting by hotel companies was based on the fact that governments in Western Europe and Japan were found to either mandate or encourage certain corporate environmental disclosures (Hsieh, 2012: 112). The study further revealed that hotel establishments seem slow to respond to the call to disclose environmental information (Hsieh, 2012: 112).

Hotels, being relatively low polluters, ER is considered to be in the early stages (Janković and Krivačić, 2014: 114). However, for larger hotel groups with publicly-traded shares, there is greater pressure to report on environmental performance and those hotels with newer buildings (with newer cleaner technologies) are considered to have a higher environmental performance and therefore have a willingness to report on their environmental performance (Font, Walmsley, McCombes, and Häusler, 2012: 1546). Jones (2010: 131) asserts that organisations should be accountable for the environment because they are stewards of the environment. The author further mentions that organisations can be seen as being accountable to their shareholders for their stewardship of natural assets. Rao et al. (2012: 145) add that environmental reporting is crucial for organisations' long-term survival and organisations need to be sure that there are no 'skeletons in the closet' which may, subsequently, come to the light, damaging the reputation and viability of the organisation. Font et al. (2012: 1546) stress that ER should be mandatory. This argument is supported by Jones (2010: 134) who states that mandatory regulation is likely to be more effective than voluntary regulation.

5. GLOBAL ENVIRONMENTAL REPORTING INITIATIVES AND STANDARDS

According to Hsieh (2012: 113), Global Report Initiative (GRI), such as G4 standard sustainability reporting guidelines, have been widely adopted by firms and, therefore, hotel companies can adopt these reporting standards. Milne and Gray (2013: 18) and Willis (2003: 233) point out that GRI has since arguably became the most influential institution with the aim of developing a voluntary reporting framework that will elevate sustainability reporting practices to a level equivalent to that of financial reporting in rigour, comparability, auditability and general acceptance. Global Report Initiative (2015) echo that a sustainability report conveys disclosures on an organization's most critical impacts – be they positive or negative – on the environment, society and the economy. By using the Guidelines, reporting organisations can generate reliable, relevant and standardized information with which to assess opportunities and risks, and enable more informed decision-making – both within the business and among its stakeholders. Table 1 shows the set of G4 standard guidelines that firms are expected to follow.

Table 1. GRI - G4 Guidelines for environmental reporting

Economic	Environmental
- Economic Performance - Market Presence - Indirect Economic Impacts - Procurement Practices	- Materials - Energy - Water - Biodiversity - Emissions - Effluents and Waste - Products and Services - Compliance - Transport - Overall - Supplier Environmental Assessment - Environmental Grievance Mechanisms

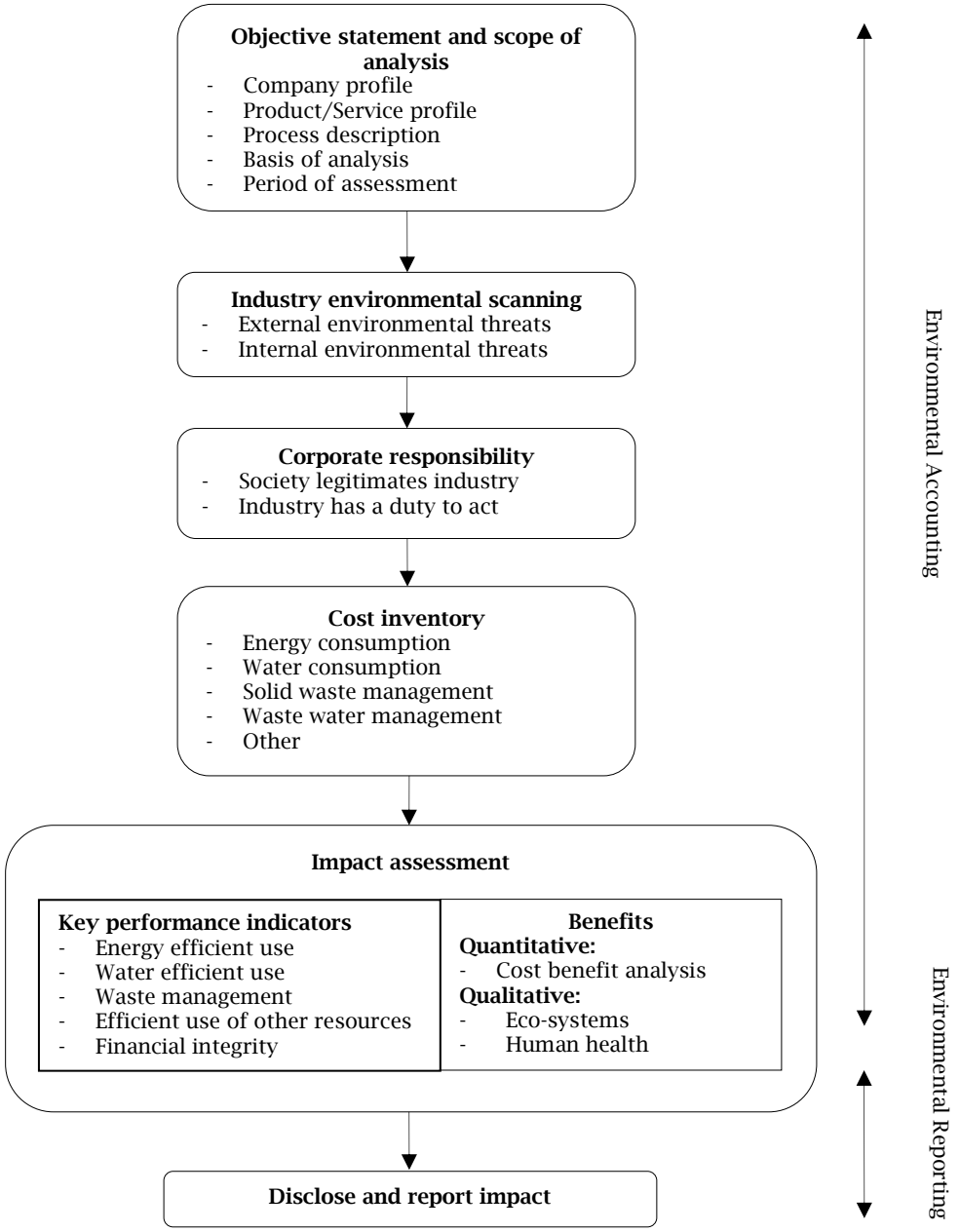
Source: Global Reporting Initiative (2015)

These guidelines provide sustainable performance indicators, as pointed out by Jones (2010: 133). Ni et al. (2012: 178) echo that this promotes a standardised reporting system that facilitates the comparison of results of various hotel operations and it fosters greater reporting conformity. Vigneau, Humphreys, and Moon (2014: 4) maintain that, by providing reporting guidelines, the GRI aims at promoting organisational transparency and accountability as well as stakeholder engagement. The GRI also provides application-level information, as corporations can self-assess their reports (or get a third party assurance), based on the number of GRI indicators disclosed in their reports. It is clear that the GRI is now providing more information about what to report (performance indicators), than how to report (protocol of reporting); placing importance on certain issues, such as materiality, stakeholder and social inclusiveness. As a result, companies are integrating these issues into their business practices (Vigneau et al., 2014: 5).

6. PROPOSED EMA MODEL

Figure 1 shows a proposed EMA model for the adoption by the hotel sector. Having reviewed the literature about the use of EMA tools, this study suggests the adoption of the model, as depicted in Figure 1, which underpins the EMA and reporting.

Figure 1. Proposed EMA and reporting model for the hotel sector



Source: Adopted from Jones (2010: 125 and De Beer and Friend (2006: 552)

This model consists of six major parts and is based on prior literature (Jones, 2010: 125; de Beer and Friend, 2006: 552) and on the principles of the total cost assessment environmental management accounting. The model consists of pathways, which the hotel sector must follow in a specific analysis of the environmental impacts on the hotels. These different pathways depend on the objective statement and scope of analysis, and the amount of data the user needs to acquire or record. This model is intended to serve as a tool used by the hotel sector to analyse the environment in which the hotel operates and assess the impact of the hotels' activities on the environment (using a combination of EMA tools) and suggest ways to avert or minimise such impacts for the good of the environment and to report on the environmental costs associated with the hotels' activities.

6.1. Objective statement and scope of analysis

The first step of the model is the compilation of an

objective statement and scope of analysis that incorporates an analysis background. An analysis background entails a background of the hotels and provides some informative value to the product and process being considered. The scope of analysis determines the type of cost comparison and the time frame that is desired for the analysis.

6.2. Industry environmental scanning

This step includes factors which are external to the hotels e.g., environmental and social effects that occur to the general public and also internal factors affecting the environment, e.g., air emissions.

6.3. Corporate responsibility

Under the broad heading of corporate responsibility, two interlocking premises will be discussed:

6.3.1. Society legitimises industry

According to Jones (2010: 127), under this premise, commonly put forward by environmental accounting researchers, is that the authority of hotels may be seen as legitimised by society through minimally accepted moral standards (legally enshrined) and through collective societal moral responsibility

6.3.2. Industry has a duty to act

As per this premise, the organisation or individual (and that includes managers and accountants) cannot afford to be complacent when faced with potential environmental threats.

6.4. Cost inventory

Economic values will be calculated by recording/entering all relevant present and future environmental costs and revenues in cost inventory forms. These forms are categorised into the following environmental groups: energy consumption, waste, waste water, solid waste, and other costs that do not fit into any of the categories above.

6.5. Impact assessment

Following the cost allocation in the cost inventory, the impact can then be assessed to ascertain the sustainability indicators, e.g., energy efficient use and resource efficient use.

6.6. Disclose and report impact

The final report can be compiled according to company specific regulations, incorporating the reported value/s as given in the costs incurred by type form, the cost types by year form and the cost report form of the model.

7. RESEARCH METHODOLOGY

The research consisted of literature review and empirical study. The historical review laid a foundation that guided empirical study and provided an insight and understanding into the research problem.

Qualitative exploratory case study research method has been adopted in this study. This type of case study is used to explore those situations in which the intervention being evaluated has no clear, single set of outcomes (Yin, 2012). The use of case study as a research methodology to collect data is appropriate for this study because it is a means to provide rich drawings, descriptions, considerations and clarifications of the events being investigated. The primary data collection for this study came in the form of in-depth interviews using semi-structured questions. Furthermore, additional documents were analysed. These included the hotels' Group Energy Profile Analysis programme (GEPA), Building Management System (BMS), financial statements, policies and the group websites together with their individual hotel websites.

Purposive sampling was used in this study because, with purposive sampling, one needs to use one's judgement to select cases that will best enable the researcher to answer research questions and to meet objectives (Saunders, Lewis, and Thornhill, 2012). The hotels had to have an already developed EMS. Therefore, it had to have either a Green Leaf Eco Standard certification, Heritage Environmental certification or Fair Trade Tourism certification. The selected case is that of a hotel management company (for confidentiality purposes will be referred to as ABC Hotel Management Group) with its 3 hotels which met the selection criteria. The environmental management challenges faced by these establishments are universal. A total of 10 individuals participated in this study, which consisted of 3 general managers, 3 financial managers, 3 maintenance managers, and the Group engineer. Creswell (2015) recommends a sample size of between 3 to 10 participants for phenomenology studies like this one. The interviews were conducted between May and June 2015 based on the availability of the informants.

8. RESEARCH FINDINGS

To ensure triangulation, field notes from direct observation, documentation and hotel websites were also incorporated into the analysis of data to complement in-depth interviews. This exercise was performed to ensure reliability and validity of the findings and thus address bias. Cross-case synthesis was use and the results were analysed in accordance to the theme and objectives. Table 2 shows the theme, objectives and interview questions that were used in this study. For each hotel, group interviews were held with the hotel management team (hence each table has only four columns which represent responses from the Group engineer and the management team from hotel A, B, and C).

Table 2. Theme, objectives and interview questions

Themes	Objectives	Interview questions
Internal and external factors enabling the use of EMA	To identify internal and external factors affecting the use of EMA by the hotel sector in South Africa	Does the hotel have any form of environmental reporting? If yes, what is reported? Is it including the major environmental costs? At what level are the major environmental costs reported (if any)?
		Does the hotel trace any of the major environmental costs (either physical or monetary)? If yes, what are they and how are they categorised?
		Do you think the hotel should provide major environmental cost information as a means to increase environmental awareness and encourage behaviour change? If not, why not? If so, whom do you think should be provided with this information (consider in your answer both general managers and administrative divisions)? What do you think would be the major barriers (either technical or political) to the provision of such information to heads of departments or internal managers?
		Are there barriers (either technical or political) in the provision of such environmental reporting? If yes, please explain.
		Are there any impediments, either technical and/or political, to provide an internal report on environmental performance to related parties?
		Does the hotel issue any internal report on environmental performance? If yes, at what level is the environmental performance assessed and what is the purpose of issuing this report? If not, why not (e.g. not mandatory, not a normal practice in hotels, or not cost effective)? Are there any impediments, either technical or political, to provide an internal report on environmental performance?

The results are discussed below as follows:

Theme Internal and external factors enabling the use of EMA

Table 3. Environmental reporting and major environmental costs

Question	Does the hotel have any form of environmental reporting? If yes, what is reported? Is it including the major environmental costs? At what level are the major environmental costs reported (if any)?			
	Hotel A	**Hotel B**	**Hotel C**	**Group Engineer**
	Yes. Energy and water consumption are reported monthly using the internal system (BMS). It is reported hotel wide.	Yes. Energy, water and waste are reported subject to Green Leaf Eco Standard. These are reported monthly across all divisions with the hotel.	Yes. Energy, waste and water. Reported internally across the board.	Yes. Reported monthly to the regional manager. It is included in the General managers' pack. Water, energy and occupancy (which includes conferencing, bed nights sold and room nights sold). The reporting is done across all departments.

In Table 3, the hotel management was positive towards the question. However, there appears to be an inconsistency in the way environmental reporting is done. Having said that, energy, water and waste are the major costs reported by hotels B and C, whilst A focuses on energy and water consumption and these were also mentioned by the group engineers who also added occupancy-related information. There seems to be a lack of standardised information reported by the hotels under study.

Table 4. Tracing of environmental costs

Question	Does the hotel trace any of the major environmental costs (either physical or monetary)? If yes, what are they and how are they categorised?			
	Hotel A	**Hotel B**	**Hotel C**	**Group Engineer**
	Both physical and monetary. These are recorded separately. Water and lights.	'Consumption more than monetary' Recorded separately. Energy, water and waste.	Physical information Recorded separately. Water, energy and waste.	Yes, GEPA is used to trace the major environmental costs. Both monetary and physical information is recorded. Water, energy and occupancy information.

According to Table 4, respondents were in agreement to the question and to recording the major environmental costs separately. However, there was no consensus on the way the major environmental costs are traced. The group engineer reported that environmental costs are traced using both financial and physical information. This is similar to what hotel A is doing. On the contrary, hotels B and C trace the major environmental costs using physical information more than monetary information. Water and energy are the major costs widely traced by the group even though hotels B and C also trace waste-related costs (physical). As indicated in the above discussion, environmental reporting can be considered as the necessity to demonstrate the hotels' environmental responsibility. However, the most significant problem is that disclosed environmental information is not fully comparable, which makes it a challenge to rank hotels depending on their environmental responsibility. The reason for this problem is the lack of information about how data is measured.

Table 5. Environmental cost information and awareness

Question	**Do you think the hotel should provide major environmental cost information as a means to increase environmental awareness and encourage behaviour change? If not, why not? If so, whom do you think should be provided with this information (consider in your answer both general managers and administrative divisions)? What do you think would be the major barriers (either technical or political) to the provision of such information to heads of departments or internal managers?**		
Hotel A	**Hotel B**	**Hotel C**	**Group Engineer**
Yes. On the webpage and broader booking platforms. No barriers.	Yes. To everyone and improve the Green Leaf Eco Standard scoring which currently stands at 75%. No barriers.	Yes (internally). Staff and guests. No barriers.	Yes. Everyone Technically it would be a challenge. Confidentiality and completion.

Informants were in agreement towards the question. However, confidentiality was the main concern for the provision of information relating to major environmental costs for the hotel. Therefore, Table 5 shows that even though the informants responded that the information should be provided to everyone, the emphasis was that it should be provided internally. The general managers along with the maintenance managers and financial managers responded that there are no barriers to the provision of such information, contrary to the view of the group engineer who cited technical barriers, competition and confidentiality.

Table 6 shows that the hotel management is congruent with the question in responding that there are no barriers to the provision of environmental reporting. However, there is some consideration that technical skills are a potential barrier.

The hotel management's responses were divided towards the question in Table 7. The main concerns were confidentiality and the availability of technical skills.

Table 6. Barriers for environmental reporting

Question	**Are there barriers (either technical or political) in the provision of such environmental reporting? If yes, please explain.**		
Hotel A	**Hotel B**	**Hotel C**	**Group Engineer**
No barriers.	No barriers.	No barriers.	It would require technical skills.

Table 7. Impediments for internal reporting

Question	**Are there any impediments, either technical and/or political, to provide an internal report on environmental performance to related parties?**		
Hotel A	**Hotel B**	**Hotel C**	**Group Engineer**
Yes. Confidentiality if provided externally.	No.	No.	Yes. Technical skills

Table 8. Issuing of the internal report on environmental performance

Question	**Does the hotel issue any internal report on environmental performance? If yes, at what level is the environmental performance assessed and what is the purpose of issuing this report? If not, why not (e.g. not mandatory, not a normal practice in hotels, or not cost effective)? Are there any impediments, either technical or political, to provide an internal report on environmental performance?**		
Hotel A	**Hotel B**	**Hotel C**	**Group Engineer**
Yes. Across the board. None.	Yes. Across the board. None.	Yes. Hotel-wide. None	No. Lack of understanding and no reason and incentives to drive it down. No technical skills.

Contrary to the group engineer's response to the questions asked in Table 8, the management of hotels A, B and C agreed that their respective hotels issue internal reports on environmental performance

across all departments and there are no impediments to provide such reports. On the other hand, the group engineer disagreed that the hotels issue internal reports on environmental performance citing that there is no reason to do so and there is lack of understanding and incentives and also there are no technical skills to issue such a report.

8.1. Summary of key findings

8.1.1. The use of EMA tools to report environmental costs

In Table 4, the group engineer revealed that the organisation uses GEPA to trace the major environmental costs by analysing physical quantities the hotels consume and the associated costs incurred. This practice was confirmed by informants from other hotels who conceded that both BMS and GEPA are used for the analyses and recording of both financial and physical information. This confirms the use of EMA tools to report environmental costs.

8.1.2. Factors affecting the use of EMA to report environmental costs

By definition, EMA facilitates the identification and allocation of major environmental costs for their effective management. However, in Table 5 – Table 8, it is evident that that this process is currently a challenge within the group because of lack of knowledge, skills and understanding. This lack of knowledge, skills and understanding may serve as an impediment for the effective implementation of EMA tools.

9. LIMITATIONS

This study was limited to hotels within the province of KwaZulu-Natal, a province in South Africa, using a single case study with embedded units approach. Generalisation should be exercised with care in terms of the findings being applicable to all hotels in the developing economy. It may add value to use multiple case studies in order to increase rigour of the analysis and to compliment this study.

10. IMPLICATIONS

It is revealed from the investigated cases that there is concern pertaining to data inaccuracies and the understanding of data which can be attributed to a number of factors such as lack of skills, knowledge, and experience. This has resulted in the inconsistent application of EMA tools. Therefore, this study suggests the application of an EMA model which provides pathways which the hotels must follow in a specific analysis of the environmental impacts on the hotel.

11. RECOMMENDATIONS

11.1. Recommendations for ABC Hotel Management Group

Uniformity and consistency are recommended in the application of the EMA tools across all hotels in order to maintain order and facilitate the comparability of data and to improve monitoring and controlling. This will also facilitate the implementation of these tools in other facilities that are currently not resourced with these tools because similar systems will be implemented across all hotels managed by the Group. The group is also encouraged to conduct workshops for its hotel management and all the decision makers to create awareness about systems that are currently in use aimed at reducing and managing environmental costs. These workshops and training sessions are envisaged to optimise the use of the technologies and tools currently implemented with the aim of improving the Group's performance.

11.2. Recommendations for future research

This study suggested the adoption of an EMA model by the hotel sector. Future research is encouraged to critically evaluate the applicability and the effectiveness of this model and suggest any possible improvements.

REFERENCES

1. Assaf, A.G., Josiassen, A. and Cvelbar, L.K. 2012. Does Triple Bottom Line reporting improve hotel performance? International Journal of Hospitality Management, 31: 596 – 600.
2. Bouten, L. and Hoozée, S. 2013. On the interplay between environmental reporting and management accounting change. Management Accounting Research, 24:333 – 348.
3. Christ, K.L and Burrit. R.L. 2013. Environmental management accounting: the significance of contingent variables for adoption. Journal for Cleaner Production, 41: 163 – 173.
4. De Beer, P. and Friend, F. 2006. Environmental accounting: A management tool for enhancing corporate environmental and economic performance. Ecological Economics, 58: 548 – 560.
5. Creswell, J.W. 2015. A concise introduction to Mixed Methods Research. California: SAGE Publications, Inc.
6. Font, X., Walmsley, A., McCombes, S.C.L. and Häusler, N. 2012. Corporate social responsibility: The disclosure-performance gap. Tourism Management, 33: 1544 – 1553.
7. Global Reporting Initiative. 2015. An introduction to G4: The next generation of sustainability reporting. [Online]. Available: https://www.globalreporting.org/standards/g4/Pages/Introduction-to-G4-brochure.aspx [Accessed on: 11/08/2015].
8. Hsieh, Y.C. 2012. Hotel companies' environmental policies and practices: a content analysis of their web pages. International Journal of Contemporary Hospitality Management, 24 (1): 97 – 121.
9. Janković, S. and Krivačić, D. 2014. Environmental accounting as perspective for hotel sustainability: Literature review. Tourism and Hospitality Management, 20 (1): 103 – 120.
10. Jones, M.J. 2010. Accounting for the environment: towards a theoretical perspective for environmental accounting and reporting. Accounting Forum, 34: 123 – 138.
11. Milne, M.J. and Gray, R. 2013. W(h)ither Ecology? The Triple Bottom Line, the Global Reporting Initiative, and Corporate Sustainability Reporting. Journal of Business Ethics, 118:13 – 29.

12. Ni, S., Chan, W. and Wong, K. 2012. Enhancing the Applicability of Hotel Uniform Accounting in Hong Kong. Asia Pacific Journal of Tourism Research, 17 (2), 177 – 192.
13. Nyide, C.J. and Lekhanya, L.M. 2016. Environmental Management Accounting practices: Major Control Issues. Corporate Ownership & Control, 13 (3): 476 – 483.
14. Rao, K.K., Tilt, C.A. and Lester, L.H. 2012. Corporate governance and environmental reporting: an Australian study. Corporate Governance: The international journal of business in society, 12 (2): 143 – 163.
15. Saunders, M., Lewis, P. and Thornhill, A. 2012. Research methods for business students. 6th Edition. Harlow, Essex: Pearson Education Limited
16. Sumiani, Y., Haslinda, Y. and Lehman, G. 2007. Environmental reporting in a developing country: a case study on status and implementation in Malaysia. Journal of Cleaner Production, 15: 895 – 901.
17. Vigneau, L., Humphreys, M., and Moon, J. 2014. How Do Firms Comply with International Sustainability Standards? Processes and Consequences of Adopting the Global Reporting Initiative. Journal of Business Ethics, DOI 10.1007/s10551-014-2278-5.
18. Willis, A. 2003. The Role of the Global Reporting Initiative's Sustainability Reporting Guidelines in the Social Screening of Investments. Journal of Business Ethics, 43: 233 – 237.
19. Yin, R.K. 2012. Applications of Case Study Research. 3rd Edition. California: SAGE Publications, Inc.

THE QUALITY OF ENVIRONMENTAL DISCLOSURE IN VARIOUS REPORTING MEDIA OF OIL AND GAS COMPANIES IN DEVELOPING COUNTRIES

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Abstract

Corporate environmental reporting (CER) plays important role due to the increase in public awareness of environmental issues. Hence, to be beneficial, corporate managers should not merely display CER information but rather emphasize on the quality of information disclosed. The quality of CER can be seen as a key value for companies and many benefits could be provided if companies released high quality environmental information. Prior environmental disclosure literature has not focused much on disclosure quality; instead, it concentrated on the quantity of disclosure. In addition, most of the few studies that focused on quality of environmental disclosure have revealed low level of quality of such disclosure. Therefore, this study aims to investigate the quality of environmental disclosure in different reporting mediums by oil and gas companies in developing countries. Using content analysis, an index and scoring scheme were applied to the annual reports, stand-alone reports and corporate homepages of a sample of 116 oil and gas companies in 19 developing countries. The results of this study reveal that the quality of the environmental disclosure of the sample companies is relatively high compared to previous studies. This study has important implications in enhancing the understanding of environmental disclosure practices of oil and gas companies in developing countries.

Keywords: Environmental Disclosure Quality, Reporting Media, Oil and Gas Companies, Developing Countries

1. INTRODUCTION

Environmental issues have increasingly drawn the attention of the world at different levels, and corporate social and environmental responsibility has become a major contemporary focus of business, government and community attention globally (Parker, 2014). As a result, interest in corporate disclosure of environmental information has grown in recent years (Rupley, Brown and Marshall, 2012). However, attention on the environmental disclosure (ED) has been confined to the companies of developed countries, while the developing countries suffer from environmental disclosure practices in corporations (Eljayash et al., 2012; Kaur, 2015).

Among the largest consumers of natural and social resources, business organizations have come under increased pressure to justify the nature and scale of their consumption. Specifically, business organizations, particularly industrial communities, are considered more and more as responsible for their impacts to the environment and society (Brammer & Pavelin, 2006). The oil and gas industry is among the industries with the greatest impacts on the environment. According to the International Energy Agency (IEA, 2015), energy-related carbon dioxide (CO_2) emissions are the majority of global greenhouse gas (GHG) emissions, while, oil and gas are the largest source of fuel combustion emissions and responsible for approximately 53% of global energy-related CO_2 emissions in 2013. It is well recognized that environmental effects of the petroleum operations on the natural environment are very high (Mughal, 2014). In addition to the environmental effects that result from normal operations of oil and gas activities, the effects may be the results of occasional events such as, oil spill and explosion. During the last four decades, the oil and gas industry has witnessed several critical environmental incidents, for example; Exxon Valdez oil spill of Alaska in 1989, and Gulf of Mexico oil spill of 2010. The occurrences of environmental incidents as a result of activities of oil companies have contributed to the increase of environmental awareness and put the oil and gas industry under societal pressure to reduce its impacts on the environment (Eljayash et al., 2012; Frynas, 2009; Islam and Islam, 2011). However, the increase of environmental awareness has largely influenced businesses to engage in environmental management and practice including environmental reporting

(Yusoff and Othman, 2013).

A large volume of the world`s proven recoverable reserves of crude oil and natural gas liquids is held by the DCs, and most of production is also produced by them. At the end of 2013, the DCs held 82% of the world`s proven recoverable reserves of oil and natural gas liquids and accounted for 67% of world's production of oil and natural gas liquids (Eni`s World Oil and Gas Review, 2014). Considering this significant amount of reserves and production of oil and gas coupled with the environmentally sensitive nature of this industry, makes the DCs highly exposed to environmental impacts. In addition, it was recognized that, in the era of globalization, the worldwide presence of multinational companies and highly publicized environmental incidents in developing countries, issues of corporate social responsibility (CSR) and its publications seem to be more significant in developing nations (United Nations Research Institute for Social Development [UNRISD], 2000). However, it was recognized that the adverse effects of the oil and gas companies are greater in the developing countries (Abdalla and Siti-Nabiha, 2015). It is also recognized that the success of operations of multinational companies (MNCs) in host countries can be greatly impacted by their level of local acceptability, and occurrence of major oil disasters raise a question as to how international companies can effectively manage local expectations and the associated problems of oil production in order to gain local acceptability (Fragouli and Danyi, 2015). Companies use environmental disclosure as a mechanism to manage society expectations toward corporate operations and increase reputations (Haji, 2013; Perez, 2015; Yin, 2012). All these make reporting on environmental aspects of oil and gas companies very important from the governments` and preparers' (companies) point of views.

However, the literature points out that the majority of previous studies concerned with social and environmental reporting have been conducted in the developed world, but comparatively limited studies have been undertaken in the developing countries (Eljayash, Kavanagh and Kong, 2013; Joseph, Pilcher and Taplin, 2014; Kansal, Joshi and Batra, 2014; Kaur, 2015; Lu and Abeysekera, 2014; Mughal, 2014; Yusoff and Othman, 2013). In practice, social and environmental disclosure has matured in some developed countries; however, in some developing nations, it is still a relatively new practice (Kaur, 2015; Lu and Abeysekera, 2014; Mughal, 2014). In particular context of a developing country, Djajadikerta and Trireksani (2012) indicated that the practice of corporate social and environmental disclosure (CSED) in Indonesia is still at an early stage, and most of the companies still have a lack of understanding about CSED. Ahmad and Hossain (2015) concluded that disclosure of climate change and global warming in the annual reports of Malaysian companies is still at its introductory stage. In addition, it was noted that findings of studies that focused on the developed countries cannot be generalized to less developed countries as differences in culture and nationality are expected to influence the accounting and environmental practices (Matthew, 1993; Perera & Matthews, 1990).

It is noted that even though awareness of the sustainability and social responsibility issues has grown, sustainability and social responsibility reporting has long been voluntary and it has not been regulated by legislations, as a result, many of the companies still do not disclose on such issues (Carrots and Sticks, 2013; Vuorela, 2014). Specifically, environmental disclosure worldwide is generally unregulated and voluntary in nature, (De Villiers and Van Staden, 2012; Michelon, Pilonato and Ricceri, 2015; Sen, Mukherjee and Pattanayak, 2011). As environmental disclosure is primarily voluntary, companies are free to choose what and how to disclose (Ahmed & Sulaiman, 2004; Peiyuan, 2005). This causes quality problems such as consistency and comparability, both over time and between companies (De Villiers and Van Staden, 2012).

Even though in some countries companies are mandated to disclose information on their CSR aspects, the mandatory requirements of such disclosures do not detail specific information to be disclosed by companies. Instead, companies are given the flexibility to provide information relating to their CSR activities (Haji, 2013). Thus, the lack of specific, formal national and international regulations seems to allow companies much flexibility in how they carry out their social and environmental reporting activities and allow them to use guidelines in a biased manner (Haji, 2013; Michelon et al., 2015). As a result, there is a lack of completeness in environmental disclosure (Michelon et al., 2015), and environmental disclosure varies substantially in terms of content, information, graphic information and length (Said, Omar and Abdullah, 2013).

It was argued that measuring the quality of disclosure is important, and that investigating only the volume of disclosure can be misleading (Hassan, 2010; Hooks and van Staden, 2011), as evaluating the quality of disclosures adds a further dimension to the assessment of environmental reporting (Hooks and van Staden, 2011). Despite this, majority of previous studies concerned with environmental disclosure concentrated only on the quantity of disclosure but scant attention has been given to the quality of such disclosure (Aburaya, 2012; Ahmad and Haraf, 2013; Chatterjee and Mir, 2008; Cuesta and Valor, 2013; Eltaib, 2012; Hassan , 2010; Haji, 2013; Michelon et al., 2015; Rupley et al., 2012; Sulaiman et al., 2014).

From literature review, it is noted that, with the exception of a few studies (e.g. Aburaya, 2012; Ahmad and Haraf, 2013; Ane, 2012; Belal, 2000; Brammer & Pavelin, 2006, 2008; Comyns and Figge, 2015; Cormier, Magnan & Van Velthoven, 2005; Cuesta and Valor, 2013; Darus, Hamzah and Yusoffa, 2013; Dong, Fu, Gao and Ni, 2015; Eakpisankit, 2012; Eljayash, 2015; Eljayash et al., 2012; Haji, 2013; Hassan, 2010; Harun, Abdul Rashid and Alrazi, 2013; Hooks & Van Staden, 2011; Lu et al., 2015; Michelon et al., 2015; Oba and Fodio, 2012a; Rupley et al., 2012; Sulaiman et al., 2014; Wiseman, 1982), who focus on disclosure quality, the social and environmental disclosure in previous studies were not able to capture the quality of the disclosure.

In addition, prior studies on social and environmental disclosure quality suffer from methodological limitations as most of these studies used disclosure quantity measures to assess the

quality of disclosure. It was argued that the disclosure instruments used in previous social and environmental disclosure studies have been built primarily on a checklist of items that capture the amount and variety of disclosure. This approach was criticized as it does not sufficiently determine the quality of information (Michelon et al., 2015). According to Eakpisankit (2012) in spite of some previous studies that have claimed to measure the quality of disclosures, in reality they have merely focused on content rather than identifying concrete qualitative concepts.

Aburaya (2012) stated that, the assessment of environmental disclosures quality remains a rather controversial issue. Sulaiman et al. (2014) stressed that the quality of environmental information reported should be considered. However, until now, researchers still opined that there is a scarce of literature regarding social and environmental disclosure quality (Michelon et al., 2015). Thus this study contributes to fill this gap in literature by devising a conceptual framework of environmental disclosure quality that is dependent upon the quality of environmental disclosure rather than its amount or extent.

In terms of industry, the oil and gas industry is among the industries with the greatest impacts on the environment (IEA, 2015). The overall environmental effects on the petroleum operations on the natural environment are very high, as the operations of this industry cause air pollutions and responsible for the waste they emit in the sea which is very disastrous for the life under sea (Mughal, 2014). The oil and gas industry is considered a main source of environmental problems, as its operations involve many potential negative environmental effects (Ariweriokuma, 2009; Frynas, 2009). The occurrences of environmental incidents as a result of activities of companies, including oil companies, have contributed to the increase of environmental awareness in many countries over the world (Eljayash et al., 2012; Hossain et al., 2006; Frynas, 2009; Sustainability & UNPE, 1999).

There are a few studies that examined environmental disclosure in oil and gas industry (cf. Alciatore and Dee, 2006; Al-Drugi and Abdo, 2012; Barr, 2007; Bose, 2006; Dibia and Onwuchekwa, 2015; Eljayash et al., 2012; Eljayash et al., 2013; Guenther, Hoppe and Poser, 2007; Heflin and Wallace, 2014; Oba and Fodio, 2012b; Patten, 1992; Summerhays and De Villiers, 2012; Sustainability Ltd. & UNEP, 1999). It was argued that, in order to enhance our understanding on environmental disclosure behavior, it is important to focus on a specific industry (Gray et al., 1995; Ahmad and Haraf, 2013). However, the adverse effects of oil and gas companies are greater in the developing countries (Abdalla and Siti-Nabiha, 2015). All these motivate to conduct a study focusing on environmental disclosure of oil and gas industry in developing world.

Moreover, with the exception of Oba and Fodio (2012a) and Eljayash et al. (2012), no studies have analyzed the quality of environmental disclosure in oil and gas industry. However, these two studies are suffering from some limitations, such as limiting themselves to annual reports and the samples are small. It was argued that, in order to enhance our understanding on environmental disclosure behavior, it is important to focus on a specific industry (Gray et al., 1995; Ahmad and Haraf, 2013). Hence, this study intends to fill this knowledge gap by examining the quality of environmental disclosure made by oil and gas companies in developing countries

The current study attempts to fill the gaps in the literature by examining corporate environmental disclosure quality (rather than its quantity), concentrating on environmental disclosure made in the three main mediums of reporting (namely, annual reports, stand-alone reports and corporate homepages). Precisely, this study aims to determine the level of environmental disclosure quality of oil and gas companies in developing countries.

Prior environmental disclosure literature has little focused on disclosure quality; instead, it concentrated on the quantity of disclosure. The current study seeks to fill the gap in the literature by considering the issue of environmental disclosure quality (rather than quantity). Assessing the quality of the environmental reporting enables an identification of the strengths and weaknesses in current reporting practice and advances our understanding. In addition, contrary to the most available literature that only focuses on sole medium of environmental disclosure (mostly annual report), the current study contributes to the literature by covering most common vehicles of environmental disclosure, particularly, annual reports, stand-alone reports and corporate homepages. This study also fills the void in prior environmental disclosure literature regarding whether various reporting mediums vary regarding their disclosure quality.

The present study also contributes to the environmental disclosure literature by centering on the ED practices of specific sector (i.e. the oil and gas industry) in the DCs. It was argued that, in order to enhance our understanding on environmental disclosure behavior, it is important to focus on a specific industry (Gray et al., 1995; Ahmad and Haraf, 2013). Thus, this study contributes to environmental disclosure literature as it provides insight into the environmental disclosure practices of oil and gas companies within developing countries, where there are limited published studies.

The rest of the paper is structured as follows; section 2 provides the literature review. Section 3 explains the research methodology. Section 4 presents the results from empirical analyses and discussion. Section 5 presents the concluding remarks, implications of the study while section 6 explains the limitations of the study and provides suggestions for further research.

2. LITERATURE REVIEW

Consistent with the increase in public concern of environmental issues, environmental accounting (EA) practice has become an attractive area of research and received attention from many researchers worldwide (Eltaib, 2012). Disclosing information relating to environmental aspects is considered as one of significant issues in relation to environmental accounting (Eltaib, 2012). The current study attempts to investigate the issues of quality of environmental disclosure in various reporting mediums of environmental information.

According to Islam et al. (2005) environmental

disclosure is "an umbrella term that describes the various means by which companies disclose information on their environmental activities". Lodhia (2006) has defined the Corporate Environmental Reporting (CER) as "a process through which "companies often disclose environmental information to their stakeholders to provide evidence that they are accountable for their activities and the resultant impact on the environment". Environmental disclosure is also defined by Kuo and Chen (2013) as "a set of information items that relate to a firm's past, current, and future environmental management activities and performance" (p. 1467), and by Yusoff and Othman (2013) as "any written passage about company's environmental issue and activity" (p. 1720). For the purpose of this study, environmental disclosure is defined as a process of communicating the information on environmental issues through various reporting mediums including; annual report, separate stand-alone environmental-related reports (i.e. environmental report, social responsibility report, sustainability report), and corporate homepage of Internet.

Firms use social and environmental disclosures to improve their image in the eyes of different stakeholder groups and public in general and in turn gain their legitimacy for existence (Hossain, Al Bir, Tarique and Momen, 2016; Khlif, Guidara and Souissi, 2015; Kuo and Chen, 2013; Noodezh and Moghimi, 2015; Suchman, 1995). Several earlier studies revealed that firms, especially those operating in environmentally sensitive industries, disclose social and environmental information to promote/ enhance their images and reputations and in turn for the legitimization of their societal existence (e.g. Deegan and Gordon, 1996; Deegan and Rankin, 1996; Deegan, Rankin, & Tobin 2002; Khlif et al., 2015; Kuo and Chen, 2013; Neu et al., 1998; Patten, 1992; Yusoff and Lehman, 2009). Thus, social and environmental disclosure is considered a tool which could help companies to influence society`s perceptions toward corporate operations (Haji, 2013).

As mentioned previously, the public concern of environmental issues has increased, and as a result environmental accounting practice has received attention from the scholars in the area of accounting research, and much of this research was dominated by studies focused on environmental disclosure (Eltaib, 2012). The majority of prior environmental disclosure studies have focused on the quantity of disclosure but scant attention has given to disclosure quality (Aburaya, 2012; Ahmad and Haraf, 2013; Cuesta and Valor, 2013).

Disclosure quality measure enables to evaluate meaning and importance of disclosure, rather than just the volume (Walden and Schwartz, 1997). Reporting quality can have a significant influence on the quality of the decisions made by stakeholders (Brink et al., 1997). Hasseldine et al. (2005) suggested that environmental disclosure quality as opposed to just quantity has a significant impact on the development of environmental reputation among stakeholder groups of investors and executives.

It was argued that quality reporting does not entail only volume but it should also allow stakeholders to carry out informed decisions that are significant to their intentions (Brink et al., 1997). A primary issue in the context of reporters is the report content; in other words, what makes a really significant issue in the user's viewpoint (Barr, 2007). So, reporting quality should be considered because the failure to encapsulate the content of the environmental information constitutes a failure to cover the issue, its importance and the communicated meanings (Silva, 2008). The quality of the environmental disclosure can be seen as a key value for companies, and many benefits could be provided if the company released high quality environmental information (Rattanaphaphtham and Kunsrison, 2011). It is recognized that the quality of environmental reporting (as compared to its quantity) is important (Sulaiman et al., 2014).

However, prior research revealed that companies disclose a limited amount and poor quality of social and environmental information. For example, Harte and Owen (1991) examined the level of environmental disclosure made by 30 UK companies in their annual reports. The study indicated that, although, the level of environmental disclosure increased during the period, it was not in detail. Choi (1999) examined environmental disclosure in semi-annual reports for 64 Korean companies. The results revealed that the level of environmental disclosure is low.

During the 2000s decade, many studies relating to social and environmental disclosure were conducted, and most of them have indicated a low level of quantity and/or quality of social and environmental disclosure. For example, Imam (2000) examined social disclosure of Bangladeshi listed companies. The study revealed that the social disclosure level was very poor and inadequate. Belal (2000) investigated the environmental reporting in Bangladesh. The study revealed that the quantity and the quality of environmental reporting is an inadequate and poor. Belal (2001) investigated the social responsibility disclosure in Bangladesh. He concluded that the level of social and disclosure of Bangladeshi companies is very low and descriptive in nature. Similarly, Belal (2008) revealed that Bangladeshi companies are disclosing social and environmental information only on a limited scale. Elijido-Ten (2004) concluded that the majority of environmental disclosures are still confined to the provision of general or vague descriptions.

Kamla (2007) examined the volume, quality and nature of social reporting practices in the annual reports of 68 companies from nine Arab Middle East countries, namely, Bahrain, Egypt, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, Syria, and United Arab Emirates (UAE). The study revealed that only 10 companies, 15% of the sample, provided some form of environmental information. In addition, most disclosed information related to employee issues, while, the level of disclosure in relation to the environmental dimension the lowest.

Rizk et al. (2008) examined the extent of social and environmental reporting made by Egyptian manufacturing companies in their annual reports. The study indicated that the extent of CSR reporting is low and descriptive in nature. Silva (2008) examined voluntary environmental reporting in the annual reports of New Zealand and Australian publicly listed companies. The study revealed that the level of voluntary environmental reporting in the annual reports of New Zealand and Australian

publicly listed companies is low and demonstrates poor content-quality. Said et al. (2009) examined extent of corporate social responsibility disclosure of Malaysian public listed companies. The results indicated that the level of corporate social responsibility disclosure in Malaysian companies is generally low.

A study of Abd Rahman et al. (2011) was conducted to assess the level of corporate social responsibility disclosure of a sample of government-linked companies listed on Bursa Malaysia for the period 2005-2006. They found that the amount of CSR disclosure by Malaysian government link companies to be limited but growing. Liua, Liu, McConkey and Li (2011) investigated environmental disclosure in annual reports and stand-alone environmental and social responsibility reports of steel companies listed in Shanghai Stock Exchange. The study shows significant differences in the form of environmental disclosure, as well as great differences in terms of content and intensity. Djajadikerta and Trireksani (2012) measured the extent of CSED made by Indonesian listed companies on their corporate web sites. They found that the extent of CSED is low and the nature of disclosure is mostly descriptive.

Cuesta and Valor (2013) investigated the quality of environmental, social and governance reporting of Spanish listed companies. They indicated that the sampled companies failed to provide complete information on environmental performance (37%). Harun et al. (2013) examined the quality of sustainability disclosure by 15 commercial banks in Malaysia, and they concluded that the disclosure quality is considered low. Similarly, Darus et al. (2013) revealed that the quality of CSR information disclosed by Malaysian companies on their websites proved to be generally low.

Employing a case study method and using qualitative data, Momin and Parker (2013) investigated social and environmental information disclosed in the annual reports of MNC subsidiaries in Bangladesh. The study concluded that CSRR practice in Bangladeshi MNC subsidiaries is limited. Said et al. (2013) examined the level of environmental disclosure of Malaysian companies. The study revealed that the level of environmental disclosure in Malaysian public listed companies is low.

Ahmad and Haraf (2013) examined the extent, quality, nature and trends of environmental disclosures of Malaysian property development companies. They concluded that companies do not appear to respond to the increased public concern due to recent landslide incidents by increasing the extent or quality of environmental disclosures in their annual reports. Both extent and quality of environmental disclosures are very low and most companies provide mostly soft disclosures. The findings also revealed that companies are not consistent in the extent, nature or quality of environmental disclosures made over time.

Yusoff and Othman (2013) investigated the state of environmental reporting by Malaysian and Australian companies on different mediums. The study revealed that environmental reporting in stand-alone reports (environmental reports, social and sustainability reports), corporate websites, and corporate newsletters is predominantly general and qualitative in nature. Bowrin (2013) examined the extent to which publicly-listed Caribbean companies provide social and environmental disclosures and the factors related to their disclosure practices. The study revealed that the level of social and environmental disclosure in the Caribbean was relatively low.

Chang (2013) examined the environmental disclosure of listed eclectic companies in China made in their social responsibility reports. The findings indicated that the extent of environmental disclosure is low (with means of 0.1744, 0.1918, 0.1942 and 0.2171 for the years 2008, 2009, 2010 and 2011 respectively). Kamla and Rammal (2013) examined social reporting with special emphasis on themes related to social justice on annual reports and web sites of Islamic banks from 11 countries. The results revealed that social disclosure of the Islamic banks emphasize their religious character through claims that they adhere to Sharia's teachings, but the disclosure lacks specific or detailed information relating to schemes or initiatives.

He and Loftus (2014) evaluated the environmental disclosure practices of listed Chinese operating in environmentally sensitive industries, and revealed that, the level of disclosure is low and lag behind that of companies in developed countries. Chithambo and Tauringana (2014) examined the extent of greenhouse gas (GHG) disclosures made in the annual reports, sustainability reports and web sites of London Stock Exchange financial listed companies. The study indicated that the extent of voluntary GHG disclosure of the sample companies is still low.

Joseph et al. (2014) examined extent and determinants of the sustainability reporting in Malaysian local councils' websites. The study indicated that the level of sustainability disclosure on the corporate websites of Malaysian public sector was below average level (26.8%). Kansal et al. (2014) examined level of CSR disclosures made by the top 100 companies in the Bombay Stock Exchange, and found that overall disclosures are low.

Yusoff and Darus (2014) investigated the environmental disclosure practice from an Islamic perspective using content analysis on annual and sustainability reports of Islamic Financial Institutions (IFIs) in Malaysia. The study revealed that the extent of environmental disclosure is low, descriptive and qualitative in nature. The results also indicated that the key environmental disclosures provided were related to climate change mitigation and adaptation, and prevention of pollution type of activities. Further exploration on the prioritization of environmental activities found that the key focus of the vital activities was prevention related programmes.

Ahmad and Hossain (2015) conducted analysis of the disclosure of climate change and global warming made in the annual reports of 79 Malaysian companies. They concluded that this kind of disclosure in the annual reports of Malaysian companies is still at its introductory stage. Lipunga (2015) examined the level of CSR disclosure in the annual reports for 2012 and 2013 of Malawian quoted companies. The study indicated that the level of CSR disclosure that the companies were making in their annual reports is generally low. Particularly,

the companies were disclosing poorly on environment category. Similarly, Nurhayati, Taylor and Tower (2015) revealed that the extent of social and environmental disclosure in annual reports of Indian textile companies is low.

Vilar and Simao (2015) investigated how the banks use their web sites to disclose their social responsibility concerns and activities. The study revealed that the banks disclose on their websites on environmental performance, socioeconomic programs and other CSR information. The study also revealed that there are geographic patterns in the quantity and detail of the disclosures. The banks belong to Europe, the American continent, and Oceania, were disclosed more information. The study concluded that the disclosure of CSR by the banks is larger and more detailed according to the development level of the country where they operate.

Adopting descriptive research, Innocent et al. (2015) examined stakeholder's (investors, consumers and chartered accountants) perspective on the effectiveness of triple bottom line disclosure practices of Nigerian firms. The findings indicated that investors, consumers and chartered accountants are dissatisfied with the extent of firms TBL disclosure practice in Nigeria, and the firms` reporting was often vague and far from the expression of actual performance. Kaur (2015) explored the item wise variation among different environmental disclosure categories made by Indian companies. The study revealed insignificant differences among the environmental disclosure categories

More recently, Nurhayati et al. (2016) investigated the social and environmental reporting of Indian textile and apparel firms. The study reported a low extent of social and environmental reporting by the sample firms, with a mean disclosure of 14%, while firms reported relatively more extensive environmental information, with a mean disclosure of 18.4%. Hewaidy (2016) evaluated social and environmental disclosure practices in the annual reports of a sample of 43 companies listed in Kuwait Stock Exchange. The results revealed that the overall disclosure level for the sample companies is 21%, and the disclosure level varies by disclosure category.

In high environmentally sensitive industries, including oil and gas industries, the literature revealed also low level of quantity and quality of social and environmental disclosure. For example, Guenther et al. (2007) examined the status of environmental reporting practice of global mining, oil and gas companies. Using GRI indicators, the study analyzed 48 CSR reports for 2005. The study indicated that on average, the mining, oil and gas companies disclosed approximately 31% of the total GRI indicators (11 out of a total of 35 indicators). However, only 8% of total environmental indicators were disclosed with both high quantity and high quality. Frynas (2009) indicated that many oil companies from developing countries provide little concrete data on social and environmental issues

Ane (2012) examined the environmental disclosure quality of listed firms in heavily pollution industries (including, electricity, steel, oil chemicals, mining, etc.) in China, and indicated that the overall environmental information disclosure quality is low. Sen et al. (2011) indicated that the voluntary environmental disclosure by oil and petrochemicals, mining and minerals, steel and cement companies in India is incomplete, more qualitative and provide inadequate disclosure for most of the environmental themes.

Oba and Fodio (2012b) investigated the extent of environmental disclosures in oil and gas and construction industries in Nigeria. The results provided evidence on the poor environmental disclosure levels in the annual reports of sampled companies. The results also indicated that the oil and gas industry provided a better disclosure level but this difference was not significant. Al-Drugi and Abdo (2012) investigated the development of environmental disclosures by oil and gas companies operating in a developing country of Libya from 2002 to 2009. They revealed that although, environmental disclosure has witnessed improvement during the period, but the level of CED is still low. Eljayash et al. (2012) examined the quantity and quality of CED in annual reports by national oil and gas companies in Middle East and North Africa (MENA), particularly Arab oil exporters. They revealed that, overall; CED in Arab oil countries is still low compared with other oil companies in developed countries.

Eltaib (2012) examined the environmental accounting disclosures of Australian oil and gas companies. Annual reports and stand-alone sustainability reports of the 10 largest Australian oil and gas companies listed in Australian Stock Exchange over the period 2005-2010 were analyzed. The results showed that environmental disclosure trend fluctuated during the study period. The results also indicated that the most of the disclosed environmental information is favourable, non-financial, pure narrative and general information. Summerhays and De Villiers (2012) using a sample of the largest six international oil companies examined the disclosure patterns and strategies in response to the Gulf of Mexico oil spill. The findings indicated that the overall environmental disclosures of the oil companies increased after the oil spill.

Eljayash et al. (2013) examined the differences in environmental disclosure practices between national oil and gas companies and international oil and gas companies operating in Arab petroleum exporting countries. The study concluded that despite the slight increase in the environmental disclosure practices in national companies; the difference is still significant compared with international companies. Recently, Mughal (2014) examined CSR disclosure practice of petroleum companies in Pakistan. The study highlighted that petroleum companies in Pakistan are contributing positively towards CSR, more conscious towards portraying their image and they have understood the importance of disclosing environmental information other than financial information.

More Recently, Comyns and Figge (2015) explored the evolution of greenhouse gas reporting quality of 45 oil and gas companies listed on the 2011 Global Fortune 500 index. The study also investigated whether the evolution of reporting quality is linked with the type of information. This study revealed that, in total, 80 per cent of 245 reports contained quantitative and qualitative data on GHG emissions while the remaining 20 per cent

contained only qualitative data. The study also revealed that GHG reporting quality has not improved significantly between 1998 and 2010, and the type of information is important in terms of quality evolution. Eljayash (2015) investigated environmental disclosure in the oil companies in three countries of the Arab Spring (Egypt, Libya and Tunisia). The results of the study indicated low level and quality of environmental information disclosed in the annual reports before Arab spring.

Nonetheless of these results, there are some previous studies that showed high levels of environmental disclosure. For example, Yusoff, Lehman, & Nasir (2006) examined environmental disclosure and motivations among Malaysian public-listed companies. The study revealed high levels of environmental disclosures concerning current environmental engagements and future environmental plans/strategies, and Aburaya (2012) indicated that the level of corporate environmental disclosure quality in the UK was 72.74%.

Despite the importance of disclosure quality, reporting quantity has dominated prior social and environmental reporting studies, but they overlooked the significance of what the information is being communicated. Thus, while there are a large number of studies that have addressed the social and environmental disclosure, the majority of these studies have focused on the quantity of disclosure, whereas, a scant attention has given to quality of such disclosure. This limitation of literature has noted by many previous studies. For example, Silva (2008) noted that several studies in literature overlooked reporting quality and instead confined themselves to reporting quantity. Belal and Momin (2009) also stated that most of the previous CSR (including CER) studies available from the context of developing countries are descriptive in nature and are limited to measuring the extent and volume of disclosure in annual reports.

According to Eltaib (2012) and Rupley et al. (2012), the majority of environmental disclosure research is confined to consideration of the quantity, rather than quality, of information disclosed. Aburaya (2012) stated that, research investigating issues as environmental disclosure quality is quite essential, as most previous studies concentrate on the volume of disclosure rather than its quality. Similarly, Haji (2013) noted that most previous CSR studies measured the extent of CSR disclosures and few have measured the quality of CSR disclosures. Cuesta and Valor (2013) stated that, the problem of reporting quality has been of limited interest in the literature and few studies have attempted to investigate quality of environmental, social and governance disclosure. Ahmad and Haraf (2013) also commented that the majority of prior studies related to environmental disclosure have focused on the quantity of disclosure but scant attention has given to disclosure quality. Until now, researchers still identify literature lacks regarding disclosure quality. For example, Michelon et al. (2015) stated that with the exception of a few studies those focus on disclosure quality, the CSR disclosure previous studies are not able to capture the quality of the disclosure.

However, from literature review, it is noted that, with the exception of a few studies (e.g. Aburaya, 2012; Ahmad and Haraf, 2013; Ane, 2012; Belal, 2000; Brammer & Pavelin, 2006, 2008; Comyns and Figge, 2015; Cormier et al., 2005; Cuesta and Valor, 2013; Darus et al., 2013; Dong et al., 2015; Eakpisankit, 2012; Eljayash et al., 2012; Haji, 2013; Hassan, 2010; Harun et al., 2013; Hooks & Van Staden, 2011; Lu et al., 2015; Michelon et al., 2015; Oba and Fodio, 2012a; Rupley et al., 2012; Sulaiman et al., 2014; Wiseman, 1982), who focus on disclosure quality, the social and environmental disclosure previous studies were not able to capture the quality of the disclosure. Many authors have stressed that the quality of environmental information reported should be considered (cf. Adams et al., 1998; Clarkson et al., 2008; Hall, 2002; Silva, 2008; Sulaiman et al., 2014). This called for environmental disclosure studies dedicated to the investigation of aspects beyond the disclosure level, such as disclosure quality.

Another limitation of literature is that, many prior social and environmental disclosure studies used disclosure quantity to measure disclosure quality (Hussainey and Mouselli, 2010; Michelon et al., 2015; Ng, 1985). This may be because these studies proposed that the disclosure significance can be reflected by the disclosure quantity. However, many researchers have cautioned that much information does not mean that it has high quality, therefore, quantity or volume of information reported is not appropriate measure for reporting information quality. For example, Buzby (1975) argued that disclosure level is not the same as its sufficiency; hence, the former cannot measure the overall disclosure quality. Wiseman (1982) argued that the environmental disclosure length does not reflect its quality. Freedman and Stagliano (1992) argued that although the quantity of reporting sheds some light on the importance of information, it fails to reflect the full communicative content of the information, and as such, it is riddled with limitations in terms of a complete measurement of reporting quality. Deegan and Gordon (1996) argued that the assumption that the significance of a disclosure can be meaningfully represented by the quantity is incorrect. Similarly, KPMG (1999) suggested that disclosure quality is not synonymous with disclosure quantity.

Hussainey and Mouselli (2010) stated that disclosure quantity alone is not a satisfactory proxy to measure disclosure quality. Michelon et al. (2015) argued that the disclosure instruments used in social and environmental disclosure previous studies have been built primarily on a checklist of items that capture the amount and variety of disclosure do not sufficiently determine the quality of information. In practice, despite efforts that spent by some related organizations resulted in some standardization of corporate social and environmental reporting, particularly in terms of format, but their approach to indicators is unlikely to produce high quality (Cuesta and Valor, 2013). To overcome this limitation, this study measures the quality of environmental disclosure using an environmental disclosure index and scoring scheme that able to sufficiently determine not just the quantity, but the quality of disclosure.

Moreover, most of studies related to environmental disclosure quality have concentrated on developed countries, while, there is a lack of studies addressing the quality of environmental

disclosure in the developing countries. Thus, this study examines environmental disclosure quality in developing countries.

However, reviewing pertinent prior literature revealed that; the majority of previous studies have concentrated on disclosure quantity, while scant attention has given to disclosure quality. Moreover, the majority of these studies focused on a sole media of reporting (often annual report), while, a few studies have covered several reporting mediums. Most of studies related to environmental disclosure quality have concentrated on developed countries, while, there is a lack of studies addressing the quality of environmental disclosure in developing countries. And in terms of sector, there are a few studies examined environmental disclosure in oil and gas industry (cf. Alciatore and Dee, 2006; Al-Drugi and Abdo, 2012; Barr, 2007; Bose, 2006; Dibia and Onwuchekwa, 2015; Eljayash et al., 2012; Eljayash et al., 2013; Guenther et al., 2007; Heflin and Wallace, 2014; Oba and Fodio, 2012b; Patten, 1992; Summerhays and De Villiers, 2012; Sustainability Ltd. & UNEP, 1999). Moreover, with exception of Oba and Fodio (2012a) and Eljayash et al. (2012), there have been no studies done on the quality of environmental disclosure in oil and gas industry. However, these two studies are suffering from many limitations such as limiting themselves to annual reports and the samples are small. Furthermore, the samples in prior studies have tended to be small and more concentrating on developed countries. Hwoever, the prior research has also shown inconclusive results regarding the relationships between the environmental disclosure quality and some independent variables, and their relationship signs and therefore it is considered to be productive to empirically re-examine the relationships between them. Therefore, this study attempts to fill the existing gaps and overcome the limitations of the literature by the following: 1) investigating environmental disclosure quality of oil and gas companies in developing countries; 2) investigating the main reporting mediums of environmental information (namely, annual reports, stand-alone environmental reports and corporate homepages in aggregate.

3. RESEARCH METHODOLOGY

This study aims to determine the level of environmental disclosure quality of oil and gas companies in developing countries. In order to achieve the objective of this study this study adopted a quantitative research methodology and probability cluster sampling technique was employed. A number of 116 oil and gas companies originated from 19 developing countries (namely, Argentina, Brazil, China, Colombia, Egypt, India, Indonesia, Kazakhstan, Kenya, Kuwait, Nigeria, Oman, Pakistan, Qatar, Republic of Korea, Saudi Arabia, Thailand, Trinidad and Tobago, and Turkey) were included in the sample. To measure quality of environmental disclosure, a 42-items disclosure index was developed by adapting pertinent established indices. The study also used Wiseman`s (1982) scoring scheme which was widely adopted by many pertinent studies (e.g. Cormier et al., 2004; Hughes et al., 2001; Kuo and Chen, 2013; Sulaiman et al., 2014; Zeghal & Ahmed, 1990). Using Wiseman's scoring method, the present study allocated the greatest weight (3) to quantitative disclosures environmental disclosures explained in EDI. This is followed by the next highest weight (2) that is allocated to non-quantitative but distinct information related to indicators. The lowest weight (1) is granted to general qualitative disclosures. A zero is granted to firms which did not provide information regarding a specific indicator. Thus, the total possible maximum score for the overall environmental disclosure index is 126 (i.e. 3×42= 126). The scores were converted into percentages by dividing the disclosure score of each company to the maximum possible score. The financial year ending on December 31, 2010, or June 30, 2010, or March 31, 2011, depending on the company`s financial year, was chosen for the research. Annual reports, stand-alone reports and environmental related sections on homepages were downloaded from companies` websites.

4. RESULTS AND DISCUSSION

The objective of this study is to determine the level of environmental disclosure quality of oil and gas companies in developing countries. To determine the level of environmental disclosure quality, content analysis has been conducted to extract disclosure quality from annual reports, stand-alone reports, and corporate homepages of sampled companies for the year 2010. For this purpose an environmental disclosure index which adapted from various previous related studies and scoring system of Wiseman (1982) were employed. However, overall quality of environmental disclosure of the sample companies, in addition, the quality of disclosure in each categories and each reported indicators were specifically analyzed.

Annual reports, environmental stand-alone reports, environmental related sections on corporate homepages were carefully reviewed and related data extracted and coded into copies of coding sheet that has been designed for this purpose. The valid coding sheets were then entered into database of SPSS software, and then different statistical analyses were adopted. The collected data was checked for missing and outliers values. A few cases with outlier values were detected. Further checking revealed that they could not be considered unrepresentative of the population, and therefore were not excluded from the sample. In addition, goodness of data was ensured by testing data validity and reliability.

The disclosure index and scoring system were tested for reliability and validity. Cronbach`s coefficient alpha is used for this purpose. The results show that Cronbach`s coefficient alpha for the scale used in this study is 0.893, indicating ta high level of internal consistency for the current study's scale (Hair et al., 2007; Sekaran, 2003). This high level of internal consistency also indicates the content validity of the disclosure instrument. As it is argued that an examination of the internal consistency of the disclosure index provides some insights into the validity of the disclosure scores, as internal consistency reliability is an indirect way to test a content validity of an instrument (Sekaran 2003; Walsh, 1995). Thereafter, the data was tested using minimum, maximum, mean and standard deviation.

Table 1 displays the descriptive statistics for the environmental disclosure quality of the 116 companies in the sample. It shows the means for each of the eight index categories and overall quality of environmental disclosure. The table shows that the range of environmental disclosure quality scores varies widely, from 33 to 106. The mean score of total environmental disclosure quality per company is 68.98, which represent 54.75% out of all possible environmental disclosure scores of 126 (i.e., 42 items × maximum score of 3). This level of disclosure quality is similar to that found by Eljayash et al. (2012) who revealed that the average of quality of CED in annual reports by oil companies in the Arab oil countries was 26.66 (55.54%) in 2010. However, the level of environmental disclosure quality of the current study is relatively high compared to those found by the majority of previous studies (cf. Ahmad and Haraf, 2013; Ane, 2012; Comyns and Figge, 2015; Cuesta and Valor, 2013; Dong et al., 2015; Eakpisankit, 2012; Haji, 2013; Harun et al., 2013; Hooks & Van Staden, 2011; Michelon et al., 2015; Oba and Fodio, 2012a; Sulaiman et al., 2014).

The reason behind this relatively high quality of environmental disclosure made by oil and gas companies in developing countries is the fact that firms affiliated with more environmentally sensitive industries provided more comprehensive social and environmental disclosure than firms affiliated with less environmentally sensitive industries (Bowrin, 2013), due to the environmentally sensitive sectors receive more public scrutiny (Aburaya, 2012; Kolk and Fortanier, 2013). Another explanation is that environmental disclosures of the oil companies increased significantly in response to the spill incident which occurred from oil platforms owned by BP in the Gulf of Mexico (Eljayash et al., 2012; Summerhays and De Villiers, 2012), as the accident was an environmental crisis that not only impacted the BP image and legitimacy, but also impacted on the image and legitimacy of other oil companies (Summerhays and De Villiers, 2012). This increasing is consistent with prior research which pointed that the threats arising from specific major social and environmental incidents influence the disclosure practices of the particular corporation and other corporations within the same industry (cf. Islam and Islam, 2011; Patten, 1992, Suttipun and Stanton, 2012). Overall, given the environmentally-sensitive nature of the oil and gas industry and the increasing adverse media attention and public concern with numerous incidents associated with this industry, it is expected to observe that the quality of environmental disclosure of oil and gas industry is higher than in other industries. Also, the rationale behind this relatively high quality disclosure may be due to that the previous studies have restricted their analyzing to a single reporting medium, mostly annual report, while companies use different disclosure mediums to communicate their environmental information.

Despite there are numerous companies disclose all index items, but no one of these companies disclose full information in monetary or quantitative form. However, the maximum score obtained by the sample companies is 106 out of a possible 126, indicating significant scope for improvement even among the companies with the highest level of environmental disclosure. In addition to, the variation in the disclosure quality among the sample companies suggest that there is a need for governments and related organizations in developing countries to devise more detailed guidances that specify environmental disclosure requirements to enhance the quality of environmental disclosure.

Table 1 also presents the level of quality of environmental disclosure for each category. It shows that the quality of environmental disclosure of each of eight categories is different. It shows that the environmental disclosure quality of each of eight categories is different. This result is in line with some previous studies such as Hewaidy (2016) who evidenced that the disclosure level varies by disclosure category. However, analysis of the different categories showed that, the category "sustainable development" has the highest average mean of scores with 2.123, followed by "pollution abatement" (2), "health and safety" (1.86), "disturbances to land and land remediation" (1.657), "environmental management" (1.629), "economic factors" (1.404), "laws and regulations" (0.97), and lastly, the category "spills & environmental incidents" has the lowest average mean (0.80).

Among all the environmental items studied, the descriptive analysis of the disclosure showed that the item "conservation of natural resources" under the category "sustainable development" represents the highest disclosure quality with mean of 2.78, followed by "air emission information" under the category "pollution abatement" and "health and safety incidents and accidents" under the category "health and safety" with means of 2.71 and 2.70 respectively. On the other hand, "future environmental operating costs" under the category "economic factors" represents the lowest disclosure quality with mean of 0.28, the second lowest item is "costs of treatment of spills" under the category "spills& environmental incidents" with mean of 0.34, and the third lowest item is "litigation" under the category "laws and regulations" with mean of 0.40.

However, from data review it was noted that for companies that scored low on the quality index did not disclose some items and/or did not disclose in monetary/quantitative terms, or did not address specific issues in their reporting. The results of this study suggest that there is a significant scope for additional and better quality environmental disclosure in various reporting mediums of oil and gas companies in developing countries. Issuing regulations and guidelines on corporate environmental disclosure is needed to motivate companies to improve their environmental disclosure.

Table 1. Descriptive Statistics of Environmental Disclosure Categories and Items

Categories	Min.	Max.	Mean	Std. Deviation
Economic Factors				
Past and current environmental capital expenditures	0	3	2.39	1.133
Past and current environmental operating costs	0	3	1.69	1.411
Future environmental capital expenditures	0	3	.97	1.264
Future environmental operating costs	0	3	.28	.798
Environmental liabilities and provisions	0	3	1.70	1.385
Total	**0**	**15**	**7.02**	**4.230**
Average Mean			**1.404**	
Laws and Regulations				
Litigation (present and Potential)	0	3	.40	.959
Fines and Penalties	0	3	.53	1.008
Environmental legislations and regulations requirements	0	3	1.99	.552
Total	**0**	**9**	**2.91**	**1.722**
Average Mean			**.97**	
Pollution abatement				
Air emission information	0	3	2.71	.528
Water discharge information	0	3	2.28	1.062
Waste disposal information	0	3	2.54	.727
Noise, odours and visual quality	0	2	.48	.839
Activities, products and services impacts on environment	1	3	2.04	.333
Installation of environmental control systems, facilities or processes described	0	3	1.92	1.040
Total	**2**	**17**	**11.98**	**2.804**
Average Mean			**2**	
Sustainable development				
Conservation of natural resources	0	3	2.78	.576
Recycling	0	3	1.57	1.300
Progress toward sustainability	0	3	2.52	.597
Research and development activities for sustainable development	0	3	1.63	1.026
Total	**0**	**12**	**8.49**	**2.472**
Average Mean			**2.123**	
Disturbances to land and land remediation				
Sites	0	3	1.54	1.106
Disturbances to land	0	3	1.71	1.111
Efforts of remediation/ Rehabilitation (present and future)	0	3	1.72	1.117
Total	**0**	**9**	**4.97**	**2.574**
Average Mean			**1.657**	
Spills & Environmental incidents				
Number and nature of spills	0	3	1.27	1.295
Efforts to reduce and / or prevent spills	0	3	.78	1.045
Costs of treatment of spills.	0	3	.34	.835
Total	**0**	**9**	**2.40**	**2.509**
Average Mean			**.80**	
Environmental management				
Environmental policies or company concern for the environment	2	3	2.06	.239
Environmental management system (EMS)	0	3	1.83	.608
Environmental auditing	0	3	1.44	1.024
Goals and targets	0	3	2.11	.872
Environmental Awards and Recognition	0	3	1.03	1.012
Department/ committee for environmental affairs pollution control	0	2	1.08	.988
Joint projects with other firms on environmental management	0	3	1.54	.888
Involvement to environmental organizations	0	3	1.31	.973
Environmental activities and programmes	0	3	2.16	.844
Environmental training and education programmes	0	3	1.72	1.139
Total	**2**	**26**	**16.29**	**4.936**
Average Mean			**1.629**	
Health and Safety				
Employee health and safety policy	2	3	2.05	.222
Health and safety laws and regulations	0	3	1.97	.347
Health and safety management systems	0	3	1.76	.730
Health and safety at work	0	3	2.13	.880
Toxic hazard	0	3	1.11	1.070
Health and safety training	0	3	1.78	1.072
Health and safety auditing	0	3	1.39	1.011
Health and safety incidents and accidents	0	3	2.70	.531
Total	**6**	**21**	**14.88**	**3.182**
Average Mean			**1.86**	
Total	**33**	**106**	**68.98**	**15.514**

Note: N= 116

5. CONCLUSIONS

The objective of this study is to determine the level of environmental disclosure quality of oil and gas companies in the developing countries. In order to achieve this objective this study adopted a quantitative research methodology and probability cluster sampling technique was employed. A number of 116 oil and gas companies originated from 19 developing countries were included in the sample.

To measure the quality of environmental disclosure, a 42-items disclosure index, scoring scheme and decision rules were developed by adapting pertinent established indices and decisions rules of prior studies. Annual reports, stand-alone reports and environmental related sections on homepages were downloaded from companies` websites.

Using the index and scoring scheme, content analysis was conducted. The data was analyzed using descriptive analysis to determine the level of disclosure quality. The results of the analysis revealed that, the total scores in annual reports, stand-alone reports and homepages range from 33 to 106 scores with an average of 68.98 scores (54.75%). The descriptive analysis for the environmental disclosure quality also revealed that, the means of scores across different disclosure media are varied. Particularly, the mean of annul reports scores is 52.63, for stand-alone reports 65.64 scores and 38.53 scores for homepages. These results indicate that, there is variation in the quality of environmental disclosure among the three mediums, and suggest that stand-alone reports have the highest level of environmental discourse quality, while, the corporate homepages have the lowest level.

The results also revealed that the level of environmental disclosure quality differs across different categories. The category "sustainable development" has the highest level of the disclosure quality with average mean of scores 2.123, whereas, the category of "spills & environmental incidents" has the lowest level of the disclosure quality with average mean 0.80. With respect to all disclosure items, the results indicated that the item "conservation of natural resources" under the category "sustainable development" has the highest disclosure quality with mean of 2.78, while the item "future environmental operating costs" under the category "economic factors" has the lowest disclosure quality with mean of 0.28.

Prior environmental disclosure literature has not given much emphasis on disclosure quality; instead, it focused more on the quantity of disclosure. The current study seeks to fill the gap in the literature by considering the issue of environmental disclosure quality (rather than quantity). Assessing the quality of the environmental reporting enables an identification of the strengths and weaknesses in current reporting practice and advances our understanding. In addition, contrary to the most available literature that only focuses on sole medium of environmental disclosure (mostly annual report), the current study contributes to the literature by covering most common vehicles of environmental disclosure, particularly, annual reports, stand-alone reports and corporate homepages. This study also fills the void in prior environmental disclosure literature regarding whether various reporting mediums vary regarding their disclosure quality.

The present study also contributes to the environmental disclosure literature by focusing on the ED practices of specific sector (i.e. the oil and gas industry) in the DCs. It was argued that, in order to enhance our understanding on environmental disclosure behavior, it is important to focus on a specific industry (Gray et al., 1995; Ahmad and Haraf, 2013). Thus, this study contributes to environmental disclosure literature as it provides insight into the environmental disclosure practices of oil and gas companies within developing countries, where there are limited published studies.

Understanding the ED practices of oil and gas companies enables various interested parties, such as, investors, creditors, governments, regulators and standard setter, and environmental groups to determine the quality of ED, and to assess the requirements for environmental information. It is hoped that the findings of this study serve as input towards the development of improved regulations concerning environmental reporting for the oil and gas industry, and provide guidelines to the regulators to make relevant decisions on environmental information items to be incorporated in the regulatory standards.

The findings of this study have many implications for various interested parties. The present study provides insights into environmental disclosure of a single highly environmentally sensitive industry. The study focuses on the quality of environmental disclosure in different reporting media by oil and gas companies across several countries. By assessing the quality of environmental disclosure, it enables ones to identify of the strengths and weaknesses in environmental disclosure of the sampled companies, therefore, advances our understanding of current disclosure practice by oil and gas industries in developing countries.

This study may motivate oil and gas companies in developing countries to provide environmental information in their annual reports, stand-alone reports and websites. Particularly, the findings may help the companies to focus on what should be disclosed and how to disclose. In this respect, the disclosure index serves as a guide to best practice of environmental disclosure.

In addition, by identifying the state of environmental disclosure practices, the results of this study would benefit the policy makers, regulators and reporting standards setters in proposing laws and regulations, issuing new standards, and improving environmental reporting guidelines, which in turn will lead to more transparency and better quality of environmental disclosure.

Finally, this study makes a methodological contribution to the literature by constructing an environmental disclosure quality index, which can be considered as a comprehensive enough –to some extent- and suitable for oil and gas industry, as it includes specific environmental disclosure items for this industry. Thus, the disclosure index of this study can be used as a tool for future oil and gas industry corporate environmental disclosure related research.

6. LIMITATION AND FUTURE RESEARCH

This study focused on the three main channels of environmental disclosure. As companies are using different channels and are likely using other channels to disclose environmental information, future research should investigate a wider range of those channels. Thus, besides the reporting mediums covered in this study, other common channels such as advertisements, environmental

brochure or corporate booklets, newspapers and magazines, television and radio, could be covered by future research. Moreover, future research could include reports and information that are published in other languages.

REFERENCES

1. Abdalla, Y. A. and Siti-Nabiha, A. K. (2015). Pressures for Sustainability Practices in an Oil and Gas Company: Evidence from Sudan. Qualitative Research in Accounting & Management, 12) 3), 256-286. http://dx.doi.org/10.1108/QRAM-04-2014-0038
2. Abd Rahman, N. H., Zain, M. M. and Al-Haj, N. H. (2011). CSR Disclosures and its Determinants: Evidence from Malaysian Government Link Companies. Social Responsibility Journal, 7 (2)181--201. http://dx.doi.org/10.1108/17471111111141486
3. Aburaya, R. K. (2012). The Relationship between Corporate Governance and Environmental Disclosure: UK Evidence. Unpublished PhD Thesis, Durham University, UK.
4. Adams, C. A., Hill, W. Y., & Roberts, C. B. (1998) Corporate Social Reporting Practices in Western Europe: Legitimating Corporate Behaviour. The British Accounting Review, 30(1), 1-21. http://dx.doi.org/10.1006/bare.1997.0060
5. Ahmad, N. N. and Haraf, A. S. (2013). Environmental Disclosures of Malaysian Property Development Companies: Towards Legitimacy or Accountability? Social Responsibility Journal, 9(2), 241-258. http://dx.doi.org/10.1108/SRJ-10-2011-0090
6. Ahmad , N. N. and Hossain, D. M. (2015). Climate Change and Global Warming Discourses and Disclosures in the Corporate Annual Reports: A Study on the Malaysian Companies. Procedia - Social and Behavioral Sciences, 172(27), 246-253. http://dx.doi.org/10.1016/j.sbspro.2015.01.361
7. Ahmed, N. N. and Sulaiman, M. (2004). Environmental Disclosures in Malaysian Annual Reports: A Legitimacy Theory Perspective. International Journal of Commerce and Management, 14(1), 44-58. http://dx.doi.org/10.1108/10569210480000173
8. Alciatore, M. L., & Dee, C. C. (2006). Environmental Disclosures in the Oil and Gas Industry. Advances in Environmental Accounting & Management, 3, 49-75. http://dx.doi.org/10.1016/S1479-3598(06)03002-0
9. Al-Drugi, A. and Abdo, H. (2012). Investigating the Development of Environmental Disclosures by Oil and Gas Companies Operating in Libya: A Comparative Study. International Journal of Economics and Finance Studies, 4 (2), 1-12.
10. Ane, P. (2012). An Assessment of the Quality of Environmental Information Disclosure of Corporation in China. Systems Engineering Procedia, 5, 420-426. http://dx.doi.org/10.1016/j.sepro.2012.04.064
11. Ariweriokuma, S. (2009). The Political Economy of Oil and Gas in Africa: The Case of Nigeria. Taylor & Francis Group, London and New York.
12. Barr, M. A. (2007). Corporate Social Responsibility Reporting in Emerging Economies: A Case of the Petroleum Refining Industry. Unpublished Master Thesis. Duke University.
13. Belal, A. R (2000). Environmental Reporting in Developing Countries: Empirical Evidence from Bangladesh. Eco-Management and Auditing, 7(3), 114-121. http://dx.doi.org/10.1002/1099-0925(200009)7:3<114::AID-EMA131>3.0.CO;2-E
14. Belal, A. R. (2001). A Study of Corporate Social Disclosures in Bangladesh. Managerial Auditing Journal, 16 (5), 274-289. http://dx.doi.org/10.1108/02686900110392922
15. Belal, A. R. (2008). Corporate Social Responsibility (CSR) Reporting in Developing Countries: The Case of Bangladesh. Ashgate Publishers, Aldershot.
16. Belal, A., & Momin, M. (2009). Corporate Social Reporting (CSR) in Emerging Economies: A Review and Future Direction. Research in Accounting in Emerging Economies, 9, 119-143.
17. Bose, S. (2006). Environmental Accounting and Reporting in Fossil Fuel Sector: A Study on Bangladesh Oil, Gas and Mineral Corporation (Petorbangla). The Cost and Management, 34(2), 53-67.
18. Bowrin, A. R. (2013). Corporate Social and Environmental Reporting in the Caribbean. Social Responsibility Journal, 9 (2), 259-280. http://dx.doi.org/10.1108/SRJ-08-2011-0074
19. Brammer, S., & Pavelin S. (2006). Voluntary Environmental Disclosure by Large UK Companies. Journal of Business Finance & Accounting, 33(7) & (8), 1168-1188. http://dx.doi.org/10.1111/j.1468-5957.2006.00598.x
20. Brammer, S., & Pavelin, S. (2008). Factors Influencing the Quality of Corporate Environmental Disclosure. Business Strategy and the Environmental, 17 (2). 120-136. http://dx.doi.org/10.1002/bse.506
21. Brink, P., Haines, R., Owen, S., Smith, D., & Whitaker, B. (1997). Consulting the Stakeholder: A New Approach to Environmental Reporting for IBM (UK) Ltd. In G Ledgerwood (Ed.), Greening the Boardroom: Corporate Governance and Business Sustainability (175-187). Sheffield, UK: Greenfield Publishing.
22. Buzby, S.L. (1975). Company Size, Listed versus Unlisted Stocks, and the Extent of Financial Disclosure. Journal of Accounting Research, 13(1), 16-37. http://dx.doi.org/10.2307/2490647
23. Carrots and Sticks (2013). Sustainability Reporting Policies Worldwide- Today`s Best Practice, Tomorrow`s Trends. 2013 ed. United Nations Environment Programme (UNEP), The Global Reporting Initiative (GRI), KPMG & The Center for Corporate Governance in Africa. Retrieved April 14, 2015, from https://www.globalreorting.org/resourcelibvrary/carrots-and-sticks.pdf
24. Chang, K. (2013). The Effects of Ownership and Capital Structure on Environmental Information Disclosure: Empirical Evidence from Chinese Listed Electric Firms. WSEAS TRANSACTIONS on SYSTEMS, 12(12), 637-649.
25. Chatterjee, B., & Mir, M. Z. (2008). The Current Status of Environmental Reporting by Indian Companies. Managerial Auditing Journal, 23 (6), 609-629. http://dx.doi.org/10.1108/02686900810882138
26. Chithambo, L. and Tauringana, V. (2014). Company Specific Determinants of Greenhouse Gases Disclosures. Journal of Applied Accounting Research, 15 (3), 323-338. http://dx.doi.org/10.1108/JAAR-11-2013-0087
27. Choi, J. S. (1999). An Investigation of the Initial Voluntary Environmental Disclosures Made in Korean Semi-Annual Financial Reports. Pacific Accounting Review, 11(1), 73-102.
28. Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the Relation between Environmental Performance and Environmental Disclosure: An Empirical Analysis. Accounting,

Organizations and Society, 33(4/5), 303-327. http://dx.doi.org/10.1016/j.aos.2007.05.003
29. Cormier, D., Magnan M., & Van Velthoven B. (2005). Environmental Disclosure Quality in Large German Companies: Economic Incentives, Public Pressures or Institutional Conditions?. European Accounting Review, 14(1), 3-39. http://dx.doi.org/10.1080/0963818042000339617
30. Cormier, D., Gordon, I. M., & Magnan, M. (2004). Corporate Environmental Disclosure: Contrasting Management's Perceptions with Reality. Journal of Business Ethics, 49(2), 143-165. http://dx.doi.org/10.1023/B:BUSI.0000015844.86206.b9
31. Cuesta, M. and Valor, C. (2013). Evaluation of the Environmental, Social and Governance Information Disclosed by Spanish Listed Companies. Social Responsibility Journal, 9 (2), 220 -240. http://dx.doi.org/10.1108/SRJ-08-2011-0065
32. Darus, F., Hamzah, E. A. and Yusoffa, H. (2013). CSR Web Reporting: The Influence of Ownership Structure and Mimetic Isomorphism. Procedia Economics and Finance, 7, 236-242. http://dx.doi.org/10.1016/S2212-5671(13)00240-2
33. De Villiers, C. and Van Staden, C. (2012). New Zealand Shareholder Attitudes Towards Corporate Environmental Disclosure. Pacific Accounting Review, 24 (2), 186-210. http://dx.doi.org/10.1108/01140581211258470
34. Deegan, C., & Gordon, B. (1996). A Study of the Environmental Disclosure Practices of Australian Corporations. Accounting and Business Research, 26(3). 187-199 http://dx.doi.org/10.1080/00014788.1996.9729510
35. Deegan, C., & Rankin, M. (1996). Do Australian Companies Report Environmental News Objectively? An Analysis of Environmental Disclosures by Firms Prosecuted Successfully by the Environmental Protection Authority. Accounting Auditing and Accountability Journal, 9, (2), 52-69. http://dx.doi.org/10.1108/09513579610116358
36. Deegan, C., Rankin, M., & Tobin, J. (2002). An Examination of the Corporate Social and Environmental Disclosures of BHP from 1983-1997: A Test of Legitimacy Theory. Accounting, Auditing & Accountability Journal, 15(3), 312-43. http://dx.doi.org/10.1108/09513570210435861
37. Dibia, N. O. and Onwuchekwa, J. C. (2015). Determinants of Environmental Disclosures in Nigeria: A Case Study of Oil and Gas Companies. International Journal of Finance and Accounting, 4(3), 145-152.
38. Dong, Y., Fu, R., Gao, F. and Ni, C. (2015). Determinants and Economic Consequences of Nonfinancial Disclosure Quality. Retrieved June 3, 2015, from http://papers.ssrn.1com/sol3/papers.cfm?abstract_id=2555416
39. Eljayash, K. M. (2015). Documentation of Environmental Disclosure Practices in the Oil Companies in the Countries of the Arab Spring – Some Evidences from Egypt, Libya and Tunisia. Journal of Economics, Business and Management, 3 (10), 954-960. http://dx.doi.org/10.7763/joebm.2015.v3.315
40. Eljayash, K., James, K. and Kong, E. (2012). The Quantity and Quality of Environmental Disclosure in Annual Reports of National Oil and Gas companies in Middle East and North Africa. International Journal of Economics and Finance, 4 (10), 201-217. http://dx.doi.org/10.5539/ijef.v4n10p201
41. Eljayash, K., Kavanagh, M. and Kong, E. (2013). Environmental Disclosure Practices in National Oil and Gas companies and International Oil and Gas Corporations Operating in Organization of Arab Petroleum Exporting Counties. International Journal of Business, Economics and Law, 2 (1), 35-52.
42. Eltaib, E. E. (2012). Environmental Accounting Disclosures of Australian Oil and Gas Companies. Unpublished Master Thesis, University of Wollongong.
43. Freedman, M., & Stagliano, A. J. (1992). European Unification, Accounting Harmonization, and Social Disclosures. The International Journal of Accounting, 27(2), 112-122.
44. Frynas, J. G. (2009). Beyond Corporate Social Responsibility: Oil Multinationals and Social Challenges. Cambridge University Press. Retrieved July 29, 2009, from www.cambridge.org. http://dx.doi.org/10.1017/cbo9780511581540
45. Gray, R., Kouchy, R., & Lavers, S. (1995). Corporate Social and Environmental Reporting: A Review of the Literature and a Longitudinal Study of U.K. Disclosure. Accounting, Auditing and Accountability Journal. 8(2), 47-77. http://dx.doi.org/10.1108/09513579510146996
46. Guenther, E., Hoppe, H. and Poser, C. (2007). Environmental Corporate Social Responsibility of Firms in the Mining and Oil and Gas Industries: Current Status Quo of Reporting Following GRI Guidelines. Greener Management International, 53, 7-24.
47. Hair, J., Money, A., Page, M., & Samouel P. (2007). Research Methods for Business. John Wiley & Sons Ltd. US.
48. Haji, A. A. (2013). Corporate Social Responsibility Disclosures over Time: Evidence from Malaysia. Managerial Auditing Journal, 28 (7), 647-676. http://dx.doi.org/10.1108/MAJ-07-2012-0729
49. Hall, J. A. (2002). An Exploratory Investigation into the Corporate Social Disclosure of Selected New Zealand Companies (Discussion Paper Series No. 211). Palmerston North, New Zealand: Massey University, School of Accountancy. Retrieved June 6, 2009, from http://wwwaccountancy.massey.ac.nz/Publications/211.pdf
50. Harun, N. A., Abdul Rashid, A. and Alrazi, B. (2013). Measuring the Quality of Sustainability Disclosure among the Malaysian Commercial Banks. World Applied Sciences Journal, 28, 195-201.
51. Hassan, N. T. (2010). Corporate Social Responsibility Disclosure: An Examination of Framework of Determinants and Consequences. Unpublished PhD Thesis, Durham University, UK.
52. Hasseldine, J., Salama, A. I., & Toms J. S. (2005). Quantity versus Quality: The Impact of Environmental Disclosures on the Reputations of UK Plcs. The British Accounting Review, 37, 231-248. http://dx.doi.org/10.1016/j.bar.2004.10.003
53. Hewaidy, A. M. (2016). Social and Environmental Disclosure in Corporate Annual Reports: Evidence from Kuwait. International Journal of Social Sciences and Management, 3(1), 8-16. http://dx.doi.org/10.3126/ijssm.v3i1.14219
54. He, C. and Loftus, J. (2014). Does environmental reporting reflect environmental performance? Evidence from China. Pacific Accounting Review, 26 (1/2), 134-154. http://dx.doi.org/10.1108/PAR-07-2013-0073
55. Heflin, F. and Wallace, D. (2014). The BP Oil Spill: Shareholder Wealth Effects and Environmental Disclosures. Retrieved May 17, 2015, from http://ssrn.com/abstract=1933531.

56. Hooks, J., & Van Staden, C.J. (2011). Evaluating Environmental Disclosures: The Relationship between Quality and Extent Measures. The British Accounting Review, 43(3), 200-213. http://dx.doi.org/10.1016/j.bar.2011.06.005
57. Hossain, D. M., Al Bir, A. T., Tarique, K. M. and Momen, A. (2016). Disclosure of Green Banking Issues in the Annual Reports: A Study on Bangladeshi Banks. Middle East Journal of Business, 11(1), 19-30.
58. Hossain, M. A., Islam, K. S., & Andrew, J. (2006). Corporate Social and Environmental Disclosure in Developing Countries: Evidence from Bangladesh. Paper presented at the Asian Pacific Conference on International Accounting Issues, Hawaii. Retrieved December 10, 2009, from http://ro.uow.edu.au/commpapers/179/.
59. Hughes, S. B., Anderson, A., & Golden, S. (2001). Corporate Environmental Disclosures: Are They Useful in Determining Environmental Performance? Journal of Accounting and Public Policy, 20(3), 217-40. http://dx.doi.org/10.1016/S0278-4254(01)00031-X
60. Hussainey, K., & Mouselli, S. (2010). Disclosure Quality and Stock Returns in the UK. Journal of Applied Accounting Research, 11 (2), 154 - 174. http://dx.doi.org/10.1108/09675421011069513
61. IEA (2015). CO2 Emissions from Fuel Combustion (2015 edition). Retrieved November 29, 2015, from http://www.iea.org/publications
62. Imam, S. (2000). Corporate Social Performance Reporting in Bangladesh. Managerial Auditing Journal, 15(3), 133-41. http://dx.doi.org/10.1108/02686900010319384
63. Innocent, O. C., Gloria, O. T. and Benjamin, O. (2015). Effectiveness of Triple Bottom Line Disclosure Practice in Nigeria-Stakeholders Perspective. European Journal of Accounting Auditing and Finance Research, 3(3), 45-61.
64. Islam, M. A. and Islam, M. A. (2011). Environmental Incidents in a Developing Country and Corporate Environmental Disclosures. Society and Business Review, 6(3), 229-248. http://dx.doi.org/10.1108/17465681111170984
65. Islam, S., Hosen A., & Islam, M. (2005). An Examination of Corporate Environmental Disclosure by The Bangladesh Public Limited Companies. Pakistan Journal of Social Sciences, 3(9), 1095-1102.
66. Joseph, C., Pilcher, R. and Taplin, R. (2014). Malaysian Local Government Internet Sustainability Reporting. Pacific Accounting Review, 26 (1/2), 75-93. http://dx.doi.org/10.1108/PAR-07-2013-0071
67. Kamla, R. (2007). Critically Appreciating Social Accounting and Reporting in the Arab Middle East: A Postcolonial Perspective. Advances in International Accounting, 20, 105-177. http://dx.doi.org/10.1016/S0897-3660(07)20005-4
68. Kamla, R. and Rammal, H. G. (2013). Social Reporting by Islamic Banks: Does Social Justice Matter? Accounting, Auditing & Accountability Journal, 26 (6), 911-945. http://dx.doi.org/10.1108/AAAJ-03-2013-1268
69. Kansal, M., Joshi, M. and Batra, G. S. (2014). Determinants of corporate social responsibility disclosures: Evidence from India. Advances in Accounting, incorporating Advances in International Accounting, 30 (2014) 217-229.
70. Kaur, M. (2015). Checking the Item wise Variation in the Environmental Reporting Practices of Indian Companies. The Macrotheme Review- A multidisciplinary journal of global macro trends, 4(1), 10-30.
71. Khlif, H., Guidara, A. and Souissi, M. (2015). Corporate Social and Environmental Disclosure and Corporate Performance. Journal of Accounting in Emerging Economies, 5(1), 51-69. http://dx.doi.org/10.1108/JAEE-06-2012-0024
72. Kolk, A. and Fortanier, F. (2013). Internationalization and Environmental Disclosure: The Role of Home and Host Institutions. Multinational Business Review, 21(1), 87-114. http://dx.doi.org/10.1108/15253831311309500
73. KPMG (1999). KPMG International Survey of Environmental Reporting 1999 (KPMG Environmental Consulting, DeMeern, The Netherlands).
74. Kuo, L. and Chen, V. Y. (2013). Is Environmental Disclosure An Effective Strategy on Establishment of Environmental Legitimacy for Organization?. Management Decision, 51(7), 1462-1487. http://dx.doi.org/10.1108/MD-06-2012-0395
75. Lipunga, A. M. (2015). Corporate Social Responsibility Reporting through the Lens of ISO 26000: A Case of Malawian Quoted Companies. International Business Research, 8(2),
76. Liua, Z.G., Liu, T. T., McConkey, B.G. and Li, X. (2011). Empirical Analysis on Environmental Disclosure and Environmental Performance Level of Listed Steel Companies. http://dx.doi.org/10.1016/j.egypro.2011.03.382
77. Lodhia, S. K. (2006). Corporate Perceptions of Web-based Environmental Communication- An Exploratory Study into Companies in the Australian Minerals Industry. Journal of Accounting and Organizational Change, 2 (1), 74-88. http://dx.doi.org/10.1108/18325910610654135
78. Lu, Y. & Abeysekera, I. (2014). Stakeholders' Power, Corporate Characteristics, and Social and Environmental Disclosure: Evidence from China. Journal of Cleaner Production, 64, 426-436. http://dx.doi.org/10.1016/j.jclepro.2013.10.005
79. Lu, Y., Abeysekera, I. and Cortese, C. (2015). Corporate Social Responsibility Reporting Quality, Board Characteristics and Corporate Social Reputation: Evidence from China. Pacific Accounting Review, 27(1), 95-118. http://dx.doi.org/10.1108/PAR-10-2012-0053
80. Matthew, M. R. (1993). Socially Responsible Accounting. Chapman & Hall. London.
81. Michelon, G., Pilonato, S. and Ricceri, F. (2015). CSR Reporting Practices and the Quality of Disclosure: An Empirical Analysis. Critical Perspectives on Accounting, http://dx.doi.org/10.1016/j.cpa.2014.10.003
82. Momin, M. A. and Parker, L. D. (2013). Motivations for Corporate Social Responsibility Reporting by MNC Subsidiaries in an Emerging Country: The Case of Bangladesh. The British Accounting Review, 45 (2013), 215-228. http://dx.doi.org/10.1016/j.bar.2013.06.007
83. Mughal, S. L. (2014). Corporate Social Disclosure: A Case Study on Petroleum Industry of Pakistan. Journal of Economics and Sustainable Development, 5(11), 48-56.
84. Neu, D., Warsame, H., & Pedwell, K. (1998). Managing Public Impressions: Environmental Disclosures in Annual Reports. Accounting, Organizations and Society, 23(3), 265-282. http://dx.doi.org/10.1016/S0361-3682(97)00008-1
85. Noodezh, H. R. and Moghimi, S. (2015). Environmental Costs and Environmental Information Disclosure in the Accounting Systems. International Journal of Academic Research in Accounting, Finance and Management Sciences,

5(1), 13-18.
86. Nurhayati, R., Taylor, G. and Tower, G. (2015). Investigating Social and Environmental Disclosure Practices by Listed Indian Textile Firms. Proceedings of the Australasian Conference on Business and Social Sciences 2015, Sydney (in partnership with The Journal of Developing Areas), p 201-212, ISBN 978-0-9925622-1-2. http://dx.doi.org/10.1353/jda.2015.0109
87. Nurhayati, R., Taylor, G., Rusmin, R., Tower, G. and Chatterjee, B. (2016). Factors Determining Social and Environmental Reporting by Indian Textile and Apparel Firms: A Test of Legitimacy Theory. Social Responsibility Journal, 12(1), 167-189. http://dx.doi.org/10.1108/SRJ-06-2013-0074
88. Oba, V. C. and Fodio, M. I. (2012a). Board Characteristics and the Quality of Environmental Reporting in Nigeria. Journal of Accounting and Management, 1(2), 33-48.
89. Oba, V. C. and Fodio, M. I. (2012b). Comparative Analysis of Environmental Disclosures in Oil and Gas and Construction Industries in Nigeria. Journal of Sustainable Development in Africa, 14(6), 19-28.
90. Patten, D. M. (1992). Intra-Industry Environmental Disclosure in Response to the Alaskan Oil Spill: A Note on Legitimacy Theory". Accounting, Organizations and Society, 17 (5), 471-475. http://dx.doi.org/10.1016/0361-3682(92)90042-Q
91. Peiyuan, G. (2005). Corporate Environmental Reporting and Disclosure in China. Tsinghua University, Beijing, School of Public Policy and Management.
92. Perera, M. H. B., & Matthew, M. R. (1990). The Cultural Relativity of Accounting and International Pattern of Social Accounting. Advances in International Accounting, 3, 215-251.
93. Perez, A. (2015). Corporate reputation and CSR reporting to stakeholders: Gaps in the literature and future lines of research. Corporate Communications: An International Journal, 20 (1), 11-29. http://dx.doi.org/10.1108/CCIJ-01-2014-0003
94. Rattanaphaphtham, K. and Kunsrison, R. (2011). Environmental Information Disclosure Quality, Competitive Advantage and Sustainable Growth of Thai Listed Firm: Perspective of Resource Based View. Journal of International Business and Economics, 11(3), 134-146.
95. Rizk, R., Dixon R., & Woodhead A. (2008) Corporate Social and Environmental Reporting: A Survey of Disclosure Practices in Egypt. Social Responsibility Journal, 4(3), 306-323. http://dx.doi.org/10.1108/17471110810892839
96. Rupley, K. H., Brown, D. and Marshall, S. (2012). Governance, Media and the Quality of Environmental Disclosure. Journal of Accounting and Public Policy, 31(6), 610-640. http://dx.doi.org/10.1016/j.jaccpubpol.2012.09.002
97. Said, R., Omar, N. and Abdullah, W. N. (2013). Empirical Investigations on Boards, Business Characteristics, Human Capital and Environmental Reporting. Social Responsibility Journal, 9 (4), 534-553. http://dx.doi.org/10.1108/SRJ-02-2012-0019
98. Said, R., Zainuddin, Y. H. and Haron, H. (2009). The Relationship between Corporate Social Responsibility Disclosure and Corporate Governance Characteristics in Malaysian Public Listed Companies. Social Responsibility Journal, 5(2), 212 – 226. http://dx.doi.org/10.1108/17471110910964496
99. Sekaran, U. (2003). Research Methods for Business: A Skill Building Approach, (4th ed.). John Wiley & Sons (Asia) Pte. Ltd., Singapore for manufacture and export.
100. Sen, M., Mukherjee, K. and Pattanayak, J. K. (2011). Corporate environmental disclosure practices in India. Journal of Applied Accounting Research, 12 (2), 139-156. http://dx.doi.org/10.1108/09675421111160709
101. Silva, T-A. D. (2008). Voluntary Environmental Reporting: The Why, What and How. Unpublished PhD thesis, Lincoln University.
102. Suchman, M. C. (1995). Managing Legitimacy: Strategic and Institutional Approaches. Academy of Management Review, 20 (3), 571-610.
103. Sulaiman, M., Abdullahb, N. and Fatima, A. H. (2014). Determinants of Environmental Reporting Quality in Malaysia. International Journal of Economics, Management and Accounting, 22 (1), 63-90.
104. Summerhays, K. and De Villiers, C. (2012). Oil Company Annual Report Disclosure Responses to the 2010 Gulf of Mexico Oil Spill. Journal of the Asia-Pacific Centre for Environmental Accountability, 18 (2), 103-130.
105. Sustainability Ltd. & UNEP (1999), The Oil Sector Report: A Review of Environmental Disclosure in the Oil Industry. Retrieved August 1,2009, from http://www.sustainabilty.com/downloadspublic/insight/reports/oilsector.pdf
106. Suttipun, M. and Stanton, P. (2012). The Differences in Corporate Environmental Disclosures on Websites and in Annual Reports: A Case Study of Companies Listed in Thailand. International Journal of Business and Management, 7 (14), 18-31. http://dx.doi.org/10.5539/ijbm.v7n14p18
107. United Nations Research Institute for Social Development. (2000). Promoting Socially Responsible Business in Developing Countries: The Potential and Limits of Voluntary Initiatives. Geneva.
108. Van Staden, C. J. and Hooks, J. (2007). A Comprehensive Comparison of Corporate Environmental Reporting and Responsiveness. British Accounting Review, 39(3), 197-210. http://dx.doi.org/10.1016/j.bar.2007.05.004
109. Van der Steden, W. A., Young, S. M., & Chen C. X. (2007). Doing Management Accounting Survey Research. Edited by Chapman, C. S., Hopwood, A. G. and Shields, M. D. Vol. 1, Handbook of Management Accounting Research. Amsterdam, Elsevier Ltd.
110. Vilar, V. H. and Simao, J. (2015). CSR Disclosure on the Web: Major Themes in the Banking Sector. International Journal of Social Economics, 42(3), 296-318. http://dx.doi.org/10.1108/IJSE-10-2013-0240
111. Vuorela, S. (2014). Environmental Disclosure in Finnish and Swedish Annual and sustainability Reports a Study of Forest Industry. Unpublished Bachelor Thesis in Accounting, University of Gothenburg.
112. Walden, W. D., & Schwartz, B. N. (1997). Environmental Disclosures and Public Policy Pressures. Journal of Accounting Public Policy, 16(2), 125-154. http://dx.doi.org/10.1016/S0278-4254(96)00015-4
113. Walsh, W. B. (1995). Test and Assessment, (3rd ed.). New Jersey: Prentice Hall.
114. Wiseman, J. (1982). An Evaluation of Environmental Disclosure Made in Corporate Annual Reports. Accounting, Organizations and society. 7(1), 53-63. http://dx.doi.org/10.1016/0361-3682(82)90025-3
115. Yin, W. H. (2012). Corporate Social Responsibility

and Firm Performance: Evidence from China. Master Thesis, Lingnan University.
116. Yusoff, H. and Lehman, G. (2009). Corporate Environmental Reporting through the Lens of Semiotics. Asian Review of Accounting, 17 (3), 226-246. http://dx.doi.org/10.1108/13217340910991938
117. Yusoff, H and Othman, R. (2013). Environmental Reporting Practices in Malaysia and Australia. The Journal of Applied Business Research, 29(6), 1717-1726. http://dx.doi.org/10.19030/jabr.v29i6.8209
118. Yusoff, H., Lehman, G., & Nasir, N. M. (2006). Environmental Engagements through the Lens of Disclosure Practices: A Malaysian story. Asian Review of Accounting, 14(1/2), 122-148. http://dx.doi.org/10.1108/13217340610729509
119. Yusoff, H. and Darus, F. (2014). Mitigation of Climate Change and Prevention of Pollution Activities: Environmental Disclosure Practice in Islamic Financial Institutions. Procedia - Social and Behavioral Sciences, 145, 195-203. http://dx.doi.org/10.1016/j.sbspro.2014.06.027
120. Zeghal, D., & Ahmed, S. A. (1990). Comparison of Social Responsibility Information Disclosure Media Used by Canadian Firms. Accounting, Auditing & Accountability Journal, 3(1), 38-53. http://dx.doi.org/10.1108/09513579010136343

FROM STANDARD JOBS TO 'GREEN JOBS': A STRATEGY FOR DEVELOPING MARKETS

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Abstract

Like many developing countries, Thailand is currently coping with a host of environmental challenges and a need to reduce carbon emissions. To tackle this challenge, Thailand has produced policies designed to enhance environmental conservation. However, without the development of its labour force with suitable and up to date job skills this challenge becomes difficult to achieve. This paper presents a rationale for the emergence of green occupations as a means of transitioning Thailand's tourism sector into a low carbon economy. A mechanism for achieving this goal is by training and retraining the workforce with a set of well-defined green knowledge and skill sets. These can be developed through the development and implementation of 'green competencies'. This paper presents a methodology of how to transition a standard job into a green job in the tourism sector by developing green sustainable competencies.

Keywords: Green Jobs, Green Competencies, Climate Change, Tourism, Human Capital

1. INTRODUCTION

Nations around the world are in a process of rapid change and uncertainty and as a result, our lives are being transformed at a very rapid pace. In a period of fewer than 40 years we have experienced a revolution not seen before. New technologies, increasing trade across nations and regions, changes to our institutional frameworks, and the freeing up of capital markets and labour markets, have transformed nations, regions and the world of work (Pearson and Foxson 2012; Esposto 2008; and Reich 2000). Added to these massive changes is a deeper and overwhelming understanding and realisation that climate change requires urgent attention and action throughout our increasingly fragile planet (IPCC, 2013, 2007; Garnaut, 2011, 2008; and Stern 2007, amongst others). Furthermore, there is unquestionable evidence that climate change and environmental degradation presents a serious risk to our livelihoods and to future generations (IPCC, 2013; 2007) and that the scientific evidence is persistently showing that global warming has arisen out of anthropogenic causes (IPCC, 2013).

It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century. The evidence for this has grown, thanks to more and better observations, an improved understanding of the climate system response and improved climate models (IPCC, 2013, p. 3).

"Climate change and environmental degradation are jeopardizing the sustainability of many kinds of economic activity" and "… moving towards a greener economy is creating opportunities for new technologies, investment and jobs" (ILO, p. 2011a v).

As the world steps up to tackle and combat climate change, a series of new mechanisms and innovative idea implementations are emerging. These innovative solutions are now going beyond simply 'saving' the physical environment. They are looking at improving the human and social capital of nations by transforming the way we do things at work. Human capital is the set of endowments or personal attributes that men and women possess in the form abilities, knowledge and skill, which when applied as worker activities provides a value to the economy (Becker, 1993). Thus, human capital is a factor of production, which when transformed to combat climate change can add considerable value to the sustainability of the environment. Hence, through investments in training and retraining, every potentially existing job could become a 'green job', impacting positively on our physical environment and improving our welfare, not only at this point in time but for future generations. Taking this to the next level implies that potentially, every single task and worker activity that we perform in our daily lives as global citizens and workers 'is green' and can provide a positive return to the environment. Adaptation and mitigation are the two current sets of policies that have emerged to tackle climate change. Mitigation is directly concerned with the reduction of greenhouse gas emissions. Government responses include the imposition of taxes on carbon emissions, the introduction of energy trading schemes, or the imposition of regulations designed to minimise waste, pollution and carbon emissions (IPCC, 2007). Adaptation, on the other hand refers to the "…actions by households, firms, other organisations and governments to respond to the impacts of climate change that cannot be avoided through climate change mitigation efforts" (Productivity Commission, 2012, p. v). These two types of policy responses have contributed towards the emergence of the green economy, which includes the set of economic practices "… related to reducing the use of fossil fuels, decreasing pollution and greenhouse gas

emissions, increasing the efficiency of energy usage, recycling materials, and developing and adopting renewable sources of energy" (Dierdorff, et al., 2009, p. 3).

These policy initiatives have created a green revolution which has been driven by technological improvements, innovations and social and economic imperatives. As the old economy shifts towards a greener economy (through a process of creative destruction) and workers are required to adapt to new greener technologies, the nature of worker activities changes and shifts to meet the skill needs, demands and requirements of new technologies, workplace innovations and social imperatives. This has resulted in the emergence of a new type of occupation: the 'green job'. Transforming an economy in which standard jobs are transformed into green jobs is a means of mitigating and adapting to climate change. Therefore, the aim of this paper is to propose a methodology for transforming every 'standard jobs' into 'green jobs'. The paper is divided as follows: the following section provides a discussion on the complexity of defining green jobs. This is then followed by a brief analysis of the tourism industry in Thailand and its labour market challenges arising out of skill shortages and gaps. A methodology for identifying skill weaknesses and gaps is provided for standard occupations by analysing their corresponding Thai competencies. This is followed by the creation of green competencies for a Thai cook, in order to transform the standard Thai Cook occupation into a green Thai Cook occupation. The paper ends with a conclusion and recommendations for further research in this emerging field.

2. DEFINING GREEN JOBS: A COMPLEX CHALLENGE

But what are green jobs, in the context of a rapidly changing labour market, economy and society? Defining a 'green job' is a complex and difficult task because the concept is new and evolves rapidly, having to adapt to new and complex conditions. As a result definitions of 'green jobs' are many and varied. An added complication is that a commonly accepted definition does not yet exist. For example, Dierdorff et al. (2009, p. 9; 2011, p. 14-15) identify nearly twenty distinct definitions in the US alone. According to the authors some definitions tend to be broad both in terms of the span and detail of the definition, while other definitions take an environmental impact approach. One such example of the environmental approach provided by Dierdorff et al. (2009 and 2011) is the one given by the US Department of Labor Bureau of Labour Statistics

A. Jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources. [Or] B. Jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources (Dierdorff et al., 2011, p. 15).

The European Commission (2013) for its part classifies definitions of green jobs into two categories. One being the eco-industry approach in which jobs are classified into the nature of the activity and the other being the transformation approach, arguing that all jobs can become green.

The definitional approach taken by the ILO (2011a) is a more holistic one and takes into consideration not only the industry, economic and environmental concerns, but also social outcomes.

Green jobs" are defined as jobs that reduce the environmental impact of enterprises and economic sectors, ultimately to levels that are sustainable. This definition covers work in agriculture, industry, services and administration that contributes to preserving or restoring the quality of the environment while also meeting the criteria for decent work – adequate wages, safe conditions, workers' rights, social dialogue and social protection. It also covers activities related to both mitigation of and adaptation to climate change. This is a working definition. It implies in its inclusivity and breadth that every job can potentially become greener. As time goes on and the transition to a green economy intensifies, what is considered a green job today might not continue to be so regarded. The understanding of green jobs also varies from one country to another. Ultimately, countries will need to compose their own national definitions and set thresholds for practices considered green or non-green (p. 4).

Central to this definition are the following elements: reduce consumption of energy and raw materials; limit greenhouse gas emissions; minimize waste and pollution; protect and restore ecosystems; fair work practices; and improvements to the welfare of nations. Furthermore, the ILO's 2008 report "Skills for Green Jobs: A Global View" identified four drivers of change in skills requirements. These include: physical changes in the environment itself; environmental policy and regulation; technology and innovation; and changes in prices, markets and consumer habits.

The interrelationship of these drivers is important to recognise because they are mutually dependent and act as strong forces of change. These forces do not act in unison in developing and developed countries. For example, in developed countries, the major drivers of change have been caused by changes in consumer behaviour and the way in which market forces have responded and interacted. For developing countries, on the other hand, changes to the environment, regulation enforcement and policy changes have become essential instruments for change (ILO, 2011a and 2011b). Thus, governance and the appropriate mix of well-informed policy responses tend to play an important role in developing countries because they generate incentives for investment, development and technology transfers.

The transformation of jobs goes hand in hand with improving the skills sets of individuals and provides an improvement in human capital which leads directly to better productivity, employment creation, upskilling of the workforce and sustainable development. For developing countries such as Thailand, the benefit of this is that it can potentially short circuit the common

"… vicious circle of low-skill, low-productivity, low-wage and poor-quality jobs (which) traps the working poor, excludes workers from productive employment and inhibits the competitiveness of enterprises. Improved quality and availability of training can stimulate a virtuous circle in which skills development fuels innovation, increased productivity

and enterprise development, technological change, investment, diversification of the economy, and competitiveness – all factors that in turn sustain and accelerate the creation of more and better jobs (ILO 2011a, p. 23)".

As such, investments in the development of human capital towards the formation of green skills and competencies play an important role in the development of nations. Like many developing countries, Thailand is currently coping with a host of environmental challenges and an urgent need to reduce carbon emissions. To take this challenge, Thailand has produced strong policies designed to enhance environmental conservation (e.g. NESDB, p. 2011). However, without the development of its labour force with suitable and up to date job skills, knowledge and abilities this challenge becomes very difficult to achieve. A significant challenge faced by the Thai economy is to understand the skills and knowledge requirements of occupations in industry resulting from the increasing demand for a green sustainable economy. In view of this, the section that follows analyses the tourism sector in Thailand with its corresponding challenges into the future.

3. THAILAND'S TOURISM INDUSTRY AT A GLANCE

Tourism is an activity that is becoming more prominent around the world and has an impact upon nations and regions socially and economically. Its worldwide incidence has increased considerably because of increasing incomes, not just in the developed world, but in particular in developing economies, including different parts of Asia and Latin America and to a lesser extent some parts of Africa (UNWTO, 2005/2007).

Trying to define tourism is difficult because it is composed of a cluster of industries and is made up of a variety of activities that at times are interrelated or disjointed and fragmented, and as a result of this, there exists a variety of definitions of tourism.

The United Nations World Tourism Organisation (UNWTO), defines tourism as

"… a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. These people are called visitors (which may be either tourists or excursionists; residents or non-residents) and tourism has to do with their activities, some of which imply tourism expenditure (UNWTO 2005/2007, p. 5)".

For its part, the ILO (2013) defines tourism as

"… the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes (p. 3)".

It is important to note that in its definition, the ILO explicitly explains that the

"Hotels, Catering and Tourism (HCT) sector differs from the definition of the tourism industry used by most organizations. The definition of the Hotels, Catering and Tourism (HCT) sector includes not only the services provided to travellers but also those for residents. For the ILO, the HCT sector comprises: hotels, boarding houses, motels, tourist camps and holiday centres; restaurants, bars, cafeterias, snack bars, pubs, night clubs and similar establishments; institutions that provide meals and refreshments within hospitals, factory and office canteens, schools, aircraft, and ships; travel agencies, tourist guides and tourism information offices; and conference and exhibition centres (p. 3)".

Table 1, shows a set of summary statistical estimates and forecasts for the Thai economy detailing the impact of travel and tourism. The data were obtained from the World Travel and Tourism Council (WTTC). The data shows that the direct contribution to GDP and the total contribution to GDP by travel and tourism to the Thai economy are quite substantial. Its direct contribution to GDP is expected to grow by 6.8 per cent p.a. to 1,698.4 THBbn (8.7 per cent of GDP) by 2023, while its total contribution to GDP is expected to grow to 7528.0 THBbn. Of significant impact is the growth in employment. By 2023, the total contribution to employment will be just over 7.5 million jobs. This shows that the impact of employment growth will have significant implications in terms of training and retraining in the Travel and Tourism industries in Thailand. As such early intervention into upskilling and transitioning the workforce into green jobs will be of great importance not only to the Travel and Tourism industry in Thailand, but also to the ASEAN group of nations.

Table 1. Summary statistics: Impact of travel and tourism on Thailand's economy, estimates and forecasts, 2012-2023

Thailand	2012* THBbn	2012 % of total	2013^ Growth	2023 THBbn	2023 % of total	Growth#
Direct contribution to GDP 8	825.6	7.3	6.2	1,698.4	8.7	6.8
Total contribution to GDP	1,896.7	16.7	7.4	3,833.0	19.6	6.5
Direct contribution to employment	2,020.0	5.2	10.1	3,465.0	8.1	4.5
Total contribution to employment	4,819.0	12.4	9.4	7,528.0	17.5	3.6
Visitor exports 1	1,022.4	12.1	5.7	2,336.7	11.1	8.0
Domestic spending 4	480.4	4.2	6.9	823.1	4.2	4.8
Leisure spending 1	1,189.3	5.7	5.9	2,525.3	6.9	7.2
Business spending 3	313.5	1.5	6.9	634.5	1.7	6.6
Capital investment 2	227.5	6.8	15.9	572.2	9.8	8.1

Source: WTTC, 2013, p. 11. * 2012 constant prices and exchange rates; ^ real growth adjusted for inflation (%); # 2013-2023 annualised real growth adjusted for inflation (%); ** 000 jobs.

4. LABOUR MARKET CHALLENGES FOR THE TRAVEL AND TOURISM INDUSTRIES

According to the WTTC the contribution of travel and tourism will continue to be an important component of world GDP, employing one person out of eleven of the world's total jobs (2013, p. i). By 2023, it is forecast that 17.5 per cent of people working in Thailand will be working in an occupation connected either directly or indirectly to the travel and tourism industry (WTTC, 2013, p. 11). With the emergence of different forms of demand driven sustainable tourism (e.g. ecotourism, ethical and green tourism) this will place considerable demands on Thailand's workforce and will place increasing burdens on the skill requirements and knowledge of people working in this industry. Similarly, these skill challenges and demands will not be too dissimilar to those found in the construction sector. As reported in Bangkok's The Nation newspaper, "…the main problems that need to be solved concern labour shortages and a lack of skilled workers" (The Nation, 2013). This assessment is clearly recognised by the NESDB (2011) which acknowledges that the "… shortage of skilled labour is a critical concern" to Thailand's future (2011, p. vi).

Added to this is the realisation that a move towards sustainable work practices will invariably lead to more and stronger pressures related to the training and retraining of the labour force, inevitably creating further skill shortages or gaps in the Thai economy. A *skill shortage*

"occurs when the demand for workers for a particular occupation is greater than the supply of workers who are qualified, available and willing to work under existing market conditions, and if the supply is greater than demand then there is a surplus. Over time, the market might adjust in a number of ways, including price and/or quantity adjustment, and the imbalance clears. A skills gap refers to a situation where employers are hiring workers whom they consider under-skilled or that their existing workforce is under-skilled relative to some desired level (Shah and Burke, 2003, p. v)".

As the realisation that actions need to be taken to protect the future of the environment become increasingly pressing, both the implementation of adaptation and mitigation policies will imply significant economic restructures. These will bring forth substantial skill shortages and gaps to the Thai labour market. The impact of this will be an enormous burden on the various education and training sectors. A rapid response to these labour market pressures, sooner rather than later, will relieve substantial bottlenecks in the Thai labour market in the not too distant future.

Another dimension of this complexity and challenge is to understand the magnitude of these skill gaps and shortages. In order to do this, it is important to begin the creation of a database of green skills and jobs, which will allow labour market specialists to forecast what these skill gaps will be in the future. These forecasts will provide policy makers with another tool to assist them in policy responses to issues related to skill shortages and gaps. Furthermore, a solid understanding of the nature of skill shortages and gaps will assist educational practitioners in the development of tailored training and retraining courses to meet the increasing demand of green skills required by the Thai economy. These practices will also assist in the understanding of regional green skill shortages and gaps, particularly as the Association of South East Asian Nations (ASEAN) becomes more integrated as an economic region.

5. SKILL WEAKNESSES AND GAPS OF 'GREEN JOBS' IN THE TOURISM SECTOR

This section provides a methodology for identifying and analysing the skill gaps and weaknesses of a sample of priority occupations in the tourism industry in Thailand. To simplify the process I provide as a guide, an example of how the occupation 'Thai Cook' can be transformed into a 'Green Thai Cook'.

To begin to understand the skill gaps and weaknesses of 'green jobs' the ILO definition of green jobs was utilised as the baseline or frame of reference. This was done so that by having a defined benchmark then an analysis of the skill gaps and weaknesses for the sample of occupations in tourism and construction could be performed. A rationale for this is that this method of analysis can also become the basis under which a set of 'green skills' can be identified, thus assisting in the creation of a 'green skills' database. Another advantage of having a baseline or benchmark is that the analysis conducted can then be replicated by Thai labour market specialists to analyse the skill gaps and weaknesses in occupations that belong to other industry sectors, such as manufacturing, construction and retail trade, as well as other jobs in tourism. Thus central to the methodology adopted in the analysis, is the replication of the findings and methodology employed.

The ILO definition of green jobs assumes and implies that potentially every job in the economy can become green. The definition consists of three key components, and in order for any occupations to potentially become green, it must meet the ILO criteria of a 'green job' which consists of the following characteristics:

- The occupation must preserve and restore environmental quality.
- The occupation must meet the criteria of decent work, that is, adequate wages, safe conditions of work, worker's rights, social dialogue and social protection.
- The occupation must involve direct activities of mitigation and/or adaptation to climate change.

6. DETERMINING THE SAMPLE OF OCCUPATIONS IN TOURISM

In determining the sample of priority occupations for this analysis, the following steps were conducted. Firstly, a list of occupations was selected from the International Standard Classification of Occupations, 2008 (ISCO-08). This classification of occupations was used as the starting point to select the occupations under investigation. Discussions with technical officers from the ILO and Thailand's Department of Skill Development (DSD), Ministry of Labour, revealed that this classification formed the basis for much of the occupational classifications

used in Thailand and the ASEAN region. Furthermore, it was advised and recommended as a frame of reference for obtaining the sample of occupations under investigation in the tourism and construction sectors.

ISCO-08 is the ILO's classification structure for organizing information on labour and jobs. According to the ILO, this classification structure belongs to widely known families of economic and social classifications and is recognised internationally. The ILO argues that ISCO-08 serves as a tool for classifying occupations in defined sets of groups in terms of tasks and activities performed in different jobs. Furthermore, there exist cross-classifications of occupations with other occupational structures such as Australian and New Zealand Standard Classification of Occupations (ANZSCO).

ISCO-08 has the following characteristics and provides:

- a basis for the international reporting, comparison and exchange of statistical and administrative data about occupations;
- a basis for a model for the development of national and regional classifications of occupations;
- provides job descriptions;
- provides a system that can be used directly in countries that have not developed their own national classifications (ILO, 2012a, p. 4).

ISCO-08 offers developing countries such as Thailand with a host of labour market and educational functions and applications. Examples of these include the matching of job seekers with job vacancies, a source of reference to describe occupations and the development of vocational training programs and guidance (ILO, 2012a).

Using the ISCO-08 classification and emerging green job classifications, 65 occupations were originally selected in the tourism sector. This field of occupations was further narrowed down to six priority occupations in tourism. While the sample of priority occupations appears to be small, the analysis was limited to the fact that the occupations chosen for the analysis needed to be officially gazetted occupations. In other words, the occupations had to be registered by the Skill Development Promotion Committee, National Skill Standard, as developed by Thailand's Department of Skill Development (DSD), (DSD, 2002). These conditions classified these occupations as 'priority occupations'.

The data and documentation provided by DSD was an excellent source of information because it consisted of over 300 pages of detailed descriptive information related to the skill standards for each of the occupations under examination. In tourism, the sample consisted of the following occupations: room attendant (5151-2), baker (7512-2), Thai cook (5120-2), front desk receptionist (4224-2), Thai masseur (3259-3) and bartender (5132-2). The material contained in the description of each of the skill standards for each occupation was written in the Thai language. These were expertly translated by an expert Thai interpreted into the English language.

A particular characteristic of these jobs is that they are medium to low in terms of skill level as defined by ISCO-08. A skill level 3 or medium skill level, according to ISCO-08 is "… obtained as the result of study at a higher educational institution for a period of 1-3 years following completion of secondary education" (ISCO-08, 2012a, p. 13), or equivalent whereas at level 2 or low skill level, competence is often "… obtained through completion of the first stage of secondary education" (ISCOI-08, 2012a, p. 12) or equivalent.

Advantages of analysing occupations at these levels of skill are:

- in the context of the emergence of green jobs, low and intermediate skilled occupations seem to be ignored in terms of the analysis of emerging of green jobs;
- there is evidence in the literature that the creation of high skilled jobs has a spillover effect in terms of the creation of occupations at lower skilled levels (see Esposto 2008 and OECD 1998, for a discussion on labour market spillover effects). The creation of high skilled level occupations, will therefore create 'lesser skilled jobs' that will serve as support to high level occupations;
- medium and low skilled jobs are often at the frontline of sustainability and the green skills required to perform in these jobs need to be carefully considered to understand their impact on environmental mitigation and/or adaptation and the preservation and restoration of the environment; and
- understanding the green skills of these occupations is essential for the creation of training and retraining programs of employers at these skill levels, as well as the creation of a 'green skills' database.

Table 2 below describes the skill gaps and weaknesses for a sample occupation, namely Thai Cook. The table is comprised of two columns. Column 1, describes the ILO characteristics which serves as the benchmark to describe a 'green job'. Column 2, describes the gap/weakness manifested in each of the characteristics. A skill gap/weakness manifests itself when there is no mention of the ILO definitional component in the Thai skill standard. So, when we look at the first characteristic, after having analysed the skill standards for the Thai occupation 'Thai Cook', the analysis shows that there is a gap/weakness in that particular characteristic. Hence, column two describes the gap for "preservation and restoration of environmental quality". The description of the gap/weakness is therefore described in column 2 as "The document does not explicitly state issues related to the preservation and restoration of environmental quality". For the characteristic of "mitigation and/or adaptation", the skill gap/weakness is similarly described as "The document does not explicitly state issues related to mitigation and/or adaptation", and so on.

Decent work contains four sub-characteristics, which include adequate wages, safe conditions, social dialogue and social protection. Each of these sub-categories is described below, with the corresponding analytical finding: Adequate wages implies that the wage paid is a 'living wage' which is recognised as an international human right. The living wage includes wages and benefits paid for a standard working week. Its aim is to allow employees to earn enough income for an adequate standard of living and is required to meet at least legal or industry minimum wage standards. It is important to note, however, that "… there is neither

a generally accepted definition of what a living wage is, nor is there a generally agreed methodology on how to measure it". (Anker 2011, p. v)".

Table 2. Skill gaps and weaknesses for a sample occupation, Thai Cook

Occupation: Bricklayer's ILO green job's characteristics	**Skill Gap/Weakness**
Preservation and restoration of environmental quality	The document does not explicitly state issues related to the preservation and restoration of environmental quality
Decent work	
Adequate wages[5]	The document does not explicitly state adequate wage levels. It is assumed that workers are paid according to Thai minimum wage legislative standards
Safe conditions	The document contains elements of occupational, health and safety standards that need to be adhered to and are part of the training
Worker's rights	The document does not explicitly state issues related to workers' rights
Social dialogue[6]	The document does not explicitly state issues related to social dialogue
Social protection[7]	The document does not explicitly state issues related to social protection
Mitigation and/or adaptation	The document does not explicitly state issues related to mitigation and/or adaptation

Source: Author's arrangement

In terms of a skill gap/weakness, adequate wages are assumed to be present in the tourism sector. As such, the weakness/skill gap is described as 'The document does not explicitly state adequate wage levels. It is assumed that workers are paid according to Thai minimum wage legislative standards'. As such, in this analysis, it is assumed that the average Thai employee working as a Thai Cook in the Thai tourism[8] industry is not experiencing working conditions that are "… exploitative, harmful, or fail to pay a living wage (or worse, condemns workers to a life of poverty)" (UNEP, ILO, IOE, ITUC, 2008, p. 39).

In terms of safe conditions for this occupation, the skill standard has descriptions of required knowledge and skills related to occupational, health and safety provisions. As such, the skill gap/weakness is assessed as "The document contains elements of occupational, health and safety standards that need to be adhered to and are part of the training". In terms of worker's rights, the document does not specifically state that workers have safe conditions in this occupation and the skill gap/weakness is described as "The document does not explicitly state issues related to workers' rights".

Social dialogue refers to the input of the worker/union "…to help determine the design of new sustainable production systems and work practices. These committees could work to identify ways to improve energy efficiency, more efficient use of water and other natural resources and raw materials, and low-carbon work schedules" (UNEP, ILO, IOE, ITUC, 2008, p. 27). The skill standard document did not include a provision for this, and as such the skill gap/weakness was described as "The document does not explicitly state issues related to social dialogue". Finally, the component of social protection, implies the presence for "income protection as well as adequate retraining and educational opportunities and, where necessary, resources for relocation" (2008, p. 308). This component was missing in the skill standard for Thai Cook and as a result the skill gap/weakness was assessed as "The document does not explicitly state issues related to social protection".

7. SKILL NEEDS OF A GREEN THAI COOK

The previous section identified the skill gaps and weaknesses for one of the priority jobs in tourism. This section now looks at the skill needs of the occupations by matching each of the components that make up a competency to the components that make up the ILO definition of green skills. This process addresses each of the 'green' gaps and/or weaknesses in each of the priority occupations. By creating, 'green units of competency' for a job such as Thai Cook we tackle the skill gaps and weaknesses discussed in the previous section and in so doing, the job or jobs in question can be transformed into 'green jobs'. Each unit of competency has 9 components. These are detailed in Table 3 below and are adapted from Commonwealth of Australia (2014).

The methodology employed to transform the unit of competency into a green unit of competency is as follows. Key components of the competency address the three characteristics of green jobs as described in Table 2 in the previous section.

The first two components, unit title and definition, and unit descriptor are descriptive in nature. Employability skills contain 8 transferable skills which address the three components of the ILO definition. For example, the employability skill initiative and enterprise is made up of two skills. These skills "Responds positively to environmental workplace changes and challenges" and "Identifies opportunities and maximises use of resources by recycling, re-using or using appropriate disposal methods and puts sustainable workplace suggestions into action" address aspects related to the three components of the ILO definition. The other employability skills also comply with the ILO definition, either partly or as a whole.

The fourth competency components are known as the elements and performance criteria of the competency. These components describe what the worker is able to do in a particular area of work, while the performance criteria describe how well the work should be completed.

5 Thailand introduced a nationwide minimum wage in January 2013.

6 UNEP, ILO, IOE, ITUC, Green Jobs. Social dialogue is seen as an important component, especially at work. It refers to the input of the worker/union "…to help determine the design of new sustainable production systems and work practices. These committees could work to identify ways to improve energy efficiency, more efficient use of water and other natural resources and raw materials, and low-carbon work schedules" (2008, 27).

7 Includes "income protection as well as adequate retraining and educational opportunities and, where necessary, resources for relocation" (UNEP, ILO, IOE, ITUC, 2008, p. 308).

8 The conditions of migrant workers is not included in this analysis due to data limitations and scope of the analysis, although it is widely acknowledged that many of these workers experience disadvantage in Thailand.

Table 3. Components of units of competency

Unit title and definition	This is an alpha-numeric code that follows ILO guidelines, accompanied by a short title which summarises the main job function covered by the unit. The unit title is a succinct statement of the outcome of the unit of competency. Each unit of competency contains a description of the occupation.
Unit descriptor	It is a short statement giving a more detailed description of the job function covered by the unit. The unit descriptor broadly communicates the content of the unit of competency and the skill/knowledge areas it addresses.
Employability skills	These are skills which are not specific to work in a particular occupation or industry, but are important for work, education, further training and life in general. The units contain 8 employability skills: communication, teamwork, problem solving, imitative and enterprise, planning and organisation, self-management, learning and technology. Employability skills are transferable. They contain elements that can be related to the three components of the ILO 'green jobs' definition.
Elements of competency	The major elements of the job function. These describe in output terms what a person is able to do in a particular area of work. The elements of competency are the basic building blocks of the unit of competency. They describe in terms of outcomes the significant functions and tasks that make up the competency[9].
Performance criteria	This relates to the performance standards or tasks that are involved in each of the relevant job functions. It describes how well the work should be performed and allows for measurable outcomes. The performance criteria specify the required performance in relevant tasks, roles, skills and in the applied knowledge that enables competent performance[10].
Required skills and knowledge	These are statements that outline key skills and required knowledge for the job function covered by this unit. The essential skills and knowledge are either identified separately. Knowledge identifies what a person needs to know to perform the work in an informed and effective manner. Skills describe the application of knowledge to situations where understanding is converted into a workplace outcome[11].
Evidence guide	The evidence guide describes: - conditions under which a competency must be assessed including variables such as the assessment environment or necessary equipment; - suitable methodologies for conducting assessment including the potential for workplace simulation; - resource implications, for example access to particular equipment, infrastructure or situations; and - the required underpinning knowledge and skills. -
Method of assessment	Describes the range of assessment methods that are available to assess the unit of competency.
Range statement	These statements clarify the scope and range of performance, including clarification on contexts, operations and equipment referred to in the performance criteria. The range statement provides a context for the unit of competency, describing essential operating conditions that may be present with training and assessment.

Source: Commonwealth of Australia, 2014. Adapted from CPC08 Construction, Plumbing and Services Training Package, Release 8, 13 April 2013, 388-392; SIT12 Tourism, Travel and Hospitality Training Package, Release 13 April, 2013, pp. 233-237.

9 These have been written to match the three criteria components that correspond to the definition of a 'green job' (ILO, 2011, p. 4) and are summarised in Table 2. Each of the elements corresponds to one of these criteria.

10 These have been written to match the three criteria components that correspond to the definition of a 'green job' (ILO, 2011, p. 4) and are summarised in Table 2. Each of the elements corresponds to one of these criteria.

11 Each of the written knowledge and skill components correspond to the definition of a 'green job' (ILO, 2011a, p. 4). The three components are summarised in Table 2.

Each of these elements addresses aspects of the ILO skill definition. While these components are the same, they are not uniform across tourism occupations, as each consider particular aspects of the given occupation. Table 4 describes these.

Table 4. Competency element match with ILO definitional component

Competency element	ILO definitional component
Identify current workplace resource use to minimise the effects of pollution at construction site and adjoining areas	Preservation and restoration of environmental quality (1)
Comply with Thai regulations and prepare for work following green environment conventions	Decent work (2)
Seek opportunities to improve resource use, efficiency and workplace sustainability	Mitigation and/or adaptation. (3)
Clean up	(1) and (3)
Waste disposal	(1) and (3)

Source: Author's arrangement

For "Required skills and knowledge" in tourism these components are arranged under each of the ILO component definitions. These are illustrated in

Table 5.The three last elements evidence guide, method of assessment and range statement are job specific and vary according to the work activities, tasks, skills and knowledge that need to be considered in each occupation. The full competency for 'Green Thai Cook' is detailed in the section that follows.

Table 5. Required Knowledge and skill competency components for a 'Green Thai Cook'

Required Knowledge
Preservation and restoration of environmental quality
- Basic knowledge of how to best reduce consumption of energy and raw materials in the workplace. - Basic knowledge on procedures to limit greenhouse gas emissions in the workplace. - Basic knowledge on how best to minimise waste and pollution in the workplace. - Basic knowledge on procedures to protect and restore ecosystems in the workplace, if applicable.
Decent work
- Knowledge of Thai laws and regulations relevant to the work context. - Site layout including location of rubbish disposal bins is clearly understood. - Application of relevant environmental protection regulations and requirements. - Knowledge of environmental and resource hazards/risks and inefficiencies associated with own workplace.
Mitigation and/or adaptation
- Workplace procedures and guidelines for the care of the environment at work. - Environmental risks and protection standards are adhered to when carrying out workplace operations. - Procedures and processes for waste and effluent regulation where applicable.
Required Skill
Preservation and restoration of environmental quality
- Able to adopt basic procedures that reduce consumption of energy and raw materials in the workplace. - Able to identify and implement procedures that limit greenhouse gas emissions in the workplace. - Able to identify and implement procedures that minimise waste and pollution in the workplace. - Able to identify and implement procedures that protect and restore ecosystems in the workplace, if applicable.
Decent work
- Communicate effectively to recognize procedures, follow instructions and respond to changes. - Work collaboratively with others when caring for the environment.
Mitigation and/or adaptation
- Promptly report and/or rectify any identified problems that may arise when caring for the environment in accordance with regulatory requirements and workplace procedures. - Implement contingency plans for unanticipated situations that may occur when caring for the environment. - Recognise potential pollution risks and ways of minimising them. - Follow routine service and maintenance procedures for equipment and vehicles.

Source: Author's arrangement

8. TITLE AND DEFINITION: GREEN THAI COOK

According to the Thai national skills standards, a Thai cook is a person who is responsible for preparing and cooking Thai food, including savories, desserts, and snacks following agreed methods of Thai style cooking. To become a green Thai cook, the person will have cognition and ability in this sustainable green competency.

Table 6. Description

Unit descriptor	This unit of competency specifies the outcomes required to work as a 'green Thai Cook' in the tourism/hospitality industry. It specifies the outcomes required to participate in green environmental sustainable work practices and addresses environmental and resource efficiency uses. It is aimed at transitioning the Thai tourism/hospitality industry towards a green industry. This set of 'green sustainable skills' and 'knowledges' must be applied in accordance to relevant Thai legislative and industry standards.

Table 7. Employability Skills

Communication	Makes suggestions for improved sustainability workplace processes and reporting as required. Able to follow and apply instructions from site managers/supervisors in relation to sustainability. Can understand, interpret and apply sustainability environmental information, requirements and principles as directed. Understands organisational policies and procedures in relation to environmental sustainability. Reports and records environmental workplace hazards and risks.
Teamwork	Works effectively as part of a team and provides assistance and encouragement to other team members. Identifies and utilises the strengths of other team members. Relates to people from diverse social, cultural and ethnic backgrounds in a respectful, cordial and friendly manner. Participates positively in on-site meetings, making suggestions for workplace improvements.
Problem solving	Examines cooking tools and equipment prior to use for damage, missing components or other defects prior to commencing work. Identifies sustainable procedural faults and workplace problems and takes appropriate action and/or reports to manager/supervisor.
Initiative and enterprise	Responds positively to workplace changes and challenges. Identifies opportunities and maximises use of resources by recycling, re-using or using appropriate disposal methods and puts sustainable workplace suggestions into action.
Planning and organising	Identifies environmental workplace hazards and risks, and implements appropriate hazard control measures. Chooses appropriate materials, tools and equipment which minimise environmental hazards and maximises efficiency. Determines material quantity requirements and conformity to environmental standards. Applies correct time management skills to ensure satisfactory work completion and prioritises and sequences tasks.
Self management	Evaluates and manages own performance to meet sustainable workplace standards. Requests support and direction to ensure environmental efficiency. Cleans up work area, including tools and equipment according to instructions and specifications.
Learning	Identifies own learning needs and seeks skill development as required and has a positive attitude to learning new ideas, procedures and techniques, related to environmental sustainability.
Technology	Uses technology efficiently and implements new technologies in the workplace (including machinery, tools, etc) to ensure environmental efficiency.

Table 8. Elements and Performance Criteria

Identify current workplace resource use to minimise the effects of pollution in the workplace and adjoining areas.	Workplace environmental and resource efficiency issues are identified. Precautions are taken to ensure chemicals, detergents, and kitchen cleaning materials do not pollute the work environment and adjoining areas. Routine checks are conducted or organized to ensure a clean kitchen/workplace environment is present. Cleaning equipment is operated efficiently to minimise air and noise pollution and potential damage to the environment. Unnecessary running of kitchen equipment is avoided to minimise energy usage and pollution of the air/noise environment. Kitchen/worksites are kept clean and tidy during work operations and the disposal of waste is in accordance with environmental regulations and workplace procedures.
Comply with Thai regulations and prepare for work following green environment conventions.	Work processes are followed to ensure compliance. Sustainable ingredients are purchased according to regulations and instructions by supervisor/ manager. Material quantity requirements are calculated in accordance with sustainability plans and specifications. Sustainable environmental requirements are identified and applied according to Thai statutory and regulatory authority standards.
Seek opportunities to improve resource use, efficiency and workplace sustainability.	Suggestions and ideas are shared for improvements to workplace practices in own work area. Workplace practices to improve environmental practices and resource efficiency are followed. Meetings are held on a regular basis to adopt workplace policies to minimise/mitigate damage to the environment. Resources used in a sustainable and responsible manner, minimizing waste and pollution. Appropriate practices are used in measuring and documenting workplace resources. Identification and reporting of environmental hazards to supervisors and appropriate authorities.
Ensure clean up procedures are correctly adhered to.	Select environmentally sustainable equipment for cleaning task. Check that equipment is clean and in safe working condition prior to use. Select and prepare suitable wet and dry cleaning agents according to manufacturer instructions, work health and safety and environmental requirement. Select and use sustainable protective clothing where necessary. Tools and equipment cleaned, maintained and stored in safe location. Unused ingredients are safely stacked, stockpiled or stored. Equipment is cleaned to meet production and hygiene requirements Cleaning is conducted in accordance with workplace environmental guidelines.
Ensure waste disposal procedures are followed.	Waste is disposed of using appropriate sustainable procedures. Waste is disposed in a manner that minimizes environmental damage or is neutral to the environment. Waste is disposed in a safe manner without posing risk to third parties. Site is cleaned and cleared of debris and unwanted materials. Rubbish is deposited in designated rubbish disposal bins and according to regulatory specifications and chemicals and noxious products are safely stored, catalogued and safely handled. Select and apply correct cleaning agents or chemicals for specific work areas, surfaces and equipment, according to manufacturer recommendations, safety and organisational procedures. Avoid unhygienic personal contact with food or food contact surfaces. Avoid unhygienic cleaning practices that may cause illnesses. Maintain environmental conditions for specific food types to ensure freshness, quality and appearance.

Table 9. Evidence Guide

Overview of assessment	- A person who demonstrates competence in this unit must be able to provide evidence of the ability to follow workplace procedures according to instructions given, to participate in the improvement of environmental and resource efficient work practices at own level of responsibility. - Evidence must be strictly relevant to the particular workplace role. This unit of competency could be assessed in the workplace or a close simulation of the workplace environment.
Method of assessment	- Assessment should occur: - through appropriately simulated activities at the registered training organisation, and/or - in an appropriate range of situations in the workplace.

Table 10. Range Statement

Workplace environmental resource issues and requirements may include:	Large, medium or small kitchen; indoor/outdoor; clean-up protection; hygiene management techniques; waste management; cleaning chemicals and detergents; rubbish and effluent; noise; wastes; workplace personnel; site visitors.
Tools and equipment may include:	Barbecues; charcoal grills; cooking ranges; cutting, chopping and slicing implements; food processors; knives; microwaves; mincers; roasting drums; sharpening steels and stones; steamers; strainers; ovens; utensils; woks; cutting, chopping and slicing implements; grills and griddles; mortar and pestle; pans;; stone grinders.
Typical ingredients include:	Condiments; eggs; flour products; herbs and spices; poultry; meats; seafood; rice; vegetables; specific ingredients for particular Thai and other Asian dishes and cuisines.
Thai regulations, compliance, information and documents include:	Thai OH&S and environmental protection regulations; workplace procedures and policies; codes of practice for environmental protection; material safety data sheets; regulations and policies concerning hygiene and food handling; relevant Thai legislation, regulations and related documentation.
Suggestions may include ideas that help to:	Prevent and minimise risks and maximise opportunities such as usage of solar or other alternative forms of energy where appropriate; reduce emissions of greenhouse gases; reduce use of non-renewable resources; improve energy efficiency; increase use of renewable, recyclable, reusable and recoverable resources.
Information/documents may include:	OH&S and environmental protection regulations; workplace procedures and policies; codes of practice for environmental protection; material safety data sheets; regulations and policies concerning noise, waste disposal; environmental conditions such as temperature, humidity, ventilation, use of containers, etc; other environmental protection issues; relevant Thai legislation, regulations and related documentation.

9. CONCLUSION AND RECOMMENDATIONS

This paper presented a rationale for the emergence of green occupations in Thailand as a response to climate change, and as a way to transition the Thai economy into a low carbon economy by transforming the labour market under the assumption that 'every job can become a green job'. A mechanism for achieving this goal is through training and retraining the workforce with a set of well-defined green knowledge and skill sets. These skill and knowledge sets can be developed through the elaboration and implementation of green competencies.

The paper proposed a framework for transforming standard jobs into green jobs as an adaptation method to respond to the challenges emerging from climate change. As a model this was done by identifying and analysing the 'green skill' gaps and needs of one occupation as a means of transforming a standard job into a green job. To do this, a methodology to develop a set of green 'green competencies' was developed following the ILO definition of a 'green job'. This methodology can also be applied to transform occupations from other industry sectors into green jobs, not only in Thailand but in other economies facing climate change. To accelerate this process it is recommended that vocational institutions in Thailand as well as other parts of ASEAN and the world begin to adopt 'green competencies' as part of training and retraining programs in the vocational and academic sector.

REFERENCES

1. American Job Center. (2013). About Us, Retrieved October 10, 2015, from http://jobcenter.usa.gov/about-us.
2. Anker, R. (2011). Estimating a Living Wage: A Methodological Review', Conditions of Work and Employment Series No. 29. Geneva: International Labour Organization.
3. Bank of Thailand. (2013). "Thailand at a Glance", Retrieved October 9, 2015, from http://www.bot.or.th/English/EconomicConditions/Thai/genecon/Pages/index.aspx
4. Becker, G.S. (1993). Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education, 3rd edn University of Chicago Press: Chicago.
5. Cook, J., Nuccitelli, D., Green, S.A., Richardson, M., Winkler, B., Painting, R., Way, R., Jacobs, P. and Skuce, A. (2013). Quantifying the consensus on anthropogenic global warming in the scientific literature. Environmental Research Letters 8(2): vol. 8: 024024 (7pp) DOI:10.1088/1748-9326/8/2/024024.
6. Department of Industry. (2010). Green Skills Agreement, Retrieved October 12, 2015, from http://www.innovation.gov.au/Skills/SkillsTraininingAndWorkforceDevelopment/Pages/Library%20Card/GreenSkillsAgreement.aspx
7. Department of Skill Development. (2002). Skill Development Act, Government of Thailand, Bangkok, Thailand.
8. Dierdorff, E., Norton, J., Drewess, D., Kroustalis, C., Rivkin., D. and Lewis. (2011). Greening of the World of Work: Revisiting Occupational Consequences', report prepared for the U.S. Department of Labor Employment and Training Administration Office of Workforce Investment Division of Workforce System Support. Washington: DC. Retrieved April 12, 2015, from http://www.onetcenter.org/reports/Green2.html
9. Dierdorff, E., Norton, J., Drewess, D., Kroustalis, C., Rivkin, D. and Lewis. (2009). 'Greening of the World of Work: Implications for O*NET-SOC and New and Emerging Occupations', report prepared for the U.S. Department of Labor Employment and Training Administration Office of Workforce Investment Division of Workforce. Washington:

DC. Retrieved April 12, 2015, from http://www.onetcenter.org/reports/Green2.html
10. Esposto, A. (2008). Dimensions of Earnings Inequality in the Labour Market: The Australian Experience. VDM Verlag Dr Müller: Saarbrücken, Germany.
11. European Commission. (2013). European Employment Observatory Review - Promoting green jobs throughout the crisis: a handbook of best practices in Europe, Directorate-General for Employment. Social Affairs and Inclusion, Publications Office of the European Union: Brussels. Retrieved August 9, 2015, from file:///C:/Users/aesposto/Downloads/DGEMPL_EEO_Review_Green_Jobs_Accessible.pdf
12. Garnaut, R. (2011). The Garnaut Review, Australia in the Global Response to Climate Change, Commonwealth of Australia. Department of Climate Change and Energy Efficiency: Commonwealth of Australia. Retrieved September 3, 2015, from http://www.garnautreview.org.au/update2011/garnaut-review-2011/garnaut-review-2011.pdf
13. Garnaut, R. (2008). The Garnaut Climate Change Review: Final Report. Cambridge University Press: Port Melbourne.
14. International Labour Organization (ILO). (2011a). Skills for Green Jobs – A Global View: Synthesis Report Based on 21 Country Studies. Skills and Employability Department: Geneva. Retrieved December 12, 2015, from http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_159585.pdf
15. International Labour Organization (ILO). (2011b). Towards a Greener Economy: The Social Dimensions. International Institute for Labour Studies. International Labour Office: Geneva. Retrieved on December 12, 2105, from http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_168163.pdf
16. International Labour Organization (ILO). (2012a). International Standard Classification of Occupations Structure, group definitions and correspondence tables, Volume I, (ISCO-08). International Labour Office: Geneva.
17. International Labour Organization (ILO). (2012b). Working Towards Sustainable Development – Opportunities for Decent Work and Social Inclusion in a Green Economy. International Labour Office: Geneva.
18. International Labour Organization (ILO). (2013). Toolkit on Poverty Reduction through Tourism, 2nd edition. International Labour Office: Geneva.
19. Intergovernmental Panel on Climate Change, IPCC. (2013). "Human influence on climate clear, Press Release". Retrieved on November 22, 2015, from http://www.ipcc.ch/news_and_events/docs/ar5/press_release_ar5_wgi_en.pdf
20. National Economic and Social Development Board, (NESDB). (2011). The Eleventh National Economic and Social Development Plan, 2011-2016. Office of the Prime Minister: Bangkok, Thailand.
21. Organisation for Economic Co-operation and Development (OECD). (1998). Human Capital Investment: An International Comparison. OECD: Paris.
22. Organisation for Economic Co-operation and Development (OECD). (2012). The Jobs Potential of a Shift Towards a Low-carbon Economy. Final Report for the European Commission, DG Employment. Division for Employment Analysis and Policy: Paris.
23. Pearson, P. J. G. and Foxon, T. (2012). A low carbon industrial revolution? Insights and challenges from past technological and economic transformations. Energy Policy, 50: (Nov) 117–127.
24. Productivity Commission. (2012). Barriers to Effective Climate Change Adaptation, Report No. 59, Final Inquiry Report. Canberra: Commonwealth of Australia. Retrived on December 15, from http://www.pc.gov.au/inquiries/completed/climate-change-adaptation/report/climate-change-adaptation.pdf
25. Reich, R. (1991). The work of nations: Preparing ourselves for twenty-first century capitalism. Alfred Knopf: New York.
26. Sha, C. and Burke, G. (2003). Skills Shortages: Concepts, Measurement and Implications', Working Paper No. 52. Retrieved on 3 December, 2015, from http://www.monash.edu.au/education/non-cms/centres/ceet/docs/workingpapers/wp52nov03shah.pdf
27. Stern, N. (2007). The Economics of Climate Change: The Stern Review. Cambridge: Cambridge University Press.
28. Somluck, S. and Petchanet P. (2013, January 28). Tackle shortage of skilled labour, says German Chamber chief. Retrieved on November 12015, from http://www.nationmultimedia.com/business/Tackle-shortage-of-skilled-labour-says-German-Cham-30198789.html
29. UNEP, ILO, IOE, and ITUC. (2008). Green jobs: Towards decent work in a sustainable, low-carbon world. United Nations Environment Programme (UNEP): Nairobi.
30. United Nations World Tourism Organisation (UNWTO). (2005/2007). Understanding Tourism: Basic Glossary. Retrieved on November 16, 2015, from http://media.unwto.org/en/content/understanding-tourism-basic-glossary
31. United Nations World Tourism Organization, (UNWTO). (2014). Yearbook of Tourism Statistics, Data 2008 – 2012, 2014 Edition. UNWTO. UNEP: Madrid.
32. United Nations World Tourism Organisation (UNWTO). (2005/2007). Understanding Tourism: Basic Glossary. UNWTO. UNEP: Madrid.
33. United Nations World Tourism Organization, (UNWTO) and United Nations Environment Programme (UNEP). (2005). Making Tourism More Sustainable: A Guide for Policy Makers. UNWTO: Madrid.
34. U. S. Department of Labor. (2013). Careeronestop. Retrieved on November 23, 2015, from http://www.careeronestop.org/CompetencyModel/CareerPathway/CPWGenInstructions.aspx.
35. World Bank, (2013). Thailand Overview. Retrieved on November 18, 2015, from http://www.worldbank.org/en/country/thailand/overview
36. World Travel and Tourism Council (WTTC). (2013). Travel and Tourism: Economic, Impact 2013, Thailand, Retrieved on November 23, 2015, from http://www.wttc.org/site_media/uploads/downloads/thailand2013.pdf

ORGANISATIONAL CITIZENSHIP BEHAVIOUR AND EMPLOYEE PERCEPTION OF EQUITY ON ORGANISATIONAL COMMITMENT

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Abstract

Small and Medium Enterprises (SMEs) are regarded as engines of economic growth and major instruments of employment generation in Zimbabwe. However, they are hampered by a lack of resources, poor administration and the inadequate knowledge and training of employees. The primary objective of the research was to investigate the influence of organisational citizenship behaviour (OCB) and employee perception of equity (EPE) on organisational commitment (OC) in Zimbabwean SMEs. A survey design with a sample (n=464) was used. Research scales were operationalised mainly on the basis of previous work. Minor adaptations were made in order to fit the current research context and purpose. Seven-item Likert scales were used to measure OCB, EPE and OC through confirmatory factor analysis and structural equation modelling. Through structural equation modelling and path analysis, the results indicated that there are positive relationships between the posited research variables (OCB, EPE and OC). Practical recommendations are made to the managers in the SME sector to adopt professional codes of conduct at their workplace to enhance OCBs, EPE and ultimately, OC.

Keywords: Small and Medium Enterprises, Justice Judgement Theory, Organisational Citizenship Behaviour, Employee Perception of Equity and Organisational Commitment

1. INTRODUCTION

The concepts of organisational citizenship behaviour, organisational commitment and employee perception of equity have intrigued academics and practitioners for decades (Sieger, Bernhard & Frey, 2011; Jung & Yoon, 2012). Research on organisational citizenship behaviour and employee perception of equity concerns has emerged as a viable body of scientific inquiry within the past twenty years and researchers have long argued that organisational citizenship behaviour is a common phenomenon in organisations and that it deserves more attention and empirical examination (Koys, 2001;Yoon & Sur, 2003; Ravichandran & Gilmore, 2007; Cho & Johanson, 2008; Podsakoff, Whiting Podsakoff & Blume, 2009; Park, Ellis, Kim & Prideaux, 2010; Nicklin, Greenbaum, McNall, Folger & Williams, 2011). The importance of organisational citizenship behaviour lies in its potential positive consequences and effects on work outcomes. Previous research has provided considerable evidence that organisational citizenship behaviour breeds positive perceptions of equity, enhances organisational commitment and eventually prompts employee intention to stay in organisations (Ferris, Adams, Kolodinsky, Hochwarter & Ammeter, 2002; Rosen, Chang, Johnson & Levy, 2009; Park et al, 2010; Crawford, Hofmeyr & Price, 2015).

On the other hand, a well-known fact in human resource management literature is that most of the labour disputes emanate from workers' perception of inequity (Nicklin et al, 2011). This is so because perceived inequity can affect attitudes and behaviours in a variety of ways, which eventually precipitate labour disputes or even strikes (Colquitt, Conlon, Wesson, Porter & Ng, 2001). It is further argued in the literature that perceived inequities at the workplace also negatively impact on job performance, cooperation with co-workers, work quality, and commitment to employers (Cropanzano, Howes, Grandey & Toth, 1997; Botha & Cronje, 2015).

The characteristics of large organisations and SMEs differ (Sieger et al, 2011) and, therefore, the findings from the SMEs in terms of perceptions of organisational citizenship behaviour, employee perception of equity, organisational commitment and employee intention to stay may also be expected to differ. There has also been an issue in the whole of Zimbabwe in terms of high turnover, people leaving for greener pastures to South Africa, Malawi, Mozambique and even outside Africa like Australia and London (Gono, 2009). This research therefore seeks to find out why SMEs employees are opting for staying on the job rather than leaving their jobs.This necessitates an empirical confirmation or disconfirmation of previous findings in the context of SMEs; hence the need for this research. Equally disappointing is the fact that a plethora of such studies on large firms has been based in developed countries (Chinomona & Pretorius, 2011). It has been argued in previous research from developing countries that it is premature to assume a priori that findings from developed countries apply in developing countries such as those in Southern Africa, Zimbabwe in particular (Chinomona, Lin, Wang & Chen, 2010). The effects of organisational citizenship behaviour and perceptions of equity on organisational commitment in the context of SMEs in

Zimbabwe warrant further in-depth academic scrutiny.

To the best knowledge of the researcher none or few have used Structural Equation Modelling (SEM) in Zimbabwe to test the causal relationships of OCB, EPE on OC. The research model it's also one of its kind in terms of its robustness to the research in question. Researchers have emphasized that there has been increasing awareness by governments in the developing world, of the role played by SMEs and their contribution to the economy (Machipisa, 1998; Chang, Chang, Ho, Yen & Chiang, 2011). The importance of the small business sector is also recognised internationally in terms of its contribution to employment creation, Gross Domestic Product (GDP) and innovation. In Zimbabwe, the development of the small business sector is regarded as crucial for the achievement of broader development objectives (Chipika & Wilson, 2006; Gono, 2009). These objectives include poverty alleviation, spreading employment to rural areas, improving the situation of women and increasing indigenous ownership of investment in the economy (Nyoni, 2002; Mambula, 2002). Although this sector is important it has been neglected by researchers especially in areas around equity, justice, organisational citizenship behaviour and commitment and this paper seeks to address this gap.

2. LITERATURE REVIEW

2.1. Small and medium enterprises (SMEs)

The term SMEs covers a wide range of definitions and measures, varying from country to country, region to region and among the sources reporting SME statistics. Some of the commonly used criteria are the number of employees, total net assets and sales and investment level (Chinomona et al, 2010; Chang et al, 2011; Chinomona & Pretorius, 2011). For the purposes of this study, a small and medium enterprise refers to a registered enterprise with a maximum of 100 employees and an annual turnover in sales of a maximum of 830 000 US dollars (Machipisa, 1998; Nyoni, 2002). In Zimbabwe there are two sectors of SMEs: manufacturing and service SMEs. SMEs in Zimbabwe are regarded as the engine of economic growth and major instruments of employment generation (Small and Medium Industries Development Organisation, 2004:4). Notwithstanding this, SMEs in Zimbabwe, as in most African countries, still suffer from a lack of resources, which impedes their expansion and influence in the market (African Development Bank, 1997).

2.2. Justice judgement theory (JJT)

Quality of studies and the nature of their findings confirms that the justice judgement theory assumes that an individual's perception of fairness is based on the justice rule (Colquitt et al, 2001). The justice rule is defined as an individual's belief that the distribution of outcomes, or procedure for distribution of outcomes, is fair and appropriate when it satisfies certain criteria (Adams, 1965; Sieger et al, 2011). Justice rule, in turn, led to the identification of three different components of organisational justice: distributive, procedural and interactional justice. Distributive justice reflects the perceived fairness in the way that resources and rewards are distributed or allocated, for example, discounts, coupons and free meals (Kinicki & Kreitner, 2008). On the other hand, procedural justice is defined as the perceived fairness of the process and procedures used to make the decisions (Van Dijke, Cremer, Mayer & Quaquebeke, 2012). Every group, organisation or society has procedures that regulate the distribution of rewards and resources. There is a network of regulatory procedures that guides the allocation process.

Six procedural justice rules are postulated that define the criteria which allocation procedures must satisfy to be perceived as fair. These are the consistency rule, the bias-suppression rule, the accuracy rule, the correctability rule, the representativeness rule and the ethicality rule (Leventhal, 1976; Colquitt et al, 2001). Lack of consistency, fairness, accuracy, correctness, representation and ethics in procedure may lead an individual to believe that procedural fairness is being violated (Van Dijle et al, 2012). When applied across persons, the consistency rule, for example, dictates that it is necessary to apply similar procedures to all potential recipients of reward, and give special advantage to none. In this form, the rule is closely related to the notion of equality of opportunity (Nicklin et al, 2011). Organisational citizenship behaviour, employee perception of equity and organisational commitment constructs fit well into this theory because where there is a high level of inequity, workers feel insecure and organisational citizenship behaviours diminish because of a high level of job ambiguity and unfairness (Kinicki & Kreitner, 2008; Robbins & Judge, 2011; Botha & Cronje, 2015). Dissatisfaction among workers leads to low commitment and ultimately results in their quitting their jobs. Greenberg (1986:341) specified that overpaid workers would feel "guilty" and that underpaid workers would feel "angry" when viewed through the lens of rational reasoning. Workers prefer to work in a just and fair working environment, which will result in high commitment to the job (Kwon & Jang, 2012; Botha & Cronje, 2015). The justice judgement theory can be used to understand organisational citizenship behaviours and employee perception of equity, which is consequently posited to affect organisational commitment at workplaces and ultimately their intention to stay on the job in Zimbabwe's SME sector.

2.3. Organisational citizenship behaviour (OCB)

Scholarly concerns in organisational citizenship behaviours (OCBs) have increased dramatically over the past two decades and this has rapidly become one of the most extensively studied topics in applied psychology and organisational behaviour (Podsakoff, MacKenzie, Paine & Bachrach, 2000; Podaskoff, Whiting, Podaskoff & Blume, 2009; Jain & Cooper, 2012; Jung & Yoon, 2012). Robbins and Judge (2011:60) defined OCB as "discretionary behaviour that is not part of an employee's formal job requirements but that nevertheless promotes the effective functioning of the organisation". Successful organisations need employees who will do more

than their usual job duties, who will provide performance beyond expectations. Employees who engage in "good citizenship" behaviours help others on their team, volunteer for extra work, avoid unnecessary conflicts, respect the spirit as well as the letter of rules and regulations and gracefully tolerate occasional extra work (Cho & Johanson, 2008:307). Organisations need employees who will do things that are not in any job description. Evidence indicates that organisations that do have such employees with high organisational citizenship behaviours outperform those that do not (Greenberg, 2009; Jain & Cooper, 2012; Chiang & Hsieh, 2011; Jung & Yoon, 2012). Managers need to reduce absenteeism, turnover and deviant workplace behaviour and increase organisational citizenship behaviours and job satisfaction. Employees who feel wanted and recognised as part of an organisation show a greater propensity to stay in the organisation. More so, servant leadership has been found to bring out organisational citizenship behaviour in that it creates a work environment where there is assistance, praise and upliftment amongst employees (Maccun & Gifford, 2014). Thus it can be deduced that spirituality is embedded within such leading for the reason that through leader effort, employees experience the will to make a difference, recognize their purpose and are appreciated (Fry, Vitucci & Cedillo, 2005). Given that commitment is a quality of servant leadership (Liden, Wayne, Zhao & Henderson, 2008; Yoshida, Sendjava, Hirst & Cooper, 2014) it can therefore be accepted that employees may emulate this quality and encourage it in fulfilment of organisational goals. Liden et al, (2008) further concurs that servant leadership is likely to lead to organisational commitment. According to Serim, Demirbag and Yozgat (2014) this behaviour is important for firms given the necessity for survival in today's demanding and competitive environment. While employee empowerment has been found to influence organisational citizenship behaviour (Devin, Zohoorian, Peymanizad & Sane, 2012), Ghodratollah, Matin and Amighi (2011) maintain that when there's such employee organisational citizenship behaviours, firms are likely to improve in terms of overall performance. Magdalena (2014), Özçelik and Fındıklı (2014) confirms that organisational citizenship behaviours are not forced on employees, is rather an issue of own choice and it is work-related without being linked to a formal reward system.

2.4. Employee perception of equity

Scholars and practitioners have increasingly recognised the relevance of equity as a determinant of organisational efficiency and effectiveness (Kinicki & Kreitner, 2008; Greenberg, 2009; Van Djike et al, 2012). The study of justice or fairness has been a topic of philosophical interest that extends back at least as far as Plato and Socrates (Colquitt et al, 2001). Research consistently finds that people care about fair treatment and when individuals perceive that they are treated fairly, they express greater satisfaction with social relationships (Kanopaske & Werner, 2002; Almar, 2005; Kinicki & Kreitner, 2008; Park et al, 2010; Nicklin et al, 2011; Robbins & Judge, 2011). Kinicki and Kreitner (2008) defined equity as the perception of being treated fairly at the workplace. Equity is also defined as "fairness, rightness, or deservingness in comparison to other entities, whether real or imaginary, individual or collective, person or non-person" (Kwon & Jang, 2012:1236). In this study, employee perception of equity is defined as the employee's perception of fairness of job outcomes, given his or her job input in an organisation. Accordingly, employees' perceptions of equity are premised on their expectations that the ratio between efforts spent and rewards received at work should be equitable.

As a phenomenon, employees always anticipate fair treatment at the workplace and will respond in a certain way if they perceive unfairness. Unfairness results in labour disputes, strikes and high turnover ratio (Cohen-Charash & Spector, 2001; Colquitt et al, 2001; Botha & Cronje, 2015). It is further argued that perceived inequities at the workplace also impact negatively on job performance (Park et al, 2010), cooperation with co-workers (Kanopaske & Werner, 2002), work quality (Cardy, Miller & Ellis, 2007) and commitment to employers (Balsam & Miharjo, 2007). Thus, if employees perceive the ratio to be equal to that of others then a state of equity is said to exist and this will consequently result in organisational commitment. However, if the ratio is unequal then the employees experience equity tension. Consequently, when employees see themselves as under-rewarded, the resultant tension creates anger (Janssen, 2001). Inequity leads to negative consequences within the organisation and equity results in the smooth running and functioning of the organisation (Park et al, 2010). Employees not in managerial positions in Zimbabwe's SMEs, in both service and manufacturing sectors, may feel distress if for example, they perceive the ratio between the efforts spent and rewards received at work to be inequitable in comparison with the average contribution of others.

2.5. Organisational commitment

There are many definitions of organisational commitment, depending on who the researchers are and what they are examining. According to Fehr (1988:557), "the search for a definition of commitment carried out in psychology and other related disciplines has been marked with conflict, confusion and disagreement". Nevertheless, commitment has been seen as the willingness or intention to continue maintaining the relationship into the future (Jones & Mcintosh, 2010; Yamaguchi, 2013). Drawing from the extant literature, it is noted that, by and large, committed individuals believe in and accept organisational goals and values. This means that the individuals will be willing to remain with their organisations and devote considerable effort towards the achievement of their organisation's goals (Mowaday, Porter & Steers, 1979; Cater & Zabka, 2009; Tanga, Liub, Oh & Weitz, 2014). Porter, Steers, Mowaday and Boulian (1974) identify three major components within the organisational commitment definition: (1) a strong belief in and acceptance of the organisation's goals, (2) a willingness to exert considerable effort on behalf of the organisation, and (3) a definite desire to maintain organisational membership. This study

adopts the definition of Porter et al, (1974) of organisational commitment as an employee's strong belief in the organisation's goals and values, a willingness to work on behalf of the organisation, and a desire to maintain membership in the organisation (Porter et al, 1974).

It has been indicated in the literature that organisational commitment largely influences employees and the manner in which they are dedicated, responsible and loyal to a task or the organisation (Permarupan, Saufi, Suzana, Kasim & Balakrishnan, 2013). This sense of commitment among employees could be used not only to preserve the longevity of the business, but also to create a positive working environment for employees (Yomaguchi, 2013; Velickovic, Visnjic, Jovic, Radulovic, Sargic, Mihajlovic & Mladenovic, 2014).

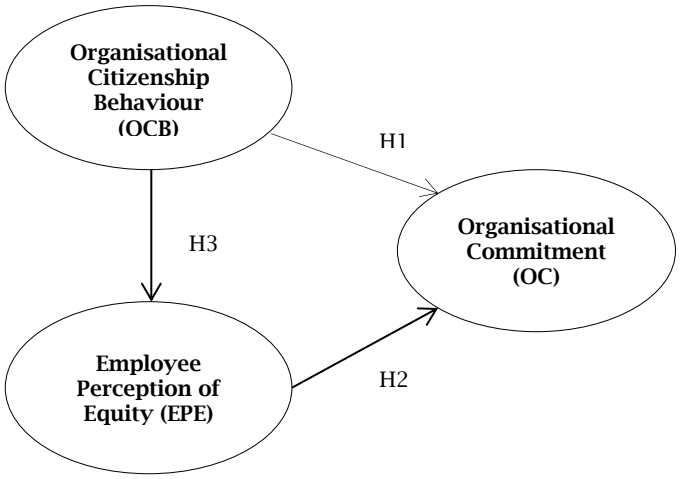
3. CONCEPTUAL MODEL AND RESEARCH HYPOTHESES OF THE STUDY

The study seeks to determine the influence of organisational citizenship behaviour and employee perception of equity on organisational commitment.

3.1. The proposed research model

Drawing from the literature review, in particular the aforementioned theoretical and empirical literature, a research model is conceptualised. Hypothesised relationships between research constructs are then developed. In the conceptualised research model, organisational citizenship behaviour and employee perception of equity are proposed as predictors (independent variables) of organisational commitment. Organisational commitment is the outcome variable (dependent variable). Figure 1 illustrates this conceptual research model.

Figure 1. Research model and hypothesised relationships



When employees perceive fairness at the workplace they are likely to develop a strong positive view toward their organisation. Such a strong positive attitude is likely to arouse employees' emotional attachment to their organisation and develop good organisational citizenship behaviours. Consequently, the stronger the perceived fairness, the stronger the positive attitude and emotional attachment the employee has to the organisation, and hence the commitment to the organisation. Accordingly, it is submitted in this study that, the stronger the employees' perceptions of equity the stronger the commitment the employees have to their organisations in Zimbabwe's SMEs (Chipika & Wilson, 2006). The same can be conceptualised about employees' perceptions of equity and organisational citizenship behaviour relationship. When employees perceive fairness in their organisation, they might develop a desire that make them feel work beyond the call of duty and they become morally obligated to commit themselves to their organisation. Consequently, the stronger the perceived employee perception of equity, the stronger the desire and moral obligation the employees have to their organisations, and therefore, strong commitment to the SMEs. Accordingly, the stronger the employees' perceptions of equity, the stronger their commitment and organisational citizenship behaviour to their respective organisations in Zimbabwe's SMEs. Prior empirical evidence have found a positive relationship between employees' perceptions of equity and commitment (Meyer & Allen, 1991); employees' perceptions of equity and organisational citizenship behaviour (Jung & Yoon, 2012). Accordingly, drawing from the justice judgement theory, the empirical evidence and the aforementioned discussion, the following hypotheses are posited:

H_1: Organisational citizenship behaviours have a significant positive effect on employees' organisational commitment in Zimbabwe's SME sector.

H_2: Employees' perceptions of equity have a significant positive effect on their organisational commitment in Zimbabwe's SME sector.

H_3: Employees' perceptions of equity have a significant positive effect on their organisational citizenship behaviour in Zimbabwe's SME sector.

3.2. Research design

3.2.1. Research approach

Taking into account the nature and strengths of both quantitative and qualitative research methods, the researcher decided to employ a quantitative research tool for this research for reasons of reliability and validity of the results unlike in qualitative where there is a lot of subjectivity in terms of the results. Quantitative research allows researchers to provide statistical facts and estimates about relationships between constructs of research interest and to generalise inferences about the defined target population. Quantitative research is fast and can be conducted on large numbers of respondents with little cost and effort.

3.2.2. Sampling design technique

The study made use of a probability sampling method. With stratified sampling, the population was divided into mutually exclusive groups (industry sectors) and random samples were drawn from each group (Hair, Babin, Anderson & Tatham, 2010). This procedure placed the SMEs into specific industry sectors (manufacturing and service), which include machinery, food, textiles and furniture. Random samples were drawn from each group.

3.3 Target population

The database of the ministry of small and medium enterprises was used to collect information from employees in non-managerial positions in small and medium enterprises in major cities in Zimbabwe. The sample was drawn from the major cities in Zimbabwe (Chitungwiza, Bulawayo, Bindura, Chinhoyi and Harare). Non-managerial employees provided the information that was needed in this study. This sample has been chosen because these type of workers seem to have a lot of problems and are least paid, unlike those in managerial positions who seem to be happy and well catered for by the company in terms of high remuneration and other company benefits (Gono, 2006; Gono, 2009).

3.4. Measuring instruments

Research scales were operationalised mainly on the basis of previous work. Minor adaptations on OCB were made in order to fit the current research context and purpose. Seven-item scales which were adapted from the previous works of Jung and Yoon (2012) were used to measure OCB. A sample question asked of the participants was: "I am always ready to help those around me". Six questions were taken from Janssen (2001) to measure employee perception of equity. A sample question asked of the participants was: "I feel appreciated because I give a great deal of time and attention to the organisation". A seven-item scale taken from Powell and Meyer (2004) was utilised to determine organisational commitment. A sample question asked of the participants was: "I have invested too much time in this organisation to consider working elsewhere".

3.5. Research procedure

The researcher obtained a letter indicating that permission had been given to conduct a study on the company mentioned. The researcher completed an ethical or approval form from Vaal University of Technology. The research assistants requested permission from the management of SMEs to conduct the research and took the questionnaires to each SME at the time arranged with the managers. Anonymity was ensured and participants were given room to withdraw at any time or any stage.

3.6. Descriptive statistics results

Descriptive statistics in Table 1 show the gender, age, marital status, industry type, product type, work experience, monthly salary, number of employees and the academic qualifications of employees in the company.

Table 1. Sample demographic characteristics

Gender	**Frequency**	**Percentage**
Male	152	32.5%
Female	312	67.5%
Total	**464**	**100%**
Marital status	**Frequency**	**Percentage**
Married	293	63.1%
Single	171	36.9%
Total	**464**	**100%**
Age	**Frequency**	**Percentage**
18-25	99	21.3%
26-33	195	42.0%
34-41	97	20.9%
42-49	61	13.1%
50 years and above	12	2.6%
Total	**464**	**100%**
Number of employees	**Frequency**	**Percentage**
≦5	95	20.5%
6-10	173	37.3%
11-20	113	24.4%
21-50	68	14.7%
≧ 51	15	3.2%
Total	**464**	**100%**
Monthly salary in US dollars	**Frequency**	**Percentage**
≦ US$100	10	2.2%
US$100-US$150	80	17.2%
US$151-US$200	201	43.3%
US$201-US$250	126	27.2%
US$250 and above	47	10.1%
Total	**464**	**100%**
Type of Industry	**Frequency**	**Percentage**
Service	301	64.9%
Manufacturing	163	35.9%
Total	**464**	**100**
Academic Qualifications	**Frequency**	**Percentage**
Primary Education	109	23.5%
Secondary Education	167	36.0%
Diploma/Degree	123	26.5%
Post-graduate	61	13.1%
Others	4	0.9%
Total	**464**	**100%**

The profile indicates that more females (67.5%) participated in the study than males (32.5%). The study also showed that there were more married respondents than single (63.1% were married and 36.9% single). The modal age group of respondents

was between 26 and 33 years, constituting 42.0% of the sample. Those employees who were 50 years and older constituted about 2.6% of the sample. Most SMEs, constituting 37.3% of the sample, have between 6 and 10 employees in their enterprises, and those that employ more than 51 employees constitute only 3.2%. Approximately 64.9% of the enterprises were located within the service sector. Most employees (43.3%) earn between 151 and 200 US dollars. SMEs in Zimbabwe are occupied primarily by employees with a secondary education (36.0%).

3.7. Tests of measures and accuracy analysis statistics

SPSS 22.0 and AMOS 22.0 were used to carry out the statistical analysis. The reliability and validity of the measuring scales were assessed to ensure valid data analyses. This was important for this study since a few of the scales have been modified to adapt to the particular business context. Confirmatory factor analysis (CFA) was performed to examine the reliability, convergent and discriminant validity of the multi-item construct measures. All the factor loadings are above 0.5, which shows a good validity of the measurement instruments used. Overall acceptable CFA model fit indices used in this study included: the χ^2/(df) (Chi-Square/Degree of Freedom) value equal to or less than 3.00, the CFI (Comparative Fit Index) value equal to or higher than 0.90, Tucker and Lewis Index (TLI) value equal to or higher than 0.90, the Incremental Fit Index (IFI) value equal to or higher than 0.90, and the Root Mean Square Error of Approximation (RMSEA) value equal to or less than 0.08. Recommended statistics for the final overall model assessment showed an acceptable fit of the measurement model to the data, that is: χ^2/(df) = 1,237, CFI = 0,950, TLI = 0,909, IFI = 0,965 and RMSEA = 0,029.

However, SEM was used instead of regression analysis or other data analytical methods because it test the causal relationships between variables simultaneously. Structural Equation Modelling" (SEM) is a more recent and an advanced statistical approach to data analysis, that happen to have more strengths than "Multiple regression Analysis or other methods". Our understanding is that SEM was designed to test causal relationships between and among latent constructs. The main advantage of SEM is that SEM assesses the whole structural model causal relationships simultaneously whereas, Regression Analysis uses a "Partial" approach to assessing causal relationships. Moreover, SEM with AMOS provides indicators to evaluate the "Model fit" to the data collected using indicators such as GFI, AGFI, CFI, IFI, TLI & RMSEA which other methods cannot provide. In addition to that, SEM with AMOS uses the "Confirmatory Factor Analysis" (CFA) to provide indicators that evaluate the measurement instruments, reliability and validity. On the basis of CFA results, reliability and validity measures such as "Composite Reliability Value", "Average Variance Extracted" (AVE) and "Shared Variance" e.t.c. are calculated. For these strengths that SEM has over the ordinary multiple regression analysis, Smart PLS has been recently developed. Smart PLS is an advancement from "Multiple Regression Analysis" (Partial approach) to the "Structural Modelling" approach. While Smart PLS - a component based approach performs SEM almost equally the same as AMOS – a covariance based approach, the authors still believe that a "Covariance –based Approach" (such as AMOS) has the advantage of providing a "Model Fit" which a "Component-based Approach" such as Smart PLS cannot provide. In a nutshell, the SEM approach using AMOS has more strengths and advantages over the ordinary "Multiple regression Analysis" and other data analytical methods when it comes to testing causal relationships between and among latent constructs. On the basis of the foregoing assertions, the authors decided to choose "Structural Equation Modelling" using AMOS over using "Multiple Regression Analysis" or any other "Partial Least Square approach" to data analysis.

Table 2. Accuracy analysis statistics

Research Construct	Cronbach's Test		CR Value	AVE Value	Highest shared variance (SV)	Factor loading
	Item-total	α value				
OCB1	0.939					0.945
OCB2	0.962					0.967
OCB3	0.952	0.983	0.983	0.922	0.760	0.963
OCB4	0.953					0.966
OCB5	0.945					0.960
EPE1	0.950					0.960
EPE2	0.955					0.961
EPE3	0.950	0.987	0.987	0.931	0.762	0.962
EPE4	0.953					0.959
EPE5	0.958					0.961
EPE6	0.957					0.967
OC1	0.958					0.966
OC2	0.960					0.964
OC3	0.961					0.967
OC4	0.967					0.972
OC5	0.965	0.993	0.992	0.937	0.760	0.969
OC6	0.966					0.968
OC7	0.963					0.970
OC8	0.966					0.969
OC9	0.969					0.970

Note: C.R.: Composite Reliability; AVE: Average Variance Extracted; S.V.: Shared Variance; Scores: 1 – Strongly Disagree; 3 – Neutral; 5 – Strongly AgreeMeasurement CFA model fits: χ^2/(df) = 1,237, CFI = 0,950, TLI = 0,909, IFI = 0,965 and RMSEA = 0,029*

Loadings of individual items on their respective constructs are shown in Table 2. The lowest value for individual item loadings for the research constructs is 0.945. Therefore, all the individual item loadings exceeded the recommended value of 0.50 (Hair et al, 2010). This indicates that all the measurement instruments are acceptable and reliable since all the individual items converged well and with more than 50% of each item's variance shared with its respective construct.

Composite reliabilities (CR) and average variance extracted (AVE) for each construct were also computed using the formulae proposed by Fornell and Lacker (1981) i.e.

$$CR\eta=(\Sigma\lambda yi)2/[(\Sigma\lambda yi)2+(\Sigma\varepsilon i)] \quad (1)$$

where

CRη = Composite reliability, (Σλyi)2= Square of the summation of the factor loadings; (Σεi)= Summation of error variances.

$$V\eta=\Sigma\lambda yi2/(\Sigma\lambda yi2+\Sigma\varepsilon) \quad (2)$$

where,

Vη= Average Variance Extracted (AVE); Σλyi2= Summation of the squared of factor loadings; Σεi= Summation of error variances.

As indicated from the results shown in Table 2, the lowest obtained composite reliability (CR) value of 0.983 is well above the recommended of above 0.6 (Hulland, 1999), while the lowest obtained average variance (AVE) value of 0.922 is also above the recommended 0.5. This indicates that convergent validity was achieved and also further confirms the internal consistency and reliability of the measurement instruments used (Fraering & Minor, 2006). Table 3 shows that discriminant validity was established by ensuring that the average variance extracted (AVE) for each multi-item construct was greater than the shared variance between constructs, as in Table 2 (Nunnally & Bernstein, 1994).

Table 3. Correlations between constructs

Research Construct	Construct Correlation		
	OCB	EPE	OC
OCB	1.000		
EPE	0.675	1.000	
OC	0.745	0.652	1.000

Note: OCB= Organisational citizenship behaviour EPE= Employee perception of equity OC= Organisational Commitment.

All pairs of constructs revealed an adequate level of discriminant validity (see Table 3) because all the correlations are less than 0.8. By and large these results provided evidence for acceptable levels of research scale reliability.

Discriminant validity was also established by checking whether the AVE value was greater than the highest SV value (Sin, Tse, Heung & Yim, 2005). This study further interrogated the average variance extracted (AVE) and the shared variance values (SV). Discriminant validity was established by checking and confirming that the AVE values were greater than the highest SV values (Nunnally, 1998). Table 2 shows that all the AVE values are above the SV values for all the research constructs, thus further confirming the existence of discriminant validity.

4. RESULTS OF THE HYPOTHESES

In Table 4, all the hypothesis are significant and strong as illustrated by all the path coefficients which are greater than 0.5. The highest path coefficient is EPE and OC, at 0.798, showing statistical significance, indicating that in companies where employees' perceptions of equity are high, OC is also high (Almar, 2005). The lowest path coefficient is OCB and OC, at 0.527, slightly lower than the highest path coefficient. This shows that all the path coefficients are significant.

Modification of the full model was done and the results generated from it. The rest of the hypotheses are supported by the data, as tabulated in Table 4.

Table 4. Overall results of SEM hypotheses testing

Hyp	Hypothesis Statement	Path Coefficients	Results
H1	Organisational citizenship behaviour → commitment	0.527***	Supported
H2	Employee perception of equity →commitment	0.798***	Supported
H3	Employee perception of equity →Organisational citizenship behaviour	0.700***	Supported

*Note: Research structural model fits:χ^2/(df) = 2.737, CFI= 0,920, TLI = 0,905, IFI = 0,922 and RMSEA = 0,060.Note: 1. ***p-value<0.001, **p-value<0.05, *p-value<0.1; using a significance level of 0.05, critical ratios (t-value) that exceed 1.96 would be significant.*

5. DISCUSSION

(**H1**) There is a significant positive influence of employee OCB on OC in the Zimbabwean SMEs. From the result of the path, there is a strong relationship between these two constructs because the p-value is less than 0.001. This is supported by Robbins and Judge (2011), who viewed that successful organisations need employees who will do more than their usual job duties and who will provide performance beyond expectations, ultimately leading to greater organisational commitment. Employees who engage in "good citizenship" behaviours help others on their team, volunteer for extra work, avoid unnecessary conflicts, respect the spirit as well as the letter of rules and regulations and gracefully tolerate occasional extra work (Cho & Johanson, 2008). Therefore high OCB is associated with high OC.

(**H2**) There is a significant strong positive influence of EPE on OC because the p-value is significant at 95 percent confidence interval. Research consistently finds that people care about fair treatment and that, when individuals perceive that they are treated fairly, they express greater satisfaction with social relationships and, consequently, display greater commitment (Kanopaske & Werner, 2002; Almar, 2005; Kinicki & Kreitner, 2008; Park et al, 2010; Nicklin et al, 2011; Robbins & Judge, 2011). Thus, if employees perceive that they are treated equally then a state of equity is said to exist and this will result in OC. However, if the employees perceive that there is inequality then they experience equity tension. Consequently, when employees see themselves as under-rewarded, the resultant tension creates anger rather than commitment to the job (Janssen, 2001). Therefore, the greater the EPE, the greater the OC.

(H3) There is a significant strong positive influence of OCB on EPE because the p-value is also less than 0.001. Research consistently finds that people with high OCBs care about fair treatment and that, when individuals perceive that they are treated fairly, they express greater satisfaction with social relationships and, consequently, leading to greater job performance (Almar, 2005; Kinicki & Kreitner, 2008; Robbins & Judge, 2011). Organisational

citizenship behaviour is highly appreciated by firms not only for the reason that it heightens efficiency (Schaufeli & Salanora, 2008) but also for the reason that it is voluntary behaviour that is not even linked to a formal reward system (Organ 1988). When employees display organisational citizenship behaviour, it is apparent that they become more engaged (Wat & Shaffer, 2003; Babcock-Roberson & Strickland, 2010) and in so doing, amplify job performance subsequently and equity. Therefore, the greater the OCBs, the greater the EPE.

6. PRACTICAL IMPLICATIONS: RECOMMENDATIONS OF THE STUDY

The implications on the practical side are that, first and foremost, managers should attempt to increase organisational citizenship behaviour in SMEs since it has a significant impact on intention to stay. Setting clear rules that are enforceable to ensure appropriate behaviours at the workplace leaves little room for turnover intention among employees (Mustapha, Ahamad, Uli & Idris, 2010).

Managers need to reward those employees displaying greater OCBs consistently (Chipika & Wilson, 2006). If OCBs are rewarded, employees will desire to have the company at heart and workplaces will be better places to be all the time. Making sure that the rules and procedures are in place, understood and enforced will minimise employees' intentions to leave the organisation and foster intentions to stay in the job (Ucho, Mkavga & Onyishi, 2012).

The reward system, mainly in the form of profit shares and non-monetary rewards, was commonly used to motivate employees to be committed to the organisation. To secure increased employee motivation levels, SMEs need to make use of more diversified incentives that could include salary raises, promotions, titles, trophies, holiday assistance, and house and car purchase assistance.

The owners/managers also need to inform and involve many employees in the decision making process as their participation leads to motivation, and hence commitment to goal achievement. A more participative process will ensure cooperation and positive relationships among employees, equity among employees, therefore leading to OC and ultimately reducing turnover intention (Botha & Cronje, 2015; Crawford et al, 2015).

Finally, the Government of Zimbabwe is also encouraged to adopt policies that are likely to provide socio-economic stability in the country so that the SMEs may improve their performance and potentially increase the rewards offered to their employees.

6.1. Limitations of the study

The data were gathered from the SME employees, those not in managerial positions. The results would be more informative if data from both sides of the channel dyad were compared. The current study was limited to a sample of SMEs only in Harare, Chitungwiza, Bulawayo, Chinhoyi, Mutare and Bindura, the five largest cities in Zimbabwe. Only questionnaires were used to collect data from respondents. Using triangulation would erase the effects of common method bias. Other researchers might opt to use questionnaires and interviews at the same time to strengthen the research.

What is lacking in the analysis of variance, is the subscales of for example of organisational citizenship and the correlations with the subscales of the other constructs. However, this could be included in the future studies by other researchers.

6.2. Recommendations for future research directions

Future studies may be conducted by using paired data both from workers on the operational floor and from the perspective of management. Subsequent research could replicate this study in broader sampling contexts that include all the SMEs in Zimbabwean cities or by comparison analysis between Zimbabwean SMEs and SMEs in another country, such as South Africa. Owing to the large number of enterprises in Zimbabwe, the size of the sample that was used in this study may also be a shortcoming. However, every attempt was made to reach as many of the respondents as possible. The other limitation is that the data were cross-sectional which makes it difficult to generalize the findings unlike longitudinal data. In longitudinal the respondents are asked to answer the questions more than once therefore eliminating biases. However, future research efforts should investigate outcomes of OCB and EPE such as job satisfaction, workplace spirituality and organisational support.

7. CONCLUSION

A pioneering attempt is made to apply the Justice Judgment theory in order to explain the interrelationships of the variables, in which organisational commitment is the ultimate variable. A cross-examination of the extant theory indicates that these theories have been applied mostly in large-sized firms and, to the best knowledge of the researcher, have not been applied in the current research context. The findings of this study therefore, fill the void that has existed in academic literature. There is no best theory applicable to this study. Future research should try to include other theories for this same model.

REFERENCES

1. Adams, J. S. (1965). Inequity in social exchange. In: Berkowitz, L. (Ed.), Advances in experimental social psychology (pp. 267-299), New York: Academic Press.
2. Almar, M. W. (2005). Equity sensitivity and negotiation behaviors: A look at Mexican exporters. Academy of Management Journal, Vol. 4 No. 3, pp. 1-16.
3. Babcock-Roberson, E., and Strickland, O. J. (2010). The relationship between charismatic leadership, work engagement and organizational citizenship behaviours. Journal of Psychology: Interdisciplinary and Applied, Vol.144, pp. 313-326.
4. Balsam, S., and Miharjo, S. (2007). The effect of equity compensation on voluntary executive turnover. Journal of Accounting and Economics, Vol. 43, pp. 95-119.
5. Botha, D., and Cronje, F. (2015). Women in mining: A conceptual framework for gender

issues in the South African mining sector. South African Journal of Labour Relations, Vol. 39 No.1, pp. 10-37.
6. Cardy, R. L., Miller, J. S., and Ellis, A. D. (2007). Employee equity: Toward a person- based approach to HRM. Human Resource Management Review, Vol. 17, pp. 140-151.
7. Cater, B., and Zabkar. V. (2009). Antecedents and Consequences of Commitment in Marketing Research Services: The Client's Perspective. Industrial Marketing Management, Vol. 38 No. 7, pp 785-797.
8. Chang, M. L., Chang, S. I, Ho., C. T, Yen, D. C., and Chiang, M. C. (2011). Effects of IS characteristics on e-business success factors of Small and Medium- sized enterprises. Computers in Human Behaviour, Vol. 27, pp. 2129-2140.
9. Chiang, C. F., and Hsieh, T. S. (2011). The impacts of perceived organisational support and psychological empowerment on job performance: The mediating effects of organisational citizenship behaviour. International Journal of Hospitality Management, Vol. 31 No. 1, pp. 180-189.
10. Chipika, S., and Wilson, G. (2006). Enabling Technology learning among light engineering SMEs in Zimbabwe through networking. Journal of Technovation, Vol. 26 No. 8, pp. 969-979.
11. Chinomona, R., Lin, J., Wang, M., and Cheng, J. (2010). Soft power and Desirable Relationship Outcomes in Zimbabwe Distribution Channels. African Journal of Business, Vol. 11 No. 2, pp. 20-55.
12. Chinomona, R., and Pretorious, M. (2011). SME manufacturers cooperation and Dependency on major dealers Expert power in Distribution Channels. South Africa Journal of Economics and Management Sciences, Vol.12 No. 2, pp. 170-186.
13. Cho, S., and Johanson, M. M. (2008). Organisational citizenship behavior and employee performance: A moderating effect of work status in restaurant employees. Journal of Hospitality and Tourism Research, Vol. 32, pp. 307-326.
14. Cohen-Charash, Y., and Spector, P. E. (2001). The role of justice in organisations: A meta-analysis. Organisational Behaviour and Human Decision Processes, Vol. 86, pp. 278-324.
15. Colquitt, J. A., Conlon, D. E., Wesson, M. J., Porter, C. O., and Ng, K.Y. (2001). Justice at the millennium: A meta-analytic review of 25 years of organisational justice research. Journal of Applied Psychology, Vol. 86 No. 3, pp. 425-445.
16. Cooper-Hakim, A., and Viswesvaran, C. (2005). The construct of work commitment: Testing an integrative framework. Psychological Bulletin, Vol. 131 No. 20, pp. 241-256.
17. Cropanzano, R., Howes, J. C., Grandey, A. A., and Toth, P. (1997). The Relationship of organisational politics and support to work behaviors, attitudes and stress. Journal of Organisational Behaviour, Vol. 18, pp. 159-180.
18. Crowford, V., Hofmeyer, K., and Price, G. (2015). The relationship between personality and the capacity to think strategically. South African Journal of Labour Relations, Vol. 39 No. 1, pp. 131-154.
19. Devin, H.F., Zohoorian, Z., Peymanizad, H., and Sane, M.A. (2012). Procedia-Social and Behavioral Sciences, Vol. 46, pp. 1203-1207.
20. Fehr, B. (1988). Prototype analysis of the concepts of love and commitment. Journal of Personality and Social Psychology, Vol. 55, pp. 557-579.
21. Ferris, G. R., Adams, G., Kolodinsky, R. W., Hochwarter, W. A., and Ammeter. A. P. (2002). Peceptions of organisational politics: Theory andresearch indications. In Miller, Brian, K., Matthew, A., & Kolodinsky, R. W., 2008 (Eds). Perceptions of organisational politics: A meta-analysis of Outcomes (PP.209-222). Journal of Business Psychology, Vol. 22, pp. 209-222.
22. Fraering, M., and Minor, M. S. (2006). Sense ofCommunity: An Exploratory Study of US Consumers of Financial Services. International Journal of Bank Marketing, Vol. 24 No. 5, pp. 284-306.
23. Fornell, C., and Larcker, D. (1981). Structural equation models with unobservable variables and measurement error. Journal of Marketing Research, Vol. 18 No.1, pp. 39-50.
24. Fry, L. W., VItucci, S., and Cedillo, M. (2005). Spiritual leadership and army transformation:
25. Theory, measurement, and establishing a baseline. The Leadership Quarterly, Vo. 16 No. 5, pp. 835-862.
26. Geyskens, I., Steenkamp, J.B.E.M., Scheer, L. K., and Kumar, N. (1996) "The effects of trust and interdependence on relationship commitment: A Trans-Atlantic study," International Journal of Research in Marketing, Vol. 13 No. 4, pp. 303-317.
27. Ghodratollah, B., Matin, H.Z., and Amighi, F. (2011). The relationship between empowerment and organizational citizenship behavior of the pedagogical organization employees. Iranian Journal of Management Studies, Vol. 4 No 2, pp. 53-62.
28. Gono, G. (2006). Unlocking SMEs' Potential for sustainable development. [On-line]. Available at: http://www.herald.co.zw/ inside.aspx?sectid=29835&cat=8. Date accessed: 20/11/2006.
29. Gono, G. (2009). Zimbabwe's Casino Economy. Extraordinary measures for extraordinary challenges. Harare: Zimbabwe Publishing House.
30. Greenberg, J. (1986). Determinants of perceived fairness of performance evaluations. Journal of Applied Psychology, Vol. 71, pp. 340-342
31. Greenberg, J. (2009). Everybody talks about organisational justice, but nobody does anything about it. Industrial and Organisational Psychology, Vol. 2, pp. 181-195.
32. Hair, J. F., Babin, B. J., Anderson, R. E., and Tatham, R. L. (2010). Multivariate Data Analysis. A Global Perspective. 7th ed. London: Prentice Hall.
33. Hulland, J. (1999). Use of Partial Least Squares (PLS) in strategic management research: A Review of four recent studies. Strategic Management Journal, Vol. 20 No 2, pp. 195-204.
34. Jain, A. K., and Cooper, CL. (2012). Stress and organisational citizenship behaviours in Indian business process outsourcing organisations. IIMB Management Review, Vol. 24, pp. 155-163.
35. Janssen, O. (2001). Fairness perceptions as a moderator in the curvilinear relationships Between job demands and job performance and job satisfaction. Academy of Management Journal, Vol. 44 No 5, pp. 1039-1050.
36. Jones, D. A., and Mcintosh, B. R. (2010). Organisational and occupational commitment in relation to bridge employment and retirement intentions. Journal of Vocational Behaviour, Vol.77, pp. 290-303.
37. Jung, H. S., and Yoon, H. H. (2012). The effects of emotional intelligence on Counterproductive work behaviors and organisational citizen behaviors among food and beverage employees in a deluxe hotel. International Journal of Hospitality Management, Vol. 31 No 2, pp. 369-378.

38. Kanopaske, R., and Werner S. (2002). Equity in non-North American contexts: adapting Equity theory to the new global business environment. Human Resource Management Review, Vol. 12, pp. 405-418.
39. Kinicki, A., and Kreitner, R. (2008). Organisational Behaviour. Key concepts, skills and best practices. New York: MacGraw Hill. .
40. Koys, D. J. (2001). The effects of employee satisfaction, organisational citizenship behavior, and turnover on organisational effectiveness: A unit-level, longitudinal study. Personnel Psychology, Vol. 54, pp. 101-114.
41. Kwon, S. Y., and Jang, S. C. (2012). Effects of compensation for service recovery: From the equity theory perspective. International Journal of Hospitality Management, Vol. 31, pp. 1235-1243.
42. Leventhal, G. S. (1976). What should be done with Equity Theory? New Approaches to the Study of Fairness in Social Relationships. National Science Foundation, pp. 142-146.
43. Liden, R.C., Wayne, S.J., Zhao, H., and Henderson, D. (2008). Servant leadership: Development of multidimensional measure and multi-level assessment. The Leadership Quarterly, Vol. 19 No 2, pp.161-177.
44. Machipisa, L. (1998). Developing the Focused Entrepreneur. [On-line]. Available at: http://72.14.207.104/search?q=cache:UiMJ1N2HYJ .www.ipsnews.net/domainl ogin. Date accessed 6/04/2006.
45. Magdalena, S.M. (2014). The effects of organizational citizenship behavior in the academic environment. Procedia-Social and Behavioral Sciences, Vol. 127, pp. 738-742.
46. Mambula, C. (2002). Perceptions of SME growth constraints in Nigeria. Journal of Small Business Management, Vol. 40 No 1, pp. 58-65.
47. Meyer, J. P., and Allen, N. J. (1991). A three-component conceptualisation of organizational commitment. Human Resource Management Review, Vol. 1, pp. 61-89.
48. Mccunn, L.J., and Gifford, R. (2014). Interrelations between sense of place, organisational commitment, and green neighbourhoods. Cities, Vol. 41, pp. 20-29.
49. Mowday, R.T., Porter, L. W., and Steers, R. M. (1979). The measurement of organisational commitment. Journal of Vocational Behavior, Vol. 14, pp. 224-227.
50. Mustapha, N., Ahamad, A., Uli, J., and Idris, M. (2010). Job characteristics as antecedents of intention to stay and mediating effects of work family facilitation and family satisfaction among single mothers in Malaysia. International Journal of Business and Social Science, Vol. 1 No 3, pp. 59-74.
51. Nicklin, J. M., Greenbaum, R., Mcnall, L. A., Folger, R., and Williams, K. J. (2011). The importance of contextual variables when judging fairness: An examination of counterfactual thoughts and fairness theory. Organisational Behavior and Human Decision Processes, Vol. 11 No 2, pp. 127-141.
52. Nyoni, S. (2002). Small, Micro & Medium Enterprises (SMMEs). Policy & Strategy Framework. Harare: Zimbabwe Publishing House.
53. Nunnally, J., and Bernstein, I. (1994). Psychometric theory. (3rd Edition). New York: McGraw-Hill.
54. Nunnally, J. C. (1998). Psychometric Theory. (2nd edition). New York: MacGraw-Hill.
55. Özçelik, G., and Findikli, M. A. (2014). The relationship between internal branding and organizational citizenship behaviour: The mediating role of person-organization fit. Procedia-Social and Behavioral Sciences, Vol. 150, pp. 1120-1128.
56. Park, J., Ellis, G. D., Kim, S. S., and Prideaux, B. (2010). An investigation of perceptions of social equity and price acceptability judgments for campers in the U.S. national forest. Tourism Management, Vol. 31, pp. 202-212.
57. Permarupan, P.Y., Saufi, R.A., Kasim, R.S.R., and Balakrishnan, B.K.P.D. (2013). The impact of organizational climate on employee's work passion and organizational commitment. Procedia-Social and Behavioral Sciences, Vol. 107, pp. 88-95.
58. Podsakoff, P. M., Mackenzie, S. B., Paine, J. B., and Bachrach, D. G. (2000). Organisational citizenship behaviors: A Critical review of the theoretical and empirical literature and suggestions for future research. Journal of Management, Vol. 26, pp. 513-561.
59. Podsakoff, N. P., Whiting, S. W., Podsakoff, P. M., and Blume, B. D. (2009). Individual- and organizational-level consequences of organizational citizenship behaviors: A Meta-Analysis Journal of Applied Psychology, Vol. 94, pp. 122-141.
60. Porter, L. W, Steers, R. M, Mowaday, R. T., and Boulian, P. V. (1974). Organisational commitment, job satisfaction and turnover among psychiatric technicians. Journal of Applied Psychology, Vol. 59, pp. 603-609.
61. Powell, D. M., and Meyer, J. P. (2004). Side-Bet theory and three-component model of organisational commitment. Journal of Vocational Behaviour, Vol. 65, pp. 157-177.
62. Ravichandran, S., and Gilmore, S. A. (2007). Formation of organisational citizenship behaviours in students employed in university dinging services: impact of manager and co-worker behaviors. Journal of Foodservice Business Research, Vol.10 No 2, pp. 19-50.
63. Robbins, S. P., and Judge, T. (2011). Organisational Behavior.14th ed. New Jersey: Prentice Hall.
64. Rosen, C. C., Chang, C. H., Johnson, R. E., and Levy, P. E. (2009). Perceptions of the organisational context and psychological contract breach: Assessing competing perspectives. Organisational Behavior and Human Decision Process, Vol. 108 No 2, pp. 202-217.
65. Serim, H., Demirbag, O., and Yozgat, U. (2014). The effects of employees' perceptions of competency models on employability outcomes and organizational citizenship behavior and the moderating role of social exchange in this effect. Procedia-Social and Behavioral Sciences, Vol. 150, pp. 1101-1110.
66. Schaufell, W. B., and Salanova, M. (2008). Enhancing work engagement through the management of human resources. In Nåswall, K., Sverke, M. & Hellgren, J., eds. The individual in the changing working life. Cambridge: Cambridge University Press, pp. 380-404.
67. Sieger, P., Bernhard, F., and Frey, U. (2011). Affective commitment and job satisfaction among non-family employees: Investigating the roles of justice perceptions and psychological ownership. Journal of Family Business Strategy, Vol. 2, pp. 78-89.
68. Sin, L.Y. M., Tse, A.C.B., Heung, V. C. S., and Yim, F. H. K. (2005). An analysis of the Relationship between market orientation and business performance in the hotel industry. Hospitality Management, Vol. 24, pp. 555-577.
69. Small and Medium Enterprises Development Organisation. (2004). SMEs incentives

and support schemes, year 2002-03. Harare: Zimbabwe: Industrial Zone.
70. Tanga, C., Liub, Y., Oh, H., and Weitz, B. (2014). Socialization tactics of new retail employees: A pathway to organizational commitment. Journal of Retailing, Vol. 90 No 1, pp. 62-73.
71. Ucho, A., Mkavga, T., and Onyishi, I. E. (2012). Job satisfaction, gender, tenure and turnover intentions among civil servants in Benue State. Interdisciplinary Journal of Contemporary Research in Business, Vol. 3 No 11, pp. 378-387.
72. Velickovic, V.M., Visnjic, A., Jovic, S., Radulovic, O., Sargic, C., Mihajlovic, J., and Mladenovic, J. (2014). Organizational commitment and job satisfaction among nurses in Serbia: A factor analysis. Nursing Outlook, Vol. 62 No 6, pp. 415-427
73. Van Dijke, M., Cremer, D. D., Mayer, D. M., and Quaquebeke, N. V. (2012). When procedural fairness promote organisational citizenship behaviour? Integrating empowering leadership types in relational justice models. Organisational Behaviour and Human Decision processes, Vol. 117, pp. 235-248.
74. Wat, D., and Shaffer, M. A. (2003). Equity and relationship quality influences on organisational citizenship behaviours: The mediating role of trust in the supervisor and empowerment. Personnel Review, Vol. 34, pp. 406-422.
75. Yamaguchi, I. (2013). A Japan-US cross-cultural study of relationships among team autonomy, organisational social capital, job satisfaction, and organisational commitment. International Journal of Intercultural Relations, Vol. 37, pp. 58-71.
76. Yoon, M. H., and Suh, J. (2003). Organisational citizenship behaviours and service quality as external effectiveness of contact employees. Journal of Business Research, Vol. 56, pp. 597-611.
77. Yoshida, D.T., Sendjava, S., Hirst, G., and Cooper, B. (2014). Does servant leadership foster creativity and innovation? A multi-level mediation study of identification and prototypicality. Journal of Business Research, Vol. 67, pp. 1395-1404.

CORPORATE GOVERNANCE AND VALUE CREATION INDEX

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Abstract

This study aims to create a methodology to measure good governance and value creation with the help of an index composed of two sub-indices which corresponds to corporate governance and value creation (CGVC). The proposed index measures corporate governance quality that collapse into one number (a governance rating or index) and helps in analysing the effectiveness of corporate governance index in predicting value creation. We believe there is no one "best" measure of corporate governance, however, the most effective governance system depends on context and firm related circumstances. Thus, it is generally difficult for an index, or any one variable, to capture such nuances which may be critical for making informed decisions. Having said that, the index beautifully helps in giving a fair idea about governance practices followed by companies' in India. The CGVC index is constituted after investigating governance practices in BSE 100 companies which accounts for nearly 66% of the market capitalisation (as of March 2014). The study investigates corporate governance practices followed by the company in terms of 11 parameters identified (based on various recommendations given by the several committees) coupled with value created for different stakeholders. The period under study (2006-07 to 2013-14) is known for several volatilities and has remained one of the key themes in the global business environment. Economic uncertainties and changing business landscape left investors unnerved. While growth in largest economies declined, it had ripple effect on emerging economies. We have followed a two-step methodology where equal weightage is assigned to both the sub-indices. For sub-indices we have followed survey methodology where we interviewed personnel including board members, entry and mid-level employees of companies, regulatory participants, and stock brokers. Lastly, the paper aims to fill the gaps and conduct a thorough review of corporate governance and its relationship with value creation for one of the fastest growing emerging markets i.e., Indian economy.

Keywords: Corporate Governance, Value Creation Index, Stakeholders, Market Capitalisation

1. INTRODUCTION

Corporate governance, in a layman's term, stands on pillars of trust, ethics, moral values and value creation. It is a mechanism which is employed to align incentives between principals and agents and to monitor and to control agents. The mechanism provides a framework through which the objectives of a company are set, and the means of attaining those objectives and monitoring performance are determined. The framework is utilised to ensure that the agents act in a manner that is in the best interests of their principals *(Hill & Jones, 2004)*. Standard & Poor's define corporate governance as:

"The way in which a company organizes and manages itself to ensure that all financial stakeholders receive their fair share of a company's earnings and assets".

We believe that definition of corporate governance varies widely and it tends to fall in two categories. The first set of definitions relates with behavioral patterns which involves the actual behaviour of corporations, in terms of measures such as performance, efficiency, growth, treatment of shareholders' and other stakeholders. The second set concerns with normative framework including rules under which firms are operating such as legal system, the judicial system, financial markets, and factor (labor) markets.

We believe corporate governance standards cannot be measured or achieved with rules and structures as it is a framework which encourages and supports good governance. In good governance it is assumed that the senior executives of a company conduct affairs transparently, legally, honestly and morally. However, conflict of interest and disclosure in financial reports remain some of the areas of concern.

During the crisis in 1998 in Russia, Asia, and Brazil, the behavior of the corporate sector affected economies and deficiencies in corporate governance norms resulted in endangered financial stability. Further, few years later, confidence in the corporate sector was sapped by corporate governance scandals in the United States and Europe which triggered some of the largest insolvencies of the world. These scams resulted in the establishment of code of corporate governance by all the developed countries aiming at improving transparency thereby resulting in restoring investor confidence. However, very less has expanded into emerging markets and developing countries.

2. CORPORATE GOVERNANCE

2.1. Current Literature and the gaps

The East Asian crisis that started in 1997 brought several countries at the brink of economic collapse revealing several shortcomings in their governance structures (Woo et al., 2000; Claessens and Fan, 2002; OECD, 2003). The crisis was soon followed by accounting scandals and corporate failures involving some of the largest firms in the world, such as Enron and Worldcom in the US, large retailer Ahold in the Netherlands and the global diary company Parmalat in Italy (Hopt, 2002; Holmstrom and Kaplan, 2003; Healy and Palepu, 2003; Maddaloni and Pain, 2004; ECB, 2005). These developments have brought corporate governance to the full attention of both policymakers and researchers in both developed and developing economies.

2.2. Literature from developed market

Anderson et al. (2004) showed that sound corporate governance practice has helped in lowering the cost of debt for US firms. The quality of the corporate governance framework affects not only the access to the external capital but also the cost of capital and firm valuation. Outsiders are less willing to provide financing and are more likely to charge higher rates if they are less assured that they will get an adequate rate of return. Also, it was shown that good governance add value by improving firm performance, through more efficient management, better asset allocation, better labor policies. Researchers found that quality of governance can affect firms' behavior in times of economic shocks and actually contribute to the occurrence of financial distress. Lemmon and Lins, (2003) stated that during the East Asian financial crisis, cumulative stock returns of firms where managers had high degree of control but little direct ownership, were 10 to 20 percentage points lower than those of other firms.

Effective corporate governance is at the core of an efficient market economy. At a macroeconomic level, studies have shown that in countries where higher investor protection measures existed, and where corporate governance standards were higher, the impact of economic crises was relatively milder. A study by Paul Gompers and Joy Ishii of the Harvard Business School and Andrew Metrick of the Wharton School in 2001 found strong relationship between corporate governance and stock returns. The study showed that strategy of buying stocks with good governance and selling those with poor governance would have produced increased returns of 8.5 per cent per annum through the 1990s.

Montserrat Manzaneque, Alba María Priego, Elena Merino (2014) in their study of the economic and financial crisis during 2007–2013 period highlighted the important consequences of businesses' financial distress on stakeholders. The study highlighted the importance of effectiveness of corporate governance mechanisms in crisis contexts (Husson-Traore, 2009). Black and Kim (2012) reported a positive share price impact of boards with 50% or greater outside directors and some evidence of a positive impact from the creation of an audit committee in developed economies'. Beiner et al. (2004) constructed a corporate governance index on the basis of a research made on all companies listed in the Swiss Stock Exchange and found that 1 point increase in the index caused an average increase of 8.5% in the market capitalization.

2.3. Literature from emerging market

The view that poor corporate governance of individual firms can have economy-wide effects is not limited to developed countries. A study of the stock performance of listed companies from Indonesia, Korea, Malaysia, the Philippines, and Thailand found that performance is better in firms with higher accounting disclosure quality (proxied by the use of Big Six auditors) and higher outside ownership concentration (Mitton, 2002). In the last decade, many emerging markets have reformed parts of their corporate governance systems. Many of these changes are in response to crises (Black et al., 2001). These reforms triggered restructuring activities by Korean firms (Park and Kim, 2008), with important effects on valuation and operating performance (Choi et al., 2007).

In 2000, researcher Johnson et al has measured the relationship between the deficiencies in corporate governance and the stock and financial asset prices for 25 countries. He identified that during financial crisis, the capital flows were very rapid and had negative effects for the countries with weak corporate governance practices. Bai et al (2002) examined the problems of corporate governance in China and concluded that well managed companies in corporate governance have reached higher stock market values and the investors are willing to pay a premium of a significant rate for better corporate governance standards.

Several researchers have identified different parameters for assessing corporate governance. While Mishra et al (2001) focused on parameters such as firm age, board size; Arunima Haldar (2012) used parameters like board of directors, audit committee, disclosures as right measure for corporate governance. Jayati Sarkar et al (2012) used board of directors, ownership structure, auditor and audit committee as primary measure of corporate governance whereas Sarkar and Sarkar (2000) used "shareholder activism" as corporate governance measure.

Dr. Vrajlal K. Sapovadia Mishra (2011) in his paper focused on developing corporate governance index after investigating corporate governance practices in selected top Indian companies with reference to value distribution while in 2012 Palanisamy Saravanan (2012) studied the impact of corporate governance in the determination of firm value in the manufacturing firms in India. Also, Palanisamy Saravanan (2009) studied the impact of corporate governance in the determination of firm value in the manufacturing firms in India. However, there have been several gaps in terms of identifying the parameters which assess corporate governance. Also, focus of value creation has largely remained restricted to shareholders and value creation for stakeholders (such as government, employee and creditors) has remained neglected.

2.4. Why this index is required

In 1912 it was an iceberg that brought about the demise of the Titanic, 89 years later it was the submerged components that sank the "unsinkable" Enron vessel. Literature suggests that information asymmetry and opportunistic behaviour of agents (executives, auditors and legal firms) and the inability of the principals (owners and agents) to control led to the Enron collapse more catastrophic. The main purpose of this research paper is to construct an index which would highlight the lacuna in the Indian corporate governance. We believe good corporate governance practice helps to engender confidence in the stock market and hence in the economic environment as a whole thereby creating a more attractive environment for investment. Yildiz Ayanoglu Pekcan et al. (2012) concluded that index makes provision of funds cheap and easy with obtained trust and reputation as a result of proper applications of it. Sıvacıoglu, (2008) stated that there are such applications in five countries in the world:

- Turkey - ISE Corporate Governance Index
- South African Republic - Johannesburg Stock Exchange Socially Responsible Investing Index
- South Korea - Korea Corporate Governance Stock Price Index
- Brazil - Nova Mercado
- Italy - Milano Stock Exchange STAR Exchange

The index can be used to help restore investor confidence in markets that have experienced financial crises. The index will also help government agencies identify the perceived quality of corporate governance in their country compared to other countries in their region, or in other regions, whose companies may be competing for limited foreign investment.

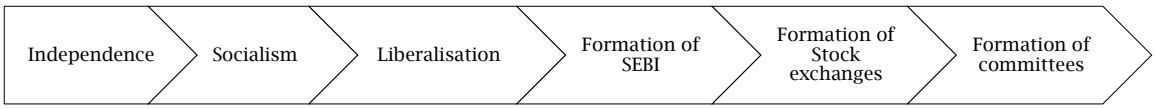
In emerging-market countries in particular, companies with a corporate governance infrastructure will, other things being equal, be less subject to cronyism. A desire for improved transparency and accountability to help ensure that companies are perceived as attractive investments has led to significant corporate governance reform in countries as diverse as India, Greece, Hong Kong (China), Japan, Malaysia and Poland.

Such index will be a useful benchmark for the majority of investors and stakeholders who identify good corporate governance with a well-run and well-managed company.

3. CORPORATE GOVERNANCE IN INDIA-INTRODUCTION

Corporate Governance is a mechanism through which outside investors protect themselves against expropriation by the insiders (La Porta et al. 2000, p. 4). It is the framework that influences the decision made by managers when there is a separation of ownership and control. Omkar Goswami et al. (2002) stated several interesting contrasting facts about the development of Indian corporate laws. The evolution of Indian financial system can be very well represented by the chart below:

Figure 1. Economic Development in India and Corporate Governance



Source: Author's note

The start of financial liberalisation began in 1991 and soon India underwent significant corporate governance change after the formation of the Securities and Exchange Board of India (SEBI) in 1992 (Aggarwal, Reena, Leora Klapper, and Peter D. Wysocki, 2005). By the mid-1990s the economy began to grow steadily while the firms began to look for equity capital to finance expansion into the market. The need of capital resulted in corporate governance reforms. There have been several corporate frauds which can into limelight since Independence. The frauds can be broadly classified into three phases:

Figure 2. Different phases of corporate frauds in India

Post Independence phase	1947-1960
	Non-existence of regulatory mechanism
Socialist phase	1960-1990
	Power restricted with government
Liberalisation phase	1991-current
	Started with economic liberalisation in 1991

Source: Author's note

Pande, Kaushik (2011) stated that corporate governance in India gained prominence in the wake of liberalization during the 1990s and was introduced, by the industry association Confederation of Indian Industry (CII) as a voluntary measure to be adopted by Indian companies. The

final document titled "Desirable Corporate Governance: A Code" was publicly released in April 1998. Though the code was welcomed with much fanfare, soon a new initiative was taken by Securities and Exchange Board of India (SEBI) in this regard with the constitution of a committee under Kumar Mangalam Birla to evaluate the code in 1999. The committee specifically placed emphasis on independent directors and made specific recommendations regarding the code which was later absorbed as Clause 49 of the Listing Agreement. The code continued to evolve with few committees appointed by SEBI and MCA (Ministry of Corporate Affairs). In its present form, Clause 49 contains mandatory and non-mandatory recommendations tabled below:

Table 1. Mandatory requirements of CG

Mandatory recommendations for corporate governance	
Board of Directors	Composition, category of directors, attendance, other board membership
Audit Committee	Qualified, independent audit Committee
Remuneration Committee	Remuneration policy, Details of remuneration to all the directors
Shareholders Committee	Number of shareholders' complaints received and solved
Means of communication	Quarterly results, website, newspaper, presentations etc.
Disclosures	Related party transactions, accounting treatment
CEO/CFO certification	Reviewed and certified financials
Report on corporate governance	Detailed compliance report on corporate governance

Source: Author's note

Table 2. Non-mandatory requirements of CG

Non-mandatory recommendations for corporate governance	
The Board	A non-executive chairman may be entitled to maintain chairman's office at companies expense
Remuneration Committee	Remuneration committee to determine remuneration packages for senior management
Shareholder Rights	Half-yearly declaration of financial performance along with significant events during half year to be sent to shareholders
Audit qualifications	May move towards a regime of unqualified financial statements
Training of Board Members	Training board members on business model and risk profile of company
Mechanism for evaluating non-executive Board Members	Performance evaluation done by peer group comprising the entire Board of Directors
Whistle Blower Policy	Mechanism to report concerns about unethical behaviour, actual or suspected fraud to management

Source: Author's note

4. VALUE CREATION

Value creation in a layman's term is the performance of actions which leads to the increase in worth of goods/services/business. Profit (or value creation at an overall level) provides a fair value of the value created by a business. However, it lacks several areas of importance such as value creation for different stake holders.

Stakeholders for an organisation can be broadly classified into two categories:

- A group which obtain powers by virtue of laws
- A group with little power

While the first group includes financial market participants' such as investors, creditors, the state; the latter constitute of employees, customers who hold little power. It became difficult for the companies to concile the two groups consisting of varied members with different interests. For example: it is difficult for an organisation to offer high compensation to employees while offering products at a very cheap price to its customers.

Task of managing interest of stakeholders have remained one of the critical aspect of value creation while executives in organisations are under pressure to create shareholder's value. This rising pressure has resulted in a gradual shift of focus from stakeholders thereby leading to considerable dissatisfaction within the stakeholders' community barring the shareholders. In a governance system focus should be on the creation of economic value for all the stakeholders and not just the shareholders.

As found in the literature, the normal definition of profit provides us only the rosy picture of an organisation. However, in order to understand the real operational efficienct, value creation needs to be assessed for different stakeholders.

We have identified the major stakeholders for a business to be the following:

Table 3. List of Stakeholders

Category	Parameter
Creditors	Companies count on creditors to meet their financing needs (when internal accruals are not sufficed). Moreover, companies also tend to benefit from leverage in their financial structure. Interest paid to creditors is used as a parameter to assess value creation for creditors.
State	A business runs with the use of natural resources. The use of resources is taxed by the government where the proceeds are used to build infrastructure for the country. Taxes paid is used as parameter to assess value creation for government
Human Resource	Employee commitment and engagement is most important competitive advantage. Employee compensation is used as a parameters to assess value creation for employees
Shareholders	Shareholders' provide the initial capital for the company. Dividend is used as a measure to assess value creation for shareholders.

Source: Author's note

Thus we will use realistic and simple measures for assessing value creation for different stakeholders as stated above.

5. CORPORATE GOVERNANCE AND VALUE CREATION INDEX

5.1. Corporate governance sub-index

Corporate Governance covers a number of internal and external factors which helps in reduction of

agency costs (a type of internal cost that arises from, or must be paid to, an agent acting on behalf of a principal). Agency costs arise because of core problems such as conflict of interest between shareholders and management. We will cover the following important corporate governance parameters. The parameters listed below covers all the aspect of mandatory and non-mandatory recommendations as covered in Clause 49.

Table 4. Parameters to be used for CG sub-index

Component	Definition / Literature
Ownership structure (O)	Shareholders with considerable holdings mitigate free-riding problems due to control on the board (Shleifer & Vishny, 1986)
Board of directors (B)	Board act as middlemen providing balance between owners and controllers of an organisation who needs to work in the best interest of stakeholders (Monks & Minow, 2010)
Board size (BS)	Carter and Lorsch (2004) concluded a board with 10 directors is right size. In Indian context however there is no regulation which regulates the size of board except minimum requirement of 2 directors for private limited company and 3 for public limited companies. Balasubramanian et al (2005) found median size of boards ranged from 8-11 directors.
Independence (I)	The Cadbury Committee (1992) sought majority members of the board to be non-executive and independent. In Indian context, the requirement is articulated in Clause 49 which states no less than 50 per cent of directors of the board should comprise of non-executive directors in case the board has an executive chairman. In case the chairman is non-executive, at least one-third of the Board should comprise of independent directors.
CEO Duality (CD)	CEO is responsible for managing day to day company affairs which chairman is responsible to carry out board activities efficiently. Cadbury committee mandates separation of responsibilities of chairman, and CEO; no such requirement is seen in Indian code of conduct.
Audit (A)	An audit committee is set up comprising of members who are well versed with systems and rules of information communication. Also responsible to ensure that the laws and regulations enacted by the State about information disclosure are strictly observed.
Remuneration (R)	Dennis (2001) raised two concerns i.e., level of pay and relation of pay to performance. Thus presence of remuneration committee works in the best interest of the organisation as it helps in determining fair compensation.
Nomination (N)	Responsible for formulating policies and recommending the board of directors on appointment of directors, and board succession. Currently in India, composition of nomination committee is voluntary.
Shareholder's grievances (S)	Clause 49 of listing agreement mandates composition of shareholders' grievance committee to check if the grievances raised by shareholders are addressed or not.
Disclosures (D)	In India, Clause 49 of the listing agreement mandates the audit committee to approve and disclose all related party transactions to shareholders.
Transparency (T)	Hill & Jones (2004) stated that board is responsible for ensuring that financial statements represent true and fair picture of firm's financial health.

Source: Author's note

5.2. Value creation sub index

From an economist point, value is created when revenue generated is over and above the economic costs to generate these revenues. Cost is a combination of several sources such as employee wages and benefits; cost of raw materials, and depreciation of assets; taxes; and opportunity cost of using capital. The linkage between strategy and value creation can be divided into two basic corporate requirements/laws:

- Management must create value for shareholders
- All other stakeholders should also be satisfied in a way that contributes to shareholder value

Availability of capital, operations, generating revenue and creating value for shareholders are interlinked. We will use the following main parameters which will determine value creation by company for its stakeholders.

Table 5. Parameters to be used for Value creation sub-index

Stakeholder	Parameters
Shareholders	Dividend
Creditors	Total interest
Government	Total tax
Employees	Employee compensation as a percent of Operating Cost

Note: Total interest includes short term and long term interest; Total tax includes direct and indirect tax

Source: Author's note

6. METHODOLOGY

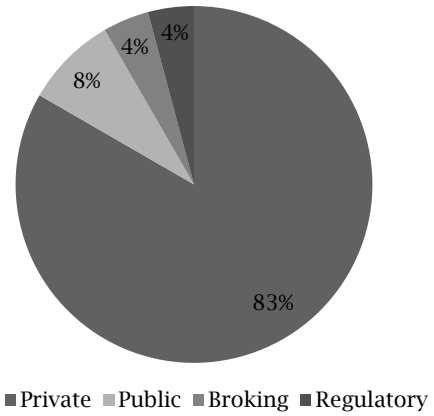
First of all, we identified the dimensions needed to measure corporate governance and value creation. In the construction of the overall CGVC index, assigning of weights to different components will play a major role. Changing weightage to any of the components will have a significant impact on the composite index thus constructed. There are several weighting techniques which can be applied. Some of the models are derived statistically like factor analysis while others include fundamental methods like analytical hierarchy process. However, for constructing the said CGVC index we have used EW method (or the equal weight) methodology for the two broad sub-indices in order to ensure that the two categories namely corporate governance and value creation are equally placed. Going further deeper, the sub-indices will be computed based on weights assigned with the help of survey.

This methodology will overcome the shortcomings of the index creation discussed by Brozec and Brozec (2012). The authors say that the construction of index with the help of EW method is a major shortcoming as it leads to tweaking of commercial ratings leading to a biased inference in case the parameters are not assessed equally by the market participants.

In the survey, a total of 141 numbers of participants participated among the 600 targeted. The targeted participants were selected using stratified sampling and covered people from different region, different institutions and different seniority from the corporate world in India. The participants represent different stakeholders' community such as employees, shareholders, bankers, and government official. The target audience comprises of people with different seniority and includes (senior management such as CXO, chairman of public and private organisations, mid-level to entry level employees). This helps in gauging a complete picture about the important parameters of corporate governance thereby eliminating any type of biasness which may have

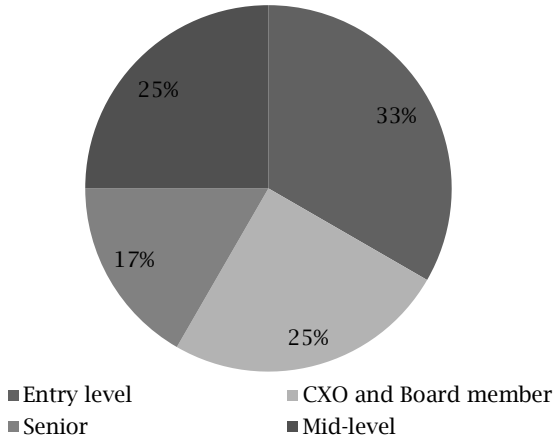
aroused due to focus towards a single group. The charts below represent the distribution of participants:

Figure 3. Category of organization/affiliation (Targeted)



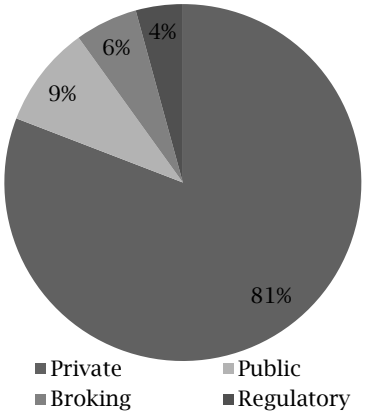
Note: A total of 600 individuals were targeted
Source: Author's note

Figure 4. Distribution of seniority in organization (Targeted)



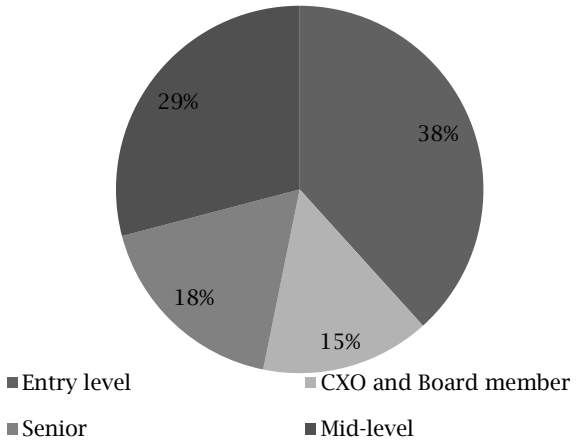
Note: A total of 600 individuals were targeted
Source: Author's note

Figure 5. Category of organization/affiliation (Responded)



Note: A total of 141 individuals responded
Source: Author's note

Figure 6. Distribution of seniority in organization (Responded)



Note: A total of 141 individuals responded
Source: Author's note

Table 6. Weightage of parameters for CG sub-index

	Median Ranking	Median weightage
Ownership structure	2	5
Board Size	8	10
Board Independence	4	10
Independent Chairman	4	10
CEO Duality	8	5
Audit Committee	5	10
Nomanation Committee	7	10
Remuneration	8	10
Shareholder's grievance	7	10
Disclosures	8	10
Transparency	5	10

Note: Survey method is followed in order to understand the importance of different parameters in overall corporate governance structure. A total of 141 respondents participated in the survey
Source: Author's note

Table 7. Weightage of parameters for value creation sub-index

Stakeholder	Parameters	Weightage
Shareholders	Dividend	**25%**
Creditors	Total Interest	**25%**
Government	Total Tax	**25%**
Emloyees	Employee compensation as a percent of COGS	**25%**

Note: Survey method is followed in order to understand the importance of different parameters in overall corporate governance structure. A total of 141 respondents participated in the survey

Source: Author's note

6.1. Filing missing data

The data collected for the companies were not available for certain period due to various reasons such as non-disclosures, improper disclosure, not following the practice, etc. Luengo, J. (2011) introduced three major problems associated with missing values. The problems are loss of efficiency, complications in handling and analyzing the data, and biased result due to missing data.

These problems make it important to use tools to impute missing values. Several methods are available to impute missing values such as common value, mean or median, closest fit approach and methods based on data mining algorithms like k-nearest neighbour.

Kantardzic, M. in 2003 stated three main strategies for dealing with missing data. The simplest solution for the missing values imputation problem is the reduction of the data set and elimination of all samples with missing values. However, the same is not possible in the given case as the number of companies and the years under consideration are low. Reducing the companies with missing value will result in small sample size. Thus it is wise to impute missing values. Imputed values are not exactly the same as known values of completed data set and should not be handled the same way. Thus we will go with replace missing value with mean. This method replaces each missing value with mean of the attribute (Kantardzic, M. 2003). The mean is calculated based on all known values of the attribute. This method is usable only for numeric attributes and is usually combined with replacing missing values with mean. However, the mean is affected by the presence of outliers it seems natural to use the median instead just to assure robustness. However, in the case where the score varies from 1-5, any significant outlier is unlikely and thus we restrict to mean (Acuña, E. & Rodriguez, C. 2004).

Lastly, we analysed the correlations between indicators of corporate governance and value creation. We used the initial hypothesis that there is a positive correlation between corporate governance and value creation.

7. HYPOTHESES

Based on the literature we have formulated the following hypotheses to test:

Hypothesis A:

Ho: Strong correlation exist between corporate governance and value creation (causal relation)

Ha: Corporate governance is independent of Value creation

Hypothesis B:

Ho: Corporate governance is dependent on parameters of corporate governance

Ha: Corporate governance is not dependent on parameters of corporate governance

Hypothesis C:

Ho: Corporate governance for companies across capitalisation has deteriorated over time; small cap companies follow higher degree of CG while large companies follow lower degree of CG

Ha: Above not applicable

8. DATA

Data is primarily collected from prowess database of Centre for Monitoring Indian Economy (CMIE) and ACE Equity analyser. Following Data collected for 78 companies in BSE 100 for 8 years (2006-07 to 2013-14):

- Shareholding pattern
- Total number of board of directors
- Independent directors information, chairman information, CEO & MD information
- Presence of audit, remuneration and nomination committee
- Auditors information (change in auditor)
- Disclosures such as accounting policy, related party transaction, CEO/CFO certification
- Corporate governance report
- Number of AGM held, gap between two meetings, external communication
- Score of 1-5 is used for each parameter, score calculated based on intervals arrived at using median.

9. ASSUMPTIONS AND LIMITATIONS

Following are the limitations and assumptions of this study:

Companies operating in financial services sector (such as banks, NBFCs) are not considered in the analysis. Due to high leverage and significant amount of capital involved in financial institutions, the requirement of corporate governance structure is very different from manufacturing sector. Thus, we have screened the sample further and removed the financial institutions such as banks, NBFC companies from the sample.

In total time frame of 8 years data for some parameters were missing for several companies. In these cases, past 3 year average of score is taken for those parameters

10. RESULT

Corporate Governance and Value Creation sub-indices for 78 Indian companies under study during the period have remained stagnant thereby indicating no major change in the governing policies by the companies.

Also, the score for Corporate Governance has remained less than 3.5 (on a scale of 5) thereby signalling significant scope of improvement in the governance practice.

10.1 Correlation

We find that strong correlation exist between corporate governance and value creation (to the tune of 88%) which very well depicts the causality of value creation. It can be said that effective corporate governance practices leads to the value creation of stakeholders at large.

Table 8. Scoring Table

Year	CG	VC	CGVC
2007	3.33	3.38	3.28
2008	3.28	3.25	3.16
2009	3.37	3.38	3.33
2010	3.39	3.38	3.40
2011	3.34	3.38	3.28
2012	3.36	3.38	3.30
2013	3.34	3.38	3.28
2014	3.42	3.50	3.36

Note: Median value for all 78 companies CG and VC is shown for the respective years
Source: Author's note

Table 9. Correlation across Parameters with CGVC Index

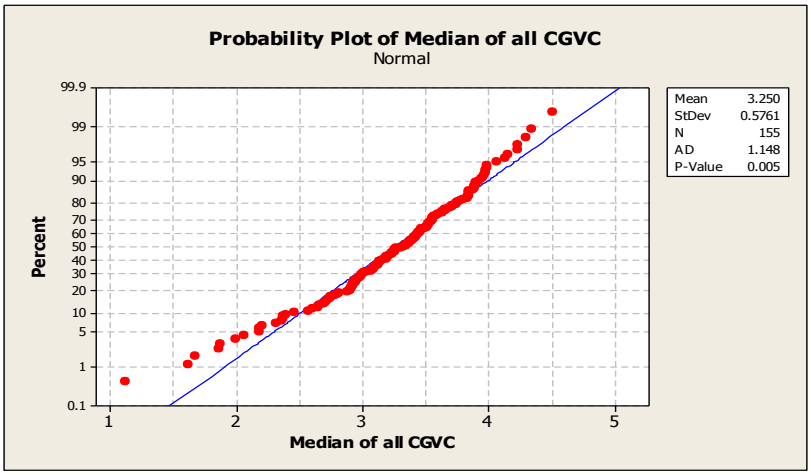
	CGVC
Audit committee	*
Remuneration and compensation policy	41%
Nomination	41%
Transparency	74%
CEO Duality	28%
Board size	42%
Disclosures	74%
Board Chairman (Independence)	26%
Ownership structure	24%
Independence	63%
Shareholder's grievance	*

Note: Median value for all 78 companies across years is used
Source: Author's note

10.2. Normality test

Corporate governance and Value creation index at an overall level follows normal distribution. Based on the Anderson Normality test, the p value is found to be 0.005 which is very well within the alpha-range thereby indicating normalcy of the index.

Figure 7. Results of the Anderson Normality test



10.3. Regression Analysis

$$CG = X + 0.1*R + 0.1*N + 0.1*T + 0.05*CD + 0.1*BS + 0.1*D + 0.1*B + 0.05*O + 0.1*I \quad (1)$$

where,

X = constant and includes Audit Committee (A) and Shareholders (S) score due to both being constant at 5

Other symbols have usual meaning as described above

R^2 = 100% while P value is significant at 0.0005

This concludes that the model is significant and determines the corporate governance score in an accurate manner.

10.4 Grouping of companies based on market capitalisation

Going deeper further, we have divided the companies based on their market capitalisation across three buckets viz small cap, mid cap and large cap companies. The following definition is used to divide the companies across different buckets:

Table 10. Definition of market capitalization

Capitalisation	Bucket
Small cap	0 - 1 USD Billion
Mid cap	1- 4 USD Billion
Large cap	> 4 USD Billion

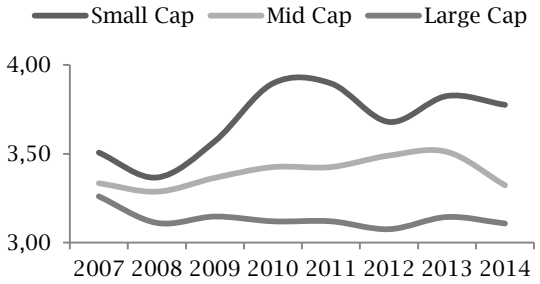
Source: Author's note

From the chart below, it is found that corporate governance for companies across all capitalisations has deteriorated in the recent years. It is worth noticing that after the financial crisis of 2008, the companies across capitalisation tend to improve their corporate governance practices. This was more pronounced in the case of small cap and mid cap companies where availability of capital post the crisis remained a challenge. Thus, we can infer that companies (particularly small and mid-size) improve

their corporate governance practices in order to re-instate their credibility post crisis.

Also it is important to note that smaller sized companies follow higher degree of corporate governance practise as compared to mid-size and large-sized companies. This can be vetted true from the fact that large s companies are well established name in the capital market with higher line of credit, and easy accessibility to funds while smaller sized companies need to walk that extra mile in order to prove their credibility when it comes to raising capital.

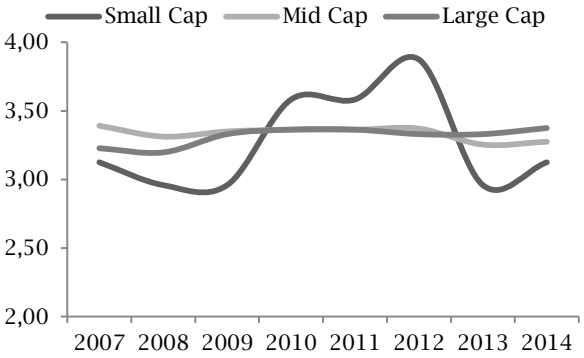
Figure 8. Corporate governance index across capitalization



Note: Mean value for value creation of all companies across different buckets is shown

Source: Author's note

Figure 9. Value creation index across capitalization



Note: Mean value for value creation of all companies across different buckets is shown

Source: Author's note

Table 2. Distribution and composition of CGVC index (across capitalisation)

	No. of firms with CGVC score between					Total no. of companies	Mean	Std Deviation
Year	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5			
2007	0	0	18	59	1	78	3.3	0.46
2008	0	0	18	58	2	78	3.2	0.48
2009	0	0	16	58	4	78	3.3	0.48
2010	0	2	17	57	2	78	3.3	0.47
2011	0	0	18	53	7	78	3.3	0.52
2012	0	1	20	51	6	78	3.3	0.48
2013	0	1	18	55	4	78	3.3	0.51
2014	0	0	19	50	9	78	3.3	0.44

Note: The table includes companies across all capitalisations under study. Annexure I covers' the scoring of all the companies under study.

Source: Author's note

11. CONCLUSION

We can conclude that significant correlation exist between corporate governance and value creation and also corporate governance is also an important factor in companies of smaller size which is prone to vulnerability of any market shock. Also, at an overall level the corporate governance practices in India have improved over the years. Having said that, when compared to the global landscape the practices are still substandard in the Indian economy and there is still a long way to go. Number of companies which are fully compliant with the laws of the land have increased over the years since 2007, however, that constitutes a very smaller chunk in the overall size of the corporate world which indicates that the goal of strong corporate governance and transparency is yet to be achieved.

In a nutshell, corporate governance arrangements are all about achieving the appropriate balance between the degree of commitment and control to different parties. The implications for the design of corporate governance is that all aspects of corporate governance, design, ownership, shareholder control, board structure and incentives should be focused on getting that balance appropriately related to corporate activities. Corporate governance is about the design of these features of the firm and ensuring that they promote corporate activities and values.

REFERENCES

1. Baek, J.S., Kang, J.K., & Park, K. (2004). Corporate governance and firm value: evidence from the Korean financial crisis. Journal of Financial Economics, 71, 265-313.
2. Balasubramanian, N. (2008). Board composition and structure of top Indian corporations, (draft). Working Paper. IIMB Centre for Corporate Governance and Citizenship. Indian Institute of Management, Bangalore.
3. Balasubramanian, N., & Anand, R. V. (2012). Board composition of major listed companies in India e 2011. Draft Working paper. IIMB Centre for

Corporate Governance and Citizenship. Indian Institute of Management Bangalore.
4. Balasubramanian, N., Black, B. S., & Khanna, V. S. (2010). The relation between firm-level corporate governance and market value: a case study of India. Emerging Markets Review, 11, 319-340.
5. Bhagat, S., & Black, B. (1999). The uncertain relationship between board composition and firm performance. The Business Lawyer, 54, 921-946
6. Cadbury, A. (1992). Report of the [Cadbury] Committee on the Financial Aspects of Corporate Governance in the United Kingdom. Gee Publishing
7. Cadbury, A. (2002). Corporate governance and chairmanship: A personal view. Oxford University Press.
8. Conyon, M. J., & Peck, S. I. (1998). Board size and corporate performance: evidence from European countries. The European Journal of Finance, 4, 291-304.
9. Core, J., Guay, W., & Larker, D. (2002). Executive equity compensation and incentives: A survey. SSRN Working paper. http://ssrn.com/abstractZ276425.
10. Garg, A. K. (2005). The relationship between board composition and firm performance: A study of Indian companies Doctoral Dissertation. Indian Institute of Management Bangalore.
11. Kumar Mangalam Birla Committee. (2000). Report of the Kumar Mangalam Birla Committee on Corporate Governance, Securities and Exchange Board of India. Mumbai: SEBI.
12. Mishra et. al. (2001), Corporate Governance in India.
13. Arunima Haldar (2012), Corporate governance index.
14. Dr. Vrajlal K Sapovadia Mishra (2011), Corporate Governance Index vis-à-vis Value Distribution Analysis.
15. Jayati Sarkar et. al. (2012), Corporate governance practices in India.
16. Palanisamy Saravanan (2012), Corporate Governance Characteristics and Company Performance - A Study with reference to manufacturing firms in India.
17. Palanisamy Saravanan (2009), Corporate Governance Characteristics and Company Performance of Family Owned and Non-Family Owned Businesses in India.
18. Darius Palia, The Endogeneity of Managerial Compensation in Firm Valuation: A Solution, 2001
19. Sanjai Bhagat et al., Director Ownership, Corporate Performance, and Management Turnover, 1999.
20. Anand Anita, Milne Franck, Purda Lynnette, Voluntary Adoption of Corporate Governance Mechanisms, Canada: The Berkeley Electronic Press, 2006.
21. Aras Güler, Crowther David, A Handbook of Corporate Governance and Social Responsibility, England: Gower Publishing Limited, 2010.
22. Donaldson Thomas, Preston Lee E., The stakeholder theory of the corporation: concepts, evidence and implications, Academy of Management Review, 1995.
23. Gompers Paul, Joy Ishii, Metrick Andrew, Corporate Governance and Equity Prices, 2003.
24. Lazareva Olga, Rachinsky Andrei, Stepanov Sergey, A Survey of Corporate Governance in Russia, 2009.
25. Li Wei'an, Tang Yuejun, An evaluation of corporate governance index (CGInk) and performance: evidence from Chinese listed companies, 2007.
26. Macey Jonathan, Measuring the Effectiveness of Different Corporate Governance Systems: Toward a More Scientific Approach, 1998.
27. Martynova Marina, Renneboog Luc, A corporate governance index: convergence and diversity of national corporate governance regulations, CentER Discussion Paper, 2010.
28. McGee Robert W., Corporate Governance in Transition Economies, 2008.
29. Murthy Narayana R.N., Good Corporate Governance – A checklist or a mindset?, 2006
30. Lins, K.V., Equity ownership and firm value in emerging markets, 2003.
31. Brickley, J. A., Coles, J. L. and Jarrell, G., Leadership Structure, Separation the CEO and Chairman of the Board, 1997.
32. Chen, A. and Kao, L., The Conflict between Agency Theory and Corporate Control on Managerial Ownership: The evidence from Taiwan IPO performance, 2005.
33. Bhasin, Madan Lal, "Corporate Governance Disclosure Practices: The Portrait of a Developing Country", April 2010.
34. Shleifer, A., & Vishny, R., Large shareholders and corporate control, 1986.
35. Rechner, P. L. and Dalton, D. R., CEO Duality and Organizational Performance, A longitudinal analysis, 1991.
36. Adams, R.B., Almeida, H. and Ferreira, D., Understanding the Relationship Between Founder-CEOs and Firm Performance, 2003.
37. Attig, N., El Ghoul, S., Guedhami, O., Do multiple large shareholders play a corporate governance role? Evidence from East Asia, 2009.
38. Chen, T., Institutions, board structure, and corporate performance: evidence from Chinese firms, 2015.
39. Dahya, J., McConnell, J.J., Travlos, N., The Cadbury committee, corporate performance, and top management turnover, 2012.

SOCIAL MEDIA IN THE ACCOMMODATION INSUSTRY: A CLUSTER ANALYSIS

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Abstract

In today's technologically driven and revolutionised era of digital communication, numerous people combine a complex collection of social media platforms and technology to connect them to the world and people around them. The online participation of consumers has forced companies to embrace social media marketing efforts. The continuous advancements in marketing mediums have a major influence on the success and growth of companies, particularly within the tourism and hospitality industry, as increasingly more travellers are using social media as a means of communicating and seeking information. The purpose of this research study was therefore to explore if users of social media as a promotional mix element could be clustered into different groups based on characteristics they possess. A web-based self-administered questionnaire was distributed to accommodation establishments located in the Western Cape province of South Africa and a total of 361 useable responses were received. A four-step cluster analysis was performed in order to identify similar groups of respondents in their use of social media as a promotional mix element. The findings presented four distinct users of social media in the accommodation industry based on six variables identified from the literature.

Keywords: Social Media, Marketing, Usage, Accommodation Establishments, Promotional Mix Elements, Cluster Analysis, South Africa

1. INTRODUCTION

In today's technology driven world, billions of people combine a multifaceted collection of social media platforms and technology to connect them to the world and several other people (Hansen, Shneiderman & Smith, 2010). The immense participation on social media platforms have a profound effect in the way in which people search for information and make buying decisions (Ernst & Young, 2011). The advent of social media and increasing use of social media, by individuals and companies, has led to profound and novel means of conducting business in all sectors and industries (Hatter, 2015). The way companies have done business has therefore changed considerably – social media has changed from being a platform to merely keep in touch with friends and family, to a place where consumers can learn more about companies, products, services and brands (Paquette, 2013).

The landscape of marketing has transformed substantially in the last era, as traditional marketing methods, such as print and broadcast media, has made way for a new wave of media platforms. These new media platforms, for instance social media, blogs, forums and videos, have an influence on the marketing performance of organisations as well as on the success of their business (Higuera, 2011; Stephen & Galak, 2010). As social media became an avenue where companies can extend their marketing campaign to a wider range of customers (Paquette, 2013), companies started incorporating social media platforms in their marketing strategies (Pradiptarini, 2011). In an effort to reach potential customers and reinforce current relationships with consumers, companies were obligated to become accustomed to the new trends of social media (Perdue, 2010). Nowadays, companies are more focused on building online relationships and networks with potential and current customers (Mustonen, 2009).

This is no different for the accommodation or hospitality industry, for which social media represents a golden opportunity to constantly communicate with their customers and to forge long-term relationships (Withiam, nd). Minazzi (2015:69) pointed out that there are various studies identifying the profiles of social media users, mainly based on the behaviours and usage from the consumer's point of view. The main purpose of this research study was therefore to explore the use of social media as a promotional mix element, and if users could be clustered into different groups based on their characteristics from the establishment's point of view. The study endeavoured to obtain a better understanding of the types of users of social media in the accommodation industry and how these establishments could potentially implement social media effectively.

2. PURPOSE OF RESEARCH STUDY

This article endeavours to essentially fulfil the gaps in the literature, and broaden the knowledge base regarding the use of social media as a promotional mix element in accommodation establishments, specifically operating in the Western Cape province of South Africa. Paquette (2013) argues that research on social media in the past decade has focused mainly on defining social media as the concepts that make up its foundation and exploring the impact of

social media on consumer behaviour. Social media usage in accommodation establishments are relatively new, according to Leue, Jung and Knowles (nd), with a limited number of studies focusing on this phenomenon. The research study therefore took on a business-centred approach in an attempt to explore if users of social media as a promotional mix element could be clustered into different groups based on their characteristic, which has, up until now, received little attention in academic literature (Minazzi, 2015).

The hospitality and accommodation industry has become a competitive market and the presence of social media and the internet is regarded as being central to the success of the industry. The Western Cape Province was specifically chosen for the purpose of this study because this province is a leading tourism destination with a wide variety of attractions for business and leisure travellers (Western Cape Business, 2011). The researcher is of the opinion that the perception and usage of these establishments would provide a valuable contribution to the body of knowledge to similar accommodation establishments.

3. THE SOCIAL MEDIA LANDSCAPE

Social media has been explained by various authors as an internet-based application (Kaplan & Haenlein, 2010; Xiang & Gretzel, 2010), allowing user-generated content to be created by individuals and the general public (Daugherty, Eastin & Bright, 2008; Haataja, 2010). It entails the conversation between people; the sharing of opinions, experiences, content, and information for making a better or more informed decision (Jerving, 2009; Madia & Borgese, 2010; Palmer & Koenig-Lewis, 2009).

Empirical literature provides countless justification of the usage and effectiveness of social media by individuals worldwide. In South Africa, Facebook is the most popular choice of internet activity that has grown by 8%, from 12-million to 13-million users; while Twitter increased from 6.6-million to 7.4-million users, a 12% increase. YouTube, the video sharing platform, increased its users marginally from 7.2-million to 8.28-million users. The biggest growth however, has come from Instagram, which rose a massive 133%. Research found that 7.9-million South Africans (77%) use a smartphone to access social media platforms, while 1.6-million use basic feature phones to do so (World Wide Worx, 2016). As companies are becoming more comfortable with social media, they become effective at using them as marketing and positioning platforms (World Wide Worx, 2016). The increasing use of social media platforms in South Africa has revealed that 95% of major brands in South Africa utilise Twitter as a marketing platform, while 93% utilise Facebook. Fifty-one per cent of South Africa's biggest brands indicated that they intend to increase the social media marketing endeavours and budgets, and intend to focus their attention on content marketing (73%) and multimedia content (60%) (World Wide Worx, 2015). These statistics serve as proof that social media has gone mainstream in South Africa, among both individuals and businesses.

3.1. The accommodation industry

Marketing in the accommodation, or hospitality, industry has always been a fundamental element in driving sales. However, since the advent of digital technology, the hospitality industry had to adapt their approach to reap the benefits digital technology has to offer (Ckettmann, 2012). Social media has rapidly become an essential channel of marketing and has a major influence on the general public when communicating brand messages and leveraging promotions to generate revenue (Ckettmann, 2012).

Social media offers numerous platforms and tools that can be used in the accommodation industry, such as Facebook, LinkedIn, Twitter, MySpace and YouTube (Assenov & Khurana, 2012; Lim, 2010). TripAdvisor has become a popular customer review website frequently used in the accommodation industry, which allows customers to share and gather travel related information that is posted autonomously by other travellers (Miguéns, Baggio & Costa, 2008). Peer-review websites, such as TripAdvisor, have given rise to conversations and assessments of accommodation establishments, restaurants and other services on a broad scale (Assenov & Khurana, 2012). These social media sites have provided a platform for a rating system that can be used to generate, monitor and evaluate the reputation and image of the establishment (Seth, 2012). Websites that allow for public expression have left many establishments scrambling to regain control of their products and brand images (Windels, 2013).

The hospitality and accommodation industry can make use of social media to engage and communicate with customers and potential clients in order to recognise and satisfy their needs and wants. Social media tools allow establishments to interact with customers before, during and after their stay at the establishment (Lim, 2010). Assenov and Khurana (2012:327) state that social media tools can be utilised in accommodation establishments to serve as a 'cost cutter', as social media is a low cost medium used to communicate, more directly and efficiently, with customers and stakeholders. Social media offers the hospitality industry an abundance of advantages, such as being affordable and it has the potential to spread brand awareness rapidly and broadly, and it is said to be able to create attention and increase traffic to their website (Lim, 2010). Leue et al. (nd) argue that social media platforms are important for potential guests to review the comments and recommendations of other guests, and perhaps even view pictures or videos in order to reach the truth about how the establishment is actually like.

Accommodation establishments dread the use of social media, as they consider it to be detrimental to employee productivity and fear that social media has the potential to tarnish their reputation (Lim, 2010). Social media, although essential to the brand and communication of a company, can also be deleterious if implemented inappropriately. However, Lim (2010) suggests the implementation of a social media policy, which can be used to educate and provide a better understanding for employees to keep within a certain parameter and the implications of their participation. Nevertheless, there is a need

to explore and determine if social media can become the new platform for effective marketing (Lim, 2010).

4. RESEARCH OBJECTIVES AND METHODOLOGY

It is stated in the literature that the use of social media in accommodation establishments can be useful and beneficial if implemented correctly. This gave rise to the question: Who are the users of social media amongst accommodation establishments and how are they utilising social media to be successful? The aim of the research study was therefore to explore if users of social media as a promotional mix element could be clustered into different groups based on the characteristics they possess.

For the purpose of this research study, the researcher opted to follow an exploratory research approach. In order to explore potential users of social media as a promotional mix element in accommodation establishments, a web-based (Survey Monkey) self-administered questionnaire was distributed to accommodation establishments located in the Western Cape Province of South Africa. The study focused solely on the Western Cape for the purpose of this study, as this province is a leading tourism destination with a wide variety of attractions for business and leisure travellers (Western Cape Business, 2011). The sampling method utilised for this study was simple random sampling in order for the researcher to substitute the non-responses from the list available. The questionnaire was administered to accommodation establishments, operating in the Western Cape, and a total of 361 useable responses were received.

Quantitative data was analysed using IBM SPSS Statistics V22. The data was checked, coded, corrected and descriptive statistics (frequency counts) were used to describe the general findings of this study. A four-step cluster analysis was performed in order to identify similar groups of respondents in their use of social media as a promotional mix element. Cluster analysis groups individuals or objects into clusters so that objects in the same cluster are more similar to one another than they are to objects in others clusters (Hair, Black, Babin & Anderson, 2010). Clusters were determined by analysing six variables which represented various aspects of respondent's involvement and perception of social media as a promotional mix element. The research findings and interpretation of the empirical study will be discussed in the next section.

5. RESEARCH FINDINGS

A summary of the profile of the respondents who participated in the research study will be provided, followed by a discussion of the six variables utilised in order to establish the cluster analysis. This section will conclude with the clusters identified from the six variables representing the various aspects of respondent's involvement and perception of social media as a promotional mix element.

5.1. Profile of respondents

A summary of the profile of respondents who participated in the survey is given in Table 1.

Table 1. Summary of respondents

Type of accommodation establishment			
Formal service accommodation	10.8%	Camping, caravanning & backpackers	3.1%
Guest	51.8%	Other	6.6%
Self-catering	27.7%		
Position held in establishment			
Manager	26.5%	**Owner**	61.3%
Marketing manager	3.9%	Front desk/receptionist	1.8%
Sales	1.1%	Other	5.4%
Permanent employees at establishment			
Less than 5	61.6%	101–150	0.7%
5–10	24.7%	151–200	1.1%
11–50	10.0%	More than 200	0%
51–100	1.8%		
Travellers primarily targeted			
Leisure	37.3%	Local markets	9.0%
Business	3.6%	International markets	9.0%
Both leisure and business	59.1%	Both local and international	82.1%

Table 1 show that respondents mainly encompassed guest accommodation establishments (51.8%), which consist of B&B establishments, guest houses and country houses. Respondents who answered the research survey were mostly the owner (61.3%) or the manager (26.5%) of the establishment and the majority employ less than five employees (61.6%). These establishments aimed to target leisure and business travellers (59.1%) as well as local and international travellers (82.1%).

5.2. Cluster analysis

Cluster analysis was conducted in order to explore if users of social media as a promotional mix element could be clustered into different groups based on the characteristics they possess. Cluster analysis is the multivariate, exploratory technique designed to reveal natural groupings that may exist in the data itself (Marsili, 2007). It is therefore a group of statistical algorithms used to classify objects on the basis of their similarity with regard to a set of attributes (Jupp, 2006). Cluster analysis was conducted to divide the data collected from respondents into meaningful and manageable groups, so as to explore the different groups of social media users in accommodation establishments.

For the purpose of this study, non-hierarchical clustering was used where cases were joined together and regrouped until the final cluster was analysed. A K-means cluster analysis was performed using six variables that represent various aspects of respondent's involvement and their perception of social media as a promotional mix element. These six variables included:

- Familiarity with the term 'social media'
- The use of social media for business purposes
- The use of social media for marketing purposes
- Perceived effectiveness of the use of social media
- Social media marketing efforts

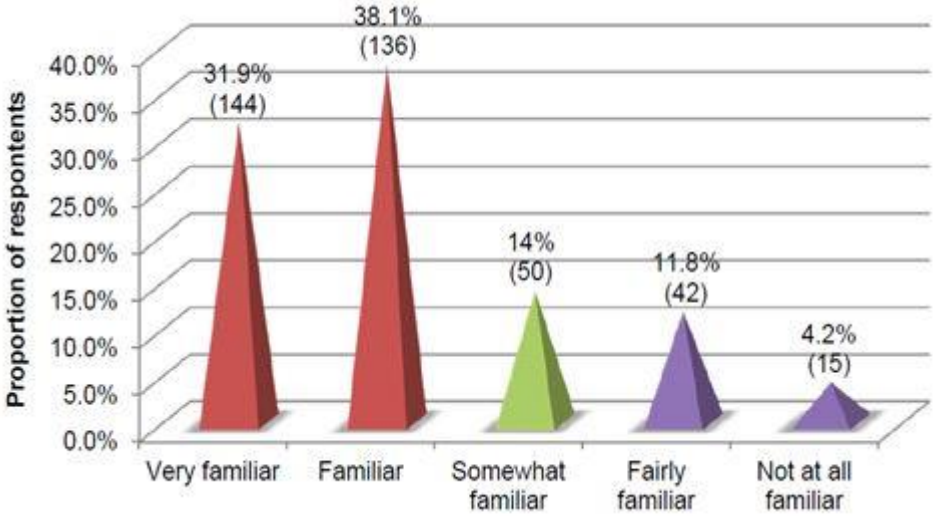
- The perceived benefits of using social media as a promotional mix element

The six variables are briefly discussed below.

5.2.1 Familiarity with the term 'social media'

Respondents were asked to indicate their familiarity with the term 'social media'. Figure 1 show that a total of 280 respondents (70%) were familiar with the term 'social media'. This indicates that social media is a concept that is well-known among accommodation establishments and respondents related easily to the questions posed in the survey. Taking into consideration the rapid growth of social media over the past few years, it is interesting to note that 15 respondents (4.2%) were not familiar with the term 'social media'.

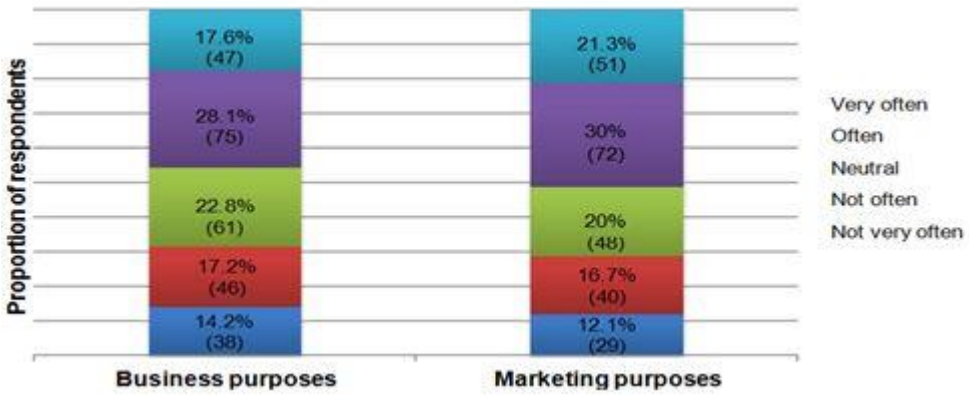
Figure 1. Familiarity with the term 'social media' (n=357)



5.2.2. Use of social media for business and marketing purposes

Respondents were furthermore asked to indicate, on average, how often they used social media for business as well as marketing purposes. Business purposes included aspects such as conducting market research or booking reservations via social media portals, while marketing purposes included aspects such as advertising specials or announcing competitions or sweepstakes. The results are shown in Figure 2.

Figure 2. Use of social media for business and marketing purposes



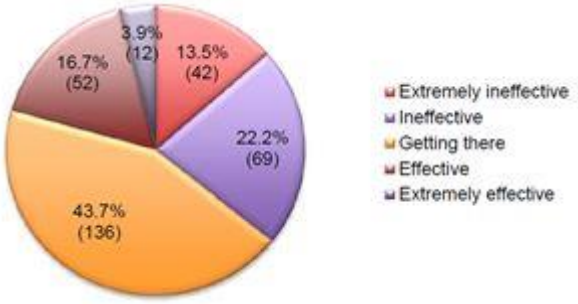
From the figure above, it is evident the majority of respondents utilise social media for the purpose of conducting business (75 or 28.1%) as well as for marketing purposes (72 or 30%). The findings show that respondents used social media for business and marketing purposes in a very similar manner, as the distribution of responses are similar. As a result, it can be assumed that, on average, the respondents displayed similar patterns of social media usage for both business as well as marketing purposes.

5.2.3. Perceived effectiveness of the use of social media

Figure 3 indicates respondent's perceived effectiveness of the use of social media in accommodation establishments.

Apparent from figure 3 is that 52 respondents (16.7%) felt that their establishment's use of social media was effective, while 136 respondents (43.7%) felt they were getting there, but were not effective yet.

Figure 3. Perceived effectiveness of the use of social media (n = 311)



Although 64 respondents (20.6%) perceived their marketing efforts as effective or extremely effective, the results suggest that the majority of respondents (247 or 79.4%) lacked the knowledge of effectively implementing social media in their establishments in order to benefit from it. Accommodation establishments should therefore consider attending training and development initiatives to improve their knowledge of employing social media effectively to benefit from it.

5.2.4. Social media marketing efforts

Respondents agreed that their social media marketing efforts had improved their overall sales figures (97 or 31.6%), increased their exposure to the general public, local and international customers, businesses and industry professionals (139 or 45.3%) and increased traffic to their own home web page (117 or 38.1%). Although 207 respondents (67.4%) indicated that their social media marketing efforts had increased their exposure, 75 respondents (24.5%) stated that their social media efforts had not reduced their marketing expenses. The findings would suggest that respondents' social media marketing efforts generally had a positive outcome on their establishments. To further improve their social media activities, establishments could consider training initiatives or employing permanent staff members who are responsible solely for social media endeavours. The Cronbach Alpha coefficient for this question was 0.932, which indicated excellent internal consistency.

5.2.5. Perceived benefits of using social media as a promotional mix element

The majority of respondents (197 or 68.9%) agreed that, in order to benefit from using social media as a promotional mix element, it should expand their existing markets. A further 192 respondents (67.1%) agreed that social media should increase awareness of their establishment's offerings. Equally, 189 respondents (66.1%) agreed that social media should increase traffic to their website as well as provide a more favourable perception of their establishment's offering. It is clear from these results that respondents would consider or would continue using social media mainly if they could attract more customers and increase customers' awareness of the establishment's product offerings.

The large proportion of respondents that agreed with the statements concerning the benefits that social media should offer, confirm their awareness of the usefulness of social media as a promotional mix element and what their expectations were. It can therefore be agreed that social media should comply with all of these statements in order to be beneficial to accommodation establishments. The Cronbach Alpha coefficient for this question was 0.953, which indicated excellent internal consistency.

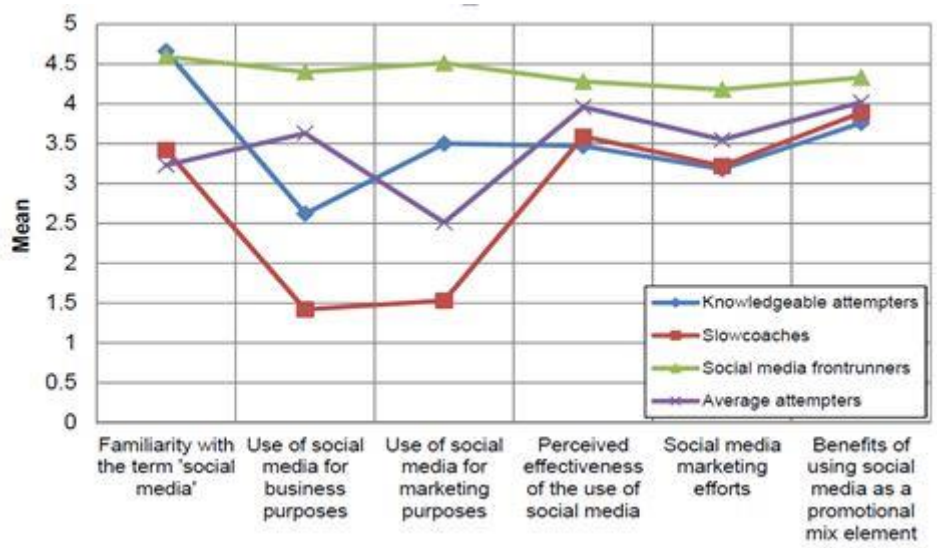
5.3. Clusters

After numerous groups emerged from the statistical cluster analysis, the four-cluster solution proved to be indicative of the most identifiable characteristic groups, which was used for this study. Respondents were grouped into four clusters (or groups) based on their involvement initiatives and perception of social media (six variables). The results of the four-cluster analysis are shown in Table 2 and Figure 4.

Table 2. Four-cluster solution variables

Variables	Clusters				Overall mean
	1	2	3	4	
Familiarity with the term 'social media'	4.66	3.42	4.59	3.23	3.82
Use of social media for business purposes	2.62	1.42	4.40	3.63	1.23
Use of social media for marketing purposes	3.50	1.53	4.51	2.51	3.18
Perceived effectives of the use of social media	3.47	3.59	4.28	3.96	3.32
Social media marketing efforts	3.18	3.22	4.18	3.55	3.67
Benefits of using social media as a promotional mix element	3.76	3.89	4.33	4.02	3.48

Figure 4. Four-cluster means scores



From Figure 4, four distinguished clusters or groups of respondents emerged regarding their involvement and perception of social media in their accommodation establishments. The following four clusters of respondents were identified. The first cluster group were labelled 'knowledge attempters' (cluster 1). These respondents were extremely knowledgeable when it came to social media; however, these respondents are still aiming to improve their efforts.

These respondents were very familiar with the term 'social media' (M=4.66), considered their use as reasonably effective (M=3.47) and perceived social media to be a beneficial promotional mix element (M=3.76). However, this cluster of respondents tended to use social media somewhat for marketing purposes (M=3.50), but much less for business purposes (M=2.62). On average, the frequency with which all variables were used was either lower than those of the overall group or lower than those of the respondents in the third cluster (social media frontrunners).

The second cluster identified in the analysis was the 'slowcoaches' (cluster 2). Slowcoaches included respondents who were not very active in the social media endeavours and were not up to date with the latest trends in the online marketing of accommodation establishments. The respondents in this cluster were reasonably familiar with the term 'social media' (M=3.42), considered their use of social media to be effective (M=3.59) and perceived the use of social media as a promotional mix element as beneficial (M=3.89). Although respondents in this cluster perceived the use of social media as a promotional mix element to be beneficial, they tended not to use social media for business (M=1.42) and marketing purposes (M=1.53). On average, the frequency with which all variables were used was either lower than the overall group average or lower than the average of the respondents in cluster 1 (knowledgeable attempters) and cluster 4 (average attempters).

The next cluster group which was identified were grouped as 'social media frontrunners' (cluster 3) as these respondents were the most knowledgeable and active users of social media as they were the group who perceived social media to be a viable promotional mix element. This cluster group demonstrated, on average, a tendency to score high on all aspects of involvement with social media. The average usage frequency for all variables was higher than that of the respondents in all other clusters as well as the mean frequency for the group as a whole.

The fourth, and last cluster that emerged from the analysis of the six variables, was the 'average attempters' (cluster 4). These respondents were impartial towards the use of social media as a promotional mix element. Respondents who fall within this group were not familiar with the concept of social media (M=3.23), but perceived their use of social media to be very effective (M=3.96) as also perceived social media as a promotional mix element to be beneficial to accommodation establishments (M=4.02). These respondents tended to use social media for business purposes (M=3.63), but demonstrated limited use of it for marketing purposes (M=2.51). On average, the frequency with which all variables were used was either lower than that of the overall group or lower than that of the respondents in the 'social media frontrunner' cluster.

From Table 3, it can be seen that the majority of the respondents (75 or 38.3%) can be considered to be social media frontrunners, followed by the knowledgeable attempters (50 or 25.5%).

Table 3. Four-cluster solution

Cluster	Frequency count (n)	Percentage (%)
Knowledgeable attempters	50	25.5
Slowcoaches	36	18.3
Social media frontrunners	75	38.3
Average attempters	35	17.9
Total	196	100.0

These findings would suggest that social media is a well-known concept among accommodation establishments, is perceived to be an effective promotional mix element and is used for both

business and marketing purposes. The findings also suggest that respondents perceived their social media marketing efforts to be beneficial and that social media could be considered a viable promotional mix element.

6. RECOMMENDATIONS AND CONCLUSION

The main purpose of this research study was to explore if users of social media as a promotional mix element could be clustered into different groups based on the characteristics they possess. The findings revealed four distinct categories, namely 'knowledgeable attempters', 'slowcoaches', 'social media frontrunners' and 'average attempters'. These findings suggest that social media is a well-known concept among accommodation establishments, they perceive it to be an effective promotional mix element and they utilise social media for both business and marketing purposes. The findings also suggest that respondents perceived their social media marketing efforts to be beneficial and that social media could be considered a viable promotional mix element.

It is highly recommended that the emphasis be placed on respondents from cluster 4 (average attempters), as these respondents were not very familiar with the term 'social media', but they were well aware of the benefits. This group of respondents should consider consulting an expert in the field of social media marketing or they should attend workshops or online training to gain the essential understanding of utilising social media as a promotional mix element.

The accommodation industry, according to Lim (2010), is cautious towards the implementation of new technology and is reputed to be reluctant to adopt technology advances. The industry has therefore not leveraged the advantages of social media and integrates it with their marketing activities. With the increasing use of social media platforms among consumers, it is recommended that accommodation establishments should turn to social media such as Facebook, Twitter, TripAdvisor and many more, as a means of reaching out to their target market.

REFERENCES

1. Assenov, I. & Khurana, N. 2012. Social media marketing and the hospitality industry: evidence from Thailand. Paper presented at The 2012 International Conference on Business and Management, Phuket, Thailand, 6-7 September 2012. [Online] Available from: https://www.academia.edu/7995211/Social_Media_Marketing_and_the_Hospitality_Industry_Evidence_from_Thailand [Accessed: 2015-08-20].
2. Ckettmann. 2012. Social media and the hotel industry, why they are a perfect match. [Online] Available from: http://www.cision.com/us/2012/09/social-media-for-the-hotel-industry/ [Accessed: 2015-08-20].
3. Daugherty, T., Eastin, M. & Bright, L. 2008. Exploring consumer motivations for creating user-generated content. Journal of Interactive Advertising, 8(2):16–25. [Online] Available from: http://jiad.org/download?p=101 [Downloaded: 2012-09-12].
4. Ernst & Young. 2011. Social media: new game, new rules, new winners. [Online] Available from: http://www.ey.com/Publication/vwLUAssets/Social_media_-_New_game_new_rules_new_winners/$FILE/EY_Social_media.pdf [Downloaded: 2016-05-24].
5. Haataja, M. 2010. Social media applications in marketing communications of marketing oriented companies. Unpublished master's thesis. Aalto University. [Online] Available from: http://epub.lib.aalto.fi/fi/ethesis/pdf/12342/hse_ethesis_12342.pdf [Downloaded: 2012-09-12].
6. Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). Multivariate Data Analysis. Seventh Edition. Prentice Hall, Upper Saddle River, New Jersey.
7. Hansen, D.L., Shneiderman, B. & Smith, M.A. 2010. Analysing social media networks with Nodexl: insights from a connected world. [Online] Available from: http://research.microsoft.com/enus/um/redmond/events/fs2010/presentations/shneiderman_fryling_smith_nodexl-social_network_analysis_in_excel_71110_v02.pdf [Downloaded: 2012-06-09].
8. Hatter, K. 2015. Competitive advantage of social media. [Online] Available from: http://smallbusiness.chron.com/competitive-advantage-social-media-39239.html [Accessed: 2015-03-24].
9. Higuera, V. 2011. Advantages and disadvantages of traditional marketing. [Online] Available from: http://smallbusiness.chron.cm/advantages-disadvantages-traditional-marketing-25573.html [Accessed: 2012-07-07].
10. Jerving, J. 2009. Social networking as a marketing tool. [Online] Available from: http://www.cunacouncils.org/download/white_papers/wp_social_networking_marketing_tool.pdf [Downloaded: 2012-06-04].
11. Jupp, V. 2006. The SAGE dictionary of social research methods. [Online] Available from: http://dx.doi.org/10.4135/9780857020116 [Accessed: 2014-05-15].
12. Kaplan, A.M. & Haenlein, M. 2010. Users of the world, unite! The challenges and opportunities of social media. Business Horizon, 53(1):59–68. [Online] Available from: http://dx.doi.org/10.1016/j.bushor.2009.09.003 [Accessed: 2012-09-15].
13. Leue, M.C., Jung, T. & Knowles, T. Not dated. Social media marketing in selected UK luxury hotels. [Online] Available from: http://3ws1wk1wkqsk36zmd6ocne81.wpengine.netdna-cdn.com/files/2013/03/enter2013_submission_98.pdf [Downloaded: 2016-05-24].
14. Lim, W. 2010. The effects of social media networks in the hospitality industry. [Online] Available from: http://digitalscholarship.unlv.edu/cgi/viewcontent.cgi?article=1694&context=thesesdissertations [Accessed: 2016-05-25].
15. Madia, S.A. & Borgese, P. 2010. The social media survival guide. 2nd ed. New Jersey: Full Court Press.
16. Marsili, R. 2007. Sensory-directed flavor analysis. Florida: CRC Press.
17. Miguéns, J., Baggio, R. & Costa, C. 2008. Social media and tourism destinations: TripAdvisor Case Study. Paper presented at the IASK ATR2008 (Advances in Tourism Research) Conference, Aveiro, Portugal, 26–28 May 2008. [Online] Available from: http://www.uib.cat/depart/deeweb/pdi/acm/arxius/intermediacio_tfg/baggio-aveiro2.pdf [Downloaded: 2015-08-20].

18. Minazzi, R. 2015. Social media marketing in tourism and hospitality. Switzerland: Springer Internaltional Publishing.
19. Mustonen, P. 2009. Social media – a new way to success? [Online] Available from: http://info.tse.fi/julkaisut/kr/KRe1_2009.pdf [Downloaded: 2012-06-05].
20. Palmer, A. & Koenig-Lewis, N. 2009. An experimental, social network-based approach to direct marketing. International Journal of Direct Marketing, 3(3): 162–176. [Online] Available from: http://dx.doi.org/1108/17505930910985116 [Downloaded: 2012-09-12].
21. Paquette, H. 2013. Social media as a marketing tool: a literature review. [Online] Available from: http://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1001&context=tmd_major_papers [Accessed: 2016-05-24].
22. Perdue, D.J. 2010. Social media marketing: gaining a competitive advantage by reaching the masses. [Online] Available from: http://digitalcommons.liberty.edu/honors/127/ [Accessed: 2015-03-24].
23. Pradiptarini, C. 2011. Social media marketing: measuring its effectiveness and identifying the target market. UW-L Journal of Undergraduate Research XIV. [Online] Available from: https://www.uwlax.edu/urc/JUR-online/PDF/2011/pradiptarini.MKT.pdf [Downloaded: 2016-05-24].
24. Seth, G. 2012. Analysing the effects of social media on the hospitality industry. [Online] Available from: http://digitalscholarship.unlv.edu/cgi/viewcontent.cgi?article=2338&context=theses dissertations [Accessed: 2016-05-16].
25. Stephen, A.T. & Galak, J. 2010. The complementary roles of traditional and social media publicity in driving marketing performances. [Online] Available from: http://bear.warrington.ufl.edu/weitz/mar7786/Articles/social%20and%20traditional%20media.pdf [Downloaded: 2016-04-28].
26. Western Cape Business. 2011. Tourism and leisure. [Online] Available from: http://www.westerncapebusiness.co.za/pls/cms/ti_secout.secout_prov?p_sid=24&p_site_id=127 [Accessed: 2012-08-07].
27. Windels, J. 2013. 3 ways hotels (and other businesses) should be using social media. [Online] Available from: http://blog.hootsuite.com/brandwatch-hotels-social-media/ [Accessed: 2015-08-20].
28. Withiam, G. Not dated. Social media and the hospitality industry: holding the tiger by the tail. [Online] Available from: https://www.hotelschool.cornell.edu/research/chr/pubs/roundtableproceedings/roundtable-15500.html [Accessed: 2015-08-05].
29. World Wide Worx. 2015. South African social media landscape 2015. [Online] Available from: http://www.worldwideworx.com/wp-content/uploads/2014/11/Exec-Summary-Social-Media-2015.pdf [Downloaded: 2015-08-06].
30. World Wide Worx. 2016. South African social media landscape 2016. [Online] Available from: http://www.worldwideworx.com/wp-content/uploads/2016/02/SA-Social-Media-Landscape-2016-Executive-summary.pdf [Downloaded: 2016-05-24].
31. Xiang, Z. & Gretzel, U. 2010. Role of social media in online travel information search. Tourism Management, 31(2): 179–188. [Online] Available from: http://dx.doi.org/10.1016/j.tourman.2009.02.016 [Accessed: 2012-09-15].

THE RELATIONSHIP BETWEEN BOARD CHARACTERISTICS AND FIRM FINANCIAL PERFORMANCE IN MALAYSIA

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Abstract

Corporate governance has drawn attention of investors and government after the incidence of financial crisis world- wide since the late 90's. Despite that reforms of corporate governance have been in place in Malaysia, voluntary disclosure of corporate governance has yet to proof its impact on the financial performance of the companies. This study examines the relationship between corporate governance attributes and firm financial performance in Malaysia. The relationship between board characteristics (board tenure, board size and CEO duality) were analyzed to investigate their correlation with firm financial performances. A total of 100 public listed companies were randomly selected from Bursa Malaysia for the year 2009 to 2013. Random effect panel data regression was obtained by using Stata. This study finds that board size, board tenure were significant to Return on Equity (ROE) and Return on Assets (ROA). However, firm size has no significant relationship with firm financial performance. It is recommended that apart from including more variables as controlling effects on firm financial performance and examining few industries as sample, it is also good to examine the correlation between board characteristics and corporate governance variables (foreign listings, equity analysis, external auditors, leverage ratios, dividend policy, etc.) on one hand, and ownership structures on the other hand, that have significant impact on firm financial performance.

Keywords: Board Characteristics, Corporate Governance, Financial Performance, Investors, Malaysia, Return on Assets, Return on Equity

1. INTRODUCTION

Corporate governance is often used in business activities to manage the structures and processes of a firm in enhancing its shareholders' wealth. After the Asian and global financial crisis in 1997, corporate governance has attracted public interest of the firm and society (Ghosh, 2007; Rachagan, 2010; Ng & Yeoh, 2012). This is due to the fact that investors have lost their confidence towards the market and start to withdraw their capital from the market. This is proven during the financial crisis from June 1997 to August 1998 where Kuala Lumpur Composite Index declined tremendously by 72%.There are many views or causes of financial crisis and part of the reasons was due to downtrend of economy, especially due to collapse in the property sector and stocks market. However, the more fundamental reasons were due to lack of loan policies and prudential regulations. Notwithstanding the regulations, Malaysia still faces difficulties in strengthening corporate governance, thus the need to enhance the governance system and policies because confidence level of investors and firm financial performance have strong correlation with corporate governance, especially by the weak ones. Bhattacharyay (2004) highlights few key problems of poor corporate governance which includes weak legal systems and regulatory framework, excessive government intervention and highly concentrated ownership structure that could result in poor performance of the firm. In addition are, weak external discipline in the corporate sector, poor accounting information and lack of investors' protection which also affect the efficacy of corporate governance mechanisms.

In Malaysia, government has focused on the reforms in corporate governance to overcome the crisis. Hence, Finance Committee on Good Governance (FCGG) has come up with an initiative to reform the corporate governance activities which covered the entire corporate sector including public listed and privately owned firms. This is to ensure that through best domestic institutions, it will drive excellent performance with the established infrastructure in more efficient and effective way. In addition, through this exercise, we can ensure that strong regulations and supervision will be established. Securities Commission and the Kuala Lumpur Composite Index (KLCI) also instituted a number of reforms to ensure better disclosure and greater transparency of information in order to bring Malaysia to the next level in Asia.

Moreover, the global economic crisis of 2009, triggered the market for the transparency and accountability of the firms on the effectiveness of existing corporate governance practices. These were due to the incidents whereby major corporations in the USA such as World Com and Enron were experiencing financial scandals and many investors

have lost their faith in capital markets (Sunday, 2008). In addition, Norlia, Zam& Ibrahim (2011) also examined the failure of corporate governance in financial reporting that caused most of big companies collapse during financial crisis such as Perwaja Steel, Technology Resources Industries (TRI), Transmile, Megan, Malaysian Airlines System (MAS), Port Klang Free Zone (PKFZ), Enron and WorldCom (WC). Companies have taken the advantages to manipulate their financial reporting with the poor risk management system to show they achieve a commendable performance.

Therefore, this study aims to analyze how board characteristics affect firm financial performance in public listed companies in Malaysia.

2. LITERATURE REVIEW

2.1. Agency Theory

Agency theory is one of the predominant theories and plays a vital role in most of the firms in Anglo-American model. In modern corporations today, agency problem may occur when separation between control and ownership of managers and shareholders exists (Berle and Means, 1932) due to conflict of interest and minimal alignment between managers and shareholders (Jensen and Meckling, 1976). Managers would tend to jeopardize the interests of owners due to their opportunistic behavior. The key insight of Jensen and Meckling (1976) was to model the relationship between owners and managers similar to one between a principal and an agent. The owners hire the managers to perform the controlling tasks of a firm on day-to-day operation to maximize the firm's wealth, but both are self-interested for own benefits, hence conflict of interest arises. As the managers have the effective control of the firm, they are more advantages and have the ability to consume benefits at the expense of the owners. Costs incurred by the divergence of interests between owners and managers as agency costs are monitoring cost, residual loss and bonding cost, said Jensen and Meckling. Furthermore, outside shareholders also involved agency cost to monitor manager's action. Hence, agency cost increased when there is conflict of interest between managers and shareholders. The agency theory is used as core theory in previous studies for corporate governance and firm performance (Colarossi, Giorgino, Steri & Viviani, 2008; Shakir, 2009; ZainalAbidin, Mustaffa Kamal& Jusoff, 2009; Tariq & Abbas, 2013; Gupta & Sharma, 2014; Andreou, Louca&Panayides, 2014; Ng et al., 2015) with the objective to reduce agency cost incurred by the principals or controlling the behavior of agents through internal control mechanism.

2.2. Stakeholder Model

The stakeholder approach emphasizes contribution by stakeholders that can contribute to the long term performance of the firm. Such stakeholders may include contractual partners such as employees, suppliers, customers, creditors, environmental forces, local, state and federal entities and public at large. Consistent with this view is Porter (1992) cited in Turnbull (1997) who recommended to the policy makers in the US, the allowance of long-term workers' ownership as well as participation on board of companies on a strong basis by financial advisers, suppliers, customers and local indigenes. Further to this, is that companies should focus on long-term owners with direct participation in governance. The relationship between a company and its strategic stakeholders is supported by the American Law Institute to the effect that the modern firms by its existence brings about the inter-relatedness with a variety of groups with whom the firm has dealings with which may include elements like customers, suppliers employees and the immediate society where the firm carries on business.

2.3. Corporate Governance

Corporate governance has attracted the attention of academic researchers and business world in recent years after the financial crisis of 2008. It is crucial to further study the relationship between corporate governance particularly controlling stake of the board of directors (Bhattacharyay, 2004) and firm performance. Malaysia has evolved over the decade in corporate governance, culminating in the development of Corporate Governance Blueprint 2011. This can improve the business reporting and drive effective stewardship through good corporate governance. The main objectives of corporate governance are to reduce equity agency cost and information asymmetry of public listed companies. Based on the pioneer study on controlling ownership, Berle and Means (1932) intensified the potential conflict of interest when managers do not have any controlling ownership in the firm. They found that salaried managers may not perform in the greatest interests of shareholders when they are running companies without ownership. Besides, they also highlighted the possibilities in achieving higher rates of the firms by concentrated ownership shareholders if any substantial relationship between managerial behavior and owner interests. Hence, a good corporate governance system should provide effective protection of security in getting higher return on investments for all shareholders, be it creditors or minority shareholders. It should consist of a set of rules such as rights and responsibilities that define clear relationships between shareholders, managers, creditors, government and other stakeholders. With the structured mechanisms in place, it will directly or indirectly shape the corporate governance system to enforce these rules more effectively in any country. To be more specific, it determines the nature of the agency problem of whether the dominant conflict is between managers and shareholders, or between controlling and minority shareholders.

2.4. Corporate Governance and Firm Financial Performance

Concentrated ownership of managerial functions demonstrated various possibilities to expropriate corporate wealth (Fama and Jensen, 1983) and easier to be entrenched (Stulz, 1988). This indicates greater power of internal constituency in influencing corporate performance when managers owned large ownership. It is crucial and actions need to be taken

by the firm to address the issues. Several studies had been conducted on the relationship between ownership structure and corporate performance in Malaysia. Scholars found a positive significant relationship between good corporate governance and corporate performance (Claessens, Djankov, Fan & Lang, 1999; Selvaggi& Upton, 2008 as cited in MohdAzmi et al. 2011; Joel Tham, 2012). The improvements of firm performance are in terms of higher Returns on Investments (ROI), Returns on Assets (ROE), Earnings Per Share (EPS), Returns on Assets (ROA) and higher stock price. According to Latifet et al. (2013), corporate governance has a significant relationship on the firm performance. To ensure efficient firm performance, a good practice of corporate governance must be implemented (Rashid and Lodh, 2011). Good corporate governance can consist of different determinants such as board size, CEO duality, ownership concentrations or even agency theory. Sheikh et al. (2013) argues that board size and managerial ownership affects firm performance.

Fazilah Abdul Samad (2004) shows significant relationship between corporate governance and corporate performance. The regression results between financial performance indicators such as return on equity (ROE), return on assets (ROA), leverage and corporate governance variables show that as companies grew larger, they attained higher returns on investment and relied less on debt financing. This result supported the agency theory whereby less agency cost incurred for monitoring manager's action. Besides, better risk management of corporate governance also enhancing the firm performance. This conclusion confirmed those of previous research carried out by Saldana (1999), Xu and Wang (1997) and Emmons and Schmid (1999) as cited in Fazilah (2004). However, the Asian Financial Crisis hassled to unusual effects for the corporate performance to be insignificant.

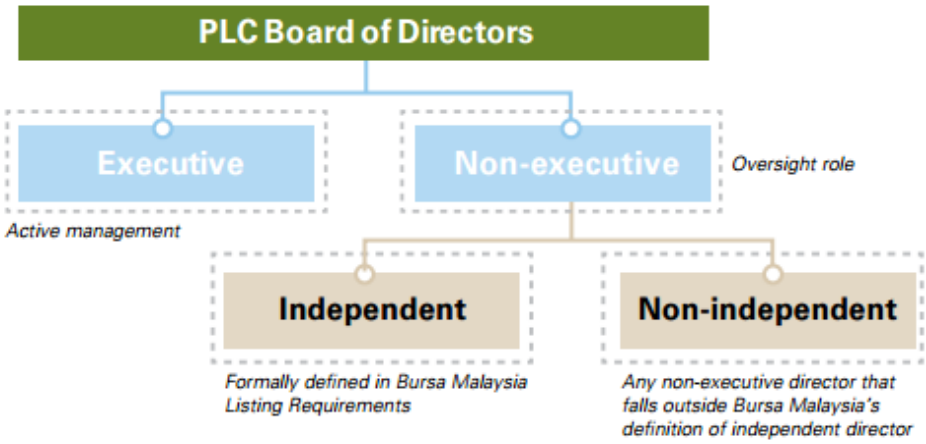
However, research on the relationship between corporate governance and corporate performance reported mixed results. This led to questions about whether the principles of best practices in corporate governance are applicable in other countries as those originated by the developed countries. Nazli Anum Mohd Ghazali (2010) shows weak evidence to indicate that companies which adopted good corporate governance practices performed better than others. Thus far, none of the corporate governance variables were statistically significant in explaining corporate performance.

2.5. Board Characteristics

Figure 1 indicates the types of directors and their roles in the public-listed company (KPMG Malaysia, 2013). Executive director refers to an active member in management who is involved in daily activities whilst non-executive director has oversight role for the firm. There are two types of non-executive directors which are independent and non-independent director. Independent non-executive director is one who is formally defined in Bursa Malaysia.

According to Lam et al. (2012), board committees have signification relationship with firm performance.

Figure 1. Types of board of directors in Malaysia



The study shows that remuneration committee is negatively related to firm performance whilst nomination committee is positively related to firm performance. This indicates that composition of board committee, be it independence (positive) or non-independence (negative) will affect the relationship towards the firm performance.

2.6. Board Size

Total number of directors in a company refers to board size of a firm (Abdullah, 2004; Hermalin and Weusbach, 1991 as cited by Jaana, 2012). According to Lipton and Lorsch (1992) and Jensen (1993), both scholars argued that larger boards tend to increase the coordination and lead to decision making problems. Hence they suggested that smaller boards are more effectively managed for the firms. Adversely, some argued that when board size increases, the board will tend to be more aligned and is less likely to be part of decision-making process (Hermalin and Weisbach, 2003). This can enhance the firm performance and reduced agency cost. However, Tham (2012) found that average seven board size is better informed about earnings per

share of the company in Malaysia and therefore can be regarded as having better monitoring abilities. Yermack (1996) also found a negative relation between board size and firm value. However, Pearce and Zhara (1992) and Dalton et al. (1999) both argue that board size is one of the important determinants of effective corporate governance.

2.7. Board Tenure

Board tenure is considered one of the important characteristic that has effect on firm performance (Herly&Sisnuhadi, 2011; Simsek, 2007). Longer tenure of the member will result in greater experience and knowledge gained by the board (Pfeffer, 1987).Additionally, board tenure has often been related to the leadership quality and power (Herly&Sisnuhadi, 2011; Shen, 2003). The board's leadership position has been measured in several studies according to the number of years in this position (Bhagat& Bolton, 2008; Herly&Sisnuhadi, 2011; Ozkan, 2011; Roselina, 2009; Simsek, 2007).

Furthermore, Ebrahim et al. (2013) conducted a study on 136 companies (exclude financial companies) listed Kuwaiti firms for financial year 2009 and examines the relationship of board tenure on firm performance. The study found that board tenure was adversely related to firm performance. This result indicates that the smaller time the board spent in his position, the better the firm performance. Similar findings were also obtained by Kyereboah-Coleman (2008), Bertsch& Mann (2005), and Adel, Fariba&Ehsan (2014) who investigated the relationship between board tenure and firm performance of Ghana, U.S and Malaysia respectively and subsequently found a negative association on firm performance.

2.8. CEO Duality

CEO duality refers to a board leadership structure in which the chief executive officer (CEO) is also the chairman of the board (Bozec, 2005). Ideally, from agency theory perspective, Chairman segregates some authority to the CEO rather than solely company owner held the office. This can increase the accuracy balance of accounting, at the same time increase the firm performance (Valenti et al., 2011). However, some studies report no significant relationship (Dalton et al., 1998) while other studies suggest a negative relationship between CEO duality and profitability (Ezzamel and Watson, 1993; Bozec, 2005). On the other hand, according to Ebrahim et al. (2013), Norazian (2012) and Jenny et al. (2011), CEO duality was found to have a significant effect on firm performance using Return on Asset (ROA) and financial strength (shareholder's right ratio). (Fariba et.al, 2013) opines that separate person of Chairman and CEO will result in better firm performance because this can make for accurate balance and checks of the top management for firms performance. This aligns with the statement of Malaysia Code of Corporate Governance (MGCC).

3. METHODS

3.1. Research Design

As was previously mentioned, the aim of this paper is to investigate the interrelationship between board characteristics and firm performance. To empirically examine this issue, we used linear multiple regression analysis (Hafiza et al., 2008; Fariba, 2013) to test the association between dependent variable of ROE and ROA and the independent variables: board size, board tenure, CEO duality, and firm size. The data is processed and analyzed by multiple regression methods using Stata 10.1 software.

In order to control for the other possible determinants of firm performance not captured by the ownership variables, we also include some observed firm characteristics as control variable. The control variable used in the study has been selected with reference to those employed in earlier empirical studies (Himmelberg, Hubbard & Palia, 1999; MajidAbbasi, Dadashinasab & Mohsen, 2013) which used firm size as the control variables. Consistent with prior studies, this study includes firm size as control variable in the regression model where we used the log of total assets to measure firm size and to control for the firm size effect (Jaggi et al., 2007; Majid et al., 2013).

3.2. Date collection technique

Data for this study was obtained from Data stream and companies annual report which includes100 firms listed on the Bursa Malaysia for the years 2009 through 2013. All data for independent variables such as board tenure, board size, and CEO duality are manually collected from companies' annual reports, whilst dependent variables and control variable are retrieved from Data stream. Firm size is the control variable and the dependent variables comprise of firm performance measures such as Return on Assets (ROA) and Return on Equity (ROE). Companies' annual reports were downloaded from Bursa Malaysia website.

3.3. Sampling frame

The companies that are registered on the Bursa Malaysia are randomly chosen as the sample study. Previous studies in Malaysia setting have used companies registered on the Main board (Abdullah, 2004; Chang, 2004; Doraisami, 2003) and Second Board (Rohana, 2009) in Bursa Malaysia, but examination on mixture companies of these two boards are largely under-researched. This study attempts to address this gap by using the sample chosen.

The final sample is chosen based on stratified sampling (DuMouchel et al., 1983). In determining the final sample, all companies listed on the Main Market and Ace Market of Bursa Malaysia were identified through browsing the website or from the Bursa Malaysia and Malaysia Stock Business database. There are 913 companies listed on Main Market and Ace Market as at 19 January, 2015 in Malaysia Stock Business website as indicated in Table 1.

Table 1. Public Listed Companies by Industry in Malaysia

Industry	No. of companies
Industrial Products	259
Trading-Services	196
Consumer Products	134
Technology	95
Properties	83
Construction	42
Plantation	41
Finance	35
REITs	16
IPC	6
Hotels	4
Closed-Fund	1
Mining	1
Grand Total	913

Source: Malaysia Stock Business 2015

Companies that are in the finance and loan sector are excluded from this study because they are governed by the Banking and Financial Institutions Act 1989 and therefore, finance sectors would have different way of presenting their financial information. Hence, the remaining balances of the total companies are 878 after excluded the 35 finance companies. To increase the accuracy of the sampling size, we have combined 5 industries and classified them as KLSE Others. KLSE others represent REITs stock, IPC stock, Hotel Stock, Closed-Fund Stock, and Mining Stock.

Percentage of composition for each industry is computed to represent the sample size. For example, industrial products represent 29.5% out of the total companies for the industry. Table 2 below represents the number of sample size for each industry based on the percentage of composition that resulted in total 100 sample size. The number of sample size chosen for each industry was based on stratified sampling according to their percentage of composition against industry.

Table 2. Final sample size by industry

Industry	No. of company	% composition	No. of company
KLSE Industrial Products Stock	259	29.50%	29
KLSE Trading-Services Stock	196	22.32%	22
KLSE Consumer Products Stock	134	15.26%	15
KLSE Technology Stock	95	10.82%	11
KLSE Properties Stock	83	9.45%	9
KLSE Construction Stock	42	4.78%	5
KLSE Plantation Stock	41	4.67%	5
KLSE Others	28	3.19%	3
Grand Total	878	100.00%	100

Out of the total companies, 100 companies were randomly selected as the final sample according to its industry as shown in table 3b. It represents 11% of the whole population. This is determined by the number of sample used in similar study area, for example 63 firms by Pauline and Mathews (2002) and 49 firms by Inchausti (1997). This is consistent with the central limit theorem which states that the more samples selected in the study to represent population, the more it can explain the population.

3.4. Sources of data

There are two methods for data collection, which are extracted manually from annual report and retrieved from Data stream. Details are show as table 3 below:

Table 3. Method of data collection for all variables

Variables	Method of Data Collection
Dependent Variable	
Return on Assets (ROA)	Data stream
Return on Equity (ROE)	Data stream
Independent Variables	
Board Size	Annual Report
Board tenure	Annual Report
CEO Duality	Annual Report
Managerial Ownership	Annual Report
Family Ownership	Annual Report
Institutional Ownership	Annual Report
Control Variables	
Firm Size	Data stream

3.5. Variables and measurement

Previous studies for the connection of corporate governance to firm performance have used different proxies of firm valuation such as Earning per Shares (EPS), Return on Assets (ROA) and Return on Equity (ROE) (Hermalin and Weisbach, 2003; Shleifer and Vishny, 1997; John & Senbet, 1996; Douma et al., 2006; Phung and Hoang, 2013). In this research ROA and ROE are considered as dependant variables and three independent variables (board size, board tenure, CEO duality) of present study are as a proxy for measuring firm performance. One variable is used as control variable in this research which is firm size (Chae et.al, 2009). The full specification of regression model is developed to fit the data in order to assess the effect of each variable on the firm performance:

$$ROA = \alpha+\beta_1 BSIZE+ \beta_2 BTENURE+ \beta_3 CEO+ \beta_4 LGSIZE+\varepsilon \quad (1)$$

$$ROE = \alpha+\beta_1 BSIZE+ \beta_2 BTENURE+ \beta_3 CEO+ \beta_4 LGSIZE+\varepsilon \quad (2)$$

where, ROA represents Return on Assets, ROE represents Return on Equity, BSIZE represents board size, BTENURE represents board tenure, CEO represents CEO duality, and LGSIZE represents firm size.

Table 4. List of variables

Variables	Description	Source
ROA	Return on Assets	Data stream
ROE	Return on Equity	Data stream
BSIZE	Board Size. Total number of directors	Annual Reports
BTENURE	Board Tenure. Average number of years of board service of independent non-executive directors	Annual Reports
CEO	CEO Duality. Roles as a Chairman and CEO	Annual Reports
LGSIZE	Firm Size. Log of total assets	Data stream

3.6. Operationalization of Research Variable

This study is focused on corporate governance and firm financial performance in Malaysia. Table 5 presents the operationalization of the research variables such as independent variables, dependent variables and control variable.

Table 5. Operationalization of Research Variables

Variable	Operationalization	References
Independent Variables		
Board Size	Total number of directors	Joel Tham (2012)
Board Tenure	Average number of years of board service of independent non-executive directors	Adel, Fariba&Ehsan (2014)
CEO Duality	Roles as a Chairman and CEO	Fariba et al. (2013)
Control Variable		
Firm Size	Log of total assets	EbrahimMohameed (2011)
Dependent Variable		
Return on Assets	Net Income / Total Assets	Ahsan Akbar (2014)
Return on Equity	Net Income/ /Total Shareholder's equity	Ahsan Akbar (2014)

3.7. Hypotheses

To examine the impact of corporate governance mechanisms on the firm financial performance in Malaysia, the main hypothesis and sub-hypotheses are designed as follow:

Main hypothesis

There is a significant relationship between corporate governance mechanisms (board characteristics) and firm financial performance.

Sub-hypotheses

H_1: The size of boards of directors is negatively associated with firm financial performance

H_2: Board tenure is negatively associated with firm financial performance

H_3: Firms with a separation role between Chairman and the CEO are likely to have greater firm financial performance.

3.8. Data Analysis

The data were collected manually and extracted from Data stream, after which they were imported into Stata 10.1 software to examine them and perform simple statistical analysis using the regression analysis to model and determine relationships through the test of hypotheses. The data analysis, was separated into four parts, which are descriptive analysis, correlation analysis, ANOVA or hypothesis testing, and multiple regression. All the tests were to indicate whether the results fit into the model or have any significant relationship between corporate governance and firm financial performance.

4. FINDINGS

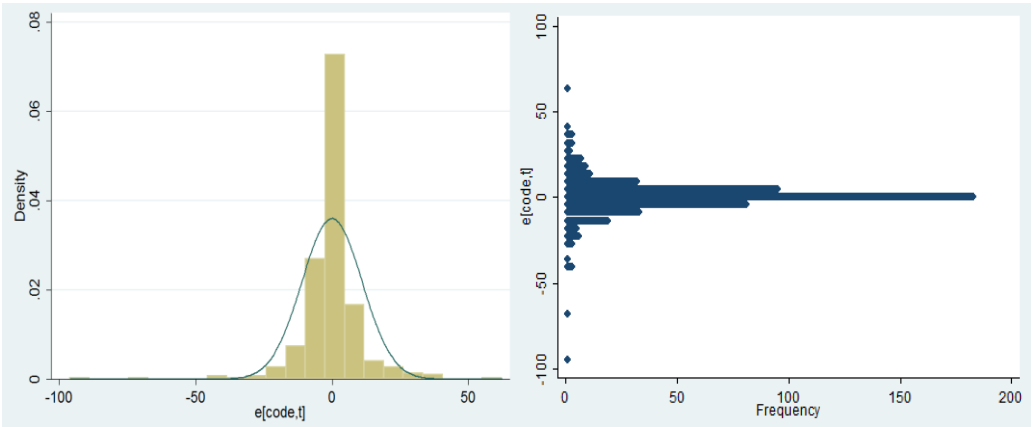
4.1. Descriptive Analysis

Table 6 shows the descriptive statistics for the 500 observations. The mean value for ROA is 3.8% and ROE is 5.0%. The average board size in the sample firms is about 8 members. The board tenure for independent non-executive director is about 7 years. The statistics also indicates that 27% of the sample firms have Chairman that is also CEO of the board. This means that 73% of the firms have separate person as Chairman and CEO. The standard deviation for ROA and ROE are 11% and 17% respectively. These indicate that there is a significant variation in return from the central value and some sample generating returns while some others are suffering losses. Based on the minimum and maximum value, result indicates no unexpected outcome in the analysis. The model of this study is normally distributed as shown in figure 2.

Table 6. Descriptive statistics

	ROA	ROE	BSIZE	BTENURE	LGSIZE
Mean	3.76	5.03	7.53	7.17	5.43
Max	50.22	101.66	13.00	23.50	7.62
Min	-160.41	-114.69	4.00	1.00	3.92
Std. Dev.	11.38	17.78	1.86	4.16	0.64
Obs	500	500	500	500	500

Figure 2. Normality test for residual



4.2. Correlation Analysis

Table 7 represents the correlation between the variables. It demonstrates that ROE has a positive relationship with board characteristics for board size and board tenure. The bigger the board size, the higher the ROE for the firm. This is in alignment with the mean value for board size of 8 members and board tenure of 7 years. However, negative relationship is observed between ROE and CEO duality. This means that firms with separate person of Chairman and CEO perform better than those firms with dual role of CEO. So, this reflects majority shareholders prefer to have separate persons as Chairman and CEO. On the other side, ROA has a positive relationship with all the board characteristics. Besides, dual role of CEO positively contributes to higher return of assets in Malaysia. In addition, CEO duality is positively correlated with family ownership. ROA and ROE has high correlation of 0.85, which is more than 0.7. This indicates that there is tendency of multicollinearity problem might arise if model indicate high correlation (Pearson's Correlation Coefficient). Overall, there is no highly correlation relationship among independent variables.

Table 7. Correlations Analysis

	ROA	ROE	BSIZE	BTENURE	CEO	LGSIZE
ROA	1					
ROE	0.85	1				
BSIZE	0.13	0.14	1			
BTENURE	0.11	0.15	0.45	1		
CEO	0.00	-0.01	-0.04	-0.07	1	
MOWNS	0.00	0.02	-0.06	-0.24	0.25	
FOWNS	0.04	0.03	0.08	-0.07	0.20	
INOWNS	0.06	0.08	0.14	0.14	-0.24	
LSIZE	0.08	0.08	-0.03	-0.03	-0.07	1

4.4. ANOVA

Tables 8 and 9 represent the results of ANOVA for ROE and ROA as dependent variables respectively. The result indicates that significant differences exist in ROA and ROE among the selected 100 sampled firms listed in Bursa Malaysia. These results interpret that the predicting variables like board size, board tenure, CEO duality and firm size affected the firm's financial performance differently. The F-statistic shows a substantial value and the significant level have justified the argument in this study. The reason is because corporate governance is only part of the variable that affects the firm financial performance; there are still many other variables that can affect the latter in Malaysia.

Table 8. ANOVA, ROE as a dependent variable

Model	Df	Sum of Square	Mean Square	F statistic	Sig.
Between group	5	111610.5	22322.1	239.6752	0.00
Within group	494	46008.61	93.1348		
Total	499	157619.11	315.87		

Table 9. ANOVA, ROA as a dependent variable

Model	Df	Sum of Square	Mean Square	F statistic	Sig.
Between group	3	44631.21	14877.1	369.5869	0.00
Within group	496	19965.61	40.2533		
Total	499	64596.82	129.453		

4.5. Regression Model

Table 10 exhibits the results of coefficient estimates of the dependent variables with their p values and t-statistics. Board size and board tenure are positively significant to ROE at 10%. In addition, board size is positively significant to ROA at 10% whereas board tenure is negatively significant to ROA. Besides, this study also found a positive relationship for CEO duality on ROA but negative relationship on ROE. Both of the firm financial performances are insignificant for CEO duality.

However, this study also found that control variable is not significant in affecting the firm performance for ROE and ROA. This indicates that there are other factors that could affect the firm performance other than firm size.

As considering the panel nature of the data, R square of ROE is 2.4% and ROA is 7.4%. These indicate very low variation of dependent variables (ROA and ROE) that can be explained by the independent variables (Board size, Board tenure, CEO Duality,). Lower R square value does not inherently mean bad model. This can be due to human behavior that is very hard to be predicted. Besides, although the R square is low in this study but if the variables are statistically significant, we can still be able to make conclusions about how changes in the corporate governance are associated with the change of firm performance. Additionally, F-statistic supports the overall fitness of models for both ROA and ROE.

Table 10. Regression results of coefficient estimator

	ROE			LN(ROA)		
Independent Variables	**coefficient**	**t statistics**	**p-values**	**Coefficient**	**t statistics**	**p-values**
Constant	-15.4614	-1.49	0.137**	0.5872	0.87	0.386
BSIZE	0.8562	1.44	0.149**	0.0690	1.82	0.07**
BTENURE	0.3734	1.49	0.138**	-0.0247	-1.56	0.121**
CEO	-0.00767	-0.00	0.998	0.1321	0.76	0.446
LGSIZE	0.7271	0.42	0.672	-0.0228	-0.21	0.83
No. of observations	500			400		
R2	0.0239			0.0740		
F-Statistic	5.13			51.03		
Prob (F-Statistic)	0.0000			0.0000		

*Note: *P is 5% and **P is 10% at 95% confidence level.*

4.6. Hypothesis Results

Hypothesis 1 shows that ROA and ROE is positively related to board size. Besides, board size has significant effect on corporate performance at 5% and 10% significant level. The average board size for this study is around eight members. Therefore, the smaller the board size has greater influence on firm performance. This justified that size of boards of directors is negatively associated with firm performance and aligned with previous studies (Jensen, 1983; Lipton &Lorsch, 1992; Yoshikawa &Phan, 2003; Joel Tham, 2012)

Hypothesis 2 reveals that board tenure is negatively associated with firm performance. Both ROA and ROE are statistical significant on firm performance at 10% significant level. ROA showed significant negative relationship with board tenure whereas ROE is positive significant. The findings are vague on the hypothesis. This is because longer tenure will increase the knowledge and experience gained for the board members who increase the leadership quality and power (Herly&Sisnuhadi, 2011; Ozkan, 2011). On the other hand, shorter tenure tends to increase firm performance due to less entrenchment cost and higher contribution on great ideas or strategy to the company (Kyereboah-Coleman, 2008; Ebrahim, 2013; Adel, Fariba&Ehsan, 2014). On top of that, there is possibility of inverted relationship happened on the firm performance for board tenure (Sterling Huang, 2013).

Hypothesis 3 shows that firm with a separation role between Chairman and the CEO are likely to have greater firm financial performance. This is proven on ROE that negative relationship occurred with separate role for Chairman and CEO. However, it does not go with ROA as firm financial performance because separate role will lower down the achievement for ROA. Nevertheless, the firm financial performance showed insignificant relationship with CEO duality. In other words, CEO duality does not influence company's performance. This is consistent with the study by Joel Tham (2012) and Fariba (2013).

5. DISCUSSION AND CONCLUSION

5.1. Discussion

Overall, this study proves that corporate governance associated with firm performance in Malaysia. Board size and board tenure are significantly related to ROE and ROA.

Board size is positively significant with firm performance. Smaller board size leads to effective management since larger size lead to coordination and decision making problems. An average of eight board size will have greater influence on firm performance. Hence, board size is negatively related to firm performance.

Board tenure is statistically significant with firm performance. Longer board tenure will reduce ROA achievement of firm and vice versa for ROE. This study can merely conclude that there is inverted relationship between firm performance and board tenure. The average board tenure is around 7 years per board members in Malaysia. A company that able to balance between entrenchment cost and experience gained of board able to enhance firm performance.

There is no significant relationship between CEO duality and firm performance. Firm with separate role of Chairman and CEO have greater performance in ROE but lower performance in ROA. This might be due to person with separate role shows greater concern in Return on Equity than the Return on Assets. The findings can relate to the personal interest of CEO as an executive board of directors which aims for retaining profits than achieving high growth ratio.

Overall, the f statistic is fitted in the model. However, variation of performance explained by independent and control variables as measured by R-Square are relatively very small, which is less than 10%.

5.2. Conclusion

In a nutshell, the findings of this research hopefully would be beneficial to the corporate companies in Malaysia in providing them a sense for enhancing their firm financial performance. Bursa Malaysia plays a vital role to ensure public listed companies practice quality accounting disclosures, higher risk management and prescriptive rules and regulations to strengthen corporate governance. This can provide greater protection of firms especially during financial distress and empowers market participants to take greater accountabilities and challenges in the future. With the implementation of ASEAN scorecard, we hope this can benefit the investors and provide best transparency and most diverse board to enhance firm financial performance. In addition, the transparency of accounting disclosures could mitigate the agency costs in the firms, be it with managerial, family or institutional ownership. Minority shareholders or investors must tactfully review the board characteristic to avoid any

manipulations by the directors. Reforms of corporate governance need be reviewed constantly in the dynamic markets for effective implementation of the mechanisms.

REFERENCES:

1. Abdullah, S. N. (2004). Board composition, CEO duality and performance among Malaysian listed companies. Corporate Governance, 4(4), 47-61.
2. Abdullah, S. N. (2006). Board structure and ownership in Malaysia: The case of distressed listed companies. Corporate Governance, 6(5), 582-594.
3. Ahsan Akbar (2014), Corporate Governance and firm performance: Evidence from textile sector of Pakistan. Journal of Asian Business Strategy, 4(12), 200-207.
4. Anderson, R. C., &Reeb, D. M. (2004). Board composition: Balancing family influence in S&P 500 firms. Administrative Science Quarterly, 49(2), 209-237.
5. Andreou, P.C., Louca, C. & Panayides, P.M. (2014). Corporate governance, financial management decisions and firm performance: Evidence from the maritime industry. Transportation Research Part E: Logistics and Transportation Review, 63, 59-78.
6. Bhagat, S., & Black, B. S. (2002). The non-correlation between board independence and long-term Firm performance. Journal of Corporation Law, 27, 231-273.
7. Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. Journal of Corporate Finance, 14(3), 257-273.
8. Boone, A. L., Casares Field, L., Karpoff, J. M., & Raheja, C. G. (2007). The determinants of corporate board size and composition: An empirical analysis. Journal of Financial Economics, 85(1), 66-101.
9. Bozec, R. (2005). Boards of directors, market discipline and firm performance. Journal of Business Finance & Accounting, 32(9-10), 1921-1960.
10. Chae, J., Kim, S., & Lee, E.J. (2009). How corporate governance affects payout policy under agency problems and external financing constraints. Journal of Banking & Finance, 33, 2093-2101.
11. CheHaat, MH, Abdul Rahman, R. and Mohantiran, S. (2008). Corporate governance, transparency and performance of Malaysian companies. Managerial Accounting Journal, 23, 744-778 Singam, K. (2003). Corporate Governance in Malaysia. Bond Law Review, 15(1), Article 13
12. Coles, J. L., Daniel, N. D., & Naveen, L. (2008). Boards: Does One Size Fit All? Journal of Financial Economics, 87(2), 329-356.
13. Corporate Governance Country Assessment Malaysia (2012). Report on the observance of standards and codes (ROSC), The World Bank, July 2012.
14. Dalton, D. R., Daily, C. M., Ellstrand, A. E., & Johnson, J. L. (1998). Meta-analytic reviews of board composition, leadership structure, and financial performance. Strategic Management Journal, 19(3), 269-290.
15. Dalton, D. R., Daily, C. M., Johnson, J. L., &Ellstrand, A. E. (1999). Number of directors and financial performance: A meta-analysis. Academy of Management Journal, 42(6), 674-686.
16. DuMouchel, W.H. and Duncan, G.J. (1983). Using sample survey weights in multiple regression analyses of stratified samples". Journal of the American Statistical Association, 78 (383): 535 – 534.
17. Emerging Markets Committee, The International Organization of Securities Commissions (1998). Causes, effects and regulatory implications of financial and economic turbulence in emerging markets, Interim Report, September 1998.
18. Fariba, Kia Zabiji, Ehsan, &Ghasem (2013). The impact of corporate governance on firm's financial performance: A comparison between Iranian and Malaysia listed companies. Life Sci J 2013, 10(6s),49-55
19. Gill, M. (2002). Corporate Governance after Enron and World Com: Applying Principles of Results-Based Governance. In Proceedings of Insight Conference on Corporate Governance, Calgary, Synergy Associates, Inc.
20. Gujarati, D. 2003. Essentials of Econometrics. 3rd edition. Singapore: Irwin McGraw-Hill.
21. Gupta, P. & Sharma, A.M. (2014). A study of the impact of corporate governance practices on firm performance in Indian and South Korean Companies. Procedia –Social and behavioral Sciences, 133(15), 4-11.
22. Haniffa, R. M. and Hudaib, M. (2006). Corporate governance structure and performance of Malaysian listed companies. Journal of Business Finance and Accounting, 33(7), 1034-1062.
23. Hashim, H. A., & Devi, S. (2009). Board characteristics, ownership structure and earnings quality: Malaysian evidence. Research in Accounting in Emerging Economies, 8, 97-123.
24. Herly, M. (2011). Corporate governance and firm performance in Indonesia. International Journal of Governance, 1(2), 384-403.
25. Hermalin, B. E., &Weisbach, M. S. (2003). Boards of directors as an endogenously determined institution: A survey of the economic literature. Federal Reserve Bank of New York 9(1), 7–26.
26. Hermalin, B. E., &Weisbach, M. S. (1991). The effects of board composition and direct incentives on firm performance. Financial Management, 20, 101–112.
27. Ho, P. L., & Mathews, M. R. (2002). Comprehensiveness of disclosure of non-financial companies: Some empirical evidence from Annual Reports (2000) of companies listed on the Kuala Lumpur stock exchange. Retrieved from Charles Sturt University, Faculty of Commerce.
28. Huang, S. (2013). Board tenure and firm performance. Working Pare, INSEAD Business School.
29. Inchausti, B. G. (1997). The influence of company characteristics and accounting regulation on information disclosed by Spanish firms. European Accounting Review, 6(1), 45-68.
30. IMF World Economic Outlook (WEO), financial crisis: Causes and indicators, World Economic and Financial Surveys IMF International Financial Statistics, May 1998.
31. Jaggi, B., Leung, S., &Gul, F. A. (2007). Board independence and earnings management in Hong Kong firms: Some evidence on the role of family ownership and family board control. Working Paper. Department of Accounting and Information System, Rutgers University, New Jersey, USA.
32. Joel Tham., D.F.Romuald (2012). The impact of corporate governance mechanism and corporate performance: A study of public listed companies in Malaysia. Journal for the advancement of science & arts, 3(1).
33. John, K., &Senbet, L. (1996). Limited liability, corporate leverage, and public policy. Journal of Financial Economics, 40, 185-211.

34. Kanapathy, K. V. (2005). Independent non-executive directors, managerial ownership and firm performance in Malaysian public listed companies (Doctoral dissertation, UniversitiSains Malaysia).
35. KPMG Malaysia (2013). Study on non-executive directors 2013 – Profile and pay, Audit Committee Institute. Retrieved from https://www.kpmg.com/MY/en/IssuesAndInsights/ArticlesPublications/Documents/2013/aci-ned-2013.pdf dated 18 Dec 2014.
36. Kyereboah-Coleman, A. (2008). Corporate governance and firm performance in Africa: A dynamic panel data analysis. Studies in Economics and Econometrics, 32(2), 1-24.
37. Latif, M.N. Shahid, M.Zia, Hafiz., Arbab A. (2013). Impact of corporate governance on firm performance: Evidence from Sugar Mills of Pakistan. European Journal of Business and Management, 5(1), 2013.
38. MajidAbbasi, M. Dadashinasab& Mohsen (2013). Corporate governance mechanism and chief executive officer (CEO) duality evidence from the food industry of Iran. Research Journal of Applied Sciences, Engineering and Technology, 5(20), 4816-4821.
39. MalaysiaStock.Biz, Companies data, retrieved from http://www.malaysiastock.biz/Listed-Companies.aspx dated 17 Dec 2014.
40. McMullen, D.A. (1996). Audit committee performance: An investigation of consequences associated with audit committees. Auditing-A Journal of Practice and Theory, 15(1), 87-103.
41. Mitton, T. (2002). A cross-firm analysis of the impact of corporate governance on the East Asian financial crisis. Journal of Financial Economics, 64(2), 215-241.
42. MohdAzmi., Faudziah.H (2011). Influence of corporate governance attributes on firm's financial performance in Malaysia. Annual Submit on Business and Entrepreneurial Studies (ASBES 2011) proceeding.
43. Norazian and Radiah (2012). Code of corporate governance and firm performance. British Journal of Economics, Finance and Management Sciences, 6(2).
44. Norlia, Zam & Ibrahim (2011). Corporate governance failure and its impact on financial reporting within selected companies. International Journal of Business and Social Science, 2(21).
45. Ng, S. H., Ong T. S., & Soh W. N. (2015). How is Firm Performance Related to Family Ownership in Malaysia and Does Board Independence Moderate the Relationship? Corporate Board, Vol. 11 (2).
46. Ng S. H., & Yeoh K. K. (2012). Corporate Governance in Malaysia: A Glass Half Full? Indian Journal of Corporate Governance, Vol. 5(2).
47. Pearce, J. A., & Zahra, S. A. (1992). Board composition from a strategic contingency perspective. Journal of Management Studies, 29(4), 411-438.
48. Pfeffer, J. (1987). A resource dependence perspective on interorganizational relations. In M.S. Mizruchi, & M. Schwartz (Eds.), Intercorporate Relations: The Structural Analysis of Business: 22-55. Cambridge, UK: Cambridge University Press.
49. Rahman, R. A., & Ali, F. H. M. (2006). Board, audit committee, culture and earnings management: Malaysian evidence. Managerial Auditing Journal, 21(7), 783-804.
50. Sachs, J. (1998). Symposium on global financial markets: the post-bubble Japanese economy & prospects for East Asia. Journal of Alied Corporate Finance, 11, 16-29.
51. Salvatore, D., and F. Campano (2010). The Asian financial crisis and warning indicators. East Asia law Review, March 2010.
52. Sanda, A., Mikailu, A.S., &Garba, T. (2005). Corporate governance mechanisms and firm financial performance in Nigeria. African Economic Research Consortium, 149.
53. Satirenjit K.J., S.K., & Barry J. (2015). Board characteristics and firm performance: Evidence from Malaysia Pubic Listed Firms. Journal of Economics, Business and Management, 3(2), 239-243.
54. Securities Commission Malaysia (2014). Capital. My. Quarterly news bulletin of the Securities Commission Malaysia, 2, 2014.
55. Shakir, R. (2009). Examining the effect of leadership structure and CEO tenure on Malaysian property firm performance. Journal of Real Estate Literature, 17(1), 47-62.
56. Sheikh, N.A., Wang, Z. & Khan, S. (2013). The impact of internal attributes of corporate governance on firm performance: Evidence from Pakistan. International Journal of Commerce and Management, 23(1), 38-55.
57. Shleifer, A., &Vishny, R. W. (1986). Large shareholders and corporate control. The Journal of Political Economy, 461-488.
58. Shleifer, A., &Vishny, R. W. (1997). A survey of corporate governance. The Journal of Finance, 52(2), 737-783.
59. Simsek, Z., (2007). CEO tenure and organizational governance performance: An intervening model. Strategic Management Journal, 28(6), 653-662.
60. Singh, H., & Harianto, F. (1989). Management-board relations, takeover risk, and the adoption of golden parachutes. Academy of Management Journal, 32(1), 7–24.
61. Stephen, R. (1977). The determination of financial structure: The incentive signalling approach. Bell Journal of Economics, 8(1), 23-40.
62. Sterling Huang (2013). Board tenure and firm performance. Unpublished journal. INSEAD Business School
63. Surifah (2013). Family control, board of directors and bank performance in Indonesia. American International Journal of Contemporary Research, 3(6).
64. The Sun Daily (2014), Malaysia retains 4th spot in corporate governance watch report 2014, 23 October 2014. Retrieved from http://www.thesundaily.my/news/1206061 dated 4 April 2015.
65. Yermack, D. (1996). Higher market valuation of companies with a small board of directors. Journal of Financial Economics, 40(2), 185-211.
66. ZainalAbidin, Z., Mustaffa Kamal, N. &Jusoff, K. (2009). Board structure and corporate performance in Malaysia. International Journal Economics and Finance, 1(1), 150-164.

THE NEXUS BETWEEN STOCK MARKET DEVELOPMENT AND ECONOMIC GROWTH

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Abstract

The study investigated the relationship between stock market development and economic growth in Belgium using ARDL approach with annual time series data from 1988 to 2012. Real GDP per capita was used as a proxy for economic growth and stock market capitalization as a ratio of GDP as an approximate measure of stock market development. The relationship between stock market development and economic growth falls into four categories which are (1) stock market-led economic growth, (2) economic growth-led stock market development, (3) feedback effect and (4) neutrality hypothesis where the relationship between the two variables does not exist. Despite the existence of these four views on the relationship between stock market and economic growth, it appears from the literature review done by the author that majority of the empirical evidence support the stock market-led economic growth view. The fact that the topic on the directional causality between stock market and economic growth is still inconclusive is the major motivating factor why the author chose to investigate the relationship between the two variables in Belgium. The study observed that there exist an insignificant long run causality running from stock market development towards economic growth in Belgium. This relationship was not detected in the short run. Moreover, the reverse causality from real GDP per capita to stock market capitalization both in the long and short run was not detected in Belgium. These results are at variance with the majority of the empirical findings reviewed earlier on. It could possibly be that certain conditions that are necessary to enable stock market to significantly positively influence economic growth were not in place in Belgium. Therefore, the study urges the Belgium authorities to put in place the right environment, policies and programmes that enable the stock market to play its role of stimulating economic growth.

Keywords: Stock Market Development, GDP, ARDL, Belgium

1. INTRODUCTION

Several empirical studies that have focused on examining the relationship between stock market and economic growth have arrived at varying conclusions. Even those that have focused on the same case study though different time horizons also reached at different findings. These findings fall into four groups. The first one is the stock market development-led economic growth argument and the second is the economic growth-led stock market development argument. Third one is the feedback effect whilst the fourth is the neutrality argument which is characterized by no causality relationship between stock market development and economic growth.

Using Auto Regressive Distributive Lag (ARDL) and error correction model (ECM) with annual time series data from 1991 to 2007, Petros (2011) showed that stock market development significantly positively affected economic growth both in the short and long run in Zimbabwe. On the other hand, Alajekwu & Achugbu (2012) investigated the impact of stock market development on economic growth in Nigeria using the ordinary least squares with time series data from 1994 to 2008. Their study observed a weak negative correlation running from stock market capitalization and stock market value traded towards economic growth whilst stock turnover had a significant positive impact on economic growth in Nigeria.

Furthermore, Kolapo & Adaramola (2012) studied the influence of capital market on economic growth in Nigeria using time series data from 1990 to 2010. A feedback relationship between value of the stock traded and GDP and a uni-directional causality running from stock market capitalization to GDP without any feedback was detected in Nigeria. Their study also showed that no relationship existed between GDP and new share issues in Nigeria and this was buttressed by Carp (2012) whose studies observed that stock market capitalization and stock traded valued had no influence at all on the economic growth of Central and Eastern Europe.

Using panel data econometric techniques with annual time series data from 1980 to 2010, Ngare et al. (2014) investigated the relationship between stock market development and economic growth in Africa. They found out that stock market had a significant positive impact on economic growth whilst the rate of economic growth for countries characterized by developed stock markets was higher than in those countries whose stock markets were shallow. Other variables which were found to have had a positive influence on economic growth in Africa apart from stock market development included human capital development and trade openness. Rioja & Valev (2014), using the dynamic generalized methods of moments (GMM) found out

that stock market development had no influence on productivity and capital accumulation in low income countries and vice-versa in high income countries during the period under study.

The author is not aware of any empirical work that investigated the linkage between stock market development and economic growth in Belgium using the ARDL approach and that used the most recent data. It is on this backdrop and the contradictions in empirical literature on the topic that prompted the author to examine the causality between stock market development and economic growth in Belgium. The rest of the study is structured as follows: Section 2 discusses the economic growth and stock market development trends, section 3 reviews related literature whilst section 4 focus on the research methodology. Section 5 concludes the study and section 6 list the references.

2. GDP PER CAPITA AND STOCK MARKET DEVELOPMENT IN BELGIUM

Table 1 shows stock market development and GDP data for Belgium during the period from 1988 to 2012.

Table 1. Stock market and GDP data for Belgium

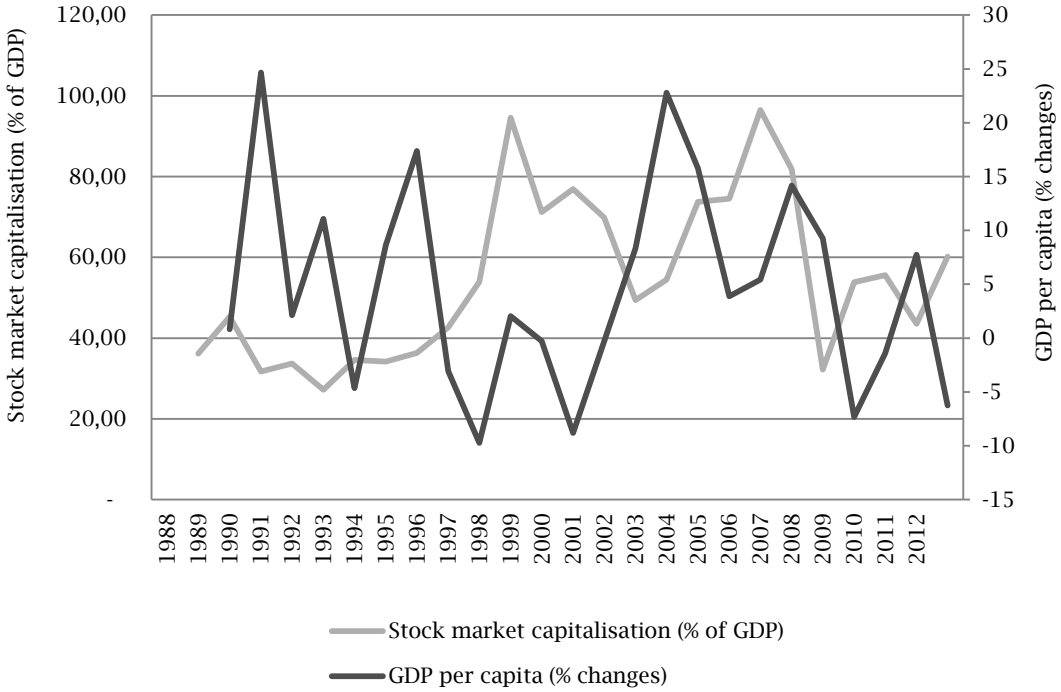
	SCAP (US$ Millions)	SCAP (% of GDP)	Value of stocks traded (US$ Billions)	Value of stocks traded (% of GDP)	GDP (US$	GDP per capita (US$ Thousands)
1988	58,900.00	36.15	8.37	5.14	162.92	16,453.54
1989	74,600.00	45.25	7.71	4.68	164.85	16,588.01
1990	65,400.00	31.73	6.42	3.12	206.11	20,678.85
1991	71,300.00	33.74	6.21	2.94	211.31	21,121.82
1992	64,200.00	27.24	8.03	3.41	235.68	23,461.67
1993	78,067.00	34.61	11.20	4.96	225.58	22,368.83
1994	84,103.00	34.21	12.82	5.22	245.82	24,300.79
1995	104,960.00	36.30	15.25	5.27	289.12	28,522.07
1996	119,831.00	42.68	26.12	9.30	280.79	27,646.05
1997	136,965.00	53.90	29.71	11.69	254.10	24,957.56
1998	245,657.00	94.55	55.36	21.31	259.82	25,465.25
1999	184,941.97	71.22	59.13	22.77	259.67	25,391.74
2000	182,481.00	76.89	38.01	16.02	237.34	23,151.95
2001	165,843.00	69.86	41.11	17.32	237.40	23,078.42
2002	127,556.30	49.37	33.81	13.08	258.39	25,006.79
2003	173,552.62	54.48	42.67	13.39	318.57	30,702.51
2004	273,247.42	73.76	80.06	21.61	370.45	35,547.54
2005	288,515.09	74.56	125.73	32.49	386.95	36,928.00
2006	396,220.18	96.47	165.92	40.40	410.70	38,936.33
2007	386,361.62	81.80	255.69	54.14	472.31	44,449.69
2008	167,446.80	32.20	211.78	40.72	520.09	48,561.36
2009	261,428.77	53.81	127.80	26.30	485.83	44,999.20
2010	269,341.85	55.60	111.46	23.01	484.43	44,360.90
2011	229,895.94	43.53	107.24	20.31	528.10	47,801.60
2012	300,058.18	60.16	103.26	20.70	498.75	44,818.05

Source: Author compilation from World Development Indicators

World Bank (2014) statistics shows that stock market capitalisation (STOCK) increased from US$58.9 million in 1988 to US$65.4 million in 1990 before gaining another 60.49% to end the year 1995 at US$104.96 million. On the other hand, gross domestic product (GDP) increased from US$162.92 billion in 1988 to US$206.113 billion in 1990. This was before it went up by 40.27%, from US$206.113 billion in 1990 to US$289.122 billion in 1995 (see Table 1). Furthermore, GDP nosedived by 17.91% during the five year period from 1995 to 2000 whilst STOCK massively increased by 73.86% during the same time frame.

Moreover, STOCK gained 58.11%, from US$182.48 million in 2000 to US$288.52 million in 2005 whilst GDP went up by 63.04%, from US$237.34 billion in 2000 to US$386.95 billion in 2005. STOCK however marginally lost 6.65% during the subsequent five year period to close the year 2010 at US$269.34 million before going up by 11.40%, from US$269.34 million in 2010 to US$300.06 million in 2012.

Figure 1. Stock market capitalisation (% of GDP) and GDP per capita (% changes) for Belgium



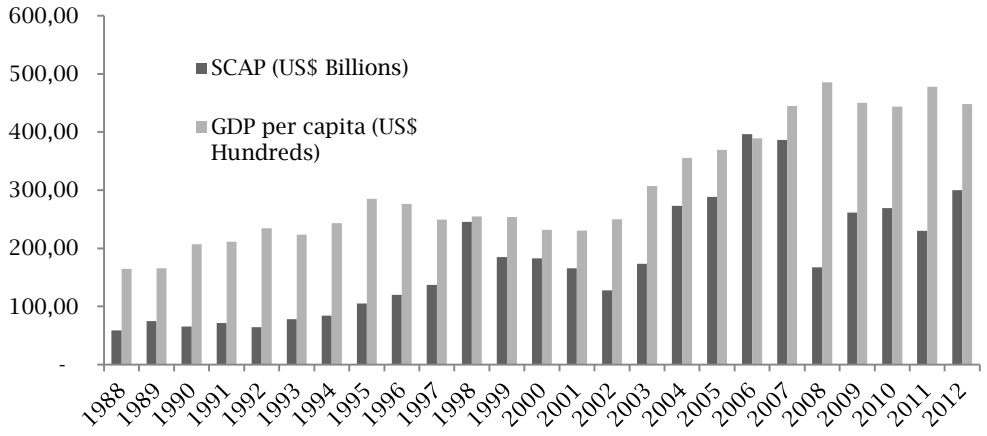
Source: World Bank (2014)

World Bank (2014) statistics showed that GDP rose by 63.04%, from US$237.34 billion in 2000 to US$386.95 billion in 2005 before recording a 25.19% growth during the subsequent five year period to end 2010 at US$484.43 billion. However, the two year period from 2010 to 2012 saw GDP gaining a marginal 2.95%. It actually increased from US$484.43 billion in 2010 to US$498.75 billion in 2012.

STOCK (% of GDP) declined by 4.42 percentage points, from 36.15% in 1988 to 31.73% in 1990 before a 4.57 percentage points rebound during the subsequent five year period to end 1995 at 36.30%.

GDP per capita increased by 25.68%, from US$16 453.54 in 1988 to US$20 678.85 in 1990 and further recorded a 37.93% increase to close the year 1995 at US$28 522.07. Furthermore, STOCK (% of GDP) massively increased by 40.58 percentage points, from 36.30% in 1995 to 76.89% in 2000 whilst GDP per capita lost 18.83% during the same time frame to close year 2000 at US$23 151.95. The subsequent five year period was characterized by 2.33 percentage points decline in STOCK (% of GDP) to close off year 2005 at 74.56% whilst GDP per capita massively increased by 59.50%, from US$23 151.95 in 2000 to US$36 928 in 2005.

Figure 2. Stock market capitalisation and GDP per capita trends in Belgium (1988 to 2012)



Source: World Bank (2014)

Furthermore, STOCK (% of GDP) experienced an 18.96 percentage points decrease, from 74.56% in 2005 to 55.60% in 2010 whilst GDP per capita grew by 20.13% during the same time frame to end 2010 at US$44 360.90 from US$36 928 in 2005. Last but not least, GDP per capita marginally gained 1.03% from US$44 360.90 in 2010 to US$44 818.05 in 2012 whereas STOCK as a ratio of GDP grew by 4.56 percentage points during the same time frame (from 55.60% in 2010 to 60.16% in 2012.

3. LITERATURE REVIEW

Cavenaile et al. (2014) investigated the relationship between banking sector, stock market and economic growth using panel co-integrated approach for five developing countries which include Malaysia, Mexico, Nigeria, Philippines and Thailand. Their study showed a uni-directional long run causality relationship running from both stock market and banking sector development to economic growth in all the five developing countries that were under study. On the other hand, no causality from economic growth to stock market and banking sector development was found in all the five developing countries (Cavenaile et al, 2014:38).

Hussain et al (2012) examined the relationship between stock market development and economic growth using descriptive statistics (Pearson's co-efficient correlation) with time series data from 1999 to 2008 in Pakistan. Their study noted that (1) there exists a significant long run relationship between stock market capitalization and economic growth and (2) the stock traded value had no link at all with real GDP growth rate in Pakistan.

Regmi (2012) used vector error correction model (VECM) with annual time series data from 1994 to 2011 to study the causality relationship between stock market development and economic growth in Nepal. The study found out that (1) stock market development significantly influenced the growth of the economy and (2) economic growth had no influence on stock market development in Nepal both in the short and long run.

Using the ARDL framework with annual time series data from 1980 to 2010, Ho & Odhiambo (2012) studied the causality between economic growth and stock market development in Hong Kong. Their findings are threefold: (1) a uni-directional causality relationship running from stock market development to economic growth when stock market capitalisation as a ratio of GDP was used as measure of stock market growth, (2) a distinct causal flow from economic growth to stock market growth in both the short and long run when the stock market turnover ratio was used as a measure for stock market development and (3) causality running from economic growth to stock market development in the short run only when the stock market trade value was used as a proxy for stock market development.

Palamalai & Prakasam (2014) studied the co-integration and causality relationship between stock market development and economic growth in India using time series data ranging from 1991 to 2013. They found out that there was a feedback effect between stock market development and economic growth in the long run and a uni-directional causality relationship running from stock turnover and stock market capitalization ratios to economic growth in the short and long run in India.

Abdelbaki (2013) examined the link between stock market development and macro-economic variables in Bahrain using ARDL approach with annual time series data from 1990 to 2007. "Banking sector, private capital flows, domestic investment and stock market liquidity were found to be part of the vital cog necessary for stock market development in Bahrain", argued Abdelbaki (2013:81). On the other hand, using exponential generalized autoregressive conditional heteroscedasticity (EGARCH), Babatunde (2013) found out that stock market volatility retarded the growth of the Nigerian economy.

Osuala et al. (2013) studied the relationship between stock market performance and economic growth in Nigeria using the ARDL with annual time series data from 1981 to 2011. Their study found out that (1) there exist a short run causality relationship running from total number of deals on the stock exchange ratio to GDP and (2) the relationship between stock market and economic growth did not exist in the long run in Nigeria. Ovat (2012) examined the applicability of the stock market-led growth hypothesis in Nigeria. The study noted that stock market liquidity had a bigger positive impact on economic growth in Nigeria than stock market size (Ovat, 2012:69).

Marques et al (2013) investigated the impact of stock market on economic growth in Portugal using the Vector Autoregressive (VAR) framework with annual time series data from 1993 to 2011. Their study revealed (1) feedback effect between stock market and economic growth, (2) uni-directional causality relationship running from economic growth to banking sector development and (3) banking sector had no impact on economic growth. On the other hand, Pilinkus & Boguslaukas (2009) noted that GDP and money supply had a positive influence on stock market prices whilst exchange rate, short term interest rates and unemployment rates had a negative impact on stock market prices in Lithuania.

Using Johansen-Juselius co-integration and Granger causality test with annual time series data ranging from 1999 to 2013, Bayar et al (2014) investigated the influence of stock market development on the growth of the economy in Turkey. Their findings are twofold: (1) there exist a long run co-integrating relationship between stock market development and economic growth and (2) the direction of causality runs from stock market development towards economic growth in Turkey. Furthermore, Yu et al (2012) examined the relationship between stock market development, financial development and economic growth across different income and geographic groups using unbalanced panel regressions and variance decompositions. They found out that GDP growth rate significantly Granger caused domestic credit to the private sector, GDP growth rate negatively influenced domestic credit provided by the banking sector. Stock market development and GDP growth rates were negligibly related across all income and geographic regions that formed part of the study (Yu et al, 2012). Table 2 summarizes the literature on the relationship between stock market development and economic growth.

Table 2. Summarized literature on the relationship between stock market development and economic growth

Author	Country/Countries of study	Methodology	Research findings
Ihendinihu (2012)	Nigeria from 1984 to 2011	Time series analysis	Stock market capitalisation and the all share index had a significant positive influence on economic growth.
Osamwonyi & Kasimu (2013)	Ghana, Kenya and Nigeria using data from 1989 to 2009.	Time series analysis	Stock market capitalisation and total number of listed securities were observed to have Granger caused economic growth in all the three countries under study.
Hou & Cheng (2010)	Taiwan using data from 1971 to 2007	Time series analysis	Stock market contributed more than banking sector development towards economic growth in Taiwan. The study also discovered a feedback effect between financial development and economic growth in Taiwan.
Asante et al (2011)	Ghana from 1992 to 2009	Time series analysis	Stock market development and competition in the banking sector was found to have Granger caused economic growth in Ghana.
Yartey (2010)	Emerging economies from 1990 to 2004	Panel data analysis	The study observed that macro-economic variables such as banking sector development, income levels, domestic investment and stock market liquidity significantly positively influenced stock market development.
Ndako (2010)	South Africa from 1983 to 2007	Time series analysis	Using banks' credit to the private sector as a measure of financial development, the study found a feedback relationship between economic growth and financial development. The study observed a uni-directional causality running from economic growth to stock market development when turnover ratio and value of stocks traded are used as proxies of stock market development.
Hossain & Kamal (2010)	Bangladesh from 1976 to 2008	Time series analysis	Stock market development was found to have had a significant causality impact on economic growth without any feedback in Bangladesh.
Nazir et al (2010)	Pakistan using data ranging from 1986 to 2008	Time series analysis	High stock market capitalisation and size were instrumental in stimulating economic growth in Pakistan.
Tachiwou (2010)	West African Monitory Union using data from 1995 to 2006	Time series analysis	Stock market development played a significant role in positively influencing economic growth both in the short and long run. This applied using both stock market capitalisation ratio and volume of shares traded ratio as proxies of stock market development.
El-Nader & Alraimony (2013)	Jordaan from 1990 to 2011	Time series analysis	The long run co-integrating relationship was observed between stock market development and the macro-economic variables in Jordaan.
Adefeso et al (2013)	Nigeria from 1980 to 2010	Time series analysis	Economic growth had a significant positive impact on both stock market development and banking sector activities in the long run in Nigeria.
Boubakari & Jin (2010)	Euronext countries	Time series analysis	Stock market was found to have had a significant positive influence on economic growth only in the Euronext countries which were characterised by active and liquid stock markets.
Choong et al (2010)	Comparison between developing and developed countries (1988-2002)	Panel data analysis	The study revealed that stock market acted as a conduit through which capital flows positively influenced economic growth.
Ake & Ognaligui (2010)	Cameroon from 2006 to 2010	Time series analysis	Stock market capitalisation had a significant impact on GDP in Cameroon.
Athanasis & Antonios (2010)	Italy using data from 1965 to 2007	Time series analysis	The study observed a uni-directional causality relationship running from economic growth to stock market development in Italy.
Ogunmuyiwa (2010)	Nigeria using data from 1984 to 2005	Time series analysis	Stock market liquidity Granger caused economic growth in Nigeria.
Cooray (2010)	Developing economies from 1992 to 2003	Time series analysis	Stock market size, liquidity and activity positively influenced economic growth in developing economies that were part of the study.
Salisu & Ajide (2010)	Nigeria from 1970 to 2004	Time series analysis	Findings are: (1) feedback relationship between stock market turnover ratio and economic growth, (2) uni-directional causality relationship running from stock market capitalisation ratio to economic growth and (3) no causality between stock market value traded ratio and economic growth in Nigeria was detected
Nowbutsing (2009)	Mauritius from 1989 to 2007	Time series analysis	Economic growth was significantly positively affected by stock market development both in the long and short run.
Zivengwa et al (2011)	Zimbabwe using data from 1980 to 2008	Time series analysis	Stock market development had a positive influence on economic growth.
Pradhan (2011)	India from 1983 to 2008	Time series analysis	Stock market development positively affected economic growth in India
Olweny & Kimani (2011)	Kenya using data from 2001 to 2010	Time series analysis	The share index was found to have positively affected GDP in the long run.
Zhang & Wu (2012)	China using quarterly data from 1994 to 2005	Time series analysis	Stock market had an insignificant negative influence on economic growth
Issahaku et al (2013)	Ghana using monthly data from 1995 to 2010	Time series analysis	Significant co-integrating relationship between stock market development and macro-economic variables such as money supply, inflation and interest rates.
Wild & Lebdaoui (2014)	Morocco using data from 2000 to 2013.	Time series analysis	The study found out that (1) there exist a long run causality relationship between economic growth and stock market development, (2) causality running from all share index, traded volume and stock market index to the real GDP per capita and (3) no causality relationship between stock market size (proxied by stock market capitalisation as a ratio of GDP and real GDP.

Source: Author compilation

4. METHODOLOGY

This section describes the data and variables used in the study, unit roots (stationarity tests) tests, F-Bounds tests and Granger causality tests using the Auto Regressive Distributive Lag (ARDL) approach.

4.1. Data description

The study used annual time series data from 1988 to 2012 obtained from World Development Indicators. Real GDP per capita was used as a proxy for economic growth whilst stock market capitalization

as a ratio of GDP was used as a measure for stock market development. The data for both variables was tested for stationarity before being used for the purposes of this study (see section 4.2).

4.2. Stationarity Tests

Both stock market capitalization and real per capita GDP variables were tested for stationarity before any co-integration and causality tests were done in a bid to ensure that the data being used is stable and not volatile (see Table 3 & 4).

Table 3. Stationarity Tests of Variables in Levels

Variable	TREND	NO TREND	Stationarity Status
ADF Test			
Ly/GDP	-3.674528	2.225190	Non stationary
LSTOCK	-2.564944	0.122072	Non stationary
Philip-Perron (PP) Test			
Variable	**TREND**	**NO TREND**	**Stationarity Status**
Ly/GDP	-1.942419	2.225190	Non stationary
LSTOCK	-2.564944	0.504184	Non stationary
DF-GLS Tests			
Variable	**TREND**	**NO TREND**	**Stationarity Status**
Ly/GDP	-3.607497	-0.707813	Non stationary
LSTOCK	-2.692254	-2.225931	Non stationary

Table 4. Stationarity Tests of Variables in first Difference

ADF Test			
Variable	**TREND**	**NO TREND**	**Stationarity Status**
DLy/GDP	-1.631052*	-1.760440*	Stationary
DLSTOCK	-3.777367**	-5.990438***	Stationary
Philip-Perron (PP) Test			
Variable	**TREND**	**NO TREND**	**Stationarity Status**
DLy/GDP	-3.820296**	-3.313208***	Stationary
DLSTOCK	-5.810053***	-6.112620***	Stationary
DF-GLS Tests			
Variable	**TREND**	**NO TREND**	**Stationarity Status**
DLy/GDP	-1.731798*	-1.899850*	Stationary
DLSTOCK	-5.940788***	-5.563548***	Stationary

*Note: 1) The truncation lag for the PP tests is based on Newey and West (1987) bandwidth. 2) *, ** and *** denote significance at 10%, 5% and 1% respectively. 3) Critical values for Dickey-Fuller GLS test are based on Elliot-Rothenberg-Stock (1996, Table 1).*

The results of the unit root tests reported in Tables 3 and 4 shows that both real GDP per capita and stock market capitalization are integrated of order 1.

4.3. Co-integration Tests

Before the ARDL-bounds test is done, the author examined the order of lags on the first differenced variables in equations (a) and (b) – using the Akaike Information Criterion (AIC) and the Schwartz-Bayesian Criterion (SC). The results of the AIC and SC tests (see Table 5) indicate that the optimal lag of both data variables is lag 1.

Table 5. Determination of the lag length

Lag	AIC	SC
4	-1.75254	-1.353105
3	-1.64614	-1.198483
2	-1.72935	-1.382203
1	-1.76534	-1.518494

The shorter optimum lag length (1 in this case) means that the two ARDL bounds test equations shown in (1) and (2) below are more robust.

After ascertaining that real GDP per capita and stock market capitalization are integrated of order 1 and that their optimal lag length is 1, the author went on to investigate the existence of a co-integrating vector using the ARDL-bounds testing approach that is represented by equations (1) and (2) below.

The author then applied the bounds F-test to equations (a) and (b), in order to investigate the existence of any long-run relationship between the two variables under study. The F-bounds test for co-integration results are shown in Table 6, 7 & 8.

Table 6. Bounds F-test – No Intercept and no trend

Dependent variable	Function		F-test statistic			
y/N	y/N(STOCK)		156 186***			
STOCK	STOCK(y/N)		2 222***			
Asymptotic Critical Values						
	1 %		5%		10%	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
Pesaran et al. (2001), p. 300, Table CI(i) Case I	4.81	6.02	3.15	4.11	2.44	3.28

*Note: *** denotes statistical significance at the 1% level.*

$$\Delta Iny/N_t = a_0 + \sum_{i=1}^{n} a_{1i}\Delta Iny/N_{t-i} + \sum_{i=0}^{n} a_{2i}\Delta InSTOCK_{t-i} + a_3 Iny/N_{t-1} + a_4 InSTOCK_{t-1} + \mu_t \quad (1)$$

$$\Delta InSTOCK_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i}\Delta InSTOCK_{t-i} + \sum_{i=0}^{n} \beta_{2i} Iny/N_{t-i} + \beta_3 Iny/N_{t-1} + \beta_{4l} InSTOCK_{t-1} + \mu_t \quad (2)$$

where,

In STOCK = Log of stock market development variable

y/N = Real GDP per capita and

Δ = first difference operator.

Table 6 shows that there is a long run long-run relationship between real GDP per capita and stock market capitalization in both the y/N and STOCK equations. This is evidenced by the F-statistic values which are higher than the asymptotic critical values at 1%, 5% and 10% significance levels in both the y/N and STOCK equations.

Table 7. Bounds F-test – Unrestricted Intercept and no trend

Dependent variable	Function		F-test statistic			
y/N	y/N(STOCK)		132.00***			
STOCK	STOCK(y/N)		7.72**			
Asymptotic Critical Values						
	1 %		5%		10%	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
Pesaran et al. (2001), p. 300, Table CI(iii) Case III	6.84	7.84	4.94	5.73	4.04	4.78

*Note: ** and *** denotes statistical significance at the 5% and 1% significance levels respectively.*

According to Table 7 (unrestricted intercept and no trend), there is a unique co-integrating vector between y/N and STOCK as confirmed by the F-statistic value which is (1) greater than the upper bound asymptotic critical values at 1%, 5% and 10% significance levels in the y/N equation and (2) greater than the upper bound asymptotic critical values at 5% and 10% significance levels in the STOCK equation.

Table 8 (unrestricted intercept and unrestricted trend) reports that there exist a long run relationship between real GDP per capita and stock market capitalization only in the y/N equation. In summary, Table 6, 7 & 8 shows that there is a long run relationship between real GDP per capita and stock market capitalization in Belgium.

Table 8. Bounds F-test - Unrestricted Intercept and unrestricted trend

Dependent variable	Function		F-test statistic			
y/N	y/N(STOCK)		11.79***			
STOCK	STOCK(y/N)		3.79			
Asymptotic Critical Values						
	1 %		5%		10%	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
Pesaran et al. (2001), p. 300, Table CI(v) Case V	8.74	9.63	6.56	7.30	5.59	6.26

*Note: *** denotes statistical significance at the 1% level.*

4.4 Causality Tests

The next stage is to investigate the causality between real GDP per capita and stock market capitalization since the two variables have been found to have a long run relationship. The Granger causality test between the two variables follows a model that was used by Narayan & Smyth (2008) and Odhiambo (2010).

$$\Delta Iny/N_t = \phi_0 + \sum_{i=1}^{n} \phi_{1i} \Delta Iny/N_{t-i} + \sum_{i=0}^{n} \phi_{2i} \Delta InSTOCKi_{t-i} + ECM_{t-1} + \mu_t \quad (3)$$

$$\Delta InSTOCK_t = \delta_0 + \sum_{i=1}^{n} \delta_{1i} \Delta InSTOCK_{t-i} + \sum_{i=0}^{n} \delta_{2i} \Delta Iny/N_{t-i} + ECM_{t-1} + \mu_t \quad (4)$$

where, ECM_{t-1} = the lagged error-correction term from long-run equilibrium relationship. The ECM co-efficient shows the number of times errors are corrected within a year.

According to Narayan & Smyth (2006), the lagged error-correction term stands for the long-run causality whilst the F-statistic shows the short-run causality based on the equations (3) and (4) – see Table 9.

Table 9. Granger Causality Tests

Dependent Variable	Causal Flow	Co-efficient of ECM	F-statistic
(y/N)	STOCK→ (y/N)	-0.100970 (0.1480)	0.744725 (0.3989)
STOCK	(y/N) → STOCK	0.199528 (0.4362)	0.307205 (0.5859)

Source: Author compilation

The co-efficient of the error correction term (ECM) is negative but not significant as p is greater than 5% in the y/N equations. This shows that there exists an insignificant long run uni-directional causality relationship running from stock market capitalization towards economic growth. The study also shows that there is no causality running from real GDP per capita to stock market capitalization both in the long and short run in Belgium.

5. CONCLUSION

The study investigated the relationship between stock market development and economic growth in Belgium using ARDL approach with annual time series data from 1988 to 2012. Real GDP per capita was used as a proxy for economic growth and stock market capitalization as a ratio of GDP as an approximate measure of stock market development. The relationship between stock market development and economic growth falls into four categories which are (1) stock market-led economic growth, (2) economic growth-led stock market development, (3) feedback effect and (4) neutrality hypothesis where there is no relationship between the two variables. Despite the existence of these four views on the relationship between stock market and economic growth, it appears from the literature review done by the author that majority of the empirical evidence support the stock market-led economic growth view.

The fact that the topic on the directional causality between stock market and economic growth is still inconclusive is the major motivating factor why the author chose to investigate the relationship between the two variables in Belgium.

The study observed that there exist an insignificant long run causality running from stock market development towards economic growth in Belgium. This relationship was not detected in the short run. Moreover, the reverse causality from real GDP per capita to stock market capitalization both in the long and short run was not detected in Belgium. These results are at variance with the majority of the empirical findings reviewed earlier on. Possibly, certain conditions that enable or allow stock market to significantly positively influence economic growth were not in place in Belgium. Therefore, the study urges the Belgium authorities to put in place the right environment, policies and programmes that enable the stock market to play its role of stimulating economic growth.

REFERENCES

1. Abdelbaki, H.H. (2013). Causality relationship between macroeconomic variables and stock market development: Evidence from Bahrain. The International Journal of Business and Finance Research. Vol. 7(1). pp 69-84.
2. Adefeso, H.A. Egbetunde, T. and Alley, I. (2013). Stock market development and economic growth in Nigeria: A causality analysis. Arabian Journal of Business and Management Review. Vol. 2(6). pp 78-94.
3. Ake, B. and Ognaligui, R.W. (2010). Financial stock market and economic growth in developing countries: The case of Douala stock exchange in Cameroon. International Journal of Business and Management. Vol. 5(5). pp 82-88.
4. Alajekwu, U.B. and Achugbu, A.A. (2012). The role of stock market development on economic growth in Nigeria: A time series analysis. An International Multidisciplinary Journal. Vol. 6(1). pp 51-70.
5. Asante, S. Agyapong, D. and Adam, A.M. (2011). Bank competition, stock market and economic growth in Ghana. International Journal of Business Administration. Vol. 2(4). pp 33-41.
6. Athanasios, V. and Antonios, A. (2010). The effect of stock and credit market development on economic growth and empirical analysis for Italy. International Research Journal of Finance and Economics. Vol. (41). pp 33-42.
7. Athanasios, V. and Antonios, A. (2012). Stock market development and economic growth: An empirical analysis for Greece. American Journal of Economics and Business Administration. Vol. 4(2). pp 135-143.
8. Babatunde, O.A. (2013). Stock market volatility and economic growth in Nigeria (1980-2010). International Review of Management and Business Research. Vol. 2(1). pp 201-209.
9. Baya, Y. Kaya, A. and Yildirim, M. (2014). Effects of stock market development and economic growth: Evidence from Turkey. International Journal of Financial Research. Vol. 5(1). pp 93-100.
10. Boubakari, A. and Jin, D. (2010). The role of stock market development in economic growth: Evidence from some Euronext countries. International Journal of Financial Research. Vol. 1(1). pp 14-20.
11. Carp, L. (2012). Can stock market development boost economic growth? Empirical evidence from emerging markets in central and Eastern Europe. Procedia Economics and Finance. Vol. 3(2012). pp 438-444.
12. Cavenaile, L. Gengenbach, C. and Palm, F. (2014). Stock markets, banks and long run economic growth: A panel co-integrated-based analysis. De Economist. Vol. 162(5). pp 5-23.
13. Choong, C.K., Baharumshah, A.Z., Yusop, Z. and Habibullah, M.S. (2010). Private capital flows, stock market and economic growth in developed and developing countries: A comparative analysis. Japan and the World Economy. Vol. 22(2). pp 107-117.
14. Cooray, A. (2010). Do stock markets lead to economic growth? Journal of Policy Modeling. Vol. 32(4). pp 448-460.
15. El-Nader, H.M. and Alraimony, A.D. (2013). The Macro-economic determinants of stock market development in Jordan. International Journal of Economics and Finance. Vol. 5(6). pp 91-103.
16. Ho, S.Y. and Odhiambo, N.M. (2012). Stock market development and economic growth in Hong Kong: An empirical investigation. International Business and Economics Research Journal. Vol. 11(7). pp 795-808.
17. Hossain, M.S. and Kamal, K..M.M. (2010). Does stock market development cause economic growth? A time series analysis for Bangladesh economy. International Conference on Applied Economics. pp 299-305.
18. Hou, H. and Cheng, S.Y. (2010). The roles of stock market in the finance-growth nexus: Time series co-integration and causality evidence from Taiwan. Applied Financial Economics. Vol. 20(12). pp 975-981.
19. Hussain, M.M. Islamabad, I. Rehman, M.Z. Rza, I. (2012). Relationship between stock market development and economic growth: A case study on Pakistan Stock Exchange. International Journal of Management and Innovation. Vol. 4(2). pp 54-61.
20. Ihendinihu, J.U. and Onwuchekwa, J.C. (2012). Stock market development and economic growth in Nigeria (1984-2011). Journal of Emerging Trends in Economics and Management Sciences. Vol. 3(6). pp 971-977.
21. Issahaku, H. Ustarz, Y. and Domanban, P.B. (2013). Macro-economic variables and stock market returns in Ghana: Any causality link. Asian Economic and Financial Review. Vol. 3(8). pp 1044-1062.
22. Kolapo, F.T. and Adaramola, A.O. (2012). The impact of the Nigerian capital market on economic growth (1990-2010). International Journal of Developing Societies. Vol. 1(1). pp 11-19.
23. Marques, L.M. Fuinhas, J.A. and Marques, A.C. (2013). Does the stock market cause economic growth? Portuguese evidence of economic regime change. Economic Modelling. Vol. 32 (May). pp 316-324.
24. Nazir, M.S. Nawaz, M.M. and Gilani, U.J. (2010). Relationship between economic growth and stock market development. African Journal of Business Management. Vol. 4(16). pp 3473-3479.
25. Ndako, U.B. (2010). Stock markets, banks and economic growth: Time series evidence from South Africa. The African Finance Journal. Vol. 12(2). pp 72-92.
26. Ngare, E. Nyamongo, E.M. and Misati, R.N. (2014). Stock market development and economic growth in Africa. Journal of Economics and Business. Vol. 74(July-August). pp 24-39.
27. Nowbutsing, B.M. (2009). Stock market development and economic growth: The case of

Mauritius. International Business and Economics Research Journal. Vol. 8(2). pp 77-88.
28. Ogunmuyiwa, M.S. (2010). Investor's sentiment, stock market liquidity and economic growth in Nigeria. Journal of Social Sciences. Vol. 23(1). pp 63-67.
29. Olweny, T.O. and Kimani, D. (2011). Stock market performance and economic growth. Empirical evidence from Kenya using causality test approach. Advanced in Management and Applied Economics. Vol. 1(3). pp 153-196.
30. Osamwonyi, I.O. and Kasimu, A. (2013). Stock market and economic growth in Ghana, Kenya and Nigeria. International Journal of Financial Reseach. Vol. 4(2). pp 83-98.
31. Osuala, A.E. Okereke, J.E. and Nwasi, G.U. (2013). Does stock market development promote economic growth in emerging markets? Causality evidence from Nigeria. World Review of Business Research. Vol. 3(4). pp 1-13.
32. Ovat, O.O. (2012). Stock market development and economic growth in Nigeria: Market size versus liquidity. Canadian Social Science. Vol. 8(5). pp 65-70.
33. Palamalai, S. and Prakasam, K. (2014). Stock market development and economic growth in India: An empirical analysis. International Journal of Finance and Banking Studies. Vol. 3(3). pp 2147-4486.
34. Petros, J. (2011). The effect of the stock exchange on economic growth: A case of the Zimbabwe stock exchange. Research in Business and Economics Journal. pp 1-17.
35. Pilinkus, D. And Boguslauskas, V. (2009). The short run relationship between stock market prices and macro-economic variables in Lithuania: An application of the impulse response function. Economics of Engineering Decisions. Vol. 5. pp 1-9.
36. Pradhan, R.P. (2011). Financial development, growth and stock market development: The trilateral analysis in India. Journal of Quantitative Economics. Vol. 9(1). pp 134-145.
37. Regmi, U.R. (2012). Stock market development and economic growth: Empirical evidence from Nepal. Administration and Management Review. Vol. 24(1). pp 1-28.
38. Rioja, F. and Valev, N. (2014). Stock markets, banks and the sources of economic growth in low and high income countries. Journal of Economics and Finance. Vol. 38(2). pp 302-320.
39. Salisu, A.A. and Ajide, K. (2010). The stock market and economic growth in Nigeria: An empirical investigation. Journal of Economic Theory. Vol. 4(2). pp 65-70.
40. Tachiwou, A.M. (2010). Stock market development and economic growth: The case of West African Monitory Union. International Journal of Economics and Finance. Vol. 2(3). pp 97-103.
41. Wild, J. and Lebdaoui, H. (2014). Stock market performance and economic growth in Morocco. Global Advanced Research Journal of Management and Business Studies. Vol. 3(5). pp 207-216.
42. World Bank (2014). World Development Indicators published by the World Bank, Washington D.C.
43. Yartey, C.A. (2010). The institutional and macroeconomic determinants of stock market development in emerging economies. Applied Financial Economics. Vol. 20(21). pp 1615-1625.
44. Yu, J.S. Hassan, M.K. and Sanchez, B. (2012). A re-examination of financial development, stock markets development and economic growth. Applied Economics. Vol. 44(27). pp 3479-3489.
45. Zhang, D. and Wu, Y. (2012). Household savings, the stock market and economic growth in China. Emerging markets finance and trade. Vol. 48(2). pp 44-58.
46. Zivengwa, T. Mashika, J. Bokosi, F.K. and Makova, T. (2011). Stock market development and economic growth in Zimbabwe. International Journal of Economics and Finance. Vol. 3(5). pp 140-150.

SUSTAINABILITY PERFORMANCE: IT'S IMPACT ON RISK AND VALUE OF THE FIRM

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Abstract

This study aims to analyze the relationship between the sustainability performances (corporate social performance, good corporate governance, and financial performance) and the risk as well as the value of the company. Employing the data from publicly listed mining firms in Indonesia and structural equation modeling to examine the hypotheses, we find that the corporate social performance improvement can be served to increase the corporate financial performance. Implementation of good corporate governance may contribute to improve financial performance and reduce the risk of the company. In short term, investors will appreciate the social and environmental responsibility undertaken by the company only if its implementation can contribute to the improvement of the company's financial performance. In long term, social and environmental performance improvements made by the company will be able to increase the value of the company directly. Investors consider companies that apply the principles of good corporate governance not just as regulatory compliance, so that it can provide benefits for improving corporate performance and value of the company, in the short term and long term.

Keywords: Corporate Social Performance, Financial Performance, Firm Risk, Firm Value, Good Corporate Governance, Sustainability Performance

1. INTRODUCTION

One of the company's purposes of existence is to maximize shareholder wealth, which can be achieved through an increase in the firm value. However, this often creates a gap divergence of interests between the company and shareholders, whose age is relatively shorter than the life of the company. Shareholders often tend to focus more on short-term increase in value and profit. Economic activity and development are only focused on short-term profits, often ignoring the social and environmental impacts, giving rise to social problems, pollution and environmental degradation, global warming, and others. Therefore, global awareness of sustainable development encourages stakeholders to implement development by observing the principles of sustainability.

Sustainable development is defined as the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987). Economic and social welfare are built with attention to the protection of natural resources and the environment. The principle of sustainability focuses on integrated growth between the economic, social, and environmental.

Sustainability performance can be defined as the company's performance in all aspects and dimensions to support the sustainability of the company (Schaltegger and Wagner, 2006). Companies are not only required as a business entity that pursues success financially, but also act as good corporate citizens (Visser et al., 2010). This concept is confirmed that the company should broaden its responsibilities in the social and environmental aspects. The company is deemed to have rights, obligations and responsibilities in the community, as well as other citizens.

Corporate governance also plays an important role in sustainability issues. Weak implementation of corporate governance practices has been identified as one cause of the global financial crisis in 1998 and 2008. The transparency aspect of the impact of economic, environmental, and social is a key component for an effective relationship between the company and its stakeholders.

There is quite a lot of research that proposes a framework for integrating social and environmental dimensions into the company's financial performance with various results. This is likely due to differences in the research methodology (Margolis and Walsh, 2001). It may also be due to a lack of understanding of the factors through which social and environmental performance could affect the company's enterprise value (Servaes and Tamayo, 2013).

Eccles et al. (2012) conducted a study on the impact of sustainability culture on behavior and performance of the company. The research was conducted on 180 companies in the United States that have high sustainability performance. The results show that companies with high sustainability performance has significantly better performance, both in accounting and in the stock market.

Siew et al. (2013) examined the relationship between sustainability and financial performance practices of construction companies listed on the Australian Stock Exchange. The results showed that companies that deliver non-financial reports have better performance compared to companies that do not deliver non-financial reports. But the results of the study found no significant relationship between sustainability and financial performance practices in the construction industry in Australia.

Oikonomou (2011) in his study of companies in

the United States, found that corporate social responsibility has a negative correlation but not significant to the systematic risk of the company. Meanwhile, companies that are not socially responsible have a significant positive correlation against financial risks. Toms et al. (2011) examined the relationship between environmental performance and the risk of companies in the UK. The results showed a significant negative correlation between environmental performance and the firm risk.

Although the general view agrees that social performance can improve long-term profitability and support the sustainability of the company, but some criticize that the implementation of corporate social responsibility will only shift the focus of the company's business (Ho, 2010).

Sustainability is an objective to be achieved by all companies. Indonesia as a developing country also began paying attention to sustainability issues. However, research on the dimensions of sustainability in Indonesia has not been done in a comprehensive and integrated way. This study aims to fill the research gap in the study of the sustainability performance, which generally uses separated proxy measurement and has not been integrated in a comprehensive manner, with contradictory and inconclusive findings. This study develops a theoretical approach regarding sustainability performance which is assessed in a comprehensive and integrated way, together with its direct and indirect implications to the risks and value of the company.

This research is expected to increase awareness of all parties about the importance of maintaining the balance between economic growth, social and environmental, in implementing sustainable economic development. In addition, the implementation of corporate governance is also encouraging companies to operate efficiently and responsibly, in order to achieve short term financial performance and provide long term sustainable benefits.

The first section of this article introduces the main agenda of the research and its contribution. The second section discusses the theory and previous research in order to develop hypotheses. The third section is about the methodology and the data that is analyzed from publicly listed companies mining sector in Indonesia. The fourth section describes the results of the analysis and discussion. The fifth section discusses the conclusions, implications based on empirical findings, and the limitations for future research.

2. LITERATURE REVIEW AND HYPOTHESES

2.1. Corporate social performance and financial performance

One of the important concepts of business performance measurement based on the principle of sustainability is related to Corporate Social Responsibility (CSR). This is the way of companies to achieve a balance in terms of economic, environmental, and social norms. While at the same time, meeting the expectations of shareholders and stakeholders. Social and environmental responsibility of companies is seen as the contribution of the company for the sustainable development. Social and environmental performance is the configuration of the principles of social and environmental responsibility, including the response process and the impact that can be observed in the relationship between business organizations with corporate human resources, as well as stakeholders and the environment (Visser et al., 2010).

Supporters of the theory of stakeholders (Freeman, 1984) suggests that there is a positive relationship between social and environmental performance with financial performance. Companies that perform social and environmental responsibility will receive many benefits, such as improvement in the relationship between companies and consumers (Brown and Dacin, 1997; Bhattacharya and Sen, 2004; Chu and Lin, 2012), the revenue growth (Lev et al., 2010) and the reduction of various types of labor costs, capital costs, and the cost of raw materials (Lougee and Wallace, 2008). Consumer awareness of the importance of social responsibility and corporate environment in support of a sustainable environment, also influence the consumer's decision to buy or use a product (Suki, 2013). Good management theory argues that good management practices can improve the relationship with stakeholders, resulting in better performance overall (Waddock and Graves, 1997). Social and environmental performance will improve satisfaction of stakeholders that will ultimately affect better company's financial performance.

H_1: Companies with better corporate social performance have better financial performance.

2.2. Good corporate governance and financial performance

The management of the company involves a series of relationships between the company's management, board, shareholders, and stakeholders. Agency theory (Jensen and Meckling, 1976) describes the relationship between shareholders and company management. Corporate governance mechanisms which can help ensure management acts in the best interests of the company, as well as minimizing agency costs.

Good corporate governance is imperative in ensuring the values required by various stakeholder groups, and improving company performance (Ganescu and Gangone, 2012). Implementation of corporate governance can improve supervision and support efficient operations (Krafft et al., 2013). Effective governance systems within the company's organization can help the company to achieve its goals, one of which relates to the company's financial performance.

H_2: Increased adoption of good corporate governance will improve financial performance.

2.3. Sustainability performance and firm risk

A risk management perspective suggests that social and environmental performance, under certain conditions, can produce positive moral values. Positive moral values will provide a guarantee for the company to operate well in the middle of a neighborhood and stakeholder's community (Godfrey, 2005). Companies that have good social and environmental performance can also reduce

market-based risk (Busch et al., 2012).

$H_{3.a}$: Better corporate social performance will reduce the firm risk.

Risk management has become an important aspect of business management. Corporate governance has an important role in risk management. Good corporate governance clearly regulates the rights and obligations of various parties in the organization so that each party can act for the best interests of the company and reduce the risks arising from the conflict of interest between the various stakeholder groups (Crowther and Seifi, 2010). Companies with good corporate governance practices are well recognized to have lower levels of risk by the market (Lameira et al., 2011). Implementation of effective corporate governance can encourage adequate internal and whole risk control.

$H_{3.b}$: Increased adoption of good corporate governance serves to reduce the firm risk.

The financial performance of the company demonstrates management's ability to manage its resources efficiently to generate profits. The decisions in the financial field will affect the risks faced by the company. The financial manager should look for a certain balance between risk and return, that will provide optimal results (risk return trade off).

$H_{3.c}$: Better financial performance will reduce the firm risk.

2.4. Sustainability performance and firm value

Social and environmental responsibility can be interpreted as an approach to value creation in the long term, not just for shareholders, but for all stakeholders, based on the ability to take advantage of opportunities and manage risk (Chirieleison, 2004; Ghelli, 2013). Increased awareness of the importance of social and environmental responsibility has prompted many institutions in the field of investment to include it as one of the factors considered in making investments, or which is known as socially responsible investing (SRI). Disclosure of information about social and environmental responsibility is a process to communicate the social and environmental impact of economic activities of an organization to specific groups and to the whole society (Gray et al., 1987). In accordance with the theory of signal (Spence, 1973), such information is a signal to outsiders (investors), which may influence investment decisions.

Implementation of social and environmental responsibility of companies can be seen as an effort to help direct the focus of management towards maximizing the long term value of the company. This paradigm shift can become a trade-off between short-term costs to be incurred by the company to undertake social and environmental responsibility, to the sustainability benefits for the company in the long term.

$H_{4.a}$: Increased corporate social performance will enhance firm value.

Corporate governance that functions effectively, can ensure the safety and suitability of shareholder and stakeholders' rights. Good corporate governance can create an environment that is transparent to guarantee that each party is able to take responsibility and contribution to the growth and creation of the value of the company. Good governance can attract investors' confidence to invest. The role of corporate governance is manifested in the creation of corporate value and transparency support (Lamm, 2010). Good corporate governance will have an impact on the growth of the company and also on the overall economic development. This is because the corporate governance practices are appropriate to reduce risks for investors, attract capital investment, and enhance corporate value (Spanos, 2005).

$H_{4.b}$: Increased adoption of good corporate governance will enhance firm value.

Good financial performance is one of the key factors in maintaining the continuity of the company in the long term. In addition to considering the effectiveness of management in managing investment companies, investors also pay attention to the performance of management in managing the resources of the company to generate profits. The main objective of financial management is to maximize the company's value, which can be realized if the company has good financial performance (Ross et al., 2010). Good financial performance of a company is a positive signal for investors that will increase investor confidence in the company and will enhance the company's stock price in the stock market.

$H_{4.c}$: Increased corporate financial performance will enhance firm value.

2.5. Firm risk and firm value

Risks can be a threat or an opportunity for companies to increase their value. If an investment with greater risk is successful, the result will benefit the shareholders. But if the investment fails, the impact will decrease the value of the company. The disclosure of the risk can decrease the asymmetric information between managers and investors, so that the investment decision can be done properly. Investment decisions will ultimately affect the value of the company.

H_5 : Stable risk will improve financial performance.

3. EMPIRICAL METHODOLOGY

3.1. Data and sample

This study was conducted on 14 public companies in the mining sector listed on the Indonesian Stock Exchange (IDX) during 2009-2014. The data are taken from IDX website and the official websites of the sampled firms.

3.2. Endogenous variables

Corporate financial performance. This study defines the Corporate Financial Performance (CFP) as the accounting measurement performance, which reflects the company's internal efficiency in the use of resources. Accounting performance measurement are reflected by Return on Assets (ROA), Return on Equity (ROE), Return on Sales (ROS), and Nett Profit Margin (NPM) (Brigham and Houston, 2013).

Firm risk. In this study, the risk indicator

reflected by systematic risk, idiosyncratic risk (Bali and Cakiki, 2008), and the standard deviation of the return.

Firm value. The value of the company is reflected by the indicator of Tobin's Q (Chung and Pruitt, 1994), Price to Earning Ratio (PER) and Price to Book Value (PBV).

3.3. Exogenous variables

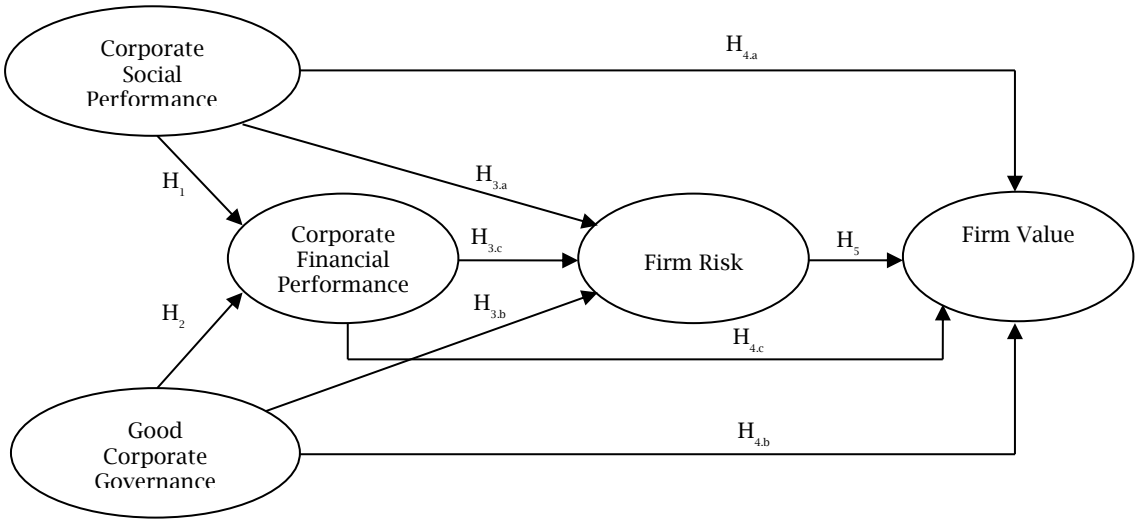
Corporate social performance. Social and environmental performance is measured on the disclosure of information on corporate responsibility with regard to the impact and its business activities on society and the environment. Disclosure index of social responsibility and environmental reporting using the framework of the third version of the Global Reporting Initiatives (GRI G3.1). Indicators are the variables that make up the economic, environmental, labor practices and decent work, human rights, society, and product responsibility. Rate disclosure of social and environmental responsibility of companies uses content analysis method (Guthrie and Abeysekera, 2006). Any disclosure uses a dummy variable that is equal to 1 to identify the firms that have disclosed in accordance with the GRI G3.1; otherwise, 0. The score of each item of disclosure summed to obtain a score per indicator disclosures for any company.

Good corporate governance. Content analysis was used to assess the disclosure on corporate governance in the company's annual report (Moloi, 2008). Corporate governance index is calculated by assessing the number of disclosures for each indicator of the number of corporate governance disclosure of corporate governance expected, with reference to the OECD (2004) and Cheung et al. (2014). Indicators are the variables that shape the rights of shareholders and key ownership functions, the equitable treatment of shareholders, the role of stakeholders in corporate governance, disclosure and transparency, and the responsibilities of the board.

3.4. Models

The conceptual framework proposed in this study as shown in Figure 3.1.

Figure 1. Model



Based on empirical research model line diagram of Figure 1, three structural equation can be arranged as follows:

$$CFP = \gamma_1 CSP + \gamma_2 GCG + \zeta_1 \quad (1)$$

$$FR = \gamma_3 CSP + \gamma_4 GCG + \beta_1 CFP + \zeta_2 \quad (2)$$

$$FV = \gamma_5 CSP + \gamma_6 GCG + \beta 2 CFP + \beta_3 FR + \zeta_3 \quad (3)$$

This study also conducted a sensitivity analysis, that is testing the model with one year and two years' time difference of observations. This is to test the consistency of the results, as has been done in several studies that examined the relationship between non-financial performance and financial performance (Tilakasiri, 2012; Oikonomu, 2011). The rationality of the approach that uses difference in observation time (lag) is the need for a time of change and the length of time it takes for an effect can occur (Scholtens 2008). For model t-0, data for exogenous and endogenous variables are from the years of 2009 to 2014. For model t-1, the data for the exogenous variables are from the years of 2009 to 2013, and endogenous variables from the years of 2010-2014. For model t-2, data on exogenous variables are from the years of 2009 to 2012, and endogenous variables from the years of 2011 to 2014.

4. RESULTS AND DISCUSSION

4.1. Data analyses

This research uses Structural Equation Modeling (SEM) with SmartPLS 3.0 program to determine and analyze the influence of exogenous variables on endogenous variables.

The descriptive statistics analysis appears in Table 1.

Table 1. Statistics Descriptive

Variables and Indicators	Minimum	Maximum	Mean	Standard Deviation
Corporate Social Performance (CSR)				
Economic (EC)	0.222	1.000	0.743	0.238
Environmental (EN)	0.033	1.000	0.544	0.308
Labor practices & decent work (LP)	0.133	1.000	0.588	0.257
Human rights (HR)	0.000	1.000	0.358	0.341
Society (SO)	0.100	1.000	0.558	0.298
Product responsibility (PR)	0.111	1.000	0.501	0.306
Good Corporate Governance (GCG)				
Rights of shareholders (RS)	0.625	1.000	0.805	0.095
Equitable treatment of shareholders (ET)	0.400	0.800	0.602	0.150
Role of stakeholders (RO)	0.200	1.000	0.655	0.264
Disclosure and transparency (DT)	0.556	1.000	0.781	0.100
Board responsibilities (BR)	0.450	0.950	0.752	0.140
Corporate Financial Performance				
Return on Asset (ROA)	-0.170	0.350	0.061	0.100
Return on Equity (ROE)	-2.179	0.510	0.017	0.425
Return on Sales (ROS)	-0.981	0.457	0.146	0.175
Net Profit Margin (NPM)	-1.197	0.340	0.054	0.182
Firm Risk				
Systematic risk (SR)	-2.740	6.786	1.304	1.370
Idiosyncratic risk (IR)	0.019	1.181	0.140	0.142
Standard Deviation of Return (SD)	0.036	1.181	0.164	0.149
Firm Value				
Tobin's Q (Q Tobin)	0.658	7.804	1.823	1.350
Price to Book Value (PBV)	0.160	80.400	4.195	10.770
Price to Earning Ratio (PER)	-168.620	138.190	14.058	38.926

The validity test results of the model demonstrate that there are indicators which cannot reflect the construct so it should be dropped and not used further in this study. The indicator is the systematic risk (SR) on the firm risk variables and Price to Book Value (PBV) on the value of the company variable. The significant indicator that form CSR variable is society and product responsibility. While the GCG significant indicator is the rights of shareholders, equitable treatment of shareholders, disclosure and transparency. Indicators that are not significant from the formative construct are not dropped so it does not omit the meaning of the construct.

4.2. Findings and Discussion

The results of hypotheses testing can be seen in Table 2.

Table 2. Results of Hypotheses Testing

Hypotheses	Relationships	Path Loading	p-value	Remarks
1	CSP --> CFP	0,291	0,017	Significant
2	GCG --> CFP	0,364	0,005	Significant
3.a	CSP --> FR	0,086	0,348	Not significant
3.b	GCG --> FR	-0,361	0,018	Significant
3.c	CFP --> FR	-0,138	0,262	Not significant
4.a	CSP --> FV	0,132	0,233	Not significant
4.b	GCG --> FV	0,072	0,367	Not significant
4.c	CFP --> FV	0,392	0,000	Significant
5	FR --> FV	0,466	0,002	Significant

The test results for indirect effect between variables can be seen in Table 3.

Table 3. Results of Testing Indirect Effect

No.	Indirect Effect	p-value	Remarks
1	CSP --> CFP --> FR	0.27106657	Not significant
2	GCG --> CFP --> FR	0.26845747	Not significant
3	CSR --> CFP --> FV	0.03429245	Significant
4	CSR --> FR --> FV	0.34918558	Not significant
5	GCG --> CFP --> FV	0.01917822	Significant
6	GCG --> FR --> FV	0.04302029	Significant
7	CFP --> FR --> FV	0.26708348	Not significant

The results of hypotheses testing for t-1 and t-2 can be seen in Table 3.

Table 3. Results of Hypotheses Testing for t-1 and t-2

Model	Hypotheses	Relationships	Path Coefficient	p-value	Remarks
t-1	1	CSR --> CFP	0,308	0,021	Significant*
	2	GCG --> CFP	0,324	0,021	Significant*
	3.a	CSR --> FR	0,035	0,429	Not significant
	3.b	GCG --> FR	-0,505	0,001	Significant*
	3.c	CFP --> FR	0,093	0,250	Not significant
	4.a	CSR --> FV	0,182	0,269	Not significant
	4.b	GCG --> FV	0,054	0,392	Not significant
	4.c	CFP --> FV	0,343	0,003	Significant*
	5	FR --> FV	0,277	0,114	Not significant
t-2	1	CSR --> CFP	0,233	0,100	Significant**
	2	GCG --> CFP	0,469	0,000	Significant*
	3.a	CSR --> FR	-0,184	0,337	Not significant
	3.b	GCG --> FR	-0,349	0,024	Significant*
	3.c	CFP --> FR	0,121	0,420	Not significant
	4.a	CSR --> FV	0,439	0,016	Significant*
	4.b	GCG --> FV	-0,010	0,955	Not significant
	4.c	CFP --> FV	0,275	0,023	Significant*
	5	FR --> FV	-0,061	0,588	Not significant

Note: * significance level α = 5%, ** significance level α = 10%.

The test results for indirect effect between variables for t-1 and t-2 can be seen in Table 4.

Table 4. Results of Testing Indirect Effect Sensitivity Analysis

Model	No.	Relationships	p-value	Remarks
t-1	1	CSR --> CFP --> FR	0.25975566	Not significant
	2	GCG --> CFP --> FR	0.25977609	Not significant
	3	CSR --> CFP --> FV	0.04984794	Significant*
	4	CSR --> FR --> FV	0.42989547	Not significant
	5	GCG --> CFP --> FV	0.04995624	Significant*
	6	GCG --> FR --> FV	0.12894654	Not significant
	7	CFP --> FR --> FV	0.27713883	Not significant
t-2	1	CSR --> CFP --> FR	0.23305346	Not significant
	2	GCG --> CFP --> FR	0.21401997	Not significant
	3	CSR --> CFP --> FV	0.09068694	Significant**
	4	CSR --> FR --> FV	0.31884658	Not significant
	5	GCG --> CFP --> FV	0.02697960	Significant*
	6	GCG --> FR --> FV	0.30137256	Not significant
	7	CFP --> FR --> FV	0.32651419	Not significant

*Note: * significance level α = 5%, ** significance level α = 10%.*

Results of testing the hypotheses can be explained as follows:

H_1 : Results of testing the influence of social and environmental performance to the company's financial performance shows the value of the path coefficient 0.291, p-value 0.017 < 0.05. It shows that the social and environmental performance has positive significant effect on financial performance, making H_1 is accepted. The model t-1 shows a significant positive correlation, with path coefficient 0.308 and p-value of 0.021 < 0.05. The model t-2 also shows a significant positive correlation with the path coefficient of 0.233, and the p-value 0.100.

Social and environmental performance has positive significant effect on the company's financial performance. Improvements in non-financial performance, in this case through the implementation of social and environmental responsibility, will be able to improve the financial performance of the company. Sensitivity analysis with a gap of observation of one year and two years show the same results. It shows that companies that perform social and environmental responsibility well, is able to maintain its financial performance as well, in both the short and long term.

H_2 : The test results of the influence of the corporate governance to the company's financial performance shows the value of the path coefficient 0.364, p-value 0.005 < 0.05. It shows that the corporate governance has positive effect on the financial performance of the company, so that H_2 is accepted. The model t-1 shows a significant positive correlation with path coefficient 0.324 and p-value of 0.021 < 0.05. The model t-2 also shows a significant positive correlation, with path coefficient 0.469 and p-value of 0.000 < 0.05.

Corporate governance has positive significant effect to the company's financial performance. Improved implementation of good corporate governance will affect the improvement of the financial performance of the company. Sensitivity analysis with the lapse of time of observation of one year and two years consistently show the same results. This shows that companies that implement good corporate governance, can improve its financial performance on an ongoing basis.

$H_{3.a}$: Results of testing the effects of environmental and social performance to the firm risk shows the value of the path coefficients 0.086, with p-value 0.348 > 0.05. It shows that the social and environmental performance does not significantly influence the firm risk, so that $H_{3.a}$ is rejected. The model t-1 and t-2 also show no significant association between social and environmental performance with the firm risk.

Social and environmental performance does not significantly influence the firm risk. Sensitivity analysis with a gap of observation of one year and two years also show the same results. These results are in contrast to the previous studies showing that

CSR activities can reduce systematic risk (Albuquerque et al., 2015, Toms et al., 2011) and unsystematic risk (Cajias and Bienert, 2011) of the companies. This is likely due to the crisis experienced by the mining industry over the study period, as a result of the global economic slowdown which impacted on the declining of the demand for the mine product.

$H_{3.b}$: The test results of the influence of the corporate governance to the firm risk shows the path coefficients -0.361, with p-value 0.018 > 0.05. It shows that the corporate governance negatively affect the firm risk, so that $H_{3.b}$ is accepted. The model t-1 shows a significant negative correlation, with path coefficient of -0.505, and p-value of 0,001 < 0.05. The model t-2 also shows a significant negative correlation, with path coefficients -0.349, and p-value 0.024 < 0.05.

Corporate governance has a significant negative effect to the firm risk. Improved corporate governance practices will reduce the firm risk. A sensitivity analysis with a time difference observation of one year and two years consistently show the same results. These results are consistent with research Lameira et al. (2011) and Ferreira and Laux (2007). Corporate governance has an important role in risk management, because the understanding and implementation of good corporate governance can reduce the risks that may occur (Tara and Sadri, 2015). Implementation of effective corporate governance can encourage adequate internal control, able to adapt to the level of risk and whole risk control (OECD, 2014).

$H_{3.c}$: The test results of the influence of the financial performance of companies to the firm risk shows the value of the path coefficients -0.138, with p-value 0.262 > 0.05. This shows that the company's financial performance does not significantly influence the firm risk. Thus, $H_{3.c}$ is rejected. The model t-1 and t-2 also show no significant relationship between financial performance and the firm risk.

$H_{4.a}$: The test results of the influence of social and environmental performance to the firm value indicates the path coefficient of 0.132, with p-value 0.233 > 0.05. This shows that the social and environmental performance does not significantly influence the value of the company, so that $H_{4.a}$ is rejected. The model t-1 also shows no significant association between social and environmental performance with the firm value. But the model t-2 shows the path coefficient 0.439, with p-value 0.016 < 0.05. It indicates that the social and environmental performance has significant positive effect on firm value. Thus, social and environmental performance significantly influences the value of the company, through the financial performance as mediator, at t-0, t-1, and t-2.

Social and environmental performance has no direct significant effect on the value of the company, in the same period (t-0) and the difference of one year (t-1). But there is an indirect significant effect through the company's financial performance. While in the two-year time difference (t-2), social and environmental performance has a significant positive effect on firm value. This shows that social and environmental responsibility is an investment for value creation in the long term. The results of this study agree with Nguyen et al. (2015), and Bidhari et al. (2013).

$H_{4.b}$: The results of testing the effect of corporate governance on firm value shows the value of the path coefficient 0.072, with p-value 0.367 > 0.05. This indicates that corporate governance does not significantly influence the firm value, so that $H_{4.b}$ is rejected. The model t-1 and t-2 also show no significant relationship between corporate governance and firm value.

Corporate governance has a significant effect on the value of the company, through the financial performance as mediator, both at t-0, t-1 and t-2. The firm risk significantly mediates the relationship between corporate governance with the firm value at t-0.

Corporate governance has no direct significant effect to the firm value. A sensitivity analysis with a time difference observation of one year and two years also show similar results. Corporate governance has a significant effect on the firm value indirectly through the company's financial performance. This indicates that investors would appreciate it if the implementation of corporate governance is not only as the fulfillment of regulatory obligations, but should be able to contribute the enhancement of the company's financial performance.

$H_{4.c}$: The test results of the influence of the financial performance of companies to the firm value indicates the path coefficient of 0.392, with a p-value of 0.000 < 0.05. It shows that the company's financial performance has positive significant effect to the firm value, so that $H_{4.c}$ is accepted. The model t-1 shows a significant positive correlation, with path coefficient 0.343 and p-value of 0.003 < 0.05. The model t-2 also shows a significant positive correlation, with a path coefficient 0.275 and p-value of 0.023 < 0.05.

The company's financial performance has positive significant effect to the firm value. A sensitivity analysis with a time difference observation of one year and two years also show similar results. An increase in the company's financial performance will increase the firm value, both in the short term and long term.

H_5 : Results of testing the effect of the firm risk to the firm value indicates the path coefficient of 0.466, with p-value of 0.002. It shows that the firm risk has positive significant effect to the value of the company, so that H_5 is accepted. But the model t-1 and t-2 show no significant association between the risk of the company and the value of the company.

The firm risk has positive significant effect to the firm value. The higher the risk, the higher the firm value. But the sensitivity analysis with a time difference observation of one year and two years find no significant association between the firm risk with the firm value. Dynamic capital market conditions prompted investors need the latest update so that the firm risk significantly influence the value of the company only in the same period.

5. CONCLUSION

From these results, it can be concluded that the improvement of social and environmental performance can be served to increase the company's financial performance, both in the short

term and long term. Implementation of good corporate governance (GCG) may contribute to improve financial performance and reduce the firm risk, both for short term and long term.

In short term, investors will appreciate the social and environmental responsibility undertaken by the company only if its implementation can contribute to the improvement of the company's financial performance. In long term, social and environmental performance improvements made by the company will be able to increase the value of the company directly.

Investors considering companies that apply the principles of good corporate governance (GCG) not just as a regulatory compliance alone, so that it can provide benefits for improving corporate performance and firm value, in the short term and long term.

The study provides some practical implications that the disclosure of non-financial information can become a relevant consideration for investors in making investment decisions. Social and environmental performance of the company is able to improve the company's financial performance for value creation. Good corporate governance may contribute to improve financial performance and reduce the firm risk.

There are some limitations for this study: first, the model in this study only examines the one way relationship between the non-financial performance to financial performance, risk, and the value of the company. Second, environmental and social performance and corporate governance are not easily measurable. Subjective interpretation is made possible when assessing certain items disclosed by the company, using content analysis approach.

Therefore, we need further testing on the model and the direction of the relationship between variables in the model. In addition, we need to develop a better approach in the measurement of non-financial performance in order to represent the actual conditions.

REFERENCES

1. Albuquerque, R., Durnev, A., and Koskinen, Y. (2015), "Corporate Social Responsibility and Firm Risk: Theory and Empirical Evidence", Available at SSRN: http://dx.doi.org/10.2139/ssrn.1961971
2. Bali, Turan G., and Cakiki, Nusret. (2008), "Idiosyncratic Volatility and the Cross Section of Expected Return", Journal of Financial and Quantitative Analysis, Vol. 43, No. 1, pp. 29-58.
3. Bhattacharya, C.B., and Sen, S. (2004), "Doing Better At Doing Good: When, Why, and How Consumers Respond to Corporate Social Initiatives", California Management Review, Vol. 47, No. 1, pp. 9-24.
4. Bidhari, S.C., Salim, U., and Aisjah, S. (2013), "Effect of Corporate Social Responsibility Information Disclosure on Financial Performance and Firm Value in Banking Industry Listed at Indonesia Stock Exchange", European Journal of Business and Management, Vol. 5, No. 18, pp. 39-46.
5. Brigham, E.F., and Houston, J.F. (2013), Fundamental of Financial Management, 13th edition, South-Western, Mason.
6. Brown, T.J., and Dacin, P.A. (1997), "The Company and the Product: Corporate Associations and Consumer Product Responses", Journal of Marketing, Vol. 61, No. 1, pp. 68-84.
7. Busch, T., Lehmann, N., and Hoffmann, V.H. (2012), "Corporate Social Responsibility, Negative Externalities, and Financial Risk: The Case of Climate Change", Discussion Paper, Duisenberg School of Finance – Tinbergen Institute.
8. Cajias, M., and Bienert, S. (2011), "Does Sustainability Pay Off for European Listed Real Estate Companies? The Dynamics between Risk and Provision of Responsible Information", The Journal of Sustainable Real Estate, Vol. 3, No. 1, pp. 211-231.
9. Cheung, Y.L., Connelly, J. Thomas, E., Jesus P., Limpaphayom, P., Lu, T., and Utama, S. (2014), "The Corporate Governance and Firm Valuation in Asian Emerging Markets", Corporate Governance in Emerging Markets, Boubaker, S. and Nguyen, D.K. (eds). Springer-Verlag Berlin Heidelberg, pp. 27-53.
10. Chirieleison, C. (2004), "L'evoluzione del Concetto di Corporate Social Responsibility".
11. Chung, K.H and Pruitt, S.W. (1994), "A Simple Approximation of Tobin's q", Financial Management, Vol. 23, No. 3, pp. 70-74.
12. Crowther, D., and Seifi, S. (2010), Corporate Governance and Risk Management, Ventus Publishing, Denmark.
13. Eccles, R.G., Ioannou, I., and Serafeim, G. (2012), "The Impact of a Corporate Culture of Sustainability on Corporate Behavior and Performance", Working Paper, Harvard Business School.
14. Ferreira, M.A., and Laux, P.A. (2007), "Corporate Governance, Idiosyncratic Risk, and Information Flow", The Journal of Finance, Vol. 62, No. 2, pp. 951-989.
15. Freeman, R. E. (1984), Strategic Management: A Stakeholder Approach, Pitman, Boston.
16. Ganescu, M.C., and Gangone, A.D. (2012), "A Methodology for Measuring Responsible Corporate Governance in Countries of Emerging Europe", The USV Annals of Economics and Public Administration, Vol. 12, No. 2, pp.129-139.
17. Ghelli, Caterina. (2013), "Corporate Social Responsibility and Financial Performance: An Empirical Evidence", Thesis, Copenhagen: Copenhagen Business School.
18. Godfrey, P.C. (2005), "The Relationship Between Corporate Philanthropy and Shareholder Wealth: A Risk Management Perspective", Academy of Management Review, Vol. 30, No. 4, pp. 777-798.
19. Gray, R., Owen, D., and Maunders, K.T. (1987), Corporate Social Reporting: Accounting and Accountability, Prentice-Hall, London.
20. Guthrie, J. and Abeysekera, I. (2006), "Content Analysis of Social, Environmental Reporting: What is New?", Journal of Human Resource Costing & Accountnig, Vol. 10, No. 2, pp. 114-126.
21. Ho, V.H. (2010), "Enlightened Shareholder Value: Corporate Governance Beyond The Shareholder-Stakeholder Divide", The Journal of Corporation Law, Vol. 36, No. 1, pp. 59-112.
22. Jensen, M.C., and Meckling, W.H. (1976), "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure", Journal of Financial Economics, Vol. 3, No. 4, pp. 305-360.
23. Krafft, J., Qu, Y., Quatraro, F., and Ravix, J.L. (2013), "Corporate Governance, Value and Performance of Firms: New Empirical Results on Convergence from A Large International Database", Industrial and Corporate Change, Oxford University Press (OUP), pp.1-37.

24. Lameira, V.D.J., Harris, J.E., Quelhas, O., and Pereira, R. (2011), "Is the Quality of Corporate Governance Associated to the Market Risk for Brazilian Energy Companies?", International Journal of Intercultural Information Management, Vol. 2, No. 4, pp. 276-300.
25. Lamm, J. (2010), "Under Control, Governance Across the Enterprise, Springer, USA, pp.1-13.
26. Lev, B., Petrovits, C., and Radhakrishnan, S. (2010), "Is Doing Good Good for You? How Corporate Charitable Contributions Enhance Revenue Growth', Strategic Management Journal, Vol. 31, pp. 182-200.
27. Lougee, B., and Wallace, J. (2008), "The Corporate Social Responsibility (CSR) Trend", Journal of Applied Corporate Finance, Vol. 20, No. 1, pp. 96–108.
28. Margolis, J.D., and Walsh, J.P. (2001), "Misery Loves Companies: Whither Social Initiatives by Business", Working Paper, No.01-058, Harvard Business School.
29. Moloi, Steven T.M. (2008), "Assessment of Corporate Governance Reporting in the Annual Report of South African Listed Companies", PhD Thesis, Pretoria: University of South Africa.
30. Nguyen, B.T.N., Tran, H.T.T., Le, O.H., Nguyen, P.T., Trinh, T.H., and Le, V. (2015), "Association between Corporate Social Responsibility Disclosures and Firm Value – Empirical Evidence from Vietnam", International Journal of Accounting and Financial Reporting, Vol. 5, No. 1, pp. 212-228.
31. OECD. (2004), Principles of Corporate Governance, OECD Publication Services, Paris.
32. OECD. (2014), Risk Management and Corporate Covernance, OECD Publishing, Paris.
33. Oikonomou, Ioannis. (2011), "Empirical Investigation of the Relationship between Corporate Social and Financial Performance", PhD Thesis, Reading: Henley Business School.
34. Ross, Stephen A., Westerfield, Randolph W., Jordan, Bradford D. (2010), Fundamentals of Corporate Finance, 9th ed., McGraw-Hill/ Irwin, New York.
35. Schaltegger, S., and Wagner, M. (2006), "Integrative Management of Sustainability Performance, Measurement and Reporting", International Journal of Accounting, Auditing and Performance Evaluation, Vol. 3, No. 1, pp. 1-19.
36. Scholtens, B. (2008), "A Note on the Interaction Between Corporate Social Responsibility and Financial Performance", Ecological Economics, Vol. 68, No. 1, pp. 46-55.
37. Servaes, H., and Tamayo, A. (2013), "The Impact of Corporate Social Responsibility on Firm Value: The Role of Customer Awareness", Management Science, Vol.59, No. 5, pp. 1045-1061.
38. Siew, R.Y.J., Balatbat, M.C.A., and Carmichael, D.G. (2013), "The Relationship between Sustainability Practices and Financial Performance of Construction Companies", Smart and Sustainable Built Environment, Vol. 2, No. 1, pp. 6-27.
39. Spanos, L.J. (2005), "Corporate Governance in Greece: Developments and Policy Implications", Corporate Governance, Vol. 1, pp. 15-30.
40. Spence, Michael. (1973), "Job Market Signaling", The Quartely Journal of Economics, Vol. 87, No. 3, pp. 355-374.
41. Suki., Norazah M. (2013), "Green Awareness Effects on Consumer's Purchasing Decision: Some Insights from Malaysia", International Journal of Asia Pacific Studies, Vol. 9, No. 2, pp. 49-63.
42. Tara, S., and Sadri, S. (2015), "Corporate Governance and Risk Management: An Indian Perspective", International Journal of Management Science and Business Administration, Vol. 1, No. 9, pp. 33-39.
43. Tilakasiri, K.K. (2012), "Corporate Social Responsibility and Company Performance: Evidence from Sri Lanka", PhD Thesis, Melbourne: Victoria University.
44. Toms, S., Anderson, K., and Salama, A. (2011), "Does Community and Environmental Responsibility Affect Firm Risk? Evidence from UK Panel Data 1994–2006", Business Ethics: A European Review, Vol. 20, No. 2, pp. 192-204.
45. Visser, W., Matten, D., Pohl, M., and Tolhurst, N. (2010), The A-Z of Corporate Social Responsibility, John Wiley & Sons Ltd., West Sussex, United Kingdom.
46. Waddock, S.A., and Graves, S.B. (1997), "The Corporate Social Performance – Financial Performance Link", Strategic Management Journal, Vol. 18, No. 4, pp. 303-319.
47. World Commission on Environment and Development (WCED). (1987), Our Common Future, Oxford University Press, New York.

IFRS ADOPTION AND ACCOUNTING QUALITY: EVIDENCE FROM THE NIGERIAN BANKING SECTOR

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Abstract

This paper examined whether mandatory adoption of IFRS is associated with improvement in accounting quality of banks listed on the Nigerian Stock Exchange (NSE). The study made use of secondary data; data were extracted from financial statements from 2010 – 2013. The data were analyzed using Ordinary Least Square (OLS) from SPSS. The findings of the study revealed that after the adoption of IFRS, the rate at which Nigerian banks engage in income smoothing increased, while earnings management towards small positive earnings reduced, thus reducing the quality of accounting amount disclosed in the financial statements. The findings of this study have effect on the efficiency of the stock market. Therefore, other bodies, such as SEC, BOFIA, among others should put in place measures that will limit the extent to which bank managers uses their discretion and alternatives in accounting standards to manage earnings.

Keywords: IFRS, Accounting Quality, Earnings Management, Income Smoothing, Small Positive Earnings

1. INTRODUCTION

The movement from local accounting standards to International Financial Reporting Standards (IFRS) has generated a lot of debates and controversies around the world, the reason been that IFRSs differ from the standards of those countries adopting it. Proponents of IFRS (Lang, Ready & Yetman, 2003; Barth, Landsman & Lang, 2007; Arum, 2013; Nassar, Uwuigbe, Uwuigbe and Abuwa, 2014) argued that with the adoption of a uniform set of accounting standards worldwide, financial reporting system of firms will be enhanced, which will increase the comparability, reliability, relevance, and consistency of information disclosed in the financial statements. According to Abdulkadir (2012), with IFRS, the need for supplementary information will be reduced, which will eventually reduce the cost of business operations across borders. IFRS reduces manager's choice of accounting methods, thereby restraining their discretion (Barth et al, 2007).

IFRS consist of a set of high-quality accounting standards that provides transparent, comparable and understandable financial reports to users in making economic decisions (Arum, 2010; Chebaane & Othman, 2013; Yurt & Ergun, 2015). Accounting quality shows how much information disclosed in the financial statement reflect the true and fair position/performance of the firm, and it is measured in this study as earnings management. Healy and Whalen (1998) cited in Rudra and Bhattacharjee (2012 p.16) opined that "earnings management refers to a situation where managers use judgment in financial reporting in structuring transactions so as to alter financial reports either to mislead some users about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers".

A number of studies (Barth et al, 2007; Arum, 2013; Nassar, Uwuigbe, Uwuigbe and Abuwa, 2014) suggest that the adoption of International Financial Reporting Standards (IFRS) will improve the quality of financial reporting. The argument is based on the idea that using a common set of accounting standards will to a large extent, enhance the quality of financial reporting. On the other hand, Beuren & Klann, (2015) argued that the adoption of IFRS will create room for manipulating accounting numbers because IFRS is principle-based; thus reducing the quality of financial reporting. The premise of their argument is that IFRS, being principled-based, encourages financial managers to use their professional discretion and be creative, which will decrease the reliability, relevance, transparency, and comparability of financial reporting information.

Universal adoption of IFRS is an essential determinant of financial reporting quality, as many firms across different countries will be using the same set of accounting standard in preparing their financial statements. Arum (2013) investigated the impacts of IFRS implementation on the quality of accounting information in Indonesia; they posited that the implementation of IFRS is expected to bring about better, more reliable and relevant financial reporting quality capable of minimizing moral hazard in the financial statements to conduct earnings management through accrual policy.

Despite the numerous benefits associated with IFRS adoption, there still exist arguments as to whether IFRS increases the quality of accounting information of firms that adopts it. There has been mixed evidence as to whether or not IFRS adoption leads to increase in the quality of financial reporting. Some researchers (Ewert and Wagenhofer, 2005;

Barth et al, 2007) opined that the adoption of IFRS has resulted in an increase in the quality of accounting information, others (Paananen, 2008; Ahmed, Neel & Wang, 2012) were of the opinion that IFRS adoption has reduced the quality of financial reporting of firms that adopts it. Some other studies (Outa 2011) found no effect on the quality of financial reporting after IFRS adoption; they found a mixed result which indicates that IFRS adoption neither increases nor decreases the quality of financial reporting.

To the best of the researcher's knowledge, research of this nature has not been carried out in the banking sector in Nigeria. Therefore, the objective of this paper is to examine the impact of mandatory IFRS adoption on accounting quality of banks quoted on the Nigerian Stock Exchange (NSE). Specifically, this paper investigated whether mandatory IFRS adoption is associated with fewer earnings management.

2. IFRS ADOPTION

Nigeria started implementation process in 2012 with firms listed and firms that have significant public interest to adopt in 2012; other public interest entities to adopt in January 2013, and Small and Medium Scale Enterprises (SMEs) to adopt in January 2014. Many studies (Owolabi & Iyoha, 2012; Emeni, 2013; Najeb, 2014; Nassar, Uwuigbe, Uwuigbe and Abuwa, 2014) have examined the benefits of IFRS adoption and came to the conclusion that its adoption will be beneficial to countries that adopt it regardless of cultural differences. According to the IFRS Adoption Roadmap Committee (2010), it will be in the interest of the economy for firms listed to adopt universally accepted, high-quality accounting standards by converging fully the Nigerian national accounting standards with IFRS, given the increase in capital markets globalization.

According to Asian and Dike (2015), a report released by KPMG in 2010 disclosed that the adoption of IFRS by Nigerian banks will not only affect the financial reporting but other areas of the business such as debt covenants, compensation and bonuses arrangements, legal contracts, among others. According to Abata (2015), failure on the part of firms to fully implement IFRS requirements will result in a lack of transparency and accountability, distortion in financial reporting, inconsistencies, which will in turn amount to poor financial reporting practice.

3. ACCOUNTING QUALITY

There is no uniform definition of the term Accounting Quality. Most studies describe accounting quality in terms of financial reports reflecting the true and fair value of a firm. Penman (2002) cited in Ames (2013) opined that accounting quality should be addressed and discussed in terms of the shareholders' interests and the usefulness of accounting information in assisting the shareholders. Barth et al (2007) described accounting quality as the capability of accounting measures to reflect a firm's economic condition and performance.

Previous studies (Barth et al, 2007; Paananen, 2008) used earnings management, value relevance, and timely loss recognition as determinants of accounting quality. Barth, Landsman, Lang and Williams (2006) considered earnings management, accrual quality, and earnings timeliness as the dimensions of accounting quality; their argument was that these dimensions of accounting quality are potential sources of the increase in comparability of variations in economic outcomes. For the purpose of this study, earnings management will be the determinant of accounting quality.

4. IFRS ADOPTION AND ACCOUNTING QUALITY

To improve the quality of financial reporting is one of the objectives of IFRS. The adoption of IFRS and the subsequent effects it has on the accounting quality of firms that adopt it has been investigated by so many researchers and in different countries. Barth et al (2007) did a comparative study comprising 21 European countries; Paananem (2008), Sweden; Paglietti (2008) considered the case of Italy; Outa (2011), Kenya; Qu, Fong & Oliver (2012), China; Abdullah (2014), Jordan; Najeb (2014), Lybia; Indrawati (2012), Indonesia.

Barth et al (2007) examined whether the accounting amounts of firms that uses US GAAP are higher than accounting amount of firms that apply IFRS; they compared accounting metrics of firms that apply US GAAP to IFRS firms so at to determine whether US GAAP-based accounting amounts are fewer earnings management, more timely loss recognition, and higher value relevance. They found out that accounting quality of US firms that apply US GAAP is of higher quality than those of non-US firms that apply IFRS.

Paananen (2008) in a sample of 376 whose data were available at world scope found out that after the adoption of IFRS there has not improved the financial reporting quality of firms. The study found some indications of a decrease in accounting quality as measured by earnings smoothing, timeliness of loss recognition and value relevance.

Christensen, Lee, and Walker (2008) examined the impact of mandatory IFRS adoption on accounting quality by focusing on earnings management and timely loss recognition; whether improvement in accounting quality is as a result of the standards or incentives to adopt. The result of their study revealed that mandatory IFRS adoption has no effect on the accounting quality of firms that have no incentives to adopt. They opined that improvements in accounting quality regarding the application of new standards are not dependent on whether the new standards are alleged to be of higher quality but on the incentives of those that prepares the accounts.

Paglietti (2009) observed from 2002-2007 a sample of 92 Italian non-financial firms quoted on the Italian Stock Exchange that mandatorily adopted IFRS 2005. The result of the study revealed that accounting quality after IFRS adoption has decreased in terms of earnings management and timely loss recognition, and increases in terms of value relevance. They also opined that the reporting incentives of individual companies in an institutional setting largely determine the quality and properties of financial statements, rather than the accounting standards applied.

Similarly, the findings of Indrawati (2015) revealed that there is no difference in the quality of accounting amounts after accounting standards convergence with IFRS. Using a sample of 62 companies listed on the Indonesia Stock Exchange, they found out that accounting quality decreases if considered in relation to earnings management and timely loss recognition; on the other hand, accounting quality increases if considered to be related to value relevance. Indrawati (2015)

For Finland, Jarva and Lantto (2012) examined the impact of mandatory IFRS adoption on the quality of accounting amounts; they compared information content of IFRS-based financial statements with Finnish Accounting Standards based financial statements. Using a sample of 94 Finnish firms, they analyzed data from the pre-IFRS period (1999-2003) and from the pro-IFRS period (2005-2009). They could not find systematic evidence that mandatory IFRS adoption results in enhanced accounting quality; accounting amounts of IFRS are not of higher quality than those of Finnish Accounting Standards.

Ames (2013) looked at the case of South African and found out that the adoption of IFRS has led to improvement in the quality of some, but not all annual reports components in South Africa. Specifically, he found out that earnings quality was not significantly improved among firms, and also, specific components in the statement of the financial position changed in value relevance in the post-IFRS period.

Dimitropoulous, Asteriou, Kousenidis and Leventis (2013) looked at a sample of 101 companies listed on the Athens Stock Exchange (ASE) for the period from 2001–2008. As part of their findings, they observed that the implementation of IFRS has contributed to fewer earnings management, more timely loss recognition, and greater value relevance. They also observed that a company's audit quality balances the beneficial impact of IFRS as companies whose financial statements were audited by a Big-5 audit firm indicated a higher accounting quality compared to those whose financial statements were audited by no of the Big-5 audit firm.

Ahmed, Neel and Wang (2012), using a sample from 20 countries that implemented IFRS in 2005 found out that IFRS adoption increases income smoothing and aggressive reporting of accruals, and also there is no significant increase in timely loss recognition.

Abdullah (2014) also argued that they were unable to find systematic evidence that mandatory adoption of IFRS leads to improved accounting quality. They carried out a study on the impact of voluntary IFRS and mandatory IFRS on accounting quality and found out that mandatory adoption of IFRS has resulted in more earnings management, earnings and book value of equity became less relevant and less timely loss recognition.

Muller (2015) investigated the impact of mandatory IFRS adoption on the quality of consolidated financial reporting. The data used consists of companies quoted on the London, Paris and Frankfurt Stock Exchanges between 2003 and 2008. Their findings revealed that after IFRS was made mandatory for preparing consolidated financial statements, there has been an increase in the quality of information provided by group financial statements compared to parent company individual financial statements.

Asian and Dike (2015) carried out a similar study in Nigeria but focused on manufacturing firms listed on the Nigerian Stock Exchange. Their findings were in line with Ahmed et al (2012) and Abdullah (2014) that mandatory adoption of IFRS has decreased the quality of financial reporting. They found out that earnings and book value of equity has become less relevant during the post-IFRS period compared to pre-IFRS period.

There have been mixed findings regarding IFRS adoption and accounting quality. Some studies (Christensen et al, 2008; Paglietti, 2009; Outa, 2011) attribute these mixed findings to some institutional factors; some of these factors are, culture, investor protection, reporting incentives, legal framework a country, incentive to adopt, and the model of a county's local standards.

5. IFRS ADOPTION AND EARNINGS MANAGEMENT

Earnings management is the measure of accounting quality used in determining accounting quality in this study. According to Healy and Wahlen (1998) cited in Rudra and Bhattacharjee (2012) "earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers". Earnings management involves a situation where the financial manager who prepares and presents annual reports uses judgment to influence it.

According to Sellami and Fakhfakh (2014), "the divergence of interest between managers and shareholders could induce managers to employ the flexibility created by the accounting standards to manage income opportunistically, thereby creating misrepresentations in the reported earnings."

There are three modalities of earnings management and this depends on the motivations of the managers (Martinez, 2001). Martinez (2001) identified; (1) target earnings, where firms manage to either increase or decrease accounting amounts; (2) income smoothing, where firms manage to reduce the variability of accounting amounts; and (3) big bath accounting/conservative accounting, where firms manage to reduce current earnings so as to increase future earnings. This study focused on two kinds of earnings management; income smoothing and earnings management towards small positive earnings

With IFRS, allowable accounting alternatives are removed which provides accounting measurements that better shows a firm's economic performance and position; thus, restricting managers ability to manage earnings, and increasing the overall quality of information disclosed (Dimitropulos, Asteriou, Kousenidis & Leventis, 2013).

In the study of Zeghal et al (2011) on the effect of mandatory adoption of IFRS on earnings management with a sample of 851 French listed companies whose data were available in World scope, Stockproinfo, and Daine databases. The result of their study revealed that mandatory adoption of

IFRS by French companies has reduced earnings management.

Jaweher and Mounira (2012) investigated the impact mandatory IFRS adoption on the quality of earnings in Europe and Australia; using a sample of 17 countries from both, they found out that earnings quality increased after IFRS adoption. Their study indicates a reduction in both income smoothing and earnings management towards small positive earnings.

Beuren and Klann (2015) examined the impact IFRS adoption has on earnings management. Using a sample of 11 European Union countries, they found out that IFRS positively affected some countries, those with reduced level of earnings management (Czechoslovakia, Italy, and Spain) negatively affected some countries, those with increased level of earnings management (France, Germany and Netherland); and those which IFRS adoption did not present any significant effect (Britain, Denmark, Greece).

6. HYPOTHESES DEVELOPMENT

Hoque, Zijl, Dustan and Karim (2012) carried out a study on the effect IFRS adoption has on earnings management around the world, precisely in forty-six countries. The result of their study revealed that IFRS adoption does not increase earnings quality; however, earnings quality may improve with the adoption of IFRS in countries whose investor protection regime gives stronger protection to investors.

In the study by Capkun, Collins and Jeanjean (2012) on whether IFRS adoption deters earnings management, they found out that income smoothing increased after IFRS adoption by firms. Based on literature reviewed, the study thus predicts that:

H_1: IFRS adoption will not reduce Income smoothing

Khhoo and Ahmad (2015) carried out a study on IFRS convergence and earnings management and found out that IFRS reduced firms' engagement in earnings management. Other than income smoothing, bank managers most times prefer to report positive earnings instead of reporting losses in unfavourable years. Chebaane and Othman (2013) investigated the effect of mandatory adoption of IFRS on earnings management towards small positive profit in South Africa and Turkey and found out that earnings management towards small positive profit did not reduce.

H_2: IFRS adoption will not reduce the level of earnings management towards small positive earnings.

7. THEORETICAL FRAMEWORK

The theory underpinning this study is the agency theory, which explains the relationship between principals and agents. The principals being the shareholders while the agents are the firm's executives (managers); one party (principals) employs the other party (agents) to manage the company on their behalf. The agents may pursue other goals and interest that may be different from that of the agents (agency problem). According to Duru and Tsitinidis (2013), managers in banks are always under pressure to provide high returns; and as such, the principals are willing to provide some form of incentives to managers. With such incentives, bank managers using accounting preferences will attempt to disclose high income even in a period of losses.

IFRS been principle-based gives managers the opportunity to use accounting standards and their discretion to manipulate accounting numbers, thus, sending wrong signals to the shareholders. With IFRS, managers now smooth income and also manage to earn towards small positive earnings.

8. METHODOLOGY

To evaluate whether mandatory adoption of IFRS is associated with improvement in accounting quality, we compare accounting the quality of firms before IFRS adoption and after IFRS adoption. The cross-sectional research design was used in this study because the data were collected at a specific point in time for the various observations i.e. 31st December for the various years observed. The population of this study consists of all the fifteen commercial banks listed on the Nigerian Stock Exchange (NSE) between 2010 and 2013. Using the Yamane sampling technique, a sample size of 14 was obtained. Due to the availability of data, 11 banks formed the sample size.

To test the quality of accounting information, our data covered the period from 2010-2013. The pre-adoption period covered 2010 – 2011 while the post-adoption period covered 2012 – 2013. The data were analyzed using descriptive statistics and Ordinary Least Square (OLS) from the Statistical Package for Social Sciences (SPSS).

8.1. Measurement of variables

This study adopted earnings management as its dependent variable and IFRS adoption as its independent variable. Following Barth et al (2007), earnings management was measured by variations net income (NI) reported in the financial statements. The variations were compared for both pre-adoption and post-adoption period, and a decision was made. IFRS adoption was measured by employing a dummy variable which represents 0 for pre-adoption period and 1 for the post-adoption period.

8.2. Model specification

As discussed earlier, earnings management will be the determinant of accounting quality in this study. The composition of this measure is discussed below.

In line with previous studies (Barth et al, 2007; Paglietti, 2008), this paper focused on two kinds of earnings management; earnings smoothing and managing towards small positive earnings. According to Barth et al (2007) earnings smoothing is measured by the variability of changes in net income and the variability of changes in net income relative to variability of changes in operating cash flows. A high variance of changes in net income is consistent with fewer earnings smoothing (Bart et al, 2007; Lang et al, 2003). Previous studies (Barth et al, 2007; Outa, 2011) revealed that economic factors/variables such as size, growth in sales, auditors, financial leverage etc. affect firms'

discretionary accruals. The measures of earnings smoothing are discussed below:

- Variability of changes in net income, which is the variance of the residuals from the regression of the change in net income on factors identified in the literature (Barth et al, 2007; Outa, 2011).

Therefore, ΔNI is expressed in the equation below:

$$\Delta NI_{it} = \alpha 0 + \alpha 1\ SIZEit + \alpha 2\ GROWTHit + \alpha 3\ EISSUEit + \alpha 4\ LEVit + \alpha 5\ DISSUEit + \alpha 6\ TURNit + \alpha 7\ CFit + \varepsilon it \quad (1)$$

where:

ΔNI_{it} = change in net income divided by for firm i in year t;
SIZE = natural logarithm of market value of equity;
GROWTH = percentage change in sales;
ISSUE = percentage change in common stock;
LEV = end of year total liabilities divided by equity book value;
DISSUE = percentage change in total liabilities;
TURN = turnover divided by total assets;
CF = net cash flow from operating activities divided by total assets;
E = error term.

The apriori expectation is that the variability of changes in net income in the post-adoption adoption period will be less than the pre-adoption period.

- Variability of changes in net income relative to the variability of changes in operating cash flows, which is the variability of change in net operating cash flows scaled by total assets (ΔCF). Usually, firms with unstable cash flows will typically have unstable income (Outa, 2011). Therefore, when companies use accruals in managing earnings, the variation in net income should be lower than that of operating cash flows.

Thus, ΔCF is expressed as:

$$\Delta CF_{it} = \alpha_0 + \alpha_1\ SIZE_{it} + \alpha_2\ GROWTH_{it} + \alpha_3\ EISSUE_{it} + \alpha_4\ LEV_{it} + \alpha_5\ DISSUE_{it} + \alpha_6\ TURN_{it} + \alpha_7\ CF_{it} + \varepsilon_{it} \quad (2)$$

where:

ΔCFit = changes in net cash flow from operations for firm i in year t (scaled total assets at the end of the year).

The apriori expectation is that the variability of changes in net income relative to variability of changes in cash flow in the post-adoption period will be less than that of the pre-adoption period.

The second kind of earnings management is managing towards small positive earnings. To analyze our measure of earnings management towards small positive earnings, the study followed Paglietti (2009) by estimating the coefficient of a dummy variable SPOS in the regression equation:

$$SPOS\ (0,1) = \alpha_0 + \alpha I\ FRS_{it} + \alpha_2\ SIZE_{it} + \alpha_3\ GROWTH_{it} + \alpha_4\ EISSUE_{it} + \alpha_5\ LEV_{it} + \alpha_6\ DISSUE_{it} + \alpha_7\ TURN_{it} + \alpha_8\ CF_{it} + \varepsilon_{it} \quad (3)$$

SPOS is an indicator variable equal to one if net income scaled by total assets is between 0.00 and 0.01 for observations and zero otherwise; negative co-efficient indicates fewer earnings management towards small positive earnings in the post-IFRS adoption period (Paglietti, 2009). IFRS (0,1) is also an indicator variable equal to one for any give observation in the post-IFRS adoption period and zero in the pre-IFRS adoption period.

The conclusion from previous studies (Paglietti, 2009; Outa, 2011) was that firms that apply IFRS account for small positive earnings with lower frequency. These studies showed that a large frequency of small positive earnings is an evidence of managing towards positive earnings. The apriori expectation is that the coefficient on SPOS will be positive.

8.3. Data analysis and results

The data included in the empirical analysis consisted of 44 firm-year observations of 11 banks between 2010 and 2013 (4 years) based on the availability of complete data. The data was obtained from audited financial statements that indicated the accounting standards used in its preparation, and the capital market. The data obtained was divided into two; two years before IFRS was adopted (2010 & 2011), and two years after IFRS was adopted (2012 & 2013).

Table 1. Descriptive statistics of test and control variables used in the analysis

	NGAAP				IFRS			
Test Variables								
	Mean	Median	Standard Deviation	Skewness	Mean	Median	Stadard Deviation	Skewness
ΔNI	0.0052	0.0042	0.0360	-.757	-.0278	.0022	.2044	-4.032
ΔCF	0.0785	0.0834	0.l303	-.441	-.1747	-.0330	.4805	-2.549
SPOS	0.3600	0.0000	0.4920	0.609	0.32	0.00	0.477	0.839
Control Variables								
LEV	7.3586	4.9700	6.4554	3.0	6.0677	5.8750	4.5025	.711
GROWTH	13.9395	22.0900	25.9430	-.120	38.9809	23.0800	144.6580	3.421
EISSUE	10.5177	.0000	22.8521	3.358	11.9232	.0000	41.1304	4.051
DISSUE	39.6981	25.8900	38.4641	2.207	34.5410	19.4100	76.7718	1.310
SIZE	18.2029	18.2550	1.0920	-.373	18.1184	18.6550	2.3633	-1.930
CF	.0596	.0506	.0905	.722	.0284	.0149	.0810	.805
TURN	.1090	.1095	.0186	.539	.2958	.1200	.7631	4.594

Source: SPSS computation, 2015

Test Variables:

ΔNI = change in net income based on end of year total assets.

ΔCF = changes in net cash flow based on end of year total assets.

SPOS is an indicator variable = one if earnings scaled by total assets is between 0.00 and 0.01 and zero otherwise.

Control Variables:

SIZE = natural logarithm of market value of equity.

GROWTH = percentage change in sales.

ISSUE = percentage change in common stock.

LEV = end of year total liabilities divided by equity book value.

DISSUE = percentage change in total liabilities.

TURN = turnover divided by total assets.

CF = net cash flow from operating activities divided by total assets.

Table 1 represents descriptive statistics for the variables used in the analyses, by distinguishing between test variables and control variables. Both have been computed separately for banks that reported under N-GAAP and under IFRS. As per prediction, there is a decrease in the variability from 0.0052 in the pre-adoption period to -0.0278 in the post-adoption period. This change indicates that higher variability after the adoption of IFRS. There's a reduction in change in cash flow from 0.0785 to -0.1747 contrary to prediction. The table also indicates a decrease in small positive earnings (SPOS) from 0.36 to 0.32.

The control variables showed a decline after IFRS adoption except for GROWTH, EISSUE and TURN. LEV declined from 7.3586 to 6.0677; DISSUE, from 39.6981 to 34.5410; SIZE, from 18.2029 to 18.1184; and CF, from 0.059 to 0.0284. There was an increase in GROWTH from 13.9395 to 38.9809; EISSE increased from 10.5177 to 11.9232; while TURN increased from 0.1090 to 0.2958.

The result from the descriptive statistics with variables not controlled sends a mixed signal as to whether after IFRS adoption, accounting quality increased or not. This could be as a result of bank's specific characteristics. A more filtered result, with all the variables controlled, is presented below.

Table 2. Earnings management

Measure	Prediction	Post (22)	Pre (22)
Variability of ΔNI*	Post<Pre	0.011(0.000)	0.013(0.085)
Variability of ΔNI* over ΔCF*	Post<Pre	0.0075(0.008)	0.1444(0.002)

Source: SPSS computation, 2015

From table 2, the measures of earnings smoothing were all consistent, as they all showed a reduction after the adoption of IFRS. The variability of change in net income decreased after IFRS adoption from 0.013 to 0.011; though not statistically significant in the pre-adoption period but statistically significant in the post-adoption period, a lower value is considered less volatile earnings. Thus, a smaller variance of change in net income indicates earnings smoothing. Variability of change in net income to variability of change in cash flow decreased from 0.1444 to 0.0075, and was statistically significant; it is believed that when firms use accruals to manage earnings, the variability of change in net income will be lower than that of cash flow. On this basis, less positive values for this measure indicates greater income smoothing. The findings indicated that Nigerian banks smooth earnings more after the adoption of IFRS than they do before the adoption of IFRS.

Table 3. Small positive earnings (SPOS)

Variables	coefficient	P-value
Constant	2.780	0.002
POST	-0.110	0.457
SIZE	-0.116	0.010
GROWTH	0.000	0.687
EISSUE	0.003	0.161
LEV	-.0.029	0.052
DISSUE	-0.002	0.290
TURN	-0.141	0.330
CF	-0.736	0.405

Source: SPSS computation, 2015

Table 3 represents the coefficient on POST, which was negative, -0.110 and also not statistically significant at 0.457. This indicates that banks engage in earnings management towards small positive earnings more frequently in the pre-adoption period than they do in the post-adoption period.

9. DISCUSSION OF FINDINGS

The findings of this study show that IFRS adoption does not reduce earnings management practices engaged by Nigerian bank managers. The study found out that income smoothing done by banks increased after the post-adoption period, and that the level of earnings management towards small positive earnings reduced in the post-adoption period. Thus, indicating a decrease in the quality of accounting information after IFRS adoption.

The findings our study are consistent with the findings of some other studies (Paananem, 2008; Outa, 2011; Chebaane & Othman, 2013; Asian & Dike 2015; Indrawati, 2015) which found out that firms engage more in earnings management after IFRS adoption. This could be due to the enforcement mechanisms in the country the work was done. Some of these studies were carried out in developing countries that have not fully implemented IFRS.

On the other hand, the results from the analyses contrast with some previous studies (Barth et al, 2007; Zeghal et al, 2011; Beuren & Klann 2015) that found a reduction in earnings management, thus indicating an increase in accounting quality. This could be due to the country's legal framework, enforcement mechanisms in place etc. some of the studies were carried out in code law countries, and some of these countries have strong investors protection. The level of accounting education in these countries may another reason for the increase in accounting quality.

10. CONCLUSION

The study examined whether accounting quality has improved after adoption of IFRS by banks listed on the Nigerian Stock Exchange (NSE). In line with previous studies (Ames, 2013), accounting quality was measured by earnings management. The empirical analyses showed an increase in income smoothing and a reduction in earnings management

towards small positive profit, thus indicating a reduction in accounting quality.

10.1. Policy implication

The findings of this study indicate that the adoption of IFRS enables banks to manage their earning and as such, may have an adverse effect on the policies established by the Securities Exchange Commission (SEC) in regulating the Nigerian Stock Exchange. Stock prices are fixed based on the performance of the bank, and a bank's performance is measured by the earnings and dividend declared by that firm. When banks engage in earnings management, it sends a wrong signal to the public which in turn reduces the efficiency of the stock market.

10.2. Policy recommendation

The banking sector is one sector that is regulated by other bodies, such as the Security Exchange Commission (SEC), Banks and Other Financial Institutions Act (BOFIA), among others. These bodies can put in place measures that will limit the rate at which banks manage their earnings. They can put in place measures that will ensure enforcement and strict compliance with IFRS principles and procedures.

10.3. Contribution to knowledge

This study contributes to knowledge in that no study has used the methodology of Barth et al (2007) to examine whether IFRS adoption increases or decreases accounting quality in the Nigerian banking industry. The study further validates the agency theory that managers, if left to carry on the business will pursue their interest at the expense of the shareholders.

REFERENCES:

1. Abata, A. M. (2015). The impact of International Financial Reporting Standards (IFRS) on financial reporting practice in the Nigerian banking sector, Journal of Policy and Development Studies, 9(2), 169-184.
2. Abdulkardir, M. (2012). Adoption of International Financial Reporting Standards in developing countries: The case of Nigeria, International Journal of Business and Management, 7(3), 152-161.
3. Abdullah, D. (2014). The impact of IAS vs. IFRS (voluntary) and IFRS (voluntary) vs. IFRS (mandatory) on accounting quality over time: Inferences from Jordan, European Journal of Business Management, 6(22), 194-208.
4. Ahmed, A. S., Neel, M. J. & Wang, D. (2012). Does adoption of IFRS improve accounting quality? Preliminary evidence, Contemporary Accounting Research, 30(4), 1344- 1372.
5. Ames, D. (2013). IFRS adoption and accounting quality: The case of South Africa, Journal of Applied Economics and Business Research, 3(3), 154-165.
6. Arum, E. D. (2013). Implementation of International Financial Reporting Standards (IFRS) and the quality of financial statement information in Indonesia, Research Journal of Finance and Accounting, 4(19), 200-209.
7. Asian, A. U. & Dike, A. (2015). IFRS adoption and accounting quality of quoted manufacturing firms in Nigeria: A cross-sectional study of brewery and cement manufacturing firms, International Journal of Business and Management Review, 3(6), 661-77.
8. Barth, M., Landsman, W. & Lang, M. (2007), International Accounting Standards and accounting quality", Working papers, Stanford Graduate School of Business.
9. Barth, M. E., Landsman, W. R., Lang, M. H. & Williams, C. D. (2006). Accounting quality: International accounting standards and US GAAP, Retrieved from SSRN
10. Beuren, M. I. & Klann. C. R. (2015). Effects of the Convergence to International Financial Reporting Standards in Earnings Management, International Journal of Finance and Accounting 4(1), 8-20.
11. Capkun, V., Collins, W.D. & Jeanjean, T. (2012, February 02). Does IFRS adoption deter earnings management, Working papers, Retrieved from http://tippie.uiowa.edu/accounting/phd/publications/collins_adoption.pdf.
12. Chebaane, S. & Othman, B. H. (2013). Does the Adoption of IFRS Influence Earnings Management towards Small Positive Profits? Evidence from Emerging Markets, World Academy of Science, Engineering and Technology, 7(6), 630-636.
13. Christensen, B. H., Lee, E. & Walker, M. (2008). Incentives or standards: What determines accounting quality changes around IFRS adoption?, Working paper, Manchester Business School.
14. Dimitropoulous, E. P., Asteriou, D., Kousenidis, D. & Leventis, S. (2013). The impact of IFRS on accounting quality: Evidence from Greece, Advances in Accounting, Incorporating Advances in International Accounting, 29, 108-123.
15. Duru, K. & Tsitnidis, A. (2013). Managerial incentives and earnings management: An empirical examination of the income smoothing in the Nordic banking, Retrieved from http://www.diva-portal.org/smash/get/diva2:630941/FULLTEXT01.pdf.
16. Emeni, F.K. (2013). International financial reporting standards adoption in Africa: Does cultural affinity to Europe play a part? Nirma University Journal of Business and Management Studies, 8 (1&2), 3-16.
17. Ewert, R., and A. Wagenhofer. 2005. Economic effects of tightening accounting standards to restrict earnings management. The Accounting Review, 80, 1101-1124.
18. Hoque, N. M., Zijl, V. T., Dustan, K. & Karim, W. (2012). The effect of IFRS adoption and investor protection on earnings quality around the World, Working Paper Series.
19. Indrawati, N. (2015). The Impact of convergence with International Financial Reporting Standards (IFRS) on accounting quality in Indonesia, Research Journal of Finance and Accounting, 6(4), 162-170.
20. Jarva, H. & Lantto, M. A. (2012). Information content of IFRS versus domestic accounting standards: Evidence from Finland, The Finnish Journal of Business Economics, 2, 141-177.
21. Jaweher, B. & Mounira, A. B. (2014). The effects of mandatory IAS/IFRS regulation on the properties of earnings' quality in Australia and Europe, European Journal of Business and Management, 6(3), 92-111.
22. Khoo, P. C. & Ahmad, A. N. (2015). IFRS convergence and earnings management, Pertanika

Journal of Social Science and Humanities, 23(5), 75-84.
23. Lang, M., Ready, S. J. & Yetman, H. M. (2003). How representative are firms that are cross listed in the United States? An analysis of accounting quality, Journal of Accounting Research, 40, 363-386.
24. Martinez, A. L. (2001). Influence of family control in the practice of earnings management: the case of open Brazillian companies, Journal of Iberoamerican Academy of Management, 11(1), 77-99.
25. Mulller, O. V. (2014). The impact of IFRS adoption on the quality of consolidated financial reporting, Social and Behavioural Sciences, 109, 976-982.
26. Najeb, M. (2014). Libya"s IAS/IFRS Adoption and Accounting Quality: What Lessons from the European Union Experience, International Journal of Accounting and Financial Reporting, 4(1), 118-141.
27. Nassar, L. M., Uwuigbe, O. R., Uwuigbe, U and Abuwa, J. T. (2014) IFRS Adoption and Its Integration into Accounting Education Curriculum in Nigerian Universities, Research Journal of Finance and Accounting , 5 (22), 76-82
28. Nigerian Accounting Standards Board (2010). Report of the committee on road map to the adoption of International Financial Reporting Standards in Nigeria, Retrieved from http://ifrs.com/updates/sec/transition.html
29. Outa, R. E. (2011). The impact of International Financial Reporting Standards (IFRS) adoption on the accounting quality of listed companies in Kenya, International Journal of Accounting and Financial Reporting, 1(1), 212-241.
30. Owolabi, A. & Iyoha, F.O. (2012) Adopting International Financial Reporting Standards (IFRS) in Africa: benefits, prospects and challenges', African Journal of Accounting, Auditing and Finance, 1(1), 77–86.
31. Paananem, M. (2008). The IFRS adoption's effect on accounting quality in Sweden, Retrieved from http://ssrn.com/abstract=1097659.
32. Paglietti, P. (2008). Effects of IFRS mandatory adoption and country-specific factors on accounting quality: evidence from Italy, International Journal of Business and Management, 145-164.
33. Paglietti, P. (2009). Earnings management, timely loss recognition, and value relevance in Europe following the IFRS mandatory adoption: Evidence from Italian listed companies, International Business Review, 4, 97-117.
34. Qu, W., Fong, M. & Oliver, J. (2012). Does IFRS convergence improve the quality of accounting information? – Evidence from the Chinese stock market, Corporate Ownership and Control, 9(4), 187-196.
35. Rudra, T. & Bhattacharjee, D. (2012). Does IFRs Influence Earnings Management? Evidence from India, Journal of Management Research, 4(11), 1-13.
36. Sellami, M. & Fakhfakh, H. (2014). Effect of the mandatory adoption of IFRS on real and accruals-based earnings management: Empirical evidence from Greece, International Journal of Accounting and Economics Studies, 2(1), 22-33.
37. Yurt, C. & Ergun, U. (2015). The IFRS adoption and accounting quality: A comprehensive trend analysis, International Journal of Academic Research in Economics and Management Sciences, 4(2), 11-18.
38. Zeghal, D., Chtourou, S. & Sellami, L. Y. (2011). An analysis of the effect of mandatory adoption of IAS/IFRS on earnings management, Journal of International Accounting, Auditing and Taxation, 20, 61-72.