CORPORATE BOARD:
ROLE, DUTIES & COMPOSITION

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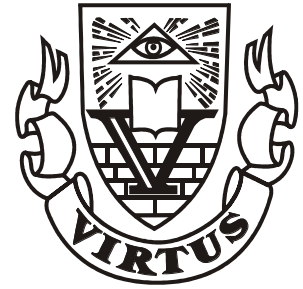
ORGANIZATIONAL DIAGNOSIS, THE STEPPING STONE TO ORGANIZATIONAL EFFECTIVENESS

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Abstract

Organizational survival, success and effectiveness depend on the ability of the organization to adapt to continuous challenges, competition and change. However, improving and changing organizations demand properly understanding and diagnosing them. So, where does diagnosis start and how can we measure effectiveness? Diagnosis starts with assessing key tasks, structure, people relationships, motivation, support, management leadership, attitude towards change and performance to identify gaps towards effectiveness. Effectiveness is evaluated in terms of the extent to which people have the right skills and competencies and are trained and strategically managed to enhance profitability (finance), the organization's marketing strategy, operations/service and, measurement of the corporate/business development and growth achieved as a result of planned efforts to ensure organizational viability, stability and maturity. This study uses an integrated system evaluation process to diagnose the extent to which key tasks, structure, people relationships, motivation, support, management leadership, attitude towards change and performance impact on organizational effectiveness respectively. The population for the study comprised of all staff in a provincial trade and investment promotion agency in South Africa and a consensus approach was used through a cluster sampling technique, which secured an 85.4% response rate. In this quantitative, cross-sectional study data was collected using questionnaires and analyzed using both descriptive and inferential statistics. The results reflect that the diagnostic variables impact on organizational effectiveness in varying degrees. The important diagnostic dimensions and areas for improvement are identified and suggestions for corrective action are presented in order to enhance overall organizational effectiveness.

Keywords: Organizational Diagnosis, Organizational Effectiveness, People Relationships, Management Leadership, Corporate/Business Development

1. INTRODUCTION

The global business arena and continuous competition demands that organizations create innovative ways to remain competitive and increase their market share. This means that they have to produce better quality and reliable products, be resilient in aggressive markets, balance competing demands and consistently achieve their strategic and operational goals in the long term through their core strategies; in other words, they have to work towards, and attain, organizational effectiveness.

Initially, organizational effectiveness was measured in financial, profitability and economic terms (Harel, Tzafrir and Baruch, 2003) but this did not take cognizance of the psychological dimensions of employees that contribute to human resource outcomes and effectiveness (Chang and Huang, 2010); hence, the measurement of organizational effectiveness was redefined. Organizational effectiveness may be measured in terms of various variables and Carnall (2007) cautions against using narrow, single measures of effectiveness. Gold, Malhotra and Segars (2001) maintain that organizational effectiveness is dependent on three important processes, namely, efficiency, adaptability and innovativeness. Other researchers measure organizational effectiveness in terms of productivity (Huselid, 1995; Lawson and Hepp, 2001; Sun, Aryee and Law, 2007), information technology (Batra, 2006), turnover (Ryan, Schmit and Johnson, 1996), organizational commitment (Lawson and Hepp, 2001; Ussahawanitchakit, 2008), communication (Chen, 2008), organizational structure (Santra and Giri, 2008), learning (Andreadis, 2009), work engagement/involvement (Harter, Schmidt and Hayes, 2002; Kataria, Garg and Rastogi, 2013; Riordan, Vandenberg and Richarson, 2005), corporate social responsibility (Holbeche, 2012) and absenteeism, organizational citizenship behaviour and job satisfaction (Ahuja and Gautam, 2012; Lawson and Hepp, 2001; Robbins, 1984). Chang and Huang (2010) use a multiple variable measure comprising of indicators like employee morale, attraction of talent, commitment and turnover and, hence, focus on the human resource (HR) aspects of organizational effectiveness.

In congruence with both the traditional and transformed measurements of organizational effectiveness, this study assesses the concept in terms of people, finance, marketing, operations/service and corporate/business development. However, the study extends further to measure the journey towards effectiveness and aims

to diagnose critical aspects (key tasks, structure, people relationships, motivation, support, management leadership, attitude towards change and performance) that have the potential to circumvent or support efforts towards achieving effectiveness.

1.1. People

Effectiveness is often the outcome of the combined efforts of people which is largely dependent on the operating environment and leadership. Business effectiveness is also influenced by adopting professional, effective and fair selection practices that base selection decisions on factual information, that is, selecting the right person, at the right time with the right skills and competencies in the right post (Gomez-Mejia, Balkin and Cardy, 2004; Ullah and Yasmin, 2013). The aim is to achieve optimal job-employee fit and to select highly motivated and competent people as it impacts on the quality of work, organizational productivity, growth and gaining a competitive advantage (Brewster, Carey, Grobler, Holland and Warnich, 2009). Central to employee motivation, retention and performance are issues of compensation and compensation fairness (Grobler, Warnich, Carrell, Elbert and Hatfield, 2006; Haines, Jalette and Larose, 2010; Ullah and Yasmin, 2013).

The work environment is also influencing employee outcomes and employees are exercising their rights and, unions are moving from an 'adversarial approach' relying on strike action to greater workplace participation in strategy development thereby having a positive impact on organizational effectiveness (Brewster et al., 2009; Ullah and Yasmin, 2013). The organization environment comprises of numerous and often conflicting interests (employees with the mental, physical and psychological well-being at stake and the organization which has to survive and achieve success amongst rivals and competition); hence, the extent to which the organization environment is effectively balanced or harmonized largely influences its ability to attain effectiveness (Ahuja and Gautam, 2012; Bhardwaj, 2001).

The leadership and leadership values also influences the extent to which organizational effectiveness is attained (Joyce, 2009). Raina (2010) found that leaders at various hierarchical levels who provided accurate, timely, clear information and correct feedback to their subordinates regarding their job performance improved performance in terms of planning, structure and communication, particularly downward communication. Ferrer and Santa (2012) concluded that leadership, which enhances the adaptability of employees and provides support, significantly and positively influences organizational operational effectiveness in the public sector. Chi, Lan and Dorjgotov (2012) focused on transformational leadership and deduced that the highest level of organizational effectiveness is achieved when both transformational leadership and knowledge management are at a high level.

Furthermore, in order to bring about organizational effectiveness, managers need to combine the key drivers of employee performance and training as this influences organizational productivity. It is imperative that strategic training aligns with business goals and strategies, spreads new knowledge, facilitates communication and develops worker capabilities (Grobler et al., 2006), thereby contributing to effective employee performance. van Eerde, Simon Tang and Talbot (2008) found that the comprehensiveness of the training needs assessment was significantly and positively related to organizational effectiveness and, the alignment of the training programme with the organization's training needs influences effectiveness.

Ullah and Yasmin (2013) concluded from their research that extensive use of an integrated approach to efficient human resource practices (recruitment and selection, training and development, performance appraisal, compensation and rewards, employee participation) has positive effects on organizational effectiveness. In this regard, Shiri (2012) emphasizes the importance of the human resources (HR) audit to align HR practices with the organizational strategy and, assess any gaps or potential threats thereby ensuring continuous improvement and contributing to effectiveness.

1.2. Finance

Organizations are continuously striving for profitability through the effective utilization of available resources and, hence, need budgets to reflect how they will allocate their resources to achieve their business goals (Kiabel, Agundu and Nnadi, 2011). The balance scorecard is a holistic approach to organizational outcomes management but measures effectiveness solely in terms of financial metrics and therefore, the new approach is to take a systems perspective (Andreadis, 2009). Hence, strategic planning involves actively planning the future direction of the organization by integrating short and long-term plans and, determining long-range goals and priorities which sets the direction for operational plans within the organization (Developing and Managing Internal Budgets, 2008), thereby ensuring that organizational resources are deployed in accordance with organizational needs and imperatives. Since the budget is road map, it alerts managers to potential problems and variances from expectations so that they can timeously take corrective action and make quality improvements (Reference for Business, 2012).

1.3. Marketing

The ability to continuously generate new sales and the market orientation for goods and services influences organizational success. Organizations with high sales are effective at skill building, aligning a firm's strategic focus and consistently executing processes with an appropriate infrastructure (Grossman, 2009). Organizations have to also survive the pressures of constant technological advancements and competition for market share (Ahearn, 2012). In this regard, Patterson (2007) suggests moving marketing and sales from a transactional approach to a customer-centric approach and, using the customer buying process aligns the organizations and improves the organizations' effectiveness at enhancing sales. At

the same time, successful service strategies relating to products/services, delivery systems and procedures, technology, and personnel are needed. According to Nwokah and Ondukwuane (2009), strategic orientation entails the formulation of an annual marketing strategy with the focus being on quality and reliability in order for the organization to effectively differentiate its products and/or services from that of competitors (Dale, van der Wiele and van Iwaarden, 2007). Furthermore, understanding customers' needs is a critical success factor in the product innovation process, new product performance (Earnst, 2002) and market opportunity analyses and hence, the need for market research is emphasized.

1.4. Operations/service

Fundamental to business performance is the congruence between functional-level strategies and business strategies. According to Andreadis (2009), an organization whose strategy, structure, processes and people are optimally aligned is bound to be able to predict results and be effective. Christiansen and Higgs (2008) add that alignment between HR strategy and business strategy impacts organizational performance and, flexibility is necessary to sustain alignment. Furthermore, operations strategy must take cognizance of the business environment which has a visible impact on strategic choices in operations (Ward, Leong and Boyer, 1995) and influences business performance (Nath and Sudharshan, 1994; Smith and Reece, 1999). The implication is that operations planning should address and support business level strategies (Schniederjans and Cao, 2009). Reynolds (in interview with Cho, Gill, Gitonga, Hong, Macias, Meyer, Sparkman, Wetter and Ellinger, 2010) maintains that determining the right balance between tactical and strategic service delivery will drive and leverage organizational effectiveness. Therefore, the management of operations, operational cooperation and operational effectiveness are important for attaining an organization's corporate goals, increasing business performance and improving morale, company effectiveness and customer value (Hausman, Montgomery and Roth, 2002; Sawhnew and Piper, 2002). Attaining an effective marketing-operations interface is, therefore, imperative in globalized markets and to gain a competitive advantage by better understanding, anticipating and addressing customer needs and expectations. Jamrog and Overholt (2004) maintain that good execution needs leaders to manage three intertwined business components, namely, people, strategy and operations. The implication is that the effective synergy between the functional areas (procurement, production, distribution, after sales, disposal) and marketers is also imperative to leverage service operations in order to attain competitive advantage (Bowersox, Mentzer and Speh, 1995; Mentzer, Gomes and Krapfel Jr., 1989), even across function boundaries (Shapiro, Rangan and Sviokla, 2004). They need to work together, share a mutual understanding, have a common vision, share resources and cooperatively attain goals (Ellinger, Keller and Hansen, 2006).

Undoubtedly, operational effectiveness is the ability of the organization to reconfigure and transform processes based on its core capabilities and, entails meeting costs (Ferer and Santa, 2012; Hill, 2005). This means that organizations need to identify aspects of overall workplace planning and design that reduce costs and increase flexibility in what it does, how it does it and when it does it in responding to customer needs (Batra, 2006; Becker, 2002; Hill, 2005). It is also important to recognize inefficiencies and waste in processes like procurement, product or service design (Evans and Lindsay, 2011; Santa, Scavarda, Zhao and Skoko, 2011) and engage in lean thinking, lean operations and flexible manufacturing to bring about a lean value chain understanding in marketing-operations interfaces (Piercy and Rich, 2004). Operational improvement and growth also depends on good inventory management (Temeng, Eshun and Essey, 2010), suitable implementation of innovative technologies (Santa, Ferrer, Bretherton and Hyland 2009; Santa et al., 2011) and the choice of technology must be nuanced with other strategic choices such as global engagement (Ito and Lechevailier, 2010) rather than investing in complex technological innovations.

1.5. Corporate/business development

Corporate development depends on the ability of the organization to design strategies in order to be alert to, adapt and respond effectively to the dynamics of both local and global markets and competitive pressures. Davis and Pett (2002) noted that organizational performance is high when there is a high level of strategic effort and multiple generic strategies and, strategy selection influences the proposed performance typology of effectiveness. An organization's development refers to its growth realized through carefully planned activities and efforts to enhance its importance, viability and performance standards (quality, cost, production, operations) through effective knowledge gathering, transfer and usage and, reflects the organization's stability and maturity in delivering its objectives and goals (Doig, Watt and Williams, 2007; Singh, Garg and Deshmukh, 2010).

However, various factors influence the extent to which organizational effectiveness can be realized and it is the aim of this study to assess and diagnose these dimensions (key tasks, structure, people relationships, motivation, support, management leadership, attitude towards change and performance).

1.6. Key tasks

An organisation's vision is a rim that holds and keeps the pertinent information flow going and it identifies elements of good practice for employees. A vision outlines the core values and employees need to know how one's key tasks contribute to the organisation's objectives. Belcourt, McBey, Yong and Yap (2013) emphasize that a vision statement sets a clear goal uniting organizational efforts and this must challenge and "stretch" the organization. The resemblance between organizational analysis and organizational diagnosis is indicative of the fact that both methods focus on understanding content by

taking note of organizational elements (Janicijevic, 2010). Business processes include an array of activities, tasks, steps and phases (Janicijevic, 2010). Challenging organizational tasks ultimately contribute to the end results. A well defined vision energizes commitment to change by providing employees with a goal and a compelling rationale for why change is needed and worth the effort (Kotter, 2008 cited in Jamaludin, Abdullah, Yahya and Huridi, 2012). A vision that streamlines all activities directs attention on how to narrow the gap to the future. With change being a core value to organizations, employees need to partake in moulding the future and be committed to this.

1.7. Structure

For goal achievement, an organizatonal structure requires a high level of coordination which must be aligned with organizational objectives, tasks, and goals. This coordination contributes to the effective functioning of an organization. A static organizational structure is a challenge in meeting efficiency (Tran and Tian, 2013), and this architectural structure is related to business competence, leadership, functional relationships and arrangement (Wolf, 2002 cited in Tran and Tian, 2013). It outlines the foundational element for organizing and to accommodate hierarchical levels, responsibility, roles, positions, including the means for integration and problem-solving. It directs work competence, worker enthusiasm and coordination amongst top managers and employees for a flow with plans and goals in order to map out the future plans (Herath, 2007). The structure sets the boundaries for efficiency (Thomson, 1966 cited in Tran and Tian, 2013) and is found in interrelated events which completes a cycle of activities (Kartz and Kahn, 1978 cited in Tran and Tian, 2013). The demanding changes linked to structure include redesigning and redefining responsibilities. The structural elements in the system clarifies the perceived need for strategic and tactical change, maps the dependencies of organizational processes, diagnoses existing processes, clarifies gaps, and designs new processes, amongst others (Dooley, 1998). Organizational diagnosis requires employees' responsibilities and commitment. The interventions that may be used to align structure to the organizational mission include systems tools for diagnosis, design and implementation, teamwork and skill-building (Dooley, 1998).

1.8. People relationships

Organizations are not immune to change and tasks. Teamwork spells the compelling need for skilled employees to be engaged and empowered in addressing major organizational challenges. It is the way to choose to share information with employees or involve them in decision-making (Tesluck, Vance, and Mathieu, 1999). An organization's human capital, with rare and valuable skills, is significantly related to organizational performances (Belcourt *et al.*, 2013). Tran and Tian (2013) opine that a synergism is evident when skilled employees with similar talents work together. If organizational diagnosis is to check an organization's current health, then the effective use of human resources is of fundamental importance. Belcourt *et al.* (2013) make reference to the intangible assets which comprise the knowledge, work-related experience and competence of employees; and they have superior performance due to their skills, commitment or flexibility as they 'beat out" the competition and offer better service, amongst others. Employees need to have a say into how the change will be managed and immersed in the planning and implementation of the change process (Chapman, 2010). The focus is also on employees' skills, work relationships, morale, motivation, training and development, group dynamics, participation, involvement and support (Gallos, 2006). Organizational changes must include the input of all employees. Employees' enthusiasm for information sharing or involvement will vary based on their assessment of the impact of their involvement (Brown and Cregan, 2008).

1.9. Motivation

Employees' vested interest in organizational goals and their motivation plays a key role in a work environment. An organization's objectives are attained through peoples' cooperation and collaboration and this means keeping their morale up for their commitment and enthusiasm (Dogra, 2010 cited in Bwire, Ssekakubo, Lwanga and Ndiwalana, 2014). A motivated workforce is essential as employee participation will eventually steer the profitability of the organization (Carlsen, 2003, cited in Alhaji and WanYusof, 2012). An effective and efficient organization relies on employees' motivation (Rutherford, 2005 cited in Bwire, Ssekakubo, Lwanga and Ndiwalana, 2014). Motivation, a powerful tool, reinforces behaviour and triggers the need to continue (Bartol and Martin, 1998 cited in Dobre, 2013), as goals are aligned with organizational goals that become successful because employees constantly look for ways to improve (Kalimullah, 2010 cited in Dobre, 2013). Reaching the full potential under stressful conditions is a tough challenge, but with motivation this can be achieved (Dobre, 2013). Financial gains (pay) and non-financial factors (rewards, social recognition and performance feedbacks) have a positive influence on motivation (Dobre, 2013). The author indicates that many companies use pay, promotion, bonuses and rewards to motivate employees and to increase their performance. A motivated and qualified workforce is essential to increase productivity and customer satisfaction. Hence, motivation means people's willingness to take action towards organizational goals (Dobre, 2013).

1.10. Support

Today's workforce need to have a healthy mental and physical environment for more efficient outcomes (Iraqi Khalil, 2004, Hamid, Ali, Reza, Arash, Ali, and Azizollah, 2011), and managers use human resources, materials and other equipment for attaining end results and to increase cooperation amongst employees for productivity. Without support, the chances are that demands of responsibilities, pressures and uncertainties will lead to stress (Robbins and Judge, 2007). Thus, intensive leadership style, concentrating on duties

and relations, identifying management purposes and problems and being responsive may be of assistance. A manager's efficacy is the level of authority employees feel that the manager has (Binder, 1995, cited in Hamid, Ali, Reza, Arash, Ali, and Azizollah, 2011). Employee empowerment is also to find solutions with managerial support, and tolerance from leaders and the executive team (Chapman, 2010). Leaders need to provide support by providing resources and protecting individuals when needed (Brewster, Carey, Grobler, Holland and Warnich, 2009). Cohesiveness, cooperation and offering assistance are essential for organizations instead of operating in functional silos. A lack of support may lead to employee resistance to change and this can be prevented with the support that is needed.

1.11. Leadership

Curteanu and Constantin (2010) refer to people management whereby the organizations select individuals on defined profiles who invest in the competencies of employees, evaluates performance and offer rewards. The leadership in an organization requires care (Manikandah, 2010) and as successful change agents they have to develop capabilities. They oversee the change process and maintain the operational reliability of the organization (Nadler and Nadler, 1998). With management placing emphasis on humanistic and democratic values, genuine relationships based on trust will emerge, leading to both greater interpersonal and organizational competence. In this situation, people develop to their full potential and management tries to create a challenging environment (Dobre, 2013). Senior managers are usually responsible for the execution of strategy and organizational performance (Belcourt *et al.*, 2013). The leadership's behaviour makes the change situations more effective (Higgs and Rowland, 2005), and as a leader, one has to focus on human resources as they are the domain of intellectual capital. The leadership style and employees' trust in senior management are positively related to behaviour that is involved in the implementation of innovations for controlling peoples' differences (Michaelis, Stegmaier and Stonntag, 2009).

1.12. Attitudes to change

Most change initiatives fail due to poor staff attitudes and change resistance is a normal process emerging from distorted beliefs. Failure in the change process is also due to individuals' resistance to change (Bovey and Hede, 2001 cited in Neiva, Ros, and Toress da Paz, 2005). Nafeil (2014) found major differences with employees' attitudes toward organizational change. With organizational diagnosis and change initiatives positive employee attitudes are of fundamental importance. Employees with high organizational commitment levels are more willing to immerse themselves in a change initiative (Nafeil, 2014) and are, therefore, more likely to have positive attitudes toward the change process (Iverson, 1996). A salient point by Neiva, Ros, and Toress da Paz (2005) is that a valid instrument that measure people's attitudes will be useful for researchers who want to understand the beliefs, emotions and behaviours when change initiatives are proposed and implemented. The

authors add that initiating and implementing successful change is needed for a systematic process for transforming the organizational realities. In their study, Valley and Thomson (1998) found that employee resistance is stronger when attitudes to change are negative or when individuals' job definition and security are under threat. If organizational members embrace the change that will bring benefits, they may adapt rapidly to the new system of work (Neiva, Ros, and Toress da Paz, 2005). According to Chreim (2006), employee responses to organizational change have been related to attitudinal responses of a dichotomous classification relating to change readiness or change resistance. Scholars have identified numerous employee responses to change efforts ranging from positive to negative attitudes.

1.13. Performance

A formal structure within organizations has a positive effect on employee performance. Organizational performance is a vital sign highlighting how well the outputs of a process attain a goal (Pitt and Tucker, 2008 cited in Bwire, Ssekakubo, Lwanga and Ndiwalana, 2014). Performance results from individuals' efforts and abilities. Outputs and its effects are the most noticed aspects of an organization's performance (Anderson and Carden, 1999 cited in Bwire, Ssekakubo, Lwanga and Ndiwalana, 2014). In order to respond to an ever changing environment or to a crisis situation, organizations are compelled to change so that performance is optimized to reach its ideal state. Proactive measures which will reduce the negative effect on organizational performance should be encouraged in managing change (Thomas, 2014). Management by objectives outlines the constant contact between management and subordinates with the objective of assessing future work goals, evaluating work performance and addressing challenges in order to motivate work efficacy and coherence (Cummings and Worley, 2001). Performance analysis increases the probability of success and the highest return on investment (Sun, 2008). A changing environment with continuous incremental change is the only way to secure the company's future and improve organizational performance (Thomas, 2014).

2. RESEARCH DESIGN

2.1. Research approach

The research methodology has been designed to undertake a quantitative, cross-sectional study to measure the journey towards effectiveness and aims to diagnose critical aspects (key tasks, structure, people relationships, motivation, support, management leadership, attitude towards change and performance) that have the potential to circumvent or support efforts towards achieving effectiveness.

2.2. Respondents

The population comprised of all staff in a provincial trade and investment promotion agency in South Africa that aims to promote the province as an investment destination as well as drive the business of trade by assisting companies in the province

concerned to identify markets and export their products. Due to the small staff complement, the consensus approach was used through a cluster sampling technique and an 85.4% response rate was secured. The initial adequacy of the sample determined using the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (0.329) and the Bartlett's Test of Spherecity (1554.648, p = 0.000) was recomputed after negatively worded items were reversed thereby generating the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (0.733) and the Bartlett's Test of Sphericity (1012.414, p = 0.000) which respectively indicated suitability and significance. The results indicate that the normality and homoscedasticity preconditions are satisfied. In terms of the composition of sample, the majority of the sample comprised of female employees (63.4%) with 36.6% being males and, were between the ages of 30-39 years of age (63.4%), followed by those between 40-49 years old (26.8%) and lastly, those between 20-29 years of age (9.8%). Evidently, the staff members in the organization are fairly young. In addition, 41.5% occupy professional posts, 31.7% hold managerial posts and 26.8% comprise of support staff. Whilst the majority of the employees (36.6%) are in the organization for 5 to 7 years, an equal percentage (26.8%) have a tenure of less than 2 years and 2 to 4 years each and 9.7% are in employment in the organization for more than 8 years.

2.3. Measuring instrument

Data was collected using a questionnaire consisting of three sections. Section A related to the biographical information (gender, age, position, tenure) and was collected using a nominal scale with pre-coded option categories. Section B comprised of 40 items and measured the eight elements of the conceptual model of organizational diagnosis (key tasks, structure, people relationships, motivation, support, management leadership, attitude towards change and performance) using a 1 to 7 point itemised rating scale ranging from disagree strongly (1), disagree (2), disagree slightly (3), neutral (4), agree slightly (5), agree (6) to agree strongly (7) and is drawn from an established questionnaire cited in Carnall (2007). Five items each were used to measure each of the elements. In-house pretesting was adopted to assess the suitability of the instrument. Pilot testing was also carried out using 8 subjects, selected using the same procedures and protocols adopted for the larger sample. The feedback from the pilot testing confirmed that the questionnaire was appropriate in terms of relevance and construction. Section C measured the five core areas determining organizational effectiveness (people, finance, marketing, operations/service and corporate/business development) using a 1 to 5 point itemised rating scale ranging from: makes achieving corporate objectives very difficult (1), makes achieving corporate objectives difficult (2), does not support corporate objectives (3), adequately supports corporate objectives (4) to fully supports corporate objectives (5) and is drawn from an established questionnaire cited in Carnall (2007).

2.4. Measures

The validity of Sections B (organizational diagnosis) and C (organizational effectiveness) of the questionnaire was assessed using Factor Analysis. A principal component analysis was used to extract initial factors and an iterated principal factor analysis was performed using SPSS with an Orthogonal Varimax Rotation. Only items with loadings >0.5 were considered to be significant. Furthermore, when items were significantly loaded on more than one factor, only that with the highest value was selected. In terms of the elements of the conceptual model of organizational diagnosis (Section B), eight factors with latent roots greater than unity were extracted from the factor loading matrix and in terms of the core areas determining organizational effectiveness (Section C), five factors with latent roots greater than unity were extracted from the factor loading matrix (Table 1).

Table 1. Factor analysis - validity of the instrument

Organizational Diagnosis (Section B)		
Factor	*Eigenvalue*	*% of Total Variance*
1	5.770	14.79
2	4.581	11.75
3	4.364	11.19
4	4.184	10.73
5	3.879	9.95
6	2.933	7.52
7	2.404	6.16
8	1.590	4.08
Organizational Effectiveness (Section C)		
Factor	*Eigenvalue*	*% of Total Variance*
1	7.188	20.54
2	5.926	16.93
3	5.069	14.48
4	4.325	12.36
5	2.469	7.05

The reliability of Section B of the questionnaire relating to the elements of the conceptual model of organizational diagnosis was determined using Cronbach's Coefficient Alpha (Alpha = 0.949). This alpha coefficient indicates a very high level of internal consistency of the items and, hence, a high degree of reliability with item reliabilities ranging from 0.621 to 0.842 and reliabilities of dimensions of organizational diagnosis ranging from above moderate (Motivation: 0.621, Attitudes to change: 0.621) to high (Structure: 0.828, People Relationships: 0.831, Management Leadership: 0.842) (Table 2). The reliability of Section C of the questionnaire relating to the core areas determining organizational effectiveness was determined using Cronbach's Coefficient Alpha (Alpha = 0.950). This alpha coefficient indicates a very high level of internal consistency of the items and, hence, a high degree of reliability with item reliabilities ranging from 0.814 to 0.921 and reliabilities of dimensions of organizational effectiveness being high (Table 2).

2.5. Administration of the measuring instrument

The questionnaires were administered personally by the researchers during a staff meeting and training session and, therefore, allowed opportunity for building rapport, clarification and a better response rate.

Table 2. Cronbach's coefficient Alpha: reliability of the instrument

Overall Reliability and Reliabilities per dimension of Organizational Diagnosis	
Dimension	*Cronbach's Alpha*
Key Tasks	0.788
Structure	0.828
People Relationships	0.831
Motivation	0.621
Support	0.790
Management Leadership	0.842
Attitudes to Change	0.621
Performance	0.738
Overall Organizational Diagnosis	0.949
Overall Reliability and Reliabilities per dimension of Organizational Effectiveness	
Dimension	*Cronbach's Alpha*
People	0.845
Finance	0.921
Marketing	0.814
Operations/service	0.815
Corporate/business development	0.902
Overall Organizational Effectiveness	0.950

2.6. Statistical analysis

Descriptive (means, standard deviations) and inferential (correlation, ANOVA, t-test) statistics were used to analyze the quantitative data. The data was captured using Excel (2007), processed with SPSS Verson 19.0 and presented using tabular and graphical representations.

3. RESULTS

The study aims to assess the extent to which organizational diagnosis influences organizational effectiveness. In order to do this the sub-dimensions of each variable were correlated internally first (Table 3 and Table 4).

3.1. Hypothesis 1

The sub-dimensions of organizational diagnosis (key tasks, structure, people relationships, motivation, support, management leadership, attitudes to change, performance) significantly intercorrelate with each other (Table 3).

Table 3 reflects that the sub-dimensions of organizational diagnosis (key tasks, structure, people relationships, motivation, support, management leadership, attitudes to change, performance) significantly intercorrelate with each other. Hence, hypothesis 1 may be accepted. In particular, strong and direct relationships exist between the diagnosis of key tasks and structure, structure and people relationships and support respectively, people relationships and support and management leadership respectively, and support and management leadership.

3.2. Hypothesis 2

The sub-dimensions of organizational effectiveness (people, finance, marketing, operations/service, corporate/business development) significantly intercorrelate with each other (Table 4).

Table 3. Intercorrelations amongst the sub-dimensions of organizational diagnosis

Dimension	*r/p*	*Key tasks*	*Structure*	*People relations*	*Motivation*	*Support*	*Management Leadership*	*Attitudes to change*	*Perf-ormance*
Key tasks	r p	1.000							
Structure	r p	0.717 0.000*	1.000						
People relations	r p	0.570 0.000*	0.827 0.000*	1.000					
Motivation	r p	0.440 0.004*	0.544 0.000*	0.593 0.000*	1.000				
Support	r p	0.428 0.005*	0.719 0.000*	0.848 0.000*	0.559 0.000*	1.000			
Management Leadership	r p	0.412 0.007*	0.699 0.000*	0.743 0.000*	0.625 0.000*	0.796 0.000*	1.000		
Attitudes to change	r p	0.318 0.042**	0.537 0.000*	0.642 0.000*	0.529 0.000*	0.559 0.000*	0.669 0.000*	1.000	
Performance	r p	0.642 0.000*	0.536 0.000*	0.478 0.002*	0.312 0.047**	0.415 0.007*	0.330 0.035**	0.472 0.002*	1.000

*Note: * p < 0.01 ; ** p < 0.05*

Table 4. Intercorrelations amongst the sub-dimensions of organizational effectiveness

Dimension	*r/p*	*People*	*Finance*	*Marketing*	*Operations/Service*	*Corporate/business development*
People	r p	1.000				
Finance	r p	0.806 0.000*	1.000			
Marketing	r p	0.340 0.029**	0.550 0.000	1.000		
Operations/Service	r p	0.502 0.001*	0.584 0.000*	0.811 0.000*	1.000	
Corporate/business development	r p	0.372 0.017**	0.485 0.002*	0.659 0.000*	0.597 0.000*	1.000

*Note: * p < 0.01 ; ** p < 0.05*

Table 4 indicates that the sub-dimensions of organizational effectiveness (people, finance, marketing, operations/service, corporate/business development) significantly intercorrelate with each other. Hence, hypothesis 2 may be accepted. In particular, strong and direct relationships exist between people and finance, and marketing and operations/service.

3.3. Hypothesis 3

There is a significant relationship between organizational diagnosis and organizational effectiveness (Table 5).

Table 5. Spearman correlation: organizational diagnosis and organizational effectiveness

Dimension	r/p	Organizational effectiveness
Organizational diagnosis	r	0.345
	p	0.029**

*Note: ** p < 0.05*

Table 5 reflects that there is a significant relationship between organizational diagnosis and organizational effectiveness at the 5% level of significance. Hence, hypothesis 3 may be accepted. However, it must be noted that the strength of the relationship is less than moderate.

3.4. Hypothesis 4

The sub-dimensions of organizational diagnosis significantly intercorrelate with the sub-dimensions of organizational effectiveness (Table 6). Table 6 reflects that:

• The people sub-dimension of organizational effectiveness significantly correlates with the people relationships and motivation sub-dimensions of organizational diagnosis respectively at the 1% level of significance and the management leadership and attitudes to change sub-dimensions of organizational diagnosis respectively at the 5% level of significance.

• The finance sub-dimension of organizational effectiveness significantly correlates with the people relationships and attitudes to change sub-dimensions of organizational diagnosis respectively at the 1% level of significance and the motivation and management leadership sub-dimensions of organizational diagnosis respectively at the 5% level of significance.

• The marketing sub-dimension of organizational effectiveness significantly correlates with the structure, people relationships and attitudes to change sub-dimensions of organizational diagnosis respectively at the 5% level of significance.

• The corporate/business development sub-dimension of organizational effectiveness significantly correlates with the structure and people relationships sub-dimensions of organizational diagnosis respectively at the 5% level of significance.

• No other correlations show significance.

Hence, hypothesis 4 may only be partially accepted.

Table 6. Intercorrelations: subdimensions of organizational diagnosis and subdimensions of organizational effectiveness

Dimension	r/p	People	Finance	Marketing	Operations/service	Corporate/business development
Key tasks	r	-0.007	-0.019	-0.038	-0.112	0.133
	p	0.963	0.908	0.815	0.486	0.408
Structure	r	0.240	0.218	0.315	0.245	0.347
	p	0.130	0.177	0.045**	0.122	0.026**
People relations	r	0.416	0.433	0.310	0.295	0.329
	p	0.007*	0.005*	0.048**	0.061	0.036**
Motivation	r	0.400	0.345	0.019	0.019	-0.045
	p	0.010*	0.029**	0.907	0.907	0.780
Support	r	0.285	0.256	0.099	0.066	0.202
	p	0.071	0.110	0.539	0.683	0.205
Management Leadership	r	0.316	0.337	0.164	0.068	0.110
	p	0.044**	0.033**	0.306	0.673	0.492
Attitudes to change	r	0.314	0.428	0.314	0.218	0.182
	p	0.046**	0.006*	0.046**	0.172	0.255
Performance	r	0.168	0.076	0.015	0.020	0.045
	p	0.294	0.640	0.926	0.902	0.782

*Note: *p ≤ 0.01; **p < 0.05*

3.5. Hypothesis 5

Organizational diagnosis significantly predicts organizational effectiveness (Table 7).

Table 7. Multiple regression: organizational diagnosis and organizational effectiveness

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.260ᵃ	0.068	0.043	21.07267

Note: ᵃ Predictors: (Constant), OD

Table 7 reflects that organizational diagnosis of key tasks, structure, people relationships, motivation, support, management leadership, attitudes to change and performance only significantly predicts 4.3% of the variance in organizational effectiveness of people, finance, marketing, operations/service and corporate/business development. Hence, hypothesis 5 may be rejected.

3.6. Discussion of results

Since the sub-dimensions of organizational diagnosis (key tasks, structure, people relationships,

motivation, support, management leadership, attitudes to change, performance) significantly intercorrelate with each other, the implication is that the diagnosis of one dimension provides significant insight into other related variables, thereby enhancing overall evaluation in the organization. It was also found that strong and direct relationships exist between the diagnosis of key tasks and structure, structure and people relationships and support respectively, people relationships and support and management leadership respectively, and support and management leadership. The implication is that if key tasks, structure, people relationships, support and management leadership are continuously assessed, there is potential for continuous improvement in the organization. Management leadership, therefore, plays a critical role as an exceptional and inspiring management leadership style is needed (Beck, 2004) to define and succinctly communicate organizational objectives and priorities and ensure congruent unit level *key tasks* and priorities (Colbert and Witt, 2009), *structure* work logically and ensure more flexible jobs, work schedules and lines of authority (Torpey, 2007), enhance *people relationships* by listening to employees' ideas and managing conflict timeously using solutions derived through employee participation and ensure inter-departmental *support* and collaboration because it facilitates innovative performance and employee adaptability (Cuijpers *et al.*, 2011; Ferrer and Santa, 2012).

Similarly, since the sub-dimensions of organizational effectiveness (people, finance, marketing, operations/service, corporate/business development) significantly intercorrelate with each other, the implication is that gaining effectiveness in one dimension has a snowballing effect and has the potential to enhance effectiveness in the other dimensions. In particular, strong and direct relationships exist between people and finance, and marketing and operations/service. In driving towards effectiveness, marketing can play a strategic role. Marketing practitioners should, therefore, develop customer-centric marketing strategies that align the needs of the marketing mix (the effort of the sales force, advertising, quality and service), business functions (manufacturing, finance and marketing) and the external system (customers, distributers and suppliers) in order to gain a competitive edge (Kotler, 1977 cited in Piercy and Rich, 2004; Patterson, 2007). They need to focus on developing a strategic orientation that attains product differentiation through quality and reliability (Dale, van der Wiele and van Iwaarden, 2007; Nwokah and Ondukwuane, 2009).

The results also reflect a significant but less than moderate relationship between organizational diagnosis and organizational effectiveness. In fact, the organizational diagnosis of key tasks, structure, people relationships, motivation, support, management leadership, attitudes to change and performance only significantly predicts 4.3% of the variance in organizational effectiveness of people, finance, marketing, operations/service and corporate/business development. The implication is that caution must be taken to assume that effective organizational diagnosis will automatically lead to organizational effectiveness. Organizational diagnosis is needed for continuous improvement but

this does not always spell organizational effectiveness. It can be deduced that it is the effectiveness of the corrective action taken after diagnosis that ultimately leads to effectiveness. In doing so and designing strategies, careful cognizance must be given to attaining congruence between functional-level and business level strategies (Andreadis, 2009; Christiansen and Higgs, 2008; Nath and Sudharshan, 1994; Smith and Reece, 1999; Schniederjans and Cao, 2009 Ward, Leong and Boyer, 1995).

4. RECOMMENDATIONS AND CONCLUSION

Organizational diagnosis is a necessity for organizational effectiveness but does not immediately imply organizational effectiveness. Perhaps, it is the effectiveness of the corrective action, improvement strategy or innovative problem solving taken after diagnosis that has the potential to eventually lead to organizational effectiveness. It is, therefore, recommended that whenever diagnosis takes place and deviations or sub-optimal performance is noted, several improvement strategies or solutions should be brainstormed and the most suitable option with the potential to achieve optimal results should be adopted. Managing shortfalls in this way will eventually take the organization closer to its end goal of organizational effectiveness. Hence, organizational diagnosis is the stepping stone to organizational effectiveness.

4.1. Recommendations for future research

In this study, organizational diagnosis was assessed based on key tasks, structure, people relationships, motivation, support, management leadership, attitudes to change and performance and organizational effectiveness was evaluated in terms of people, finance, marketing, operations/service and corporate/business development. Operating in an environment engulfed with national and international imperatives and millennium goals, it would make sense to evaluate other societal imperatives like corporate social responsibility when engaging in organizational diagnosis and effectiveness as the belief is that no organization can be truly effective if it is not high on corporate social responsibility.

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THE NEED FOR FINANCIAL STATEMENTS TO DISCLOSE TRUE BUSINESS PERFORMANCE TO STAKEHOLDERS

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Abstract

This desk top study reviewed relevant literature in order to determine the extent to which Financial Statements disclose true business performance to stakeholders. Literature reviewed established that management fraudulent reporting, relevance of reports and reliability of information are to be taken into account when assessing level of reliance that can be placed on financial statements on disclosing business performance. It also emerged that cost and benefits of disclosing financial information, relevance of financial statements and significance of stakeholder groups are some of the factors to be considered when carrying out a cost benefit analysis on the importance of financial statements. The study concludes that management fraudulent reporting, relevance of reports, reliability of information and source of information are to be taken into account when assessing level of reliance that can be placed on financial statements to determine their ability to disclose business performance.

Keywords: Financial Statements, Reliability, Reports, Stakeholders, Source of Information

1. INTRODUCTION

In trying to meet the requirements of the users of financial statements, instruments like presentations as well as disclosure are being used to communicate performance and financial position of an entity (Choy, 2014). There is still a need for presentation as well as disclosure to be included in the Conceptual Framework in order to have clarity and reducing reporting fraud (Choy, 2014). Abed et al, (2016), Miihkinen (2013), Leaz and Wysocki (2015), Castillar-Polo and Callardo-Vazquez (2016) and Ramirez, Tejada and Manzaneque (2016) are among scholars who agree that disclosure is an abstract concept that cannot be measured in an unambiguous or precise manner. However, Liesegang and Bartley (2014), Alvarez and Barlevy (2015) and Abraham and Shrives (2014) argue that disclosure may be seen as symbolic window dressing, they are of little use to the readers of financial statements.

To catch the attention of investments, corporates are faced with the need to make available financial outcome in line with the requirements of IFRS (Huefner, 2010). The argument was supported by mentioning the implementation of international standards in entity's reports so as to ensure proper reporting, display real financial situation as well as outcome of performance. Hemphill (2006) state that in line with the concept there are two major assumptions when preparing annual financial reports that are accrual basis and going concern. Eccles and Holt (2005) assert that balance sheet, comprehensive income statements and other reports do not just come into existence; they are prepared in accordance with agreed regulations. Tsalavoutas and Evans (2010) say that European Union Regulation 1606/2002 oblige publicly traded entities to prepare consolidated financial reports in accordance with IFRSs as from January 2005.The aim of this desk top study was to review relevant literature in order to determine the extent to which Financial Statements disclose true business performance to stakeholders.

2. FACTORS TO BE CONSIDERED WHEN DISCLOSING INFORMATION IN FINANCIAL STATEMENTS

2.1. Regulatory requirement regarding disclosure of financial information

The IASB is committed to narrowing the differences in financial statements of different countries by seeking a harmonised regulation, accounting rules as well as regulations associated to how the financial reports should be presented (Conceptual framework for financial reporting 2010). The harmonization has been considered relevant for reports prepared for decision making purpose (Conceptual framework for financial reporting 2010).

Garanina and Kormiltseva (2014) stipulated that since the 1970s considerable efforts have been made by various bodies such as IASB to bring together accounting and financial standards around the world to improve the usefulness and comparability of financial reports. In 2002 such initiatives resulted in the approval of the regulation which provides for the mandatory application of IFRSs by companies listed on the European regulated stock markets as of January 2005 (Miihkinen, 2008 and Garanina and Kormiltseva, 2014). Garanina and Kormiltseva, (2014) state that by 2009 many countries adopted IFRS and other economically

wellbeing nations including Japan and Canada had programs in to converge their standards with IFRS.

Companies are different from Sole Proprietorship and Partnerships in that limited companies are guided by regulatory framework that makes it compulsory to publish an amount of information that may otherwise be confidential (Collis and Jarvis, 2002). Collis and Jarvis (2002) state that financial disclosure is required for public interest because public companies may raise capital on share market through public subscription to shares at stock exchange.

Accounting information is of no relevance when it does not include details of intangible values of financial position of an entity (Flostrand and Strom, 2006). Jenkins Committee of 1991 was appointed by American Institute of Certified Public Accountants Board of Directors to assess the information that was made available to users of financial statements by those entrusted. Flostrand and Strom (2006) state that the report that was released in 1994 suggested that financial statements should review the future of an entity.

Management may be liable to offer voluntary disclosures as a means to clarify areas of argument and decide on voluntary disclosure timing so as to report manipulated gains as well as displaying acceptable alteration to IFRSs by so doing minimize regulatory costs (Kalbers, 2009). The idea to furnish investors and other stakeholders with voluntary disclosures may attract a positive thinking on validation of published financial reports. Kalbers (2009) state that suitable voluntary disclosures may reduce the risks and irregularities that are surrounding the financial statements. ASB statement provides voluntary best practice guidance (Kalbers, 2009).

Environmental effects from business operations are under strict inspection from society and consequently the stakeholders are asking for more and qualitatively better environmental information from entities (Fallan and Fallan, 2009). Qu, Leung and Cooper (2013) state that voluntary disclosure is provision of information other than that available in financial report and is not stated as requirement by accounting rules: it is a disclosure made in excess of requirements.

2.2. Preparation of financial statements

According to Spathis (2002) internationally there is ongoing process in line with the identification and taking up of IFRS. In the majority of developed and developing nations there is evolution to integrate accounting language, accounting methods and reporting principles. The practice of incorporating with international business started to guide companies to report in line with regulatory on financial reporting. The bases stated in conceptual framework on presentation of financial reports are unique. The conceptual framework is the source for accepting IFRS (Spathis, 2002).

IASB considers a variety of conceptual issues, it considers the way in which elements of financial statements are recognised, the units in which they are reported and the concepts used by companies (Spathis, 2002). Spathis (2002) also states that when preparing reports the main beliefs are well thought-out which are: the characteristics of financial statements and the rules and regulations in which items are classified as well as the policies used by reporting entity.

To catch the attention of investments, corporates are faced with the need to make available financial outcome in line with the requirements of IFRS (Huefner, 2010). The argument was supported by mentioning the implementation of international standards in entity's reports so as to ensure proper reporting, display real financial situation as well as outcome of performance. Hemphill (2006) state that in line with the concept there are two major assumptions when preparing annual financial reports that are accrual basis and going concern. Eccles and Holt (2005) assert that balance sheet, comprehensive income statements and other reports do not just come into existence; they are prepared in accordance with agreed regulations. Tsalavoutas and Evans (2010) say that European Union Regulation 1606/2002 oblige publicly traded entities to prepare consolidated financial reports in accordance with IFRSs as from January 2005.

Financial reports preparation (IAS 1) has to be observed when preparing financial statements. There is a need for the organisation to adhere to IFRSs when defining and recognizing financial statements items and the use of standard units across organisation's operations that are across Africa.

2.3. Audience to financial statements

According to Conceptual framework for financial reporting (2010), financial reports should be prepared and made available to external users in many companies internationally. Mack and Ryan (2007) postulate that five categories were identified for stakeholders to which internal management was also identified as stakeholders. The matter of using the financial statements and its declaration has implications on public (Mack and Ryan, 2007).

Magness (2006) argues that while stakeholders to information were primarily the owners of capital, entities now make use of their financial statements to make available information on other issues which are not financial matters. Magness (2006) further states that shareholders were the early users of financial statements to be considered for reporting purposes. According to Magness (2006) mostly disclosure in financial statements was aimed primarily to these groups alone. Conceptual framework for financial reporting (2010) stipulates that other stakeholders besides financial stakeholders may consider financial reports as worth to be prepared.

Gomez-Guillamon (2006) stipulate that bank officers or lenders as well as investment analysts are also audience to financial statements and they try to ensure correctness of financial information by asking the review of that information enclosed in financial statements. Gomez- Guillamon (2006) concurs that for the purpose of issuing loans the auditor can be used as source of reliance.

The people in charge of organisations' financial statements are failing to take the interest of all stakeholders into consideration. They are reporting on financial bases only, therefore the investors, creditors and management are the only groups that

are benefiting much because they are concerned about the financial position of the entity.

3. TO CARRY OUT A COST BENEFIT ANALYSIS ON THE IMPORTANCE OF FINANCIAL STATEMENTS

3.1. Cost and benefits of disclosing financial information

Kablers (2009) says that releasing accounting information is an obligation for every company and such disclosures must help users in evaluating the performance of business as well as policies in place. There are costs and benefits that are associated with disclosure of accounting information. Kablers (2009) continues to say that non-voluntary IFRS disclosures exhibit a larger favourable figure in leverage and a reduction in liquidity.

Elzahar and Hussainey (2012) articulate that companies attempt to meet the requirements of the users of reports by giving more detailed information on sustainability. In addition, (Elzahar and Hussainey, 2012) highlight that such information helps users to look into the current state of the company as well as the risks that affect the returns. Iatridis 2012 is of the opinion that by disclosing more information, an entity can enjoy lower capital cost at the capital market. According to Elzahar and Hussainey (2012) entities benefit from disclosures by eliminating financial failure due to undisclosed risks.

The disclosure of human capital information by organisations also has espoused benefits in particular creating trustworthiness and reducing information asymmetry (Dumay and Lu, 2010).

They further stipulate that it enhances company reputation among stakeholders and the public. The disclosure also has a positive impact on stakeholders' assessment of the company which may lead to positive financial outcome. On the other hand Cinquini et al (2012) argue that reports on sustainability are at present scarcely read by entity stakeholders since their reliability is doubtful.

Talha, Sallehhuddin and Mohammad (2006), postulate that some entities report in segments, though it is understood that reporting in segments has its benefits. In addition they state that the cost of putting together segment reports exceeds derived benefits. They further assert that segment reporting can impact negatively on reporting entity by benefiting the competitors. According to Talha, Sallehhuddin and Mohammad (2006) entities hold a reason to give more information to minimise asymmetry of information.

The organisation considers disclosure of information as a cost that does not give any benefit to the organisation, therefore, they disclose information they consider worth for disclosure. By so doing the organisation is leaving information that is of importance to other financial statements users.

3.2. Relevance of financial statements

Financial statements are prepared on periodic bases, with the aim of disclosing essential information to stakeholders (Palea, 2014). IASB however states that instead of providing guidance, annual statements

also play a role in helping investors assess management stewardship.

Financial statements are used to assess management efforts in attaining organizational goals.

Dimitropoulos and Asteriou (2010), state that value relevance is a matter of concern for investors as well as management. Relevant and reliable financial reports are of greater importance to managers because they confirm the worthiness of their stewardship (Dimitropoulos and Asteriou, 2010). Analysts consider well reported information as of importance in attaining better investment decision. Dimitropoulos and Asteriou (2009) say that by relevant and reliable information, they mean ability of financial reports to give a valuable summary of information that affect stock price movements and help all stakeholders to review the value of the firm.

According to Hernandez and Perez (2006), although there are many players in the economy worldwide, decisions are to be made no matter how hard the economic situation is. The users of information are to be given all the information they may need in order to come up with well informed decisions.

According to Lander and Auger (2008), tools and systems convey reports to a point where they show high reliance. Lander and Auger (2008) concur that for all entities to achieve that level of assurance, the accounting managers and the accountants have to comply with the requirements of GAAP as well as explaining the usefulness of reported information to stakeholders. According to Gararina and Kormiltseva (2014), by adopting certain set of standards the accounting information can be used to communicate across borders and at international level.

The relevance of financial statements depends on the intended use of the financial statements, general reporting has to take every stakeholders' requirements into account. For financial statements to be relevant, benefits derived from have to override the cost of preparing them.

3.3. Significance of stakeholders groups

Abeysekera (2013), postulates that in periods where some technological means are being used to spread news, emphasis should be on accountability. Abeysekera (2013) stipulates that entities are to treat every stakeholder with self-respect and respect for the contribution they make to the success of the entity.

According to Al-Ajmi and Saudagaran (2011) companies bring together different agents and allow a relationship to build between different financial statements user groups. It allows a relationship, for instance for managers and shareholders to emerge as agents and principals, with the agent supposed to act in the interest of the principal. Therefore every user group is supposed to get satisfactory information in order to come up with sound decisions that are of benefit to interested parties.

Financial analysts are also an important group in as far as the financial statements are concerned. They play an essential role in financial markets a function that seems to have improved in importance in current years (Byard and Cerbenoyan, 2007). They are viewed as information intermediaries who

gather; process and disseminate firms' information for investors and debt providers. The analysts are the ones who can install confidence and credibility in financial statements status for investment purposes and other decision making purposes. The stakeholders to the entity are not being equally treated when it comes to disclosure of information there are other groups that are always getting preference than others.

4. TO COME UP WITH LEVEL OF RELIANCE THAT CAN BE PLACED ON FINANCIAL STATEMENTS ON DISCLOSING BUSINESS PERFORMANCE

4.1. Management fraudulent reporting

Huang, Tsaih and Lin (2012) postulate that when management reports business performance in financial statements, the idea is to enlighten the stakeholders on the performance of organisations, but contrary to that some anomalies may happen. Huang, Tsaih and Lin (2012) state that misrepresentation of facts and total exclusion of essential elements from entity's financial reports exhibit financial reporting fraud. Chalevas and Tzovas (2010) concur that forgery and falsification may be used by management to make financial reports look favourable.

Crawford and Weirich (2011) say that for as long as shares are being traded at public markets, management fraudulent reporting cannot be eliminated from public enterprises. Crawford and Weirich (2011) are of the opnion that falsification in association with tax computations has been happening. These forms of fraud frequently come as a result of greediness and high level of dishonesty (Crawford and Weirich, 2011). Crawford and Weirich (2011) assert that management is able to do dress-up to the financial statements in order to meet the requirements of users.

Due to alarming rate at which financial statements fraud is being perpetrated, internal controllers of organisations enhance their duties and responsibilities (Huefner, 2010). Huefner (2010) also state that the wave of 2001 to 2002 exposed the weaknesses that are there in organisations' control mechanisms. Management is finding it worth a while to improve the internal control systems to avoid huge losses that are as a result of inadequate control systems and they now believe that a sound control system can improve level of reliance to be placed on their financial reports.

Spathis (2002) say that fabrication in annual reports mostly is in the form of forgery and misrepresentation of elements. The author furthers states that when financial reports have been misrepresented due to fraud, the meaning of the content can be misleading. It is not the big entities only that are the victims of financial statement fraud. Some small businesses are also victims and are failing to meet stakeholders' requirements due to fraud (Spathis, 2002). Kaminski, Wetzel and Guan (2004) stipulate that cases like those of Enron and WorldCom are critical problematic for external auditors, due to possible law litigation that may result in negative impacts onthe audit profession.

According to Galsinan et al (2008) citizens in order to efficiently take part in their self-governance should have the right to use information and to assure the responsibility of public officials. The current epidemic of corporate scandals has exposed how lack of transparency and responsibility create incentives for executives to commit crimes (Galsinan et al. 2008). According to Kalbers (2009) on October,19, 1987, the Dow Jones Industries Average dropped by 22.6% of its value in one day. The same author further states that it is mainly annoying for members of the Commission to view the financial reporting scandals that took place late 1990s and early 2000s over a decade after its report was issued. That shows that their recommendations fell on deaf ears.

Stakeholders have to be satisfied that the financial statements are free from management collusion and free from intentional errors for the information to be relevant and reliable. The organisation reports in line with the requirements of IFRS but clarity is still needed on certain area i.e. the difference that is there between 2013 end of year figures and restated figures in 2014 financial reports.

4.2. Report relevant and reliable information

Kostagiolas (2011) stipulate that reliability has to do with the consistency of satisfying user needs at the end of any given period. Bricker and Chandarr (2012) postulate that accounting investigations have long struggled with varied results on the assessment of effects of relevance and reliability characteristics of fair value disclosures.

Du, McEnroe and Stevens (2014) state that as long as the mark-to-model approach is still in use observable market prices will never be available and estimates are to be used. They further argue that due to the environment that surrounds human opinion, the users of annual reports are being sceptical in assessing the fairness and relevance of reported information. Lack of dependability bound the relevance of reported information. Du, McEnroe and Stevens (2014) argue that instead of relying on a precise point estimate, managers may improve the perceived reliability of fair value estimates in the gain condition by specifying the degree of confidence and such a disclosure can be at the notes of the reporting entity.

Werner (2011) stipulate that to improve reliability pension accounting rules worldwide have been progressively been moving to a transparent model. This follows FASB and IASB efforts to combine and harmonise standards internationally. Werner (2011) states that the changes at issue were slightly informative for equity as well as credit valuation. The resultant was an important issue because it affects the main users of financial reports.

As stipulated by Pilcher (2005), as of the current community all sort of organisations be it private or public are obliged to be sensitive and responsible. Many factors are considered when assessing responsiveness of organisations which include the way the service is being provided. Pilcher (2005) also state that the ability to give a breakdown regardless of way or form used to give the breakdown on someone's actions shows high level of accountability. Transfer of authority from one person to another gives the person authority to act on someone's behalf but accountability is not

transferred together with authority (Pilcher, 2005). The issue of accountability brings about relevance and reliability of information that is being reported.

Information has to be timely reported for it to be relevant and reliable, in the organisation there is a trend of delaying the timing for financial information to be reported and that leads to uninformed decisions.

4.3. Source of information

For accounting information to be relevant and reliable the source from which one gets information from has to be considered. According to Chaudhry and Alansari (2013), there are sources such as brokers and investment advisors from which investors get information about securities performance on the market. They further assert that investment professionals like financial analysts, investment advisors, share brokers, amongst others are there to assist with information. Investment specialists use their capability and understanding to give an opinion on favourable investment portfolio to investors as well as organisations (Chaudhry and Alansari, 2013). The same authors further stipulate that for a good return one has to make a good choice on what to invest in. Investment advisors should be able to give valid advise if the information they are using is from authentic source and that can help clients in understanding the situation they are getting into and the advisors are able of advising throughout the investment process. Financial analysts require all sort of information to succeed on their work both for financial providers and non-financial participants (Chaudhry and Alansari, 2013).

Schwarzkopf (2006) stipulates that the source from which information comes from plays an important role in planning, so it has to be credible. The assumption used is that investors look at the source of information when assessing trustworthiness of decisions made. They further state that independence as well as accountability of the source of information is also used in measuring source reliability. If you understand the requirements of the investors, you particularly scan the source before making decisions. The users of information may differ according to situation (Schwarzkopf, 2006).

O'Mara-Shimek (2015) point out that financial news reporting plays an important role in informing people's financial decisions such as in the collapse of Nothern Rock Bank in September 2007 following the BBC's coverage of its sensitive liquidity situation. The journalists can create or increase panic scenarios or promote stability and faith in prevailing conditions. O'Mara-Shimek (2015) is of the opinion that the existing crisis in international banking, markets and economies took us back to the significance brought by financial and business journalism. Another example is the ideological implications of how financial journalists communicated information concerning the stock market crash of 2008 at the New York Stock Exchange (NYSE), the singular event that initiated the Great Recession, whose effects are still being felt in many places of the world and how it impacted perceptions of the events (O'Mara-Shimek, 2015).

Haller and Staden (2014) argue that a well thought-out presentation of the traditional determinant of value added in purported value added statement would be a practical, effective, efficient and reliable and as a result helpful reporting instrument that complements and represents the concept of Integrated Reporting. They provide argument that the value added statement might and must become one of the key reporting instruments for Integrated Reporting and they should be assembled to best provide the information requirements for both internal and external stakeholders of integrated reports.The source of information is of greater importance when it comes to assessing the reliability of information.

5. COMING UP WITH FINANCIAL INFORMATION NEEDS FOR DIFFERENT STAKEHOLDERS

5.1. Provide informational needs regarding non-financial issues

Flostrand and Strom (2006) state that participants in the accounting sector are to adjust and try to give meaning to accounting information in line with ever changing stakeholders' informational needs that vary from financial to more of non-financial. Temporarily, financial performance measures directly connected to profitability are appropriate measures of performance. Hussain, Gunasekaran and Islam (2002) suggest that nonfinancial items maximise profits in the long run as a result of showing the intangibles in financial statements. These factors that are considered non-financial in the short run are usually financial in the long run. They further suggeste that factors like employee morale boost customer satisfaction as well as higher return on capital because there is a direct impact on performance due to satisfaction of customers.

Samudhram, Sivalingam and Shaumugam (2010) postulate that in some instances these non-financial issues referred to as intangible assets allow activities that are good for economic growth to be implemented. It is therefore critical to understand the effect these intangible assets have on stakeholders and thereby come up with a proper approach to be used in dealing with such assets. Due to high demand for information, the business sector has employed new information and communication technologies to make financial information more transparent (Perez and Hernandez, 2008). Transparency is required in both government and private sector financial affairs so that accountability can be facilitated and citizens appraised of the decision making process.

5.2. Provide information needs for employees

According to Bellou (2007) the relationship between employer and employee enhances the status of employees. It is an important thing to identify differences in employees' insights when assigning responsibilities on the bases of specialty depending on what the entity does. Furthermore, it is necessary for certain information to be accessible to employees for them to see how important they are to the organisation. Bellou (2007) suggests that there is some important information that is needed by employees and they need such information to be presented to them in a manner they understand.

Samudhram, Sivalingam and Shaumugam (2010) in their study suggest that a framework that considers some theoretical perspectives may be capable to give details regarding why firms are unwilling to disclose supplementary information on human capital in external reports. Few issues regarding employees are presented to public domain and most of these issues are kept as confidential.

Gaicedo and Martensson (2010) articulate that considering the importance of human resources as intellectual capital of entities may allow channelling of more resources towards ensuring that employees do not have a medical condition that is work-related. If it exists, they should get treated and if it is a disability they should be able to continue with their employment. It appears that these days, employee wellbeing is no longer related to how the person lives and what that person has in the community they stay. An employee is considered to be essential for business operations. Management should therefore be in a position to divulge their employees' health conditions (Gaicedo and Martensson, 2010).

Employee issues are some of the issues that are still being treated with high level of confidentiality in organisations with little or none being reported at all in financial statements. As stated by Komissarov (2014), matters that have to do with employee benefits are being treated with great confidentiality at all levels of operation. It appears the users of financial statements are finding it difficult to make an assessment using financial reports. Komissarov further states that FASB issued two standards as a remedy to the disclosure of employee issues for both pension and post retirement. These two standards work as a basis for disclosure for entities on employment policies.

In business environment there are many stakeholder groups with some classified as capital providers and others as non-capital providers. Employees are under non-capital providers. Williams and Adams (2013) state that employees are a responsibility of the entity and the entity should be responsible for employee morale and well-being. Although other authors are of the view that employees must be furnished with information that concern them on post-retirement issues, Garaai and Kleiner (2003) argue that developments regarding employee benefits and pensions appear to expose a tendency towards self-reliance on the part of employees. They further assert that the complexities of the business environment now demands that employees take responsibility for their investments and their future. It is assumed that employees are able to handle their affairs and they must have all the necessary information at their disposal.

5.3. Providing information needs for society and public at large

The environmental matters are the issues that affect public or society in which entities operate from and they are a matter of concern to organisations. Negash (2012) is of the opinion that failure to observe recognition rules may lead to reported losses. Some of the organisations report on environmental issues voluntarily. Negash (2012) argues that when monitoring environment it's not easy to make a voluntary disclosure.

According to Chiang (2010), environmental issues may affect an entity and its financial reporting in numerous ways and may also have an effect on the government. Furthermore, in excessive situations, growing concern of an entity may be affected by failure to comply with requirements of environmental laws. The same author also stipulates that when environmental affairs are significant to an entity and are important to financial reporting, there may be risk of material misstatement in the financial statements rising from such issues.

Companies have faced growing demands from stakeholders for reporting environmental information (Monteiro and Guzman, 2010). They further state that firms that issue environmental reports often provide these disclosures to demonstrate their contribution to sustainable development.

Ferreira, Moulang and Hendro (2010) argue that environmental management accounting does not influence product innovation. Even though the outcome proposes that use of EMA do not affect usual operations but some benefits flow into an entity. The environmental matters have been however, linked with the overall performance of the business. Dunk (2002) state that improved quality due to taking part in environmental reporting is the other benefit attainable. The growing demand by stakeholders for disclosure of information that replicates relations between organisations and the environment, product quality and the implementation of environmental accounting are considerable factors in enhancing quality performances.

6. EFFECTS OF NEGLECTING OTHER STAKEHOLDERS WHEN PRESENTING INFORMATION

6.1. Loss of trust and confidence in financial statements

Barlaup, Dronen and Stuart (2009) postulate that trust and confidence is fundamental to the performance of capital markets. Accounting scandals, where entities fraudulently prepared financial statements as well as auditor's issuance of clean report cause worn out of trust amongst stakeholders. Stakeholders wonder about the independence of auditors when management fraud occurs. According to Barlaup, Dronen and Stuart (2009), along with policies and contracts, trust and confidence lead interactions in the market. Trust and confidence have for all time been essential but are still more important in today's complex, changing business environment. Atkinson (2002), states that the capability to appropriately evaluate company and to rely on its financial reports disclosures is vital to the free market concept. Fischer (2013) stipulates that in the business perspective, trust can be a significant prerequisite for commercial exchange and in inter-enterprise dealings. Trust is considered as an influential commercial asset mostly because lack of trust can have rigorous cost implications.

Tonkiss (2009) asserts that trust is the pillar of economics. The combination of trust and confidence are critical in the functioning of the whole economy.

Hurley and Waqar (2014) also stipulate that the effects of losing trust were felt internationally during the global financial catastrophe of 2008 when money stopped moving and the economy ground to a standstill. Rezaee (2004) says that Certified Public Accountants (CPAs) have appreciated and were grateful for confidence the public have in their work as professionals.

6.2. Organisational reputation

Qu, Leung and Cooper (2013) state that other information that is not available in financial statements give rise to voluntary disclosure for enhancement of entity stakeholder relationship. Stakeholder theory reflects on the handling of stakeholders in the environment in which entity operates for its long run survival. According to Bebbington, Larrinaga and Moneva (2008) voluntary reporting may act as risk management remedy for an entity.

In addition, conceptualizations of reputation vary from economic management point of view to sociological with different perceptions being drawn. Bebbington, Larrinaga and Moneva (2008) are of the opinion that reputation is an asset that can bring tangible benefits. Samkin and Schneider (2010) state that failure to attain legitimacy from stakeholder groups has severe implications for organisations in that these groups may exhibit lack of interest towards efforts by organisations to deal with and protect the environment. Hemphill (2006) say that when a corporation is dealing with allegations of business rudeness, one of the most significant intangible assets the entity has to lose is its well acknowledged reputation in the market place.

Salama, Hussainey and Hubbash (2010) postulate that societal issues tend to be accepted as an important corporate responsiveness to be in touch between organisation and the society with consideration to social responsibility and sustainability. Organisations like those not for profit making are highly dependent on upholding a sound reputation to maintain legitimacy and protect access to funding bases (Conwary, O'Keefe and Hrasky 2015). They further state that one way organisations can respond to potential legitimacy threats is by demonstrating accountability through disclosure in annual reports. The annual report has been identified as a key accountability document for not for profit organisations.

Graca and Arnaldo (2016) stipulate that corporate reputation is one of intangible assets an entity can have and is considered an important intangible resource that can provide competitive advantage to companies. Intangibles include all resources that although lacking physical substance, contribute future benefits to the organisation to which they belong (Castillar-Polo and Gallardo-Vazquez, 2016). These include know-how, quality management, innovation, consumer trust and reputation among other assets.The organisation's reputation is something that an entity cannot do without. Reputation is good for the future of any entity that operates in a going concern bases.

7. CONCLUSION

The research appreciate current developments in the International Financial Reporting Standard, and Generally Accepted Accounting Standards as achievements towards disclosure of true business performance to stakeholders. It has been established that regulatory requirements regarding disclosure of financial information, preparation of financial statements and audience to financial statements are amongst the factors to be considered for information disclosure purpose.

The research also identified the cost and benefits of disclosing financial information, relevance of financial statements and significance of stakeholder groups as the factors to be considered when carrying out a cost benefit analysis on the importance of financial statements. Literature reviewed indicated that benefits derived from the financial statements outshine the costs of preparing them.

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CLASSIFICATION OF BANKRUPTCY WITH CASH FLOW INFORMATION: EVIDENCE FROM SMALL SIZE FIRMS

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Abstract

Corporate financial ratios have been debated in the past as the most importance measures in predicting corporate failure, yet gaps remain in the literature about cash flow information in classifying between bankrupted and non-bankrupted firms. This study test whether cash flow components is more useful in classifying bankrupted and non-bankrupted of small and unlisted firms in Spain. The results of this study suggest that cash flows components are superior to financial ratios for classifying small failed and non-failed companies with the logit model. Particularly, most failing firms, reduce or avoid paying dividend to their owner. This reduction or the absence of dividend payments as a proportion of total outflow is often related to either a significant decrease in the net operating inflow and/or an increase in the relative outflow to fixed charges resulting from increased external debt financing.

Keywords: Cash Flow Information, Bankruptcy, Financial Ratios, Classification

1. INTRODUCTION

Academic research have long advocated the use of financial ratio in multiple discriminant analysis (Beaver 1966, Altman 1968, & 1983, Blum 1974, Altman et al 1977, Ohlson 1980, Martin, 1979). These authors claims that financial ratios reflects key relationship among financial variables and provide basic guidelines for financial planning and analysis.

Others authors such as Beaver (1966), Aziz and Lawson (1985), Gilbert et al. (1990), Casey and Bartczak (1985), Gombolat et al (1987), Dambolena & Shulmen (1988), Giblbert et al (1990) & Fernandez et al. (2014), Lious et al. (2016) claim that cash flow information provide useful information source for predicting bankruptcy. To them, accounting information that best distinguishes between distressed and non-distressed companies is considered most useful to creditors. Research findings on the predictive potential of cash flow have been disappointing for advocates of the cash flow information. Authors have found little evidence supporting the belief that cash flow information has incremental predictor usefulness over accrual information in predicting bankruptcy. This is because prior study focus only cash flow from operating activities.

Although the cash flow theory suggests that operating cash flow may be the most important predictor of financial distress, other components of cash flow such as net cash flow, net cash from financial and investment should also have incremental predictive usefulness.

The objectives of this study are to review the financial failure literature and identify the ratios that were useful in discriminating between failed and non-bankrupted firms; to develop a model of cash flow components and illustrate it use; to compare empirical the discriminating ability of those financial ratios to the cash flow components in classifying bankrupted and non-bankrupted firms; and to provide recommendation for future study.

2. LITERATURE REVIEW

According to Heath (1978, p. 20), financial flexibility is the capacity of a firm to control cash receipts and payments to survive a period of financial adversity. He believes that the usefulness of cash flow is to achieve a state of equilibrium in total cash flow so that the available purchasing power will be equal to the needs to set by establishing limits and management decisions. The concept of financial flexibility indicates that the occurrence of certain events triggers an unexpected drop in total cash flow, thus forcing a company to take corrective action to regain cash flow equilibrium. The activities by management in restoring cash flow equilibrium dictates the futures cash flows. Some events occur suddenly, while others can be cyclical in nature.

Furthermore, financial researchers such as Brealey and Myers (1981), Van Horne (1980), Weston and Brisgham (1981) reveal that net cash flows are

the basis for determining the value of a firm. According to these authors, the need to use operating cash flows in predicting bankruptcy prevalence. Unlike the financial ratios which serve as proxies for measuring cash flow, cash flow components unambiguously measure accrual accounting cash flow inflow and outflows. In Lious et al. the value relevance of operating cash flow was superior to accrual earning after the mandatory IFRS adoption. This study develops a common set of eight net cash flow components. The cash flow components were developed originally by Helfert (1982). By measure the relative proportion each component contributes to either total net inflow or total net outflow, a pattern of uniform cash flow information is created. Like the sample bias in the ratio based studies, the relatives contribution of each component is dependent on the companies in the sample. However, using a uniform set of eight systematically related components to measure total financial performance avoids a measurement bias that may be encountered when using ratios.

Unlike the funds flow components, financial ratios selected by the MDA approach are not necessarily interrelated in a total system context. The degree that the selected set of ratios do not encompass all dimensions of a total interrelated system, a measurement bias will exist vis-a-vis the funds flow model. Another criticism of earlier bankruptcy studies focused on the shortcomings of multivariate discriminant analysis (MDA). The statistical problems of MDA were identified earlier. An alternative to MDA is the use of a conditional probability model. The use of conditional logit or probit analysis avoids the problems related to the use of MDA. With a conditional probability model no assumptions have to be made regarding prior probabilities of bankruptcy and/or the distribution of the predictor variables. The empirical analysis in this study utilizes the logit program. Table 1 below provides a summary of studies which authors employed cash flow components in classifying bankrupted and non-bankrupted firms.

Casey and Bartczak (1985) reached this conclusion on the basis of the number of firms correctly classified into their respective groups. While their conclusion is valid, there are grounds to argue that cash flow information has significant information content over accrual information in assessing the predicted *probability* of failure. Predicting the probability of failure extends the mere classification into either the failed or non-failed group and is practically more useful. For instance, the classification of a company into a non-failed group does not provide information on the likelihood of this group membership. Perhaps the likelihood of the membership into this group is 51%. Knowing the probability of failure enables the assessment of the degree of distress and the risk associated with a particular company. Bankers may lend at premium interest rates to companies that are classified in the failed group that have a marginal probability of failure. Conclusions supporting Casey and Bartczak (1985) were reached by Gombola *et al* (1987). Gombola *et al* (1987) conducted a factor analysis of 21 accrual ratios and three cash flow ratios and found that cash flows loaded on a separate factor in the later years being 1973-1981 but did not load separately during the earlier years,

1967-1972. Based on this finding, they argued that if cash flow has information content then it should be more salient based on data from the later years.

Dambolena and Shulman (1988) developed a variant of CFFO called net liquid balance. Net Liquid Balance (NLB) was derived by subtracting increases in cash investments and adding increases in long term financial flows to CFFO disclosed in the statement of cash flows. Dambolena and Shulman (1988) found that when NLB was added to Altman's (1968) Z score model and consistently improved the predictive performance of both these models. Meanwhile, flow identity as the framework for their study investigating the ability of cash flow to predict financial distress. They used this identity since they perceived corporate bankruptcy to be closely related to firm valuation which in turn is closely related to Lawson's identity of cash flows. Using both MDA and logistic regression they found that cash flow variables correctly classified bankrupt and non-bankrupt firms with a high degree of accuracy up to five years prior.

In examining whether distressed firms filing bankruptcy could be distinguished from those that avoid filing, Gilbert *et al* (1990) observed that contrary to the findings of Casey and Bartczak (1985), cash flow ratios (cash flow from operations to total liabilities and cash flow from operations to current liabilities as defined by Casey and Bartczak (1985)) were significant predictors of distress. In both their logit models, the cash flow ratios had intuitively appealing signs with the coefficients being significant at p=0.001. The two cash flow ratios however did not simultaneously occur in any one model. This suggests that the stepwise logit methodology adopted by Gilbert *et al* (1990) recognised and appropriately treated the correlation between the two cash flow ratios.

3. DATA AND METHODOLOGY

The data set, variables used, and the logistic scheme are described as follows:

3.1. Data and variables

The data sample for this bankruptcy prediction study consist of Spanish corporation that field for bankruptcy in 2008 or 2009 financial crisis as identified in the bankruptcy database in SABI. We found that there were 534 unlisted firms that were declare bankrupt from the SABI due to failure related circumstances during the sixteen periods. The stop of reporting financial statement to the SABI two or more years before experiencing bankruptcy. The second phase of the screening process involved a search of leading to information. Most studies on bankruptcy have focused on the predictive ability of financial information released approximately one year before the date of failure to serve as a predictor of failure within the next twelve months. Acquiring accurate dates when failure occurred and comparing it to the date of the latest annual financial statements are two important parts of the research methodology in the study. If it was found that a company declared bankruptcy, or was declared bankrupt or was liquidated, we acquired from the previous published sources the best available date of record of the failure. The classification of the 534

companies deleted from SABI file due to failure related circumstances.

During the third phrase of the screening process, the recorded date of failure is compared to the date of the last reported annual report of the failed company. If the date of failure is known precisely and it occurred four months or more after the date of the last recorded annual report (ie, the date of the latest fiscal year end), the date of failure and the financial statement are assumed to be one time period apart. If the precise date of failure was less than four months after the date of the last

annual report, the annual report of the preceding year becomes the closest to the date of failure. In standardising the comparison dates, experience indicates at least three months are required to complete the bankruptcy filing process. In SABI, we found that a company with a date of failure one month after the date of its latest annual report would more than likely have been involved in bankruptcy proceedings. That is, it was very close to financial failure before the last annual report was released.

Table 1. Summary of studies with cash flow component in classifying bankrupt and non-bankrupted firms

Study	Method	Cash flow variables	Findings
Gilbert et al (1990) USA	Examined the predictive abilities of models based on two types of samples 52 bankrupt and 208 n0n-bankrupt firms. They employed 14 ratios of which three were cash flow ratios in a stepwise logit model	Cash flow from operations/current liabilities (CFFO/CL) Cash flow from operations/total liabilities (CFFO/TL) Cash flow from operation/total assets	CFFO/TL is significant in classifying bankrupt and non-bankrupt firms CFFO/CL is significant in classifying bankrupt and non-bankrupt firms. Concluded that cash flow ratios add significantly to prediction accuracy of accrual models.
Aziz & Lawson (1989) (USA)	49 bankrupt firms matched with 49 non-bankrupt firms up to five years prior to failure. Compared cash models with Altman's Z and Zeta models, and a mixed model comprising cash and accrual variables.	Various cash flow variables extracted from the Lawson cash flow identity model.	The cash flow model was more accurate in predicting bankruptcies. Operating cash flow and lender cash flow were the two most significant cash variables.
Dambolena & Shulmen (1988) (USA)	Recomputed logit model equivalents for Altman's 1968 model and Gentry et al 1985b. Used 25 bankrupts matched with 25 non-bankrupts. A similar sample size was used for validation. Tested the marginal predictive ability of a funds flow ratio.	Net liquid balance which equals operating cash flows minus increases in cash investments, plus increases in long term financial flows.	Net liquid balance improved the predictive accuracy of both models especially for non-bankrupt firms. Improvement in predictive accuracy was greater for the Gentry et al model than for Altman's model.
Gombola et al (1987) (USA)	Computed 21 accrual ratios and three cash flow ratios for 77 failed and matched non-failed firms. Data collected for at least one year for each firm up to four years prior to failure. Employed linear MDA.	Nash flow from operations/sales cash flow from operations/assets cash flow from operations/debt.	None of the cash flow ratios were significant predictors of failure.
Casey & Bartczak (1985) (USA)	For 60 bankrupt and 230 non-bankrupt firms up to five years prior to failure, cash flow and accrual ratios were used to classify the firms using MDA and logit.	Operating cash flow (OCF) defined as working capital from operations adjusted by non-cash working capital accounts, OCF/current liabilities and OCF/total liabilities.	Cash flow ratios did not significantly increase the predictive ability of the accrual MDA and logit models. On re-interpretation of their results, the cash flow variables significantly increased explanatory power and predicted probabilities of failure/non-failure of the accrual model.

For comparative statistical analysis, annual report of the preceding year provide the type of standardized information needed. Failure is assumed to have occurred on January 1of that year if only the year of the failure is known. The date the last annual report is compared to the January 1 failure date when establishing the number of periods that expired before one company failed. The cash flow statement and balance sheet information for failed industrial companies are used to determine the cash flows and the financial ratios. Complete financial statement information was available for 490 of the 534 companies for one and two years before failure. Using a criterion of total sales between 700.000 euros and 8.000.000 euros; total assets between 350.000 to 4.000.000 euros and finally, total number of employees ranging from 10 to 49, we found that 179 of the 534 companies could be classified as small and not listed.

Furthermore, prior studies have compared the sample failed firms with a sample of non-failed

companies that were in the same respective industries and of approximately the same asset size. This study apply the same matching concept adopted in previous studies by matching the 179 failed small companies with a non-failed small companies in the same industry, selecting matching companies that were similar in assets size, sales and number of employees for the fiscal year three years before bankruptcy.

3.2. Model

The objective of this study is to test whether cash flow components are more useful than the financial ratios in predicting bankruptcy during the 2009 or 2008 financial crisis. The logit technique is used to examine the predictive ability of the cash flow from components relatively to the financial ratios. We used the cash flow from components and financial ratios for two year before financial distress.

Empirical evidence from previous studies have accounted that cash flow data provide the best information to use in empirical tests designed to discriminate between bankrupted and non-bankrupted companies. To start the theoretical framework that illustrate the trend of the cash flow components relatively to the financial ration to the probability of bankruptcy, we acknowledge that net cash flow is composed of cash inflows and outflows. However, the level and speed of each cash inflow and outflow component reflects the operating, investment and financing decision of the management. The resource allocation decisions of management are reflexed in the mix of the component generating cash inflow or outflows given any state of economic condition. Thus, measuring the change in the level and speed of each cash inflow and outflow component provides a theoretical rationale to differentiate between financially bankrupted firms or non-bankrupted firms.

To achieve the objective of this study, six proposition were proposed:

First, a firm's financial success or failure depends upon the proportion of Net Operating Fund Flows (NOFF), which consist of cash inflows (sales as primary source) menus cash outflows (such as expenditures related to cost of goods sold, selling and advertising, research and development, rental, extraordinary, and minority interest claims. Therefore, the lower the net operating fund flows, the high the probability that the firms is facing a financial distress. All thing being equal, a firm can obtain fund inflow normally from its net operating fund flows. However, seasonal event such as economics turbulence can cause the NOFFs to be negative, representing low cash inflows and high cash outflows. Particularly, during the financial crisis, most small firms experience a decline in sales, resulting to a negative NOFFs.

Second, most small business owner believes that the net working capital fund flows (NWCFF) provide the best way to maintain an equilibrium condition between sources and uses. Net outflow of funds for working capital are negative when the level accounts receivable (AR) or inventories (INV) are increasing and are positive when the level accounting payable (AP) are decreasing or a combination of both. Thus, the higher the proportion of net cash outflow going to net working capital, the higher the probability of failure.

Third, the smaller the proportion of net cash outflows going to capital investment, the higher the probability of failure. Firms faced with financial distress situation are mostly characterised with small size of cash outflow going to capital investment. This reflect the firm's market share and expected growth in demand for its products.

Fourth, fixed coverage expenditure outflow (FCEF) reveals the proportion of net cash outflow going to interest and leasing expenditures. When debt and/or leasing are used when a firm's internal operation funds are insufficient to meet the investment outflows, interest, debt amortization and leasing expenditure must be paid. Fixed coverage payment is always an outflow of funds, thus, the higher the proportion of the net cash outflows going to the interest and leasing expenditures, the higher the probability of failure.

Fifth, since most small business do not declare their dividend. We assume that dividend can be earned either through net profit for the period or pay themselves salary or personal allowance. Considering these three possibilities, most small firms will be preferred to use salary or personal allowances to avoid taxes charge after profit. Thus, the larger the relative proportion of net cash outflow going to dividend, the smaller the probability of failure. Since almost all small firms examined in this study are sole proprietors, when business is favourable, their salary or personal allowance will be higher. This is a signalling that the company is in a financial healthy state. However, when business is not favourable, owner can receive dividend through salary or personal allowance.

Sixth, Helfert cash fund flows model considered short-term borrowing (NFFF) as financial fund flows, even though, other authors argued that this variable should be placed under working capital. According to Helfert, firms experiencing decreased in the operating cash flow can used short-term debts to meet their financial necessities. Therefore, the larger the net cash outflow to capital investment, the smaller the probability of failure.

One of the limitation of prior cash flow studies is that not all studies have provide the validated of the models used. Gombola et al (1987) suggest that the reason why many previous studies would not detect significance in cash flow components in a multivariate model is because of the multicollinearity between cash flow and accrual components. He adds that most of the multivariate studies that did not find cash flow components to significant in predicting failure, combined early and late years data. However, other group of research account the significant of cash flow components used in predicting bankruptcy when applied the late year data. Among those were, Aziz and Lawson, 1989 and Gilbert et al. (1990). To resolve the problem of multicollinearity the presence study the widespread recognition that cash flow components is distinct from that provided by the income statement and balance sheet, and the consequence introduction of the cash flow accounting standards of companies in the Spanish market. This suggests that cash flow components may provide added predictive ability to that provide by accrual components.

With respect to the diversity, Kuhn (1970) suggests that repeated confirmation is essential for reaching on a phenomenon in a given research paradigm. Most previous studies in cash flow have used different measurement. This diversity issue is compounded by the diversity of research approaches and statistical techniques employed in the paradigm. The different approaches and statistical techniques may produces different results, as functional relationship between the independent (predictor) variables and the dependent variables may be suited more to a particular technique than to other. This result may due to some statistical artefact rather than manipulation of the dependent variables. To resolve this problem of validity we use to the logit models to check if similar results can be achieved.

Lastly, this make use of cash flows components instead of just meanly operating cash flows in predicting financial failure in order to avoid the

narrow, premature and unjust view of cash flow information as illustrated by prior studies when reference is given only to operating cash flow. This narrow view of using only operating cash flow would be the reason why there are solution of cash flow not capable of predicting bankruptcy failure.

3.3. Variable measurement

Six cash flow components were selected to be used in the logit model for classifying bankrupted and non-bankrupt companies. The selection of the ratio was based on two primary criteria: (1) the most frequently used ratios, and (2) asset size. The most widely used cash flow ratios in predicting bankruptcy derived from nineteen bankruptcy studies. Table 3 provide details of studies that employ cash flow component in predicting financial distress situation. We selected six most important components that we used in almost all the studies. The selected cash flow component:

1) Net Operating fund Flows (NOFFs) = inflows (IF) minus outflows (OF) from operating activities
2) Net Investment fund Flows (NIFFs) = inflows (IF) minus outflows (OF) from investing activities
3) Net Financial Fund Flows (NFFFs) = inflows (IF) minus outflows (OF) from financing activities.
4) Net Working Capital Fund Flows (NWCFFs) = inflows (WCIF) minus outflows (WCOF) from working capital
5) Dividend outflow (DIV)
6) Fixed Coverage Expenditure Outflows (FCEF)
7) Change in Cash (CC)
8) Total Net Flow/Total Assets

All the cash flow variables were scaled by total net flow. This is because we want to determine the percentage of the total net inflows that are contributed by each net inflow component and the percentage of total net outflows contributed by each net outflow component. Following Helfert model and the accounting convention underlying the funds flow statement results in total net inflow of fund (TNIF) are equal to the absolute value of total net outflows (TNOF), therefore, TNF=TNIF=TNOF.

For the financial ratios, nine financial ratios were selected to be used in the logit model for classifying bankrupt and non-bankrupt firms. The selection of the ratio was based on three primary criteria: (1) the most frequently used ratios, (2) asset size and the (3) financial market effect. Among the nine financial ratios, six ration were selected based on the three specified criteria. These ratios are: net income/total assets (NI/TA), EBIT/total assets (EBIT/TA), total debt/total assets (TD/TA), net working capital/total assets (NWC/TA), cash flow/Total debts (CF/TD), current assets/current liabilities (CA/CL) and cash plus marketable securities/current liabilities (C/CL), and Log TA. The exclusion of retained earnings/total assets is because it is similar to total debt/total assets. To control for the size and financial markets, we use log of total assets as a proxy for size and total market value of common stock/book value of total capital as the financial market proxy (Altman et al. 1975).

The financial distress prediction models were constructed using binary logistic regression (LR) as illustrated in Hosmer and Lemeshow (1989). We employ the Proc Logistic command in SPSS to generate the logistic statistical models. Suppose the response variable can take on the ordered values 0 and 1, with i predictor variables, and defining P_0 as the probability that a firm is in state 0 given the vector $X = (X_1, X_2, ..., X_i)$ of independent variables, the logit can be estimated as follows:

$$l = \ln [P_0/(1-P_0)] = \beta_0 + \beta_1 X_1 + \beta_1 X_2 + \beta_i X_i \qquad (1)$$

Where β_0 is the intercept parameter and the β_i coefficients represent the effect of the jth explanatory variable on a company's probability of ending up in state 1 or 0 is given by:

$$P(FD = 0/X_j) = P_0 = \frac{\exp l}{1+\exp l} \qquad (2)$$

$$P(FD = 1/X_j) = P_1 = 1-P_0 \qquad (3)$$

Where FD represent financial distress with levels 0 and 1 and X_j is the know vector of the predictor variables corresponding to the jth observation. The predictive accuracy of each model was validated using the variance inflation factor technique used by SPSS 23 software. The bias resulting from the predicting observation was reduces since as we run a model with/without the technique and compare the results.

4. DATA ANALYSIS

4.1. Descriptive statistics

Table 2 shows the mean and standard deviation of failed and non-failed firms in term of their operations, investment, financing, net working capital and dividends. The theoretical framework with respect to the relationship between the probability of bankruptcy and the cash flow components are supported by the descriptive statistic information.

For the cash flow components, the result shows that there is remarkable difference between the means of the failed and non-failed small unlisted companies, one and two years before bankruptcy. One year before the failure, the results show that NOFF/TNF, NIFF/TNF, NFFF/TNF, and CC/TNF were negative for the all failed firms. However, for the non-failed firms, all the cash flows components were positive. Comparing these figures with the results obtained from the financial ratios demonstrates the superiority of the cash flow measure in predicting bankruptcy. One year before the bankruptcy, the financial ratios of most small firms shows that these companies are healthy. Unlike the bankrupted firms, the mean of the cash flow components and financial ratios for the non-bankruptcy are positive. Similar results were found for two years before the bankruptcy.

4.2. Logistic regression analysis

The parameter estimates for the cash flow components and financial ratios are reported in Table 3. These parameters indicate that, for both years, bankrupted firms are significantly more likely to have lower (negative) or higher (positive) cash flow component before financial distress then healthy firms. The classification results in Table 3

even better illustrate the disparities in the importance of cash flow components for the samples and the year.

With respect to proposition fifth, the results show that the strongest cash flow component for sample is dividend component. The dividend component (DIV) is significant at the 0.001 level for the test using only cash flow components to classify bankrupted and non-bankrupted firms. This findings indicate that the higher relative dividend component, the lower the probability of failure. In other word, the lower the dividend components, the higher the probability of failure. The finding is consistent with the proposition 5 of the theoretical framework present in section 3. This shows that higher dividends satisfy the preference of owners of the firms and thereby sustaining the long run economics viability of their business.

Table 2. Mean and standard deviations of cash flow variables and financial ratios for failed and non-failed companies one and two years before the failure during the financial crisis

Variables	Failed Firms		Non-Failed Firms	
	Mean	Standard Deviation	Mean	Standard Deviation
Cash flow variables (year 1)				
NOFF/TNF	-0,171	0,305	-0,182	2,875
NIFF/TNF	-0,383	2,859	1,562	17,042
NFFF/TNF	-0,060	0,149	0,028	0,391
NWCFF/TNF	1,074	4,462	0,818	3,212
DIV/TNF	0,292	0,294	0,511	1,440
FCEF/TNF	0,064	0,143	0,093	0,223
CC/TNF	-0,065	0,280	0,122	0,404
TNF/TA	1,940	2,874	57,247	589,002
Financial Ratios (year 1)				
NI/TA	-0,409	1,107	0,082	1,732
EBIT/TA	-0,317	0,786	0,189	3,165
TD/TA	1,859	5,974	29,837	266,661
CF/TD	-0,765	2,480	14,042	130,001
NWC/TA	0,342	0,441	0,244	0,324
CA/CL	2,291	4,973	7,723	59,240
C/CL	0,128	0,447	0,722	2,682
Log TA	3,129	0,488	4,301	0,853
Cash flow variables (year 2)				
NOFF/TNF	-0,113	0,289	0,210	0,793
NIFF/TNF	-0,221	1,551	0,985	13,332
NFFF/TNF	-0,067	0,140	-0,049	0,342
NWCFF/TNF	0,748	1,410	1,235	5,727
DIV/TNF	0,366	1,055	0,595	2,060
FCEF/TNF	0,056	0,092	0,916	8,836
CC/TNF	-0,032	0,057	0,190	0,645
TNF/TA	1,893	2,355	7,915	55,619
Financial Ratios (year 2)				
NI/TA	-0,265	0,645	0,076	1,506
EBIT/TA	-0,214	0,626	0,018	0,281
TD/TA	1,317	2,798	89,448	929,922
CF/TD	-0,571	1,538	4,125	20,415
NWC/TA	0,386	0,413	13,097	131,675
CA/CL	2,661	7,921	3,916	15,767
C/CL	0,203	0,978	2,740	17,616
Log TA	3,556	0,466	4,275	0,870

Most failing firms, reduce or avoid paying dividend to their owner. This reduction or the absence of dividend payments as a proportion of total outflow is often related to either a significant

decrease in the net operating inflow and/or an increase in the relative outflow to fixed charges resulting from increased external debt financing. Analysing Table 3 one and two of before the collapse, the result shows that the value for dividend drop drastically for failed firms. One year before bankruptcy, dividend component (DIV) is 0.017. Two year before bankruptcy, the dividend component was 1,043. Lower coefficient of dividend components indicates that such companies do not pay income taxes due to the poor financial performance, accrual income taxes liabilities are reduced and appear as a use of funds. The effect of the dividend component also affect the level of wages, as they are reduced and use as funds. Thus, the higher the sources of funds from the assets and liabilities components, the lower the probability of failure.

The NIFF has also has significant incremental predictive power in both variables. With respect to proportion 3 which state that the smaller the proportion of net cash outflows going to capital investment, the higher the probability of failure. In other word, the larger the proportion of net cash outflows going to capital investment, the lower the probability of failure. The findings closely resembles proportion 3 which indicates the smaller the size of the net cash outflow going to capital investment, the higher the anticipated bankruptcy. Firms faced with bankruptcy lack the capacity of increasing the market demand for their product, thus anticipated growth becomes very lower due to insufficient cash for capital investment.

With respect to proportion 4 which state that the higher the proportion of the net cash outflow going to interest and leasing expenditure, the higher the probability of the failure, or alternatively, meet the investment outflows, interest, debt amortization and leasing expenditure must be paid. Fixed coverage payment is always an outflow of funds, thus, the smaller the proportion of the net cash outflows going to the interest and leasing expenditures, the lower the probability of failure. The finding from this study reflect proportion 4, since for the one year lapped, the coefficient of fixed coverage component was 0.501, positive and statistically significant at the 0.05 level. For the two lapped, the variable was not significant.

To ascertain the incremental explanatory power of cash flow components, this study adds each financial ratios separately to a base cash flows model incorporating the eight cash flow components. Then all combinations of the ratios are added to the cash flow model. In Table 4, we run eight separate logit analyses in order to measure the contribution of the cash flows components against the financial ratios for both bankrupted and non-bankrupted companies. For measuring the significance of the contribution of cash flow components and financial ratios, we use a significant change in the -2log Likelihood function statistic.

We began the process by incorporating only the intercept to classify the 152 small firms which serve as the platform for establishing a standard use in comparing the significant change in -2Log Likelihood. With this in mind, we run another regressions adding separately the financial ratios and the cash flows components. From Table 4, test contain the -2log Likelihood for the intercept only, which is -140.493. Based on some prior studies, the

incremental explanatory power of the traditional financial ratios drops when C/CL and EBIT/TA ratios are excluded from the model. In test 2, after excluding the C/CL ratios from the model, we realise a Chi-square test of the change in the -2log Likelihood from 140.493 to 129.335, at the 0.05 level of significant.

In Test 3, the -2log Likelihood statistic when EBIT/TA was 108.375 and the change in the -2log Likelihood statistics from Test 1 to Test 3, 140.493 to 108.375 was significant at the 0.1 level. When all the eight ratios were included in the logit analysis, the resulting -2log Likelihood statistic was 102.360. A chi Square test of the change in the likelihood statistics from Test 1 to Test 4, 140.493 to 108.375 was significant at the 0.05 level. All these three regressions show that the financial ratios make a contribution in classifying the 175 small companies when compared with the intercept.

Table 3. Logit coefficients and Wald t statistics for separate runs of Funds Flow Components and Financial Ratios

Variables	β	Exp(β)	Wald	P-Value
Cash flow components (year 1)				
Intercept	0,011	1,011	0,026	0,872
NOFF/TNF	-0,017	0,983	1,060	0,003
NIFF/TNF	-0,235	0,791	0,205	0,051
NFFF/TNF	0,067	1,069	1,585	0,208
NWCFF/TNF	-0,557	0,573	1,506	0,320
DIV/TNF	0,017	0,400	0,709	0,000
FCEF/TNF	0,501	0,606	0,903	0,042
CC/TNF	-0,001	0,999	0,043	0,836
TNF/TA	0,232	1,261	1,454	0,228
Financial Ratios (year 1)				
Intercept	1,940	26,683	42,894	0,000
NI/TA	-0,064	0,938	0,345	0,557
EBIT/TA	0,190	1,210	4,854	0,028
TD/TA	-0,075	0,928	4,622	0,032
CF/TD	-0,602	0,548	9,765	0,002
NWC/TA	1,820	6,169	10,376	0,001
CA/CL	0,075	1,078	9,579	0,002
C/CL	-1,939	0,144	12,798	0,000
Log TA	-4,649	0,010	42,818	0,000
Cash flow components (year 2)				
Intercept	0,582	1,789	6,204	0,013
NOFF/TNF	-3,833	0,022	15,144	0,000
NIFF/TNF	0,014	1,015	0,544	0,461
NFFF/TNF	-1,164	0,312	2,112	0,146
NWCFF/TNF	0,056	1,058	1,665	0,197
DIV/TNF	1,043	9,044	0,152	0,097
FCEF/TNF	-2,424	0,089	3,835	0,250
CC/TNF	-5,803	0,003	8,102	0,004
TNF/TA	-0,094	0,911	2,771	0,296
Financial Ratios (year 2)				
Intercept	1,734	18,930	42,899	0,000
NI/TA	-0,168	0,846	0,088	0,766
EBIT/TA	-1,629	0,196	2,825	0,093
TD/TA	-0,185	0,831	7,622	0,006
CF/TD	-0,021	0,979	0,611	0,434
NWC/TA	-0,274	0,760	1,761	0,185
CA/CL	0,112	1,119	7,528	0,006
C/CL	-1,146	0,318	10,854	0,001
Log TA	-2,650	0,071	42,705	0,000

Furthermore, for the fifth test we excluded C/TA due to the problem of statistical over identification. Thus, we included seven cash flow components and a scale measure, total net flows/total assets (TNF/TA), to the intercept in classifying the sample companies. This techniques help us to prevent the over identification of the residual component in the cash fund analysis. The -2log of the likelihood statistic in the fifth test was 199,778 compared to 129,335 with the intercept only. The Chi-square statistic shows the addition of the either cash flow components make a significant contribution in classifying the sample companies at the 0.01 level.

The final logit model consist of three tests combine eight cash flow components with either seven or either financial ratios in the logit analysis. We dropped the EBIT/TA because of high correlation with net cash flow from operation (NOFF) and cash flow/total debt (CF/TD). This omission was necessary because it did not affect the test since similar effect were present in the other two variables. With respect to the financial ratios, we excluded C/CL and included the remaining seven ratios combine with the eight cash flows measure in the logit analysis.

In measuring the marginal contribution of adding seven ratios to the eight cash flow components in test 6, the Chi Square results show there is a significant change in the -2log Likelihood statistic from 199,778 to 57,785 at the 0.001 level. Similar results were obtained using the eight cash flow components and the seven financial, excluding C/CL and EBITA/TA. The result shows that the marginal contribution to the -2log Likelihood change from 129.335 to 57.785 at the 0.001 level of significant when either cash flow components are combined with seven financial ratios excluding C/CL. This indicates that the addition of a financial ratio to the cash flow components does not make any significant contribution to the categorizing between bankrupted or non-bankrupted firms. However, the reverse is true for the cash flow component due to its significant contribution to the categorizing of bankrupted or non-bankrupted small firms.

Test 7 shows a replicate of Test 3 with the EBITA/TA excluded and the combination of the eight cash flow components. The -2log Likelihood statistic changes from 108.375 to 63.923 and is significant at the 0.05 level. Meanwhile, a combination of the 8 financial ratios and the eight cash flow components result in a -2log likelihood statistic of 228.540. The Chi square results show that adding either the above set of seven ratios or the set of either ratios to the either cash flow components result to as decreased in the significant change in the -2log likelihood statistic from 199.778 to either 57.785 or 63.923. Notwithstanding, a combination of the eight cash flow components with the above set of seven or eight financial ratios does produce a significant increase and change in the -2log likelihood statistics at the 0.05 level form 108.375 to 63.923 or from 102.360 to 228.54. This result shows that improved classification performance archived in the probit model is due to the superiority of the cash flow components with regard to the financial ratios used in bankruptcy prediction.

Lastly, analysing Table 5a, two cash flow components (NFFF/TNF and NWCFF/TNF) were statistically significant for test 6, 7 and 8 at the 0.05 and 0.01 level. This provide further support of the

contribution of cash flow component in categorizing small bankrupted and non-bankrupted firms. Similar results were obtained for two years before bankruptcy as shown in Table 5b.

Table 4. Logit coefficients, Wald test statistic for separate run of cash flow variables and financial ratios

Test Number	Variables	Change in -2Log L	Degrees of Freedom	P-Value
	Testing Ratios and Cash flow variables Separately (year 1)			
1	7 Financial Ratios, Excluding C/CL	129,335	9	0,086
2	7 Financial Ratios, Excluding EBIT/TA	108,375	8	0,060
3	8 Financial Ratios	102,360	10	0,042
4	8 Cash Flow Components	199,778	6	0,077
	Testing Combinations of Ratios and Cash flows (year 1)			
5	7 Ratios and 8 Cash Flow (C/CL omitted)	57,785	14	0,000
6	7 Ratios and 8 Cash Flow(EBIT/TA omitted)	63,923	13	0,005
7	8 Ratios and 8 Cash Flow components	228,54	10	0,002
Test Number	*Testing Ratios and Cash flow variables Separately (year 2)*			
1	7 Financial Ratios, Excluding C/CL	205,708	11	0,823
2	7 Financial Ratios, Excluding EBIT/TA	189,518	10	0,018
3	8 Financial Ratios	186,282	11	0,001
4	8 Cash Flow Components	248,508	9	0,001
	Testing Combinations of Ratios and Cash flows (year 2)			
5	7 Ratios and 8 Cash Flow (C/CL omitted)	150,175	10	0,001
6	7 Ratios and 8 Cash Flow(EBIT/TA omitted)	146,949	10	0,001
7	8 Ratios and 8 Cash Flow components	145,011	10	0,001

Table 5a. Logit coefficients and Wald t statistics for combined runs of Cash Flow Components and Financial Ratios (year 1)

Variables	Test 6	Test 7	Test 8
Intercept	2,740***	7,818***	1,054***
	(5,118)	(29,116)	(4,249)
NOFF/TNF	0,214	0,599	1,995**
	(0,655)	(1,340)	(4,366)
NIFF/TNF	0,013	0,015	0,005
	(0,179)	(0,242)	(0,024)
NFFF/TNF	-4,747***	-5,049**	-6,001**
	(10,645)	(9,376)	(9,700)
NWCFF/TNF	0,463***	0,459**	0,596***
	(16,390)	(8,548)	(11,000)
DIV/TNF	-1,146	-2,802**	-2,433*
	(1,275)	(4,992)	(3,556)
FCEF/TNF	-2,281	-1,623	-0,739
	(0,432)	(0,149)	(0,023)
CC/TNF	-1,714**	3,606	3,271
	(5,370)	(2,334)	(2,147)
TNF/TA	-0,092	-0,304	-0,342
	(0,414)	(1,741)	(2,406)
NI/TA	-0,110	-0,102	-0,017
	(0,621)	(0,512)	0,008
BIT/TA	-0,269		-1,560*
	(0,140)		(3,334)
TD/TA	-0,093**	-0,082	-0,107*
	(5,560)	(1,971)	(3,824)
CF/TD	-0,227	-0,551	-0,582**
	(2,193)	(5,484)	(5,883)
NWC/TA	0,989	1,475**	2,196**
	(1,985)	(2,763)	(5,497)
CA/CL	0,047	0,101*	0,109***
	(2,103)	(10,377)	(10,754)
C/CL		-3,537***	-3,435**
		(6,094)	(7,242)
LogTA	-6,279***	-7,371**	-8,402***
	(34,758)	(28,637)	(23,410)

*Note: *p<.1 (two-tailed), *p<.05 (two-tailed), ***p< .01 level (two-tailed)*

Table 5b. Logit coefficients and Wald t statistics for combined runs of Cash Flow Components and Financial Ratios (year 2)

Variables	Test 6	Test 7	Test 8
Intercept	1,274***	1,374***	1,076***
	(4,123)	(4,634)	(7,601)
NOFF/TNF	-1,749*	-2,278**	-1,934*
	(2,808)	(4,345)	(3,283)
NIFF/TNF	-0,015	-0,017	-0,021
	(0,372)	(0,505)	(0,768)
NFFF/TNF	-1,841	-1,942	-1,914
	(2,405)	(2,436)	(2,403)
NWCFF/TNF	0,149**	0,166***	0,164**
	(8,988)	(10,268)	(9,946)
DIV/TNF	-0,335	-0,329	-0,375*
	(2,461)	(2,321)	(2,962)
FCEF/TNF	-0,827	-0,975	-0,624
	(0,333)	(0,405)	(0,171)
CC/TNF	-8,713**	-3,635	-3,502
	(7,927)	(1,109)	(1,066)
TNF/TA	-0,619***	-0,500***	-0,556***
	(17,673)	(13,231)	(14,281)
NI/TA	-0,333	-0,777	-0,116
	(0,324)	(2,563)	(0,033)
BIT/TA	-1,050		-1,039
	(2,102)		(1,891)
TD/TA	-0,088	-0,089	-0,092
	(1,532)	(1,539)	(1,708)
CF/TD	0,006	0,014	0,011
	(0,060)	(0,401)	(0,233)
NWC/TA	-0,206	-0,276	-0,285
	(0,797)	(1,397)	(1,481)
CA/CL	-0,011	0,077	0,072
	(0,429)	(2,546)	(2,449)
C/CL		-0,839**	-0,784**
		(4,113)	(4,064)
LogTA	-3,743***	-3,873***	-4,025***
	(44,490)	(44,771)	(44,137)

*Note: *p<.1 (two-tailed), *p<.05 (two-tailed), ***p< .01 level (two-tailed)*

4.3. Robustness

Gombola et al (1987) argue that the construct validity of cash flow components is a significant factor explaining the variability in the results of prior studies. According to the SABI database, sampled firms cash flow components were prepared according to *Plan de General de Contabilidad de año 2007*. To avoid a narrow focus of cash flow financial distress prediction as shown in prior studies (most prior studies have ignored the used of the other cash flows variables predicting financial distress), this study employ the potential of other cash flow variables such as cash flow from investing activities, and cash flow from financing activities. The premature and unjust dismissal of the cash flow information in predicting financial distress have been due to the narrow view of prior research on cash flows from operation.

With respect to model validity, biased probit and logistic parameter estimates can be associated with the model when the sample sizes of 10(S+1) or lower, where S is the number of predictor variable. Small sample sizes in a single group does not appear to cause parameter estimate bias Freeman, 1987; and Stone and Rasp, 1991). This is because the sample size is less than 10(S+1) for the models in this study, bias is likely present in the parameter estimates generated by the sample models. In situations where parameter estimates are biased (either from collinearity or small sample sizes), the Wald χ^2 statistic for each parameter estimate is not the best measure of an added variable. Instead, we adopted the change in the overall model's log likelihood statistic when adding a variable. This study use the Change in -2Log Likelihood for the added cash flow variable as the test statistic for each cash flow variables. Following the discussion of Stone and Rasp (1991), the use of the Change in -2Log Chi-square and classification accuracy should result in reliable conclusion concerning the usefulness of cash flow information. However, any bias in this study resulting from the small sample size should be biased against finding significance of cash flow components. Thus, results showing that are useful are still valid.

4.4. Choice-base sampling bias

Even though previous studies such as Zmijewski (1984) have argued that binary probit and logistic bankruptcy models generate biased parameter estimates, Maddals (1991) opposed that the logit model, one does not need to use a weighing procedure due to the fact that logit coefficients of the independent variables are not affected by the unequal sampling rates, however, only the constant term are affected. The constant term decreased by the fraction sampled from each population to control for the bias. As such, the test are not affected by this bias, nor are comparisons across models. Adjustment from the constant term implies a correct classification of more healthy firms and the correct classification of fewer distressed firms for each model, with a resulting increase in total classification rates. Therefore the results from comparisons between the two samples categorization rates should be equal.

5. CONCLUSION

Nowadays, many companies spend time and money in preparing the statement of cash flow. Although most dichotomous bankruptcy research studies have portrayed the superiority of the financial ratios over the cash flows, this judgement have been based on only one components of cash flow (cash flow from operating activities). However, these studies failed to determine whether cash flow information provided in the statement of cash flow may be more useful to a particular industry. Thus, the present study employed the cash flow component vis-à-vis the financial ratios in classification of small bankrupted and non-bankrupted firms before the failure. That is it compared the cash flow component versus the financial ratios to determine whether or not cash flow information as presented in the statement of cash flow is more useful for prediction of bankruptcy of small firms one year or two year before the failure.

Several proposition were used to develop the theoretical rationale for using cash flow components to explaining the probability of failure. The ability for cash flow information to be classified as bankrupted or non-bankrupted was compare to the classification performance of a set of eight prior discriminating financial ratios. The analysis use the logit model to classify 179 small companies. The findings were as follows:

First, when using just the intercept of the logit model, the cash flow components and the financial ratios make significant contribution in classifying the 179 small companies. Several tests indicated that cash flows components are superior to financial ratios for classifying small failed and non-failed companies with the logit model.

Second, we found all the cash flows variables significant when only the cash flow components were used in the regression model. Unlike the cash flow model, an opposed result proof evidence when only the financial ratios were used in classifying the small companies in Spain. The dividend fund flow component (DIV/TNF), dividends as a percent of total net outflow of funds, was markedly smaller for bankrupted companies one and two year before bankruptcy than the non-bankrupted companies. The net investment fund flow component (NIFF/TNF) was markedly smaller for failed companies one and two lapped before bankrupted than the non-bankrupted companies. Finally, when the ratios and cash flow components are combined, the significant variables were the dividend fund flow component and set other assets and liabilities.

Since the main objective of this study is to evaluate cash flow components potential in predicting bankruptcy for small firms, it is not surprising that unambiguous measure of the fund flows components are significant in classifying bankrupted and non-bankrupted companies. The dynamic nature of business and economic conditions suggest the need to re-evaluate frequently the contribution of the fund flow components in predicting corporate bankruptcy.

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THE WEIGHTED AVERAGE COST OF CAPITAL OVER THE LIFECYCLE OF THE FIRM: IS THE OVERINVESTMENT PROBLEM OF MATURE FIRMS INTENSIFIED BY A HIGHER WACC?

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Abstract

Firm lifecycle theory predicts that the Weighted Average Cost of Capital (WACC) will tend to fall over the lifecycle of the firm (Mueller, 2003, p. 80-81). However, given that previous research finds that corporate governance deteriorates as firms get older (Mueller and Yun, 1998; Saravia, 2014) there is good reason to suspect that the opposite could be the case, that is, that the WACC is higher for older firms. Since our literature review indicates that no direct tests to clarify this question have been carried out up till now, this paper aims to fill the gap by testing this prediction empirically. Our findings support the proposition that the WACC of younger firms is higher than that of mature firms. Thus, we find that the mature firm overinvestment problem is not intensified by a higher cost of capital, on the contrary, our results suggest that mature firms manage to invest in negative net present value projects even though they have access to cheaper capital. This finding sheds new light on the magnitude of the corporate governance problems found in mature firms.

Keywords: WACC, Firm Lifecycle, Corporate Governance, Overinvestment

1. INTRODUCTION

Previous research on corporate governance and firm investment performance has found that, contrary to the observed behavior of young companies, mature firms tend to invest in projects with rates of return below their Weighted Average Cost of Capital (WACC). Moreover, these studies have concluded that the ultimate reason for the overinvestment problem is the breakdown of corporate governance mechanisms in mature firms (Mueller and Yun, 1998; Saravia, 2014). Now, given these findings of poor corporate governance in older firms, the question remains whether the overinvestment problems observed in mature firms may also be due to a potentially higher WACC for these firms.

The lifecycle theory of the firm, on which the above mentioned research rests, predicts that the WACC will tend to fall over the lifecycle of the firm (Mueller, 2003, pp. 80-81). Although this is a sensible proposition, we find that no direct empirical tests on the trend of the WACC over the lifecycle of the firm have been undertaken until now. Importantly, since firm lifecycle theory states that when mature firms overinvest this causes both existing and potential shareholders to require a higher rate of return from then on, it is not *a priori* certain that the WACC of mature firms with such governance problems should be lower than that of young firms as submitted by the theory. Thus, a key objective of this paper is to fill this gap in the literature by testing empirically whether the WACC

falls over the lifecycle of the firm as put forward by firm lifecycle theory.

The importance of this paper is twofold. Firstly, as indicated above, empirical work on the tendency of the WACC over the lifecycle of the firm is nonexistent and, to the best our knowledge, ours is the first paper that investigates this issue empirically. The previous work that comes closest to examining this topic is the empirical paper by Hasan, Hossain and Cheung (2015) who study the trend of the cost of equity over the lifecycle of Australian firms. These researchers find that the cost of equity has a tendency to fall as firms get older. However, they do not extend their research to investigate the behavior of the WACC over the lifecycle of the firm. Secondly, ours is the first paper that investigates empirically whether the overinvestment problems observed in mature firms are intensified by a higher WACC. In this paper we collect data on the WACC and other firm characteristics for a sample publicly listed of U.S. non-financial corporations over the 2000-2013 time period. After performing econometric tests, we find support for the proposition that the WACC of younger firms is significantly higher when compared to that of mature firms. As mentioned above, since Mueller and Yun (1998) and Saravia (2014) find that mature firms have poor corporate governance since they tend to overinvest in projects with rates of return below their WACC, our findings suggest that a higher cost of capital is not a contributing factor to the problem, on the contrary, our results suggest

that mature firms manage to invest in negative present value projects despite their having access to cheaper sources of capital. This observation sheds new light on the magnitude of the corporate governance problems found in mature firms, since it suggests that mature firms are destroying value by overinvesting in projects with some of the lowest rates of return in the economy.

The remainder of this paper is organized as follows: Section 2 reviews the lifecycle theory of the firm and develops testable propositions. Section 3 discusses our econometric specification. Section 4 presents our data sources, describes the sample, and

discusses and documents our results. Section 5 concludes the paper.

2. THE LIFECYCLE THEORY OF THE FIRM AND THE WACC

Taking as his starting point the contribution of Schumpeter (1934, 1943) that firms have a lifecycle, Mueller (1969, 1972, 2003, pp. 81-83) develops a firm lifecycle theory that focuses on the capital budgeting and cost of capital situations that firms face as they go through their lifecycles. We can best summarize Mueller's theory with the aid of Figure 1.

Figure 1. The WACC over the lifecycle of the firm.

a) Young firm

b) Mature firm
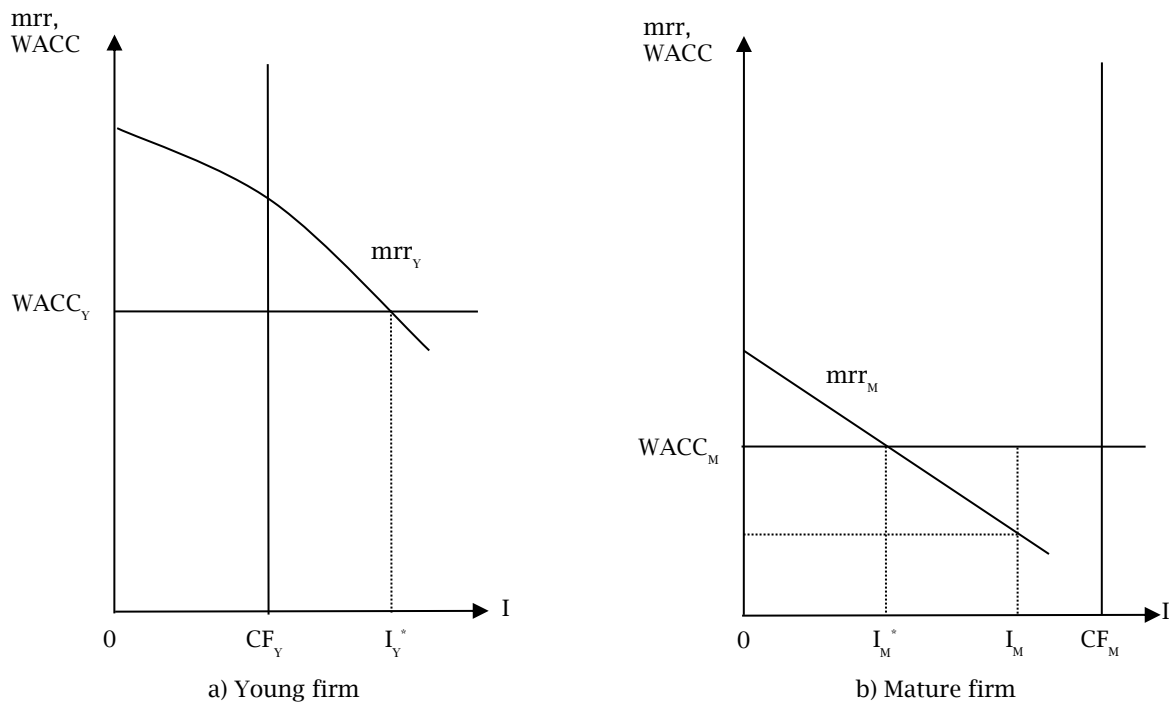
Source: adapted from Mueller (2003, p. 80)

Figure 1(a) illustrates the situation faced by young firms. As can be seen, new companies have investment opportunities with an optimum at I_Y^*, i.e. the level of investment consistent with the point where the marginal rate of return, mrr_Y, equals the weighted average cost of capital, $WACC_Y$. Now, as is also shown in the figure, in order to exploit these investment opportunities young firms require more funds than the cash flows, CF_Y, they can generate internally from operations. Consequently, new firms need to tap outside sources of capital at a relatively high cost, $WACC_Y$, in order to invest at the optimal level. According to lifecycle theory this higher cost of capital is due to "the different opportunities for raising external capital generally faced by new firms" compared to the corresponding opportunities faced by mature firms (Mueller, 2003, p. 81). Hence the figure implies that, because of this abundance profitable investment opportunities, young firms can be characterized as fast growing companies that pay little or no dividends, which need to have good relationships with outside investors (i.e. good corporate governance) in order to have access to outside funds and reduce their cost of capital as

much as possible. It is important to notice that these firms depend on outside sources of finance if they are to undertake the investment opportunities open to them before the competition beats them to it.

On the other hand, Figure 1(b) depicts the situation confronted by mature firms. According to lifecycle theory, mature firms are characterized by having investment opportunities which at the optimal level I_M^* (the level of investment consistent with the point where the marginal rate of return, mrr_M, equals the weighted average cost of capital, $WACC_M$) require a smaller budget than the cash flows that the firm can generate internally from operations, CF_M. Importantly, this financial independence which mature firms enjoy *vis-à-vis* shareholders and other investors causes conflicts of interest. As suggested by Jensen (1986), why would growth maximizing managers, who enjoy the benefits from the growth of their firms such as higher salaries and more and better perks (Jensen and Meckling, 1976), pay out free cash flows to investors and thwart the growth of their firms? Wouldn't they rather overinvest and make their firm grow faster as shown in the figure by investing at

the infra-marginal level I_M? The traditional answer in the finance literature is that if the management overinvests in this way, the market value of the firm would plunge and the firm would likely become the target of a hostile takeover (Manne, 1965; Mueller, 1969). The problem with this argument, however, is that while hostile takeovers may have been a problem for opportunistic managers in the 1980s, recent research suggests that for the last 30 years managers and their boards of directors have been deploying a large number of anti-takeover provisions which make the probability of success of a hostile takeover extremely small (Bebchuk, Cohen and Farrell, 2009; Cremers and Ferrell, 2014; Gompers, Ishii and Metrick, 2003). In other words, the threat of hostile takeovers has been effectively neutralized through the use of anti-takeover provisions, and for this reason firm lifecycle theory predicts that the managers of mature firms can and do overinvest in projects with a marginal rate of return which is lower than the corresponding weighted average cost of capital (i.e. these firms invest I_M, a level of investment at which $mrr_M < WACC_M$ in Figure 1(b)).

Now, most important for the purposes of the present paper, comparison between panels (a) and (b) in Figure 1 allows us to conjecture some important propositions regarding the behavior of the WACC over the lifecycle of the firm. In particular, this figure suggests that the WACC of mature firms should be lower than that of young firms for three reasons. The first is motivated by the illustrated increase in the size of cash flows from operations over the lifecycle of the firm. Clearly, since new firms are depicted as high-growth companies with relatively small cash flows from operations, which need external capital to exploit highly profitable investment opportunities, these companies will likely be willing and able to pay a high cost for the necessary capital. On the other hand, since mature firms are depicted as slow-growth companies with large cash flows from operations in excess of what is needed to invest optimally, that do not need to tap costly outside sources of capital, their WACC should be lower. Secondly, young firms usually have the most volatile cash flows. Since cash flow volatility increases the riskiness of the firm, high cash flow volatility should cause young firms to have a comparatively higher WACC. Conversely, since mature firms typically have more reliable and stable cash flows, this stability should reduce the riskiness and consequently the WACC of older firms. Thirdly, we put forward that there likely is a "reputation effect" that should cause the WACC of mature firms to be lower than that of young companies. Specifically, since the financial performance of mature firms is better known to investors they can rely on their past experience in dealing with the firm to assess the risk involved. In contrast, the future financial performance of new firms is more uncertain to investors. Therefore, the required return that investors demand from mature firms should be lower than that required from young corporations. Taken together, we expect that these three factors should more than compensate for the negative impact on the WACC of mature firms that results from the breakdown in corporate governance and the consequent overinvestment in negative net present value projects as illustrated in Figure 1(b). Consequently, we expect that the

prediction of firm lifecycle theory, that the WACC of young firms will be higher than that of old firms, will hold.

We conclude this section by stating the testable propositions that will be investigated in the empirical sections of the paper. The main proposition, which follows directly from our discussion above, is that the WACC of the firm will tend to fall over its lifecycle. In addition to testing this qualitative proposition, we are interested in its quantitative impact. By how much does the WACC of young firms *vs.* that of mature companies differ? After how many years does it take for the WACC of a firm to fall below the average? We will examine these testable propositions in the empirical sections below.

3. ECONOMETRIC SPECIFICATION

We have seen that lifecycle theory predicts that the WACC is a function of firm age and other firm characteristics and that the first partial derivative of this function with respect to firm age is negative (that is, WACC declines as firms get older). However, the theory does not make any predictions regarding the sign of the higher derivatives. Consequently, we follow Mueller and Yun (1998, p. 359) and test the theory's predictions using the following five econometric specifications:

$$WACC_{it} = \alpha + \beta_1 firmage_{it} + \gamma\ C_{it} + u_{1it} \qquad (1a)$$

$$WACC_{it} = \alpha + \beta_1 (1/firmage_{it}) + \gamma\ C_{it} + u_{2it} \qquad (1b)$$

$$WACC_{it} = \alpha + \beta_1 firmage_{it} + \beta_2 firmage_{it}^2 + \\ + \gamma\ C_{it} + u_{3it} \qquad (1c)$$

$$WACC_{it} = \alpha + \beta_1 (1/firmage_{it}) + \\ + \beta_2 (1/firmage_{it}^2) + \gamma\ C_{it} + u_{4it} \qquad (1d)$$

$$WACC_{it} = \alpha + \beta_1 \ln(firmage_{it}) + \gamma\ C_{it} + u_{5it} \qquad (1e)$$

Where *WACC* is the weighted average cost of capital, *firmage* is the age of the firm measured in years since its incorporation and *C* is a vector of controls and firm characteristics (put forward by lifecycle theory) likely to determine the WACC. As elements of *C* we include cash flows from operations normalized by total assets (*CF/totalassets*) and the three year volatility of these cash flows (*CFrisk*), the debt to value ratio *(D/(D+E))*, *Tobin's q*, the growth of sales of the firm over the previous year (*salesgrowth*), firm size measured as the natural logarithm of total assets (*lnfirmsize*), and finally industry and year dummy variables.[1] As mentioned above, firm lifecycle theory predicts that $\beta_1 < 0$ for specifications (1a), (1c) and (1e), and that $\beta_1 > 0$ for specifications (1b) and (1d), but makes no predictions regarding the sign of β_2.

The reason for including cash flows from operations over total assets and the three year volatility follows directly from our discussion on firm lifecycle theory above. In particular, the notion that young firms should have higher WACC because

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[1] We describe our sources of data and how these variables are constructed in the appendix.

of their relatively small and volatile cash flows from operations, while mature firms should have lower WACC because of their greater and more stable cash flows. Since we will control for firm size as indicated above, we expect a negative relationship between WACC and *CF/totalassets,* as firms with larger and more stable cash flows should have a lower probability of default. Conversely, we expect a positive relationship between WACC and *CFrisk* because the more volatile the cash flows the higher will be the risk of the firm and the return required by investors.

In addition, we include the debt to value ratio to control for the fact that since debt is usually cheaper than equity, other things equal firms with a higher debt to value ratio should have a lower WACC. On the other hand, we include Tobin´s q and the growth of sales of the firm over the previous year to control for the differences investment opportunities that different firms have. With Tobin's q we aim to control for differences in potential investment opportunities, including growth through merger and acquisitions (Jovanovic and Rousseau, 2002). Conversely, with sales growth we expect to control for differences in the ability of firms to actually take advantage of those investment opportunities (La Porta, Lopez-de-Silanes, Schleifer and Vishny, 2002). Since the potential for rapid growth and actual rapid growth involves risk, we expect that the WACC will be positively related to both Tobin's q and sales growth.

Moreover, we include the natural logarithm of total assets to control for firm size. Since it has been argued that firm size reduces the probability of default (Hasan et al., 2015), we expect a negative correlation between firm size and the WACC. We also include industry dummy variables to control for the fact that project risk will likely vary depending on the industry.

Finally, our econometric specifications include time dummy variables to control for time fixed effects. The inclusion of time dummy variables follows recent work on the suitability of econometric methods in corporate finance. In particular, we follow the work of Petersen (2009) who shows that when using panel datasets in corporate finance a pooled regression with time dummy variables and standard errors clustered by firm can be used to avoid important pitfalls. In our econometric section bellow we will follow this approach.

4. DATA AND ECONOMETRIC RESULTS

4.1. Sample selection and description

Since the lifecycle theory of the firm was originally designed to explain economic and financial phenomena of the large modern corporation (Mueller, 1969, 1972, 2003), we need to collect data representative of this type of corporation in order to perform a valid and meaningful test of the theory. Thus, we collect a random sample of 586 U.S. firms listed in the S&P 500 and annual lists of corporations in the publications of Forbes, Fortune and Businessweek, with relevant data available both in the Datastream and Bloomberg databases. We then exclude banks, insurance and financial services companies since the accounting practices, risk and complexity of these companies is fundamentally different from those of most firms in the sample (Hasan et al., 2015). This reduces our final sample to 458 firms. Given that the Bloomberg data on the WACC starts in the year 2000, our period of study starts in that year and comprises the time period between 2000 and 2013.

Table 1 presents summary statistics for the main variables included in our econometric models. As can be seen, the companies in our sample present substantial variation in their WACC, age, cash flows, debt to value ratios and other variables of interest for testing our hypotheses.

Table 1. Summary statistics

This table presents summary statistics for the main variables included in our econometric models. *WACC* is the weighted average cost of capital as measured by Bloomberg (see the appendix). *Firmage* is firm age measured in years since the company's incorporation date. *lnfirmage* is the natural logarithm of firm age which is measured in years since the company's incorporation date. *CF/totalassets* is the ratio of the firm cash flows from operations during year *t* divided by total assets at the end of year *t*. *CFrisk* three year volatility of these cash flows calculated as the standard deviation of the firm's cash flows from operations from year *t-2* to *t*. *D/(D+E)* is the debt to value ratio calculated as the book value of firm debt to the book value of debt plus the market value of equity. *Tobin´s q* equals the market value of the firm at the end of year *t* divided by the book value of total assets at the end of year *t*. *salesgrowth* is the percentage change in the firm's total sales between the end of year *t-1* and the end of year *t*. *lnfirmsize* is the natural logarithm of the book value of the firm's total assets measured at the end of year *t* in thousands of constant 2010 U.S. dollars.

Variable	N	Mean	Median	Std. Dev.	Min	Max
WACC (%)	4785	8.9223	8.6840	2.3425	2.2820	25.7970
firmage	4785	71.4397	76.0000	31.7374	3.0000	165.0000
lnfirmage	4785	4.1401	4.3307	0.5560	1.0986	5.1059
CF/totalassets	4785	0.1061	0.0982	0.0657	-0.3643	0.5265
CFrisk	4785	0.0251	0.0167	0.0278	0.0001	0.3128
D/(D+E)	4785	0.2555	0.2199	0.1914	0.0000	0.9905
Tobin's q	4785	1.3906	1.0991	0.9805	0.0065	15.8453
salesgrowth	4785	0.0638	0.0550	0.2120	-0.8369	4.6195
lnfirmsize	4785	15.3940	15.3220	1.5251	11.0649	20.5767

Table 2 presents pairwise correlations between the empirical variables. Importantly, the WACC has a negative correlation with our measure of firm age (*lnfirmage*) which is significant at the 1% level. This suggests that, as predicted by firm lifecycle theory, the WACC tends to fall as firms mature. Moreover, the table shows that WACC has a negative correlation with the natural logarithm of cash flows from operations (*lnCF*) and a positive correlation with the volatility of cash flows from operations

(*CFrisk*), both of which are also significant at the 1% level. This finding suggests that, as predicted by lifecycle theory, the WACC falls as the size of the cash flows from operations increases and the volatility of the cash flows decreases. Conversely, note that there is a very strong correlation of 0.92 (significant at the 1% level) between our measures of firm size (*lnfirmsize*) and cash flow size (*lnCF*), so that if we include both variables in our regressions we would likely have collinearity problems. For this reason, instead of including *lnCF* in the econometric regressions we decided to include the firm's cash flows divided by total assets (*CF/totalassets*) instead. Although the pairwise correlation between WACC and *CF/totalassets* is positive and significant, we expect that once we control for firm size in the multiple regression equations the relationship between these two variables will be negative.

Table 2. Correlation matrix

This table presents the correlation matrix for the main variables included in our econometric models. Variable definitions are presented in Table 1 and their construction is discussed in the appendix, with the exception of *lnCF* which is the natural logarithm of cash flows from operations measured at the end of year *t* in thousands of constant 2010 U.S. dollars. ** and * indicate a statistically significant correlation at the 1% and 5% level respectively.

Variable	*WACC*	*lnfirmage*	*CF/total-assets*	*lnCF*	*CFrisk*	*D/(D+E)*	*Tobin's q*	*Sales-growth*	*Firm-size*
WACC	1.0000								
lnfirmage	-0.2245**	1.0000							
CF/totalassets	0.1529**	-0.1081**	1.0000						
lnCF	-0.1349**	0.1037**	0.3135**	1.0000					
CFrisk	0.2521**	-0.2126**	-0.0277	-0.1600**	1.0000				
D/(D+E)	-0.5296**	0.2314**	-0.4610**	-0.0356**	-0.1148**	1.0000			
Tobin's q	0.1649**	-0.2472**	0.5469**	0.1474**	0.1514**	-0.5263**	1.0000		
salesgrowth	0.0283*	-0.0472**	0.1566**	0.0813**	-0.0224	-0.0898**	0.1013**	1.0000	
lnfirmsize	-0.2253**	0.1714**	0.0574**	0.9244**	-0.2260**	0.1522**	-0.0226	0.0582**	1.0000

On the other hand Table 2 shows that, as can be obviously expected, the correlation between the WACC and the debt to value ratio *(D/(D+E))* is negative and significant at the 1% level, while the correlation between the debt to value ratio and our measure of firm age is positive and significant at the 1% level. These two correlations imply that as firms get older their debt to value ratio increases (firms use relatively more debt), and, in turn, that this increase in the use of leverage is one of the mechanisms that cause the WACC to fall as firms mature.

Interestingly, Table 2 shows that the correlations between WACC and Tobin's q on the one hand and WACC and sales growth (*salesgrowth*) on the other are positive and significant, while the correlations between Tobin's q and firm age on the one hand and sales growth and firm age on the other are negative and significant. Viewed through the lens of firm lifecycle theory this suggests that young firms have abundant attractive investment opportunities and are growing fast compared to mature firms, but that they have relatively higher WACC as depicted in Figure 1. Finally, the correlation matrix shows a positive and significant correlation between our measures of firm age and firm size, and a negative and significant correlation between firm size and WACC. This implies that as firms mature they become larger and as a consequence of their larger size their WACC decreases. As it has been argued elsewhere in the literature, one plausible explanation for this observation is that firm size reduces the probability of default, and for this reason the WACC will tend to fall as firm size increases (Hasan et al., 2015).

4.2. Econometric results

Table 3 presents the results of our econometric analysis. In particular, columns 1a trough 1e present the estimates for the five specifications discussed in section 3. As can be seen all the specifications imply that WACC falls with firm age which is consistent with the predictions of firm lifecycle theory. On the other hand, we cannot choose among the five specifications in terms of fit to the data as all of them present a very similar adjusted R^2.

To facilitate our discussion on the trend of the WACC as firms get older, in Table 4 we present the WACCs for different firm ages implied by the estimates of Table 3. To obtain the values shown, we held all variables (other than WACC and firm age) at their mean values while varying firm age and taking note of the changes in the WACC. The last row of Table 4 presents the age of the firm (Age*) at which its estimated WACC equals the average WACC in the sample (i.e. 8.92%) as implied by the estimates in each econometric model. The five specifications indicate that for the average firm WACC falls below the average WACC in the sample at some point between the 52nd and 71st year after firm incorporation.

Among our econometric specifications, probably models 1b and 1d are the most plausible as they describe a gradual decline in the WACC until it reaches 8.69% and 8.66% in the limit respectively.[2] Conversely, 1a and 1e are somewhat implausible as their functional forms both imply a continual decline with the WACC eventually turning negative. Finally, model 1c implies that the average firm's WACC begins to rise after 133 years. One possible reason why this increase in the WACC could happen would be if the average firm enters a phase of general decline around this age. However, as the coefficient of age squared in model 1c is insignificant at any level of significance, we consider the implications of this model as somewhat implausible.

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[2] This discussion follows Mueller and Yun (1998, 360) who use similar econometric specifications in another context, namely in the investigation of the behavior of rates of return over the lifecycle of the firm.

Table 3. Econometric results

This table presents the results of regressing *WACC* on firm age, other firm lifecycle characteristics likely to determine WACC, and control variables. Variable definitions are presented in Table 1 and their construction is discussed in the appendix. Note that we include year dummy variables to pick up movements in stock market values that are common to all firms, as well as industry dummy variables which we construct based on the FTSE/DJ Industry Classification Benchmark (ICB) super sector codes. ** and * indicate a statistically significant coefficient at the 1% and 5% level respectively. We report standard errors clustered by firm in parentheses.

Variable	Predicted sign	1a	1b	1c	1d	1e
Intercept	+	13.0758** (0.5550)	12.5448** (0.5739)	13.2956** (0.5787)	12.5018** (0.5802)	14.1536** (0.6060)
firmage	-	-0.0056** (0.0014)		-0.0126* (0.0056)		
1/firmage	+		12.1249** (2.3131)		14.0484** (3.9994)	
firmage^2	?			0.00005 (0.00004)		
1/firmage^2	?				-14.8501 (16.6617)	
lnfirmage	-					-0.3536** (0.0805)
CF/totalassets	-	-2.1391** (0.7816)	-1.8808* (0.7876)	-2.0736** (0.7889)	-1.8950* (0.7865)	-2.0282** (0.7815)
CFrisk	+	9.8223** (2.3424)	10.0411** (2.3372)	9.7712** (2.3264)	9.9773** (2.3339)	9.7993** (2.3272)
D/(D+E)	-	-5.0739** (0.3061)	-5.1088** (0.3060)	-5.0736** (0.3055)	-5.1068** (0.3059)	-5.0841** (0.3055)
Tobin's q	+	-0.1649** (0.0515)	-0.1969** (0.0509)	-0.1716** (0.0515)	-0.1954** (0.0506)	-0.1789** (0.0507)
salesgrowth	+	0.2952* (0.1304)	0.2799* (0.1256)	0.2882* (0.1287)	0.2806* (0.1256)	0.2862* (0.1281)
lnfirmsize	-	-0.1575** (0.0313)	-0.1593** (0.0310)	-0.1566** (0.0312)	-0.1584** (0.0311)	-0.1562** (0.0312)
Industry dummy variables?		yes	yes	yes	yes	yes
Time dummy variables?		yes	yes	yes	yes	yes
Adjusted R^2		0.5796	0.5806	0.5801	0.5806	0.5805
Number of observations		4785	4785	4785	4785	4785

Table 4. Calculated WACCs for different firm ages under each econometric model

This table presents calculated WACCs implied by the estimates in each econometric model. In these calculations we hold all variables, other than WACC and firm age, at their mean values. The last row presents the age of the firm, Age*, at which its estimated WACC equals the average WACC in the sample i.e. 8.92% as implied by the estimates in each econometric model.

Firm Age	WACC (%)				
	1a	1b	1c	1d	1e
1	9.31	20.81	9.52	7.86	10.39
5	9.29	11.11	9.47	10.88	9.82
10	9.26	9.90	9.41	9.92	9.57
20	9.21	9.30	9.30	9.33	9.33
30	9.15	9.09	9.20	9.11	9.18
40	9.10	8.99	9.10	9.00	9.08
50	9.04	8.93	9.02	8.94	9.00
60	8.99	8.89	8.95	8.89	8.94
70	8.93	8.86	8.88	8.86	8.88
80	8.87	8.84	8.83	8.84	8.84
90	8.82	8.82	8.78	8.82	8.80
100	8.76	8.81	8.75	8.80	8.76
110	8.71	8.80	8.72	8.79	8.72
120	8.65	8.79	8.70	8.78	8.69
130	8.60	8.78	8.69	8.77	8.67
140	8.54	8.78	8.70	8.76	8.64
150	8.49	8.77	8.71	8.75	8.61
160	8.43	8.77	8.73	8.75	8.59
Age*	71	52	64	53	63

Returning to Table 3, the results show a negative relationship between WACC and *CF/totalassets* which is significant at the 1% level or 5% level depending on the econometric specification. Our results imply, that if *CF/totalassets* increases by one standard deviation, the average firm's WACC

falls by around 0.12 to 0.14 percentage points depending on the econometric model. On the other hand, the table shows a positive relationship between WACC and *CFrisk* which is significant at the 1% level. According to our results, if *CFrisk* increases by one standard deviation, then the WACC of the average firm increases by about 0.27 to 0.28 percentage points depending on the model. Thus, from these results we conclude that the impact of both variables on the WACC is also economically significant. In addition, since *CF/totalassets* and *CFrisk* control for the impact of cash flow size and volatility on the WACC, we conclude that the observed fall of the WACC as firm age increases (Table 4) is consistent with the existence of a "reputation effect" as hypothesized in section 2. Thus, our results are consistent with the lifecycle theory prediction that mature firms have a lower WACC due to their higher reputation and their relatively less volatile and bigger cash flows compared to new firms.

Turning to the control variables, all models in Table 3 show a negative relationship between WACC and the debt to value ratio (D/(D+E)), which is significant at the 1% level. This corroborates the widely held proposition that, since the cost of debt is typically lower than the cost of equity, as firms use proportionally more debt their WACC will fall. On the other hand, contrary to our expectations Table 3 shows a negative relationship between WACC and *Tobin's q* which is significant the 1% level for all specifications. This result suggests that, in the context of our study, Tobin's q is not functioning as a proxy for investment opportunities, rather *Tobin's q* represents a measure of firm valuation. In this sense, we conclude that the negative relationship between WACC and Tobin's q is due to the fact that, other things equal, as the firm's debt and equity are valued more highly by the market relative to their book value, the firm's cost of capital will be lower. In contrast, the table shows a positive relationship between WACC and *salesgrowth* which is significant at the 5% level. This corroborates our prediction that since actual rapid growth involves substantial risk, WACC should be positively related to *salesgrowth*. Finally, as expected we find a negative relationship between WACC and *lnfirmsize* which is significant at the 1% level. If firm size reduces the probability of default as has been hypothesized elsewhere (Hasan et al., 2015), then this lower risk of default should translate into a lower WACC.

4.3. Discussion of results

Firm lifecycle theory predicts that the WACC of the large modern corporation will tend to fall as companies become older. In this paper we present the first empirical test of this prediction and we find that the evidence is consistent with this expectation. In particular, we find that as firms mature the size of their cash flows from operations increases, while the volatility of said cash flows tends to decrease. These two facts reduce the overall riskiness of the firm and consequently the WACC falls with firm age. Interestingly, we find that even after controlling for cash flow size, cash flow volatility and other controls, WACC tends to fall with firm age. We hypothesize that this effect may be caused by a

"reputation effect". That is, since investors should be less uncertain about the future performance of mature firms, they should require a lower risk premium from these companies which should result in a lower WACC.

Ex-post we find that the other variables employed in this work, which are found to have a significant impact on the WACC, are also related to firm age. For instance, the results show that firm size is positively correlated with firm age and that larger firms have a lower WACC. This suggests that another mechanism through which firm lifecycle dynamics impact the WACC is the increase in size that the firm usually experiments as it matures, since as has been argued elsewhere larger firms have a lower risk of default (Hassan et al., 2015). As another case in point, consider our result that younger firms tend to grow faster as measured by *salesgrowth* and that fast growing firms have a higher WACC. One likely explanation for this result is that the rapid growth generally experimented by young firms involves taking relatively higher risks and this higher risks increase the required return demanded by investors which in turn results in a higher WACC.

Interestingly, our results show that the debt to value ratio (*D/(D+E)*) is positively correlated with firm age. Since the WACC usually falls as the proportion of debt increases (as debt is typically less costly than equity), we conclude that one reason the WACC falls as firms mature is that lenders likely perceive mature firms as relatively less risky and are more willing to make debt capital available to these firms. Finally, we find that Tobin's q has a negative correlation with firm age. As discussed above, if we consider Tobin's q as a valuation proxy (as opposed to a proxy for investment opportunities) this result suggests that young firms are usually more highly valued by the market than mature firms. In turn, this higher valuation reduces the WACC for young firms.

5. CONCLUSION

This paper tests the prediction of firm lifecycle theory that the WACC of the firm will tend to fall as it becomes older. Since there is good *a priori* reason to expect that the opposite could happen, as previous research suggests that corporate governance deteriorates as companies mature (Mueller, 2003, pp. 80-81; Saravia and Saravia-Matus, 2016), the econometric tests performed in the present paper are important and necessary to clarify this question.

Our results show strong support for the proposition that the WACC of mature firms is significantly lower than that of new firms. If we take into account that previous work on firm investment performance finds that mature firms tend to destroy value by deliberately investing in projects with negative net present value (Mueller and Yun, 1998; Saravia, 2014), our evidence comes to shed new light on the magnitude of the corporate governance problems of mature firms. Putting these two facts together, that mature firms overinvest even though they have access to cheaper capital, we conclude that the corporate governance problems of mature firms are severer than what previous literature might suggest. Clearly, the implication is that mature firms are destroying value by undertaking

projects with some of the lowest rates of return in the economy.

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APPENDIX A

This appendix explains how the empirical variables used in the paper were constructed as well as the sources of data employed. Our main sources of market and accounting data are Bloomberg and Datastream. We take the estimate of our main variable of interest, the WACC, from Bloomberg. Bloomberg calculates the WACC using the following equation:

$$WACC = KD\ (TD/V) + KP\ (P/V) + KE\ (E/V) \tag{A.1}$$

Where: *KD* is the *after-tax* weighted average cost of debt for the firm, *TD* is the total debt of the company, *KP* is the cost of preferred equity computed by dividing the sum paid in preferred dividends by the firm's preferred equity capital, *P* is the firm's preferred equity capital, *KE* is the cost of equity derived using the Capital Asset Pricing Model (CAPM), *E* is the firm's equity capital, and *V* is the company's total capital which is computed as the sum of total debt, preferred equity and equity capital ($V = TD + P + E$).

We construct our other key variable, firm age, by subtracting the year in which the firm was incorporated from the appropriate year in the panel dataset to obtain the number of years since the firm's incorporation. Our main data sources to construct this variable are the *Mergent Industrial Manual* which lists companies' dates of incorporation, and the date of incorporation Datastream datatype (wc18273).[3]

On the other hand, the variable *CF/totalassets* is constructed by dividing the firm's funds from operations (wc04201) by the book value of its total assets (wc02999) at the end of the company's fiscal year end. Furthermore, the volatility of firm cash flows, *CFrisk*, is computed as the standard deviation of the firm's funds from operations (wc04201) over a three year period, from the end of fiscal year *t-2* to *t*. The debt to value ratio *D/(D+E)* is constructed by dividing the firm's total debt (wc03255) over total debt plus the firm's market capitalization. Where, market capitalization is equal to the number of common shares outstanding (wc05301) times share price (P) at the date of the firm's fiscal year end.

Tobin's q is computed by dividing the market value of the firm over the book value of total assets (wc02999). Where, the market value of the firm is calculated by adding the firm's market capitalization (wc05301 x P) to its total debt (wc03255) and preferred stock (wc03451). The *salesgrowth* variable is computed by finding the yearly percentage change in the company's net sales (wc01001) from one fiscal year end to the next. Conversely, *lnfirmsize* is measured as the natural logarithm of total assets (wc02999) at the firm's fiscal year end, where the total assets are previously deflated by using the CPI (2010 = 1). The CPI data for the U.S.A were taken from the International Monetary Fund, World Economic Outlook Database, of April 2015. Finally, industry dummy variables were constructed based on the FTSE/DJ Industry Classification Benchmark super sector codes (icbssc) obtained from Datastream.

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[3] Throughout this appendix Datastream datatypes are presented in parenthesis.

IPO UNDERPRICING AND AUDIT QUALITY: EVIDENCE FROM THE ALTERNATIVE INVESTMENT MARKET IN THE UK

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Abstract

This paper aims to investigate the relationship between audit quality and IPO underpricing for IPO firms that went public on the Alternative Investment Market (AIM) of the London Stock Exchange in the UK. Prior research has examined this relationship; however, there has been no work investigates this relation for IPO firms that went public on the AIM market. Based on a sample of 413 IPOs, the findings of the current study reassure prior literature that high quality auditors are associated with a lower level of IPO underpricing. The findings show that high quality audit firms help to reduce the level of information asymmetry around the IPO and, therefore, this leads to reduce the level of IPO underpricing. Further, size, liquidity ratio, and high litigation industries are found to contribute the IPO underpricing on the AIM market.

Keywords: Audit Quality, Initial Public Offerings, IPO Underpricing, AIM Market

1. INTRODUCTION

This paper examines whether audit quality impacts the IPO underpricing in the Alternative Investment Market (AIM) in the UK. The IPO underpricing occurs when the offer price is lower the closing price for the stock in the first day of trading. Prior research indicates that information asymmetry between insiders and outsiders significantly contributes to this phenomenon; notably that the IPO issuers tend to leave some money on the table to compensate the investors for the information asymmetry. Thus, prior research has focused on this phenomenon and examined several determinants that are found to play a significant role to increase/decrease the level of IPO underpricing e.g., underwriter reputation and venture capitalist (e.g., Coakley et al. 2009).

In line with this, prior research has examined the impact of audit quality on IPO underpricing and found evidence that IPO firms who appointed high quality auditors (Big 4 audit firms) experience a lower level of IPO underpricing as compared to IPO firms audited by low quality auditors (non-Big 4 audit firms) (e.g., Albring et al. 2007; Chang et al. 2008; Coakley et al. 2009; Akyol et al. 2014; Boulton et al. 2015). On the one hand, IPO firms appoint high quality auditors during the IPO to send a positive signal about the offer to outside investors (Titman and Trueman, 1986). This is due to the fact that high quality auditors are expected to provide high-quality audits to avoid any future litigation risks and to protect their reputation in the capital market (DeAngelo, 1981; Francis and Krishnan, 1999). Khurana and Raman (2004) examined the association between litigation risk, reputation damage, and enhanced audit quality. Their results showed that avoiding litigation risk is the primary

driver for providing high quality audits by more reputable audit firms.

On the other hand, the regulatory environment of the AIM market on the London Stock Exchange is very flexible and mainly designed and structured to fit the needs of small, growing IPO firms that are required to appoint and retain a Nominated Adviser (Nomad), who are private companies that play the role of adviser and regulator for firms on the AIM market. For example, Gerakos et al. (2011) find firms listed on the AIM market have higher levels of information asymmetry, higher failure rates, higher post-listing return underperformance, and lower levels of liquidity. All this in turn would lead to a higher level of information asymmetry between IPOs' managers and outside potential investors and, therefore, a higher level of IPO underpricing. Thus, it is expected that IPO firms who hire high quality auditors during the IPO will experience a lower level of IPO underpricing. This is due to the effective monitoring role of high quality audit firms which helps to reduce the information asymmetry.

Despite the extensive research that has studied the impact of audit quality on IPO underpricing, no research to date has investigated this relationship based on IPOs from the Alternative Investment Market in the UK. Thus, this paper will attempt to fill this gap in the literature by providing new evidence that may open new avenue for future research that focuses on the AIM market in the UK.

By examining these relationships based on a sample of 413 IPO firms that went public on the Alternative Investment Market [AIM] of the London Stock Exchange over the period 1998-2008, the current study provides the first evidence based on AIM IPOs that high quality audit firms are associated with a lower level of IPO underpricing. The AIM market is found to be associated with a higher level of information asymmetry due to the lighter

regulatory environment (e.g., Gerakos et al. 2013). Thus, the presence of high quality auditors is found to reduce the level of information asymmetry and, therefore, the level of IPO underpricing. In addition, the study shows evidence that the IPO underpricing is negatively associated with size and liquidity ratio, and positively with high litigation industries. This evidence suggests that large IPO firms with high level of liquidity experience a lower level of IPO underpricing, while IPO firms that operate in high litigation industry experience a higher level of IPO underpricing.

The paper is structured as follows. Section 2 reviews prior literature and discusses the hypotheses. Section 3 presents sample selection and research methodology. Section 4 discusses descriptive statistics and OLS regressions results. Section 5 presents conclusion.

2. THEORETICAL FRAMEWORK, LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Audit quality and IPO underpricing

The IPO event is found to experience a high level of information asymmetry since this event is the first stage in the firm life cycle as a public firms and, therefore, pre the IPO event there was no information available to the public about the firm and its operations (e.g., Ritter and Welch, 2002; Bruton et al., 2009). Thus, IPO firms tend to appoint high quality auditors during the IPO to send a certification signal about the quality of the IPO firms to outside investors (Titman and Trueman, 1986). Such a positive signal would contribute to the success of the IPO event by marketing and selling the offer.

In line with the above view, prior research has found evidence that hiring high quality auditors leads to reduce the level of information asymmetry and, therefore, the level of IPO underpricing. For example, Chang et al (2008) examine the impact of audit quality on IPO underpricing using an Australian sample of 692 IPOs over the period 1996-2003. They find IPO firms that audited by high quality auditors (Big Four) experience a lower level of IPO underpricing, suggesting that hiring high quality auditors send a positive signal to the investors. Chang et al (2008) also find that high quality auditors (Big Four) earn higher audit fees as compared to low quality audit firms.

Focusing on accounting conservative, Boulton et al. (2015) has examined whether accounting conservative is associated with IPO underpricing based on a sample of 10,103 IPOs from 36 countries over the period 1998-2008. They find that IPO firms experience a lower level of IPO underpricing in countries where the incremental speed of bad news recognition is greater than incremental speed of good news recognition (the principle of conservatism). Boulton et al. (2015) indicate that accounting conservatism help to mitigate managerial opportunism and accounting measures bias and this, in turn, leads to reduce information asymmetry. They find that the documented associations between accounting conservative and IPO underpricing is stronger for countries where the rule of law is promoted. This evidence is in line with information asymmetry hypothesis and its impact on IPO underpricing.

Meanwhile Akyol et al. (2014) has investigated the relationship between corporate governance and IPO underpricing in the European markets. Specially, Akyol et al. (2014) has examined whether the adoption of corporate governance codes in Europe is associated with IPO underpricing. By examine a sample of 3677 European IPOs over the period 1998-2012, they find evidence that IPO underpricing is declined after the adoption of corporate governance codes. Their results suggest that the enhancing on the corporate governance codes in the European countries has led to increase transparency and decrease the level of information asymmetry. Akyol et al. (2014) created a control IPOs sample that went public through an exchange-regulated markets and are exempted from applying the Member State corporate governance codes.

In contrast with prior research, Albring et al (2007) focus on non-Big 5 audit firms and investigate the relationship between IPO underpricing, audit quality, and auditor compensation using a US sample that consists of 166 IPOs during the period from 1990 to 1998. They use factor analysis and construct a continuous variable to measure auditor reputation for those non-Big 5 audit firms. Albring et al (2007) find evidence that the proxy of audit quality is positively associated with auditors' compensation and negatively associated with IPO underpricing. Their evidence shows that the quality of audit firms (even for non-Big audit firms) is very important factor in the IPO process to send a positive signal about the offer to outsiders (e.g., investors). By examining UK data, Coakley et al (2009) examine the nature and causes of IPO underpricing based on a UK sample of 591 IPOs that went public on the London Stock Exchange over the period 1985-2003. They find the bubble period (1998-2000) has different characteristics as compared to the rest of the sample. Coakley et al (2009) show evidence that venture capitalists and prestigious underwriters play a significant certification role, but not for the bubble period. Further, they find evidence that the combination of venture capitalists and prestigious underwriters are associated with a higher level of IPO underpricing during the bubble period (1998-2000), and this evidence in turn, is inconsistent with prior literature concerning the spinning hypothesis.

In line with above discussion, it is expected that the presence of high quality audit firms will be associated with a lower level of IPO underpricing. However, whether this argument can be extended to the UK market, namely the Alternative Investment Market, this is something has not been examined before. This paper aims to answer this question. Thus, the one main hypothesis for this paper is as follows:

H1: IPO firms on the Alternative Investment Market that appoint high quality audit firms are expected to experience a lower level of IPO underpricing.

3. DATA AND RESEARCH METHODS

3.1. Sample construction

The sample of this study consists of 413 IPO firms on the Alternative Investment Market (AIM) of the London Stock Exchange covering the period from

1998 to 2008. Consistent with prior research (e.g., Chen et al. 2005; Morsfield and Tan, 2006) financial and insurance IPO firms are excluded from the sample due to the differences in their financial reporting process. Several databases have been used to collect the required data to conduct the analysis e.g., closing and opening prices for the offer from the London Stock Exchange website, financial data from Thomson One Banker database, while data concerning audit quality are collected from Fame database and the IPOs' prospectuses.

3.2. Variable measurement

3.2.1. Measuring audit quality and IPO underpricing

In this study, audit firm is considered as high quality auditor if it is one of the big 4 audit firm (PWC, Deloitte, EY and KPMG) over the study period. For example, if a company went public in 2005 on the Alternative Investment Market and its auditor at the time of the IPO (2005) was one of the big 4 audit firms, then the IPO firms are considered to be audited by high quality auditors. I therefore follow prior research and construct a dummy variable that equals to 1 if the IPO audited by Big N audit firms, and zero otherwise. While the IPO underpricing is calculated as the difference between the offer price and the closing price for the IPO stock in the first day of trading. Underpricing = [(first-day market closing price divided by the offer price) _1].

3.2.2. Ordinary Least Square (OLS) – audit quality and IPO underpricing

To examine whether audit quality is associated with IPO underpricing, I follow Chang et al. (2008) and estimate the following OLS regression for the whole IPOs sample:

$$UnderPrice_{i,t} = \alpha_0 + \beta_1 Big4 + \beta_2 Ln(age) + \beta_3 Ln(1+assets) + \beta_4 Ln(Proceeds) + \beta_5 1/Price + \beta_6 Current + \beta_7 Litigation + \beta_8 ROA + \beta_9 Loss + \beta_{10} RetOwn + \beta_{11} Prestige + \beta_{12} VC + IND + Year + \varepsilon_{i,t} \quad (1)$$

Where ($UnderPrice_{i,t}$) is IPO underpricing calculated as the first-day market closing price divided by the offer price minus 1, while *(Big4)* is a dummy variable that equals to 1 if the IPO audited by Big N audit firms, and zero otherwise. A positive (negative) coefficient of *[Big4]* implies that the quality of audit firms is negatively (positively) associated with IPO underpricing.

I also follow prior research (Beatty, 1989; Willenborg and McKeown, 2001; Albring et al. 2007; Chang et al. 2008; Coakley et al. 2009; Akyol et al. 2014; Alhadab, 2015; Alhadab et al.2015; Boulton et al. 2015) and add several control variables into the model that are found to significant determinants of IPO underpricing. These control variables are as follows: IPO firm age [Ln(1+age)] which is calculated as the natural logarithm of 1+IPO firm age, firm age as the difference between the founding date and the date of the IPO; company size [Ln(assets)] calculated as the natural logarithm of total assets during the IPO; issue size[Ln(Proceeds)] calculated as the natural logarithm of IPO proceeds; (1/Price) is the reciprocal of IPO offer price, which added to control

for the differences in stock prices; (Current) is the current ratio that is calculated as current assets divided by current liabilities, this is to control for the liquidity; (Litigation) is a dummy variable that equals 1 if the IPO firm operate in a high litigation industry and zero otherwise, added into the model to control for the risk profile; (ROA) is return on assets and (Loss) are added to control for the profitability, (Loss) is a dummy variable that equals 1 if the firms reported loss during the IPO year, and zero otherwise; (RetOwn) is the percentage of retained ownership by insiders; (Prestige) is a dummy variable equalling 1 if the IPO firms have high profile underwriters and zero otherwise; while (VC) is a dummy variable that equals 1 if the IPO firms backed by venture capitalists and zero otherwise.[4] Finally, I control for industry (IND) and year (Year) effects.

4. RESULTS

4.1. Descriptive statistics

Table 1 provides descriptive statistics of main variables for 413 IPOs over the period 1998-2008. Table 1 shows that the average IPOs underpricing is 16.4%, the median is 0.07% million, the standard deviation is 0.504, while the minimum is -35%, and the maximum 500.8%. This large difference between the minimum and maximum values suggests that the data has some outliers and, therefore, this issue should be addressed in the analysis. Further, Table 1 shows that for the IPOs sample that approximately 58% operate in high litigation industries, 53% reported losses during the IPO year, 66% of the total shares are owned by insiders, 38% audited by high quality auditors (Bin N), 14% have prestigious underwriters, and 18% backed by venture capitalists.

Table 2 provides descriptive statistics for the IPOs sample that audited by high quality auditors (Big N). Table 2 approximately shows that 11% is average IPOs underpricing, 60% operate in high litigation industries, 53% reported losses during the IPO year, 61% of the total shares are owned by insiders, 25% have prestigious underwriters, and 22% backed by venture capitalists. While Table 3 provides descriptive statistics for IPOs sample that audited by low quality auditors (non-Big N) and shows for the total IPO sample that 19% is average IPOs underpricing, 57% operate in high litigation industries, 54% reported losses during the IPO year, 69% of the total shares are owned by insiders, %09 have prestigious underwriters, and 16% backed by venture capitalists.

Overall, Tables 2 and 3 provide preliminary evidence that IPOs audited by high quality auditors (Big N) share different characteristics as compared to IPOs audited by low quality auditors. For example, IPOs audited by high quality auditors have a lower level of IPOs underpricing and are associated with more prestigious underwriters and venture capitalists. These financials intermediaries are found to play a significant role to reduce information asymmetry and, therefore, the IPO underpricing (e.g., Lee and Masulis, 2010). Table 1 provides descriptive

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[4] My definition of prestigious underwriters as similar to Derrien and Kecskes (2007), while venture capitalist are those investors who hold more than 3% of a firm's shares and included in the list of the British Venture Capitalist Association.

statistics for the IPOs sample. All variables are previously defined. Table 2 provides descriptive statistics for the IPOs audited by Big N (high quality audit firms). All variables are previously defined.

Table 1. Descriptive statistics for the whole IPOs sample over the period 1998-2008

	N	Mean	Median	Std. Dev.	Min	Max
UnderPrice	411	0.164	.0705	0.504	-0.350	5.800
Big N	413	0.337	0	0.473	0	1
Ln(1+age)	413	1.005	0.583	0.895	0.059	3.285
Ln(assets)	413	1.012	1.046	1.662	-2.617	5.535
Ln(Proceeds)	413	1.522	1.609	1.283	-1.967	5.964
1/Price	413	5.169	1.429	11.947	0.274	100
Current	412	5.209	1.913	16.961	0.045	301.728
Litigation	413	0.579	1	0.494	0	1
ROA	413	-1.273	-0.024	4.782	-59.396	2.184
Loss	413	0.533	1	0.499	0	1
RetOwn	413	0.663	0.702	0.227	-1.151	0.993
Prestige	413	0.143	0	0.350	0	1
VC	413	0.182	0	0.386	0	1

Table 2. Descriptive statistics for IPOs sample that audited by Big N over the period 1998-2008

	N	Mean	Median	Std. Dev.	Min	Max
UnderPrice	139	0.106	.054	0.224	-0.350	1.763
Ln(1+age)	139	1.036	0.625	0.970	0.059	3.285
Ln(assets)	139	1.608	1.736	1.580	-1.609	5.534
Ln(Proceeds)	139	2.129	2.079	1.214	-1.432	5.964
1/Price	139	1.718	1	1.738	0.274	10.000
Current	138	6.627	1.784	26.471	0.195	301.728
Litigation	139	0.604	1	0.491	0.000	1.000
ROA	139	-1.161	-0.023	3.361	-25.193	0.798
Loss	139	0.525	1	0.501	0.000	1.000
RetOwn	139	0.610	0.686	0.280	-1.151	0.993
Prestige	139	0.245	0	0.431	0.000	1.000
VC	139	0.223	0	0.418	0.000	1.000

Table 3. Descriptive statistics for IPOs sample that audited by non-Big N over the period 1998-2008

	N	Mean	Median	Std. Dev.	Min	Max
UnderPrice	272	0.193	0.077	0.597	-0.253	5.800
Ln(1+age)	274	0.989	0.580	0.857	0.059	3.285
Ln(assets)	274	0.710	0.703	1.624	-2.617	4.831
Ln(Proceeds)	274	1.214	1.216	1.208	-1.966	4.001
1/Price	274	6.919	1.694	14.309	0.323	100.000
Current	274	4.495	1.956	8.943	0.045	93.338
Litigation	274	0.566	1.000	0.497	0.000	1.000
ROA	274	-1.330	-0.025	5.366	-59.396	2.184
Loss	274	0.536	1.000	0.500	0.000	1.000
RetOwn	274	0.690	.7137038	0.190	0.000	0.986
Prestige	274	0.091	0.000	0.288	0.000	1.000
VC	274	0.161	0.000	0.368	0.000	1.000

Table 3 provides descriptive statistics for the IPOs audited by non-Big N (low quality audit firms). All variables are previously defined.

Table 4 presents the correlation matrix for all the variables that are included in the regression models. Table 4 reveals that IPO underpricing (*UnderPrice*) is negatively associated with the size [*Ln(assets)*]. This suggests that large IPO firms experience a lower level of IPOs underpricing, due to the fact that large IPO firms can afford to appoint more reputable financial institutions such as high quality auditors, prestigious underwriters, and venture capitalists who help to reduce information asymmetry between insiders and investors.

In line with this view, Table 4 provides preliminary evidence that high quality auditors (Big N) is positively associated with prestigious underwriters and size, and that the presence of prestigious underwriters is positively associated with the presence of venture capitalists. Table 4 presents Pearson correlation matrix for all the variables. All variables are previously defined.

Table 4. Correlations matrix for all variables

	UnderPrice	Big N	Ln(1+age)	Ln(assets)	Ln(Proceeds)	1/Price	Current	Litigation	ROA	Loss	RetOwn	Prestige	VC
UnderPrice	1												
Big N	-0.084	1											
Ln(1+age)	0.006	0.025	1										
Ln(assets)	-0.159**	0.257***	0.183***	1									
Ln(Proceeds)	-0.081	0.350***	0.033	0.482***	1								
1/Price	0.056	-0.209***	-0.050	-0.239***	-0.332***	1							
Current	-0.036	0.058	-0.075	-0.136**	0.179***	-0.046	1						
Litigation	-0.003	0.044	0.028	-0.129**	-0.042	-0.060	-0.018	1					
ROA	-0.057	0.016	0.135**	0.374***	-0.005	-0.003	-0.048	-0.061	1				
Loss	0.060	-0.010	-0.186***	-0.383***	-0.124*	0.191***	0.064	-0.031	-0.289***	1			
RetOwn	0.021	-0.175***	0.024	-0.251***	-0.544***	0.034	-0.136**	0.128**	-0.031	0.083	1		
Prestige	-0.008	0.208***	-0.020	0.024	0.259***	-0.134**	0.077	0.026	-0.001	0.018	-0.100*	1	
VC	-0.063	0.081	-0.057	0.064	0.044	-0.073	0.105*	0.028	0.086	0.054	-0.112*	0.133**	1

*Note: *, **, *** Denote 0.1, 0.05, and 0.01 significance levels, respectively*

4.2. Ordinary Least Square (OLS) results –audit quality and IPO underpricing

Table 5 reports the results for the analysis whether audit quality impacts the IPOs underpricing in the Alternative Investment Market (AIM) in the UK. I find positive and statistically significant coefficients on Big N in Models 1 and 2, suggesting that high quality auditors are associated with a lower level of IPOs underpricing. Specifically, the results show negative coefficients of -0.044 (p<0.05) and -0.043 (p<0.05) on *Big N* in the models 1 and 2, respectively. This negative relationship between audit quality and IPO underpricing is disappeared when more determinants (control variables) are added into the model. However, it is worth noting that the sing of the coefficient on Big N is negative in all models even if the coefficients are not statistically significant. For example, Table 5 shows negative coefficients on *Big N* of -0.023 (Model 3), -0.019 (Model 4), -0.021 (Model 5), and -0.008 (Model 6). These results confirm that investors consider appointing high quality auditors as a positive signal about the offering and, this in turn, is reflected by the lower level of IPO underpricing.

Table 5. The relationship between audit
quality and IPO underpricing in the AIM market over the period 1998-2008

	Model 1 UnderPrice	Model 2 UnderPrice	Model 3 UnderPrice	Model 4 UnderPrice	Model 5 UnderPrice	Model 6 UnderPrice
Constant	0.129*** (8.445)	0.140*** (8.029)	0.148*** (7.957)	0.155*** (7.586)	0.219*** (3.123)	0.062 (0.674)
Big N	-0.044** (-2.085)	-0.043** (-2.052)	-0.023 (-1.206)	-0.019 (-0.914)	-0.021 (-0.940)	-0.008 (-0.344)
Ln(1+age)		-0.011 (-0.825)	-0.003 (-0.254)	-0.004 (-0.280)	-0.003 (-0.224)	-0.006 (-0.429)
Ln(assets)			-0.022*** (-2.850)	-0.020** (-2.137)	-0.022** (-1.983)	-0.018* (-1.655)
Ln(Proceeds)				-0.007 (-0.716)	-0.008 (-0.567)	-0.014 (-0.951)
1/Price				0.000 (0.283)	0.001 (0.995)	
Current				-0.001* (-1.883)	-0.001* (-1.839)	
Litigation				-0.008 (-0.338)	0.156** (2.068)	
ROA				-0.001 (-0.320)	-0.001 (-0.280)	
Loss				-0.003 (-0.155)	-0.008 (-0.312)	
RetOwn				-0.072 (-1.058)	-0.081 (-1.345)	
Prestige				0.020 (0.590)	0.001 (0.022)	
VC				-0.028 (-1.358)	-0.026 (-1.086)	
Industry dummies						Yes
Year dummies						Yes
N	411	411	411	411	410	410
Adj. R-squared	0.006	0.005	0.027	0.025	0.021	0.047

*Note: *, **, *** Denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively. Robust t-statistics appear in parentheses*

Table 5 also reports the results for the other determinants of IPOs underpricing and shows evidence the size and liquidity ratio are negatively associated with IPO underpricing. Table 5 (Model 6) report negative coefficients of --0.018 (p<0.10) on size [*Ln(assets)]* and -0.001 (p<0.10) on liquidity ratio *(Current).* Further*,* an analysis of Tables 5 (Model 6) reveals that IPO underpricing is positively associated with risky industries where the coefficient of *Litigation* is found to negative and statistically significant [-0.156 (p<0.05)]. This result indicate that IPO firms which operate in a high litigation industry experience a higher level of IPO underpricing. It seems that IPO issuers attempt to compensate investors for risk raking by leaving some money on the tables (the concept of IPO underpricing).

Overall, the results reported in Table 5 confirm the main hypothesis of this study that high quality auditors (big N) reduce the level of IPO underpricing in the Alternative Investment Market (AIM) of the London Stock Exchange in the UK. High quality auditors help to reduce the level of information asymmetry about the IPO offerings and, this is in turn, lead to reduce the level of IPO underpricing. Table 5 reports the results of regressions of audit quality and IPO underpricing for IPO firms that went public on the AIM market over the period 1998-2008.

5. CONCLUSIONS

This paper examines whether audit quality impacts IPO underpricing in the Alternative Investment Market (AIM) of the London Stock Exchange. Despite the fact that prior research has examined the association between audit quality and IPO underpricing (e.g., Albring et al. 2007; Akyol et al. 2014; Boulton et al. 2015), the current study is the first to examine this association based on IPOs that went public on the AIM market. The AIM market has attracted many national and international IPOs over the last three decades, notably this market was mainly designed to fit the needs of small and young IPO firms.

The findings of this study show evidence that IPO firms audited by high quality audit firms experience a lower level of IPO underpricing, suggesting that high quality auditors paly a determinant role to reduce the level of information asymmetry about the offering. This evidence in line with prior research that finds hiring high quality auditors send a positive signal about the offer to outside investors (e.g., Titman and Trueman, 1986.) and that audit quality is associated with IPO underpricing (e.g., Chang et al. 2008). In addition, this study investigates other determinants of IPO underpricing and finds evidence that size, liquidity ratio, and high litigation industries are associated with IPO underpricing. Specifically, large firms that have a high level of liquidity are found to experience a lower level of IPO underpricing, while IPO firms that operate in high litigation industries experience a higher level of IPO underpricing.

The findings of this study provide important implications for policy makers, AIM regulators, investment banks, audit firms, and other interested parties. For example, regulators should reform the IPO market by taking further steps that help to reduce the level of information asymmetry which is found to lead to many associated problems e.g., agency conflict, earnings management, IPO underpricing, etc.

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