

# **The association between the level of risk disclosure and corporation characteristics in the annual reports of Egyptian companies**

## **Abstract**

**\*Purpose:** the main objective of this study is to test and examine the relationship between specific firm characteristics in Egypt and the level of risk disclosure in the annual reports of Egyptian firms listed on the Egyptian Stock Exchange.

**\*Design/methodology/approach:** this study uses a list of risk keywords to determine the differences in the level of risk disclosure between firms in different sectors. The sample includes 49 non-financial firms listed on the Egyptian Stock Exchange for the years 2008, 2009 and 2010. Statistical analysis is implemented using a multiple linear regression analysis.

**\*Findings:** the results show that firm size is significantly positive (in all the three years) with the level of risk disclosure. Industry type variable (which divided to: industries, cement, construction, petrochemicals and services), is found being insignificantly associated with the level of risk information disclosed in the annual reports for all the three years. However, leverage is found being insignificantly associated with the level of risk information disclosed in the annual reports for all the three years.

**\*Research limitations/implications:** there are many requests to help shareholders to understand a firm's risk position by providing more information risks. Disclose more risk information do not lead to improve risk communication until increase the readability of the risk disclosure. We consider the follow limitations. First, the selected items do not show importance levels observed by financial information users. Second, the study applies an "unweights" approach to measure the level of forward-looking disclosure. Finally, the study concentrates on non-financial listed firms on the Egyptian Stock Exchange and excludes financial and insurance firms.

**\*Originality/value:** Information about risk is very important to investors, because it helps them to evaluate risk as a part of their investment decision-making process. Previous studies provided little information about risk to investors, and there are not previous studies about risk made in Egyptian environment. So, this study represents the first approach for studying the association between the level of risk disclosure and corporation characteristics in the annual reports of Egyptian companies, provides an initial understanding of risk management disclosure in the annual reports of Egyptian companies, and tries to provide enough information about risk that help investors to assess risk in their investment decision-making.

**\*key words:** risk and accounting disclosure, firm characteristics, financial reports, Egyptian Stock Exchange

## **1. Introduction**

The definition of “risk” and “risk management” has received significant attention in recent years. There are debates related to the communication of risk information from firms to stakeholders and outside users. American Accounting Association/Financial Accounting Standards Board (AAA/FASB) in 1997 recommended that US firms did not provide sufficient risk information within their annual reports. While Catherine M. Schrand & Elliott, (1998) and, Institute of Chartered Accountants in England and Wales (ICAEW) issued three discussion (1998, 1999 and 2002) encouraging UK companies to disclose information risks in greater depth. Solomon, Solomon, Norton, and Joseph (2000) supported the AAA/FASB and ICAEW by making a survey and approved that managers wanted to provide more details about risk disclosure rather than generalized statements of risk management policy.

Financial risk disclosure will not provide satisfactory information about the financial position of a firm because strategic and operating risks will effect on financial performance (Beretta & Bozzolan, 2004). So, The narrative section of financial communication is very important way to clarify and evaluate the quantitative measures in financial statements, and introduce useful vision on value generation drivers (Gelb, 2000; Robb & Zarzeski, 2001). Risk disclosure has become a vital part of business disclosure policy because it provides more transparency and increases investors’ confidence (Abraham & Cox, 2007; P. M. Linsley & Lawrence, 2007; P. M. Linsley & Shrivs, 2006; Solomon et al., 2000).

Moreover, risk reporting considers a cornerstone for corporations and investors. For corporations, risk information helps to manage the changes and decreases the cost of capital, while for investors, risk information helps to determine the risk profile of a firm, assessment the market value and accuracy of security price prediction (Abraham & Cox, 2007; Beretta & Bozzolan, 2004; Helliar & Dunne, 2004). Also, the level of risk and the rate of return are key factors that help investors to make investment decisions.

The remainder of the paper proceeds as follows: section 2 shows the definition of risk and types of risk reporting regulation, section 3 surveys the associated literature conducted on risk disclosure studies, section 4 shows the variables discussion and hypotheses development, section 5 outlines research methodology including sample description and model development, section 6 reports the obtained results, while section 7 presents the conclusions along with its limitation.

## **2. Definition of risk and types of risk reporting regulation**

The word “risk” has been used in the past to reflect hostile events that have occurred, but the definition of risk have changed after the industrial revolution influenced by the emergency of the insurance industry and the progress in probability calculations. In general, the idea of risk is related to the future outcomes and the distribution of future outcomes are uncertain (Rajab, 2009)(Sassi, 1951 ). Finance books defined risk as referring to a set of effects arising from taking

a decision that can be assigned to probabilities whereas uncertainty arises when probabilities cannot be assigned to a set of outcomes (P. M. Linsley & Shrivess, 2006; Watson & Head, 2006).

Beretta and Bozzolan (2004) defined risk disclosure as “the communication of information concerning firm’s strategies, operations, and other external factors that have the potential to affect expected results”. While, Lajili and Zéghal (2005); P. M. Linsley & Shrivess, (2005) defined risk as “the uncertainty associated with both a potential gain and loss”. This definition contains both positive and negative effects, depends on diversifiable and non-diversifiable risk, and takes into account the expected opportunities disclosed.

Moreover, M.K. Hassan (2008) defined corporate risk disclosure as “the financial statements incorporation of general, specific, and potential circumstances that may cause corporations’ assets and/or liabilities value fluctuates, decreases or otherwise”. Also, Mostafa Kamal Hassan (2009) defined corporate risk disclosure as “the financial statements inclusion of information about managers’ estimates, judgments, reliance on market-based accounting policies such as impairment, derivative hedging, financial instruments, and fair value as well as the disclosure of concentrated operations, non-financial information about corporations’ plans, recruiting strategy, and other operational, economic, political and financial risks”, this definition communicates the good and bad information as well as reporting on business “uncertainties”.

P. M. Linsley and Shrivess (2006) showed that disclosures have been judged to be risk disclosures, when the users of information received any opportunity or prospect, or any hazard, danger, threat or exposure, that this information already impacted on the firm or will impact on the firm in the future. While current definition of risk by Beck (1992) found that risk is related to society and people become more concerned about their impact on nature than the impact of nature on them.

Catherine M. Schrand and Elliott (1998) noted that the process of defining risk is complicated and difficult because there are many types of risk effect on the degree of management control. Some risks are financial and need to be managed by financial instruments, others are operational. Abraham and Cox (2007) classified risk reporting regulation into three types:

- 1) Business risk reporting: Statement of Operating and Financial Review (OFR) established by the Accounting Standard Board (ASB) in 1993 put a framework to guide business risk reporting containing capital structure, treasury policy, going concern and balance sheet value, taxation, funds from operating activities and other sources of cash and current liquidity.

- 2) Financial risk reporting: IFRS 13 established statutory financial risk reporting requirements (IASB, 1998), provide relevant information about the employment of derivatives and other financial products that was required from public listed companies and insurance companies. The reporting requirements of IFRS 13 involve narrative and numerical aspects.

Dunne, Helliar, Mallin, and Power (2003) showed that narrative section in the annual reports is very important to stakeholders because it helps them to assess the role of financial instruments in the overall risk management strategy of a firm. Both narrative and numerical financial risk information require linking to interest rate risk, foreign currency risk, liquidity risk, financial instruments, the hedging of foreign currency debtors and creditors and the net investments in foreign firms (Abraham, 2008)

3) Internal control risk reporting: The effectiveness of internal financial control is obligatory reporting for UK public listed firms, started in 1992. The internal control risk reporting was reviewed by Turnbull report in 1999, and the main objective for the Turnbull report was to make the internal control recommendations more obvious (Helliar & Dunne, 2004). On the other hand, Boritz and Accountants (1990) classified risk and uncertainty to: Uncertainty about the nature and role of financial statements, Uncertainty about the nature of business operations in the financial statement, and Uncertainty about the motivation of management and the limitation of financial statement measurements.

### **3. Literature review**

There are more previous studies examined risk disclosure by concerning on risk information and, in specific, the disclosure of market-based risk in relation to financial instruments, particularly in US, UK, Canada and Germany (Beretta & Bozzolan, 2004; P. M. Linsley & Shrides, 2006). There are two groups of research methods on risk disclosure, The first one, concentrated on the annual report as the source for content analysis of risk disclosure, and the second one concentrated on the management discussion and analysis (MD&A) (Amran et al., 2008).

The annual reports were the main source to examine risk disclosure, the directors prepared it to fulfill with mandatory legal requirements and with accountability function (P. M. Linsley & Shrides, 2005). So annual reports now include, in addition to quantitative financial data, narratives, photographs and graphs

Most studies related to risk disclosure directed in Western and European countries, for example, the UK (Abraham & Cox, 2007; Dhanani, 2003; Iatridis, 2008; P. M. Linsley & Lawrence, 2007; P. M. Linsley & Shrides, 2006; Solomon et al., 2000), in Italy ((Beretta & Bozzolan, 2004), Canada (Lajili & Zéghal, 2005), Australia (Poskitt, 2005), Portugal (Lopes & Rodrigues, 2007), and in the USA (Hodder, Koonce, & McAnally, 2001; Jorion, 2002; Linsmeier et al., 2002; Rajgopal, 1999; C.M. Schrand, 1997).

Hodder et al. (2001) found three results through examined Financial Risk Release (FRR No.48) First, disclosure requirements need insufficient quantitative information in the annual reports to help investors and users to understand the companies' instruments risk disclosures. Second, the process to assess risk is a very difficult matter for users and investors. Third, although the Financial Risk Release (FRR no.48) contains three formats of disclosure to help the users to evaluate a company's risk, but the users will depend on the format which they used.

P. Linsley and Shrives (2000) examined risk reporting requirements within an examination of advantages and disadvantages of disclosure of risk information through annual reports, and (P. M. Linsley & Shrives, 2005) examined the same matters but within annual reports of financial companies. They arrived to an important merit that firms can reduce the cost of capital by improve risk disclosure and increase it in the annual reports. Also, they encouraged firms to disclose more forward-looking information to raise the investors' value. Dietrich, Kachelmeier, Kleinmuntz, and Linsmeier (2001) also concentrated on the value of disclosing forward-looking information within annual reports and this will lead to improve market efficiency.

In addition, Kajüter (2001) examined risk disclosure in the annual reports of a sample of German companies under the requirements of German Accounting Standard (GAS) 5. He examined risk disclosures for a sample of 82 non-financial companies, and the study found that the disclosure of risk information was restricted and the firms do not want to manipulate a systematic approach to risk reporting. Woods and Reber (2003) compared risk disclosure between six companies in German and the same number of companies in UK, they found that German companies post GAS5 disclosed more risk information and the standard had a significant effect on risk reporting. Beretta and Bozzolan (2004) made widespread risk reporting study by analysis of the Management Discussion and Analysis (MD&A) section of a sample of 85 companies listed in Italian Stock Exchange and identified 75 different risk items disclosed in the MD&A. They found that firms preferred to disclose past and present information risks, rather than future risks. If the firms disclosed future risks, the managers are unwilling to show whether the impact of future risks is positive or negative. They disruption their study according to three risk factors (company strategy, company characteristics, and external environment) and according to five narrative groups (quantitative/qualitative, past/future, upside/downside, monetary/non-monetary and information/action). There are a positive association between the quantity of risk disclosure and firm size, but no association with industry type. Moreover, no association between the quality of risk disclosure and either firm size and industry type (Beretta & Bozzolan, 2004)

Elmy, LeGuyader, and Linsmeier (1998); (Jorion, 2002) found that there are little disclosure about information risks in US companies in respect to Financial Reporting Release No 48( derivative and market risk disclosures), so investors and users depended on presentational issues within the annual report to evaluate risks. Collins et al. (1993) examined risk disclosure within the management discussion and analysis (MD&A) for a large number of listed firms in US and UK, they found that UK firms disclose more information about risk, uncertainty and forward-looking information. Judge and Clark (2002) analyzed risk management disclosure in the annual reports of 100 UK non-financial companies, the study showed that financial liabilities and assets firms on average have a greater proportion of liabilities and assets.

While Botosan (2004) explained the difficult of measure the quality of risk disclosure, because the quality of disclosure depends on user perception as listed by the international Accounting Standard Board.

In addition, Lajili and Zéghal (2005) made their study on a sample of listed companies on the Canadian stock exchange to 12 risk factor by examining compulsory and voluntary risk disclosure. They found no association between the quantity of compulsory and voluntary risk disclosure and firm size, profit and leverage.

The most important study was made by P. M. Linsley and Shrives (2006), examining narrative risk disclosure in the annual reports for 79 non-financial UK companies. They collected risk information according to: first, three narrative groups (upside/downside, monetary/non-monetary and past/future), second, six risk factors (financial, operational, empowerment, information processing and technology, integrity and strategy). They found positive association between narrative risk reporting (number of risk disclosures) and company size (confirmed with the results made by Beretta and Bozzolan (2004) for Italian companies). Also, they found positive association between narrative risk reporting (number of risk disclosures) and the level of environmental risk (measured by Innovest EcoValue'21™), in addition, companies disclosed greater amount of risk information if they have lower levels of environmental risk, and companies with higher levels of risk did not provide sufficient risk information to stakeholders.

In addition, No association between narrative risks reports (number of risk disclosures) and five measures of financial risk containing: gearing ratio, asset cover, and price to book value of equity, quiscore and beta factor. They did not find monetary valuations of risk information and companies have a willingness to disclose forward-looking risk information. Moreover, P. M. Linsley and Shrives (2006) discovered the valuable of forward-looking risk disclosures to the readers of the annual report

Abraham and Cox (2007) also examined narrative risk disclosure from a broad perspective. They developed their study on risk reporting in three directions: first, analysis investigated ownership and governance determinants of risk reporting; second, analysis of risk reporting by examination of the association between UK companies that were dual listed in the US, third, analysis, focused on business, financial and internal control aspects of narrative risk reporting. They found positive relationship between the quantity of narrative risk information in corporate annual reports and ownership, governance and US listing characteristics, and negatively relationship with share ownership by long term institutions.

Moreover, Amran et al. (2008) studied risk disclosure practices between Malaysian firms; they concentrated on the narrative section in the annual report and the chairman's statement. They found that size was a significant relationship with the level of risk disclosure, and industry type also has a significant influence on the extent of risk disclosure. Mostafa Kamal Hassan (2009) examined the association between the firm specific characteristics and the level of corporate risk disclosure applied on United Arabia Emiratis (UAE) companies. The study found that there was no significant relationship between corporate size and the level of corporate risk disclosure, but there was a significant associated between the level of corporate disclosure and industry type, and negatively associated with corporate reserve.

The most recent study related to risk disclosure made by Berger and Gleißner (2010), found that firms did not provide information about risk for two reasons: managers may have special reasons make them not to disclose more information; they have not more or better information about risk. Managers will not prefer to disclose quantitative information on the size of the risk exposure and these make investors to call for a distribution of capital.

#### **4. Variables discussion and hypotheses development**

This study depends on the positive accounting theory concept of economic consequences and the institutional theory concept of social legitimacy. It develops a number of hypotheses about the determinants of risk disclosure in the annual reports of Egyptian companies.

##### **4.1. Size**

Most previous studies found a positive association between the firm size and the number of risk disclosures such as (Beattie, McInnes, & Fearnley, 2004; Firth, 1979; Hossain, Perera, & Rahman, 1995). The positive of this association because larger firms have a huge number of stakeholders and firms should provide more information to them. While Mostafa Kamal Hassan (2009) found no significant relationship between the firm size and the level of risk disclosure.

Firm size considers a proxy for two main reasons, political sensitivity and economies of scale. The first one, the larger of the firm size, the larger political sensitive and the firms have a dominant ability in the market (positive relationship between the two variables) (Abraham & Cox, 2007; Mostafa Kamal Hassan, 2009; P. M. Linsley & Shrives, 2006). So, larger firms have a motivation to disclose higher level of risk information to clarify the higher level of return, increase investors' confidence and decrease political sensitivity. For the second reason, the largest of the firm size, the less costly for additional disclosure in comparable to small firm size.

Accordingly, the following hypothesis is tested:

**H1: there is a significant relationship between firm size and the total number of risk disclosures in the annual reports for Egyptian companies.**

Firm size could be measured by the log of total assets

##### **4.2. Industry type**

Firms, which operate in the same industry, disclosed the same level of risk information to avoid bad appreciation by the market, this association supported by signaling and institutional theories. Institutional theory suggests that firms, which work in the same industry, are prefer to implement the same reporting strategy meanwhile they are subject to same professional and legal pressures

(Mostafa Kamal Hassan, 2009; Touron, 2005). Mostafa Kamal Hassan (2009) found a significant relationship between the two variables. While Beretta and Bozzolan (2004) found no relationship between the two variables.

In respect to institutional theories, firms implement certain disclosure practices because these practices are operational in communicating information and try to be like other firms in the same industry. So risk disclosure may be varying in accordance to the industry type without specifying a direction to this association.

Accordingly, the following hypothesis is tested:

**H2: there is a significant relationship between industry type and the total number of risk disclosures in the annual reports for Egyptian companies.**

Industry type measured as a dummy variable, where 1 for manufacturing and 0 for otherwise. This study will choose five types of industry type to test the previous hypothesis: industries, cement, construction, petrochemicals and services.

#### **4.3. Level of company risk**

This study examined the relationship between the number of risk disclosure and the level of risk. Companies tend to disclose more risk information if they achieved higher levels of risk, and the managers have a motivation to explain the reasons of this higher risk (P. M. Linsley & Shrives, 2006). Managers also have a private motivation and incentives to disclose more risk information to signal to a broader number of stakeholders how they could manage these risks (Abraham & Cox, 2007; Mostafa Kamal Hassan, 2009). So the study expected a positive relationship between the two variables. The difficulty to implement this relationship is that companies with a higher level of risks have not incentives to disclose a significant amount of risk information, by the contrast of companies with a lower level of risks. P. M. Linsley and Shrives (2006) showed that companies, which disclose more risk information, will find that the marketplace better understands the company's risk position and the company is estimated to be less risky than before. While Mostafa Kamal Hassan (2009) found a significant relationship between the two variables.

Previous studies used leverage as a proxy to measure the association between the two variables such as (Ahmed & Courtis, 1999; Hossain et al., 1995), they found no relationship between the two variables, but (Malone, Fries, & Jones, 1993) found a positive relationship.

Accordingly, the following hypothesis is tested:

**H3: there is no relationship between the level of risk and the total number of risk disclosures in the annual reports for Egyptian companies.**

The level of risk could be measured by debt to total assets ratio (total liabilities/total assets).



## 5. Research Methodology

### 5.1. Data collection and variables definition

The sample uses in this study contains annual reports for non-financial 49 companies listed and non-listed in Egyptian stock exchange. They represent different sectors (industries cement property, construction, petrochemicals, and food and cultivate and services) for three years (2008, 2009 and 2010). The choice of firms was based on the availability of data. The study cannot collect data from the annual reports in the year of 2011 because there were problems and setbacks in the Egyptian Stock Exchange due to the Egyptian revolution.

The study excluded financial and insurance firms because they are subject to specific disclosure requirements, so their annual reports do not be considered as voluntarily determined, and it used cross-sectional regression (Ordinary Least Square (OLS) regression and multiple regressions) using Minitab programming to test and analysis the hypotheses and regression variables collected from the annual reports.

There are different proxies to measure the level of risk disclosure; the size of the firm was measured by the log of total assets, Industry type was measured as a dummy variable, where 1 for manufacturing and 0 for otherwise, and the level of company risk was measured by debt ratio (leverage). These variables are measured as continuous variables.

### 5.2. Model development

There are many previous studies implement many approaches to analysis financial annual reports to measure the quality and quantity of risk disclosure. Some of these studies used the content analysis, subjective analysts ratings, disclosure indices and linguistic analyses such as (Abraham & Cox, 2007; Beretta & Bozzolan, 2004; Lajili & Zéghal, 2005; P. M. Linsley & Shrivess, 2006). Others aim to measure and evaluate the readability of risk-related sentences (P. M. Linsley & Lawrence, 2007). Some studies developed a risk disclosure index such as (Aljifri & Hussainey, 2007; Barako, Hancock, & Izan, 2006). Beattie et al. (2004) examined the time dimension, financial dimension as well as the quantitative dimension. The main objective of this study is to explore the relationship between specific firm characteristics in Egyptian environment and the level of risk disclosure.

The association between specific firm characteristics (independent variables) and the level of risk disclosure is presented as the following:

$$\text{LS index} = B_0 + B_1X_1 + B_2X_2 + B_3X_3$$

**Where:**

**LS**= the level of risk disclosure

**B<sub>0</sub>**= constant value or the value of (LS) when all (X) values are Zero

**X1**= company size (measured by log of the total assets)

**X2**: industry type (measured as dummy variable where 1 for manufacturing and 0 for otherwise)

**X3**: level of company risk (measured by debt to total assets ratio) where debt to total assets ratio equal: total liabilities/total assets

## **6. Results:**

This section shows the practical Minitab methods uses to test the research hypotheses of the study and reports the results. It considers of two parties: descriptive analysis and regression analysis.

### **6.1. Descriptive statistics**

**Table (1)** showed the results related to descriptive analysis, the minimum, maximum, mean and standard deviation(the smaller the standard deviation the more accurate future predictions because there is less variability) for the continuous and categories variables in the sample data set and also provides information about disclosure for three years (2008, 2009 and 2010). There is a wide range of variation in some variables within the sample as showed by the minimum and maximum values, in the year **2008**, the level of risk disclosure (dependent variable (LS) ranges from 3 to 49 with a mean of 17.73 and a standard deviation of 9.76. The assets (LASSETS) (in logarithms) range from 11.08 to 17.80 with a mean of 14.69 and a standard deviation of 1.677. The leverage (LEV) ranges from 0.010 to 1.70 with a mean of 0.467 and a standard deviation of 0.328. While the independent variable industry type divided to five types: industries (IND.) range from 0.00 to 1.00 with a mean of 0.312 and a standard deviation of 0.468. Cement (CEM.) ranges from 0.00 to 1.00 with a mean of 0.083 and a standard deviation of 0.279. Construction (CONS.) ranges from 0.00 to 91.00 with a mean of 0.250 and a standard deviation of 0.437. Petrochemicals (BETC.) range from 0.00 to 1.00 with a mean of 0.083 and a standard deviation of 0.279, and services (SERV.) range from 0.00 to 1.00 with a mean of 0.0625 and a standard deviation of 0.244.

In the year **2009**, the level of risk disclosure (dependent variable (LS) ranges from 0.00 to 40 with a mean of 13.71 and a standard deviation of 9.26, the assets (LASSETS) (in logarithms) range from 11.82 to 17.66 with a mean of 14.64 and a standard deviation of 1.424. The leverage (LEV) ranges from 0.050 to 1.34 with a mean of 0.369 and a standard deviation of 0.232. While the independent variable industry type divided to five types: industries (IND.) range from 0.00 to 1.00 with a mean of 0.312 and a standard deviation of 0.468. Cement (CEM.) ranges from 0.00 to 1.00 with a mean of 0.083 and a standard deviation of 0.279. Construction (CONS.) ranges from 0.00 to 91.00 with a mean of 0.250 and a standard deviation of 0.437. Petrochemicals (BETC.) range from 0.00 to 1.00 with a mean of 0.083 and a standard deviation of 0.279, and services (SERV.) range from 0.00 to 1.00 with a mean of 0.0625 and a standard deviation of 0.244.

While, in the year **2010**, the level of risk disclosure (dependent variable (LS) ranges from 2.00 to 38 with a mean of 15.38 and a standard deviation of 8.02. The assets (LASSETS) (in logarithms) range from 11.82 to 17.66 with a mean of 14.64 and a standard deviation of 1.424. The leverage (LEV) ranges from 0.010 to 2.05 with a mean of 0.417 and a standard deviation of 0.340, and the independent variable industry type divided to five types: industries (IND.) range from 0.00 to 1.00 with a mean of 0.312 and a standard deviation of 0.468. Cement (CEM.) ranges from 0.00 to 1.00 with a mean of 0.083 and a standard deviation of 0.279. Construction (CONS.) ranges from 0.00 to 91.00 with a mean of 0.250 and a standard deviation of 0.437. Petrochemicals (BETC.) range from 0.00 to 1.00 with a mean of 0.083 and a standard deviation of 0.279, and services (SERV.) range from 0.00 to 1.00 with a mean of 0.0625 and a standard deviation of 0.244.

**Table (1) descriptive statistics**

**Descriptive Statistics: LS; lassets; ind; cem; cons &rs; BETC; SERV; LEV (2008)**

Variable	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3
LS	40	8	17.73	1.54	9.76	3.00	11.00	15.00	23.75
lassets	29	19	14.694	0.311	1.677	11.083	13.343	14.894	16.148
ind	48	0	0.3125	0.0676	0.4684	0.0000	0.0000	0.0000	1.0000
cem	48	0	0.0833	0.0403	0.2793	0.0000	0.0000	0.0000	0.0000
cons &rs	48	0	0.2500	0.0632	0.4376	0.0000	0.0000	0.0000	0.7500
BETC	48	0	0.0833	0.0403	0.2793	0.0000	0.0000	0.0000	0.0000
SERV	48	0	0.0625	0.0353	0.2446	0.0000	0.0000	0.0000	0.0000
LEV	29	19	0.4676	0.0610	0.3286	0.0100	0.2500	0.4200	0.6050

Variable	Maximum
LS	49.00
lassets	17.801
ind	1.0000
cem	1.0000
cons &rs	1.0000
BETC	1.0000
SERV	1.0000
LEV	1.7000

**Descriptive Statistics: LS; lassets; ind; cem; cons &rs; BETC; SERV; LEV (2009)**

Variable	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3
LS	45	3	13.71	1.38	9.26	0.00	6.50	14.00	20.50
lassets	44	4	14.642	0.215	1.424	11.821	13.447	14.775	15.667
ind	48	0	0.3125	0.0676	0.4684	0.0000	0.0000	0.0000	1.0000
cem	48	0	0.0833	0.0403	0.2793	0.0000	0.0000	0.0000	0.0000
cons &rs	48	0	0.2500	0.0632	0.4376	0.0000	0.0000	0.0000	0.7500
BETC	48	0	0.0833	0.0403	0.2793	0.0000	0.0000	0.0000	0.0000
SERV	48	0	0.0625	0.0353	0.2446	0.0000	0.0000	0.0000	0.0000
LEV	44	4	0.3695	0.0351	0.2326	0.0500	0.2125	0.3050	0.4700

Variable	Maximum
LS	40.00
lassets	17.663
ind	1.0000
cem	1.0000
cons &rs	1.0000
BETC	1.0000
SERV	1.0000
LEV	1.3400

**Descriptive Statistics: LS; lassets; ind; cem; cons &rs; BETC; SERV; LEV (2010)**

Variable	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3
LS	42	6	15.38	1.24	8.02	2.00	9.00	14.50	19.75
lassets	44	4	14.642	0.215	1.424	11.821	13.447	14.775	15.667
ind	48	0	0.3125	0.0676	0.4684	0.0000	0.0000	0.0000	1.0000
cem	48	0	0.0833	0.0403	0.2793	0.0000	0.0000	0.0000	0.0000
cons &rs	48	0	0.2500	0.0632	0.4376	0.0000	0.0000	0.0000	0.7500
BETC	48	0	0.0833	0.0403	0.2793	0.0000	0.0000	0.0000	0.0000
SERV	48	0	0.0625	0.0353	0.2446	0.0000	0.0000	0.0000	0.0000
LEV	40	8	0.4170	0.0538	0.3400	0.0100	0.1925	0.3350	0.5775

Variable	Maximum
LS	38.00
lassets	17.663
ind	1.0000
cem	1.0000
cons &rs	1.0000
BETC	1.0000
SERV	1.0000
LEV	2.0500

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## 6.2. Assessing the validity of the model or (OLS) regression analysis

Before explaining the results of multiple regression analysis, it is useful to check the existence of multicollinearity or collinearity between the independent variables. Multicollinearity or collinearity means that two or more of the independent variables are highly correlated and this situation can have damaging effects on the results of multiple regressions. The correlation matrix was a powerful tool for getting a rough idea of the relationship between predictors.

**Table (2)** displays the correlations between independent variables, and between dependent variable {the level of risk disclosure (LS)} and other independents variables, in three years. The independent variable industry type divided to five types: industries (IND.), cement (CEM.), construction (CONS.), petrochemicals (BETC.) and services (SERV.).

In the year **2008**, there is no multicollinearity between independents variables. The correlation between each of the continuous variables was not too high. The highest correlation found between services (SERV.) and leverage (LEV.) (0.386) was acceptable, and all correlations were insignificant at the 0.05 level (two-tailed), except the correlation between industries (IND.) and construction (CONS.) was significant ( $0.006 < 0.05$ ), and between services (SERV.) and leverage (LEV.) also was significantly ( $0.039 < 0.05$ ). Also, the correlation between the level of risk disclosure (LS) and firm size measured by (LASSETS) was significantly ( $0.006 < 0.05$ ) and also the highest correlation found between the two previous variables (0.526).

In the year **2009**, there is no multicollinearity between independents variables. The correlation between each of the continuous variables was not too high. The highest correlation found between construction (CONS.) and leverage (LEV.) (0.360) was acceptable, and all correlations were insignificant at the 0.05 level (two-tailed), except the correlation between industries (IND.) and construction (CONS.) was significant ( $0.006 < 0.05$ ), and between construction (CONS.) and leverage (LEV.) also was significantly ( $0.016 < 0.05$ ). Also, the correlation between the level of

risk disclosure (LS) and firm size measured by (LASSETS) was significantly ( $0.00 < 0.05$ ) and also the highest correlation found between the two previous variables (0.551).

While in the year **2010**, there is, also, no multicollinearity between independent variables. The correlation between each of the continuous variables was not too high. The highest correlation found between construction (CONS.) and leverage (LEV.) (0.360) was acceptable, except the correlation between industries (IND.) and construction (CONS.) was significant ( $0.006 < 0.05$ ), and between construction (CONS.) and leverage (LEV.) also was significantly ( $0.028 < 0.05$ ). Also, the correlation between the level of risk disclosure (LS) and firm size measured by (LASSETS) was significantly ( $0.001 < 0.05$ ) and also the highest correlation found between the two previous variables (0.524).

To sum up, the results in all the three years confirm that no colinearity exists between the independent variables. The correlation between the level of risk disclosure {dependent variable (LS)} and firm size (independent variable) measured by (LASSETS) was significantly and highly correlation in all the three years.

**Table (2) correlations**

**Correlations: LS; lassets; ind; cem; cons &rs; BETC; SERV; LEV (2008)**

	LS	lassets	ind	cem	cons &rs	BETC	SERV
lassets	0.526** 0.006***						
ind	0.086 0.597	0.032 0.870					
cem	-0.120 0.460	0.085 0.661	-0.203 0.166				
cons &rs	0.073 0.656	0.103 0.596	-0.389 0.006***	0.000 1.000			
BETC	0.044 0.787	0.039 0.840	-0.203 0.166	-0.091 0.539	-0.174 0.237		
SERV	-0.172 0.289	-0.005 0.980	-0.174 0.237	-0.078 0.599	-0.149 0.312	-0.078 0.599	
LEV	0.100 0.627	-0.235 0.221	0.248 0.194	-0.310 0.102	-0.024 0.901	-0.127 0.510	0.386* 0.039***

Cell Contents: Pearson correlation  
P-Value

**Notes:**

\*the highest correlation between independent variables

\*\*the highest correlation in the correlation matrix

\*\*\*correlation is significant at the 0.05 level (two-tailed)

**Correlations: LS; lassets; ind; cem; cons &rs; BETC; SERV; LEV (2009)**

	LS	lassets	ind	cem	cons &rs	BETC	SERV
lassets	0.551** 0.000***						
ind	0.058 0.704	0.127 0.411					
cem	0.044 0.774	0.076 0.625	-0.203 0.166				
cons &rs	-0.084 0.585	0.127 0.413	-0.389 0.006***	0.000 1.000			
BETC	0.104 0.498	0.044 0.777	-0.203 0.166	-0.091 0.539	-0.174 0.237		
SERV	-0.017 0.913	0.035 0.823	-0.174 0.237	-0.078 0.599	-0.149 0.312	-0.078 0.599	
LEV	-0.014 0.931	0.179 0.246	-0.013 0.932	-0.240 0.116	0.360* 0.016***	-0.106 0.494	0.067 0.666

Cell Contents: Pearson correlation  
P-Value

**Notes:**

\*the highest correlation between independent variables

\*\*the highest correlation in the correlation matrix

\*\*\*correlation is significant at the 0.05 level (two-tailed)

**Correlations: LS; lassets; ind; cem; cons &rs; BETC; SERV; LEV (2010)**

	LS	lassets	ind	cem	cons &rs	BETC	SERV
lassets	0.524** 0.001***						
ind	0.030 0.852	0.127 0.411					
cem	0.005 0.976	0.076 0.625	-0.203 0.166				
cons &rs	0.077 0.626	0.127 0.413	-0.389 0.006***	0.000 1.000			
BETC	0.158 0.316	0.044 0.777	-0.203 0.166	-0.091 0.539	-0.174 0.237		
SERV	-0.138 0.384	0.035 0.823	-0.174 0.237	-0.078 0.599	-0.149 0.312	-0.078 0.599	
LEV	0.132 0.430	0.309 0.056	-0.105 0.521	-0.201 0.215	0.347* 0.028***	-0.139 0.394	0.139 0.393

Cell Contents: Pearson correlation  
P-Value

**Notes:**

\*the highest correlation between independent variables

\*\*the highest correlation in the correlation matrix

\*\*\*correlation is significant at the 0.05 level (two-tailed)

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### 6.3. Multiple regression results

Results of the OLS regression in **table (3)** show that standard deviation of the error terms are 9.500, 8.268 and 7.036 for the three years respectively. The results statistically (ANOVA tests) support the significance of the model only in the year 2009, and insignificantly in the years 2008 and 2010 because F-ratio was 2.73 ( $P=0.023<0.05$ ), F-ratio was 2.42 ( $P=0.062>0.05$ ) and F-ratio 2.19 ( $P=0.065>0.05$ ) respectively. In fact F is nothing but T-square, A low P-value suggests that beta plays a significant role in the model; this is just reassurance of the T-test.

While  $R^2$  which means the percentage of independent variables that explain the variance in dependent variable (the level of risk disclosure), in other words, (the variance percentage in dependent variable due to the variance percentage in independent variables)

$R^2$  (48.5%, 35.3% and 34.6%) for the three years, was not a respectable result because it less than 75% (the begging percentage to accept the  $R^2$  result for any model). So the best  $R^2$  was 48.5% for the year 2008, implies that independent variables explain 48.5% percentage of the variance in the level of risk disclosure. In other words, there were a variation in the value of (LS) (level of risk disclosure), 48.5% of it was due to the model (or due to change in –independent variables) and 51.5% was due to error or some unexplained factor.

#### Table (3) model summary

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##### Year 2008

S = 9.50099    R-Sq = 48.5%    R-Sq(adj) = 28.4%

##### Analysis of Variance

Source	DF	SS	MS	F	P
Regression	7	1527.66	218.24	2.42	0.062
Residual Error	18	1624.84	90.27		
Total	25	3152.50			

##### Year 2009

S = 8.26855    R-Sq = 35.3%    R-Sq(adj) = 22.3%

##### Analysis of Variance

Source	DF	SS	MS	F	P
Regression	7	1304.20	186.31	2.73	0.023
Residual Error	35	2392.91	68.37		
Total	42	3697.12			

##### Year 2010

S = 7.03638    R-Sq = 34.6%    R-Sq(adj) = 18.8%

##### Analysis of Variance

Source	DF	SS	MS	F	P
Regression	7	759.38	108.48	2.19	0.065
Residual Error	29	1435.81	49.51		
Total	36	2195.19			

**Table (4)** shows the results of regression related to independent variables, firm size (L assets), and the independent variable industry type divided to five types: industries (IND.), Cement (CEM.), Construction (CONS.), Petrochemicals (BETC.) and services (SERV.), and leverage (LEV.) for the three years.

The sample estimated alpha (constant) and beta (independent variables) are {-46.72, 4.132,-1.737,-3.754,-0.836, 9.23,-15.778 and 13.40} respectively for the year 2008, {-42.74, 4.049, -2.459, -1.317,-5.045,-0.086,-3.697 and- 1.732} respectively for the year 2009, and {-27.33, 3.016, -2.244, -1.966,-1.371,1.880,-6.887 and- 0.201} for the last year 2010.

The comment on the results as the following:

**\*firm size:** (measured by the log of the book value of total assets) as the previous studies estimated, firm size coefficient shows that it was significantly ( $P < 0.05$ ) positively associated to the level of risk disclosure in all the three years, where ( $p = 0.002 < 0.05$ ) in the years 2008 and 2010 but ( $P = 0.000 < 0.05$ ) in the year 2009, this means that large firms disclose more data than small firms. The main reason for this result is that those large firms are expected to disclose higher level of risk information to clarify the higher level of return, increase investors 'confidence and decrease political sensitivity more risk information than small firms, and large firms have the capability to pay more costs for larger and extensive disclosure. While Mostafa Kamal Hassan (2009) found no significant relationship between the firm size and the level of risk disclosure. There were more studies found the same relationship but between firm size and the level risk disclosure such as: (Beattie et al., 2004; Beretta & Bozzolan, 2004; Firth, 1979; Hossain et al., 1995)

**\*industry type:** the study divided this variable into five types: industries (IND.), cement (CEM.), construction (CONS.), petrochemicals (BETC.) and services (SERV.), and treated these variables as a dummy variables (if any type takes 1, the others take 0).

**\*\*industries (IND.):** (measured as a dummy variable, industries take 1 and other types take 0), it found to be insignificantly ( $P > 0.05$ ) correlated to the level of risk disclosure in all the three years.

**\*\*cement (CEM.):** (measured as a dummy variable, industries take 1 and other types take 0), it found to be insignificantly correlated to the level of risk disclosure in all the three years ( $P > 0.05$ ).

**\*\*construction (CONS):** (measured as a dummy variable, industries take 1 and other types take 0), it found to be insignificantly correlated to the level of risk disclosure in all the three years ( $P > 0.05$ ).



**\*\*Petrochemicals (BETC.):** (measured as a dummy variable, industries take 1 and other types take 0), it found to be insignificantly (P>0.05) correlated to the level of risk disclosure in all the three years.

**\*\* Services (SERV.):** (measured as a dummy variable, industries take 1 and other types take 0), it found to be insignificantly correlated to the level of risk disclosure in all the three years (P>0.05).

The previous results such as Mostafa Kamal Hassan (2009) found a significant relationship between the two variables. While Beretta and Bozzolan (2004) found no relationship between the two variables.

**\*leverage ratio (a proxy to level of company risk):** (measured by total liabilities divided by total assets), it found to be insignificantly correlated to the level of risk disclosure in all the three years (P>0.05). But positively in the year 2008, and negatively in other years 2009 and 2010, This may be clarified by the fact that creditors may share private information with their debtors (Alsaeed, 2006). Also, the output may be explained on the basis that Egyptian companies actually favor equity to debt in financing their assets. Pervious results such as Mostafa Kamal Hassan (2009) found a significant relationship between the two variables but (Ahmed & Courtis, 1999; Hossain et al., 1995) found no relationship between them.

**Table (4) regression results**

**Year 2008**

Predictor	Coef	SE Coef	T	P
Constant	-46.72	18.22	-2.56	0.020
lassets	4.132	1.176	3.51	0.002
ind	-1.737	5.201	-0.33	0.742
cem	-3.754	6.294	-0.60	0.558
cons &rs	-0.836	5.136	-0.16	0.872
BETC	9.23	10.13	0.91	0.374
SERV	-15.778	8.644	-1.83	0.085
LEV	13.400	7.027	1.91	0.073

**Year 2009**

Predictor	Coef	SE Coef	T	P
Constant	-42.74	13.60	-3.14	0.003
lassets	4.0494	0.9676	4.19	0.000
ind	-2.459	3.531	-0.70	0.491
cem	-1.317	4.866	-0.27	0.788
cons &rs	-5.045	3.934	-1.28	0.208
BETC	-0.086	4.993	-0.02	0.986
SERV	-3.697	6.516	-0.57	0.574
LEV	-1.732	6.174	-0.28	0.781

**Year 2010**

Predictor	Coef	SE Coef	T	P
Constant	-27.33	12.22	-2.24	0.033

lassets	3.0165	0.8880	3.40	0.002
ind	-2.244	3.183	-0.70	0.487
cem	-1.966	4.172	-0.47	0.641
cons &rs	-1.371	3.469	-0.40	0.696
BETC	1.880	4.293	0.44	0.665
SERV	-6.887	5.566	-1.24	0.226
LEV	-0.201	3.913	-0.05	0.959

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## 7. Conclusions and limitations

The main purpose of preparing annual reports is to offer satisfactory and useful information to stakeholders if the managers fail to provide this information, the firm will lose its value. The objective of this paper is to examine the relationship between the level of risk disclosure and firm characteristics (firm size, industry type, and the level of company risk) and to discover the effect of these characteristics on the extent of the level of risk information disclosure through the annual reports of non-financial Egyptian firms.

The results for the sample of 49 firms show that firm size variable has significant positive effects on the risk of disclosure level in all the three years. While, other variables, industry type and leverage, have an insignificant association with the level of risk disclosure in all the three years. The study revealed that large firms tend to present more risk disclosure than smaller firms.

This study represents a first approach for studying the relationship between specific firm characteristics in Egypt and the level of risk disclosure in the annual reports of Egyptian firms listed on the Egyptian Stock Exchange. So we underline some limitations of this work. First, the items which selected do not show their level of importance observed by financial information users. Second, the study applies unweights approach to measure the level of risk disclosure. Finally, the study concentrates on non-financial listed firms in Egyptian Stock Exchange and excludes financial and insurance firms.

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