A Study of Risk Disclosures in the Annual Reports of Pakistani Companies: A Content Analysis

Ammar Abid*
School of Accounting, Zhongnan University of Economics and Law,Wuhan, P.R. China
E-mail: ammar.abid@hotmail.com

Muhammad Shaiq
School of Accounting, Zhongnan University of Economics and Law,Wuhan, P.R. China
E-mail: shaiq33@live.com

Abstract
Increasing complexity of business environment, operations and regulatory sanctions have fostered the demand for firms to provide a higher level of disclosure. Corporate risk information plays an important role in the decision making process and improve the stakeholder's ability to make precise valuation of firm. This paper explores the main risks disclosed by largest Pakistani companies and analyse the firm characteristics that are linked to the provision of corporate risk information. The content analysis of risk disclosure statements provided in annual reports reveal that firms are providing disclosure for both mandatory(financial) and voluntary (non-financial) risks. Financial risks are the most disclosed risks followed by strategic and operations risks. We use multiple theoretical framework to explain the variation in the extent of corporate risk disclosure. Among the firm characteristics, corporate size is significantly and positively related with risk disclosure sentences and explains variation in corporate risk disclosure. Large companies are politically sensitive and are likely to disclose more risk related information in explaining their level of return. Leverage and profitability are not significant drivers of corporate risk disclosure. Effective audit environment plays a significant role in enhancing corporate risk disclosure and firms operating in the same industry provide similar level of risk disclosure.
Keywords: Corporate disclosure, Mandatory Risk, Voluntary Risk, Content Analysis

1. Introduction

Starting with Amir and Lev (1996), many researchers began to research whether non-financial information which they referred to as soft accounting information provide value relevant information to investors in addition to financial information. The results of these studies indicate that indeed soft accounting information provided value relevant information to investors(Abrahamson & Amir, 1996; Kothari, Li, & Short, 2009).Annual report of company comprising of both financial and non-financial components is the major source of information for investors and stakeholders.

Increasing complexity of business environment, operations and regulatory sanctions have fostered the demand for firms to provide a higher level of disclosure to increase transparency and reduce information asymmetries(Rodríguez Domínguez & Noguera Gámez, 2014). Thus, there is a need to provide useful information in other sections of annual report along with traditional financial statements to cater to the needs of stakeholders (Amran, Manaf Rosli Bin, & Che Haat Mohd Hassan, 2008).

Risk information and risk management have received considerable attention in the recent years in the wake of major corporate collapses in US and Western Europe(Iatridis, 2011). Risk is unavoidable element of any business enterprise. In addition to financial risks, a firm is also exposed to non-financial risks including business risks and changes in economic environment that can significantly affect the entity. Corporate risk can be defined as any significant event, danger, threat, opportunity, harm or hazard that can impact upon the company (Linsley & Shrives, 2006).

Risk information is described as one substantive component of management commentary that is useful for investors in decision making as described in IFRS Practice Statement on Management Commentary (IFRS, 2010). Investors will be able to assess the risk profile of firm in presence of high quality risk information and incorporate this information into their decision making (Miihkinen, 2013). Risk information help investors to make more precise valuation and can also be used to gauge management's caliber and course of action to deal with risks and contingencies faced by the firm. In this sense, risk information can help in reducing the cost of capital and allow companies to portray that they are aware of the risks faced by them and have put systems in place to manage these risks (Linsley & Shrives, 2006).

There is some degree of consensus on the importance of providing informative disclosure in annual reports on corporate risks. However, there is still debate on whether release of this risk information should be mandatory or voluntary. At present, most risk disclosures are voluntary except for disclosure of financial risk which is mandatory (Rodríguez Domínguez & Noguera Gámez, 2014).

Various theories support the provision of risk information. Agency Theory hold that provision of information is essential in decision making process and can work as monitoring mechanism for shareholders and investors over manager's activities (Jensen & Meckling, 1976). According to Political Cost Theory, disclosure of information would lead to reducing political costs and certain advantages like subsidies and reduction of taxes. Similarly, Signaling Theory holds that firms can divulge information to capital markets to reduce information asymmetries and increase firm value (Baiman & Verrecchia, 1996). Social legitimacy can also be one of the factors for disclosure of risk information.Hassan (2008) argued that legitimacy is a process through which managers are likely to align the information contained in annual reports to international securities market's regulations, domestic and international requirements to obtain social legitimacy. Managers signal through this alignment that they are adopting state of the art practices and seek economic gains from this social legitimacy (Oliver, 1991).

However, Proprietary Cost Theory suggests that there could be potential disadvantages from the provision of information, as this information could be used not only by investors but also by competitors. There could be other potential disadvantages from provision of information like threats of mergers or takeovers, intervention of government agencies and tax authorities and use of information by pressure groups, trade unions, employees and political groups(Rodríguez Domínguez & Noguera Gámez, 2014). So, there is a tradeoff between economic benefits from provision of risk information and the costs associated with that disclosure.

The aim of this paper is to analyse the main risks disclosed by Pakistani companies both mandatory and voluntary, and explore the firm characteristics that are likely to divulgence or deterrence of risk information. We analyzed the risk disclosure of largest Pakistani companies listed on Karachi Stock Exchange (KSE 100 Index) for the year 2013. These companies have strong incentives for disclosure of risk as these companies have highest capitalization and visibility in stock market. We performed a content analysis of annual reports for obtaining risk information that includes both mandatory and voluntary risk information. Mandatory risks are financial risks (credit, liquidity, interest rate, exchange rate and price risk) while voluntary risks are non-financial risks (operations, strategic, integrity, empowerment, information technology and processing risks).

Previously, most researches on corporate risk disclosure have been conducted in western economies such as United Kingdom (Abraham & Cox, 2007; Abraham & Shrives, 2014; Elshandidy, Fraser, & Hussainey, 2013; Linsley & Shrives, 2006), Italy (Beretta & Bozzolan, 2004), Germany (Kajüter, 2001), US (Campbell, Chen, Dhaliwal, Lu, & Steele, 2013; Hodder, Koonce, & McAnally, 2001; Jorion, 2002; Kothari et al., 2009; Lim & Tan, 2007; Rajgopal, 1999), Canada (Lajili & Zéghal, 2005) and Spain (Rodríguez Domínguez & Noguera Gámez, 2014). However, there has been little empirical research on corporate risk disclosure in emerging markets. This is the first study to explore corporate risk disclosure and the effect of firm specific factors on divulgence of risk information in Pakistan, to our best knowledge.

This study contributes to the existing corporate risk disclosure literature and understanding on how firms are revealing their risks in Pakistan, both mandatory and voluntary. Further, we analysed the relation between firm characteristics and level of risk disclosure using multiple theoretical framework. Our findings reveal that firms listed on KSE 100 Index are complying with mandatory requirements and providing financial risk information. They are also providing information voluntarily on non-financial risks, but are mostly disclosing strategic and operations risks. Size of the firm is significantly positively associated with provision of both mandatory and voluntary risk information.

The remainder of the paper is organized as follows. After the introduction, Section 2 describes the regulation for disclosure of corporate risk information in Pakistan. Section 3 presents the review of relevant literature and Section 4 proposes the hypothesis. Data and methodology is discussed in Section 5. Empirical results of the study are discussed in Section 6.We then conclude in Section 7 and provide avenues for future research.

2. Corporate Risk Disclosure in Pakistan

Corporate risk disclosures have gained importance recently due to increasing business complexities and changing business contexts that have created uncertainties for future sustainability of companies. Similarly, corporate scandals have meant that information needs of stakeholders about risks have increased.

Some regulatory bodies have issued standards that regulate the reporting of risks and require managers to provide information. These standards or regulations require information on financial risks, and other types of non-financial risk information including strategic, operations and integrity risks are mostly voluntary. However, these risks are of great importance and provision of information on these types of risks cans greatly benefit investors and shareholders and improve their decision making ability about the company.

In Pakistan, Securities and Exchange Commission of Pakistan (SECP) establishes the requirements of providing information on risks. At present, the requirement is to provide risk information in notes to the financial statements on risks resulting from the use of derivative financial instruments. Pakistan has adopted International Financial Reporting Standards (IFRS). IFRS 7 regulates disclosure of information on risks generated by the use of financial instruments. In Pakistan, firms must report on financial risks derived from the use of financial instruments including credit, liquidity, market, exchange rate, interest rate and price risk in notes to the financial statements.

Further, there is no mandatory requirement to disclose non-financial risks in annual reports or to provide a separate statement for risk mitigation for non-financial companies. However, code of corporate governance issued by SECP in 2002 recommends companies to include following statements in director's report;

- Significant deviations from last year in operating results of the company shall be highlighted and reasons for deviations shall be provided.

- Significant plans and decisions, such as restructuring, business expansion and discontinuance of operations shall be discussed along with future prospects, risks and uncertainties faced by the firm.

Further, a statement by Chairman is required that discusses the overall performance of the company and the review of the economy and the industry in which the company operates. So the regulations in Pakistan do not require firms to report on risks other than the risks derived from the use of financial instruments and non-financial risks are voluntary.

3. Literature Review

Previous risk disclosure research has mostly focused on the determinants of risk disclosure provided by firms(Beretta & Bozzolan, 2004; Elmy, LeGuyader, & Linsmeier, 1998; Elshandidy et al., 2013; Elshandidy, Fraser, & Hussainey, 2014; Hassan, 2009; Lajili & Zéghal, 2005; Linsley & Shrives, 2006; Marshall & Weetman, 2002; Ntim, Lindop, & Thomas, 2013; Roulstone, 1999). These studies provide evidence that several firm specific motives and corporate governance mechanisms determine provision of risk disclosure in annual reports.

Linsley and Shrives (2006) analysed narrative risk disclosures in annual reports of UK companies and conclude that greatest numbers of disclosure are non-monetary, lack future orientation, do not quantify the risks faced by the firm and focus mostly on general statements of risk management policy and describe the systems in place to manage the risks. The authors do not find an association between the firm's risk level and the risk disclosures provided in annual reports; however they found a positive relationship between firm size and risk disclosure. Beretta and Bozzolan (2004) suggest that risk disclosure quality should be analyzed along various aspects of risk communication. They tested the relation between company size and risk disclosure but failed to find an association between these two variables.

Generally, in everyday language "risk" is used in broad sense in lieu of threat, harm, hazard or disaster(Lupton, 1999). However, modernist definition of "risk" includes both positive and negative outcomes of an event. So, authors define risk disclosures as statements where investors are informed of any prospect or opportunity, threat, hazard or danger that has affected the firm or has potential to impact upon the firm in the future(Linsley & Shrives, 2006).Lajili and Zéghal (2005) note in a study on Canadian firms that risk disclosures focus solely on downside risk and ignores upside effects and value creating opportunities. Risk assessment and analysis lacks value and quantitative insights.

Rodríguez Domínguez and Noguera Gámez (2014) find that most of the companies listed on Madrid Stock Exchange reveal their risks in generic way and does not provide extensive information on risks. Further, presence of independent and external directors on board is also not associated with higher risk disclosure quality. They find that corporate size is significantly associated only with voluntary risk disclosure. Other firm characteristics like leverage, profitability and industrial sector are not associated significantly with either mandatory or voluntary risk disclosure. They conclude that firms also do not follow a comprehensive and systematic approach to risk reporting and information disclosed is restricted(Kajüter, 2001).

Ntim et al. (2013) analyze corporate risk disclosure practices using multiple theoretical framework and time series data in South Africa to find that corporate risk disclosures are largely focused on historical risks, qualitative, good news and non-financial in nature. They find that quality of corporate risk disclosure is driven by corporate governance factors such as board size, board diversity, and presence of independent and non-executive directors on the board and Government ownership. They also found that firm size, leverage, profitability and level of risk are significantly correlated with corporate risk disclosure.

Fewer studies also point out that pre disclosure level of risk is associated with firm's risk disclosures. Elshandidy et al. (2013) provide evidence that firms with higher systematic, financing and risk-adjusted return risks are highly likely to disclose more voluntary risk information. However, firms characterized by high volatility of market returns appear less willing to provide more voluntary risk information. Mandatory risk disclosures are influenced positively by firm size, dividend yield and board independence and negatively by financing risk. Firms with effective audit environment are also likely to exhibit greater levels of mandatory and voluntary risk disclosures.

Some researchers have also analyzed risk disclosures provided in firm's prospectuses(Deumes, 2008; Hill & Short, 2009) and also in different institutional environments(Amran et al., 2008; Hassan, 2009; Ntim et al., 2013).Hassan (2009)note that leverage which is accounting measure of risk is significantly related to level of corporate risk disclosure in UAE institutional settings but the firm size is not a driver of firm's risk disclosures.Amran et al. (2008) found that risk disclosure are qualitative in nature and are nonspecific and size is proven significant driver of corporate risk disclosure in Malaysia.

Studies focusing on the determinants of risk disclosures generally point out several deficiencies in quality of risk reporting. Existing literature in United States is mostly confined to analyzing the value relevance of market risk disclosures in line with US Securities & Exchange Commission (SEC) Financial Reporting Release (FRR No. 48). SEC FRR No. 48 requires firms to provide quantitative and qualitative information about market risks and how they deal with derivatives(Hodder et al., 2001; Jorion, 2002; Lim & Tan, 2007; Lin, Owens, & Owers, 2010; Linsmeier, Thornton, Venkatachalam, & Welker, 2002; Liu, Ryan, & Tan, 2004; Pérignon & Smith, 2010; Rajgopal, 1999).

Rajgopal (1999)review market risk disclosures of oil and gas industry and finds that these disclosures are value relevant as it affects association of stock returns to oil and gas price movements.Lim and Tan (2007) document that quantitative value at risk disclosures are informative and results in weaker relation between earnings and return and higher volatility in future stock returns.

Most of the studies pointed out that firms are hesitant to quantify their risks in annual reports and provide statements of general risk policy and measures adopted to manage those risks. The risks most disclosed are financial risks and generally there is lack of coherence in risk reporting.

4. Hypothesis Development

Previous research about risk disclosure has highlighted the role played by some of the firm related factors that may influence the divulgence of corporate risk information namely; size, leverage, profitability and industrial sector.

4.1 Corporate Size

Corporate size is linked to different factors that could lead to provision of higher volume of risk information. Previous studies have found that size is positively related to corporate risk disclosure in annual reports (Amran et al., 2008; Linsley & Shrives, 2006; Ntim et al., 2013), except for Beretta and Bozzolan (2004) who did not find a relation between corporate risk disclosure and firm size.

Large companies are politically sensitive as compared to other firms and may have monopoly in the market. To reduce political sensitivity, they are likely to disclose more risk related information in explaining their level of return. They also have better resources and information systems in place which reduce the cost for information disclosure. Large firms are also required to raise external capital from the market and need to provide risk information to lenders to reduce the cost of capital (Rodríguez Domínguez & Noguera Gámez, 2014) and meet information needs of lenders (Jensen & Meckling, 1976). Based on these arguments, we test the following hypothesis;

H1 There is a positive relationship between firm size and the level of corporate risk disclosure in annual reports.

4.2 Leverage

Leverage has been used as measure for firm riskiness in many disclosure studies and the findings show mixed results. Firms with higher leverage are likely to disclose more risk related information to explain the reasons for higher risk (Linsley & Shrives, 2006). Based on Signaling Theory, managers will also be inclined to provide more risk related disclosures to signal to the market that they are able to manage risks efficiently and effectively (Abraham & Cox, 2007; Hassan, 2009). Further, when the leverage increases, demand for risk information by creditors also increases because they are interested in the capacity of the firm to meet financial obligations (Rodríguez Domínguez & Noguera Gámez, 2014).

However, when the level of debt surpasses a certain level, managers can reduce risk disclosure in annual reports due to fear of increased monitoring, unfavorable forecasts and creditor's pressure stemming from high level of risk. Some studies have found negative or insignificant relationship between risk disclosure and leverage (Amran et al., 2008; Hassan, 2009; Ntim et al., 2013). Based on Signaling Theory, we test the following hypothesis;

H2 There is a positive relationship between leverage and the level of corporate risk disclosure in annual reports.

4.3 Profitability

The relation between profitability and disclosure is of complex nature. According to Signaling Theory, if the profitability of firm is higher, there is incentive for managers to disclose more information and reduce the risk of being viewed negatively by market. Firms want to differentiate themselves from other firms by revealing more information and reduce cost of capital (Rodríguez Domínguez & Noguera Gámez, 2014). Many studies have found a positive relation between profitability and level of disclosure (Ahmed & Courtis, 1999; Chen & Jaggi, 2001). However, some studies have found a negative relationship between corporate disclosure and profitability

(Watson, Shrives, & Marston, 2002) as higher profitability could rally competing firms to enter into the market. Therefore, we test the following hypothesis;
H3 There is a positive relationship between profit ability and the level of corporate risk disclosure in annual reports.

4.4 Industrial Sector
Firms that operate in the same industry are more likely to exhibit similar levels of risk disclosure as they have similar regulatory and socio political environment. They are likely to adopt the same reporting strategy since they have same legal, regulatory and professional pressures (Hassan, 2009). They face the same level of business complexity, industry volatility and strategic repercussions. If a firm adopts a disclosure strategy that is different from peer firms, it will be viewed negatively. Firm in a particular industry is likely to adopt the same disclosure strategy adopted by other firms to signal to the market that it is adopting state of the art disclosure and gain social legitimacy. Thus, we test the following hypothesis,
H4 The level of corporate risk disclosure is likely to be related to the industry in which the firm operates.

4.5 Audit Environment
Elshandidy et al. (2013) provide evidence that firms having effective audit environments are likely to provide higher level of aggregated and voluntary risk disclosure as compared to other firms. An effective audit environment reduces the conflict between managers and shareholders and reduces the monitoring cost by providing more information (Carcello & Neal, 2000). Managers are informative about the risks faced by firms in an effective audit environment because of effective internal reporting on risks and are likely to disclose more. One feature of effective audit environment is Big 4 auditors as they are considered to provide higher audit quality.

Big 4 auditors may legitimate their client firms to provide greater risk information in their annual reports (Hassan, 2009). Big 4 auditors are likely to send signals to the market that their client firms are following state of the art disclosure practices and obtain social legitimacy. Thus, we test the following hypothesis,
H5 Firms audited by Big 4 auditors are likely to provide greater risk disclosure in their annual reports.

5. Research Methodology
5.1 Data and Sample
This paper draws a sample of 36 companies listed on Karachi Stock Exchange (KSE) 100 Index. We exclude all banks and financial companies listed on KSE 100 Index as their risk reporting requirements are different from non-financial companies. We selected this sample as it represents the largest Pakistan companies listed on the stock exchange in terms of market capitalization. They have stronger incentives to disclose risks as they must keep informed their investors, creditors, and shareholders regarding their risks and the methods they use to manage these risks.

The data for the risk disclosure are obtained from the annual reports for the year 2013 by accessing the websites of these firms. These firms represent different sectors on Karachi Stock Exchange (KSE) 100 Index, Cement and Minerals (n=7), Fuel and Energy (n=8), Textile (n=6), Food & Beverage (n=7), Information and Communication (n=4), Paper Products (n=4). Financial data is also extracted from the annual reports of the firms. All these firms prepare their financial statements in accordance with IFRS and most of them are audited by Big 4 auditors.

5.2 Risk Disclosure Analysis
We use content analysis method in this paper to analyse risk disclosure provided in annual reports. This method is chosen since the purpose of paper is to focus on the extent and amount of risk disclosures and not on its quality. Content Analysis is the most common and widely used method to analyse disclosure in accounting research (Haniffa & Cooke, 2002). Content Analysis is defined as a method that use a set of procedures to draw inferences from the text (Weber, 1990). To draw inferences from the text, a set of rules, checklist and framework is developed. We used the risk disclosure framework proposed by Linsley and Shrives (2006) (Appendix 1). We use this framework in our study because the regime for regulation of risk disclosure is voluntary in United Kingdom, which is similar to Pakistan. In Pakistan, there is no mandatory requirement for firms to report on non-financial risks and only mandatory requirement is to report financial risks. The types of risks examined in this study are the same as proposed by Linsley and Shrives (2006) model. These include financial risks, operations risks, strategic risks, empowerment risks, integrity risks, and information processing and technology risks.

Number of words, sentences and page proportions can be used in content analysis(Linsley & Shrives, 2006). We used the number of risk sentences as unit of measurement. Although the words can be counted with more accuracy and judgment is more objective, they cannot be coded to various risk categories without the context of sentence. It is also difficult to decide which words are to be coded as risk disclosures. According to Linsley and Shrives (2006) framework*, "Sentences are to be coded as risk disclosures if the reader is informed of any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure".* We use the same definition to code sentences as risk disclosure sentences. We searched the whole annual report to code sentences as risk disclosure statements.

The measurement for the dependent and independent variables used in this study can be found in Table 1.

Table 1
Measurement of Variables

Dependent Variable: RD is natural logarithm of total number of risk disclosure sentences		
Independent variables		**Measurement**
Size	SIZE	Natural logarithm of total assets
Leverage	LEVERAGE	It is the ratio of total debt to total assets
ROA	PROFITABILITY	It is the ratio of net income to total assets
Big Four	BIG4	It is a dummy variable for audit quality, if firm employ the Big four auditors is equal to 1, otherwise 0.
Fuel and Energy	FUEL	It is dummy variable for industry, if firm belongs to fuel and energy sector equals to 1 otherwise 0.
Cement and Minerals	CEM	It is dummy variable for industry, if firm belongs to cement and minerals sector equals to 1 otherwise 0.
Textile	TEX	It is dummy variable for industry, if firm belongs to textile sector equals to 1 otherwise 0.
Food and Beverages	FOOD	It is dummy variable for industry, if firm belongs to food and beverages sector equals to 1 otherwise 0.
Information and Communication	INFORM	It is dummy variable for industry, if firm belongs to information and communication equals to 1 otherwise 0.
Paper Products and Packaging	PAPER	It is dummy variable for industry, if firm belongs to paper products and packaging sector equals to 1 otherwise 0.

5.3 Regression Models

This paper used multiple regression models to study the relationship between firm specific characteristics and the level of corporate risk disclosure. Specifically, we use the following regression model;

$$\mathrm{RD} = \beta_0 + \beta_1\mathrm{SIZE} + \beta_2\mathrm{LEVERAGE} + \beta_3\mathrm{PROFITABLITY} + \beta_4\mathrm{BIG4} + \beta_5\mathrm{FUEL} + \beta_6\mathrm{CEM} + \beta_7\mathrm{TEX} + \beta_8\mathrm{FOOD} + \beta_9\mathrm{INFORM} + \beta_{10}\mathrm{PAPER} + \varepsilon \qquad (1)$$

Where RD is the natural logarithm of total number of risk disclosure sentences, SIZE is the natural logarithm of total assets, LEVERAGE is the ratio of total debt to total assets, PROFITABILITY is the ratio of net income to total assets, BIG 4 is a dummy variable which is equal to 1 if the firm is audited by Big 4 auditors otherwise 0, FUEL is fuel and energy sector, CEM is cement and minerals sector, TEX is textile sector, FOOD is food and beverages sector, INFORM is information and communication sectorand PAPER is paper products and packaging sector and ε is the error term.

6. Empirical Results and Analysis

6.1 Overall Practices

Overall, the analysis of the risk information provided in annual reports of 36 non-financial firms listed on KSE 100 Index reveal that firms are disclosing information on risks being faced by the firms. Of the risk type being disclosed, the most disclosed is financial risk and all the companies disclosed on this risk type. This is understandable as it is mandatory for firms to disclose financial risk derived from the use of derivative financial instruments. Out of the total 2312 sentences, 1366 sentences (59%) are dedicated to disclosing financial risks and the management of those risks.

Table 2 Analysis of Risk Disclosure Sentences

Types of risk	Number of sentences	Percentage
Financial risk	**1366**	**59.17%**
Non-Financial risk		
Operations risk	392	16.96%
Empowerment risk	8	0.35%
Information processing and technology risk	44	1.90%
Integrity risk	29	1.25%
Strategic risk	471	20.37%
Non-Financial risk	**944**	**40.83%**
Total Risk Disclosure	**2312**	**100%**

Among the voluntary risks, most disclosed is the strategic risk followed by operations risk. Strategic risks account for 20% and operations risks 17% of total risk disclosure sentences. Among the non-financial risks, which are all voluntary, strategic risks came on top with 471 sentences as compared to operations risk which have 392 sentences. Firms are not reporting significantly on other non-financial risks and they account for only 3.5% of total sentences on risk disclosure. This is not surprising as code of corporate governance 2002 recommends firms to disclose significant events, industry trends, deviations in operating results and challenges facing the firms in future.

Table 3 Descriptive Statistics

Variable	Mean	Median	SD	Min	Max
RD	64.222	58.500	29.404	28.000	150.000
FD	37.944	33.000	14.376	25.000	85.000
NFD	26.222	19.000	19.944	3.000	81.000
SIZE	23.903	23.892	1.189	21.568	26.749
LEVERAGE	0.080	0.016	0.117	0.000	0.376
PROFITABILITY	0.125	0.102	0.105	-0.068	0.432
BIG4	0.889	1.000	0.319	0.000	1.000

RD is total number of risk disclosure sentences, FD is total number of financial risk disclosure sentences, NFD is total number of non-financial risk disclosure sentences, SIZE is the natural logarithm of total assets, LEVERAGE is the ratio of total debt to total assets, PROFITABILITY is the ratio of net income to total assets, BIG 4 is a dummy variable which is equal to 1 if the firm is audited by Big 4 auditors otherwise 0.

6.2 Multivariate Analysis

Table 3 provides descriptive statistics for the total number of risk disclosure sentences and other independent variables. Total number of sentences for risk disclosure ranges from a minimum of 28 sentences to a maximum of 150 sentences. On average, firms are disclosing 64 sentences in their annual reports. The reason for large number of risk disclosure sentences is that the firms are largest firms in our sample and the information needs of stakeholders and potential investors are also higher from these firms. The average for financial risk disclosure sentences is 38 whereas average numbers of non-financial risk disclosure sentences are 26 sentences indicating that firms are providing higher number of mandatory financial risk disclosure in annual reports. Firms are not highly leveraged and on average, leverage is 8% of total assets. Sample firms represent the largest firms in Pakistan as indicated by average size of 23.90. These firms are also profitable as average Return on Assets is 12%. Firms have an effective audit environment and 88% of the firms are being audited by Big 4 auditors.

Table 4 Correlation Matrix

	RD	SIZE	LEVERAGE	PROFITABILITY	BIG4
RD	1				
SIZE	0.5767	1			
LEVERAGE	-0.0368	0.1263	1		
PROFITABILITY	-0.0817	-0.263	-0.2178	1	
BIG4	0.1704	0.0136	-0.1352	0.046	1

RD is total number of risk disclosure sentences, SIZE is the natural logarithm of total assets, LEVERAGE is the ratio of total debt to total assets, PROFITABILITY is the ratio of net income to total assets, BIG 4 is a dummy variable which is equal to 1 if the firm is audited by Big 4 auditors otherwise 0.

Table 4 presents the correlation matrix for the dependent variable and independent variables. As no correlation coefficient is higher than 0.80, multicollinearity does not appear to be an issue in multivariate regression analysis (Gujarati, 2003; Haniffa & Cooke, 2002).

Table 5 Regression results of multivariate analysis

Regression Model					
RD	Expected Sign	Coefficient	t-statistics	Robust Std. Err.	P>t
SIZE	+	0.243	3.61	0.067	0.001
LEVERAGE	+	-0.574	-1.14	0.505	0.267
PROFITABILITY	+	0.297	0.43	0.682	0.668
BIG4	+	0.516	1.83	0.282	0.08
CEM		-0.082	-0.24	0.342	0.812
FUEL		-0.499	-1.41	0.353	0.17
TEX		-0.660	-1.62	0.407	0.118
FOOD		-0.549	-1.9	0.288	0.069
INFORM		-0.399	-1.34	0.297	0.191
PAPER		-0.515	-1.83	0.281	0.08
Cons		-1.802	-1.07	1.679	0.294

RD is total number of risk disclosure sentences, SIZE is the natural logarithm of total assets, LEVERAGE is the ratio of total debt to total assets, PROFITABILITY is the ratio of net income to total assets, BIG 4 is a dummy variable which is equal to 1 if the firm is audited by Big 4 auditors otherwise 0. FUEL is dummy variable for industry, if firm belongs to fuel and energy sector equals to 1 otherwise 0, CEM is dummy variable for industry, if firm belongs to cement and minerals sector equals to 1 otherwise 0, TEX is dummy variable for industry, if firm belongs to textile sector equals to 1 otherwise 0, FOOD is dummy variable for industry, if firm belongs to food and beverages sector equals to 1 otherwise 0, INFORM is dummy variable for industry, if firm belongs to information and communication equals to 1 otherwise 0, PAPER is dummy variable for industry, if firm belongs to paper products and packaging sector equals to 1 otherwise

Table 5 presents the results of the multiple regression models using OLS regression with robust standard errors. In the first model, natural logarithm of total number of risk disclosure sentences, RD is used as the dependent variable. R^2 of the regression model is 0.59 which means that the variation in risk disclosure sentences can be explained by the firm specific factors chosen in this study. Corporate size, SIZE is significantly and positively associated with number of risk disclosure sentences and is significant at 1% level which is consistent with hypothesis. Therefore, H1 is accepted. Presence of Big 4 auditors, BIG 4 is also significantly and positively associated with risk disclosure information at 10% level of significance. This is also consistent with the hypothesis that effective audit environment improves the manager's ability to provide more risk information as Big 4 auditors legitimate their clients to increase extent of disclosure. Two out of six industrial sectors are also found significant with corporate risk disclosure at 10% level of significance. Profitability and Leverage is not significantly associated with the extent of corporate risk disclosure. The sign of coefficient for leverage is also negative which is inconsistent with the hypothesis. The reason for this is the firms in the sample are not highly leveraged and thus leverage is not a driving factor for firms to increase the extent of corporate risk disclosure.

7. Discussion and Conclusion

The purpose of this paper is to investigate the extent of corporate risk disclosure provided in annual reports of Pakistani companies listed on Karachi Stock Exchange (KSE) 100 index. We focus on the narrative sections of the annual reports and explore both mandatory risk (financial risk) and voluntary risk (non-financial risk) disclosure. Further, we also analyse the firm specific characteristics that explain variation in extent of corporate risk disclosure.

Firms are providing disclosure on both financial and non-financial risks in the annual reports. The largest numbers of risk disclosure are financial risks which are mandatory. Among the voluntary non-financial risks, firms are mostly disclosing strategic and operations risks. Operations risks mostly focus on explaining the deviations in operating results and strategic risks are mostly related to the industry trends, economic outlook and significant events shaping the future of the firm. Firms are not disclosing enough information on empowerment, integrity, and information processing and technology risks as they are voluntary and also not recommended by code of corporate governance.

Firm characteristics are also analysed in explaining extent of corporate risk disclosure. Corporate size, SIZE is found to be positively and significantly associated with the number of risk disclosure sentences provided in annual reports. Large companies are politically sensitive and are likely to disclose more risk related information in explaining their level of return. They also have better resources and information systems in place which reduce the cost for information disclosure. Big 4 auditors are also positively and significantly associated with the extent of corporate risk disclosure. An effective audit environment leads to provision of greater risk information and Big 4 auditors legitimize by signaling that their client firms are pursuing state of the art disclosure policy. Industrial sector is also associated with the extent of corporate risk disclosure as firms in the same industry adopt the same risk disclosure practices.

The paper contributes to the literature by providing initial understanding of corporate risk disclosure practices in Pakistan as it has not been studied in Pakistan before, to the best of our knowledge. This research has limitations as the sample size is small and focuses only on the largest firms on KSE 100 Index. This study adopts risk disclosure framework developed by Linsley and Shrives (2006) and may not reflect stakeholders demand. Future research is required to explore the quality of risk information and corporate governance variables that may determine extent of corporate risk disclosure.

Appendix 1 Risk Disclosure Framework

Types of Risks

1) Financial Risk
 -Interest Rate Risk
 -Exchange Rate Risk
 -Price Risk
 -Liquidity Risk
 -Credit Risk
2) Operations Risk
 - Customer satisfaction
 - Product development
 - Efficiency and performance
 - Sourcing
 - Stock obsolescence and shrinkage
 - Product and service failure
 - Environmental
 - Health and safety
 - Brand name erosion
3) Empowerment Risk
 - Leadership and management
 - Outsourcing
 - Performance incentives
 - Change readiness
 - Communications
4) Information Processing and Technology Risk
 - Integrity
 - Access
 - Availability
 - Infrastructure
5) Integrity Risk
 - Management and employee fraud
 - Illegal acts
 - Reputation

6) Strategic Risk
- Environmental scan
- Industry
- Business portfolio
- Competitors
- Pricing
- Valuation
- Planning

Decision Rules

Sentences are to be coded as risk disclosures if the reader is informed of any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure. The risk definition just stated shall be interpreted such that 'good' and 'bad' 'risks' and 'uncertainties' will be deemed to be contained within the definition.

Although the definition of risk is broad, disclosures must be specifically stated; they cannot be implied.

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