CHAPTER – 3
LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The present chapter incorporates the review of literature relevant to the research topic. In particular, the chapter covers the studies relating to voluntary disclosures and earnings quality as well as their association with cost of capital. The theoretical foundation of the relationship between disclosure and cost of capital has also been incorporated besides different models governing disclosure. Further, it puts forth the hypotheses developed for the current research effort. The chapter concludes with the substantive findings of the studies and identification of research gaps.

3.1 INTRODUCTION

Investigation of the economic consequences of information disclosure has been one of the most interesting and important issues in accounting and finance literature. In particular, whether disclosure policies and financial reporting affect a firm’s cost of capital has attracted considerable interest from researchers, managers and standard setting bodies. There is a growing body of research investigating whether and through which particular mechanism disclosures and financial reporting quality affect the cost of capital. A survey of the existing literature on the importance of voluntary disclosures and earnings quality in affecting the cost of capital shows that the theoretical underpinning of the above relationship depends on whether the information risk arising due to information asymmetry is priced or not.

Whether information risk arising from information asymmetry affects the cost of capital depends on whether information risk is diversifiable or non-diversifiable. Analytical models by Easley and O’Hara (2004) as well as Leuz and Verrecchia (2004) provide theoretical base for information risk as a priced factor. These models suggest different mechanisms for pricing of information risk. Easley and O’Hara (2004) examined the role of information in affecting the cost of capital of a firm and provided a model in which better quality reporting reduced the information risk faced by investors who had access to public signals only. They showed that in a multi-asset, multi-period setting with informed and uniformed investors, the information risk faced by the uniformed investors was not diversifiable and hence priced. They

\[ \text{Information risk is priced when it is non-diversifiable.} \]
suggested that firms could lower their cost of capital either by reducing extent of private information or by increasing its distribution across traders. They also suggested an important role for the accuracy of accounting information in asset pricing, whereby, greater precision directly lowered a company’s cost of capital because of reduced riskiness of the asset to the uninformed. Their study, thus, models the effects of estimation risk and information asymmetry on cost of capital within an integrated framework.

Leuz and Verrecchia (2004), on the other hand, showed that even in an economy with many firms and a systematic component to the payoff, a part of the information risk is non-diversifiable and therefore priced. In both the models (Easley and O’ Hara, 2004 as well as Leuz and Verrecchia, 2004), information risk relates to the uncertainty or imprecision of information used or required by investors to price securities. Unlike symmetric information model (such as the CAPM) where investors have the same information, Easley and O’Hara’s model is asymmetric information asset pricing model that shows that in equilibrium, asset returns included a risk premium that depends upon the information structure of each stock. On the other hand, Merton’s incomplete information model considers the role of information when it is incomplete, but not asymmetric. Merton (1987) showed that in equilibrium, the value of a firm was always lesser, when there was incomplete information (i.e., not all agents knew about every asset) and the investor base was smaller. They showed as to how enhanced disclosure increased investors’ awareness of a firm’s existence and enlarged its investor base, which improved risk sharing and reduced the cost of capital.

On the contrary, the model proposed by Lambert et al. (2007) does not provide support for an additional risk factor capturing ‘information risk’ as they argued that the information asymmetry can be eliminated in large economies by holding well-diversified portfolios. Core et al. (2008), however, stated that if this assertion was correct, then the Easley and O’ Hara (2004) model would provide no support for pricing of information risk. Even if information risk is not diversifiable, it is still arguable whether it should be included as an additional risk factor in asset pricing models. Lambert et al. (2007) developed a model consistent with the Capital Asset Pricing Model (CAPM) in which accounting information affects investors’ assessments of the covariance of firm cash flows with those of the market, and
therefore affects firm’s beta. This suggests that a firm’s beta factor is a function of its information quality and disclosures. Lambert et al. (2007) model builds on the estimation risk literature in finance. However, Lambert et al. (2007) stated that the estimation risk literature generally focused on the effect of information environment on the return (beta) of the firm, whereas their focus was on cost of capital.

Further, Cohen (2003) suggested that information risk linked with lower quality financial information did not necessarily represent an additional risk factor, but rather was a firm specific uncertainty characteristic and hence not priced by investors. The author provided evidence that the high quality reporting reduced information asymmetry but not the cost of capital. Hughes et al. (2007) studied information risk in the context of multifactor asset pricing model and suggested that information signals were either diversifiable or were captured by existing factor risk premiums and hence not priced. Another study by Lambert et al. (2011) also demonstrated that separate information risk factor resulting from information asymmetry did not affect the cost of capital. The above discussion holds that literature does not provide a convincing and conclusive answer to whether information risk is priced or not (i.e., whether it affects cost of capital or not) and also whether it can be diversified away.

The theoretical association between information risk and cost of capital has been empirically tested by a number of studies. Considering information risk arising from different information attributes, like, information asymmetry, PIN, disclosure or earnings quality, the empirical studies have attempted to examine the impact of these information attributes on the cost of capital. These studies have documented the relationship between different information attributes and cost of capital with mixed evidence. Since the main motivation for this research was to examine whether information risk as determined by low level of voluntary disclosures and poor earnings quality affected the cost of capital, the literature relevant to the association of voluntary disclosure and earnings quality with cost of capital has been reviewed. Further, the literature relevant to the association between voluntary disclosure and earnings quality too has been reviewed.

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2 See, for example, Brown (1979), Barry and Brown (1984, 1985).
Section 3.2 discusses the literature on relationship between voluntary disclosures and earnings quality. Section 3.3 and Section 3.4 incorporate the extant literature on the association between voluntary disclosure and cost of capital and association between earnings quality and cost of capital respectively. Further, Section 3.5 discusses the studies relating to association among voluntary disclosure, earnings quality and cost of capital. The concluding Sections 3.6 and 3.7 incorporate some methodological observations from the extant literature discussed and the summary of the chapter respectively.

3.2 VOLUNTARY DISCLOSURE AND EARNINGS QUALITY

Analytical research provides contradictory predictions as to how earnings quality influences firm's disclosure decision. One stream of this research advocates that information asymmetry between insiders and shareholders of a firm creates a demand for disclosure (with the conviction that disclosure mitigates information asymmetry) and provides an incentive for firms to disclose more because the value of additional information is greater in such cases (Grossman and Hart, 1980; Milgrom, 1981). Francis et al. (2008) argued that if a measure of the firm's earnings quality is used to proxy for information asymmetry (with the conviction that poor earnings quality leads to information asymmetry), the implication would be that the level of a firm's disclosure be inversely correlated to earnings quality or a substitutive relationship. This means, poor (good) earnings quality firms disclose more (less). But since the firm's disclosures in this case would be based on poor quality information, therefore, a rational expectations market would give less credibility to such disclosures (Francis et al., 2008).

Grossman and Hart (1980) supported full disclosure of private information based on adverse selection argument. That is, when insiders are known to withhold information, outsiders (e.g. investors, consumers) discount the quality of goods; insiders deal with to the lowest possible value. This would in turn drive insiders to make full disclosure. Related, Milgrom (1981) observed that if communication between parties was costless and if the decision maker could detect any withholding of information then at equilibrium, the decision maker would adopt a strategy of extreme skepticism. In response, the best strategy of the interested party would be of full disclosure.

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3 See, for example, Ecker et al. (2006), Bhattacharya et al. (2013)
Concluding Grossman and Hart (1980) and Milgrom (1981), Beyer et al. (2010) stated that the unraveling result was a consequence of investors rationally inferring that if managers did not disclose any information, that information would have caused investors to revise their beliefs about firm's value downwards. As a result, managers have incentives to disclose their information to distinguish themselves from managers with less favourable information. This holds true for all information (except the very worst possible outcome) leading to the 'unraveling' of any information that is withheld.

There is another stream of research (e.g., Dye, 1985; Jung and Kwon, 1988) that shows that as information quality increases (such that the quality of the manager's information increases) managers have incentives to disclose more. Taking information quality as a proxy for earnings quality, Francis et al. (2008) provided evidence that for their sample of firms, firms with poor (good) earnings quality issued less (more) expansive disclosures. The authors observed that investors would treat such disclosure as less (more) credible as they would be based on poor (good) earnings quality. Francis et al. (2008) interpreted it as a complementary relation between voluntary disclosure and earnings quality.

Dye (1985) demonstrated the possibility that there would be partial disclosure, when investors are not sure as to whether managers are endowed with private information. The author argued that given no information disclosure by managers, investors are not sure that whether the nondisclosure is due to absence of information or due to its adverse content. This uncertainty on the part of investors deters adverse selection and leads to partial disclosure in equilibrium. Jung and Kwon (1988) extended Dye (1985) model in a way that allowed outside investors to revise, in the absence of disclosure, their probabilities that managers have received no private information. Jung and Kwon (1988) showed that the disclosure region (the set of signals which are voluntarily disclosed) would increase as outsiders' beliefs become relatively more diffuse.

Thus, Dye (1985) and Jung and Kwon (1988) modeled information quality as the probability that a manager is privately informed, and investigated his decision to disclose or withhold his information. As the quality of manager's information increases, the probability of disclosure also increases since the market is more likely to interpret non disclosure as bad news and consequently discount the firm's value.
This setting therefore, predicts a complementary association between information quality and voluntary disclosure (Francis et al. 2008). Verrecchia (1990) modeled information quality as the precision of the information signal observed by the firm's manager. The author demonstrated that as the precision of a manager's private information (i.e. information quality) increases, the equilibrium threshold decreases and the probability of disclosure increases. This is because as the precision of a manager's private information increases, withholding it is more disadvantageous for the firm. Verrecchia's model, thus, demonstrated a complementary relationship between earnings quality and voluntary disclosure i.e. firms with poor (good) information quality will disclose less (more).

Penno (1997) also examined the relationship between voluntary disclosure and the quality of information held by managers. The author examined the voluntary disclosure of non-proprietary information within the model of uncertain endowment of information developed by Dye (1985) and extended by Jung and Kwon (1988). Contrary to the popular notion and prior work that high quality information held by managers is accompanied by more disclosure, Penno (1997) argued that the economic intuition that higher information asymmetry is accompanied by more voluntary disclosure is not generally true.

However, Richardson (2001) observed that in a rational market, everything should be disclosed in the absence of disclosure cost. But in a rational market with fixed disclosure costs, more precise information should be accompanied by more disclosure (as in Verrecchia, 1990). However, when the cost of disclosure rises (as information is more precise), the firms shy away from disclosure. This implies that increase in information quality is not accompanied by increased disclosure.

Substitutive as well as complementary relation between voluntary disclosure and earnings quality has been documented by the empirical research. Using disclosure scores from the reports of the Financial Analysts Federation Corporation Information Committee (FAF reports) and the correlation between annual returns and annual earnings as a proxy for information quality, Lang and Lundholm (1993) found that firms with low returns earnings correlation (poor earnings quality) had higher disclosure scores, implying that firms with poor earnings quality have more voluntary disclosure - a substitutive relationship. Using a sample of 984 small and medium sized firms from 24 industries, Tasker (1998) examined as to how firms' voluntary
disclosure behaviour was affected by the information content of their financial statements. The study documented strong evidence that firms with less informative financial statements were more likely to host conference calls (proxy for voluntary disclosure). Thus, Tasker also advocated a substitutive relation between voluntary disclosure and earnings quality.

Waymire (1985) divided the sample of 466 forecasts of annual earnings per share by company executives reported in the Wall Street Journal for the period July 1, 1969 to December 31, 1973 into two parts: (a) firms that issue forecasts on a more frequent basis (repeat forecasters) and (b) firms that disclose management forecasts on a less frequent basis (non-repeat forecasters). The author, then, explored relationship between earnings volatility and corporate disclosure choices in the form of management forecasts. The study concluded that firms issuing earnings forecasts more frequently (repeat forecasters) were characterized by less volatile earnings. Waymire, thus, advocated a complementary relationship between earnings quality (less volatile earnings) and voluntary disclosure (repeat earnings forecasts).

For a sample of 100 non-forecast firms and 92 forecast firms (those which voluntarily published management forecasts), Imhoff (1978) explored if forecast firms had significantly more or less stable earnings numbers than non-forecast firms. The researcher documented that forecast firms had significantly less variability in their time series properties of earnings. This implies that firm’s forecast frequency (voluntary disclosures) is negatively related with their earnings volatility (poor earnings quality) and hence a complementary relation.

Using a sample of 521 firms and forecasts, Cox (1985) examined if there was any difference in the variability of accounting earnings for forecast firms versus non-forecast firms. The author reported that earnings variability was greater for non-disclosing firms, suggesting, thereby, a complementary relation between earnings quality and voluntary disclosures. Francis et al. (2008) also observed a complementary relationship and also that voluntary disclosure was associated with innate earnings quality, indicating that earnings quality is the determinant of voluntary disclosures rather than disclosure choices determining firms’ earnings quality. Iatridis and Alexakis (2012) provided evidence that provision of voluntary accounting disclosures was negatively related with earnings management. They found voluntary disclosers to exhibit lower volatility in discretionary accruals (their measure for
earnings management) and annual stock returns. This implies a complementary relationship between earnings quality and voluntary disclosure.

Kasznik (1999) explored the voluntary disclosure and earnings quality relationship from a different perspective. The author pointed out that many firms did not issue quantitative earnings forecasts (voluntary disclosures) or issued at irregular intervals, possibly due to the costs associated with issuing forecasts that later turned out to be not so accurate. Taking a sample comprising of 499 firm-years with management earnings forecasts issued between the years 1987 to 1991, the author argued that managers who overestimated earnings forecasts managed earnings upwards to mitigate forecast errors and to protect themselves from litigation cost and loss of reputation for accuracy. He, however, found no evidence of managers underestimating earnings to manage earnings downwards.

Kim, Park and Wier (2012) added a new dimension to the earnings quality and disclosure relationship. Using CSR scores developed by KLD, the authors investigated the relation between CSR and opportunistic financial reporting behavior of the U.S firms. They observed a negative relationship between CSR scores and accruals quality of the firms; indicating that the firms with better CSR performance have better earnings quality. This implies a complementary relationship between earnings quality and CSR disclosure.

Discussion of the theoretical literature (Grossman and Hart, 1980; Milgrom, 1981; Verrecchia, 1983; Dye, 1985; Jung and Kwon, 1988; Verrecchia, 1990; Penno, 1997) and empirical studies (Imhoff, 1978; Waymire, 1985; Cox, 1985; Lang and Lundholm, 1993; Tasker, 1998; Iatridis and Alexakis, 2012) motivates the following first set of hypotheses of the present study:

H1 (a): Companies with good earnings quality select higher level of disclosure – a complementary relationship.

H1 (b): Companies with poor earnings quality select higher level of disclosures – a substitutive relationship.

These hypotheses are tested in such a way that acceptance of one will automatically lead to rejection of the other.

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4 KLD uses a combination of surveys, financial statements, and articles in the popular press and academic journals as well as government reports to assess social performance along dimensions such as – corporate governance, community, diversity, employee relations, environment, product and exclusionary screen activities including alcohol, gambling, nuclear power and tobacco.
3.3 VOLUNTARY DISCLOSURE AND COST OF CAPITAL

Studies on voluntary disclosures have broadly focused on exploring the financial motives behind voluntary disclosures as well as the financial consequences of such disclosures. Following the principles of the agency theory, signaling theory, political cost theory and proprietary cost theory, these studies have made an effort to study voluntary disclosures as a way of meeting investors’ information needs. That is why voluntary disclosure practices of companies continue to be studied mostly from the investors’ and financial markets’ perspective and focus on the information role of financial reporting. However, some empirical studies, like Bushman et al. (2004) and Francis et al. (2009) have focused on the role of country’s information environment.

Healy and Palepu (2001:407) observed that studies have found voluntary disclosures to be associated with stock performance, bid-ask spread, cost of capital, analyst coverage and institutional ownership. Voluntary disclosures have also been related to firm performance (e.g., Lang and Lundholm, 1993; Kohli, 1998; Miller, 2002; Nagar et al., 2003; Roshanlal, 2006), to size (e.g., Cox, 1985; Waymire, 1985; Lev and Penman, 1990, Lang and Lundholm, 1993; Meek et al., 1995; Kohli, 1998; Roshanlal, 2006), and also to nature of industry (e.g., Meek et al., 1995; Kohli, 1998; Roshanlal, 2006). A number of studies (e.g., Leftwich et al., 1981; Meek et al., 1995; Healy and Palepu, 2001; Graham et al., 2005; Beyer et al., 2010) have discussed the motives for voluntary disclosures. Among capital market transactions, corporate control contests, stock compensation, increased analyst coverage and management talent signaling etc. discussed as the motives for voluntary disclosures, capital market transactions are of interest in the current research effort.

Further, studies have documented the need to attract capital as one of the motivations for managers to be forthcoming with enhanced disclosures. Much of the empirical research, taking, management earnings forecasts (e.g., Frankel et al., 1995) as a medium of voluntary disclosure or analysts ratings of firms’ disclosures (e.g., Lang and Lundholm, 1993; Healy et al., 1999) has found frequency of such forecasts to be higher for equity/debt issuing firms. Using stock returns before, during and after the equity offering to see the effect of disclosure, Lang and Lundholm (2000) concluded that increased disclosure to ‘hype’ the stock might have been successful in lowering the cost of equity capital. This suggests that firms increase their level of voluntary disclosures to raise capital in the future at a lower cost, or that the firms
with a relatively higher cost of capital likely have a greater incentive to enhance disclosure. This further suggests that investors’ perceptions of a firm are significant to managers expecting to issue public debt or equity (Healy and Palepu, 1993).

There are two streams of theoretical research to support the premise that greater disclosure is associated with a lower cost of equity capital (Botosan, 1997; Botosan and Plumlee, 2002 and Botosan et al., 2004). The basic assumption of both the streams of research is that firms providing more information disclosure have reduced information asymmetry. The first stream of this theoretical research suggests that enhanced disclosure improves stock market liquidity and hence reduces the cost of equity capital either through reduced transaction costs or increased demand for firm’s securities (Glosten and Milgrom, 1985; Amihud and Mendelson, 1986; Diamond and Verrecchia, 1991). This is because information asymmetries generate costs by introducing adverse selection into transactions between buyers and sellers of firm’s shares which manifest in reduced levels of liquidity for firm shares (Kyle, 1985; Glosten and Milgrom, 1985). Firms then have to issue capital at a discount to overcome the unwillingness of potential investors to hold firm’s shares in illiquid markets. Discounting results in lesser proceeds to the firm and hence higher costs of Capital.

Amihud and Mendelson (1986) provided evidence that the cost of equity capital increased in the bid-ask spread. They documented a positive association between security returns and the bid-ask spread. In this setting, information affects the cost of equity capital through its effect on information asymmetry. They suggested that by disclosing private information, firms could reduce the adverse selection component of the bid-ask spread and reduce their cost of equity capital. On the other hand, Diamond and Verrecchia (1991) developed a model of trade in an illiquid market with limited risk bearing capacity of risk-averse market makers and showed how limited risk bearing capacity of market makers interacts with the effects of private information in determination of security prices. Diamond and Verrecchia (1991) claimed that greater disclosure reduces the amount of information revealed by a large trade, thereby, reducing the adverse price impact associated with such trade. This increases the demand for firm’s securities and raises the current price of firm’s stock, thus reducing the cost of equity capital.
The second stream of theoretical research suggests that greater disclosure reduces estimation risk arising from investors’ estimates of the parameters of an asset’s return or pay off distribution (Barry and Brown, 1985; Coles and Loewenstein, 1988 and Clarkson et al., 1996). This is because greater uncertainty is there regarding the ‘true’ parameter when information is low. Barry and Brown (1985), Handa and Linn (1993) and Clarkson et al. (1996) concluded that estimation risk is non-diversifiable, and is not reflected in traditional CAPM formula for market beta, which is derived under the assumption that the parameters of the distribution are known. Clarkson et al. (1996) stated that estimation risk has a significant non-diversifiable component, if the resolution of uncertainty about low information securities affects the returns earned on the market portfolio. However, it was argued that the breadth of modern securities markets allows the correlation of returns induced by the resolution of uncertainty to be diluted to the point that any non-diversifiable component of estimation risk becomes immaterial. Thus, they concluded that there is no consensus in the literature regarding the diversifiability or lack thereof of estimation risk.

Overall, both the streams of research hold that disclosure mitigates the adverse selection problem in capital markets by reducing information asymmetry and information asymmetry can be reduced by providing information that would assist investors in their decision making process (Tasker, 1998; Cohen, 2003). Dye (1998) also contended that disclosure of voluntary information tends to reduce uncertainty, information asymmetry and skepticism and strengthen investors’ confidence in the company’s management. How disclosure quality affects information asymmetry is a significant step towards understanding why disclosure quality is related to the cost of capital. Using different measures of information asymmetry, researchers (e.g., Diamond, 1985; Diamond and Verrecchia, 1991; Welker, 1995; Healy, Hutton, and Palepu, 1999; Heflin et al., 2005; Brown and Hillegeist, 2007) have established the relationship between disclosure and information asymmetry.

In an attempt to measure information asymmetry, Hooks, Coy and Davey (2002) explored the information gaps in stakeholders’ expectations and the disclosure provided by annual reports of 33 electricity retail and distribution companies of New Zealand. They suggested that information gaps identified should help preparers, accounting regulators and legislators in improving reporting in future. This would also result in transparency and provision of sufficient and accessible financial and non-financial information to the stakeholders.
Using different proxies for information asymmetry, namely, the bid-ask spread, trading volume and share price volatility, for a sample of 102 German firms included in the DAX 100 Index during 1998, Leuz and Verrecchia (2000) examined, if commitment to increased levels of disclosure (because of adoption of IAS or US GAAP accounting standards) resulted in economically and statistically significant benefits. They concluded that the firms that committed to either IAS or U.S. GAAP exhibited lower percentage bid-ask spreads and higher share turnover than firms using German GAAP. They, however, did not confirm a reduction in share price volatility due to improved disclosure.

Taking three measures of disclosure quality, namely, the annual report, the quarterly reports and investor relations activities and the probability of informed trading (PIN) as a measure of information asymmetry for a sample of 423 firms evaluated by the Association for Investment Management and Research (AIMR) between 1986-1996, Brown and Hillegeist (2007) documented the quality of annual report and investor relations activities to be negatively associated with the level of information asymmetry. They, however, found a positive association between information asymmetry and quarterly report disclosure quality. Most of the studies have analyzed voluntary disclosures as non-mandatory information made available to meet the information needs of the financial markets and investors. Boesso and Kumar (2007), however, examined voluntary disclosure from stakeholders’ perspective. They analyzed the voluntary disclosures made by 72 companies from Italy and the U.S, and contended that voluntary disclosure is aimed at reducing the information asymmetry among managers and investors and provides clarification about long term business sustainability that concerns various stakeholder groups.

Ghoul et al. (2013) added a new dimension to the research relating to the role of information asymmetry (which they proxied with geographic proximity) in shaping the cost of equity capital. They argued that geographic distance was associated with an information disadvantage and hence was a reliable way to quantify information asymmetry. The results of the study provided strong evidence that firms located in nonfinancial centers exhibited a higher cost of equity capital because investors penalized distant firms by requiring more compensation for holding equity.
The above discussion holds that extensive disclosures lead to reduced information asymmetry. The studies examining whether extensive disclosures reduce cost of capital have been reviewed in the following sections.

Since cost of capital has been divided into cost of equity and cost of debt, extant literature on cost of equity effect of voluntary disclosures has been incorporated in Sections 3.3.1, whereas, Section 3.3.2 provides a review of studies relating to cost of debt effect of voluntary disclosure.

### 3.3.1 Voluntary Disclosure and Cost of Equity

The above discussion shows that theoretical research has established an inverse relationship between disclosure and cost of capital, as commitment by a firm to increased level of disclosure lowers the information asymmetry and reduce the firm’s cost of capital. Empirical research on the above relationship, however, has documented mixed results. The study by Botosan (1997) was possibly the first empirical study that examined the association between voluntary disclosure and cost of capital. For a sample of 122 manufacturing firms, Botosan (1997) examined whether increase in disclosure level resulted in a reduced cost of capital. The measure of disclosure level was based on the extent of voluntary disclosure provided in the 1990 annual reports of sample companies. The author documented that greater disclosure was associated with a lower cost of equity capital for firms that attracted a low analyst following. However, no evidence of such an association was observed for high analyst following firms. This may be because Botosan’s measure of disclosure level which was limited to disclosure provided in the annual reports could not provide a powerful proxy for overall disclosure level, when firms were followed by a large number of analysts and the firms probably used these analysts to communicate with market. For firms with fewer analysts, however, annual reports played a much larger role in the communication process. Further, forecasted information may be predominantly significant when a firm is not followed by a large number of analysts, as individual investors rely on management forecasts when analysts’ forecasts are scarce.

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5 The terms cost of equity and cost of capital were found to have been used interchangeably in the literature.
Richardson and Welker (2001) documented a significant negative relationship between financial disclosure and cost of capital for a broad cross-section of Canadian companies surveyed by the Joint Society of Management Accountants of Canada (SMAC) during the period 1990-92. Botosan and Plumlee (2002), on the other hand, corroborated and extended the results documented in Botosan (1997) for low analysts following firms to a sample comprising of large, heavily followed firms representing 43 different industries and spanning over an eleven year period from 1986-1996. Botosan and Plumlee (2002) explored the association between the expected cost of equity and three types of disclosure, annual report, quarterly and other published reports and investor relations. They found greater annual report disclosure to be associated with a lower cost of equity capital; consistent with annual report being an important source of information to analysts and other investors. They, however, found a positive association between cost of equity capital and the level of more timely disclosures, such as, quarterly reports to shareholders and no association between the cost of equity capital and the level of investor relations.

In a similar vein, Hail (2002) examined the disclosure quality and cost of capital relationship for a sample of 73 non-financial companies Swiss companies listed on the Swiss Exchange (SWX). An important characteristic about the Swiss firms is that they have considerable reporting discretion, while the mandated disclosure level is low. The study documented a negative and highly significant association between disclosure and cost of capital.

Considering the role of information precision in determining the cost of equity capital, Botosan et al. (2004) found an inverse relationship between cost of equity capital and the precision of public information, and a positive relationship between the precision of private information and the cost of equity capital. They observed that the magnitude of reduction in cost of equity capital arising from more precise public information was more than offset by the magnitude of the increase in cost of equity capital arising from more precise private information. They, therefore, suggested that a manager must consider the relationship between the precision of public and private information while determining the firm’s corporate reporting strategy.

Studies have also analyzed empirically the relationship between disclosure and stock volatility and its effect on cost of capital with mixed evidence. Sengupta (1998), for example, argued that in case of high market uncertainty about a firm’s future, as
reflected in the volatility in stock returns, investors relied more heavily on corporate disclosure quality in their default risk (information risk) calculations. This is because the amount of information disclosed by these firms reduced the heterogeneity of the investors’ estimations of share price evolution, lowered stock volatility and hence reduced cost of capital of the firm. Venkatachalam (2000) also contended that increase in volatility could potentially result in higher cost of equity capital, because investors would demand higher returns to compensate for the increased risk (due to stock volatility). Further, Lang and Lundholm (1993) as well as Bushee and Noe (2000) argued that the disclosures reduced the impact magnitude of news about a firm’s performance, which in turn mitigated stock price volatility. Lang and Lundholm (1993) also documented a negative association between disclosure scores and analyst forecast errors and the standard deviation of stock returns. It can be implied from above studies that greater disclosure reduces stock volatility and hence lowers the cost of capital.

However, Hamrouni and Ratsimbanier (2012), who used data envelopment analysis (DEA) and the stochastic frontier analysis models on a sample of 50 listed French firms to explore the relationship between share price volatility and the amount of voluntary information disclosed in the corporate annual reports, provided evidence in contrast to the results of the above studies. They observed that firms that disclosed low extent of voluntary information in the annual reports might be more able to reduce effectively the stock volatility than firms which disclosed high level of voluntary information. This is because the high extent of voluntary disclosure may be differently interpreted by the market participants, which implies an increase in stock volatility. Similarly, Leuz and Verrecchia (2000) also did not document reduction in share price volatility in response to increased disclosure by German firms that commit to either IAS or US GAAP.

In a recent study, using residual income valuation model to estimate the cost of equity, Petrova et al. (2012), for a sample of 121 Swiss listed non-financial companies showed that the firms on the Swiss market can reduce their cost of equity capital by increasing the level of their voluntary corporate disclosure.

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6 Lower stock volatility is likely to reduce the firm’s cost of capital (Botosan, 1997; Sengupta 1998).
A number of studies have examined the impact of large changes in disclosure policy on some specific events (when the impact of disclosure was more noticeable) and evaluated the impact of disclosure. Researchers, for example, have examined the market consequences of greater disclosure resulting from adoption of high quality accounting standards like IAS or US GAAP. It is claimed that IAS adoption resulting in commitment to increased disclosure is a positive signal of the value of the firm and results in reduced cost of capital. Levitt (1998) stated that “The success of capital markets is directly dependent on the quality of the accounting and disclosure system. Disclosure systems that are founded on high quality standards give investors confidence in the credibility of financial reporting and without investor confidence, markets cannot thrive”.

Leuz and Verrecchia (2000) found that firms that adopted high quality accounting standards produced measurable economic benefits in the form of lower information asymmetry component of the cost of capital. Ashbaugh and Pincus (2001) examined the accuracy of analysts’ forecast errors before and after the adoption of IAS for a sample of 80 non U.S firms that adopted IAS during the period 1990-93. The authors documented that the change in disclosure brought about by adopting IAS resulted in reduction in analyst forecast errors or improved their ability to forecast better. Easley and O’Hara (2004) also concluded that firms could influence their cost of capital by the selection of accounting standards, as well as through its corporate disclosure policies.

Further, Daske et al. (2008) documented a decrease in the implied cost of capital for IAS voluntary adoption in the year of their switch and again when IFRS became mandatory. However, contrary to the well known claim that IAS/IFRS or U.S- GAAP adoption results in lower cost of equity, Daske et al. (2006) failed to document a decrease in implied cost of capital for a sample of German firms applying either IAS or U.S. GAAP during the period 1993-2002.

Karamanau and Nishiotis (2009) investigated the valuation effects of the corporate decision to voluntarily adopt IAS using a sample of international firms. They documented a decrease in cost of capital resulting from the anticipated reduction in information asymmetry on adoption of high quality accounting standards. Karamanau and Nishiotis (2009) suggested an economic path that relates reduction in information asymmetry arising from IAS adoption to positive valuation effects. The economic path suggested is the signaling and bonding theories. The signaling theory
suggests that switching to IAS can be a signal that the firm is a high value firm and switching can enable the firm to attain its growth opportunities by increasing investor protection and decreasing the cost of capital. On the other hand, bonding hypothesis assumes that IAS adoption bonds controlling shareholders to less expropriation of firm’s resources.

Dhaliwal et al. (2011) contributed to the literature by extending the traditional research on voluntary disclosure beyond the narrow focus of financial disclosure. Dhaliwal et al. (2011) claimed their study to be the first to investigate the impact of standalone voluntary disclosure of general CSR issues on the cost of equity capital. Researchers, though, cite a study by Richardson and Welker (2001) to be the first one to examine the impact of financial and social (non-financial) disclosure on cost of equity. Richardson and Welker (2001) documented a significant negative relationship between financial disclosure and cost of capital, but a statistically significant positive relation between level of social disclosure and cost of capital.

Dhaliwal et al. (2011) on the other hand, documented that a potential reduction in the cost of equity capital motivates firms to publish standalone CSR reports and that CSR disclosure by firms with superior CSR performance leads to a lower cost of equity capital. Taking a sample of 213 U.S. firms who had issued standalone CSR reports for the period 1993-2007, they provided evidence that the likelihood of a firm initiating standalone disclosure of CSR activities is associated with a higher prior year cost of equity capital. Discussing the potential mechanism linking CSR disclosure and the cost of equity capital, they suggested that voluntary CSR disclosure attracted dedicated institutional investors who had long investment horizons and played monitoring and governance roles and that the effect of CSR disclosure on dedicated institutional ownership was stronger, if disclosing firms had CSR performance superior to their industry peers. They further concluded that CSR disclosure by strong CSR performers helped in reducing information asymmetry between managers and shareholders and among shareholders and could also reduce the cost of equity capital by reducing estimation risk in the market.

Whereas, the above study was conducted in U.S. setting, Dhaliwal et al. (2012) conducted another study in an international setting to examine whether a comprehensive set of non-financial information, as represented by issuance of standalone CSR reports was related to analyst forecast accuracy. While exploring the effect of two factors (the degree of a country's stakeholder orientation and the
financial opacity) on the CSR disclosure and forecast accuracy relationship, they observed that CSR disclosure was negatively associated with analyst forecast error and the relationship varied with stakeholder orientation and financial opacity. They argued that this association was stronger among countries that were more stakeholder oriented and had greater financial opacity. It implies that CSR disclosure complements financial disclosure and mitigates the negative impact of financial opacity on forecast accuracy. This is because both financial and CSR related non-financial disclosure provide information about firm’s value. For firms with a higher level of financial opacity, analysts can gain more useful information from non-financial disclosure in assessing the firm’s future performance. Related, Lang and Lundholm (1996) found positive association between analysts rating of firm’s (financial and non financial) disclosures and analyst forecast accuracy.

The above discussion shows that empirical results relating increased level of disclosure to measurable economic benefits have provided mixed evidence. One explanation for the mixed result among studies using data from U.S firms is that, under current U.S reporting standards, the disclosure environment is already rich. Alencar and Lopes (2008) as well as Hail (2002) also supported the same argument. Unlike previous research on the relation between disclosure and cost of capital that has been on samples of firms originated from developed countries, Alencar and Lopes (2008) investigated the relation between disclosure and cost of capital for firms immersed in poor governance and institutional regime. They argued that such firms would have stronger incentives to distinguish themselves from the country’s norms and supply additional and reliable disclosures in order to facilitate monitoring and as a result access external sources of capital. Alencar and Lopes (2008) found a more significant association between voluntary disclosure actions and cost of capital for firms immersed in the low disclosure Brazilian regime than found in U.S. However, they found a positive association between non financial disclosure and cost of capital. The results were more pronounced for firms with less analyst coverage and low ownership concentration.

Francis et al. (2008) in a study of 677 firms’ disclosures from their annual reports for the year 2001 found that greater voluntary disclosure was associated with a lower cost of capital. This relationship, however, disappeared or was substantially reduced when controlled for earnings quality. They also observed that other proxies
for voluntary disclosure, e.g., press releases showed no meaningful association with cost of capital. Whereas other proxies for voluntary disclosure like management forecasts and conference call activity were associated with a higher and not lower cost of capital.

Zhang (2001) examined the economic incentives behind two forms of information dissemination (private information production and public disclosure by firm) and their consequences on the cost of capital. The author presented a setting where the level of disclosure could be either positively or negatively associated with the cost of capital, depending on what caused variation in disclosure levels. He concluded that when variation was driven by earnings volatility or variability of liquidity shocks, disclosure levels were positively related to the cost of capital. But when variation in disclosure was driven by disclosure cost, cost of capital was negatively related to disclosure levels. Francis et al. (2008) also quoted Kim and Verrecchia (1994) model where more expansive disclosures led to greater incentives on the part of investors to acquire private information resulting in greater information asymmetry (i.e. higher cost of capital). This means increasing cost of capital effects may occur if disclosure itself leads to more asymmetric information.

The above discussion shows that some studies on the relationship between voluntary disclosure and cost of capital have established negative relationship consistent with theoretical research (Welker, 1995; Leuz and Verrecchia, 2000; Hail, 2002; Dhaliwal et al., 2011; Petrova et al., 2012; Dhaliwal et al., 2012), a few documented only partial evidence of the relationship (Botosan, 1997; Botosan and Plumlee, 2002) and still others documented a positive relationship (Kim and Verrecchia, 1994). Hail (2002) as well as Beyer et al. (2010) cite different proxies for disclosure and cost of capital to be the reason for mixed results. Moreover, disclosure as well as cost of capital cannot be observed directly. The theoretical research by Glosten and Milgrom (1985), Barry and Brown (1985), Kyle (1985), Amihud and Mendelson (1986), Coles and Loewenstein (1988), Diamond and Verrecchia (1991), Handa and Linn (1993), Clarkson et al. (1996), Leuz and Verrecchia (2000) and Easley and O’Hara (2004) as well as empirical research by Lang and Lundholm (1993), Botosan (1997), Richardson and Welker (2001), Botosan and Plumlee (2002), Hail (2002), Botosan et al. (2004), Alencar and Lopes (2008), Francis et al. (2008),
Karamanau and Nishiotis (2009), Ghoul et al. (2013), Dhaliwal et al. (2011, 2012), Petrova et al. (2012), Hamrouni and Ratsimbanier (2012) etc. motivates the following hypothesis:

**H2: Variation in the voluntary disclosure levels of the companies is associated with variation in the cost of equity.**

### 3.3.2 Voluntary Disclosure and Cost of Debt

Though debt financing is an important source of raising funds from external sources in case of publicly traded firms, there is not much literature examining information asymmetry in the context of debt markets, as is in case of equity markets. Discussion of different studies in Section 3.3.1 shows that much literature exists on the association between disclosures and cost of equity, whereas, study of the role of information asymmetry in the debt market remains chiefly unexplored. To the researcher’s best knowledge, the study by Sengupta (1998) was the first to explore the relationship between a firm’s overall disclosure quality and cost of debt financing. Using analyst ratings of overall disclosure policy for a sample of 103 firms, the author concluded that firms with higher disclosure ratings had, on an average lower cost of debt. This suggests that firms that consistently make timely and informative disclosures are perceived to have a lower likelihood of withholding value-relevant unfavourable information. As a result, these firms are charged a lower risk premium (i.e. a lower cost of debt). Sengupta (1998) also argued that in case of high market uncertainty about a firm’s future, as reflected in the volatility in stock returns, investors relied more heavily on corporate disclosure quality in their default risk (information risk) calculations. This is because the amount of information disclosed by these firms reduces the heterogeneity of the investors’ estimations of share price evolution, lowers stock volatility and hence reduced cost of capital of the firm.\(^7\)

Yu (2005) examined the relationship between the credit spreads and the quality of accounting information. Results of the cross-sectional regression of credit spread on disclosure ranking as measured by AIMR reported that investors charged lower disclosure quality by charging a higher spread on the firm’s debt.\(^8\) On the other hand, for a sample of 358 firm year observations from 100 firms during the period 1986-1996, Nikolaev and Van Lent (2005) documented that at the level of the

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\(^7\) Lower stock volatility is likely to reduce the firm’s cost of capital (Botosan, 1997; Sengupta 1998).

\(^8\) Credit spread has been calculated as the difference in yield to maturity between a corporate bond and a U.S treasury bond with the same maturity.
individual firm, increase in disclosure resulted in a lower cost of debt. The author, however, stressed on the need to deal with endogeneity while examining the association between disclosure and cost of debt. The author also observed that in case of the tests that did not control for endogeneity, a negative association between disclosure and cost of debt should not be interpreted causally as it might be caused by firm heterogeneity effects. To prove this assertion, the authors augmented the model proposed by Sengupta (1998) with variables which are known to be related to firms’ disclosure policy and are likely to affect the cost of debt too. They observed that inclusion of these variables reduced the coefficient on disclosure to approximately 50 percent of its magnitude in the original model. Moreover, disclosure was no longer found to be significantly related to cost of debt. The study, thus, suggests the need to control for endogeneity while examining the relationship between the two variables.

The above discussion of the studies by Sengupta (1998), Yu (2005), and Nikolaev and Van Lent (2005) has resulted in the formulation of the following hypothesis:

**H3: Variation in voluntary disclosure levels of the companies is associated with variation in cost of debt.**

### 3.4 EARNING QUALITY AND COST OF CAPITAL

A fundamental role of accounting information in financial markets is to serve as a basis for capital allocation. However, earnings information is the foremost source of firm specific information. Investors rely on earnings more than any other summary measure of performance, like, dividends and cash flows etc. Accounting earnings also matter more to managers than cash flows for financial reporting purposes, which is contrary to the emphasis on cash flows found in the finance literature (Graham et al., 2005). This implies that earnings have more information content than cash flows about the value of firm. Poor earnings quality can result in differentially informed investors and thereby enhance the information asymmetry in financial markets (Diamond and Verrecchia 1991). Higher information asymmetry enhances the adverse selection risk for market participants, lowers the liquidity and increases the cost of capital. That is why the standard setters and regulators are concerned about the quality of accounting information and its consequences for capital allocation decisions.⁹

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⁹ The terms quality of financial reporting, quality of accounting information and earnings quality have been used interchangeably in the literature.
The concept of earnings quality has been defined and used differently by different researchers. Extant literature on earnings quality shows that researchers have used more than one measure of earnings quality to capture it better. Barua (2006), for example, in his unpublished doctoral dissertation developed a measure of earnings quality by using qualitative characteristics of financial statement information specified in the Statement of Financial Accounting Concepts (SFAC No. 2- FASB 1980). He derived a summary measure of earnings quality by applying factor analysis on fifteen variables representing different components of two primary dimensions of earnings quality; relevance and reliability. Francis et al. (2008), on the other hand, took three measures of earnings quality, namely, accruals quality, earnings variability and absolute value of abnormal accruals and then derived a final measure of earnings quality by applying factor analysis on the three underlying earnings quality measures. Schipper and Vincent (2003) described several earnings quality constructs and measures that have been used in academic accounting research as well as in teaching and classified them as: (a) constructs associated with time series properties of earnings (b) constructs derived from the relations among income, accruals and cash (c) constructs derived from qualitative concepts in FASB's conceptual framework and (d) constructs derived from implementation decision.\footnote{Schipper and Vincent (2003) do not consider the four classes of earnings quality constructs as exhaustive or mutually exclusive}

Various measures as indicators of ‘earnings quality’ including persistence of earnings (Penman and Zhang, 2002), smoothness (Leuz et al., 2003), predictive value of earnings (Mikhail et al., 2003; Cohen, 2003), relationship of accruals with cash flows (Dechow and Dichev, 2002; Francis et al., 2005 and Francis et al., 2008) have been used in extant literature. Dechow et al. (2010) in their review of over 300 studies of characteristics or attributes of earnings, reached no single conclusion on what earnings quality is because ‘quality’ depends on the decision context. Further, Cornell and Landsman (2003) also observed that the discussion regarding earnings quality is theoretically irresolvable as different measures of earnings like GAAP earnings, EBITDA, operating income and proforma income etc. are used.

Also a particular set of accounting alternatives used by a firm could be thought of as adding a unique ‘quality dimension’ to the earnings (Comisky, 1971). The
studies (e.g., Comisky, 1971; Martin, 2002; Penman and Zhang, 2002) have related accounting method choices to earnings quality. Comisky (1971), in his study of eleven steel companies that switched to straight-line from accelerated method of charging depreciation found that there was an increase in earnings per share of such companies but without any real improvement in firm’s performance. The author concluded that switch to straight line from accelerated depreciation reduced the quality of earnings and price-earnings ratio (i.e., higher earnings-price ratio or a higher cost of capital). For a sample of 200 companies listed with NYSE, Martin (2002) in his unpublished thesis compared the earnings quality of those firms using generally conservative, generally liberal or a mixed portfolio of accounting methods to determine if a firm’s choice of accounting methods affected the quality of that firm’s reported earnings. Martin (2002) reported that investors can predict future earnings and book values more accurately for firms using conservative accounting methods as they do not overstate current earnings and hence result in good quality earnings. Penman and Zhang (2002) observed that earnings are of good quality if the accounting treatment results in sustainable earnings.

The review of literature shows that a number of studies have used the accruals models, namely, the Jones (1991) model, Dechow and Dichev (2002) model and the modified Jones model (as suggested by Dechow et al., 1995) to capture earnings management or earnings quality. The quality of earnings is often considered to be higher than the quality of cash flows because accruals results in earnings being more persistent, less volatile, and also more strongly related to future cash flows and current stock price than cash flows (Ghosh and Moon, 2010). However, accruals involve accounting choices and judgments. Managers, therefore, have more flexibility in manipulating earnings through accruals than using cash flows. Consequently, the quality of earnings is expected to vary through the use of accruals depending on the incentives and nature of business contracts. Sloan (1996), however, concluded that though the information content of the accrual and cash flow components was systematically different, stock prices did not reflect the information fully until it affected future earnings.

Dechow et al. (2010) on the basis of survey of literature on earnings quality made two significant conclusions (a) since all the proxies for earnings quality that involve earnings (properties such as persistence, timely loss recognition, smoothness
and small profits as well as the earnings response coefficients) have at their core the reported accrual based earnings number, these proxies are affected both by the firm’s fundamental performance and by the measurement of performance (b) while the proxies represent properties of the same reported earnings number, they measure different attributes of earnings i.e. these proxies do not measure the same underlying construct.

Review of literature on cost of capital effect of earnings quality has been divided into two sections. Section 3.4.1 and Section 3.4.2 incorporate the review of studies on cost of equity and cost of debt effect of earnings quality respectively.

3.4.1 Earnings Quality and Cost of Equity

Barua (2006) classified the studies relating to earnings quality into two: (a) earnings quality and value relevance (b) earnings quality and cost of capital. Value relevance means the extent to which information in accounting earnings is reflected in market prices or is used by investors in valuing firm’s equity. A number of researchers such as Ball and Brown (1968), Lev (1989) as well as Barth, Beaver and Landsman (2001) suggested that the value relevance approach can be employed to assess usefulness of accounting information. Barua (2006) used earnings response coefficients and explanatory power from regressions of market metrics (price and stock) on earnings to test whether earnings quality construct reflected decision usefulness and hence had value relevance. Another way to validate the hypothesis that the earnings quality measure reflects the decision usefulness is to show whether the quality of earnings affects the expected rate of return that investors implicitly use to discount future cash flows in evaluating the prospects of their investment i.e. whether earnings quality affects the cost of capital.

There is considerable controversy in the literature regarding the underlying mechanism through which earnings quality affects the cost of equity. Researchers have related earnings quality to the cost of equity through its effect on information asymmetry. Regulators and standards setters also view reduction in information asymmetry to be an important benefit of improved earnings quality. Theoretical research by Amihud and Mendelson (1986) as well as Easley and O'Hara (2004) provides support for use of private information by informed traders as an explanation for cost of capital impact of asymmetric information. Related, Aboody et al. (2005)
examined if the prospect of privately informed trading drives a cost of capital effect of asymmetric information. Using different number of observations for different earnings quality measures, and using insider trading data for the period 1985 to 2003, the author found evidence that insiders traded more profitably in low earnings quality firms than in high earnings quality firms and also that insider trading was associated with the systematic component of the asymmetry information risk.

Bhattacharya, Desai and Venkataraman (2013) examined the association between earnings quality and information asymmetry for a large sample of NYSE and NASDAQ firms for the period 1998-2007. Taking accruals quality as a proxy for earnings quality and price impact of trade as a proxy for information asymmetry, they demonstrated that poor earnings quality was significantly and incrementally associated with higher information asymmetry. They found the innate component of earnings quality to have significant incremental impact on information asymmetry suggesting that informed investors have a greater advantage in uncertain and volatile environments. They also suggested that both extreme positive and extreme negative discretionary accruals increase information asymmetry. This means that discretionary choices made by managers that cause accruals to map ‘too well’ into cash flows relative to other firms in the same industry can mislead and confuse investors and contribute to information asymmetry.

Taking earnings as a primary source of firm specific information, and under the view that properties of firm specific information risk affect cost of equity capital, Francis et al. (2004) investigated the association of earnings attributes and cost of equity for a sample of 3917 firms for the period 1975-2001. Francis et al. (2004) identified seven earnings attributes in their study, namely, accruals quality, persistence, predictability, smoothness, value relevance, timeliness and conservatism. The first four are accounting based and last three are market based attributes. They concluded that accounting based attributes had more pronounced cost of equity effects than market based attributes and that among the accounting based attributes, accruals quality had the largest effect. Francis et al. (2004) extended Dechow and Dichev (2002) measure of accruals quality to include three more variables, namely, absence of intangibles, intangible intensity and capital intensity as explanatory variables. They also considered the pricing effect of innate as well as discretionary accrual quality and found that innate determinants explained a considerable amount of variation in the
accounting based attributes and little or no variation in the market based attributes. They further argued that the discretionary portion would have a distinct cost of capital effect to the extent that its components gave rise to non-diversifiable information risk. The results of the study showed that cost of equity effects of management’s reporting choices, particularly those that affected accruals quality and earnings persistence were generally smaller than the overall (innate and discretionary) effects of these earnings attributes.

Leuz and Verrecchia (2004), while considering the role of earnings in aligning firms and investors with respect to capital investment found that poor quality reporting impaired the co-ordination between firms and their investors with respect to the firm’s capital investment decision and thereby created information risk. They argued that this impaired co-ordination would make investors demand a higher risk premium i.e. they would charge a higher cost of capital. An important point to note is that, though, theoretical models such as Easley and O'Hara (2004) as well as Leuz and Verrecchia (2004) establish a pricing role of information risk, but these models do not predict difference between the pricing effect of poor accrual quality that is driven by innate factors (i.e. business model and operating environment) and discretionary factors (i.e. due to accounting choices, implementation decision and managerial error).

Francis et al. (2005) attempted to disentangle the pricing effect of innate and discretionary accruals quality. Taking a large sample of firms over the period 1970–2001, they provided evidence that both innate and discretionary accruals quality affected the cost of capital, although innate accruals quality had a larger impact on cost of capital than discretionary accrual quality. This is because for broad samples, discretionary accruals are likely to reflect both opportunism and performance measurement. Since, opportunism increases information risk and performance measurement mitigates information risk, these conflicting effects will yield average cost of capital effects for discretionary accruals quality that are likely to be lower than cost of capital effect for innate accruals quality. Their results are consistent with information risk having larger pricing effect when it is driven by firm specific operating and environmental characteristics than when it is associated with discretionary decisions.
Barua (2006) tested the association between earnings and market price or returns to assess the extent to which information in earnings is reflected in market price. The author tested the association between earnings quality and the expected rate of return (cost of capital) and documented a negative relationship between earnings quality and measure of implied cost of capital. Findings in the study support the assertion that FASB's earnings quality attributes make accounting information useful for decision making. The author also concluded that investors, in general, prefer relevance to reliability dimension of earnings, as explanatory power of earnings were found to be higher for relevance as compared to reliability dimension of earnings. Barua's study is related to the study by Francis et al. (2005), who considered seven earnings attributes, measured using both accounting data and market data; whereas Barua (2006) used mainly accounting data.

Ecker et al. (2006) examined the sensitivity of firm's returns to earnings quality through coefficient estimate (the e-loading) from firm specific regressions of daily excess returns on a factor mimicking portfolio capturing earnings quality, controlling for other risk factors (market risk premium, size and book to market ratio). They argued that their returns based representation of information risk (proxied by earnings quality) had several empirical advantages relative to accounting based representations. Their study documented a significant association between e-loadings and other measures of earnings quality, such as persistence, smoothness, predictability and to a lesser extent, value relevance, timeliness and conservatism. The authors concluded that to the extent these other measures of earnings quality are viewed as capturing aspects of firm's 'true' earnings quality, positive association between these measures of earnings quality and e-loadings suggests that investors’ perceptions of earnings quality are rational; a larger e-loading implies greater sensitivity to poor earnings quality. They argued that returns based representation of earnings quality are most appropriate in research settings that analyze changes in financial reporting quality, either because of a change in reporting or because of a voluntary reporting or disclosure decision.

Chen et al. (2008) provided a new dimension to the relation between accruals quality and cost of capital by examining the interaction of accruals quality and fundamental risk in affecting security prices using a sample of 53,048 firm year
observations for the period 1980-2004. They provided an empirical test of the model presented by Yee (2006), which indicates that earnings quality is important only in the presence of fundamental risk. They observed that in asset pricing tests, there was essentially no relation between accruals quality and cost of capital as measured by future return realizations for firms with the lowest fundamental risk. In contrast, for firms with the highest fundamental risk, a strong relation was observed between accruals quality and future return realizations. The study concluded that as fundamental risk increases, earnings quality risk has an increasing effect on cost of capital i.e. the relation between accruals quality and cost of capital depends on the level of fundamental risk.

Liu and Wysocki (2007) provided evidence that operating volatility is the primary driver of the documented empirical relation between accruals quality and cost of capital. For a sample of 2,28,375 firm year observations, they examined whether accruals quality displayed a clear cut association with accounting based cost of capital measures, after controlling for operating volatility. Liu and Wysocki (2007) argued that proxies for accruals quality and operating volatility captured different underlying constructs and, therefore, those variables affected firm’s cost of capital in different ways. The study claimed that when operating volatility variables were excluded from the regression, accruals quality became a significant determinant of cost of capital. But with operating volatility variables included in cost of capital regressions, accruals quality displayed either insignificant or inconsistent associations with various cost of capital measures; consistent with the notion that operating volatility is the primary source of the empirical relation between accruals quality and cost of capital.

Barth et al. (2008) provided another dimension to the earnings quality and cost of equity relationship by exploring whether firms applying International accounting standards (IAS) had higher accounting quality. Results of the study provided evidence that accounting quality improved after the firms adopted IAS, and also the firms applying IAS had higher accounting quality than the firms that did not apply

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11 Fundamental risk refers to uncertainty about future dividend payments. This type of uncertainty is associated with the firm’s particular business model, type of business and the organization structure.
12 Earnings quality risk is information risk generated by noisy earnings reports caused either by earnings manipulation or by a weak association between accounting earnings and economic earning.
13 Barth et al. (2008) interpreted earnings that exhibit less earnings management as being of higher quality.
IAS. They found that in the post adoption period, firms applying IAS generally evidenced less earnings management, more timely loss recognition and more value relevance of accounting amounts than firms that did not apply IAS. They also found some evidence that this improvement in accounting quality associated with IAS adoption may be related to decrease in cost of capital in line with the evidence linking accounting earnings quality to the cost of capital (e.g., Francis et al. 2004, 2005). Ewert and Wagenhofer (2005), also through their model confirmed the importance of tighter accounting standards in improving the earnings quality (as measured by variability of reported earnings) because of the limitations on the accounting choices. Their model also established that tighter accounting standards improved the association between reported earnings and market price reactions.

Contradicting the literature discussed above, Cohen (2003) could find no evidence that firms choosing to provide high quality financial information necessarily enjoyed a lower cost of equity capital. The results are in conflict with Francis et al., (2004). Cohen (2003) suggested that information risk associated with lower quality financial information does not necessarily constitute an additional risk factor, but rather is a firm specific uncertainty characteristic and hence not priced by investors. Similarly, contradicting the results of Francis et al. (2005), Core et al. (2008) argued that in the presence of market size and distress risk factors, the accruals quality ‘risk factor’ had limited ability to explain the cross section of returns and hence accruals quality is not a priced risk factor. Core et al. (2008) stated that their findings were consistent with the studies by Hughes et al. (2007) and Lambert et al. (2007), which suggested that firm’s information quality should be impounded in its market beta and therefore proxies for accruals quality should not exhibit additional power for stock returns. Hughes et al. (2007) studied information risk in the context of multi factor asset pricing model and developed a model that suggested that information signals were either diversifiable or captured by existing factors risk premiums.

Lambert et al. (2007) argued that most analytical models in accounting examined the role of information in single firm settings. Their applicability to cost of capital issues was therefore, limited. This is because in single firm settings there are no alternative securities that would allow investors to diversify idiosyncratic risk. They argued that the effects of a firm’s disclosures on its cost of capital is fully
captured by an appropriately specified forward-looking beta and the expected returns on the market as a whole. These studies, (Cohen, 2003; Lambert et al., 2007; Hughes et al. 2007; Core et al., 2008), thus, provide evidence that information quality is not an incremental priced risk factor i.e. earnings quality does not affect cost of capital.

Lambert et al. (2011) argued that the degree of competition in the capital market played a critical role for the relation between information asymmetry and the cost of capital. They demonstrated that in a perfect competition setting, it made no difference whether some investors had more information than others, a firm’s cost of capital was governed solely by the average precision of investors’ information. Thus, contrary to the conclusion of Easley and O’Hara (2004), Lambert et al. (2011) analysis shows that in a market of perfect competition, there is no separate non-diversifiable ‘information risk’ factor that affects the cost of capital. Instead cost of capital is driven solely by the average precision of investors regarding the distribution of cash flows. In imperfect competition setting, however, information asymmetry has an effect on cost of capital even after controlling for the effect of average precision of investor information.

The above discussed theoretical research by Amihud and Mendelson (1986), Easley and O’Hara (2004) and Leuz and Verrecchia (2004) as well as empirical research by Cohen (2003), Francis et al. (2004, 2005), Aboody et al. (2005), Barua (2006), Eckel et al. (2006), Hughes et al. (2007), Chen et al. (2008), Liu and Wysocki (2007), Lambert et al. (2007, 2011), Barth et al. (2008), Core et al. (2008), Francis et al. (2008) and Bhattacharya et al. (2013) led to proposing the following hypothesis:

**H 4: There is no difference in the cost of equity of companies with poor vis-a-vis good earning quality.**

### 3.4.2 Earnings Quality and Cost of Debt

Discussion in Section 3.4.1 shows that there is much literature that examines the impact of information asymmetry arising from poor earnings quality on cost of equity. There are, however, limited studies examining the impact of earnings quality on cost of debt. Literature review shows the study by Francis et al. (2005) to be the only study that examines the impact of earnings quality on cost of debt as well as cost of equity. They found that firms with poorer accruals quality had higher ratio of interest expense
to interest bearing debt and lower debt rating than firms with better accruals quality. The results, thus, supported a negative relationship between earnings quality and cost of debt.

Moerman (2005) examined as to how financial reporting quality affected loan trading on secondary markets. The author explored the effect of financial reporting quality characteristics like, timeliness, abnormal accruals and earnings volatility on the bid-ask spreads. Taking a sample of traded syndicate loans, the author documented that the high quality financial reporting reduced the information costs associated with debt agreements and also increased the efficiency of the secondary trade. Taking timely loss recognition in the borrowers’ financial statements as a measure of financial reporting quality, the author provided evidence of reduced bid-ask spread at which loans were traded as a result of timely loss recognition. The author also examined whether abnormal accruals as estimated by using Jones (1991) model influenced loan trading spreads. It was observed that there was a positive and significant relationship between signed abnormal accruals and loan spread. However, the study documented that there was no significant relationship between unsigned abnormal accruals and bid-ask spread. It can be concluded that managers choose income increasing accounting procedures to avoid or mitigate debt covenant violations. Also a positive relationship was observed between earnings volatility and bid-ask spread.

A study by Ghosh and Moon (2010) discussed the relationship between earnings quality and cost of debt from a different perspective. They examined whether debt financing was associated with earnings quality. They observed a non-monotonic (curvilinear) relationship between debt financing and earnings quality for a large sample of U.S non financial firms for the period 1992-2004. They argued that low debt firms have incentive to reduce the cost of debt by reporting high quality earnings. Such firms are, therefore, less likely to manage earnings. In sharp contrast, for high debt firms, debt financing and earnings quality are negatively associated. This is because the risk of breaching a covenant is large for highly leveraged firms and earnings are more prone to being manipulated to avoid covenant violations. The authors suggested that firms that rely heavily on debt financing might be willing to
bear higher costs of borrowing from lower earnings quality as the benefits from
avoiding potential debt covenant violations exceed the higher costs of borrowing.

The review of studies by Moerman (2005), Francis et al. (2005), and Ghosh
and Moon (2010) etc. resulted in predicting the following hypothesis:

**H5: There is no difference in the cost of debt of companies with poor vis-à-vis
good earnings quality.**

### 3.5 STUDIES RELATING TO ASSOCIATION AMONG
VOLUNTARY DISCLOSURE, EARNINGS QUALITY AND
COST OF CAPITAL

This section links the literature given in section 3.3.1 and section 3.4.1 by
emphasizing the need to examine voluntary disclosure conditional on earnings
quality. Review of literature shows that there is only one study by Francis et al.
(2008) that has examined the relationship between voluntary disclosure, (as measured
by the extent of voluntary disclosure from annual reports), earnings quality and cost
of capital in a single analysis. The authors observed a complementary relationship
between voluntary disclosure and earnings quality. They also observed a significant
negative relationship between voluntary disclosure and cost of capital unconditional
on earnings quality. They, further, documented that given the complementary relation
between voluntary disclosure and earnings quality; cost of capital effect for voluntary
disclosure substantially reduced or disappeared when controlled for earnings quality.
They concluded that earnings quality had the first order effect on cost of capital,
whereas, voluntary disclosure was only a proxy for earnings quality. The results of the
study also reported that voluntary disclosure was associated with innate earnings
quality and not to discretionary earnings quality. This proves that earnings quality is a
determinant of voluntary disclosure, rather than disclosure choices being the
determinant of earnings quality.

However, there is another study by Bhattacharya et al. (2012), who tested for
evidence of a direct link between the cost of equity capital and information risk (as
proxied by earnings quality) and an indirect link in which information asymmetry is a
mediator variable that is influenced by earnings quality and that in turn influences the
cost of equity. Using path analysis to a sample of Value Line firms during 1993-2005 and using PIN and bid-ask spread as proxy for information asymmetry, the results provided statistically reliable evidence of both the direct path and the indirect path (mediated by information asymmetry), with the direct path having greater importance.

The present research tests the following hypothesis based on the study of Francis et al. (2008):

**H6:** The variation in level of corporate voluntary disclosure is related to the variation in cost of equity, after controlling for earnings quality.

### 3.6 SOME METHODOLOGICAL OBSERVATIONS

The following sections put forth the observations made from the review of literature discussed in the previous sections. Further, Table 3.1 also provides a brief summary of some prominent empirical studies relating to voluntary disclosures and earnings quality.

#### 3.6.1 Use of Data

As can be observed from Table 3.1, most of the studies conducted to examine the impact of voluntary disclosure on cost of capital as well as studies depicting the impact of earnings quality on cost of capital have been conducted in the U.S. Some studies, however, have been conducted in other parts of the globe as well. These include, for example, countries like Germany (Leuz and Verrecchia, 2000); Canada (Richardson and Welker, 2001); Switzerland (Hail, 2002); Brazil (Alencar and Lopes, 2008); Cyprus (Karamanau and Nishiotis, 2009); Greece (Iatridis and Alexakis, 2012); and France (Hamrauni and Ratsimbanier, 2012).

Table 3.1 also shows that most of the studies used management forecasts, AIMR scores or the self constructed measures to proxy for disclosure quality. It was observed that many of the studies conducted in the U.S (e.g., Welker, 1995; Healy et al., 1999; Botosan and Plumlee, 2002; Nagar et al., 2003; Helflin et al., 2005; Brown and Hillegeist, 2007 etc.) have used readily available disclosure rankings derived on the basis of surveys conducted by the professional bodies like FAF and AIMR etc.  

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14 Reports of FAF/AIMR provide a comprehensive measure of corporate disclosure of large publicly traded companies in the U.S. The disclosure ranking provided by these professional bodies of leading specialist financial analysts reflect the evaluation of companies’ disclosures relative to their industry peers.
Table 3.1: A Summary of Major Studies relating to Voluntary Disclosures and Earnings Quality

<table>
<thead>
<tr>
<th>Name of the author(s) and year of study</th>
<th>Objectives</th>
<th>Research Methodology</th>
<th>Country</th>
<th>Sample firms and period</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waymire (1985)</td>
<td>Investigate the association between firms' earnings volatility and the timing and frequency of management earnings forecasts (i.e. voluntary disclosures).</td>
<td>Wilcoxon and Mann-Whitney tests</td>
<td>United States of America</td>
<td>276 forecasts of annual earnings per share by company executives reported in the wall street journal Period: July, 1969- Dec, 1973</td>
<td>Results showed that firms with better earnings quality had more voluntary disclosures.</td>
</tr>
<tr>
<td>Frankel et al. (1995)</td>
<td>Examine the association between firms' tendencies to access capital markets and to disclose earnings forecasts.</td>
<td>Probit model</td>
<td>United States of America</td>
<td>2,394 firms Period: 1980-1984</td>
<td>Results suggested that firms with a relatively higher cost of capital likely have a greater incentive to enhance disclosure</td>
</tr>
<tr>
<td>Botosan (1997)</td>
<td>Examine the association between disclosure level and the cost of equity capital.</td>
<td>Regression</td>
<td>United States of America</td>
<td>122 machining firms Period: year 1990</td>
<td>Results provided no evidence of an association between disclosure level and cost of equity capital. Results, however, showed that greater disclosure is associated with a lower cost of equity capital for firms that attract a low analyst following.</td>
</tr>
<tr>
<td>Kohli (1998)</td>
<td>To measure and compare the disclosure level of Indian and U.S companies and also to study the influence of certain corporate attributes, viz.; size, profitability, age, nature of industry and auditing firm on disclosure levels.</td>
<td>Development of disclosure index consisting of 212 items and use of simple linear regression and stepwise regression</td>
<td>India and United States of America</td>
<td>100 companies each from the Fortune 500 list and the Financial Express 500 list</td>
<td>Results documented an upward trend in disclosure levels of the Indian companies. Results also reported that corporate disclosure practices in India were not at par with the disclosure practices of the developed countries like U.S.A.</td>
</tr>
<tr>
<td>Sengupta (1998)</td>
<td>Investigate the link between a firm’s overall disclosure quality and its cost of debt financing.</td>
<td>Regression</td>
<td>United States of America</td>
<td>1,704 firm year observations Period: 1987-1991</td>
<td>Results showed that increased disclosure level results in lower cost of debt.</td>
</tr>
<tr>
<td>Leuz and Verrecchia (2000)</td>
<td>To document the economic benefits of German firms shifting to either IAS or U.S. GAAP</td>
<td>Event Study Methodology</td>
<td>Germany</td>
<td>102 firms included in the DAX 100 Period: 1998</td>
<td>Results found that German firms that committed to either IAS or U.S. GAAP exhibited lower bid-ask spreads and higher share turnover than firms using German GAAP.</td>
</tr>
<tr>
<td>Richardson and Welker (2001)</td>
<td>Examine the association of financial and social disclosure with cost of capital.</td>
<td>Regression and use of index consisting of 120 financial and 100 socially responsible information items</td>
<td>Canada</td>
<td>324 firm year observations from 124 different companies Period: 1990-92</td>
<td>Results reported that there was a significant negative relationship between financial disclosure and cost of capital. The study, however, documented a positive relationship between social disclosure and cost of capital.</td>
</tr>
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</table>

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<table>
<thead>
<tr>
<th>Name of the author(s) and year of study</th>
<th>Objectives</th>
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<th>Findings of the Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botosan and Plumlee (2002)</td>
<td>Explore the association between the expected cost of equity capital and three types of disclosures; annual report, quarterly and other published reports and investor relations.</td>
<td>Regression</td>
<td>United States of America</td>
<td>3,618 firm year observations Period: 1986-1996</td>
<td>Cost of equity decreased in annual report disclosure level, but increased in the level of timely disclosure. The results show no association between the cost of equity capital and the level of investor relations activities.</td>
</tr>
<tr>
<td>Hail (2002)</td>
<td>Examine the impact of voluntary corporate reporting on the implied cost of capital.</td>
<td>Regression</td>
<td>Switzerland</td>
<td>73 non-financial companies listed on the Swiss Exchange (SWX) Period: Annual reports of 1997</td>
<td>Results established a negative and highly significant association between disclosure and cost of capital.</td>
</tr>
<tr>
<td>Hooks, Coy and Davey (2002)</td>
<td>Identify the information gap between stakeholders’ expectations and the disclosures provided by sample companies.</td>
<td>Development of disclosure index</td>
<td>New Zealand</td>
<td>33 electricity retail and distribution companies Period: 1998-99</td>
<td>The study identified the nature and size of the information gaps in the annual reports of the New Zealand electricity retail and distribution companies. Study suggested that such gaps should assist preparers, accounting regulators and legislators in improving reporting in future.</td>
</tr>
<tr>
<td>Martin (2002)</td>
<td>Test as to how management’s choice of accounting methods affects the quality of a firm’s reported earnings.</td>
<td>χ² test and analysis of co-variance</td>
<td>United States of America</td>
<td>200 firms listed with NYSE Period: 1985-1992</td>
<td>With earnings quality defined as the ability of analysts to predict future earnings accurately, the study concluded that analysts are better able to predict unexpected earnings for firms that apply a portfolio of generally conservative accounting methods than for firms using a portfolio of generally liberal accounting methods.</td>
</tr>
<tr>
<td>Miller (2002)</td>
<td>Examine as to how the firms experiencing an extended period of seasonally adjusted earnings increases adjust disclosure in response to earnings increases.</td>
<td>Treatment methodology and Regression</td>
<td>United States of America</td>
<td>80 firms undergoing an extended period of earnings increases</td>
<td>Results showed strong relationship between earnings performance and voluntary disclosure. However, disclosure changes as the period of strong earnings performance nears an end.</td>
</tr>
<tr>
<td>Cohen (2003)</td>
<td>Identify the factors that determine the variation in financial reporting quality choices and the associated economic consequences</td>
<td>Two stage estimation method</td>
<td>United States of America</td>
<td>16,664 firm year observations Period: 1987-2001</td>
<td>Results revealed that high quality financial reporting results in lower information asymmetry but does not necessarily result in lower cost of capital.</td>
</tr>
<tr>
<td>Botoson et al. (2004)</td>
<td>Examine the association between the cost of equity capital and the quality of public and private information.</td>
<td>Regression</td>
<td>United States of America</td>
<td>2,804 firm year observations Period: 1993-2001</td>
<td>Results established an inverse relationship between the cost of equity capital and the precision of public information, but a positive relationship between Precision of private information and cost of equity capital.</td>
</tr>
</tbody>
</table>

Contd...
Findings of the Study
Results reported that accounting based attributes, especially accruals quality has larger cost of equity capital effect.

Results showed that lower accruals quality is associated with higher cost of debt and low debt rating. The results also reported that lower accruals quality is associated with smaller price multiple on earnings (E/P ratio).

Results reported that executives view earnings, not cash-flows, as the most important metric reported to outsiders. Results also found that executives want to meet or beat earnings benchmarks to build credibility with capital market, maintain or increase stock price, improve external reputation and convey future growth prospects.

Using FASB qualitative characteristics, results showed that earnings quality and cost of capital are negatively related. The study documented that returns based representation of earnings quality is better than accounting based representation of earnings quality.

Returns Sample has 6,408 firms per year as compared to accruals quality sample which has 2,147 firms per year.

Results reported corporate attributes like BSE classification, age of the company, funding through ADR/GDR to be significant determinants of disclosure. Results also found no significant difference among respondents regarding level of satisfaction with adequacy of information in annual reports.

### Table: Research Study by Francis et al. (2004)

<table>
<thead>
<tr>
<th>Name of the author(s) and year of study</th>
<th>Objectives</th>
<th>Research Methodology</th>
<th>Country</th>
<th>Sample firms and period.</th>
<th>Findings of the Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Francis et al. (2004)</td>
<td>To examine the relation between the cost of equity capital and attributes of earnings; accruals quality, persistence, predictability, smoothness, value relevance, timeliness and conservatism</td>
<td>Regression</td>
<td>United States of America</td>
<td>3917 firms. Period: 1975-2001</td>
<td>Results reported that accounting based attributes, especially accruals quality has larger cost of equity capital effect.</td>
</tr>
<tr>
<td>Francis et al. (2005)</td>
<td>Investigate whether accruals quality is priced.</td>
<td>Regression</td>
<td>United States of America</td>
<td>91,280 firm-year observations Period: 1970-2001</td>
<td>Results showed that lower accruals quality is associated with higher cost of debt and low debt rating. The results also reported that lower accruals quality is associated with smaller price multiple on earnings (E/P ratio).</td>
</tr>
<tr>
<td>Graham et al. (2005)</td>
<td>Determine the factors that drive reported earnings and voluntary disclosure decisions.</td>
<td>Interview method</td>
<td>United States of America</td>
<td>More than 400 executives</td>
<td>Results reported that executives view earnings, not cash-flows, as the most important metric reported to outsiders. Results also found that executives want to meet or beat earnings benchmarks to build credibility with capital market, maintain or increase stock price, improve external reputation and convey future growth prospects.</td>
</tr>
<tr>
<td>Barua (2006)</td>
<td>Test the validity of the earnings quality construct by examining its decision usefulness.</td>
<td>Regression</td>
<td>United States of America</td>
<td>27,668 firm year observations Period: 1988-2003</td>
<td>Using FASB qualitative characteristics, results showed that earnings quality and cost of capital are negatively related.</td>
</tr>
<tr>
<td>Ecker et al. (2006)</td>
<td>Examine the properties of a returns based representation of earnings quality</td>
<td>Regression</td>
<td>United States of America</td>
<td>Returns Sample has 6,408 firms per year as compared to accruals quality sample which has 2,147 firms per year Period: 1970-2003</td>
<td>The study documented that returns based representation of earnings quality is better than accounting based representation of earnings quality.</td>
</tr>
<tr>
<td>Roshanlal (2006)</td>
<td>Examine the type and extent of disclosure in annual reports and to study the relationship between the company characteristics and the extent of disclosure.</td>
<td>Construction of Index, Anova &amp; Regression</td>
<td>India</td>
<td>92 Companies from BSE-500 index Period: 2001-2005</td>
<td>Results reported corporate attributes like BSE classification, age of the company, funding through ADR/GDR to be significant determinants of disclosure. Results also found no significant difference among respondents regarding level of satisfaction with adequacy of information in annual reports.</td>
</tr>
</tbody>
</table>
Findings of the Study

Results reported that the direct link between earnings quality and cost of capital dominates the link mediated by information asymmetry. While confirming the results of previous researchers regarding drivers of voluntary disclosures, the study identified new driver of voluntary disclosures i.e. stakeholders management. The study also concluded that investors’ information needs as measured by increase in business complexity, instability and volatility affected the volume but not the quality of voluntary disclosures across country contexts.

Results demonstrated a negative association between quality of annual reports and investor relation activities on one hand and level of information asymmetry on other. Results also found a positive association between information asymmetry and quarterly report disclosure quality. Additionally, the results indicated that the negative relation between disclosure quality and information asymmetry is caused by reducing the likelihood that investors discover and trade on private information.

Results revealed that earnings quality as measured by accruals quality affects cost of capital provided operating volatility is controlled. Results found a negative relation between disclosure and cost of capital in Brazil, which is immersed in poor institutional environment, poor investor protection and anaemic capital markets.
Results indicated that accounting amounts of the firms that apply IAS are of higher quality than those of firms which do not adopt IAS (adopt domestic standards). The results also showed that firms applying IAS exhibit less earnings smoothing, less managing of earnings towards a target, more timely recognition of losses and a higher association of accounting amounts with share prices and returns.

Results reported that the Japanese companies showed the maximum improvement in the overall disclosure in five year period followed by U.S and Indian companies. Further disclosure score of Indian companies were found to be more associated with organisation type and profitability, whereas, disclosure scores of Japanese and U.S companies were found to be more associated with organisation size and industry type respectively.

Results demonstrated that effect of earnings quality on cost of capital increases with the increase in fundamental risk.

Results reported that accruals quality does not affect cost of capital and hence is not an incrementally priced risk factor.

Results demonstrated that earnings quality has first order effect on cost of capital and the effect of voluntary disclosure on cost of capital disappears or is substantially reduced, when controlled for earnings quality.

The results reported that voluntary adoption of IAS improved information environment and reduced information asymmetry resulting in lower cost of capital through signalling and bonding.
Findings of the Study

Results demonstrated curvilinear relation between debt financing and earnings quality; positive at low level of debt and negative at high level of debt.

Results demonstrated that CSR disclosure by superior CSR performers reduces information asymmetry and estimation risk and hence reduces cost of equity capital. The study also documented that CSR disclosure by superior CSR performers also attracts institutional investors and is associated with increased analyst coverage, improved forecast accuracy, and a reduction in forecast dispersion.

The results revealed the validity of active monitoring hypothesis and private benefit hypothesis in Indian context and suggested to improve earnings quality by bringing in greater transparency, accountability and good governance practices.

The results revealed that issuance and disclosure of standalone CSR reports was associated with lower analyst forecast error or greater analyst forecast accuracy. Such association was found to be stronger in countries that are stakeholder oriented and with financial opaqueness.

Results reported that firms that disclosed high extent of voluntary information in the annual reports might be less efficient to mitigate the information asymmetry and subsequently reduce the stock volatility.

<table>
<thead>
<tr>
<th>Name of the author(s) and year of study</th>
<th>Objectives</th>
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<th>Country</th>
<th>Sample firms and period.</th>
<th>Findings of the Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghosh and Moon (2010)</td>
<td>Examine the association between debt financing and the quality of earnings</td>
<td>In multi-variate regressions, non-linear specification is used.</td>
<td>United States of America</td>
<td>All firms covered on the 2006 Compustat Period: 1992-2004</td>
<td>Results demonstrated curvilinear relation between debt financing and earnings quality; positive at low level of debt and negative at high level of debt.</td>
</tr>
<tr>
<td>Dhalwal et al. (2011)</td>
<td>Examine whether a high cost of equity capital in the previous year gives firms an incentive for CSR disclosure in the current year and also whether CSR disclosure leads to a lower cost of equity capital.</td>
<td>Logistic regression model</td>
<td>United States of America</td>
<td>213 firms disclosing standalone CSR reports. Period: 1993-2007</td>
<td>Results demonstrated that CSR disclosure by superior CSR performers reduces information asymmetry and estimation risk and hence reduces cost of equity capital. The study also documented that CSR disclosure by superior CSR performers also attracts institutional investors and is associated with increased analyst coverage, improved forecast accuracy, and a reduction in forecast dispersion.</td>
</tr>
<tr>
<td>Madhumathi and Ranganatham (2011)</td>
<td>Identity the relationship between earnings quality and firm performance in order to test the ability of market to infer managed earnings</td>
<td>Regression</td>
<td>India</td>
<td>8,110 firms</td>
<td>The results revealed the validity of active monitoring hypothesis and private benefit hypothesis in Indian context and suggested to improve earnings quality by bringing in greater transparency, accountability and good governance practices.</td>
</tr>
<tr>
<td>Dhalwal et al. (2012)</td>
<td>Examine whether the disclosure of Stand-alone Corporate Social Responsibility (CSR) reports is associated with improved earnings forecast accuracy by financial analysts.</td>
<td>Regression and Heckman (1976) two-stage estimation.</td>
<td>Study conducted in international Setting</td>
<td>7,108 standalone CSR reports issued by public firms from 31 countries Period: 1994-2007</td>
<td>The results revealed that issuance and disclosure of standalone CSR reports was associated with lower analyst forecast error or greater analyst forecast accuracy. Such association was found to be stronger in countries that are stakeholder oriented and with financial opaqueness.</td>
</tr>
<tr>
<td>Hamrouni and Ratsimbanier (2012)</td>
<td>Assess the effectiveness of the extent of voluntary disclosure in the corporate annual reports on reducing the stock price volatility</td>
<td>Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA) models</td>
<td>France</td>
<td>50 list French firms belonging to Societes des Bourses Francaises (SBF 250) index. Period: 2004-2008</td>
<td>Results reported that firms that disclosed high extent of voluntary information in the annual reports might be less efficient to mitigate the information asymmetry and subsequently reduce the stock volatility.</td>
</tr>
</tbody>
</table>

Contd...
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<tr>
<th>Name of the author(s) and year of study</th>
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</tr>
</thead>
</table>
| Iatridis and Alexakis (2012)          | Explore the motives for providing voluntary accounting disclosures and investigate the financial differences between voluntary and non-voluntary disclosures. | Logistic regression | Greece | 71 firms listed with Athens stock exchange  
Period: 2006-2009 | Voluntary disclosures exhibited higher profitability and growth and appeared to be good news bearers. Study also showed that provision of voluntary accounting disclosures is negatively associated with earnings management. |
| Kim, Park and Wier (2012)            | Examine whether firms that exhibit corporate social responsibility (CSR) also behave in a responsible manner to constrain earnings management. | Multiple regression and logistic regression | United States of America | 28,741 firm year observations  
Period: 1991-2009 | Results showed that the firms that exhibit CSR also behave in a responsible manner to constrain earnings management i.e. the CSR firms have good earnings quality. |
| Rudra and Bhattacharjee (2012)       | Whether adoption of IFRS leads to lower opportunistic earnings management or higher earnings quality. | Regression | India | 67 private sector companies  
Period: financial year 2010 | Inconsistent with results of previous studies, the results showed that with the adoption of IFRS, earnings management increases leading to poor earning quality. |
| Bhattacharya, Desai and Venkataraman (2013) | Test for the association between earnings quality and information asymmetry | Regression | United States of America | Large sample of NYSE and NASDAQ firms  
Period: 1998-2007 | The study documented that poor earnings quality is significantly and incrementally associated with higher information asymmetry |
| Ghoul et al. (2013)                  | Examine the link between information asymmetry (proxied by geographic proximity) and the cost of capital | Regression | United States of America | 4,282 firms  
Period: 1993-2008 | Study concluded that equity risk premium depends on geographic proximity and hence the firm’s cost of equity capital increases with their distance from central locations. |

Source: Researcher’s compilation
Some studies (e.g., Bushman et al., 2004; Francis et al., 2009; Iatridis and Alexakis, 2012; Dhaliwal et al., 2012) have also used CIFAR index to measure extent of disclosure at the country level. Some researchers in these studies have also used the available indices from prior studies (e.g., disclosure measure as developed by Botosan, 1997 has been widely used by other researchers with or without changes) or have developed their own indices (e.g., Meek et al., 1995; Botosan, 1997; Hamrauni and Ratsimbanier, 2002; Hooks et al., 2002; Boesso and Kumar, 2007 etc.).

Review of studies shows that there is much variation in the construction of disclosure indices among different studies. The studies have included different types and different number of information items in the indexes. Also the most common disclosure vehicle used by studies (e.g., Botosan, 1997; Hail, 2002; Botosan and Plumlee, 2002; Hooks et al., 2002; Kohli, 1998; Roshanlal, 2006) for the development of self constructed indices has been the annual reports of the companies. Further, different methods of scoring the information items in the disclosure index have been used. The researchers have used either weighted or unweighted scores to proxy for the extent of disclosure. It was also observed that the sample size of the studies using readily available disclosure scores were much larger as compared to the sample size of the studies measuring the extent of disclosure on the basis of disclosure index. This was so because of the difficulty in hand collecting the data.

Further, it was observed that studies on earnings quality have used both the accounting based as well as market based measures of earnings quality. As highlighted in Chapter 2, Table 2.2, the Jones (1991) model and Dechow and Dichev (2002) model were found to have been extensively used for measuring earnings quality. It was observed that studies using abnormal accruals or accruals quality using these models have taken data for long periods (10 years or more). The data for the accruals quality measure has been taken from different databases having accounting and financial data. Compustat database has been used in the U.S for getting accounting data to measure earnings quality. The similar data in India can be had from PROWESS database maintained by the Centre for Monitoring Indian Economy (CMIE).

Regarding the cost of capital measure, most of the studies have used implied cost of capital. Implied cost of capital is the required rate of return by the investors,
the calculation of which requires earnings forecasts by analysts. Most of the studies conducted in the U.S have used analysts’ earnings forecasts to calculate the implied cost of capital. These forecasts have been taken from Value Line database or Institutional Brokers Estimate System (I/B/E/S). However, in some studies conducted in countries other than the U.S, researchers have made changes in the valuation models to calculate implied cost of equity. Another important observation is that the terms cost of equity and cost of capital have been used interchangeably in the studies involving cost of capital.

3.6.2 Methods of Investigation

Extant literature on earnings quality shows that the term earnings quality has multiple references. Mixed evidence was found across earnings quality proxies, which measure different features (e.g., persistence, smoothness, predictive value, and relationship of accruals with cash flows etc.) of the same set of earnings. It was observed that studies involving testing of impact of earnings quality on cost of capital have mostly used abnormal accruals as calculated from Jones (1991) model or have used accruals quality as a measure of earnings quality using Dechow and Dichev (2002) model. It can be observed from Table 3.1, that multiple regression analysis was widely used in these studies to examine the impact of either disclosure or earnings quality on the dependent variable cost of capital. A few studies used two-stage estimation technique also to deal with endogeneity. A few researchers used other techniques as panel data regression, logistic regression, probit model, path analysis, and treatment methodology etc. It was observed that studies have used event methodology also, in cases where the purpose was to examine the impact of increase in disclosure as a result of some event, like the adoption of IAS (e.g., Leuz and Verrecchia, 2000; Karamanau and Nishiotis, 2009).

3.6.3 Substantive Findings

Extant literature provides evidence of two classes of empirical studies that have examined the association of disclosure or earnings quality with cost of capital. These are either corporate event-driven (e.g., adoption of U.S-GAAP or IAS/ IFRS) or are

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15 Institutional Brokers' Estimate System (I/B/E/S) provides investment professionals with a global database of analysts' forecasts of earnings per share.
cross-sectional analyses. It was observed that theoretical literature on disclosure and cost of capital association has established that extensive disclosures reduces information asymmetry and hence also the cost of capital. Empirical studies, however, were found to have documented mixed evidence. The studies have also provided evidence to both increase as well as decrease in cost of capital because of enhanced disclosures. It was observed that a very few studies have examined the impact of either voluntary disclosure or earnings quality on the cost of debt. This shows that a lot of exploration is required in that field of research. Further, all the studies have documented the decrease in cost of capital because of good earnings quality. It was also observed that studies have documented complementary as well as substitutive relationship between voluntary disclosures and earnings quality, depending on the proxies for voluntary disclosures as well as earnings quality.

A noteworthy point is that a study by Francis et al. (2008) is, till date, the only attempt to relate voluntary disclosures, earnings quality and cost of capital in a single analysis. On the contrary, the prior empirical studies have examined either the impact of voluntary disclosure or the impact of earnings quality on cost of capital.

### 3.6.4 Research Gaps

Most of the studies relating to the impact of voluntary disclosure or earnings quality on cost of capital are found to have been conducted using U.S data. A few studies have, however, been conducted taking non-U.S data too. This is evident from the literature discussed that there is dearth of such studies in India. A number of studies on corporate reporting practices, however, have been conducted in India. These studies have attempted to measure the extent of disclosure by the firms in their annual reports. Kohli (1998), for example, has compared the corporate disclosure practices of Indian and U.S companies and another study by Chandra (2008) has compared the disclosure practices of intangibles of the Indian, U.S and Japanese companies. Some other studies (e.g., Chander, 1992; Roshnallal, 2006; Sarkar, 2011) have also examined the disclosure practices of the Indian companies. Similarly, there is evidence of studies conducted on cost of capital measurement practices of Indian companies (Anand, 2002). To the researcher’s best knowledge, no study examining the impact of disclosure on the cost of capital has been conducted in India.
Some unpublished research studies on the relationship between earning quality, corporate governance and firm performance (Madhumathi and Ranganatham, 2011) and on the relationship between IFRS adoption and earnings quality (Rudra and Bhattacharjee, 2013) have been undertaken, taking Indian data. However, to the researcher’s best knowledge, no comprehensive study examining the impact of either voluntary disclosure or earnings quality on cost of capital has been conducted in India. Also there is no evidence of studies examining the relationship between voluntary disclosure and earnings quality in Indian context. These research gaps motivated the researcher to examine whether voluntary disclosures are influenced by earnings quality and further to investigate the impact of these two information attributes on cost of capital of the companies.

3.7 SUMMARY

The present chapter has incorporated a comprehensive review of studies relating to voluntary disclosures and earnings quality. A review of corporate event-driven and cross-sectional studies on the relationship between voluntary disclosure and cost of capital as well as the studies on the relationship between earnings quality and cost of capital provides an added insight into the research stance. On the basis of the review, research gaps have been identified and hypotheses formulated. The chapter concludes with an overview of the substantive findings from the review.

The forthcoming chapter will incorporate discussion on the development of voluntary disclosure index.
REFERENCES


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