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Financial Reporting Quality and Proprietary Cost: Empirical Study of Selected Indian Manufacturing Companies

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Abstract

Corporate financial reporting has been recognized as very important issue in accounting area since a long time. Increased awareness among investors and stringent disclosure regulations has converted the subject of corporate financial reporting into an area of growing corporate and academic interest. The empirical study conducted in this paper provides an insight for understanding the nature of relationship between financial reporting quality and proprietary cost particularly in Indian manufacturing industry.

Keywords: corporate financial reporting, proprietary cost, financial reporting quality

1. Introduction

Corporate reporting is all about communication and accountability. Stewardship is an important anchor on which our current model is based, a model developed from within the context of company law. But in addition to stewardship, which involves looking backwards, investors increasingly demand fair and balanced forward-looking information, and about strategy, business models, the value-creation process and related risks; and about performance on an integrated set of targets, not only financial but equally non-financial key performance indicators (KPIs) (Note 1).

The American Accounting Association defines it as "the movement of information from private (i.e. inside information) into the public domain." Financial reporting is intended to provide information that is useful in making reasoned choices among alternative uses of scarce resources in the conduct of business activities (Note 2).

In nutshell, financial reporting is a process of communicating all type of relevant or significant accounting information, directly or indirectly, relating to a business enterprise, to investors and other users for assisting them in making rational economic decisions in the best possible manner. Thus financial reporting is not an end in itself rather means to provide information which helps in making economic decision in a rational manner.

Recent years have seen a marked increase in the amount of information available to investors from extra- firm sources such as financial analysts, industry experts, trade publications, etc. Since 2001, Indian firms are required to comply with the Indian Accounting standards. The ICAI is the Indian accounting standard-setting body. Its recommendations are largely non-mandatory in initial stage and very general in their content and later on it's become mandatory for all firms. The market forces and investor interests are expected to play a major role in the determination of a firm's accounting policies.

Section 11 of the Companies Act 1956 requires that every company shall give the true and fair view of its state of affairs and result of its operations at the end of its financial year. For this purpose a balance sheet in conformance with part I of schedule VI and a profit and loss account in conformity with part II of schedule VI under the said section should be prepared and presented. These statements are assumed to be the major source of information provided for the purpose of decision making. There have been reservations about complete disclosure of the different activities of the business to the stake holders. In order to maintain secrecy all important factors are not revealed resulting debate in such issues. It is transparency versus business secrecy. Although it is true that each factor cannot be disclosed in the larger interest of the business undertaking, it is equally true that the users of financial statements need to know all important facts as to take appropriate decision (Note 3).

Disclosure could reduce the ability of the firm to reap the benefits of innovative activities such as oil exploration, product development, and research and development. This is often called the **competitive disadvantage aspect of** disclosure. (Note 4)

Overall, it can be argued that an important portion of the information that is normally considered as non-proprietary, such as the content of the notes to financial statements, becomes proprietary in the Indian environment (Note 5). The disclosure of proprietary information is costly because it can provide strategic information to existing and potential competitors in product markets. In other words, firms considering a disclosure face dilemma between attaining financial market valuation-related benefits and protecting long-term product market advantage (Shin [2002] (Note 6)).

Thus firms face this trade-off while making decisions affecting quality of financial reporting and thus the predictability of future operational cash flow. Given this fact, the present study aims to investigate the relationship between proprietary cost and predictability of future operational cash flow to determine whether former affects the quality of reported earnings.

2. Review of Literature

2.1 Studies on Disclosure Quality

Disclosure quality refers to the precision and accuracy of information. Precision of disclosures is measured by consensus among investors and accuracy of disclosures is measured by accuracy of investors' earnings expectations. One of the major limitations of empirical studies on corporate disclosures is the difficulty in measuring the quality of disclosure policies **(Healy and Palepu [2001])** (Note 7). There is no theoretical guidance on measuring disclosure quality. Despite this, empirical researchers developed several innovative measures of disclosure quality as exhibited by the following table:

Table 1. Proxies Used for Measuring the Quality of Disclosure Policies

No.	Proxy for quality of disclosure choices	Prior research studies
1	**The Association of Investment Management and Research(hereafter, AIMR)**	Lang and Lundholm [1993, 1996], Welker [1995], Healy, Hutton, and Palepu [1999], Lundholm and Myers [2002], Botosan and Plumlee [2002], Nagar, Nanda, and Wysocki [2003], Brown and Hillegeist [2007], Randall [2009].
2.	**Conservative accounting reports**	Basu [1997], Ball, Kothari and Robin [2000].
3.	**Earnings persistence**	Dechow and Dichev [2002], Francis, LaFond, Olsson and Schipper [2004].
4.	**Earnings smoothing activities**	Leuz, Nanda and Wysocki [2003], Francis, LaFond, Olsson and Schipper [2004], LaFond, Lang, and Skaife [2007].
5.	**The value-relevance of earnings**	Francis and Schipper [1999], and Francis, LaFond, Olsson and Schipper [2004].
6.	**Aggregate of individual proxies**	Leuz, Nanda and Wysocki [2003], Bhattacharya, Daouk and Welker [2003], Lang, Raedy and Yetman [2003b], Lang, Raedy and Wilson [2006], Burgstahler et al. [2006].Cohen [2008], Lang and Maffett [2010], and Ng

		[2010].
7.	**Firm's cash flows and working capital accruals**	Dechow and Dichev [2002] Francis, LaFond, Olsson and Schipper [2004, 2005], Ecker, Francis, Kim, Olsson, and Schipper [2006],Chen, H., L., Dan S. Dhaliwal and Mark A. Trombley [2007], Daniel Cohen [2004, 2008], Jennifer Francis and Dhananjay and Nanda Per Olsson [2008], and Ng [2010].
8.	**Self-constructed measures**	Botosan [1997], Hail [2003], Francis, Nanda and Olsson [2005], Jennifer Francis and Dhananjay and Nanda Per Olsson [2008], Gary C. Biddle, G. Hilary, and Rodrigo S. Verdi, [2009].
9.	**Frequency and precision of management forecasts of earnings**	Hutton, Miller and, Skinner [2003], and Nagar, Nanda, and Wysocki [2003].

2.2 Review of Studies on Proprietary Cost

Proprietary costs are the costs faced by a firm if it reveals information to outside parties. These costs include the revelation of trade secrets, the disclosure of profitable customers and markets, or the exposure of operating weakness to competing firms, unions, regulators, investors, customers or suppliers.

Although the association of proprietary cost with disclosure decisions has been extensively examined in analytic research, empirical research on the role of proprietary cost has not been dense. Saudagaran and Meek [1997] comment that empirical research on the effects of proprietary cost is "notably absent." Healy and Palepu [2001] express a similar opinion in their review of the empirical voluntary disclosure literature. Firms measure the valuation benefits of providing higher quality earnings against the associated costs. If the proprietary costs outweigh the market valuation benefits, the firm will choose to provide a lower quality of reported earnings, which will be less informative in predicting future performance.

There are a number of empirical studies that examine the effects of proprietary costs on firms' voluntary disclosure decisions. Harris [1998] finds that firms in highly concentrated industries make less disclosure on their segment operations than firms in more competitive industries, suggesting that proprietary costs associated with disclosure increase with industry concentration.

Luez [2003] examines the propensity of German firms to report segments as a function of proprietary cost. He finds that German firms voluntarily provide business segment data when the proprietary costs are low. i.e., when entry barriers are relatively high, segment information is highly aggregated and firm profitability is low. [Cohen 2004] provides a link between the quality of accounting information and the relative proprietary costs related to such a disclosure policy decision. The results of this study suggest that the higher the proprietary costs, (as proxied by realized margins, capital intensity, and industry concentration), the lower the quality of earnings and thus the ability to accurately predict future cash flows.

Hou and Robinson [2005] based on their findings; infer that firms in highly concentrated industries face a lower distress risk due to the less competitive environment in which they are competing in. Consistent with theory, Wang [2007] finds that firms were more likely to provide private earnings guidance before Regulation Fair Disclosure, if they had higher proprietary information costs, and if their earnings were more predictive of other firms' earnings (i.e., their earnings had higher "information transfer value" for their analysts). [May Zhang 2007] finds that firms with high proprietary cost provide more frequent but less precise and less accurate information disclosure than firms with lower proprietary cost.

These findings suggest that firms with high proprietary cost lower disclosure quality to reduce the usefulness of the information to competitors and instead they use a high quantity of disclosure as their primary means of resolving information problems.

3. Hypothesis Development

It has been conjectured that the level of cash flow predictability, given the quality of earnings, is negatively associated with proprietary cost proxies. Moreover, if a product market's barriers to entry are relatively high, the associated proprietary costs of disclosure should be relatively low and hence greater would be quality of disclosure. Table 2 demonstrates hypothesis which have been tested for the purpose of study.

Table 2. Hypotheses Relating to Proxies for Proprietary Costs

Variable	Prediction	Hypothesis	Interpretation
GROWTH	(+)	$H_0: \alpha 1 \leq 0$ $H_1: \alpha 1 > 0$	Firms with higher growth (proxy for future opportunities) provide lower quality of information and hence higher absolute value of residual showing lower level of predictability.
CAPITAL	(-)	$H_0: \alpha 2 \geq 0$ $H_2: \alpha 2 < 0$	Firms with higher capital requirement provide higher quality of information and hence lower absolute value of residual showing higher level of predictability.

COMPETITION	(+/-)	$H_0: \alpha 3 = 0$ $H_3: \alpha 3 \neq 0$	No specific prediction about the association between the quality of financial information and the level of competition, as captured by the concentration ratio calculated using the HERFINDAHL HIRSCHMAN INDEX.
LEVERAGE	(-)	$H_0: \alpha 4 \geq 0$ $H_4: \alpha 4 < 0$	Highly leveraged firms provide higher quality of information and hence lower absolute value of residual showing higher level of predictability.
MARGIN	(+/-)	$H_0: \alpha 5 = 0$ $H_5: \alpha 5 \neq 0$	No specific prediction about the association between the quality of financial information and firm's performance.
OPERATING CYCLE (OC)	(+)	$H_0: \alpha 6 \leq 0$ $H_6: \alpha 6 > 0$	Firms with longer OC makes accruals noisier and less helpful in predicting future cash flows and hence higher absolute value of residual showing lower level of predictability.
SIZE	(-)	$H_0: \alpha 7 \geq 0$ $H_7: \alpha 7 < 0$	Predictability of future cash flows is positively associated with firm size and thus larger the size in firm lower would be absolute value of residual showing higher level of predictability.

4. Research Methodology

The quality of financial reporting may be judged from a number of perspectives (e.g., earnings persistence, predictability of future performance, earnings variability, the relation between cash, accruals and income etc. However, to measure reporting quality on the basis of prior studies (Fairfield et al. [1996] and Barth et al. [2001]), reported earnings has been used which has been partitioned into two main components: cash flow from operations and accruals. Specifically, financial reporting quality has been defined as the extent to which reported earnings more accurately and precisely predict the future operating cash flow. The more the ability of reported earnings to predict future operating cash flow, the higher is the quality of financial reporting. To accomplish the objective laid down above, level of precision (financial reporting quality) empirically has been measured on the basis of absolute

value of the residuals obtained from a pooled regression of future operating cash flows on previous period earnings components.

Empirically, measure of financial reporting quality is based on the residuals obtained from estimating the model specified in equation (1) using ordinary least squares:

$$CFO_{i,t+1} = \beta_0+\beta_1 CFO_{i,t}+\beta_2 \Delta AR_{i,t}+\beta_3 \Delta INV_{i,t}+\beta_4 \Delta AP_{i,t}+\beta_5 DEPR_{i,t}+\beta_6 OTHER_{i,t}+\varepsilon_{i,t+1} \quad (1)$$

Where:

CFOi, t = Cash flow from operations for firm i at year t minus the accrual portion of extraordinary items and discontinued operations;

ΔARi, t = Change in accounts receivable account per the statement of cash flows;

ΔINVi, t = Change in inventory account per the statement of cash flow;

ΔAPi, t = Change in accounts payable and accrued liabilities account per the statement of cash flows;

DEPRi tt = Depreciation and Amortization Expense;

OTHERi, t = Net of all other accruals, calculated as EARN–(CFO+ΔAR+ΔINV-ΔAP-DEPR), where EARN is income before extraordinary items and discontinued operations;

$\varepsilon_{i,t+1}$ = Error term assumed to have zero mean and constant variance.

All variables are deflated by average total assets (Note 8).

The higher the absolute value of residuals obtained from equation (1), lower would be the quality of financial reporting. To proxy for the proprietary costs associated with financial reporting decisions, measures of firm's capital size, growth opportunities, and characteristics of its product market have been used. It has been conjectured that the level of cash flow predictability given the quality of earnings is negatively associated with proprietary cost proxies. Moreover, if a product market's barriers to entry are relatively high, the associated proprietary costs of disclosure should be relatively low and hence greater would be quality of disclosure.

The following proxies have been taken for the proprietary cost:

- GROWTH
- CAPITAL
- MARGIN
- HERF(concentration ratio)
- LEVERAGE

In order to control for the uncertainty associated with the operating environment of the firm and firm's informational environment, a proxy for the length of the operating cycle (OC) and the firm's SIZE have been included respectively.

The following empirical model has been estimated to investigate the relationship between proprietary cost and quality of financial reporting:

$$|e_{i,t+1}|=\alpha_0+\alpha_1 GROWTH_{i,t}+\alpha_2 CAPITAL_{i,t}+\alpha_3 HERF_{i,t}+\alpha_4 LEVERAGE_{i,t}+\alpha_5 MARGIN_{i,t}+\alpha_6 OC_{i,t} + \alpha_6 SIZE_{i,t}+\xi_{i,t+1} \quad (2)$$

Where:

$|e_{i,t+1}|$ = Absolute value of residuals obtained from estimating equation (1);

$GROWTH_{i,t}$ = Current year's growth in sales, calculated as net sales for year t less net sales of year t-1, scaled by net sales for year t-1;

$CAPITAL_{i,t}$ = Net plant, property and equipment divided by total assets;

$HERF_{i,t}$ = The Herfindahl-Hirschman Index is calculated as the sum of squares market shares in the industry i.e.

$$\sum_{i=1}^{N}[s_i/S]^2$$

where s_i is the firm's sales and S is the sum of sales for all firms in the industry and n is the number of firms in the industry;

$LEVERAGE_{i,t}$ = Long term debt plus debt in current liabilities divided by total assets;

$MARGIN_{i,t}$ = Gross margin percentage, calculated as the year t net sales less cost of goods sold for the year , scaled by net sales;

$OC_{i,t}$ = Operating cycle for firm i at time t, measured in days as

$$\frac{(AR_t + AR_{t+1})/2}{Sales/360} + \frac{(INV_t + INV_{t+1})/2}{COGS/360}$$

where AR is the firm's accounts receivable, INV is the firm' inventory, and COGS is the firm's cost of goods sold;

$SIZE_{i,t}$ = Natural logarithm of market capitalization at the end of the fiscal year (year t), calculated as the closing price at fiscal year-end times the number of shares outstanding at fiscal year-end times;

$\xi_{i,t+1}$ = Error term assumed to have zero mean and constant variance.

4.1 Data Collection and Sample Selection

For the purpose of the study, data has been taken from Prowess version 4.0 (CMIE Database) for the period 01-04-1997 to 31-03-2009 for 42 manufacturing companies. If Prowess 4.0

data is missing for some company &/or year, the data has been taken from the balance sheet of the concerned company for that particular year. Further the companies selected for the analyses are from ET 500, 2010 companies.

The statistical technique of multiple regressions has been used for the purpose of the study.

5. Empirical Findings

Univariate analysis is first conducted, followed by comprehensive multivariate analysis. The assumptions underlying the regression model were tested for multicollinearity based on the correlation matrix as well as the variance inflation factor (VIF (Note 9)). Using ordinary least squares (OLS) estimation method on a sample of firms from the period of 01-04-1998 to 01-04-2009, cash flow predictability is shown to be negatively associated with proprietary cost proxies. Specifically, it has been found that when the barriers to enter an industry are high, suggesting that proprietary costs are lower, the level of predictability of cash flows is higher.

The statistical and econometrical analysis of data of selected companies has been done using EVIEWS 7.1 version statistical package.

Table 3 presents descriptive statistics for the variables used in measuring financial reporting quality (equation 1). Consistent with prior studies [Barth et al.2001a] (Note 10), the means and medians of earnings and cash flow from operations are positive, and those of total accruals, which are difference between earnings and cash flow from operations, are negative. Mean and median of total accruals are negative since they include depreciation and amortisation. The table also reveals that current accruals such as the change in accounts receivables, change in accounts payable, and inventory are smaller in magnitude and are more volatile than depreciation, which is long term accrual. Table 3 reports descriptive statistics on Variables Measuring Financial Reporting Quality for a sample of 461 firm year observations.

Table 3. Descriptive Statistics on Earnings, Cash Flow from Operations, and Accruals

Variables	N	Mean	Median	Std dev
EARN	461	0.06684	0.056274	0.076154
CFO	461	0.106414	0.100899	0.096602
ACCRUALS	461	-0.03245	-0.02593	0.084067
ΔAR	461	0.027235	0.019118	0.075625
ΔINV	461	0.027054	0.012808	0.069916
ΔAP	461	0.021807	0.013487	0.05252
DEP	461	0.036304	0.033005	0.022181
OTHER	461	-0.03091	-0.02136	0.088665

Descriptive Statistics on Proprietary Costs Proxies

An examination of the descriptive statistics reported in Table 4 suggests that the sample consists of sizeable firms with average(median) market value of equity of Rs 22.79325 crore (Rs. 23.10405 crore), and growing (mean sales growth 0.239436), with large variation across the sample.

The operating cycle (OC) has a mean value of 195 days and a standard deviation of 91 days. This indicates that the majority of the firms in the sample have an operating cycle of less than one year. This finding is consistent with the fact that most accruals reverse within one year [Dechow and Dichev 2002]. The mean (median) of HERF (the concentration ratio) is 0.336606 (0.223201), indicating that the sample represents rather competitive industries, but with large variation across the sample. Table 3 reports descriptive statistics on Level of Predictability, Proprietary Costs Proxies for a sample of 461 firm year observations.

Table 4. Descriptive Statistics on Level of Predictability, and Proprietary Costs Proxies

Variables	MEAN	MEDIAN	STD DEV
RES_ABS	0.063707	0.047031	0.047031
GROWTH	0.239436	0.151058	0.682334
CAPITAL	0.272048	0.24184	0.24184
HERF	0.336606	0.223201	0.231724
LEVERAGE	0.340361	0.337808	0.337808
MARGIN	109.703	111.3897	22.88036
OC (Days)	195.3772	186.524	91.32052
SIZE (Rs. Crore)	22.79325	23.10405	2.307582

Deriving the Empirical Measure of Predictability of Future Cash Flows

Table 5 presents regression summary statistics for estimating equation (1) using OLS method, which is estimated over time and across firms in order to obtain the residuals that are used as the empirical measure of the ability to accurately predict future cash flow from operations .This procedure replicates the main model presented in Barth et al. (2001a) (Note 11). Consistent with their results, the accrual components in equation (1) and current operating cash flows individually as well as jointly are significantly different from zero and have predicted signs. All the explanatory variables, with the exception of ΔAP have a positive sign.

Table 5. Summary Statistics from Regression of Future Cash Flow from Operations on Current Cash Flow from Operations and Components of Accruals

Variable	Prediction	Coefficient (t-statistic)
CF	+	0.593616* (12.11682)
AR	+	0.559336* (7.780484)
INV	+	0.415765* (5.421223)
AP	-	-0.631127* (-6.063243)
DEP	+	1.036075* (6.693821)
OTH	+	0.332005* (5.192346)
Adjusted R^2	0.224894	

* Significant at the 1% level.

Multivariate Analysis- Cross Sectional Determinants of Financial Reporting Quality

Focusing on a multivariate analysis, Table 6 presents the results from estimating equation (2)

Where the dependent variable is the absolute value of the residuals obtained from estimating equation (1). This analysis is based on a pooled cross-section regression.

Test of heteroskedasticity of the data through an analysis of residuals indicated no major problem for regression analysis. Residuals are what are left over after the model is fit and they are also the difference between the observed value of the dependent variable and the value predicted by the regression line. Further, the visual examination of correlation matrix of the explanatory variables is thought of an essential way to perceive collinearity problem. Correlation coefficient is considered problematic if it exceeded 0.8. A more precise and indicative method broadly used is the VIF for each of the independent variable. Co-linearity is considered a problem if the VIF exceeds 10 or $R^2_{1.2}$ exceeds 0.9. Thus, based on correlation matrix and VIF found in the study it is unlikely that multicollinearity is to influence the regression results, since the highest VIF ($R^2_{1.2}$) of 1.96 (0.49 in both Table 5 and Table 6) is far less than the threshold of ten.

Table 6. Summary Statistics from Regression of Absolute Value of Residuals on Proprietary Cost Proxies

Variable	Prediction	Coefficient (t-statistic)
GROWTH	+	0.01011** (2.343342)
CAPITAL	-	-0.01785 (-0.776368)
HERF	+/-	0.047721* (3.585404)
LEVERAGE	-	-0.02993*** (-1.698772)
MARGIN	+/-	0.000341** (2.417997)
OC	+	6.01E-5*** (1.798868)
SIZE	-	-0.00148*** (-2.143756)
Adjusted R^2	0.02	

*, **, *** Significant at the 1%, 5%, and 10% respectively.

Firms with a higher leverage (LEVERAGE) are significantly more likely to provide high-quality financial information. This is one of the strongest determinants of whether firms choose a high or low reporting quality. This result suggests that investors' demands for financial information and monitoring devices influence the likelihood of firms providing high-quality information. This result is consistent with debt contracting and monitoring influencing the quality of financial information (Watts [1977]) (Note 12) and the empirical evidence in Barton and Waymire [2004] (Note 13).

In addition, it has been found that proprietary costs affect the reporting quality choice. In particular, the results indicate that the overall competition the firm faces measured by HERF (the weighted Hefindahl-Hirshman Index), affects reporting quality. The coefficients of HERF are significantly positive at 1% level of significance, suggesting that firms in more competitive industries are less likely to report high-quality information.

This result is inconsistent with the findings in Harris [1998] (Note 14), who demonstrates that firms are less likely to disclose operations in less competitive industries as business segments. In other words, a higher quality of information prevails in more competitive environments. This result is inconsistent with theoretical models predicting less disclosure in less competitive markets (e.g., Hayes and Lundholm [1996]) (Note 15). On the other hand, this result is consistent with disclosure models that predict that firms respond to higher levels of

competition by providing less information (e.g., Verrecchia [1983]) (Note 16). The coefficient on GROWTH is significantly positive at 5% significance level. The significant coefficient on MARGIN bears out the hypothesis that more profitable firms (as reflected in higher realized margins) have the higher proprietary costs associated with lower reporting quality. The positive coefficient on MARGIN is consistent with the findings in Piotroski [2003] (Note 17), who interprets MARGIN as a proxy for proprietary costs, but inconsistent with previous findings that firm performance is positively related to disclosure policies (e.g., Lang and Lundholm [1993]) (Note 18).

SIZE has a significant negative relation (at 10% significance level) with $| e_{i,t+1} |$. This suggests that larger and more capital intensive firms are providing financial information that predicts future cash flows with a higher precision. One interpretation of this finding is that firm size, can act as a barrier to entry for future competitors in the product market. Therefore, such firms incur less proprietary costs in providing financial information, as reflected in the reported disaggregated earnings which are more informative regarding their future performance. It is important to point out that the negative coefficient on SIZE is consistent with different interpretations, such as a political cost interpretation. A larger firm prefers to provide more informative financial information anticipating that the likelihood of incurring political costs increases by not choosing such a reporting strategy. An additional interpretation of firm size is that it proxies for the firm's information environment, where these results indicate that the larger the firm is, the more accurately one can predict its future cash flows. This is consistent with previous research documenting a positive relation between firm size and disclosure policy decisions (e.g., Lang and Lundholm [1993]). Another interpretation for the observed sign on the size coefficient is that there are some firm characteristics omitted from the model that are related to the quality of a firm's accounting numbers, such as that larger firms are followed by more analysts.

The coefficient on OC is positive and significant at 10% level of significance. This finding is consistent with the findings in Dechow and Dichev [2002]. This suggests that firms with higher operating cycles have lower quality of financial reporting.

Inconsistent with findings of Lang and Lundholm [1993], the coefficient on CAPITAL, is not significant at conventional levels, though its direction is as predicted.

Based on the magnitude of the coefficient estimates for the variables included in equation (2), other things remaining constant, a 1 percent increase in the growth (concentration ratio) leads to 0.01 percent (about a 0.048%) increase in the residuals value (decrease in the financial reporting quality). On the contrary, 1% increase in the leverage leads to about a 0.02% decrease in the residuals value (increase in the financial reporting quality).

The adjusted R^2 for equation 2 is very low (0.02). This is likely due to the measurement of the dependent variable ABS_RESIDUAL (proxy for financial disclosure quality).

Overall it can be said that for taking all the Indian companies belonging to different manufacturing industries, empirical result generally supports the hypothesis that higher the proprietary cost, lower would be the quality of financial reporting.

6. Suggestions for Future Research

Corporate financial reporting is an important issue which has received the attention of researchers, writers, accounting bodies, regulators in the past and it is expected that in future also, this will continue to be a potential area for academic debate and research in the accounting community. The present study broadly deals with some aspects of company financial reporting such as proprietary cost and their relationship with corporate disclosure, and measuring quality of disclosure. Almost all studies on these dimensions have been conducted abroad and studies conducted in India on these aspects have been less.

Corporate financial reporting is a desirable commodity and needs to be investigated continuously and empirically. Based on the present empirical study, some potential areas for research are being suggested here for the benefit of researchers especially in India.

1. There is a need to investigate the relationship between market-wide (macro-level) costs and benefits to the firms due to disclosure. The variation in financial reporting quality depends not only on the benefits firms expect to derive from disclosure, but also on the proprietary costs firms face. Future work on determinants and consequences of financial reporting policies should thus consider both the costs and benefits associated with a reporting policy choice.
2. The relation between disclosure and cost of capital can be studied for different firms having different characteristics and affiliation such as ownership status, age, industry affiliation, heterogeneity, and listed vs. unlisted firms etc.
3. The competitive disadvantages associated with corporate disclosure can be enquired into with large sample of companies.
4. The impact of financial reporting on investors' welfare through investment decisions needs to be empirically tested.

7. Limitations of the Study

There are some limitations of this study.

- In the present study, seven company attributes that explain corporate financial disclosure have been identified. It is quite likely that some other corporate characteristics are also influencing significantly the level of reporting in the annual reports.
- This study is based on 42 Indian manufacturing companies both from public and private sector belonging to six different industries, (seven companies from each industry).
- No attempt has been made to estimate the valuation benefits associated with the ability to predict future cash flows, for example how the firm's cost of capital is associated with cash flow predictability, but focused only on the cost side.

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Note 7. The difficulty in measuring disclosure quality has led some researchers to focus on management forecasts (e.g., Coller and Yohn [1997], Pownall, Wasley, and Waymire [1993]). Others examine disclosure quality ratings, for example, Welker [1995], Lang and Lundholm [1996] and, Healy, Hutton, and Palepu [1999].

Note 8. This specification is used because it has the highest predictive ability compared to models that include multiple lags of cash flows from operations and accruals components (see Barth et al. [2001]).

Note 9. The larger the value of VIF, the more collinear the variable. As a rule of thumb, if the VIF of a variable exceeds 10, which will happen if R^2_{12} exceeds 0.90, that variable is said be highly collinear.

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Appendix A. Variable Definitions

EARN	Net profit after tax but before extraordinary items.
CFO	Net cash flow from operating activities (indirect method).
ACCRUALS	Difference between EARN and CFO.
ΔAR	Change in accounts receivable account per statement of cash flows.
ΔINV	Change in inventory account per the statement of cash flows.
ΔAP	Change in accounts payable account per the statement of cash flows.
DEPR	Depreciation and Amortization Expense
OTHER	Net of all other accruals, calculated as EARN – (CFO+ Δ AR+ Δ INV- Δ AP-DEPR).
RES_ABS	The absolute value of residuals obtained from a regression of future operating cash flows on current operating cash flows and accrual components.
ASSETS	Total assets
NET SALES	Industrial sales-Excise duty
MARGIN	Gross margin percentage, calculated as the year t net sales less cost of goods sold for the year, scaled by net sales.
OC	Operating Cycle (in days), calculated as $\frac{(AR_t + AR_{t+1})/2}{Sales/360} + \frac{(INV_t + INV_{t+1})/2}{COGS/360}$
SIZE	Natural logarithm of market capitalization at the end of the fiscal year, calculated as the closing price at fiscal year-end times the number of shares outstanding at fiscal year-end.
GROWTH	Current year's growth in sales, calculated as net sales for year t less net sales of year t-1, scaled by net sales for year t-1.
HERF	The Herfindahl Index is calculated as the sum of squares of market shares in the industry: $\sum_{i=1}^{N} [s_i/S]^2$ where s_i is the firm's sales and S is the sum of sales for all firms in the industry, and n is the number of firms in the industry.
LEVERAGE	Long term debt plus debt in current liabilities divided by total assets.

CAPITAL	Net Plant & Machinery / computers / electrical installations divided by total assets.
LONG TERM DEBT	Long Term Borrowings=Total borrowings-short term nature of borrowing from banks & institutions-commercial papers.
CURRENT LIABILITIES	Short term debt in current liabilities or sundry creditors.
COST of GOODS SOLD	Opening stock+purchases+direct expenses-closing stock, where direct expenses = Raw materials, stores & spares+ Power, fuel (including wheeling charges paid by electricity companies) & water charges+Repairs& maintenance of plant & machinery.

Appendix B. List of Companies Used in the Analyses

As Per National Industrial Classification (NIC2008): Section C Manufacturing

Division	Name of Division	Group	Name of Group	Class	Name of Class	Name of the companies included	ET 2009 Rank	ET 2010 Rank	No. of the companies included in each group	Total no. of the companies included in each division
10	**Manufacture of food products**	104	Manufacture of vegetable and animal oils and fats	1040	Manufacture of vegetable and animal oils and fats	• Ruchi Soya Industries Ltd.	44	44	04	07
						• K S Oils Ltd.	168	151		
						• Anik Industries Ltd.	431	386		
						• Sanwaria Agro Oils Ltd.	375	376		
		107	Manufacture of other food products	1072	Manufacture of sugar	• BalrampurChini Mills Ltd	296	292	03	
						• EID Parry (India) Ltd.	51	78		
						• Bajaj Hindustan Sugar & Industries Ltd.(Merged)	229	232		
13	**Manufacture of textiles**	131	Spinning, weaving and finishing of textiles	1311	Preparation and spinning of textile fibres	• Vardhman Textiles Ltd.	171	184	07	07
						• Alok Industries Ltd.	173	145		
					Weaving of textiles	• Raymond Ltd.				
				1312		• Garden Silk Mills Ltd.	197	216		
					Finishing of textiles	• Trident Ltd.	253	222		
				1313		• Spentex Industries Ltd.	315	286		

						• Forbes & Company Ltd.	-	350		
							358	379		
20	**Manufacture of chemicals and chemical products**	201	Manufacture of basic chemicals, fertilizer and nitrogen compounds, plastics and synthetic rubber in primary forms	2012	Manufacture of fertilizers and nitrogen compounds	• Coromandel International Ltd.	60	92		
						• Zuari Industries Ltd.	62	95		
						• Rashtriya Chemicals & Fertilizers Ltd.	69	108		
						• Chambal Fertilisers & Chemicals Ltd.	91	148	07	07
						• National Fertilisers Ltd.	101	120		
						• Nagarjuna Fertilisers & Chemicals Ltd.	209	269		
						• Fertilisers and Chemicals Travancore Ltd.	225	248		
21	**Manufacture of pharmaceuticals, medicinal chemical and botanical products**	210	Manufacture of pharmaceuticals, medicinal chemical and botanical Products	2100	Manufacture of pharmaceuticals, medicinal chemical and botanical products	• Cipla Ltd.	99	106		
						• Dr. Reddy. Laboratories Ltd.	78	87		
						• Lupin Ltd.	139	128		
						• Piramal Healthcare Ltd.	161	170		
						• Ranbaxy Laboratories Ltd.			07	07
						• Sun Pharmaceutical Industries Ltd.	74	72		
						• Wockhardt Ltd.,	128	149		
							149	172		

		241	Manufacture of basic iron and steel	2410	Manufacture of basic iron and steel	• Tata Steel Ltd. • Steel Authority of India (SAIL) Ltd. • Bhushan Steel Ltd. • JSW Steel Ltd. • Hindalco Industries Ltd.	3 12 108 37 9	7 13 101 36 9	05	07
24	**Manufacture of Basic Metals**	242	Manufacture of basic precious and other non-ferrous metals	2420	Manufacture of basic precious and other non-ferrous metals	• Hindustan Zinc Ltd. • National Aluminium Company Ltd.	81 93	68 113	02		
29	**Manufacture of motor vehicles, trailers and semi-trailers**	291	Manufacture of motor vehicles	2910	Manufacture of motor vehicles	• Ashok Leyland Ltd. • Bosch Ltd. • Hero Motor Corp Ltd. • Mahindra & Mahindra Ltd. • Maruti Suzuki India Ltd. • TVS Motor Company Ltd. • Tata Motors Ltd.	86 111 39 20 28 142 8	86 122 45 18 29 135 8	07	07