

Accounting Discretion, Ownership Structure and, Financial Distress: A Study of Selected Indian Companies

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Financial scams and subsequent filing for bankruptcy by many companies have adversely affected investors' wealth across the globe. Lax governance structure of firms and improper check on managerial opportunism have led to the manipulation of reported earnings. Accounting standards allow certain discretion and flexibility to managers in making accounting choices to enhance the decision usefulness of reported earnings. However, incentives to provide accounting information dominate accounting standards in determining the quality of reported earnings (Ball, Robin and Wu, 2003; Christensen, et al., 2015). The key point is that incentives shape how insiders (managers and/or dominating shareholders) use discretion in accounting choice allowed within the accounting standards (Leuz and Wysocki, 2016) which is in turn influenced by the ownership structure of the firm. This study examines one such incentive - seeking bankruptcy protection in India.

Fields, Lys, and Vincent (2001), define accounting choice as “any decision whose primary purpose is to influence (either in form or substance) the output of the accounting system in a particular way, including

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not only financial statements published in accordance with GAAP¹, but also tax returns and regulatory filings.” This definition is quite broad and includes individual accounting choices (stock valuation, depreciation, etc.), the net effect of all accounting choices (that is discretionary accruals or earnings management) and choices pertaining to real decisions (expenditure on research and development, advertising etc.). Since managers can use multiple accounting choices to achieve a particular financial reporting outcome and examination of single accounting choice may lead to misleading conclusions. Studies have used discretionary accruals or earnings management to capture the net effect of all accounting choices. Healy and Wahlen (1999) define earnings management as “the use of judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.”

The crux of both these definition lies in the managerial intent guiding accounting choice. Agency theory (Jensen and Meckling, 1976) is considered as the most important theoretical underpinning in accounting research and provides a basis for examining accounting choice of managers (Lambert, 2001). It links earnings management with three crucial aspects: costly-contracting, efficient contracting and information asymmetries (Walker, 2013). These approaches substantiate the motivation to engage in earnings management to a large extent. The contracting approach considers firm as a nexus of contracts (compensation contracts and debt contracts) (Fama and Jensen, 1983). Thus, managers may use earnings management opportunistically to avoid violation of contractual obligations or for efficient communication of information to enhance firm value.

The focus of this study is on debt contracts. Bankruptcy filing and protection is one of the ways of enforcing debt contracts (Gormley, Gupta, and Jha, 2011). Given the adverse effects bankruptcy of a firm can have on all its stakeholders, empirical corporate finance literature has developed various models to predict bankruptcy. These models are those based on financial ratios, price based models, and models based on artificial intelligence. Among these, the most widely used model is the Z-score model based on financial ratios developed by Altman (1968).

Bankruptcy laws are a means to protect creditor rights as the efficiency of bankruptcy procedure is crucial avoiding erosion of firm value and increase in the cost of capital and thus inefficient allocation of capital (Hart, 2000). On average 50 per cent of the firm value is

¹ GAAP stands for Generally Accepted Accounting Principles.

eroded owing to inefficient bankruptcy procedure (Djankov, et al., 2008). Such inefficiencies are exacerbated by the existence of uncompetitive financial markets characterized by government dominance. In such markets, creditors have weak incentives to effectively monitor borrowers and initiate recovery of assets (Gormley et al., 2011).

The Sick Industrial Companies (Special Provisions) Act (SICA), 1985 and the Board for Industrial and Financial Reconstruction (BIFR) deal with bankruptcy and insolvency procedure in India. The criteria for reference of a firm to BIFR are based on negative net worth, which is an accounting measurement and subject to managerial discretion. Beaver, Correia, and McNichols (2012) examined whether managerial discretion over financial reporting affects the informativeness of financial-ratios for predicting bankruptcy. They found that managerial discretion over accounting numbers significantly deteriorated the predictive power of the financial ratios-based model to predict bankruptcy. Thus negative net worth condition may not be a sufficient indicator of distress (Gopalan, Martin, and Srinivasan, 2016) as it can be manipulated by insiders to extract private benefits of control at the cost of outsiders (debt holders and minority shareholders). Such criteria can lead to two possibilities. One, financially distressed firms unable to make debt payments cannot seek protection under BIFR unless net worth is negative. Second, healthy firms with negative net worth can seek protection and stop making debt payments. Such conditions enable the insiders to obtain stay on assets and escape the scrutiny of creditors.

The criteria based on accounting data provide an incentive to insiders to engage in earnings management to either seek or avoid bankruptcy protection. Moreover, earnings management choices are influenced by ownership structure. Extant literature has documented a non-linear relationship between earnings management and ownership structure, and firm value and ownership structure (Selarka, 2005; Sarkar, Sarkar, and Sen, 2013). Evidence also exists that quality of reported earnings is significantly influenced by the presence of insider owners (Fan and Wong, 2002; Ball and Shivkumar, 2006). Thus, ownership structure (promoter holding and institutional shareholding) affect both firm value and earnings management choices.

With this backdrop, the present study attempts to examine the impact of bankruptcy regulation based on accounting numbers in enforcing debt contracts and protection of creditor rights. The objective of this study is two-fold: First, it sheds light on the opportunistic use of earnings management by insiders to take the advantage of accounting based regulation at the cost of outsiders. Second, it examines the impact of the ownership structure of a firm on financial distress. The analysis is conducted using logistic regression on a unique sample of firms referred to BIFR and employing a matching sample approach.

INSTITUTIONAL ENVIRONMENT IN INDIA

According to the Sick Industrial Companies (Special Provisions) Act, 1985, a sick unit is defined as "An industrial company (being a company registered for not less than five years) which has, at the end of any financial year, accumulated losses equal to, or exceeding, its entire net worth and has also suffered cash losses in such financial year and the financial year immediately preceding such financial year." The Act established the Board for Industrial and Financial Reconstruction (BIFR) for the revival of distressed firms. It is a quasi-judicial body formed for intervention, revival, and rehabilitation and suggesting restructuring plans for distressed firms which have a likelihood of turnaround. However, the board has not been efficient in timely settlement of cases referred to it. The board takes on average seven years to recommend turnaround of a firm (Kang and Nayar, 2004). During this time, there is a moratorium on debt payments, stay on all legal proceedings, and the firm remains in control of equity holders. This process imposes costs on lenders and washes away firm value. The inefficiency of bankruptcy system provides an opportunity to insiders to extract private benefits of control and tunnel wealth, which results in erosion of firm value (Gopalan et al., 2016). SARFAESI and Corporate Debt Restructuring (CDR) were also introduced subsequently to strengthen creditor rights.

In spite of the efforts to improve the efficiency of bankruptcy procedure, India lags behind BRICS nations in terms of ease of resolving bankruptcy, recovery rate, time, and cost expended to resolve bankruptcy. The Doing Business report by the World Bank (2017) compiles the data pertaining to these parameters (Table 1). Thus, understanding bankruptcy regulations as a mechanism of enforcing debt contracts and protection of creditor rights is important in the context of India.

Table 1: Data Pertaining to Ease of Resolving Bankruptcy/Insolvency

Country	Rank	Recovery Rate (Cents on the Dollar)	Time (Years)	Cost (% of Estate)
Brazil	80	12.7	4	12
Russia	54	40.7	2	9
India	103	26.4	4.3	9
China	56	36.9	1.7	22
South Africa	55	34.4	2	18

Source: Resolving Insolvency – Doing Business, World Bank, 2017

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Agency theory is the most important theoretical foundation in accounting and provides direction to accounting research. It considers the firm as a nexus of many contractual relationships between shareholders, debt holders, and managers (Fama and Jensen, 1983). The main purpose of such contracts (compensation contracts and debt contracts) is to mitigate agency costs by aligning the interests of parties to contract. Accounting information is used as the basis to define and/or govern these contractual arrangements. Thus insiders may engage in earnings management to influence contractual outcomes.

It links earnings management with three crucial aspects: costly-contracting, efficient contracting, and information asymmetries (Walker, 2013). These approaches substantiate the motivation to engage in earnings management to a large extent. The costly contracting approach posits that opportunistic accounting choices are made to avoid debt covenant violation and/or increase executive compensation. As opposed to this, the efficient contracting approach suggests that accounting choices are made such that they increase firm value (Holthausen, 1990). The information asymmetry approach focuses on providing value relevant information to the present and potential users of accounting information and aid in investment and credit decisions.

From the contracting perspective, debt contracts and compensation contracts have been examined in the literature to understand the use of accounting information for contracting purpose. Compensation contracts refer to internal agency conflicts and debt contracts refer to external agency conflicts. Compensation contracts aim at aligning interests of managers and owners by linking managerial compensation with accounting earnings. Debt contracts arise from the presence of debt in the capital structure of the firm. It influences the ownership structure of the firm, monitoring mechanisms, and the generation and dissemination of accounting information to assess the financial health of the firm. Thus, insiders have an incentive to manipulate reported earnings to hide poor financial performance and avoid violation of debt covenants (DeFond and Jiambalvo, 1994).

The key point here is that incentives shape how insiders (managers and/or dominating shareholders) use discretion in accounting choice allowed within the accounting standards (Leuz and Wysocki, 2016) which is in turn influenced by the ownership structure of the firm. Cross-country research has revealed that ownership structure significantly affects the quality of accounting information because of the influence of insiders (Fan and Wong 2002); Burgsthaler, Hail, and Leuz, 2006. The impact of insider control on firm value and

opportunistic earnings management can be explained in terms of two competing hypotheses: alignment hypothesis and entrenchment hypothesis. The former states that insiders take actions in the interests of outsiders (minority shareholders and debt holders). Thus, insiders will engage in value-maximizing decisions and reduce information asymmetries by reporting true accounting information. The latter hypothesis states that insiders take actions in order to extract private benefits of control at the cost of outsiders. Thus, they will engage in activities beneficial to them and conceal information to mislead outsiders.

CONCEPTUAL FRAMEWORK AND DEFINITIONS

Financial distress and corporate bankruptcy are often used interchangeably in the literature. However, distress is different from the one-time event of bankruptcy. Financial distress covers the spectrum of financial difficulties faced by firms in varying degrees. Wruck (1990) defined financial distress as a situation where “a firm’s operating cash flows are not sufficient to satisfy current obligations (such as trade credits or interest expenses) and the firm is forced to take corrective action.” It has been studied extensively in corporate finance as it affects all stakeholders adversely (Deakin, 1972). Extant literature has documented various models to predict corporate bankruptcy. A number of approaches like univariate analysis (Beaver, 1966), multivariate analysis (Altman, 1968), probabilistic analysis (Ohlson, 1980), and artificial intelligence (Odom and Sharda, 1990) have been used to predict financial distress. These models can be broadly classified as: financial ratio based models, price based models, and models based on artificial neural networks.

Financial ratio-based models are based on ratios calculated from using accounting information. They comprise the seminal work by Beaver (1966), Altman (1968), and Ohlson (1980). Beaver (1966) used a univariate approach to predict distress. Out of 30 financial ratios used in the study, he found that working capital to debt ratio was the best for predicting bankruptcy. This factor was able to correctly classify 90 per cent of the distressed firms. Altman (1968) used multivariate discriminant approach to classify bankrupt and non-bankrupt companies. The study used five financial ratios: working capital/total assets, retained earnings/total assets, earnings before interest and tax/total assets, market value of equity/ book value of total liabilities, and sales/total assets. This model was able to classify 95 per cent of the firms correctly one year before a company was actually declared bankrupt.

Ohlson (1980) used logistic regression to develop O – Score model for bankruptcy prediction. He studied 105 bankrupt firms and 2,058 non-bankrupt firms for the purpose of developing the model. He used nine financial ratios for modelling bankruptcy prediction: the

firm size (log of a price-level deflated measure of total assets), total liabilities/total assets, working capital/total assets, current liabilities/current assets, a dummy variable indicating whether total assets were greater or less than total liabilities, net income/total assets, funds from operation/total liabilities, another dummy variable indicating whether net income was negative for the last two years, and change of net income. But only four factors - size of the company, measure of financial structure, a measure of performance, and measure of current liquidity- were statistically significant in predicting the probability of bankruptcy within one year of failure. This model accurately classified 96 per cent of the distressed firms.

Price - based models are grounded in the premise of efficient capital markets and take into account market data like stock prices and stock returns. These models are derived from contingent claim models like Black and Scholes (1973) and Merton (1974). Such models consider equity of firm as a call option on the underlying assets of the firm. The strike price of the option is equal to the face value of debt/liabilities owed by a firm. The distress risk is then calculated as a probability of the decrease in the value of underlying asset below the value of debt. However, financial ratio based models are considered more robust than price based models (Agarwal and Taffler, 2008).

Odom and Sharda (1990) used neural networks for the first time for the purpose of bankruptcy prediction. They used the same ratios as used by Altman (1968). The model was able to correctly identify all the distressed firms and the healthy firms in the training sample, whereas the multivariate discriminant analysis had an accuracy of 86.8 per cent. In case of holdout samples, neural networks had an accuracy rate of 77 per cent, while it was 70 per cent using multivariate discriminant analysis. Subsequently, Hansen and Messier (1991) and Wilson and Sharda (1994) also found that neural networks were better than other prediction models. The major advantage of neural networks over statistical techniques is that the models do not require to adhere to the assumptions like normality and multicollinearity.

EARNINGS MANAGEMENT

The fundamental purpose of financial reporting information is to assist the users of such information in predicting future cash flows and thereby making investment and credit decisions (ICAI, 2000). Earnings reported as a part of financial reporting information is a function of the financial performance of the firm and measurement of this performance by accounting system (Dechow, Ge, and Schrand, 2010). Measurement of performance requires the use of certain estimates and assumptions that are based on industry practices, nature of the business, firm's operations, and past experience. The use of this estimates improve the

quality of earnings but at the same time also provides a scope for manipulating earnings (popularly referred as earnings management). Earnings management may be used to reduce information asymmetries, influence contractual outcomes, and/or mislead stakeholders.

The accounting system is based on accrual accounting. Thus accounting earnings are made up of accruals and cash flows. Accruals are subject to the influence of managerial estimates, unlike cash flows. Accruals arrived at using managerial estimates reflect management's information on business economics as well as manipulation. Therefore, the extant literature has distinguished between discretionary (abnormal) and non-discretionary (normal) accruals (Dechow et al., 2010). Discretionary accruals are used to assess the extent of earnings management as they reflect the manipulation arising from manager's discretion (Dechow, Sloan, and Sweeney, 1995). The extant literature has documented various models to estimate discretionary accruals (See Table 2).

Table 2: Models Used to Estimate Discretionary Accruals

Sr. No	Accrual Model	Model Specification	Explanation
1	Healy (1985)	$ACC_t = NDA_t + DA_t$ $NDA_t = TA_t / T$	Accruals are defined as the difference between reported earnings and cash flow from operations. Accounting earnings are decomposed into cash flow from operations (C _t), non-discretionary accruals (NDA _t) and Discretionary accruals (DA _t). Total accruals (ACC _t) includes discretionary as well as non-discretionary accruals. Non-discretionary accruals are calculated as mean total accruals (scaled by lagged assets) of the estimation period.
2	DeAngelo (1986)	$NDA_t = TA_{t-1}$	Non-discretionary accruals are measured by using previous year's total accruals (scaled by lagged assets). This means that the estimation period is restricted to the previous year.
3	Jones (1991)	$TA_t = (\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - DEP_t) / A_{t-1}$ $ACC_t = \alpha + \beta_1 (\Delta REV_t) + \beta_2 (PPE_t) + e_t$ <p>Following equation is used to estimate firm specific parameters α, β_1, β_2</p> $TA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 (\Delta REV_t) + \alpha_3 (PPE_t) + e_t$	This model takes into account firm specific factors. Accruals are modeled as a function of revenue growth and PPE. The second model is used in the estimation period to calculate firm specific parameters.
4	Modified Jones Model (Dechow et al., 1995)	$ACC_t = \alpha + \beta_1 (\Delta REV_t / \Delta REC_t) + \beta_2 (PPE_t) + e_t$ <p>Following equation is used to estimate firm specific parameters α, β_1, β_2</p> $TA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 (\Delta REV_t) + \alpha_3 (PPE_t) + e_t$	Jones model assumes that no discretion is exercised over revenues in the estimation period or event period. The original Jones model is modified to adjust change in revenues for change in receivables.
5	Dechow and Dichev (2002)	$\Delta WC = \alpha + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + e_t$	The model measures accruals quality by the extent to which working capital accruals are able to map into operating cash flow realizations. Considering the timing of cash flow recognition in earnings, accruals are modeled as a function of past, present and future cash flows.
6	Discretionary estimation errors (Francis, LaFond, Olsson & Schipper, 2005)	$TCA_t = \alpha + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta REV_t + \beta_5 PPE_t + e_t$	Accruals quality is estimated using Dechow&Dichev model. It is augmented by the fundamental variables of modified Jones model. Accruals quality is decomposed into innate and discretionary accruals.
ACC= Total Accruals, NDA= Non-discretionary Accruals, DA= Discretionary Accruals, CA= Current Assets, CL= Current Liabilities, STD= Short Term Debt, DEP= Depreciation, REV= Revenue, REC= Receivables, CFO= Cash Flow from Operations, PPE= Property & Equipment, WC= Working Capital, A _{t-1} = Lagged Total Assets			

Ownership Structure

The ownership structure of a firm refers to the composition of shareholding or shareholding pattern. It encompasses promoter holding, institutional ownership, state ownership, non-institutional ownership, business group affiliation, and family firms. Ownership structure is considered as an internal control mechanism (Nagar and Raithatha, 2016) and plays an important role in influencing decisions taken by the managers owing to insider influence (Ball and Shivkumar, 2006). In the case of many emerging economies, ownership is concentrated in the hands of family members/promoters who also act as managers. In such an environment, institutional shareholders play an important role in monitoring the activities of inside owners. Thus, promoter and institutional shareholding can have a significant say in the financial reporting choices during distress.

Financial Distress and Earnings Management

This section discusses the literature on the use of earnings management during financial distress. A firm may engage in earnings management for many reasons like masking poor financial performance, maintaining debt covenants, and reducing the probability of default (DeFond and Jambalvo, 1994; Jaggi and Lee, 2002). The term financial distress is broad enough to include violation of debt covenants by firm and bankruptcy of firm. The studies concerned with the examination of earnings management and financial distress (debt covenants violation/bankruptcy) have focused on the direction of earnings management that is whether it is income increasing or income-decreasing earnings management.

The extant literature has documented two approaches to examine the impact of debt covenants on earnings management. The first approach focuses on the use of crude proxies like leverage to assess the violation of debt covenants. Lys (1984) argued that leverage is a poor proxy for risk of default, while Duke and Hunt (1990) argued that it is a good proxy for certain covenant violation like retained earnings, working capital, and net tangible assets. The second approach focused on firms that had actually violated debt covenants.

Healy and Palepu (1990) used dividend constraint (funds available for dividends to dividends paid) to measure the proximity to debt covenant violation and examined the accounting changes made by these firms. They found no difference between the sample firms and control firms in terms of frequency of accounting changes. Sweeney (1994), DeAngelo, DeAngelo and Skinner (1994), and DeFond and Jambalvo (1994) examined the firms that actually violated debt covenants, but documented different results. Sweeney (1994) used a

matched sample approach and found that firms with net worth and working capital covenants choose income increasing accounting methods. DeAngelo *et al.* (1994) also used matched sample approach and found no difference in accounting choices of financially distressed firms and the control group. They also found that firms facing financial difficulty had high negative accruals and thus income-decreasing accounting choice. The firms facing severe financial distress and expecting the debt renegotiation are more likely to use income-decreasing earnings management to negotiate better terms of debt. DeFond and Jiambalvo (1994) examined whether the sample firms made specific accounting choice or chose accruals manipulation as it is less costly to manipulate accruals. They found that total accruals and working capital accruals were positive for sample firms indicating income-increasing earnings management.

The other group of studies uses a matched sample approach comprising bankrupt firms and healthy firms. Rosner (2003) compared earnings manipulation by distressed and non-distressed firms and found that distressed firms are more likely to engage in income-increasing earnings management. However, Habib, Bhuiyan, and Islam (2013) found that distressed firms in New Zealand engaged in income-decreasing earnings management as compared to healthy firms. Charitou *et al.* (2007) also provide evidence of downward earnings management one year prior to bankruptcy filing. The choice of income-decreasing earnings management may be used owing to increased monitoring by auditors and lenders, and also to strengthen the firm's position in negotiations with unions and government agencies.

The literature documents mixed results pertaining to the choice of income increasing and decreasing earnings management and financial distress. Thus, the choice of earnings management will depend on the purpose of manipulation of accounting numbers. Chen, Chollete, and Ray (2010) examined delisting regulation in China and found that distressed firms in China employ income-increasing earnings management techniques to avoid a delisting threat and special monitoring by the government. In our study, bankruptcy regulation based on negative net worth condition is examined and the sample for study comprised firms referred to BIFR. Until the bankruptcy of a firm is resolved by BIFR, there is a moratorium on debt payments and assets remain in control of insiders (Gopalan, Nanda, and Seru, 2007). In such circumstances insiders can extract private benefits of control and thus, such firms have an incentive to engage in income-decreasing earnings management. Hence it is hypothesized that distressed firms engage in income-decreasing earnings management.

H1: Earnings management as measured by discretionary accruals is negative (income decreasing) in distressed firms

To test this hypothesis the following model is used:

Financial Distress = f (Earnings Management, Control Variables)

Financial Distress and Ownership Structure

The ownership structure of a firm is considered as one of the internal control mechanisms of corporate governance. The divergence between ownership and control is the main source of agency costs and corporate governance problems in a firm. However, as a mechanism of corporate governance, it is concerned with the role of different shareholders in monitoring and reducing agency costs. This section focuses on the literature examining the role of ownership structure during financial distress. The ownership pattern of a firm can be examined in terms of concentrated ownership (insider shareholding) and institutional shareholding.

Literature has documented two ways of understanding the monitoring role of controlling owners or ownership concentration: alignment hypothesis and entrenchment hypothesis. The alignment hypothesis or convergence of interest hypothesis (Jensen, 1993) states that inside owners will take decisions in the interests of outsiders. The higher ownership of controlling shareholders will provide an incentive to take value-maximizing decisions as the wealth of insiders is directly affected. In the markets characterized by weakly defined and/or protected property rights, ownership concentration acts as an institutional arrangement to facilitate transactions (Fan and Wong, 2005). The entrenchment hypothesis or conflict of interest hypothesis posits that controlling shareholders may not act in the interests of outsiders to extract private benefits of control (Leuz, Nanda, and Wysocki, 2003).

During distress, the conflict of interests between insiders and outsiders increases and insiders may act against the interests of outsiders. There is a possible risk of expropriation of outsiders by the controlling shareholders. Lee and Yeh (2004) examined the impact of ownership structure on financial distress in Taiwan and found that directorship by controlling shareholders, the proportion of shares pledged by controlling shareholders, and divergence between control rights and cash flow rights were positively related to financial distress. They also found that corporate governance started deteriorating one year prior to the occurrence of distress. Though ownership concentration is criticized on the free grounds

of free riding and expropriation, large shareholders play an important monitoring role. They maximize firm value by reducing information asymmetries, agency costs, and ultimately recovery from distress. Thus it is hypothesized that promoter holding reduces the likelihood of distress.

H2: Firms with promoter ownership have less likelihood of financial distress

To test this hypothesis the following model is used:

Financial Distress = f (Promoter Holding, Control Variables)

Institutional Ownership

Institutional shareholders are considered as an important governance mechanism and plays a vital role in aligning the interests of insiders and outsiders. The literature holds two broad views on the role of institutional holders in monitoring the decisions made by insiders. They tend to focus on the long term rather than short-term (Donker, Santen, and Zahir, 2009) and can interpret financial information more precisely (Bushee, 1988). However, they may act passively if they have a commercial relationship with the firm (Donker et al., 2009). Despite this, it is largely held that institutional holders are effective monitors. Thus, following the literature, it is hypothesized that firms with institutional ownership have less likelihood of distress.

H3: Firms with institutional ownership have less likelihood of distress

To test this hypothesis following model is used:

Financial Distress = f (Institutional Holding, Control Variables)

In India characterized by concentrated ownership, the major problem is not the separation of ownership and management but the conflict between dominant promoters and minority shareholders. Thus, there exists information asymmetry between large and minority shareholders (Jensen, 1993). The empirical literature in the context of India has documented a non-linear relationship between ownership and firm value, and ownership and earnings management. Selarka (2005) examined the relationship between insider ownership and firm value and found a non-linear relationship between them. She found that inside owners expropriate wealth at lower levels of ownership resulting in lower firm value. Sarkar, Sarkar, and Sen (2013) found a non-linear U-shaped relationship between earnings management

and insider ownership. Thus, insider ownership beyond a point will lead to opportunistic earnings management to extract private benefits of control. Promoters may expropriate the wealth of outsiders and thus the likelihood of financial distress will increase (Parker, Peters, and Turtesky, 2002; Lee and Yeh, 2004). Accordingly, it is hypothesized that firms with high promoter ownership have more likelihood of distress. Moreover, such firms may engage in earnings management to take the advantage of negative net worth condition. Thus, it is hypothesized that firms with high promoter ownership and engaging in earnings management have a high likelihood of distress.

H4: Firms with high promoter ownership have more likelihood of financial distress

To test this hypothesis the following model is used:

Financial Distress = f (Promoter Holding_i, Dichotomous Variable for Higher Promoter Holding_i, Control Variables_i)

H5: Firms with high promoter ownership and engaging in earnings management have high likelihood of distress

To test this hypothesis the following model is used:

Financial Distress = f (Promoter Holding_i, Dichotomous Variable for Higher Promoter Holding_i, Earnings Management_i, Interaction Term_i (Dichotomous Variable and Earnings Management), Control Variables_i)

Financial Distress and Control Variables

Control variables are used to control a firm's financial condition and to avoid any specification errors in the estimated model. Thus, firm-specific characteristics such as firm size, firm performance, leverage, sales growth, and liquidity are used as control variables. Firm size, such as firm performance, sales growth, and liquidity are expected to be negatively related to the likelihood of financial distress. Leverage is expected to be positively associated with the likelihood of financial distress. However, literature documents mixed results on the relationship between leverage and likelihood of financial distress.

Research Gap

The scant literature on the opportunistic use of accounting based regulation for seeking bankruptcy protection and the influence of ownership structure in such opportunistic choice provides motivation to undertake this study. The present study fills the gap in the literature by examining the impact of earnings management and ownership structure in signaling financial distress of BIFR firms using a matched sample approach. Thus, the study contributes to the literature concerned with incentives to provide accounting information and protection of creditor rights in emerging markets by examining accounting based bankruptcy regulation in India.

RESEARCH METHODOLOGY

Financial Distress

Literature has established the relationship between financial distress and other economic constructs like corporate governance and earnings management by calculating Altman's Z-score or using dummy variables based on presence/absence of certain pre-defined criteria indicating distress. In this study, a different approach is followed. Financially distressed firms are those which are referred to the Board for Industrial & Financial Reconstruction (BIFR). The healthy firm is the matching firm for BIFR companies based on two-digit NIC code and size (i.e. total assets).

Earnings Management

Earnings management is measured using discretionary accruals (DA). This study uses Jones (1991) and Modified Jones (Dechow et al., 1995) model to estimate discretionary accruals.

Jones Model (Jones, 1991)

$$TA_t = (rCA_t - rCL_t - rCash_t + rSTD_t - DEP_t)/A_{t-1} \quad (1)$$

$$ACC_t = \alpha + \beta_1 (rREV_t) + \beta_2 (PPE_t) + e_t \quad (2)$$

Following equation is used to estimate firm specific parameters α , β_1 , β_2

$$TA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 (rREV_t) + \alpha_3 (PPE_t) + e_t \quad (3)$$

Modified Jones Model (Dechow et al., 1995)

$$ACC_t = \alpha + \beta_1 (rREV_t - rREC_t) + \beta_2 (PPE_t) + e_t \quad (4)$$

Equation 1 is used to calculate total accruals for both Jones and modified Jones model. Equation 3 is used to estimate firm-specific parameters α , β_1 , β_2 for both models. This equation is run for each industry based on the two digit NIC code and each year. These estimates are used in Equations 2 and 4 to arrive at non-discretionary accruals. The difference between total accruals and non-discretionary accruals gives discretionary accruals. Discretionary accrual (DA) is used as a measure of earnings management.

Ownership Structure

Ownership structure is the percentage of shares held by different groups like promoters and institutions in total shares of the firm.

Selection of Sample

The sample consists of 104 distressed firms and 104 healthy firms. Ohlson (1980) mentions that “It is by no means obvious that what is gained or lost by different matching procedures, including no matching at all.” However, the matched firms are selected on the basis of two-digit NIC code and asset size. The following criteria were used for the selection of firms:

- The company must be a listed company.
- The company must be an industrial company that is classified as per National Industrial Classification (NIC). 2 digit NIC code was used for this purpose.
- Financial data of the firm pertaining to the variables of study is available.

A list of BIFR companies was compiled using these criteria's, out of which only 104 were selected. A matched sample of 104 companies was then selected. Table 3 provides a description of sample and industry representation of sample based on two-digit NIC code.

Table 3: Sample Size and Industry Representation

Panel A: Description of Sample							
Year of Reference to BIFR	2011	2012	2013	2014	2015	2016	Total
No. of Firms Available in Database	26	26	27	36	31	21	167
Less: No. of Firms with Insufficient Data	9	9	15	18	11	1	63
No. of Distressed Firms Used in Analysis	17	17	12	18	20	20	104
No. of Healthy Firms Used in Analysis	17	17	12	18	20	20	104
Final Sample	34	34	24	36	40	40	208
Panel B: Industry Representation of Sample							
NIC Code	NIC Code Description			No. of Distressed Firms		No. of Healthy Firms	
1	Crop And Animal Production, Hunting And Related Service Activities			1		1	
8	Other Mining And Quarrying			1		1	
10	Manufacture Of Food Products			11		11	
11	Manufacture Of Beverages			1		1	
13	Manufacture Of Textiles			16		16	
14	Manufacture Of Wearing Apparel			2		2	
16	Manufacture of wood and of products of wood and cork, Except Furniture; Manufacture Of Articles Of Straw And Plaiting Materials			1		1	
17	Manufacture Of Paper And Paper Products			7		7	
18	Printing And Reproduction Of Recorded Media (This Division Excludes Publishing Activities, See Section J For Publishing Activities)			1		1	
19	Manufacture Of Coke And Refined Petroleum Products			1		1	
20	Manufacture Of Chemicals And Chemical Products			7		7	
21	Manufacture Of Pharmaceuticals, Medicinal Chemical, And Botanical Products			7		7	

22	Manufacture of rubber and plastics products	3	2
23	Manufacture Of Other Non-Metallic Mineral Products	3	3
24	Manufacture Of Basic Metals	17	17
25	Manufacture Of Fabricated Metal Products, Except Machinery And Equipment	4	4
26	Manufacture Of Computer, Electronic And Optical Products	5	5
27	Manufacture Of Electrical Equipment	5	5
28	Manufacture Of Machinery And Equipment N.E.C.	2	3
29	Manufacture Of Motor Vehicles, Trailers And Semi-Trailers	2	2
32	Other Manufacturing	3	3
42	Civil Engineering	2	2
46	Wholesale trade, Except of motor vehicles and Motorcycles	1	1
62	Computer programming, consultancy, and related activities	1	1
Total		104	104

For the selection of companies, the cases referred to BIFR from 2011 to 2016 were obtained. Out of these, the companies which met the selection criteria were selected.

For the purpose of analysis, the period chosen is 2010-11 to 2015-16. The financial data for each firm has been solicited for the year of reference to BIFR. The final analysis is based on the pooled time series data.

The list of distressed firms was obtained from the official website of BIFR. (<http://bifr.nic.in/casesregd.htm>). The healthy firms were selected from AceEquity Database.

This study uses financial variables, earnings management and ownership pattern for the purpose of analysis. The definition of variables and its expected relation with likelihood of distress is outlined in Table 4.

Table 4: Definitions and Expected Signs of Variables

Variable	Definition	Abbreviation	Expected Sign
Dependent Variable			
Financial Distress	The dependent variable is a binary response variable. Y = 1 means a distressed firm and Y = 0 means non distressed firm.	FD	NA
Independent Variables			
Earnings Management	It is estimated using Modified Jones Model (Dechow et al., 1995)	DA	-
Promoter Holding	It is calculated as a percentage of promoter holding in the total shareholding of the firm.	PH	-
Institutional Holding	It is calculated as a percentage of institutional holding in the total shareholding of the firm.	IH	-
Dichotomous Variable	It takes the value of 1 if promoter holding is greater than 50 percent, 0, otherwise.	D1	+
Interaction Term	It is the interaction of dichotomous variable indicating high promoter holding and earnings management.	IT_D1_DA	+
Control Variables			
Firm Performance	Return on Assets is used as a measure of firm performance. It is calculated as profit after tax/total assets. It indicates the ability to recover from distress.	ROA	-
Firm Size	Net worth is used as a measure of firm size. It is calculated as total assets – total liabilities.	NW	-
Leverage	It is a measure of financial risk. It is calculated as Total debt / total assets.	LEV	+
Liquidity	The current ratio is used as a measure of liquidity. It is calculated as current assets/current liabilities.	CR	-
Growth	Sales growth is used as a measure of growth. It is calculated as year on year percentage increase in sales.	SGROWTH	-

Research Technique

As the dependent variable is a binary variable, logistic regression has been used. This study employs archival financial accounting data for the purpose of analysis. Logistic regression works well with historical accounting data. Hillegeist, et al. (2004) mention that “financial ratios are past-oriented and cannot capture the future dynamics and prospects of the company as a going concern. But they perform well in models predicting financial distress and probability of default.”

The equation below represents cumulative logistic distribution function. Thus, P_i is the probability that $Y = 1$, is a distressed firm and $(1 - P_i)$ is the probability that $Y = 0$ is a healthy firm.

$$P_i = E(Y = 1 | X_i) = 1 / 1 + e^{-(\beta_1 + \beta_2 X_i)}$$

$$P_i = 1 / 1 + e^{-Z_i}$$

$$= e^{Z_i} / 1 + e^{Z_i}$$

The equation below is the odds ratio in favour of being a distressed firm.

$$P_i / 1 - P_i = e^{Z_i} / 1 + e^{-Z_i} = e^{Z_i}$$

$$L_i = \ln (P_i / 1 - P_i) = Z_i = \beta_1 + \beta_2 X_i$$

L is the log of the odds ratio. It is called the logit. If L is positive, it means that when the value of the regressor increases, the odds that the regress and equals 1 (the event of interest happens) increases. If L is negative, the odds that the regress and equals 1 decreases as the value of X increases.

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Table 5: Descriptive Statistics

Variables	Mean		Standard Deviation		Median	
	Distressed Firm	Healthy Firm	Distressed Firm	Healthy Firm	Distressed Firm	Healthy Firm
ROA	-27.69	1.71	29.45	8.34	-18.97	1.49
NW	-110.89	108.08	206.03	254.50	-35.99	24.32
LEV	-8.44	1.38	14.71	2.98	-3.79	0.71
CR	0.76	1.59	0.69	1.80	0.63	1.21
SGROWTH	-20.00	16.26	48.49	74.74	-20.89	8.95
DA	-0.0279	0.1623	2.29	1.48	-0.15	0.04
PH	47.62	54.17	17.26	16.45	52.21	55.09
IH	7.03	4.21	10.31	6.99	3.05	0.52

Table 5 provides the descriptive statistics for the key variables related to distress, earnings management, ownership, and firm characteristics. The average ROA, NW, CR, and SGROWTH is higher for healthy firms, which is quite obvious. Leverage is expected to be higher for distressed firms. However, average leverage of healthy firms is higher than that of distressed firms. The average leverage is negative in distressed firms indicating negative total assets. The average discretionary accruals of distressed firms are -0.0279 and average discretionary accruals of healthy firms are 0.1623. This value indicates that distressed firms engage in income-decreasing earnings management. The average institutional holding in distressed firms is higher than healthy firms indicating that institutions play a weak monitoring role.

Table 6 provides the Pearson correlation matrix indicating the correlation between explanatory variables. The correlation matrix helps in identifying the multicollinearity problem. Anderson, Sweeney, and Williams (1996) suggest that correlation coefficient higher than 0.7 indicates presence of multicollinearity in the model. Following this, the possibility of multicollinearity is not found among variables.

All hypotheses are tested using logistic regression and results are tabulated in Table 7. The odds ratio provided in the table indicate show many times it is likely that the firm will be distressed. If the coefficient of the variable is positive, the odds ratio indicates by how many times it is likely that firm will be distressed and vice versa. In the case of logistic regression, the LR statistic shows the model fit. It is equivalent to F statistic in ordinary least squares regression. The LR statistic for all the models is significant indicating good fit. Instead of R-squared, in logistic regression McFadden R-squared is used. It is above 0.5 for all the models indicating the good explanatory power of variables.

Table 6: Correlation Matrix

Variables		DA	LEV	NW	ROA	SGROWTH	PH	CR	IH
DA	Pearson Correlation	1							
	Sig. (2-tailed)								
	N	208							
LEV	Pearson Correlation	0.007	1						
	Sig. (2-tailed)	0.916							
	N	208	208						
NW	Pearson Correlation	-0.005	-0.036	1					
	Sig. (2-tailed)	0.937	0.601						
	N	208	208	208					
ROA	Pearson Correlation	0.036	-0.073	.323**	1				
	Sig. (2-tailed)	0.605	0.293	0					
	N	208	208	208	208				
SGROWTH	Pearson Correlation	-0.101	-0.042	0.119	.236**	1			
	Sig. (2-tailed)	0.148	0.55	0.086	0.001				
	N	208	208	208	208	208			
PH	Pearson Correlation	0.066	-0.086	0.122	.167*	0.006	1		
	Sig. (2-tailed)	0.382	0.257	0.106	0.027	0.934			
	N	176	176	176	176	176	176		
CR	Pearson Correlation	-0.008	-0.01	0.025	0.061	-0.066	0.067	1	
	Sig. (2-tailed)	0.912	0.884	0.718	0.379	0.347	0.377		
	N	208	208	208	208	208	176	208	
IH	Pearson Correlation	-0.043	0.035	0.12	-0.072	-0.118	-.213*	-0.018	1
	Sig. (2-tailed)	0.628	0.699	0.179	0.424	0.186	0.016	0.837	
	N	127	127	127	127	127	127	127	127

** . Correlation is significant at 0.01 level (2-tailed). * . Correlation is significant at 0.05 level (2-tailed).

Table 7: Results of Logistic Regression

Variables	Model 1 (H1)		Model 2 (H2)		Model 3 (H3)		Model 4 (H4)		Model 5 (H5)	
	Coefficient	Odds ratio	Coefficient	Odds ratio	Coefficient	Odds ratio	Coefficient	Odds ratio	Coefficient	Odds ratio
Constant	-0.1827 (0.5157)	0.83	0.9641 (1.0163)	2.62	-0.7261 (0.6473)	.48	2.0139 (1.1554)	7.49	2.3012 (1.2238)	9.98
ROA	-0.1262** (0.0273)	0.88	-0.1111** (0.0269)	1.01	-0.0853** (0.0265)	.91	-0.1060** (0.0261)	.89	-0.1061** (0.0271)	.89
NW	-0.0164** (0.0047)	.98	-0.0119** (0.0041)	.98	-0.0111** (0.0039)	.98	-0.0125** (0.0040)	.98	-0.0128** (0.0043)	.98
LEV	-0.0043 (0.0784)	.99	-0.0031 (0.0781)	.99	-0.0099 (0.0373)	1.00	0.0185 (0.0862)	1.01	-0.0121 (0.0717)	.98
CR	-0.6878* (0.4110)	.50	-1.0358* (0.5467)	.35	-0.5124 (0.5021)	.59	-1.0098** (0.5118)	3.64	-1.1318** (0.5277)	.32
SGROWTH	-0.0004 (0.0043)	.99	-0.0018 (0.0057)	.99	-2.53E-05* (0.0052)	0.99	-0.0038 (0.0067)	1.00	-0.008 (0.0075)	.99
DA	-0.0817* (0.0438)	.92	-	-	-	-	-	-	-0.4785 (0.5699)	.61
PH	-	-	-0.0240 (0.0159)	.97	-	-	-0.0698** (0.0274)	.93	-0.0697** (0.0278)	.93
IH	-	-	-	-	0.0564 (0.0509)	1.05	-	-	-	-
D1	-	-	-	-	-	-	2.0046** (0.8993)	7.42	1.9263** (0.9444)	6.864
IT_D1_DA	-	-	-	-	-	-	-	-	0.3859 (0.5743)	1.47
No. of observations	208		174		127		174		174	
McFadden R-squared	0.5726		0.5829		0.5465		0.6059		0.6272	
LR Statistic***	165.11 (0.00)		137.57 (0.00)		95.237 (0.00)		143.003 (0.00)		148.03 (0.00)	

The standard errors are reported in parentheses. Figures in bold are significant coefficients.

*significant at 10 percent, **significant at 5 percent, ***probability in parentheses

With respect to the control variables, firm performance and firm size are significant in all the models. This indicates that firm performance and firm size significantly affect the likelihood of distress. Liquidity is significant for all models except model 3. This indicates that liquidity also significantly affect the likelihood of distress. The coefficients of firm performance, firm size, and liquidity are negative. This indicates that increase in any of these will reduce the likelihood of distress. The sign of the leverage coefficient is negative, except for model 4. The coefficient was expected to be positive as the BIFR firms are financially troubled firms and increasing debt would increase financial burden making the distress situation worse. Leverage as a measure of financial risk indicates the firm's ability to obtain additional financing during distress. The negative coefficient indicates that if BIFR firms are able to obtain additional financing it will help recover from distress. Parker et al. (2002) opine that when firms are not able to obtain or bear additional financing it is increasingly unlikely that they will be capable of recovering from financial distress. Thus, they conclude that leverage may have a negative coefficient.

H1: Earnings management as measured by discretionary accruals is negative (income decreasing) in distressed firms (Model 1)

Hypothesis 1 investigated whether distressed firms engage in income-decreasing earnings management as measured by discretionary accruals. The average discretionary accruals of distressed firms are -0.0279 and average discretionary accruals of healthy firms are 0.1623. This value indicates that distressed firms engage in income-decreasing earnings management. The sample of distressed firms consists of firms referred to BIFR. Until the case of a particular firm is resolved by the board, there is a moratorium on all debt payments and the assets remain under the control of equity holders/insiders. The criteria of reference to BIFR is based on accounting numbers like net worth and profit, which can be manipulated downwards using income-decreasing earnings management to take the advantage of moratorium on debt payments and extract private benefits of control. The negative and significant coefficient of earnings management measured by discretionary accruals in model 1 is indicative of the use of downward earnings management to take advantage of the negative net worth condition for reference to BIFR. It also suggests that insiders opportunistically use the flexibility accorded by GAAP to take advantage of regulations based on accounting information and exploit outsiders.

H2: Firms with promoter ownership have less likelihood of financial distress (Model 2)

Ownership concentration is supposed to reduce the likelihood of distress by exercising their monitoring role. Since the average promoter holding for the sample is 51 per cent, it is considered as a measure of ownership concentration. In model 2, promoter holding has an insignificant and negative coefficient. This indicates the increase in promoter ownership will reduce the likelihood of distress as their wealth is tied to the financial condition of the firm. This is consistent with the alignment hypothesis which posits that insiders take a decision in favour of all stakeholders. It also corroborates with the findings of Selarka (2005) that at lower levels of insider ownership, expropriation of wealth is more, resulting in the lower value of the firm.

H3: Firms with institutional ownership have less likelihood of distress (Model 3)

Institutional shareholders as a mechanism of corporate governance mechanism play an important role in monitoring the decisions of insiders and that decisions are consistent with interests of stakeholders. In model 3, institutional holding has an insignificant and positive coefficient. This means that increase in institutional holding will increase the likelihood of distress. This means institutional shareholders play a passive role in monitoring the decisions taken by insiders. Moreover, institutional shareholders are equity holders and reference to BIFR is beneficial to them in terms of recovering their investment. Thus, they may have a short horizon and act in the interests of themselves as suggested by Koh (2003) by strategically aligning with the promoters.

H4: Firms with high promoter ownership have more likelihood of financial distress (Model 4)

India is characterized by high promoter ownership. Thus, instead of conflict between owners and managers, there is a conflict between dominant shareholders and minority shareholders (Varma, 1997). There are chances that promoters expropriate the wealth of minority shareholders and outsiders. Thus, a dummy variable was introduced in model 4 to see whether high promoter ownership increases the likelihood of distress. The coefficient of promoter holding is significant and negative, as postulated in hypothesis 3. The dummy variable is significant and positive indicating that firms with high promoter ownership have a higher likelihood of financial distress in comparison with firms with lower promoter ownership. This result indicates that there is a conflict of interest between insiders and outsiders. As higher ownership means a higher stake in the firm and higher share in losses due to distress, reference to BIFR provides an opportunity to recover losses suffered by them.

H5: Firms with high promoter ownership and engaging in earnings management have high likelihood of distress (Model 5)

Model 1 indicates that distressed firms engage in income-decreasing earnings management and model 4 indicates that high promoter ownership increases the likelihood of distress. Thus it becomes interesting to know whether firms with high promoter ownership use income-decreasing earnings management to seek bankruptcy protection. For this purpose, an interaction term between the dummy variable for high ownership and earnings management is introduced in model 5. The coefficient of interaction term is differential slope coefficient indicating by how much the slope coefficient of high promoter holding firm differs from low promoter holding. The coefficient of the interaction term in model 5 is insignificant and positive, which means that the likelihood of distress for high promoter holding firms engaging in earnings management is higher by 1.47 times than low promoter holding firms. Thus, the entrenchment hypothesis holds for BIFR firms with high promoter ownership.

In summary, the hypothesis tested reveals the opportunistic use of downwards earnings management to seek bankruptcy protection and such practice is more profound in the case of firms with higher promoter ownership. These results indicate the weak enforcement of bankruptcy regulation to enforce debt contracts and protect creditor rights. The results also shed light on ineffective monitoring by institutional shareholding.

CONCLUSION

This study has made an attempt to understand the role of earnings management and ownership structure in signalling financial distress. The setting is the bankruptcy protection law in India, which is a means of enforcing debt contracts and protect creditor rights. The bankruptcy regulation is based on accounting data which is subject to managerial discretion and incentives, which is in turn influenced by ownership structure. Thus, it provides the basis to incorporate earnings management and ownership structure in signalling financial distress. The results based on the analysis of a unique data set indicate the use of income-decreasing earnings management and the influence of ownership concentration to seek bankruptcy protection. The results are consistent with the entrenchment hypothesis whereby controlling owners take decisions to extract private benefits of control at the cost of outsiders. Though in emerging markets like India, ownership concentration is considered as an institutional arrangement to facilitate transactions, insider owners expropriate the wealth of outsiders taking advantage of regulations based on accounting data. From a policy perspective, if the influence of inside owners on various decisions pertaining to the firm is

not taken into account, it may lead to ineffective policy outcomes (Leuz and Wysocki, 2016). The present study has not taken into consideration the financial performance of firms post reference to BIFR and role of the board of directors during distress. Further research can incorporate both aspects to understand the nexus of earnings management, corporate governance, and protection of creditor rights in an emerging market like India.

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