



An analysis of operating and financial distress in Pakistani firms

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ABSTRACT

Current study intended to explore cost of financial distress in case of Pakistani manufacturing ongoing firms listed at KSE. In doing so, financial distress is divided into operating distress and financial but not operating distress. Sample consists of ongoing firms that were at least once on distress counter for the period of analysis. To conclude the proposed theory descriptive and independent t-test for mean differences are used. It is found that firms bear opportunity loss before and after entering to both operating and financial distress. Moreover, results also show that operating distress affects more to firms' value as compared to financial but not operating distress category. However, result for pre financial but not operating distress is found insignificant. In conclusion current study provides opportunity to all investors, management and other stakeholders to assess firms' performances before and after entering to both operating and financial distress.

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Introduction

Predicting financial distress and the costs crop up as a result are the concerns of management, creditors, current and prospective investors and other stakeholders and also lie at the heart of corporate financial management decisions. Financial distress can be defined as firms' inability to fulfill their operating and financial obligations on time or to the full extent due to the temporary lack of liquidity and other difficulties confronted by firm (Davydenko, 2005; Gordon, 1971). These negative notations are also used to illustrate the capital structure puzzle and sees as an important dynamic while making corporate capital structure decisions as demonstrated by trade off optimal capital structure theory (Myers and Jensen, 1986). Moreover, researchers also view financial distress in term of insolvency, default or corporate restructuring (Andrade & Kaplan, 1998; Wruck, 1990). However, it is also suggested that financial distress is one of the most imperative reasons that leads to such default or insolvency rather than an exclusive cause that impacts solely in this respect (Purnanandam 2005; Turetsky, 2003). Despite such contradictions to define financial distress, researchers are agreed that the process of financial distress affects firm's value negatively (Pindado and Rodrigues, 2005; Stulz, 1990 etc). All these discussions confirm the significance of financial distress and the cost incurred as result of such anguish situations. Current study also intends to investigate such costs of distress with different methodology and classification of distress.

Literature Review:

Two counter parties i.e. debtors and creditors are involved in the process of financial distress. Scope of creditors is not restricted to external capital provider only but also includes other stakeholders like suppliers or employees. Wruck (1990) has defined current liabilities in financial distress as deferred payments to their creditor and employees, damages from legal actions and current portion of long term finance and interest payments. Researchers have defined financial distress into

different ways. One group of researchers defined financial distress as failure of to pay their obligations when they became due (Altman, 1984; Andrade & Kaplan, 1998; Wruck, 1990). They suggested that financial distress is a state that differentiates firms from their healthy and infirmity conditions where corrective measures are needed to overcome those troubled situations. Andrade & Kaplan (1998) divided financial distress into two forms: (1) default in paying obligations on secluded time and (2) restructuring their capital structure to avoid default situation. On the other hand other view suggests that financial distress is distinct from default or bankruptcy and demonstrates the situation between firms' healthy and illness position (Gordon, 1971; Turetsky, 2003). Purnanandam (2005) also develop a theoretical model in which he explains financial distress as a state between solvency and insolvency. He argues that financial distress is a state where firms do not have enough proceeds to meet their debt obligations while at the maturity of such debt obligations firms enter into insolvency state. Similarly, Turetsky & MacEwen (2001) described financial distress as combined but separate multiple processes and divided these continuous subsequent series of processes into different stages that contain some particular unfavorable financial characteristics. In adverse situations firms move to next stage until reached to end stage i.e. insolvency and in case of recovery came back to previous stage until reached to solvent position. They argued that process starts with dividend reductions and then problem of free cash flow leads to default and can be to restructuring to avoid the risk of default. In short these studies differentiate financial distress with bankruptcy or default and see it as separate process that can lead to bankruptcy but not synonymously related to default. This paper also assumes financial distress as continuous process and suggests that firms who are not announced bankrupt or default can still face distressed situations and bear losses due to such anguish situations

Costs of Financial Distress:

Financial distress is seen as a costly process that can affect firms' performances and its capital structure. Researchers have divided such losses into direct bankruptcy cost such as legal or administrative costs that incur once at the time of default or indirect hidden losses like opportunity or productivity losses.

Direct Costs of Financial Distress:

These are costs realized at the time of liquidation or default and that is why called direct costs of bankruptcy. These are the fixed payments to third party such as professional lawyers, accountants, attorneys, trustees or administrators etc that execute the process of bankruptcy or reorganization. Though such costs are smaller than indirect cost of financial distress but still literature shows losses of 3 percent to 25 percent of firms' value in this respect. Warner (1977) argued that these direct costs of default are small in nature and concludes that direct costs of bankruptcy are insignificant and reported only 1 percent of firms' value as cost of default just prior to bankruptcy. However, Altman (1984) criticized on his approach in selecting sample and definition of bankruptcy cost that show narrow approach in this respect. In his study he examines the costs of bankruptcy borne by 11 railroad firms announced default under bankruptcy act section 77 for the period of 1933 to 1955 and found 1.8 million average direct bankruptcy costs that were 3.5 percent of their market value on average. Moreover, Stanley & Girth, (1971) and Ang et al., (1982) also studied direct costs of bankruptcy and found average losses of 24.9 percent and 7.5 percent of firms' value respectively. Gilson et al. (1990) studied for a sample of 169 firms during the period of 1978 to 1987 who restructure themselves through out-of-court method and evidenced direct cost of default of 65 percent of their book value of assets. This implies that direct cost of financial distress significantly affects firms' value despite its low magnitude.

Indirect Cost of Financial Distress:

Besides direct costs of bankruptcy like legal or administrative expenses that occur at the time of default, theorists argued that firms also bear some hidden costs and losses before or at the time of default. Researchers are agreed to the notation that indirect costs of financial distress are higher and difficult to evaluate due to its complex nature than direct bankruptcy costs (Andrade & Kaplan, 1998; Gilson et al., 1990). Altman (1984) first tries to study and measure indirect costs of financial distress with different methodology. He assesses the magnitude of bankruptcy costs and comparing present value of cost of bankruptcy against current tax benefits. His research provides basic information to measure indirect costs and also proves that costs of distress are enough significant that it should consider in decision making. Ofek (1993) studied firms' responses towards the process of financial distress and found that financial distress compel firms to adopt operational restructuring and downsizing in order to survive especially in the case of high leveraged firms. These results are also consistent with John et al. (1992) who also demonstrate assets restructuring and managerial and employees downsizing as responses of firms towards financial distress. Opler & Titman (1994) have also tried to explore losses in the context of financial distress. They divided such losses into three broad categories. First they linked these costs to customer driven losses and suggest that increased default risks affect customers' loyalty and ultimately decrease sales revenue. Operating problems during distress period decreases the customers' confidence that firm will not deliver their products on time. Moreover, Babenko (2003) also found

that such negative effects on customers' confidence become higher as firms move toward default position. Competitors based forces where healthier competitors also attack through aggressive price strategies in order to capture market share of distressed firms and management driven losses where firms tend to decrease their key workforce are other two other types especially in the case of highly leveraged firms as Jensen (1989) explains that firms with high debts respond to poor performances and distressed situations more quickly. However, Opler & Titman (1994) did not found significant results for management driven costs and also failed to measure relative portion of these three costs of distress.

Hoshi et al. (1990) studied costs of financial distress in term of relationship of firms with their creditors and found that firms bear losses in distressed situations but these costs can be more significant for the firms having weak relation with their creditors and are unable to renegotiate. He suggests that asymmetric information and free rider problems are potential determinants of cost of financial distress and argued that these components makes it difficult for the firms to renegotiate from their creditors in distressed situations. Literature also describes that firms' external obligations can also compel them to sale their fixed assets at under-pricing during the distressed situations (Shleifer and Vishny, 1992). Pulvino (1998) also provides similar result and demonstrates that due to lack of cash flow firms sold their assets in order to meet their debt obligations on time. He uses sample of 28 US airlines in his research and 8 out of these 28 airlines use chapter 7 or chapter 11 bankruptcy rules subsequently. He found that airline who subsequent bankrupted sold their airplanes at low prices as compared to non-bankrupt airlines.

After Altman (1984) and Opler & Titman (1994), it was Chen and Merville (1999) who extended their work and try to explore the costs of financial distress in three dimensions. It was first successful attempt to study costs of financial distress while assuming financial distress as cyclic process as their sample size includes only those firms who were not at default counter for studied period. They argued that temporal state of financial distress also affect firms' value in term of high costs of financial distress. They divided indirect costs of financial distress into opportunity losses due to loss of customers, loss of key suppliers, loss of valuable workforce and foregone investment opportunities. Their results demonstrate that firms having distinct patterns of increased financial distress bear average losses of 10.3 percent of their firm value and document highest loss as 76 percent in this respect.

Pindado & Rodrigues (2005) studied Ex-ante costs of indirect financial distress for multiple economies. They develop model to investigate costs of financial distress that demonstrates international evidences in this respect. Using accurate debt based prediction model to measure probability of financial distress differentiate their research from others. Moreover, controlling like hood of financial distress allow them to investigate trade off between costs and benefits of debts as Jensen (1989) argued that leverage can also be beneficial for distressed firms. Their sample firms belonged to UK, US and Germany and time period of observations ranges from 1990 to 1999. Their sample consists of 186 firms from Germany, 1704 firms from US and 491 firms from UK. They use change in industry adjusted sales growth as opportunity loss in respect of indirect cost of financial distress. For all countries they found positive relation of probability of financial distress with costs of financial distress calculated as

industry adjusted sales growth. One of recent studies proposed by George & Hwang (2009) investigates costs of financial distress in term of operating profits and stock returns. Their results reveal that highly leveraged firms document more decrease in operating income as cost of financial distress as compared to low leveraged firms. Yen & Li studied (2008) stock returns as costs of financial distress and found that firms loss substantial amount of stock prices with in post 20 transaction days of the announcement from the day of distress. Furthermore, their results also document largest cost of financial distress for delisted firm and found lower costs of financial distress that maintain normal trading. All these discussions reveal that financial distress is a costly process and firms bear losses before and after entering to financial distress.

Methodology:

Current study assumes financial distress as a cyclic process and proposed that firms who are not announced default or bankrupt documents negative earnings. Moreover, distress is divided into “operating distress (OD)” where firms do not have enough proceeds to meet their operating charges and “financially but not operating distress (FDnOD)” where firms are unable to pay their financial obligations on time or to full extent.

Sample Selection:

In order to achieve the research objectives specific sample of 202 ongoing firms are selected. Unit of analysis of current study are organizations. Data is taken from the annual publications of “Balance Sheet Analysis of Joint Stock Firms Listed at KSE” issued by State Bank of Pakistan. In order to attain required sample following steps are taken into account.

- Initially 425 manufacturing firms listed at KSE are selected.
- 100 default firms are excluded.
- 31 new firms that are registered during the years of analysis are excluded.
- 87 firms who never file negative earnings during analysis period are also excluded.
- Firms observations having zero sales are also excluded
- In order to normalize data of opportunity loss 2.5 % data is trimmed off
- At last 2096 firms’ observations during 1999 to 2009 for 202 firms are selected as final sample of current study.

Opportunity Loss:

Opportunity loss is calculated as the difference between firms’ sales growth and sector’s sales growth. Positive answer will demonstrate that firm bear opportunity loss and under perform as compared to its industry performance in term of sales growth. Following formula illustrates that how opportunity loss is calculated.

$$\text{Opportunity Loss} = \left[\frac{(\text{Sales}_{it} - \text{Sales}_{it-1})}{\text{Sales}_{it-1}} \right]_{\text{sec}} - \left[\frac{(\text{Sales}_{it} - \text{Sales}_{it-1})}{\text{Sales}_{it-1}} \right]_{\text{firm}}$$

Where:

Sales_{it} = Sales at time T

Sales_{it-1} = Sales at Time t - 1

Sec = Sector data

Defining Distress Statuses:

The purpose of current study is to explore the relationship between indirect cost of financial distress and distress situations. In doing so distress status is taken as independent variable. Previously researchers have defined the state of financial distress into different ways. Asquith et al., (1994) considered a firm financially distressed if its interest coverage ratio is less than 0.8 for that year or less than one for previous two

consecutive years. On the other hand DeAngelo and DeAngelo (1990) defined financial distress even in the absence of high debt ratio if that firm accounts losses for three consecutive years. However, current study use different measures and divide financial distress into two categories of operating distressed and financially but not operating distressed. Operating distress (OD) is measured as dummy variable that is equal to 1 if its operating cost coverage ratio (calculated as operating cost / EBIT) is less than one and zero for firms show positive net profits. On the other hand financially but nor operating distressed (FDnOD) is measured as dummy variable that is equals to one if the firms’ interest coverage ratio is less than one and zero for firms show positive net profits.

Results:

Table 1 provides descriptive statistics for sampled firms by categorizing distressed and healthy firms. As expected the mean sales and earnings are lower for distress firms as compared to healthy firms.

Moreover, results also show that distressed firms account positive mean OL (opportunity loss) as compared to healthy firms. This can be labeled as cost of financial distress as described by Opler & Titman (1994). However, mean EBIT for financially but not operating distress category is not that much severe as for operating distress category that leads to high mean operating loss for operating distressed firms and support the hypothesis of current study that operating distressed firms bear high opportunity losses as compared to financially but not operating distress firms. Operating distressed firms, bear mean 12 % sales losses with respect to industry as compared to financially but operating distressed firms who account 2% average opportunity losses. This augmented effect can be due to combined effect of both cost of financial distress and economic shocks as well. However, it is assumed that financially but not operating distressed firms bear such opportunity losses due to negative effects of distress rather than economic shocks as they are quite flexible to absorb these economic shocks to earn operating profits.

Table 3 provides the results of independent t-test for mean differences of opportunity loss as previously defined for pre and post distress era.

Significant mean differences are found for both pre FD (FD t+1) and post FD (FD t) categories. It is consistent to the proposed hypothesis of current study that firms also bear loss prior to entering in distress era. However, insignificant results are found for pre financially but not operating distress firms. This implies that only operating distress contributes to opportunity loss prior to entering such distress situation. Conversely significant mean differences are found for all three categories of post distress era. Moreover, results also confirm the hypothesis that firms who are in operating distress bear high significant losses as compared to firms who generate enough proceeds to cover their operating expenses but still announce negative earnings. Results show that firms in operating distress bear 16.3% opportunity losses as compared to financially but not operating distressed firms at that year who account 6.1% opportunity losses as compared to healthy firms. Similarly prior to entering in operating distress firms bear 9.1% opportunity losses as compared to pre financially but not operating distress firms who file insignificant 0.70% opportunity losses as compared to healthy firms in their industry. In conclusion one can conclude that firms bear high opportunity losses prior or

after entering to such distressed situations as compared to healthy firms.

Conclusion:

In conclusion financial distress is a costly process and firms bear opportunity losses in term of decreased sales revenue prior to and after entering to such distress states. Current study divides financial distress into operating distress where firms are unable to meet their operating expenses and financial but not operating distress where firms are unable to meet their financial costs from their current proceeds. Moreover, sample of ongoing firms who shows at least one distress observation is taken. These two methodological attributes differentiate current study from previous works. Results show that firms bear indirect cost of financial distress in term of opportunity losses where firms perform less than its industry in term of sales growth. Reason behind such underperformances can be loss of customers' confidence and loyalty as well. Moreover, results also reveal augmented opportunity losses in case of operating distressed firms as compared to financially but not operating distressed firms. Results show that operating distressed firms 11.8% underperform than its industry sales growth as compared to healthy firms while this statistic is only 1.9% in case of financial but not operating distress. This augmented effect can be due to combine effect of economic shocks and cost of financial distress as well. It is also found that firms bear opportunity losses before and after entering to distress. However, the results for pre financial but not operating distress are found insignificant.

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Table 1: Descriptive statistics

	Category	Total Asset	Sales	EBIT	OL
Mean	<i>Healthy</i>	3070.09	2958.19	319.11	-0.04
	<i>OD</i>	3167.19	2614.90	-64.06	0.12
	<i>FDnOD</i>	3164.96	2007.08	119.78	0.02
Std. Deviation	<i>Healthy</i>	7237.16	7837.57	801.53	0.27
	<i>OD</i>	9770.20	8968.18	102.51	0.32
	<i>FDnOD</i>	5891.26	2612.42	305.79	0.26
Minimum	<i>Healthy</i>	37.80	5.80	0.00	-1.14
	<i>OD</i>	40.70	7.20	-853.90	-1.14
	<i>FDnOD</i>	66.30	35.40	0.00	-1.03
Maximum	<i>Healthy</i>	70013.70	90663.50	7193.80	0.78
	<i>OD</i>	69375.30	85224.10	-0.10	0.79
	<i>FDnOD</i>	51993.00	17473.50	3159.60	0.73

Table 2: Independent-statistics for Mean Differences

	Category	N	Mean	Difference	t-Value	Sig
OD	0.00	1,397	-0.045	-0.163	-9.379	0.000
	1.00	420	0.118			
FDnOD	0.00	1,122	-0.0415	-0.061	-3.358	0.001
	1.00	279	0.0198			
FD	0.00	1,397	-0.0450	-0.124	-9.098	0.000
	1.00	699	0.0789			
OD t+1	0.00	1,271	-0.0229	-0.091	-4.724	0.000
	1.00	358	0.0678			
FDnOD t+1	0.00	1,114	-0.0232	-0.007	0.379	0.705
	1.00	274	-0.0161			
FD t+1	0.00	1,271	-0.0229	-0.054	-3.753	0.000
	1.00	632	0.0314			