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IMPACT SIZE AND DETERMINANTS OF INDIRECT COST OF FINANCIAL DISTRESS: ROLE OF RECEIVABLE AND INVENTORY MANAGEMENT

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ABSTRACT

This research investigates the opportunity cost as an indirect cost of financial distress from two perspectives. First, indirect cost is estimated using multi-stage financial distress and non-linear proxy of debt. Second, receivable and inventory management are studied as determinants of indirect cost. The sample includes ongoing Pakistani firms that were healthy in the previous year and documenting positive gross profit. Results showed that firms bear opportunity loss primarily due to leverage rather than multistage financial distress. However, a non-linear relationship is found between leverage and indirect cost. Results further explored the impact of multistage financial distress on internal operations, i.e., working capital policies. It is found that firms manage receivable and inventory simultaneously during the multistage financial distress. Results revealed that increasing receivables and decreasing inventory is suitable during the transition of healthy firms to initial stage of financial distress, i.e., profit reduction. However, decreasing receivables, along with holding more inventory, is recommended for healthy firms that face liquidity problems subsequently. It is concluded that managers can reduce the indirect cost after deploying the optimal debt ratio and recommended receivable and inventory management policies.

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INTRODUCTION

It is commonly believed that firms bear losses during financial distress (often called cost of financial distress) even if they are not declared bankrupt subsequently. These costs are divided into direct cost and indirect cost of financial distress. Direct costs incur in process of winding-up or reorganisation after declaring a firm as bankrupt by court. For instance, firms pay lawyer's fees, attorney's fees or other legal charges in the process of bankruptcy. Conversely, indirect costs are not associated with the execution of legal bankruptcy and defined as hidden losses that firms bear due to financial problems. For instance, forgone investment opportunities, loss of customers, downsizing the key employees and other operational shocks can be defined as indirect losses if incur due to temporal liquidity or financial problems.

The estimation of the indirect cost of financial distress is imperative from various financial perspectives and aid to strategic decisions such as optimal capital structure (Köksal & Orman, 2015), receivable policy (Molina & Preve, 2009) and human resource management (Baghai, Silva, Thell, & Vig, 2016). Various studies estimated the magnitude and determinants of the indirect cost of financial distress under different environmental settings (Chen & Merville, 1999; Pindado & Rodrigues, 2005). However, accurate estimation of impact size and determinants of the indirect cost depends on the use of an appropriate proxy of financial problems. Farooq and Qamar (2018) explored that the prior studies used leverage or ex-post definition of default to measuring indirect cost. They further argued that both the measures of financial distress are inappropriate in estimating the indirect cost.

Studies using leverage as a proxy of distress, assume debt as an adverse construct. However, Pindado and Rodrigues (2005) argued that considering leverage as a proxy of financial distress may lead to incorrect estimation of indirect cost as both negative and positive aspects are associated with debt. Similarly, studies using an ex-post definition of default use sample of legally bankrupt firms and ignore ongoing but financially troubled firms. Whereas, such financially troubled firms also endure indirect losses due to temporary liquidity problems. Hence, Farooq and Qamar (2018) recommended that future studies should not use leverage or ex-post proxy of financial distress to estimate indirect cost.

Farooq and Qamar (2018) further suggested an alternative approach. They argued that using a multistage ex-ante measure of financial distress along with non-linear proxy of debt should use to estimate indirect cost. Farooq and Qamar (2018) also proposed a future research agenda of indirect cost and recommended some methodological and theoretical modifications. We mainly followed their agenda and tried to estimate the indirect cost in case of non-financial firms from Pakistan. In developing countries, more firms face financial difficulties due to environment dynamism (Farooq & Nazir, 2012; Javaria, Tufail, & Amjad, 2013). For instance, our data revealed that 47 non-financial firms listed at Pakistan Stock Exchange documented negative equity referring more liabilities than assets in 2015 (author analysis). Total liabilities of these 47 firms were around PKR531 billion rupees against total assets of PKR343 billion rupees. These firms are ongoing but operating with severe financial difficulties that can lead to high indirect cost. Such high numbers of financially troubled firms and potential losses make it imperative to study the magnitude and determinants of indirect cost in a developing country like Pakistan.

Furthermore, we proposed a theory of receivable and inventory management, affecting indirect cost during the transition of healthy firms to distress. Literature shows that receivables and inventory are essential parts of working capital that affect both liquidity and profitability (Le, 2019; Singh & Kumar, 2014; Ukaegbu, 2014). Since during financial distress, firms face liquidity and profitability problems, therefore, receivable and inventory management could also be related to financial distress and its resolution. Financial distress may enforce to change receivable and inventory management policies to counter profitability and liquidity problems.

For instance, during the early stages of financial distress, firms face profitability problems that may enforce to follow conservative receivable and inventory management to capture more market share (Molina & Preve, 2009). Similarly, in the later stage of distress, firm face liquidity problems that may enforce to decrease receivables and inventory to control liquidity (Molina & Preve, 2009). We tried to estimate the adverse effects (as indirect cost) of such forced deviation of receivables and inventory during the transition of healthy firms to distress. In short, the objective of this research revolves around two perspectives: The estimation of the magnitude of indirect cost using an appropriate proxy of distress and the proposition of a theory of receivable and inventory management during the transition of healthy firms to distress.

LITERATURE REVIEW

Bisogno and Luca (2012) argued that measuring the indirect cost is vital from three perspectives. First, the magnitude of indirect costs helps in determining the optimal capital structure. Second, indirect costs measure the risk premium for distressed firms. Third, indirect costs assist in revising bankruptcy legislation to get positive outcomes. The true nature and estimation of indirect cost also reveal the severity of the financial problems that could help in devising mitigating strategies. Therefore, from a policy-making perspective, it is imperative to estimate the indirect cost and factors affecting its magnitude.

However, accurate estimation of indirect cost is difficult due to its complex hidden effects (Keasey, Pindado, & Rodrigues, 2015). For instance, opportunity loss (OL) is one of the most studied adverse hidden effects of financial distress (Farooq & Qamar, 2018). It is argued that firms face liquidity problems during financial distress that affect their operations negatively (Opler & Titman, 1994) and may lead to cost reductions (even productive expenses) such as a decrease in marketing expenses (Andrade & Kaplan, 1998). As a result, the customers' orders may not be fulfilled on time and quality of products may reduce that ultimately could result in loss of current and potential customers (Andrade & Kaplan, 1998). Such loss of current and opportunistic market share (sales) due to financial distress is defined as an indirect cost.

The estimation of such opportunistic loss depends on the use of an appropriate measure of financial distress. Farooq and Qamar (2018) explored that previous studies used leverage or ex-post definition of default as a measure of financial distress in estimating the indirect loss. For instance, Opler and Titman (1994) explored the performances of highly leveraged firms during an industry downturn. They found that high leverage firms lost their market value and profits more as compared to other low leverage firms during an industry downturn. Opler and Titman (1994) called such underperformance as an indirect cost. Similarly, Kwansa and Cho (1995) estimated the indirect cost for bankrupt restaurants just before the declaration of bankruptcy by the court (an ex-post proxy of default).

Pindado and Rodrigues (2005) criticise such an approach as an ongoing firm can face indirect loss even if not bankrupt subsequently and leverage is also viewed as a positive connotation by Jensen and Meckling (1976). Pindado and Rodrigues (2005) argued that it is more appropriate to use the ex-ante proxy of financial distress to measure indirect cost. They further argued that leverage should also use along with ex-ante proxy of financial distress to control positive effects of debt. Farooq and Qamar (2018) continued this debate and proposed

that future studies should use a multi-stage ex-ante proxy of financial distress to estimate indirect cost. They argued that financial distress is not a one-time event, and different indirect costs can have a varied intensity within different stages of distress.

For instance, Farooq, Qamar and Haque (2018) proposed that healthy firms become bankrupt after going through three stages of distress; profit reduction (PR), mild liquidity (ML) and severe liquidity (SL). Farooq et al. (2018) found that initially, firms face profitability problems or ML issues. Continuity of both the problems leads to SL that results in legal bankruptcy. Farooq et al. (2018) defined PR as decrease in net profit for two consecutive years or documenting net loss with positive EBT (earnings before tax) for a particular year. Similarly, ML is defined as negative EBT where firms do not have enough proceeds to meet interest expenses. However, in both PR and ML, firms have total assets more than their total liabilities. If a firm documented negative equity where total assets are not enough to meet total liabilities, then the situation is denoted as SL. Thus, each stage represents the intensity of financial problems based on profitability and liquidity. Farooq and Qamar (2018) recommended that contrary to the one-stage approach, indirect costs should estimate during these stages of financial distress. They postulated that nature, intensity and responsive strategies of indirect cost might differ within such stages of distress.

Farooq and Qamar (2018) also contended that capturing both positive and negative effects of leverage is important in this context. Trade-off theory proposes that the positive effects of leverage are confined to its optimal level. After the optimal level, high leverage leads to a high cost of financial distress than its benefits. Hence, the trade-off theory postulates a quadratic relation between leverage and firm value. Therefore, Farooq and Qamar (2018) recommended that future studies can use a non-linear proxy of leverage to control the costs and benefits of debt. This research is following their recommendation and estimates the OL (as indirect cost) using both multi- stage ex-ante financial distress and non-linear measure of debt.

It is also notable that indirect cost could be the result of economic distress rather than firm-specific financial problems (Opler & Titman, 1994). Splitting the hidden effects of economic distress and financial distress is also challenging. Andrade and Kaplan (1998) managed this problem by choosing a sample of firms documenting positive operating profits. Firms in their sample were healthy initially and become distressed afterwards. Since this sample selection does not include firms facing operating distress, therefore, one can estimate the indirect losses due to financial distress precisely. To control the effects of economic

distress, this research also followed a similar solution at the sample level. We argued that following these methodological corrections, more accurate magnitude of indirect cost can be estimated.

Furthermore, the concern is not only about the estimation of indirect cost. It is also needed to explore the determinants of indirect cost to devise mitigating strategies. Previously, firm-specific, macroeconomic and institutional factors have been studied as determinants of indirect cost (Farooq & Qamar, 2018). Among these determinants, working capital management is an important firm-specific factor of indirect cost.

Working capital management refers to the management of current assets and current liability. Aggressive working capital management invests less in current assets as compared to conservative working capital management where firms hold more current asset. Aggressive working capital decrease the liquidity risk but at the cost of profitability (Al-Shubiri, 2010). Conversely, conservative working capital focus on profitability even at the cost of liquidity (Abbadi & Abbadi, 2012). This alludes that liquidity risk and profitability are two main outcomes of working capital management. In literature, receivable and inventory management (two components of working capital) are often studied to create an optimal trade-off between profitability and liquidity risk to increase firm value (Eljelly, 2004; Garcia-Teruel & Martinez-Solano, 2007; Raheman & Nasr, 2007). Here, it is notable that profitability and liquidity are also important features of financial distress. In early stage of distress firms face profitability problems while in later stage cash problems become more severe (Farooq et al., 2018; Molina & Preve, 2009). Since, working capital management and financial distress share same features of profitability and liquidity, therefore, we can relate receivable and inventory management to financial distress, its resolution and indirect costs.

For instance, to respond profitability issues (such as in the early stage of financial distress), firms may enhance the collection period to capture more customers (Molina & Preve, 2009; Petersen & Rajan, 1997). Tsuruta (2013) also argued that even small and credit constrained firms increase their credit terms to capture more customers and particularly to create close customer relation. It is also possible that financially distressed firms could not manage timely collections due to their deteriorated position of negotiation with customers that increase collection period (Delannay & Weill, 2004). Increase in receivables in both cases requires more finance that could result in high interest expense. It is because financially distressed firms are credit constrained that ultimately increase their risk premium and finance cost (Hill, Kelly, & Highfield, 2010). Even if such receivables are financed using internal resources then still firms bear

opportunity cost. Hence, when financially distressed firms unwillingly increase their receivables due to profitability problems or inability of negotiation then the difference between sales benefits and augmented finance/opportunity cost could be labelled as an indirect cost.

Similarly, in the later stage of financial distress, firms face liquidity problems. Firms may reduce their receivables to deal with cash problems (Molina & Preve, 2009). Miwa and Ramseyer (2008) also contended that firms respond to financial shocks through trade credit and cutting receivables. However, such cut downs can result in loss of customers. Since the forced reduction is due to financial distress, therefore the consequential loss of customers can be defined as an indirect cost. On the other hand, Tsuruta (2013) argued that firms having weak bargaining power with their customers or when customers have easily accessible alternative suppliers then firms do not decrease receivables to retain their customers. However, such forced investment in receivables will result in costly financing that can be labelled as indirect cost. It is also possible that firms do not decrease credit limit but offer discounts to get cash earlier. In this case, discount expense will be the indirect cost as financial distress forced the firms to offer such compensations. The above-mentioned arguments can also be true for inventory management. Since both receivables and inventory are the part of current assets and play a similar role regarding profitability and liquidity, therefore forced change in inventory is also expected during early and later stages of financial distress. Such forced change in inventory could have similar effects as in the case of forced changes in receivables. For instance, holding more inventory could provide shelter against inflation and on-time order fulfilment that increase profitability (Mehar, 2005). Therefore, firms may invest more in inventory to respond to profitability problems in the early stage of financial distress. However, holding more inventory requires more finance. Financing becomes costly during financial distress especially when firms are credit constrained (Hill et al., 2010). Therefore, a forced increase in inventory could also result in high finance cost. Such augmented costs can be defined as an indirect cost.

Similarly, in the later stage of financial distress (i.e. during liquidity problems) firms may decrease their inventory to recover from cash problems (Steinker, Pesch, & Hoberg, 2016). Steinker et al. (2016) further contended that firms use such inventory reduction as a turnaround strategy. However, maintain low level of inventory may affect the timely execution of customers' orders that could result in a decrease in market share. Here, it is also important to relate tight receivable policy in later stages of financial distress as discussed in previous paragraphs. If firms decrease their receivables in later stage of financial distress, then argument of decrease in market share due to not fulfilling customer's orders

become weak. In such a case, rather receivables will be the reason of decrease in market share.

However, holding low inventory may increase the cost of raw material due to inflationary pressure. Consequently, when firms increase the prices then they may lose potential and even current customers. Opler and Titman (1994) also argued that healthy firms use aggressive pricing strategy to capture the market share of financially distressed firms that are not able to decrease prices due to liquidity issues. Such a loss of market share is called an indirect cost. Here it is also important to consider the role of trade payables. Cunat (2007) argued that suppliers may offer more trade credit to their customers facing temporal liquidity problems. They do so to create close relation and to retain them. Consequently, firms in liquidity problems may not decrease their inventory as suppliers are providing more credit. Bitter (2009) also argued that there is positive relation between trade credit and inventory. However, consequently increased inventory level can be further used as collateral in bank borrowings. In such a situation, suppliers may charge high interest rate to compensate increasing risk premium (Cunat, 2007).

Such interest charge can also be called indirect cost of financial distress. These arguments are particularly true in the case of developing countries where firms are credit constrained making it difficult to finance receivables and inventory (Delannay & Weill, 2004; Hill et al., 2010). In such countries, the debt markets are not developed that restrict the financing options to bank loans (Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001). Consequently, financially distressed firms do not get bank loans but at a high-risk premium. Thus, financing receivables and inventory during financial distress could become more expensive that can be attributed as an indirect cost. Similarly, inventory prices often increase due to inflationary pressure in developing countries. Therefore, financially distressed firms that increase product prices are more exposed to loss of market share (as indirect cost) in developing countries.

The aforementioned arguments indicate that both receivable and inventory management are critical determinants of indirect cost, especially in developing countries. Pakistan is also a developing country with less developed capital markets (especially debt market) where firms are credit constrained (Raza, Aslam, & Farooq, 2013). Similarly, political instability, environmental dynamism and asymmetric information increase the risk for firms operating in Pakistan (Hijazi & Shah, 2004). In Pakistan, inflation also varies and often increase the costs of goods. Such similar characteristics to developing countries may expose the firms to indirect cost of financial distress in Pakistan. Hence,

there is a need to study indirect cost and its determinants in case of developing countries like Pakistan to provide policy implications.

METHODOLOGY

The data is collected from annual publications of State Bank of Pakistan (SBP) from 2002 to 2015. SBP annual publications provide financial statement data of all non-financial firms listed at Pakistan Stock Exchange (PSX) in a specified format. Currently three more annually publications are available for recent years (i.e., 2016, 2017 and 2018). However, after 2016, the format of annual publication and measurement of some of variables are revised and different from previous reports. Therefore, we confined our analysis for the period of 2002 to 2015. All the annual publications during 2002 to 2015, provided the data of 519 non-financial firms. However, we selected final sample after applying various filters in accordance with research objectives.

Initially, we excluded 145 delisted or suspended firms from the PSX. Since these firms might be delisted due to default, therefore it is more appropriate to study direct cost for such firms rather than indirect cost. We also excluded 18 firms that remained in distress during the period of analysis. We excluded these firms because such observations will not allow estimating the real cost of financial distress as such firms are already in distress and showed no transition from a healthy position to distress. Similarly, 17 acquired firms, 27 firms with insufficient data and 9 ongoing firms that have stopped their operations temporarily are excluded due to their inconsistent nature with research objectives. After applying all these filters, we extracted 321 ongoing firms.

We further included only ongoing firms operating in profitable industries and documenting gross profits to control the effects of economic distress. After applying above-mentioned criteria, the final sample consists of 2,139 number of observations for 298 non-financial ongoing firms during 2002 to 2015.

This filter criteria will control the problem of reverse causality and economic distress. Since, the selected firms are documenting positive gross profit before the transition to distress, therefore, it can be inferring that firms are not facing financial problems due to OL. Similarly, selection of profitable industries will control the effects of economic distress and refers that firms are not entering to financial distress due to economic shocks. This approach is consistent with Andrade and Kaplan (1998) and Opler and Titman (1994) who eliminated the impact of economic distress and reverse causality using appropriate sample.

This research used OL as a proxy of indirect cost. OL is calculated by the difference in the sales growth of sector and sales growth of firms at time *t*. If a firm underperforms in term of sales growth as compared to its sector due to financial distress, then such a loss is attributed as an indirect cost of financial distress. Following the Pindado and Rodrigues (2005), we used both financial distress and leverage to estimate indirect cost as shown in Equation 1. However, contrarily financial distress is segregated into three stages of PR, ML and SL as proposed by Farooq et al. (2018). In Equation 1, financial distress (FD) represents the categorical variable that is equal to "0" if a firm is healthy (base category), "1" for PR and "2" for ML. Here, fourth category of SL is not included as only nine observations were SL indicating that it is very less likely that a healthy firm will enter to SL directly. Farooq et al. (2018) also found similar results and argued that healthy firms initially enter to either PR or ML. Furthermore, including such small sample of a category may provide biased and unreliable results. Therefore, regression analysis excludes nine observations of Healthy-SL and estimates indirect loss when a healthy firm face profitability problems or ML issues in the subsequent year.

$$CFD_{it} = \alpha + \beta_1 (FD)_{it} + \beta_2 (dr)_{it} + \beta_3 (dr)^2_{it} + \beta_4 (pdrec)_{it} + \beta_5 (pdrec_{it} * FD_{it}) + \beta_6 (ndrec)_{it} + \beta_7 (ndrec_{it} * FD_{it}) + \beta_8 (pdinv)_{it} + \beta_9 (pdinv_{it} * FD_{it}) + \beta_{10} (ndinv)_{it} + \beta_{11} (ndinv_{it} * FD_{it}) + \beta_{12} (TAG)_{it} + \beta_{13} (CTA)_{it} + \upsilon_i + \varpi_t + \varepsilon_{it} \quad (1)$$

where,

CFD = Cost of financial distress, measured through following proxy:

$$\text{Opportunity Loss (OL)} = (\text{Sales Growth})_{\text{Sec}} - (\text{Sales Growth})_{\text{Firm}}$$

FD = Financial distress, it is defined as multinomial variable containing three categories as "0" for healthy, "1" for PR, "2" for ML (here fourth category of SL is not included due to very small number of observations

dr = Debt ratio, calculated as a ratio of total liabilities to total assets

dr^2 = Square of debt ratio

pdrec = It is equal to zero if the deviation from receivables is negative and shows the original value if the deviation is positive. Deviation from receivables is calculated as $(\text{Receivables/Sales})_{\text{Firm}} - (\text{Receivables/Sales})_{\text{Sec}}$

ndrec = It is equal to zero if the deviation from receivables is positive and shows the original value if the deviation is negative. Deviation from receivables is calculated as $(\text{Receivables/Sales})_{\text{Firm}} - (\text{Receivables/Sales})_{\text{Sec}}$

pdinv = It is equal to zero if the deviation from inventory is negative and shows the original value if the deviation is positive. Deviation from inventory is calculated as $(\text{Inventory/Sales})_{\text{Firm}} - (\text{Inventory/Sales})_{\text{Sec}}$

ndinv = It is equal to zero if the deviation from inventory is positive and shows the original value if the deviation is negative. Deviation from inventory is calculated as $(\text{Inventory/Sales})_{\text{Firm}} - (\text{Inventory/Sales})_{\text{Sec}}$

TAG = Total assets growth, calculated as $(\text{Total Assets}_{t} - \text{Total Assets}_{t-1}) / \text{Total Assets}_{t-1}$

CTA = Cash to total assets

υ_i = Firm-specific heterogeneity

ϖ_t = Time-specific dummies

ε_{it} = Error term

PR is defined as a dummy variable that is equal to "1" if a firm documented net loss for a particular year or net profits are reduced for two consecutive years. Similarly, a firm is considered as ML if its interest coverage ratio is less than "1" for two consecutive years or less than 0.8 for a particular year with positive net worth. Finally, SL is referred to as negative net-worth where total liabilities exceed its total assets. Firms that are neither PR, ML nor SL are identified as Healthy. These definitions are the same as proposed by Farooq et al. (2018). Similarly, the debt ratio is used as a proxy of leverage to control its positive effects, as argued by Pindado and Rodrigues (2005). However, it is postulated that the benefits of leverage are limited to its optimal level and afterwards the cost of financial distress surpass tax advantages. Therefore, to capture the quadratic effects of leverage, a nonlinear proxy of debt ratio is used to estimate indirect cost as shown in Equation (1).

The proposed model also studies the effects of receivables and inventory during financial distress. Equation 1 includes two variables of positive deviation of receivables (*pdrec*) and negative deviation of receivables (*ndrec*). Positive deviation of receivables (*pdrec*) is calculated as zero if a firm has receivables/sales ratio less than the industry average and actual value of receivables/sales

ratio is taken if it is greater than the industry average. Similarly, negative deviation of receivables (*ndrec*) is calculated as zero if a firm has receivables/ sale ratio more than the industry average and actual value of receivables/sales is taken if it is less than the industry average. These ratios will help to identify the effects of an increase/decrease in receivable from industry averages separately. For instance, positive deviation of receivables (*pdrec*) will capture the effects of increase in receivables than industry averages only as all the values showing less receivables than industry are substituted with zero. The same procedure is adopted to calculate the positive deviation of inventory (*pdinv*) and negative deviation of inventory (*ndinv*) using inventory/CGS (cost of goods sold) ratio.

However, to study these determinants of indirect cost moderating approach as proposed by Farooq and Qamar (2018) is followed. Farooq and Qamar (2018) explore that literature used three methods to study the determinants of indirect cost. First, one-way approach, where the determinants are studied using a sample of distressed firms only. Second, two-way approach, where the effects of financial distress on proposed determinant is explored initially followed by the study of the relationship between prescribed determinant and firm value. Third, the moderating approach, where financial distress is used as a moderating variable to study the effects of some determinant on indirect cost. Farooq and Qamar (2018) concluded that the moderating approach is more appropriate as it provides a comparative analysis between the sample of healthy and financially distressed firms. Following these recommendations, interaction terms of *pdrec*, *ndrec*, *pdinv* and *ndinv* with *FD* are included in the final model. For instance, the cross effect of *ndrec***FD* will explore the impact of the decrease in receivables on OL when healthy firms move to PR, ML or SL. If OL increases with the decrease in receivables during the transition of healthy-distress, then such loss can be attributed as indirect cost. Similarly, other interaction terms will be interpreted to understand the theory of receivables and inventory during the transition to distress.

Besides this, we also included four control variables in Equation 1. It is much possible that sales revenue increase/decrease due to the increase/ decrease in assets rather than financial distress. Therefore, to control this effect we included total asset growth (*TAG*) as a control variable. We also included cash to total asset ratio (*CTA*), υ_i and ϖ_t to control liquidity effects, firm-specific heterogeneity and time-specific heterogeneity respectively. Moreover, to cater to the problem of high variations and extreme values, the winsorising approach is applied as suggested by Barnett and Lewis (1994). This study uses the 1% winsorising criteria for all the variables and replaces 1% of upper and lower values with the neighbour values.

RESULTS

Table 1 presents the descriptive statistics of firms that were healthy in the previous year and operating in profitable industries. In the table, Healthy-Healthy means that a firm was healthy in the previous year and remain healthy in the current year as well.

Results showed that average OL for Healthy-Healthy is negative (–0.083), confirming that healthy firms that remained healthy gain more sales revenue.

However, 243 observations of Healthy-PR document positive OL. Results revealed that when healthy firms face PR (Healthy-PR) then their sales growth decreased by 4% (5% median) from the industry average. Similarly, Healthy-ML and Healthy-SL firms are documenting an average OL of 0.112 (0.098 medians) and 0.179 (0.167 medians), respectively. More specifically, sales growth of healthy firms that become ML or SL decrease by 11.2% and 17.9%, respectively.

These results are indicating that as the level of adversity increase, healthy firms bear more OL. Since the sample firms are not facing economic distress, therefore it can be postulated that such a decrease in market share is due to financial distress. Similarly, Table 1 portrays positive median of industry adjusted debt ratio for Healthy-Healthy and Healthy-PR while negative for Healthy-ML. This indicates that Healthy-ML firms are deploying less debt than industry averages. Table 1 is also providing descriptive statistics for other variables used in regression analysis.

Table 1
Descriptive statistics of OL

	OL	DR	Rec	INV	TAG	CTA
Healthy-Healthy						
N	1750	1750	1749	1747	1750	1750
Mean	–0.083	0.083	0.031	0.082	0.213	–0.005
Median	–0.022	0.058	0.003	0.041	0.144	0.007
SD	0.437	0.186	0.148	0.179	0.294	0.094
Max	1.037	0.607	1.904	1.683	1.913	0.308
Min	–6.150	–0.330	–0.342	–0.238	–0.300	–0.377
Healthy-ML						
N	146	146	146	146	146	146
Mean	0.112	0.00016	0.021	0.077	0.095	0.013
Median	0.098	–0.011	–0.014	0.009	0.030	0.010
SD	0.516	0.194	0.128	0.214	0.286	0.068
Max	1.037	0.533	0.903	0.965	1.913	0.249
Min	–3.896	–0.330	–0.227	–0.224	–0.300	–0.353
Healthy-PR						
N	243	243	242	242	243	243
Mean	0.040	0.072	0.026	0.078	0.105	0.004
Median	0.050	0.047	0.010	0.035	0.063	0.008
SD	0.266	0.201	0.112	0.184	0.197	0.081
Max	1.037	0.607	0.767	1.290	1.199	0.204
Min	–1.718	–0.328	–0.342	–0.229	–0.300	–0.377
All						
N	2139	2139	2137	2135	2139	2139
Mean	–0.056	0.076	0.030	0.081	0.192	–0.003
Median	–0.006	0.050	0.002	0.039	0.128	0.007
SD	0.431	0.190	0.143	0.182	0.287	0.091
Max	1.037	0.607	1.904	1.683	1.913	0.308
Min	–6.150	–0.330	–0.342	–0.238	–0.300	–0.377

Notes: OL represents opportunity loss and calculated as difference between industry sales growth and firm sales growth as defined in methodology section. DR is industry adjusted debt ratio. Rec and Inv are industry adjusted receivables/sale ratio and industry adjusted inventory/CGS ratio, respectively. TAG and CTA are proxy of total assets growth and cash to total assets, respectively.

Regression Analysis

This section will present the regression analysis of the proposed model as shown in Equation (1). This research follows the methodology of Park (2009) for panel data in selecting the appropriate regression model (Fixed or Random or OLS). Table 2 represents the model selection criteria and diagnostic statistics. Results of the LM test recommends that random effect model is superior to OLS. Similarly, fixed effect *F*-test is significant referring that fixed effect is better than OLS. Therefore, the Hausman test is applied to select among random and fixed effect. Hausman test recommends that it is important to control unobserved firm-specific heterogeneity, therefore, the fixed effect model is more suitable to apply.

Table 2
Regression analysis diagnostics

Tests	Statistics		Comments
Fixed effect F-test	F(290, 1680) = 2.23 *p*-value = 0.000		Reject H_0. Fixed effect is better than OLS.
Random effect LM test	$chi^2(01) = 31.58$ *p*-value = 0.000		Reject H_0. Random Effect model is better than OLS.
Hausmann test	$chi^2(13) = 140.93$ *p*-value = 0.000		Fixed effect model is recommended.
Wald test (time)	F(12, 1680) = 3.76 *p*-value = 0.000		Time dummies should include.
Modified Wald test	$chi^2(298) = 2.9e + 33$ *p*-value = 0.000		Heterodekasticity exists. Use robust standard measures.
BP/LM test	Could not calculated		Very few observations across panel. So, it is not problematic.
Model F	F(13, 1680) = 6.34 *p*-value = 0.000		Model is significant as whole.
Adjusted R^2	Within	0.3637	
	Between	0.2055	
	Overall	0.2394	

Similarly, to verify that whether time dummies should include, Wald test is applied using "testparm" command in STATA. The result of Wald test is significant indicating that time dummies should include in a fixed effect model. Further, the modified Wald test for group-wise heterogeneity is significant, confirming the existence of the heteroskedasticity problem. This

test is performed using a post-estimation command of *xttest3* in STATA. To control this heteroskedasticity problem, a robust fixed-effect model (Huber/ White or sandwich estimators) is used as recommended by Oscar (2007). Conversely, STATA could not calculate BP/LM test of serial correlation as data is a micro panel and few observations are found across the panel. Therefore, it can be concluded that serial correlation is not a problem. After analysing all the diagnostic tests, a robust fixed effect model with time dummies is selected as a final model. Table 2 also provides the goodness of fit for the robust fixed effect model. It is found that the overall weighted average R^2 is 23.94%. Similarly, model *F*-value is high and significant. This shows that the proposed robust fixed effect model with time dummies significantly explains the variations in the dependent variable.

Table 3 provides the final results of the selected robust fixed effect model. To make analysis easier, results are segregated into four parts separated through lines. The first part of Table 3 is showing the effects of financial distress (FD) on OL. Here Healthy-Healthy is taken as the reference category. Results revealed that the coefficients of Healthy-PR and Healthy-ML are not different from the base category (Healthy-Healthy) at 5% significance level. This concludes that in general healthy firms do not bear significant OL when entering to PR or ML as compared to when remain healthy. Here it is notable that Table 3 explores the traditional contrast effects for categorical variable and interaction terms. These contrast effects do not show margin effects and slope values within each category and its interaction term. To investigate these average marginal effects, STATA command of "margins" is applied. Margin command provides the results of slope or derivative for interaction terms containing a categorical variable. Williams (2012) recommended that margins along with contrast coefficients should use to understand the real effects of categorical variables and their interaction terms.

Therefore, the margin effects provided in Table 4 are also used to interpret the results. The first part of Table 4 represents the margin effects of FD at mean. Results show that the average OL for Healthy-Healthy firms is significantly negative, indicating that market share increases when healthy firms remain healthy. Conversely, the average OL for Healthy-PR and Healthy-ML are insignificant. This concludes that the market share of a healthy firm is not affected when entering to PR or ML. These results are not consistent with Pindado and Rodrigues (2005) who found that financial distress is negatively related to OL. This could be due to the initial stage of distress as healthy firms enter to PR or ML.

Table 3
Regression analysis

OL	*β*	Robust standard error	*t*-value	*p*-value
FD				
Healthy-PR	–0.056	0.032	–1.760	0.079
Healthy-ML	0.103	0.131	0.780	0.435
dr	**–0.818*** **	**0.314**	**–2.600**	**0.010**
dr^2	0.836***	0.307	2.720	0.007
pdrec	**–1.276*** **	**0.505**	**–2.530**	**0.012**
*FD*pdrec*				
Healthy-PR	0.916***	0.366	2.500	0.013
Healthy-ML	–0.259	1.346	–0.190	0.848
ndrec	–0.010	0.469	–0.020	0.982
*FD*ndrec*				
Healthy-PR	**–0.810** **	**0.416**	**–1.950**	**0.053**
Healthy-ML	0.865	1.853	0.470	0.641
pdniv	**–1.588*** **	**0.284**	**–5.590**	**0.000**
*FD*pdinv*				
Healthy-PR	0.325	0.240	1.360	0.176
Healthy-ML	0.246	0.311	0.790	0.430
ndiv	1.248**	0.528	2.370	0.019
*FD*ndiv*				
Healthy-PR	**–2.465*** **	**0.684**	**–3.610**	**0.000**
Healthy-ML	–1.613	1.095	–1.470	0.142
TAG	**–0.281** **	**0.076**	**–3.390**	**0.001**
CTA	0.281**	0.137	2.050	0.041
Constant	0.350***	0.103	3.390	0.001

Notes: The table is the output of robust fixed effect regression analysis for Model 1. Following command is used to execute fixed effect regression analysis for Model 1 in STATA. xtreg OL i.*FD*##c.*pdrec* i.*FD*##c.*ndrec* i.*FD*##c.*pdinv* i.*FD*##c.*ndinv* dr dr_sqr tag cta i.year if economic_distress!=1, fe robust.
Here, the dependent variable is OL. The table is divided into four sections to understand the results in a better way. *FD* and *dr* represent financial distress and debt ratio, respectively. Healthy-PR and Healthy-ML represent the transition of healthy firms to PR and ML, respectively. *Pdrec* (positive deviation of receivables) is a continuous variable show 0 if industry adjusted receivables/sale ratio is negative and show original values if the ratio is positive. *ndrec* (negative deviation of receivables) is a continuous variable show 0 if industry adjusted receivables/sale ratio is positive and show original values if the ratio is negative. *pdinv* (positive deviation of inventory) is a continuous variable show 0 if industry adjusted inventory/CGS ratio is negative and show original values if the ratio is positive. *ndinv* (negative deviation of inventory) is a continuous variable show 0 if industry adjusted inventory/CGS ratio is positive and show original values if the ratio is negative. Similarly, TAG and CTA are proxy of total assets growth and cash to total assets, respectively.
**Significant at 5%; ***significant at 1%.

Table 4
Margin effects of regression analysis

		Margins/(*dy/dx*)	Standard error	z	P>|z|
FD					
	Healthy-Healthy	–0.081***	0.003	–29.10	0.000
	Healthy-PR	0.004	0.017	0.23	0.819
	Healthy-ML	0.044	0.063	0.71	0.479
*pdrec*FD*					
	Healthy-Healthy	–1.276***	0.505	–2.530	0.012
	Healthy-PR	–0.360	0.378	–0.950	0.340
	Healthy-ML	–1.534	1.367	–1.120	0.262
*ndrec*FD*					
	Healthy-Healthy	–0.010	0.469	–0.020	0.982
	Healthy-PR	–0.821	0.476	–1.730	0.084
	Healthy-ML	0.855	1.873	0.460	0.648
*pdniv*FD*					
	Healthy-Healthy	–1.588***	0.284	–5.590	0.000
	Healthy-PR	–1.263***	0.257	–4.920	0.000
	Healthy-ML	–1.342***	0.261	–5.140	0.000
*ndiv*FD*					
	Healthy-Healthy	1.248**	0.528	2.370	0.018
	Healthy-PR	**–1.217****	**0.640**	**–1.900**	**0.057**
	Healthy-ML	–0.364	1.107	–0.330	0.742

Notes: The table provides the results of post estimation command of 'margins' in STATA. For categorical variables, margin scores are provided at mean. While for continuous variables, rate of change i.e. *dy/dx* is provided. These margin effects are calculated using following post estimation commands in STATA. Margins, *FD* at mean margins, *dydx(pdrec*) at (*FD*==(1 2 3)); margins *dydx(ndrec)* at (*FD*==(1 2 3)); margins *dydx(pdniv)* at (*FD*==(1 2 3)); margins *dydx(ndinv)* at (*FD*==(1 2 3)).
Here *FD* is categorical variable while *pdrec, ndrec, pdinv* and *ndinv* are continuous variables. All the variables are defined as earlier.
**Significant at 5%; ***Significant at 1%.

It is possible that external stakeholders do not respond to such initial transition. However, these stakeholders may consider leverage as a critical aspect in evaluating the firm. The first part of Table 3 also presents the results of the debt ratio (*dr*) and its square. Results showed that both the debt ratio (*dr*) and its square (dr^2) are significant with opposite signs. The significant negative-positive slopes confirm the quadratic effects of debt. Results revealed that initially, increase in debt decrease the OL with a slope of –0.818 while after optimal level

deploying more debt increases the OL with a slope of 0.836. Therefore, debt can be viewed as a positive connotation but to a certain level. That optimal level can be calculated by taking derivative of the proposed model with respect to *dr* as shown in the following equations.

$$\Delta OL/\Delta DR = -0.818 + 2(0.836)\ (DR)$$

When opportunity cost starts increasing then at that point, above equation will be:

$$0 = -0.818 + 2(0.836)(DR)$$

$$DR = (0.818)/2(0.836) = 0.489 \text{ or } 49\%$$

Thus, OL decreases with deploying more debt till the debt ratio reaches to 49% while after that taking more debt increase the OL. This initial positive effect can be due to agency benefits as argued by Jensen and Meckling (1976). These results are consistent with Pindado and Rodrigues (2005) who separated the effects of debt with a probability of financial distress and found that increase in leverage decrease the OL in case of the U.S., the U.K. and Germany. However, their results were based on linear relation while this research found that such negative relation is true up to a specific level of debt. External stakeholders might view a firm as risky when its debt ratio cross to 49% and respond accordingly. As a result, the subsequent loss of market share (i.e., increase in OL) due to increase in debt can be attributed as indirect cost of financial distress. These results are in accordance with trade off theory that also contended the positive aspects of leverage until its optimal level.

Though, it is argued that external stakeholders do not give significant considerations to initial stages of PR and ML but these stages could affect internal operations such as receivable and inventory management that indirectly increase OL. Molina and Preve (2009) argued that firms increase their receivables in the early stage of distress (i.e., when face profitability problems) while decrease their receivables in the later stage to respond to liquidity problems. To understand this postulation in Pakistan, the descriptive statistics of deviation of receivables and inventory from industry averages are explored using Table 5. Here we redefined our variables with slight modification. In Table 5, +*rec* modifies the variable *pdrec* and refers to the observations showing only positive deviation of receivables than industry and excludes observations having zero value (i.e. negative deviation). Similarly, –*rec* modifies the variable *ndrec* and includes only negative deviation values of receivable. In this way, both +*rec* and –*rec* will provide the descriptive statistics for only increase and decrease in receivables

than industry averages respectively. Similarly, two variables of *+inv* and *–inv* are constructed for positive and negative deviation only for inventory.

Table 5
Change in receivable and inventory management

		Healthy-Healthy	Healthy-PR	Healthy-ML
–rec	*N*	844	112	87
	Mean	–0.0442	–0.0494	–0.0453
+rec	*N*	905	131	59
	Mean	0.102	0.0897	0.1186
	Total	1749	243	146
–inv	*N*	559	79	68
	Mean	–0.0578	–0.0625	–0.0704
+inv	*N*	1190	164	78
	Mean	0.1474	0.1454	0.2049
	Total	1749	243	146

Notes: This table provides the descriptive statistics of receivables and inventory during Healthy-Healthy, Healthy-PR and Healthy-ML. *–rec* represents the industry adjusted receivable/sales ratio when it is negative and exclude the positive values. *+rec* represents the industry adjusted receivable/sales ratio when it is positive and exclude the negative values. *–inv* and *+inv* are also calculated in same manner using industry adjusted inventory/CGS ratio. *N* and Mean are the frequency and arithmetic means of respective variable.

Table 5 shows that 905 observations of Healthy-Healthy and 131 observations of Healthy-PR increased their receivables than industry averages (*+rec*). Conversely, 844 cases of Healthy-Healthy and 112 Healthy-PR observations documented negative deviation of receivables than industry (*–rec*). Here it is notable that more observations of Healthy-Healthy and Healthy-PR are documenting a positive deviation of receivables as compared to negative deviation. Such increase in receivables might be due to their objective of capturing more market share.

Table 5 also explores that more Healthy-ML firms decreased their receivables than industry averages (*–rec,* 87 cases) as compared positive deviations of receivables (*+rec,* 59 cases). The decrease in receivables by Healthy-ML firms might be to respond cash problems. It is also notable that the mean of positive deviation of receivables by Healthy-ML (0.1186) is more than the average positive deviation by Healthy-Healthy (0.102) and Healthy-PR (0.0897). This shows that when Healthy-ML firms increase their receivables then they do so more aggressively. This could be due to their deteriorated ability of negotiation to collect payments timely.

Table 5 further explores the descriptive statistics of the deviation of inventory/CGS ratio from industry averages. Results revealed that for all three types of transitions, firms hold more inventory (+*inv*) than the industry in most of the cases. The conservative inventory management by Healthy-Healthy and Healthy-PR firms is consistent with their receivable policies (i.e., to increase their profits). However, in the case of Healthy-ML, conservative inventory management is opposite to their aggressive receivable policy. It is possible that Healthy-ML firms hold more inventory to increase their profits as trade credit provides an alternative to debt financing during distress.

While no alternative is available for investments in receivables but at a high cost. As a result, Healthy-ML firms decrease their receivables and hold more inventory.

Hence, it is concluded that firms often increase/decrease their investments in receivables and inventory as compared to industry standards during the transition to distress. Further important question is to explore the consequences of such deviations. The second part of Table 3 explores the effects of FD within the contingency of receivable management. Results showed significant negative coefficient (–1.276) of *pdrec* (positive deviation of receivable) indicating that an increase in *pdrec*, decrease the OL for the base category of Healthy-Healthy. Conversely, the *dy/dx* coefficient of *pdrec* for Healthy-PR and Healthy-ML are insignificant as shown in Table 4. Since their slops are insignificant, so it is irrelevant to study their contrast effects with respect to the base category.

These results show that only Healthy-Healthy firms get the benefits of more investments in receivables. Increase in receivables by Healthy-PR and Healthy-ML would increase their cost of financing without getting more market share. It is also possible that an increase in receivables than industry standards by Healthy-PR and Healthy-ML is not because of their intention to recover from profitability problems but due to their deteriorated position of negotiation. Though, Molina and Preve (2009) found that firms increase their receivables to capture more market share during the early stage of financial distress (such as Healthy-PR) but they did not provide empirical evidence about the negative consequences of such increase in receivables. Our results found that their conservative receivable policy would be ineffective and result in high finance cost due to increased risk premium.

Table 4 further explores that a positive deviation of inventory from industry averages (*pdinv*) significantly decrease the OL for all three transitions. However, the contrast effects from Table 3 is showing that the intensity of this

relationship does not differ across three transitions. Thus, holding more inventory is suitable regardless of distress status. Here it is notable that holding more inventory requires more money that can increase the finance cost. To understand this phenomenon, we studied the average finance cost during the transitions to distress using Table 6. In the table, descriptive statistics of the average interest rate (measured as a ratio of finance cost to total liabilities) of sample firms are provided. Results showed that average finance cost for Healthy-PR and Healthy-ML firms are 0.0653 and 0.058, respectively. These statistics are high than the average finance cost of Healthy-Healthy (0.0510).

Table 6 also reveals that 90 observations of Healthy-ML transition documented average finance cost greater than the median while 56 cases demonstrated opposite results.

Table 6
Average finance cost to total liabilities

	Mean	SD	$N <$ median	$N >$ median
Healthy-Healthy	0.0510	0.0397	912	838
Healthy-ML	0.0653	0.0588	56	90
Healthy-PR	0.0568	0.0367	101	142

Notes: This table provides the descriptive statistics of average finance cost (FE_TL) measured as finance cost/ Total liabilities during Healthy-Healthy, Healthy-PR and Healthy-ML. Mean and SD are the arithmetic mean and standard deviation respectively. $N <$ Median and $N >$ Median shows the number of observations when average finance cost is greater than or less than the median value of average finance cost of whole data.

Similarly, 142 Healthy-PR cases incurred finance cost greater than the median as compared to 101 observations of less than the median. This indicates that firms bear high finance cost during the transitions of Healthy-PR and especially Healthy-ML. Thus, forced increase in receivables (especially due to deteriorated negotiation) and inventory by Healthy-PR and Healthy-ML could result in high finance cost that can be attributed as an indirect cost. However, if a distressed firm can finance inventory through trade creditors then benefits of holding more inventory could be achieved without bearing finance cost.

Table 4 further explores the effects of negative deviations of receivables (*ndrec*) and inventory (*ndinv*) from their industry averages. Results showed that the marginal effect of *ndrec* is insignificant for Healthy-Healthy and Healthy-ML. Therefore, allowing less credit sales does not affect the market share during the transition of Healthy-ML. However, the coefficient (*dy/dx*) of *ndrec* is negative in the case of Healthy-PR, indicating the increase in OL with the

decrease in receivables (at 10% level of significance). Therefore, if firms decrease their receivables due to PR (an early stage of financial distress) then decrease in market value can be called as an indirect cost of financial distress.

Table 4 also shows that a decrease in inventory than industry averages, decreases the OL for Healthy-Healthy firms as the coefficient (*dy/dx*) of *ndinv* is positive. Conversely, the slope of *ndinv* for Healthy-PR is significantly negative indicating an increase in OL with the decrease in inventory. Such a loss of market share during Healthy-PR can be called as an indirect cost. While the effects of the decrease in inventory to OL for Healthy-ML firms showed insignificant coefficients. The results of Healthy-ML are not consistent with Molina and Preve (2009), who found that decrease in receivables by such firms decrease their market share.

To understand this inconsistency, it is important to study both receivables and inventory simultaneously. Most of the literature investigates the receivable and inventory management separately. We argued that firms manage both the assets simultaneously.

In other words, the increase/decrease in one asset cause the simultaneous increase/decrease in other asset. For instance, it is more expected that decrease in receivables will decrease inventory and vice versa. It is because more inventory will be required when more sale is expected. While more sales are expected outcome of increase in receivables.

To find this association we redefined our variables into two binary variables of *rec* and *inv*. Here, *rec* is defined as dummy variable that is equal to "1" (denoted as +*rec* to make analysis easier) if receivables are more than industry average and "0" (denoted as –*rec*) in case of negative deviation. Similarly, *inv* represents a binary variable equal to 1 (denoted as +*inv*) for positive deviation of inventory than industry and 0 (denoted as –*inv*) for negative deviation. We used Pearson Chi-square and Fisher's exact test to analyse the association between *rec* and *inv*. Since, both the variables are binary, therefore, four possible outcomes will be +*rec and* +*inv*, –*rec and* –*inv*, +*rec and* –*inv* and –*rec and* +*inv*. Table 7 is showing that both Chi-square and Fisher's exact test are significant for all three types of distress transitions. Therefore, it can be concluded that both receivable and inventory management have significant association and firms manage both the assets simultaneously.

Table 7
Simultaneous receivable and inventory management

	Healthy-Healthy			Healthy-PR			Healthy-ML		
	N	OL	FE_TL	*N*	OL	FE_TL	*N*	OL	FE_TL
–rec & *+inv*	517	–0.049	0.055	52	0.185	0.060	48	0.031	0.057
–rec & *–inv*	327	–0.037	0.050	60	0.203	0.076	39	0.084	0.061
+rec & *–inv*	232	–0.089	0.043	104	0.012	0.044	39	0.117	0.043
+rec & *+inv*	673	–0.131	0.051	27	–0.023	0.069	20	0.003	0.058
χ^2		34.51***			18.34***			6.39***	
Fisher test		0.000			0.000			0.018	

Notes: This table provides the Fisher association test and the descriptive statistics of OL (opportunity loss) and FE_TL (average finance cost measured as finance cost/Total liabilities) for three transitions of distress. Association test is applied on two binary variables of *rec* and *inv*. Here, *rec* is defined as binary variable that is equal to "1" (denoted as *+rec* to make analysis easier) if receivables are more than industry average and "0" (denoted as *–rec*) in case of negative deviation. Similarly, *inv* represents a binary variable equal to "1" (denoted as *+inv*) for positive deviation of inventory than industry and "0" (denoted as *–inv*) for negative deviation. Since, both *rec* and *inv* are binary, therefore, four possible outcomes are defined as *+rec* and *+inv, –rec* and *–inv*, *+rec* and *–inv*, and *–rec* and *+inv*. In the table, shaded areas represent the most inappropriate strategy for Healthy-PR and Healthy-ML based on both OL and FE_TL.

Table 7 is also showing that during Healthy-ML, 39 cases reported a decrease in both inventory and receivables simultaneously (*–rec* and *–inv*). While 48 observations documented a decrease in receivables with the increase in inventory (*–rec* and *+inv*). This shows that Healthy-ML firms may increase or decrease their inventory with the decrease in receivables. Similarly, 39 cases of Healthy-ML documented a decrease in inventory and an increase in receivables simultaneously. Perhaps, due to this, Table 4 documented the insignificant effects of *ndrec* and *ndinv* for Healthy-ML as the negative consequences of the decrease in receivables/inventory might be intersected the benefits of the increase in inventory/receivables.

It is also important to note that as both receivables and inventory are reduced (*–rec* and *–inv*), average interest rate (FE_TL) and OL are highest for both Healthy-PR and Healthy-ML. This concludes that though, a simultaneous decrease in receivables and inventory reduce costly financing but at the cost of high OL. Table 7 is also indicating that a decrease in receivables cause high OL for Healthy-PR whether inventory is increased or decreased. Conversely, an increase in receivables with a decrease in inventory leads to lowest OL and finance cost for Health-PR. Hence, it can be concluded that "*+rec & –inv*" is suitable for Healthy-PR as receivables can be financed through external sources at low cost.

On the other hand, Health-ML firms borne the highest OL and finance cost when decreased their inventory along with simultaneous increase or decrease in receivables. It is possible that due to liquidity problems during Healthy-ML, holding less inventory decreased the product quality and increased the prices (due to inflationary pressure). Such negative outcomes could decrease the market share even with loose credit policy. Conversely, holding more inventory especially when finance through trade creditors can be used to control over quality and prices without increasing finance cost. Thus, it is recommended that Healthy-ML firms hold more inventory with low receivables.

CONCLUSIONS

This research investigated the OL as an indirect cost of financial distress for Pakistani non-financial firms, especially with respect to receivable and inventory management. To estimate indirect cost, an appropriate proxy of financial distress is used as recommended by Farooq and Qamar (2018). It is argued that financial distress is an adversity based multistage process and intensity of indirect cost may differ at each stage. For instance, Farooq et al., (2018) defined financial distress as a three-stage process, that is, PR, ML and SL. It is postulated that the nature and intensity of indirect cost may differ within these stages of financial distress. Similarly, both benefits and costs are associated with debt. A non-linear proxy of debt can explore the effects of its costs and benefits. Therefore, this research estimated the OL using multistage financial distress along with non-linear proxy of financial distress.

The results revealed that multistage financial distress does not affect OL independently. However, the debt ratio showed a quadratic relationship with the indirect cost. Results showed that taking more debt increase the market share till the debt ratio reaches to 49% while after this deploying more debt decrease the market share that can be defined as an indirect cost. It is concluded that stakeholders view financial leverage more critically in defining the severity of financial problems rather than the profits and liquidity. Therefore, leverage can be used as a proxy of financial distress but with its non-linear effect to estimate indirect cost.

We further argued that still multistage financial distress can affect internal operations and lead to a forced change in working capital. Such forced changes could have adverse effects that can be attributed to indirect cost. Our model tried to estimate such adverse effects during the transition of healthy firms to PR and ML. Our results demonstrated both the increase and decrease in receivables and

inventory during the transition of healthy firms to distress. We argued that the reason to invest more in receivables and inventory could be either due to their intention to increase profits or due to their deteriorated ability of negotiation with customers for timely payments. While less investment in receivables and inventory could be due to cash problems during financial distress.

We found that conservative receivable management during financial distress is not appropriate and increase finance cost without gaining more market share. However, if distressed firms invest more in inventory using trade creditors then they could get its benefits without incurring finance cost. It is further argued that studying the individual effect of receivables and inventory is not appropriate. We found that firms manage both the assets simultaneously. It is concluded that decreasing receivables during the transition to profitability problems is not appropriate especially when holding less inventory. Such firms can increase their market share by allowing more credit sales and holding more inventory if finance through trade creditors. However, holding more inventory along with less receivables is found suitable response to the transition to ML. It is because less receivables will help to cover cash problems while inventory can be financed through trade creditors.

In short, managers can minimise the effects of financial distress by deploying optimal debt structure and recommended receivable and inventory management during the transition to distress. These results can be applicable to other developing countries where firms are credit constrained and face similar problems regarding receivable and inventory management. However, this research has two limitations. First, to control economic distress, we selected the sample of firms that were healthy in the previous year and documented positive gross profit. Our results are not applicable for firms facing distress in the previous year. Future studies are recommended to explore the indirect cost, receivable and inventory management during the transition of distress to distress.

Second, this research focuses only on the asset side of working capital management and does not provide empirical evidence regarding trade credit. It is more possible that firms develop receivable, inventory and payable simultaneously. This research provided evidence regarding the simultaneous effects of receivable and inventory management only. Therefore, future studies can contribute by studying receivable, inventory and trade credit simultaneously during the transition to distress. Similarly, incorporating the role of operating cash flows and earning quality can also provide better explanation of appropriate simultaneous working capital management.

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