Research

SHORT-TERM FINANCING AND RISK-ADJUSTED PROFITABILITY: EVIDENCE FROM PAKISTAN

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Abstract

This study explores the impact of short-term financing on the operational performance of firms and the relationship of the former to risk-adjusted profitability. The sample consists of 352 non-financial firms listed on the KSE (now Pakistan Stock Exchange) from 2003 to 2014. We use several dynamic panel data estimation techniques and find that short-term financing is positively but insignificantly related to firms' profitability. As far as short-term financing and risk-adjusted profitability are concerned, the results confirm the hypothesis that short-term financing has no impact on risk-adjusted profitability under GMM estimation procedure. This study contributes to the literature as no prior study exists on the association of risk-adjusted profitability and short-term financing.

Keywords: Firm performance, debt maturity structure, risk-adjusted profitability, short-term financing, GMM, KSE

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Introduction

In perfect financial markets, decision pertaining to debt-maturity structure is inconsequential to the value of the firm (Stiglitz, 1974; Kraus, 1973). However, market imperfections such as agency costs, corporate and personal taxes, information asymmetry, transaction costs, and bankruptcy costs present unique trade-offs at different levels of short-term financing and hence provide room for debt-maturity structure to enhance value of a firm. Seminal work on the debt-maturity structure in the presence of market imperfections include (Barnea, Haugen, & Senbet, 1980; Myers, 1977; Brick and Ravid, 1991; Diamond, 1991; and Ruiz, 2002) where several others have examined the relationship between firms' characteristics and choice of debt-maturity structure. However, less attention is paid to examine the relationship between the debt-maturity structure and firm's performance. Where the existing scanty research evidences present mixed results.

The existing theoretical models do not clearly link maturity structure of a firm with its operating or market performance. For example, Miller and Modigiliani (1958), Stiglitz (1974) and Kraus (1973) argue that the firm's debt-maturity structure is irrelevant to the firm's value. However, the liquidity preference theory posits that short-term financing is cheaper and could enhance firms' profitability due to lower liquidity and/or default premium. Moreover, Datta, Iskandar-Datta, and Raman (2005) argue that short-term debt can subject managers to frequent monitoring of the capital markets and therefore shall result in improved firms' performance. But a more relevant question than the expected positive relationship between short-term financing and profitability is that whether such an increase in profitability could result in the maximization of shareholders' wealth. The answer to the question would be unclear given the liquidity and refinancing risk that comes with higher level of short-term financing. In fact frequent refinancing might create maturity mismatch between assets and liabilities (Stohs and Mauer, 1996). This implies that short-term financing presents a tradeoff between profitability and liquidity risk.

Existing studies that examine relationship between short-term financing and profitability have largely ignored the risk dimension in their analyses. This paper fills this empirical gap, we use inverse of Altman Z-score as a risk measure. This measure is used in a number of studies (see e.g. Kim, Mauer and Sherman, 1998 and Drobetz and Gruninger, 2007). Besides this, our paper contributes to the empirical literature and use dynamic penal data technique like Generalized Methods of Moments (GMM). Since GMM incorporates lagged values of the dependent variable, therefore the expected auto-correlation in the performance measure due to earning-management is efficiently tackled by this technique of estimation.

Financial manager of a corporation needs to decide the mix of long-term and short-term debts. Short-term debts are generally cheaper and advantageous due to their inherent speed and flexibility but is riskier than long-term debt. This implies that short-term debts create a tradeoff between profitability and liquidity risk. Short-term debts are used for day-to-day business activities; whereas long-term debts are primarily used for financing projects. If short-term financing affects both risk and profitability, then a practical question is "does short-term financing creates value for a firm?"

To the best of our knowledge, this is the first study in Pakistan that uses dynamic penal data technique to investigate the relationship between short-term financing and risk-adjusted profitability. The findings of the study will contribute to the existing empirical literature, and to our understanding of the association among short-term financing, profitability, and risk of non-financial listed firms. It is also expected that this study will help financial managers to make effective debt-maturity structure decisions. The findings of the study may help Pakistani listed firms to decide whether to continue with the existing level of short-term financing or make changes if so required.

The rest of the paper is organized as follows: Section 2 reviews the literature, Section 3 discusses sample, variables, and methodology, results are discussed in Section 4, and Section 5 concludes the study with offering suggestions for future research.

Literature Review

Monitoring Role of Short-term Financing and Profitability

Short-term financing matures quickly and needs to be renewed at frequent intervals. Hence, this could be used as a monitoring device to control self-interested managers' actions (Datta et al, 2005). In less-developed markets like Pakistan, firms primarily rely on short-term financing where the prime source of which is commercial banks (Shah and Khan, 2009; Shah, 2011). The literature on financial contracting establishes that banks can effectively control moral hazards and adverse selection problems, thanks to their ability to control and produce information (see for example Diamond, 1984; Fama, 1985; Berlin and Loeys, 1988). Thus short-term financing and monitoring might be correlated due to high correlation between short-term financing and banks in developing countries. The discipline imposed by short-term financing is likely to improve the operating performance of a firm. This difference would be visible both in the income before interest expense and income after interest expense. Thus monitoring hypothesis predicts that:

H_1. Short-term financing has a positive impact on the net income before interest expense.

Short-term Financing and Cost of Capital

In the imperfect capital markets, the costs of short-term and long-term financing would differ on account of liquidity preference; where creditors will demand higher liquidity premium in the case of long-term loans. In addition, information asymmetry can give rise to adverse selection and moral hazard problems which magnify the default risk of long-term financing (Stiglitz and Weiss, 1981). It can be inferred from the above that short-term financing is cheaper than long-term financing. However, the relationship portrayed above is true in an upward sloping yield curve. A weak evidence of the existence of positive relationship between short-term financing and profitability in Pakistan is documented by Rahman and Nasr (2007). They report negative relationship between liquidity and profitability, where they measured liquidity as the ratio of current asset to current liabilities. Brick and Ravid (1985) argue that in downward-sloping yield curve firms make greater use of long-term financing. Moreover, if a firm faces higher floatation costs as a percentage of funds raised, it might

not be economical for the firm to issue short-term debt as the frequency of short term debt issuance is high (Berger, Espinosa-Vega, Frame, and Miller, 2005). The floatation costs will be more relevant to small firms because of the fixed nature of the flotation costs. Malkiel (1964) states that transaction costs may stop issuers to use short-term debts for a long period. In the presence of this ambiguity following the majority, we develop the following hypothesis.

H_2. Short-term financing has a positive impact on the *earnings after interest expense and taxes.*

Short-term Financing and Risk-Adjusted Profitability

According to Modigliani and Miller (1958) the value of a firm is not affected by the capital structure. Under the assumption of no bankruptcy costs, Stiglitz (1969) showed that the MM prediction remains intact in the presence of bankruptcy. Including the tax and bankruptcy costs in the analysis Kraus and Litzenberger (1973) showed that the possible optimal capital structure influences the value of the firm. Short-term credit is riskier because it is the potential source of fluctuation in the net income and insolvency and may lead to bankruptcy, if the firm is financially weak (Brigham, 2001). Greater dependence on short-term financing exposes the firms to refinancing and interest rate risks. In the context of the former if growing firms acquire funds on short-term basis to meet the future funds deficiencies will need to roll over such debts. If the firm financial condition or that of the loan market worsens then the firm will face a real danger and the situation may lead to the level of bankruptcy. In the later type of the risk, upon renewal the firms will have to pay the prevalent market rate of interest. On the extreme side, if the term-structure is negatively sloped, under such circumstances the higher interest cost of short-term debt will dilute firms' income that may lead to higher default risk premium and adversely affect creditworthiness of the firm and exposing it to greater probability of bankruptcy and financial distress. Even if the term-structure of interest rates is positive but the inflation component of nominal interest rates is high and uncertain will cause the same kind of damage. Leaving better performing companies, others will face difficulties to pay debt at maturity at any time. Guedes and Opler (1996) found that financially strong firms make greater use of short-term debt than the firms, which are financially unsound. The study of Diamond (1991) showed that firms with the highest credit

rankings face small refinancing risk and prefer to issue short-term debt. If a firm faces the refinancing, flotation costs and liquidity hardship situation then it could prefer long-term debts (Berger et al., 2005; Datta, et al, 2005). In this context Diamond (1991) modeled that short-term debt is potential source of suboptimal liquidation risk as lenders do not value the rent control to its full. This forced suboptimal liquidation risk may translate into increased bankruptcy costs. This implies that if not managed optimally, short-term debt may cause liquidity problem that further can lead to bankruptcy. Therefore, greater reliance on short-term financing might be profitable but can be a source of liquidity problem. Rahman and Nasr (2007) have also pointed to this possible liquidity and profitability trade-off in the case of Pakistani non-financial firms while investigating the impact of working capital components on firm profitability. Hence, short-term financing should not influence risk-adjusted profitability of a firm.

H_3. Increase in short-term financing as a percentage of total liabilities will not increase the risk-adjusted profitability of the firm.

Methodology

Sample and Data Sources

Data for the study is acquired from 352 non-financial firms listed on the KSE (now Pakistan Stock Exchange) for the period 2003-2014 from the Balance Sheet Analysis of the State Bank of Pakistan. Firms with less than two observations are excluded from the sample. Statistical tools like studentized residuals, leverage, and plots of residual versus predicted values are used to exclude influential observations and outliers. In case of studentized residuals, observations with absolute r = 3.5 or greater were excluded. Finally, we were left with 2634 observations.

Variables

Return on total assets (ROA) is used as dependant variable for hypothesis H_1. It is defined as earnings before interest and tax (EBIT) divided by total assets. To test the cost-efficiency hypothesis we use profit after interest expense and taxes divided by total assets (PAIT). Research studies on capital structure indicate that ROA is a significant determinant of capital structure (see e.g. Shah & Hijazi, 2004, Shah & Khan, 2007; Akbar, Ali, & Tariq, 2009; Qurat-ul-Ain, Jan,

& Rafiq, 2011; Shah & Ilyas, 2014). Joseph and Lipka (2006) describe that in research related to financial distress profitability ratios are generally used as measures of firm performance. Moreover, Claessens, Djankov and Klapper (2003) state that creditors give weight to measures of profitability at the time of loan extension and/or renegotiation. Studies of liquidity management have also used ROA as measure of profitability (Jose, Lancaster & Stevens, 1996). However, Jose et al. (1996) state that financial structure does not affect ROA.

To test the third hypothesis, profitability is adjusted for risk dimension of the short-term financing. Firms' failure to keep promises to its creditors does not necessarily lead to bankruptcy (Barnes, 1990). In the context of Pakistan where regulatory authorities and regulatory actions are slow and the instances of liquidations are rare to hear about (Shah, 2011; Shah & Khan, 2015), it is expected that the relevant short-term financing risk is financial distress rather than the risk of liquidation. In this regard Kim (1978) describes that the trade-off between the tax advantages of borrowed money and financial distress costs determine the optimum debt level. A number of proxies for the chances of a firm's bankruptcy or distress have been used in the past (see e.g., Beaver, 1966; Altman, 1968; Springate, 1978; and Fulmer, Moon, Gavin, and Erwin, 1984). However, Back, Laitinen, Sere, and Wezel (1996) establish that there is no single best technique and significant explanatory risk proxies while they reinvestigated 11 papers and 31 financial ratios by using discriminate analysis, logit analysis, and neural networks. On the international horizon, Altman, Haldeman, and Narayanan (1977) attempt to categorize financially stressed firms but found no statistical method consistently dominant. We follow Kim et al (1998) and Drobetz and Grüninger (2007) and use (inverse) Altma's (1968) Z-score as a measure of risk. The Z-Score estimates bankruptcy for public companies by grouping the companies in high to low bankruptcy categories based on this score. We divide ROA and PAIT with the inverse of Altman's Z-Score to compute risk adjusted profitability measures ROAZ and PAITZ respectively.

The Altman's Z-score is computed as under:

3.3(EBIT/Total Assets) +0.999(Sales/Total Assets) +0.6(Market Value of Equity/Total Liabilities) +1.2[(Current Assets - Current Liabilities)/ (Total Assets)] +1.4(Net Sales / Total Assets)

Following explanatory variables are used in this study:

The ratio of accumulated short-term financing to total debt (ASTL) is the independent variable of primary interest. The source of data provides a single figure for all types of short-term liabilities including spontaneous and non-spontaneous financing. Generally, firms are expected to prefer accounts payable to notes payable and overdraft. The latter two carry higher interest rate of which overdraft is considered to be costlier. Liquidity risk measured as cash and cash equivalents to total asset ratio (CATA) is used as control variable. Several other studies have used cash conversion cycle as a measure of liquidity risk. Comparison of the two liquidity measures shows strong positive association (Moss and Stine, 1993). Uyar (2009) reported significant negative correlation between cash conversion cycle and profitability as measured by return on asset but not with profitability when measured by return on equity. In general, firms use equity financing to mitigate liquidity problems. We expect that greater stock of this non-earning asset relative to total asset is expected to negatively influence profitability of firms. Generally, it is argued that greater sales generate more profitability. In the famous Dupont analysis, sales turnover is an important ingredient of ROA. We include sales turnover ratio, which is calculated as dividing sales on total assets (SATA). Larger firms enjoy economies of scales in their operations and have greater resources and are able to generate more sales relative to their smaller competitors. We expect that firms' size is positively related to ROA and PAIT. Natural log of sales, denoted by lnSales, is used as a proxy for firm size. This proxy for the size of firm has been used in many studies (see e.g Rajan and Zingales 1995, Shah and Hijazi 2004).

Model Specification

The study estimates the following dynamic panel data (DPD) models to examine empirical association between corporate profitability and short-term financing. As compared to any other static panel data models DPD is the appropriate model for estimating

$$ROA_{i,t} = \beta_0 + \sum_{s=1}^{n} \beta_s ROA_{i,t-s} + \lambda_1 CATA_{i,t} + \lambda_2 SATA_{i,t-1} + \lambda_3 ASTL_{i,t} + \lambda_4 \ln Sales_{i,t} + \kappa_t + \omega_i + v_{i,t}$$

$$PAIT_{i,t} = \beta_0 + \sum_{s=1}^{n} \beta_s PAIT_{i,t-s} + \lambda_1 CATA_{i,t} + \lambda_2 SATA_{i,t-1} + \lambda_3 ASTL_{i,t} + \lambda_4 \ln Sales_{i,t} + \kappa_t + \omega_i + v_{i,t}$$

In the models above, symbols represent variables explained in Section 3.2 and ω_i is vector of dummy variables that capture firm-specific effects that do not change over time. κ_t is the vector of dummy variables for year specific effects that do not change across firms like macroeconomic factors where as $\nu_{i,t}$ is the error term and is assumed to be serially uncorrelated with zero mean.

The reliability of the models is subject to the validity of the instruments incorporated. The consistency of estimates also depends on the serial correlation in the error terms. Regression results also show statistics on Sargan's test of over identifying restrictions and second order serial correlation. We use System GMM (one-step), Difference GMM, OLS, Within Group (fixed effect) and Anderson Hsiao 2SLS estimation techniques. However, in the light of the extant literature of econometrics modeling the results estimated through GMM technique are considered more reliable that can cater for multicollinearity and heteroskedasticity issues. GMM is similar to fixed effect model and estimates a system of linear equations with common or different independent variables, and common or different parameters. If the parameters and some of the independent variables or different then it is seemly unrelated regression (SUR). SUR allows estimating same independent variables in the equations as instrument whereas GMM is more general than SUR and can accommodate number of different instrumental variables. Here panel data can be treated either as time series data or as cross section data by treating the variables as different for different time periods (for details on these estimation techniques see Anderson and Hsiao, 1982; Arrelano and Bond, 1991; Arellano and Bover, 1995; Blundell and Bond, 2000; and Bond, 2002).

Results and Discussion

Descriptive Analysis

The average profitability (ROA) is equal to 9.7%. Baum et al. (2007), for a sample of around 125,000 German manufacturing firms and 15000 USA manufacturing firms reported the values as 3.0% and 4.0% respectively. One of the most probable reasons for this variation might be the lower labor and other costs of doing business in Pakistan. Firms in the sample make greater use of short-term liabilities (74%) than those of German (71%) and USA (26%) firms as reported in the study referred to above. This may be due to the reason that Pakistani

businesses have but limited options to utilize long-term debts. Our statistics are consistent with those reported by Shah and Hijazi (2004). Some studies on cross-country determinants of leverage and debt-maturity have also found that firms in developing countries make greater use of short-term debts relative to total debts (Booth, Aivazian, and Demirguc-Kunt, 2001; Demiriguc-Kunt and Maksimovic, 1999). The average value for the measure of firms' size is 14.95. The mean value of the ratio of cash to assets is 4.3%, this ratio for German and USA firms are 7% and 11%, respectively. Whereas the average value of sales-to-total-assets ratio is 117%. Here Pakistani firms exhibit their inefficiency relative to German firms (211%), however for US firms the mean value is 113%. Size variable *(lnSales)* has a mean value of 14.85 and exemplifies the greatest variation across the sample with a standard deviation of 1.72. On the average firms' risk-adjusted profitability is 61.4%.

Table 1:
Descriptive Statistics (2003 – 2014)

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	2634	0.097	0.102	-0.282	0.633
PAIT	2621	0.041	0.091	-0.539	0.434
ROAZ	2634	0.614	1.078	-1.277	17.283
PAITZ	2621	0.347	0.774	-1.822	11.850
lnSales	2634	14.859	1.718	5.075	20.895
CATA	2634	0.043	0.081	0.000	0.706
ASTL	2634	0.739	0.211	0.069	1.000
SATA	2634	1.173	0.783	0.000	6.484

Note: ROA is earnings before interest and tax divided by total assets. *PAIT* is profit after interest expense and taxes divided by total assets. *ROAZ* and *PATZ* are ROA and PAIT divided by the inverse of Altman's Z-Score respectively. *ASTL* is the ratio of accumulated short-term financing to total debt. *CATA* is the ratio of cash and cash equivalents to total asset. *SATA* is the ratio of sales to total assets. *lnSales* is the natural log of sales and is used as a proxy for firm size.

Correlations between Variables

Table 2 reports Pearson's correlations coefficients; the highest correlation is 0.79 that is observed between ROA and ROAZ. Moreover, ROAZ has higher correlation of 0.45 with the ratio of sales-to-total-assets than that of ROA (0.39) with the ratio of sales-to-total-assets. The ratio of accumulated short-term financing to total liabilities is negatively correlated with firm size as measured by natural log of sales. Whited (1992) argued that small firms may resort to use short-term financing as these firms do not possess sufficient tangible assets to support long-term debts. The correlation between ASTL and the ratio of sales-to-total-assets is 0.32 implies that increase in short-term financing is linked to increase in sales. Similar relation can be noticed between ASTL and the ratio of cash to total assets indicative of the notion that increased reliance on short-term financing relative to total liabilities is managed by focusing on the liquidity issue of firms. Positive but the lowest correlation (0.11) between ROA and ASTL could be explained that long-term debt market in Pakistan is not mature enough and generally all firms profitable or otherwise mainly rely on short-term modes of financing to fulfill their financial needs and this could be one of the main reasons to explain this weak correlation. In general, this is typical phenomenon of emerging economies.

Table 2:

Correlation Coefficients between Variables

Variables	ROA	lnSales	CATA	ASTL	SATA	ROAZ
ROA	1					
lnSales	0.41	1				
CATA	0.3095	0.1724	1			
ASTL	0.1136	-0.0177	0.2555	1		
SATA	0.3873	0.3683	0.262	0.3236	1	
ROAZ	0.7921	0.2848	0.3492	0.2097	0.4476	1

Note: For the definition of variables see note to Table 1.

Regressions Results

Monitoring Effect: Short-term Financing and Profitability

Table 3 and 4 present results of regressions estimated through Ordinary Least Squares in levels, the Within Group Fixed Effect, Anderson - Hsiao 2SLS regression, Difference GMM and finally System GMM. In WG estimation second lagged ROA and second lagged

ROAZ are dropped being correlated to first lag of ROA and ROAZ respectively. All models have both time and industry dummies but in WG estimation the industry dummies are excluded. All GMM models are estimated using xtabond2 command written by (Roodman, 2006) for Stata. In OLS estimations, the lagged values of the dependent variable appearing as explanatory variables are correlated with the error term and the resultant coefficient is biased upward in OLS. The WG estimator procedurally eliminates any fixed effects but these estimators are biased downward. Due to greater precision, system GMM estimators are considered preferred results for this study. In Table 3, the $\hat{a}_1$ value is positive and significant at 1%, in all five estimations. For both ROA and ROAZ the adjustment coefficient, Ö= (1-â), is close to 0.5 or less which provides some evidence that there is adjustment process and firms manage their profitability in a manner that does not surprise the markets.

Table 3 presents the results of regression where the dependent variable is ROA. ASTL is insignificant in all five cases. The finding is consistent with that for US firms but not with that for German firms reported by Baum et al. (2007). These results do not support prediction of the monitoring effect hypothesis. Due to less developed capital markets and volatile interest rates in developing countries (Shah & Hijazi, 2004) Pakistani firms use more than optimal short-term financing.

As expected, the proxy of size is significant at 1% level and is positively related to ROA under all cases but in system GMM where it is significant at 5%. First lag of SATA is negative and significant in the GMM estimations; however it is insignificant in all other models. Contrary to expectation CATA is significant and positive in OLS, WG Fixed Effect, and 2SLS but it is significant at 10% in difference GMM and insignificant in system GMM. For full sample, Baum et al. (2007) reported this variable to be positive and significant at 1% for both USA and German firms. This result in Pakistani case might be accidental and not causal. One reason for the positive sign might be that large Pakistani firms use lesser short-term financing and have higher ROA with maintaining higher level of cash (relative to total assets). Consequently, a large cash balance is associated with size but might not with ROA. However, in some developing countries such positive association between liquidity and profitability has been documented. For example Narware (2004)

in case of a Srilankan fertilizer company report both positive and negative association between liquidity and profitability. Similarly, Bardia (2004) and Sur and Ganguly (2001) found positive association between liquidity and profitability.

Short-term Financing and Risk (ROAZ)

In Table 4, as hypothesized, greater reliance on short-term financing relative to total debt does not affect the risk-adjusted profitability (ROAZ). The coefficient of ASTL is positive but statistically insignificant in all estimations. However, in difference GMM, it carries negative sign. It means greater reliance on short-term funds increase net income as well as risk, resultantly risk-adjusted profitability remains unchanged. Variables in Sales is negatively associated to ROAZ and is significant at 5% and 10% in difference GMM and system GMM, respectively. Contrary to our expectation, $SATA_{t-1}$ carries negative sign but CATA is positive and significant at 1% in first three models but under GMM estimations it is insignificant. By keeping larger amounts of cash, Pakistani firms tries to lower the impact of unavoidable liquidity risk, to which they are exposed.

Cost Effect: Short-term Financing and Profitability

In Table 5, the coefficient of first lag of PAIT is positive and significant at 1% in all estimations. For both PAIT and PAITZ, the adjustment coefficient is below 0.5, this is similar to the results in Table 3.

ASTL is statistically insignificant in all models but has mixed direction of association with PAIT. The proxy of size is positively related to PAIT as expected and is significant at 5% and 10 % under GMM estimations. First lag of SATA is negative in all the estimations except in 2SLS. It is significant under at 10% and 5% in the two GMM models. Contrary to expectation, CATA turns out to be positive but it is insignificant under GMM estimations, exhibiting noticeable difference with regards to results in Table 3.

Regressions Results: Short-term Financing and Risk (PAITZ)

In Table 6, coefficient value of first lag of PAITZ is positive and significant in all models. The results support the hypothesis that greater reliance on short-term financing relative to total debt does not

affect the risk-adjusted profitability even if the profitability is measured as profit after interest and taxes. The coefficient of ASTL is positive but statistically insignificant under both GMM estimations. Overall, results are similar to that reported in Table 4.

Table 3:

Regressions Results for Short Term Financing and Profitability (ROA) OLS in level, within group, AH 2SLS, GMM Difference and GMM System

	(1)	(2)	(3)	(4)	(5)
VARIABLES	**OLS**	**WG Fixed Effects**	**AH 2SLS**	**GMM Difference**	**GMM System**
ROA_{t-1}	0.571***	0.198***	0.571***	0.633***	0.773***
	(0.033)	(0.033)	(0.033)	(0.126)	(0.113)
ROA_{t-2}	0.146***	-0.080***	0.146***	-0.162*	-0.093
	(0.029)	(0.026)	(0.029)	(0.094)	(0.078)
lnSales	0.009***	0.053***	0.009***	0.021***	0.013**
	(0.001)	(0.007)	(0.001)	(0.007)	(0.006)
CATA	0.108***	0.173***	0.108***	0.164*	0.109
	(0.024)	(0.042)	(0.024)	(0.096)	(0.080)
ASTL	-0.006	0.004	-0.006	-0.020	0.039
	(0.009)	(0.015)	(0.009)	(0.034)	(0.027)
$SATA_{t-1}$	-0.003	0.004	-0.003	-0.034***	-0.033***
	(0.003)	(0.006)	(0.003)	(0.011)	(0.009)
Constant	-	-0.707***	-	0.000	-0.174***
	0.060***		0.060***		
	(0.018)	(0.097)	(0.018)	(0.000)	(0.065)
Observations	1,893	1,893	1,893	1,893	1,893
R-squared	0.595	0.213	0.595		
No. of id		303		303	303
Sargan Test				135.6	114.71
AR(1)				-5.28	-4.99
AR(2)				-0.47	0.26

Note: Dependent variable *ROA* is earnings before interest and tax divided by total assets. *lnSales* is the natural log of sales and is used as a proxy for firm size. *CATA* is the ratio of cash and cash equivalents to total asset. *ASTL* is the ratio of accumulated short-term financing to total debt. *SATA* is the ratio of sales to total assets. Each estimation technique leaving WG include constant, year, and industry dummy variables using 1893 observations of 303 non-financial listed firms. Asymptotic robust standard errors are reported in the brackets. x tabond2 package for Stata is used to estimate models. Sargan is a Sargan-Hansen test of overidentifying restrictions. AR(k) is the test for k-th order autocorrelation. ***, **, and * stands $p<0.01$, $p<0.05$, and $p<0.1$respectively

Table 4:

Regressions Results for Short Term Financing and Profitability (ROAZ) OLS in level, within group, AH 2SLS, GMM Difference, and GMM System

	(1)	(2)	(3)	(4)	(5)
VARIABLES	**OLS**	**WG Fixed Effects**	**AH 2SLS**	**GMM Difference**	**GMM System**
$ROAZ_{t-1}$	0.682***	0.217**	0.682***	0.608***	0.771***
	(0.105)	(0.103)	(0.105)	(0.110)	(0.087)
$ROAZ_{t-2}$	0.144***	-0.013	0.144***	-0.025	0.031
	(0.055)	(0.062)	(0.055)	(0.091)	(0.084)
lnSales	0.035***	0.303***	0.035***	0.116**	0.068*
	(0.010)	(0.047)	(0.010)	(0.045)	(0.036)
CATA	1.239***	1.940***	1.239***	0.975	0.542
	(0.322)	(0.510)	(0.322)	(1.094)	(0.833)
ASTL	0.029	0.019	0.029	-0.219	0.157
	(0.062)	(0.097)	(0.062)	(0.266)	(0.178)
$SATA_{t-1}$	-0.022	0.026	-0.022	-0.207**	-0.242***
	(0.039)	(0.081)	(0.039)	(0.097)	(0.072)
Constant	- 0.434***	-4.069***	- 0.434***	0.000	-0.939**
	(0.145)	(0.678)	(0.145)	(0.000)	(0.428)
Observations	1,893	1,893	1,893	1,893	1,893
R-squared	0.681	0.143	0.681		
Number of id		303		303	303
Sargan Test				205.22	195.56
AR(1)				-4.4	-4.45
AR(2)				0.86	1.13

*Table 5***:**

Regressions Results for Short Term Financing and Profitability (PAIT) OLS in level, within group, AH 2SLS, GMM Difference, and GMM System

	(1)	(2)	(3)	(4)	(5)
VARIABLES	**OLS**	**WG Fixed Effects**	**AH 2SLS**	**GMM Difference**	**GMM System**
$PAIT_{t-1}$	0.515***	0.162***	0.515***	0.517***	0.642***
	(0.044)	(0.031)	(0.044)	(0.133)	(0.119)
$PAIT_{t-2}$	0.156***	-0.092***	0.156***	-0.046	-0.044
	(0.037)	(0.024)	(0.037)	(0.108)	(0.087)
lnSales	0.008***	0.043***	0.008***	0.013**	0.009*
	(0.001)	(0.006)	(0.001)	(0.006)	(0.005)
CATA	0.100***	0.113***	0.100***	0.112	0.088
	(0.022)	(0.042)	(0.022)	(0.089)	(0.072)
ASTL	-0.008	-0.004	-0.008	-0.035	0.024
	(0.009)	(0.014)	(0.009)	(0.036)	(0.028)
$SATA_{t-1}$	-0.001	0.009*	-0.001	-0.016*	-0.017**
	(0.003)	(0.005)	(0.003)	(0.009)	(0.007)
Constant	- 0.051***	-0.608***	- 0.051***	0.000	0.000
	(0.018)	(0.092)	(0.018)	(0.000)	(0.000)
Observations	1,873	1,873	1,873	1,873	1,873
R-squared	0.526	0.174	0.526		
Number of id		302		302	302
Sargan Test				145.19	118.88
AR(1)				-3.82	-3.43
AR(2)				-0.72	-0.62

Note: Dependent variable *PAIT* is profit after interest and tax divided by total assets. Other items in the table are as explained in note to Table 3.

Table 6:
Regression Results for Short Term Financing and Profitability (PAITZ) OLS in level, within group, AH 2SLS, GMM Difference, and GMM System

	(1)	(2)	(3)	(5)	(4)
VARIABLES	**OLS**	**WG Fixed Effects**	**AH 2SLS**	**GMM Difference**	**GMM System**
$PAITZ_{t-1}$	0.637***	0.180**	0.637***	0.522***	0.690***
	(0.091)	(0.077)	(0.091)	(0.104)	(0.092)
$PAITZ_{t-2}$	0.180***	0.003	0.180***	0.027	0.088
	(0.052)	(0.058)	(0.052)	(0.098)	(0.086)
lnSales	0.023***	0.196***	0.023***	0.076**	0.034
	(0.008)	(0.035)	(0.008)	(0.034)	(0.027)
CATA	0.858***	1.231***	0.858***	0.525	0.276
	(0.232)	(0.378)	(0.232)	(0.786)	(0.583)
ASTL	0.020	0.000	0.020	-0.265	0.089
	(0.049)	(0.071)	(0.049)	(0.223)	(0.147)
$SATA_{t-1}$	-0.009	0.039	-0.009	-0.096	-0.110**
	(0.024)	(0.045)	(0.024)	(0.069)	(0.050)
Constant	-0.315***	-2.676***	-0.315***	0.000	0.000
	(0.102)	(0.504)	(0.102)	(0.000)	(0.000)
Observations	1,873	1,873	1,873	1,873	1,873
R-squared	0.653	0.122	0.653		
Number of id		302		302	302
Sargan Test				222.85	211.92
AR(1)				-4.35	-4.38
AR(2)				0.36	0.61

Note: dependent variable *PAITZ* is risk-adjusted profitability (profitability per unit of risk). It is computed as *PAIT* divided by altman's Z score. Other items in the table are as explained in note to Table 3.

Conclusion

The issue of corporate debt-maturity structure is considered an important element in the financial structure of a firm. Theoretically, debt-maturity structure has implications for both risk and return. In this study it is hypothesized that greater reliance on short-term financing is positively related to firms' profitability because of its lower cost and monitoring role. However, a higher percentage of short-term financing is expected to increase risk of financial distress or insolvency. In light of this risk effect of short-term financing it is hypothesized that greater reliance on short-term financing will not affect risk-adjusted profitability of a firm. The study uses partial adjustment panel data models adopted from the study of Baum et al., (2007). The results show that short-term financing is positively related to profitability; however, the relationship for the sample is statistically insignificant. Further, the results partially support the contracting cost hypothesis and signaling hypothesis but not the tax hypothesis. As far as the relationship between short-term financing and risk adjusted profitability is concerned, the results confirm the hypothesis that short-term financing has no impact on risk adjusted profitability

under GMM estimation procedure and whether profitability is measured as earnings before interest and taxes or profit after interest expense and taxes. The results of all variants of dynamic panel data models and alternative measures of profitability send a strong message that greater reliance on relative short-term financing does not affect operational performance of firms included in the sample. The results indicate that in Pakistan debt-maturity structure is irrelevant probably due to Pakistan's unique capital market environment. The results thus suggest that financial managers in Pakistan should focus on the investment activities more than on debt-maturity structure.

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