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Effect of Working Capital Management on SME's Performance in Pakistan

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Abstract
Working Capital Management has an intervening effect on a firm's performance. However, it is expected that an efficient management of working capital might have a profound effect on performance of small enterprises than on the performance of larger companies since a substantial proportion of the total assets of small and medium firms is constituted of the Current Assets and a sizeable fraction of their total liabilities is consisted of the Current Liabilities. This study, therefore, aims to investigation whether working capital management (WCM) is associated with performance of a sample of 54 SME's listed on Karachi stock exchange for a period of five years 2006-2010. Performance was measured both in accounting and market valuation perspectives. The approach adapt to measure the performance was random effect regression model on panel data. The findings of the panel data regression analysis show that SMEs with shorter inventory holding period, shorter accounts receivable period and shorter accounts payable period are more profitable and create value. However, no evidence was found that cash conversion cycle and net trading cycle has any effect on profitability and market valuation of SME. Under the control variable financial leverage has strong significant positive impact on performance of SME, but liquidity has insignificant positive impact on the performance. Also size of firm and sales growth has positive impact on the performance. Findings from the analyses suggested that indicators of working capital management had a perceptible effect on performance of firms under study.

Keywords: Working Capital Management, SME's, Net operating profitability, Return on Assets, Tobin's Q, Random Effect.

1. Introduction

In the today's dynamic business environment, survival of the organization is more uncertain even though the companies are earning profit, unless they can't meet the short term obligations. Corporate finance basically deals with three decisions such as capital structure decisions, capital budgeting decisions, and working capital management decisions. Among these Working capital is known as life giving force for any economic unit and its management is considered among the most important function of corporate management. Every organization whether, profit oriented or not, irrespective of size and nature of business, requires necessary amount of working capital. Working capital is the most crucial factor for maintaining liquidity, survival, solvency and profitability of business (Mukhopadhyay, 2004).There is growing interest in the investigation of the relationship between working capital management (WCM) and Firm performance e.g. (Wang 2002; Deloof 2003;Garcia-Truel and Martinez Solano 2007; Raheman & Nasr 2007).

WCM directly affects the profitability and liquidity of firms (Raheman and Nasr, 2007). The profitability liquidity tradeoff is important because if working capital management is not given due considerations then the firms are likely to fail and face bankruptcy (Kargar and Bluementhal, 1994). The significance of working capital management efficiency is irrefutable (Filbeck and Krueger, 2005). Working capital management is one of the most important areas while making the liquidity and profitability comparisons among firms (Eljelly, 2004), involving the decision of the amount and composition of current assets and the financing of these assets. The greater the relative proportion of liquid assets, the lesser the risk of running out of cash, all other things being equal. All individual components of working capital including cash, marketable securities, account receivables and inventory management play a vital role in the performance of any firm. Shin and Soenen, (1998) argued that efficient working capital management is very important to create value for the shareholders while Smith et. al., (1997) emphasized that profitability and liquidity are the salient goals of working capital management.

SME firms are viewed to be very essential element of a healthy and vibrant economy. They promote the enterprise culture, which leads to the creation of jobs within the economy. As a result, the importance of SME firms is gaining widespread recognition. As argued by Storey (1994), SME firms constitute the bulk of enterprises in all the economies in the world. However, the large numbers of business failures, especially SMEs have been attributed to the inability of financial managers to plan and control properly the current assets and current liabilities of their firms (Smith 1973). A research by Atrill (2006) found that SMEs often lack the

resources to manage their WCM effectively. Given their limited access to external finance and over reliance on short-term finance, it is therefore argued that the efficient management of WC is crucial for the survival, growth and profitability of SME firms (Pass & Pike 1987; Padachi 2006).

Firms of all sizes demonstrate sensitivity of their profit and market performance to the efficient management of their working capital. However, which category of firms (small or large) exhibit relatively more responsiveness to proficient working capital management is unclear. Presumably small firms and large firms are different from each other in that working capital management may affect more (or less) the performance of one or the other. This paper, however, is aimed at determining the effect of Working Capital Management on Performance of small and medium firms, commonly known as the ―SME‘s, listed in Karachi Stock Exchange. The evidence of the relationship between WCM and profitability in SMEs is limited in the existing literature. So far only Garcia-Teruel & Martinez-Solano (2007) in Spain, Afeef (2011) in Pakistan, Afrifa (2013) in UK and Stephen and Elvis (2011) in Kenya have investigated the issue. While there is no study conducted in the country on market performance of SME's with association of efficient working capital management. Insufficient evidences on the SME's performance and working capital management with reference to Pakistan provide a strong motivation for evaluating the relationship between working capital management and SME's performance in detail. The research is made with an attempt to bridge the gap in the literature by offering empirical evidence about working capital management and its effect to the performance of Pakistan SME's listed firms from the perspective of market and profit performance.

Therefore the current study focused on evaluating the effect of working capital management on and the performance, in terms of profitability and market valuation, of Pakistani SME's firms listed on KSE and to identify important variables that are influencing working capital management efficiency. This study has included a sample of 54 firms listed on Karachi Stock Exchange (KSE) for the period 2006 - 2010.

The next section presents the literature review. Methodology, data and variable issues are discussed in section three whereas section four presents the empirical results. Section five concludes the finding of the study.

2. Literature review

There has been some work previously done on the relationship between Working Capital Management and its influence on profitability of companies. Many researchers have recognized the effect of a sensible management of working capital on corporate performance. The ensuing lines enclose some of the research findings of the previously done work on this and the related topics:

International Scenario

Samiloglu and Demirgunes (2008) analysed the effect of WCM on company profitability of a sample of companies consisting of Istanbul Stock Exchange (ISE) listed manufacturing companies for the period of 1998 to 2007. Making use of ROA as a measure of company profitability, they found a significantly negative effect of inventory holding period and accounts receivable period on company profitability. Their conclusion was that the negative relationship between accounts receivable period and profitability may be due to the fact that customers want more time to assess the quality of products they buy from companies with declining profitability. However, there was no statistically significant relationship between ROA and cash conversion cycle.

Dong and Su (2010) also measured the relationship between WCM components and profitability employing secondary data collected from the listed companies in Vietnam Stock Market (VSM) for the period from 2006 to 2008. They reported a significantly negative association between three components of WCM including: inventory holding period, accounts receivable period and cash conversion cycle. It was therefore argued that as inventory takes more time to sell, it will adversely affect profitability. Also, the results imply that the increase or decrease in accounts receivable will significantly affect profitability of companies. The cash conversion cycle coefficient indicates that when the cash conversion cycle is longer, profitability is smaller and that managers can create value for their shareholders by reducing the cash conversion cycle to a reasonable range. They concluded that the positive relationship between the average payment period and profitability indicates that profitable companies wait longer to pay their bills which contradict with the findings of Raheman and Nasr (2007).

Anvar et al (2007) investigated relationship between working capital management and corporate performance. They use panel data method and companies accepted in Malaya Stock Exchange for a period of 1996-2006. Also they use cash conversion cycle as evaluating criterion of working capital management. Research findings show that there are meaningful relationship between cash conversion cycle and corporate profitability.

Sen and Oruc (2009) investigated the relationship between efficiency level of WCM and ROA of companies trading on the ISE. Exploiting a total of 49 production companies for the period between 1993 and 2007, they concluded that there exists a negative relationship between inventory holding period, accounts receivable period, cash conversion cycle and ROA. However, the association between accounts payable period and ROA was found

to be significantly positive.

Binti Mohammad and Binti Mohd Saad (2010) found in the study of 172 listed Malaysian firms for the period 2003-2007, they employed Tobin's Q as a measure of market valuation and firms profitability measured by ROA and ROIC. They found that current ratio is negatively significant to financial performance. Their study emphasized the importance of proper management of working capital as it affects firm's market value and profitability. They also suggested that working capital management should be part of the company's strategic and operational processes in order to be effective.

Wang (2002) analyzed a sample of Japanese and Taiwanese firms, emphasized that the way the working capital is managed has a significant impact on the profitability of firms and increase in profitability by reducing number of day's accounts receivable and reducing inventories. A shorter Cash Conversion Cycle and net trade cycle is related to better performance of the firms. Furthermore, efficient working capital management is very important to create value for the shareholders. Shin & Soenen (1998) analyzed a sample of US firms also reported similar findings but have used Net Trading Cycle (NTC) as comprehensive measure of working capital management and found significant negative relationship between NTC and profitability. However, this relationship was not found to be very significant when the analysis was for specific industry (Soenen, 1993).

García-Teruel. Pedro Juan, Martínez-Solano, Pedro (2007) were probably the first to make an experimental analysis about the effects of WCM on the Profitability of Small and Medium Enterprises or SMEs. In their article, "Effects of Working Capital Management on SME Profitability", they took a sample of 8,872 small and medium-sized Spanish firms for the period 1996-2002 for the purpose of constructing an empirical relationship between WCM and profitability. Their correlation analyses displayed a very significant negative relationship between the Return on Assets and the number of days accounts receivable, number of days inventory and the number of days accounts payable. Also, the correlation between the cash conversion cycle and the profitability variable was negative as well as statistically significant. The authors, thus, held that shortening the (CCC) would lead to an increase in profitability.

Zariyawati et al (2009) also strived to investigate the relationship between corporate profitability and working capital management of firms in six different Economic Sectors of the Malaysian Industry. The justification they had to conduct the study was that most of the previous studies, in their opinion, focused on large and/or developed markets. Thus reinvestigating the issue in the emerging markets of Malaysia could provide further insight on the impact of working capital management on profitability. Their results also were indicative of a strong and significant negative association between the two variables of study.

National Scenario

Considering the importance of WCM in Pakistan researches have focused on investigating the relationship between WCM and firm's Performance, such as Afza and Nasir (2007, 2008), Rahman and Nasr (2007), Shah and Sana (2006) and Afeef (2011).

In the Pakistani context, Raheman et al (2010) studied 204 manufacturing firms of Pakistan to explore the impact of working capital management on the performance of a firm. The study was based on 10 years i.e. 1998-2007. They took average age of inventory, average payment period, average collection period, current ratio (CR), current liabilities to total assets ratio (CLTAR), gross working capital turnover ratio (GWCTR), current assets to total assets ratio (CATAR), sales growth (SG), size of the firm as natural logarithm of sales (LOS) and debt ratio (DR)as independent variables. In contrast, Net Operating Profitability (NOP) was taken as a dependent variable. Results of their study demonstrated that performance of firms is significantly related to cash conversion cycle and average age of inventory. They also described that Pakistani firms normally follow conservative policy for management of working capital i.e. they prefer to place more capital in liquid assets to avoid the risks of less availability of funds for daily operations. Finally they suggested that these firms need effective management and proper financing as well.

Afza & Nazir (2008) also worked on the same topic and studied the elements determining the working capital requirements. They took a sample of 204 firms in sixteen manufacturing sub sectors during 1998-2006. The findings of their research showed that working capital management plays an important role in firm's profit, risk and it value creation. Further, it also needs day to day supervision and maintenance level of its components like cash, receivable, payables and inventory.

Another study by Afza and Nazir (2007) investigated the relationship between aggressive and conservative working capital policies for a sample of 205 firms in 17 sectors listed on Karachi Stock Exchange during 1998-2005. They found a negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies.

Raheman and Nasr (2007) worked and elaborated the effect of working capital on liquidity as well as on

profitability of the firm. They took a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years from 1999 – 2004, they have studied the effect of different elements of working capital management on the Net operating profitability of Pakistani firms. Debt ratio, size of the firm (measured in terms of natural logarithm of sales) and financial assets to total assets ratio have been used as control variables. Pearson's correlation, and regression analysis (Pooled least square and general least square with cross section weight models) were used for analysis and found a significant inverse connection between variables of the working capital management and profitability of the organization. Further, it was revealed an important inverse relationship between liquidity and profitability and a positive relationship between size of the firm and its profitability. So at the end it was concluded a significant inverse relationship between debt used by the organization and its profitability. Furthermore, managers can create a positive value for the shareholders by reducing the cash conversion cycle up to an optimal level

Afeef (2011) investigate the effect of WCM on profitability of 40 samples SME listed on KSE for the period 2003-2008. He employed the Return on Assets (ROA) which is a ratio of the Earnings before Interest and Taxes to Total Assets, and the Operating Profit to Sales (OPS) ratio which is calculated by dividing the Operating Profit of a firm by its Net Sales. The Cash Conversion Cycle (CCC) is used for measuring the efficiency of Working Capital Management of firms. Findings from the analyses suggested that indicators of working capital management had a perceptible impact on profitability of firms under study.

Haq et al (2011) also carried out a study using data of 14 companies from cement Sector of Pakistan. The study was based on six years i.e. 2004-2009. They used Current Ratio (CR), Current assets to total assets ratio (CATAR), Liquid Ratio (LR), Inventory Turnover ratio (ITR), Age of Debtors (AOD), Current assets to total sales ratio (CTSR) and Age of Creditors (AOC) as predictors and Return on investment (ROI) as dependent variable or this purpose. To produce the results they used statistical techniques of regression and correlation analysis. They realized that a moderate relationship exists between financial performance and working capital management.

Mobeen et.al (2011) used 65 listed companies of Karachi Stock Exchange for the period covering 2005-2009 and revealed that there exists a strong correlation between the working capital components with the firms' profitability.

The study of Shah & Sana (2006) was based on a period of five years i.e. 2001-2005. They used working capital ratios to determine the effect of working capital management on financial performance. These working capital ratios include inventory turnover, current ratio, quick ratio, average collection period and average payment period. They used correlation analysis and OLS method to reach the results. Finally they revealed that Gross profit is inversely associated with all working capital ratios except number of days payable.

Although the issue on WC has been widely studied, largely missing from literature is the focus on firm's market valuation. Kieschnick, LaPlante. and Moussawi (2008), found that the important of working capital management to firm value, using data on a panel of U.S. corporations from 1990 through 2004. Their study used stock's excess return to represent the firm value and finding shown that on average an additional dollar invested in net operating working capital reduces firm value and indicates that their study is consistent with industry surveys suggesting that some firms over-invest in net operating working capital. Nazir (2009) analyzed on the impact of aggressiveness of working capital investment and financing policies in Pakistan for a sample of 204 non-financial firms listed at Karachi Stock Exchange for the period of 1998-2005. They evaluated on firm returns i.e. return on assets and Tobin's q to represent market performance and indicates that firms adopting an aggressive approach towards working capital financing policy giving more value to the firms while inverse relationship between the aggressiveness of working capital investment policies on firms performance. These results are consistent with Afza and Nazir (2007) that using Tobin's Q to represents stock market performance of Karachi Stock Exchange. They point out that efficient management of working capital is associated to the stock market performance.

Turning to the empirical literature on working capital management, we found a limited or no published study on the consequences of working capital management on SME's performance from Pakistan perspectives. All the above studies provide us a solid base and give us idea regarding working capital management and its components. They also give us the results and conclusions of those researches already conducted on the same area for different countries and environment from different aspects. On basis of these researches done in different countries, we have developed our methodology for research.

3. Research Design

3.1 Data source and variables

To access the effect of working capital management's on SME's Firm performance, for this purpose data will acquired from an official and legitimate document titled, "Balance Sheet Analysis of Joint Stock Firms Listed on the Karachi Stock Exchange --- (2006-2010)", formally published by the Statistics and DWH Department of the State Bank of Pakistan (SBP). This document contains the Balance Sheet analysis of all the non-financial firms listed on the Karachi Stock Exchange. Hence the research will entirely base on the Secondary data. Firms of various economic groups and sectors will include in the document including Cotton and Other Textiles, Chemicals, Engineering, Sugar and Allied Industries, Paper & Board, Cement, Fuel & Energy, Transport & Communication, Tobacco, Jute, Vanaspati & Allied Sector and others. And also data will collect from listed small and medium firms on Karachi stock exchange, firms' annual reports and publication. Also the required data is gathered from the official websites of the firms incorporated in the study. It should be mentioned that the financial corporations like Banking Companies, Insurance Companies, Leasing Companies and Modarabas etc. are not included in this study due to their distinctively dissimilar nature of business in comparison with the non-financial business entities. The data is taken from the balance sheets of the SME's. Ratio analysis was chosen as a performance measurement and indicators since this analysis provides methods for assessing the financial strengths and weaknesses of the firms performance using information found in its financial statements. Three measures of firms performance used by previous studies in corporate performance and working capital literature have been identified as independent variables namely Tobin Q as a proxy for market value, while return on asset and net operating profitability as the proxy for profitability. Profitability is used as a measurement for corporate performance because it evaluates the efficiency with which plant, equipment, and current assets are transformed into profit (Kamal and Mohd Zulkifli, 2004). The independent variables representing working capital components identified to assess their effect on firm's performance are WCM is Working Capital Management, which is a key variable of the study used as a vector of Average Collection Period (ACP), Inventory Turnover in Days (ITID), Average Payment Period (APP), Cash Conversion Cycle (CCC) and Net Trading Cycle (NTC) of the firm. Liquidity of firm, size of the firm, the growth in its sales and financial leverage (debt) are used as control variable. It is expected that WCM has negative relationship with the corporate profitability. If we reduce number of days in receivables (ACP), inventory (ITID), payment (APP), Cash Conversion Cycle (CCC) and Net Trade Cycle (NTC), it will enhance the firm performance. Financial Debt Ratio (FDR) representing leverage is expected to have negative relationship and natural logarithm of sales (LOS) representing size has positive relationship with firm performance. SG is sales growth which represents the investment growth opportunities while CR is Current Ratio to measure liquidity of firm has positive relation with performance. The formulas for calculating these values are given in the table 1.

3.2 Sample Size

There were a total of 411 non-financial companies listed on the Karachi Stock Exchange as at June, 2011 as per the analysis published by the State Bank of Pakistan. Out of these, 81 were found to be small or medium-sized companies as per the SBP's SME Prudential Regulations and the remaining were large corporations.

The size of the sample used for the study was dependent on the availability of complete financial data of SME's in the source document published by SBP. As mentioned, there were a total of 81 small and medium-sized non-financial firms listed in KSE. However, only 54 out of them had complete set of data required for the study, i.e., the data for each year from 2006 to 2010. Hence, analyses of all the 54 firms (having thorough five year financial data) were made for five years ranging from 2006 to 2010 that led to a total of 270 firm-year observations.

3.3 Statistical Analysis

The effect of working capital management on SME's performance is tested by panel data methodology. The panel data methodology used has certain benefits like using the assumption that firms are heterogeneous, more variability, less colinearity between variables, more informative data, more degree of freedom and more efficiency (Baltagi, 2001). Panel data also provides a solution for the unobserved heterogeneity which is a general problem in cross-sectional data and panel data can easily handle large number of observations (Dougherty, 2011).

Table 1: Summary of Variables Calculations and definitions

Variable	Measurement	Abbreviation
Dependent Variables		
Net Operating Profitability	Profit before interest and tax and depreciation divided by its total assets at the end of the financial year (Earnings before Interest and Tax + Depreciation) / Total Assets	**NOP**
Return on Asset	Profit after interest and tax divided by its total assets at the end of the financial year Net Earnings After Taxes / Book Value of Assets	**ROA**
Tobin's Q	Sum of no. of shares outstanding multiply by its average market price of the financial year and total debt divided by total assets Market Value of Firm / Book Value of Assets	**TQ**
Independent Variables		
Working Capital Management	Stands for the five explanatory variables, namely ITID, ACP, APP , CCC and NTC	**WCM**
Average Collection Period	accounts receivable multiplied by 365 and divided by the turnover at the end of the financial period Accounts Receivable / Net Sales*365	**ACP**
Inventory Turnover in Days	inventory multiplied by 365 and divided by the amount of cost of goods sold at the end of the financial period Inventory / Cost of Goods Sold*365	**ITID**
Average Payment Period	accounts payable multiplied by 365 and divided by the amount of Net Sales at the end of the financial period Accounts Payable / Net Sales*365	**APP**
Cash conversion cycle	Inventory holding period plus accounts receivable period minus accounts payable period. ACP+ITID-APP	**CCC**
Net Trading Cycle	Net sales divided by net working capital ACP+ (Inventory / Net Sales*365) - (Accounts Payables / Net Sales*365)	**NTC**
Control Variables		
Financial Debt Ratio	Ratio of total debt divided by Assets at the end of the financial year Total Financial Debt / Total Assets	**FDR**
Size of firm	The natural log of firm's turnover at the end of the financial year Natural Logarithm of Sales	**LOS**
Sales Growth	Difference of Current year sales and last year sales divided by last year sales (Current year N. sales-Last year N. Sales) / Last year's N. Sales	**SG**
Current Ratio	Current assets divided by current liabilities at the end of the financial year Current Assets / Current Liabilities	**CR**

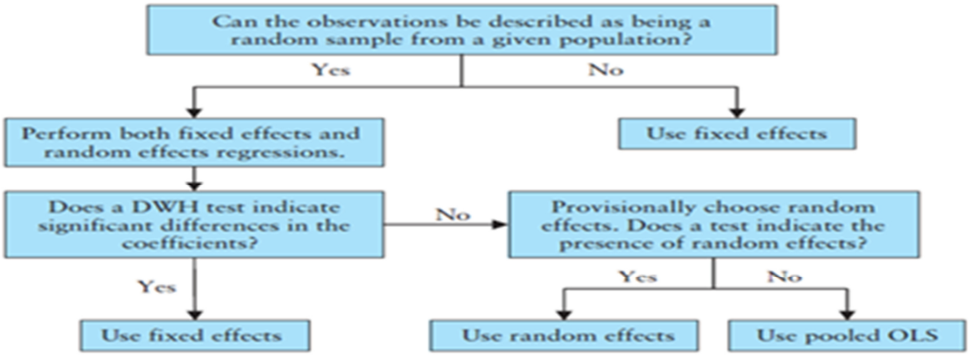

Figure 1: Decision criteria for fixed or random effect model

Source: Adapted from Dougherty (2011)

Panel data includes observations having both dimensions, cross-sectional and time-series. So, it is quite possible that there may be present cross sectional effect for some of the observations. To deal with this kind of problems, several techniques can be used. The two main techniques for this is fixed effect model and random effect model.

Dougherty (2011) has provided a decision making criteria for using these two techniques as illustrated in the figure above.

Following the adoption of the panel data analysis, we develop an empirical framework first used by Deloof (2003) and subsequent work of Padachi (2006); the equations to be estimated are as follows:

$$NOP_{it} = \beta_0 + \beta_1(WCM_{it}) + \beta_2(FDR_{it}) + \beta_3(CR_{it}) + \beta_4(LOS_{it}) + \beta_5(SG_{it}) + \eta_i + \lambda_t + \varepsilon_{it} \ldots.(1)$$

$$ROA_{it} = \beta_0 + \beta_1(WCM_{it}) + \beta_2(FDR_{it}) + \beta_3(CR_{it}) + \beta_4(LOS_{it}) + \beta_5(SG_{it}) + \eta_i + \lambda_t + \varepsilon_{it} \ldots..(2)$$

$$TQ_{it} = \beta_0 + \beta_1(WCM_{it}) + \beta_2(FDR_{it}) + \beta_3(CR_{it}) + \beta_4(LOS_{it}) + \beta_5(SG_{it}) + \eta_i + \lambda_t + \varepsilon_{it} \ldots\ldots..(3)$$

Where the subscript i denotes the nth firm (i = 1...54), and the subscript t denotes the tth year (t=1...6). μ_i is the unobservable heterogeneity (individual effects) which is specific for each firm, λ_t is the parameters of time dummy variables and εit is the error term. Refer to table 1 for variable description and definition.

A classical test for the panel data is one of Random effect model versus fixed effect model (Yafee, 2003). For estimating the models, first we need to determine whether there exists a correlation between the independent variables. If the correlation exists then a fixed effect model will give consistent results otherwise random effect model will be an efficient estimators and it is estimated by generalized least square (Teruel and Solano, 2007). Fixed effects are computed by subtracting the "within" mean from each variable and estimating Panel Least Square using the transformed data. In fixed effect model, it assumes firm specific intercepts and capture effects of those variables which are specific to each firm and constant over time. In random effect model it is assumed that there is a single common intercept and it varies from firm to firm in a random manner. To determine which of these two models is appropriate, coefficients are estimated by both fixed and random effects. We have used Hausman (1978) test to determine whether fixed or random effect should be used. If the null hypothesis i.e. E (ηi / xit) = 0 is accepted, then random effect will be an efficient estimator otherwise in case of rejection of null hypothesis, fixed effect estimation will give better or efficient estimation of betas. Hausman test fails to rejects the null hypothesis, therefore decision is taken to use random effect model. We have used EVIEWS to estimate the above models.

4. Empirical Analysis

The results for different measures of working capital management and SME's performance including average collection period, inventory turnover in days, average payment period, Cash Conversion Cycle, Net Trading Cycle and control variables are presented in the following section. First, the descriptive analysis is presented followed by the Pearson's correlation analysis to see the association between Net Operating Profitability, Return on Assets, Tobin's Q and all independent variables. Panel data analysis using Random effect model is also used in order to see the effect of working capital management on SME's performance.

4.1 Descriptive Statistics

The mean, median, minimum and maximum values with standard deviation of different variables in the model during the period 2006 to 2010 are presented in the Table 2. The dependent variable NOP ranges from a minimum of -1.896 to a maximum of 2.030 with an average of -6.4% for the overall sample.

ROA has a mean value of 0.079% of the total Assets for all the small firms in the sample and its standard deviation is 0.254. The minimum value for ROA is -1.961 and the maximum is 1.912. Tobin's Q has a mean value of 7.665 and the standard deviation is 8.628. The minimum value for TQ in the analysis is 0.029123 and maximum value is 79.785. Inventory turnover in days is on average 116.61 days which is an indication that it takes the average firm within the sample over three months to turnover its inventory. It has a range of 0 day minimum and 5505.1 days maximum. The mean value of average accounts receivable period of approximately 53 days explains that it takes on average two months for firms to collect monies owed by customers. The average payment period is 286.32 days and a minimum and maximum of 0 day and 5185.412 days respectively. The results show that firms take on average more than 9 months to pay their suppliers. The cash conversion cycle ranges from -4538.994 days to 3730.026 days with a mean of -111.335 days. The mean of -111.335 days indicates that KSE listed SMEs are fast both in converting inventory into sales and collecting monies owed by customers but pay their suppliers slower. The mean value of net trading cycle for firms taken in the sample is -141.5408 days and the standard deviation is 426.92 days. The minimum and maximum recorded values for NTC are -4332.923 days and 406.344 days respectively. The sample firms have on average about 1.95 of liquidity

ratio and sales growth of almost increase 11.52% annually while on average 94.39 % of the assets are financed with debt.

Table 2: Summary Descriptive Statistics of all Continuous Variables

Panels	Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Obs.
Panel A: Independent Variable	NOP	0.064136	0.028451	2.030188	-1.896607	0.270081	1.813212	30.23808	270
	ROA	0.00079	-0.006228	1.912322	-1.960707	0.254312	1.682039	36.41375	270
	TQ	7.665483	5.562117	79.78479	0.029123	8.627802	3.773037	24.86102	270
Panel B: Dependent Variable	ITID	116.609	43.28357	5505.094	0	356.396	12.99694	195.2294	270
	ACP	52.94736	30.58164	375.636	0	66.11875	1.797725	6.615073	270
	APP	286.3205	154.6829	5185.412	0	460.7299	5.988334	54.19112	270
	CCC	-111.335	-34.01868	3730.026	-4538.994	490.2954	-1.925515	42.91361	270
	NTC	-141.5408	-40.61671	406.344	-4332.923	426.9131	-4.99253	41.60769	270
Panel C: Control Variables	FDR	0.943994	0.723997	9.133517	0.013868	0.949805	3.661702	25.10206	270
	CR	1.952134	0.925988	32.56081	0.011675	3.947849	4.790701	30.93239	270
	LOS	11.5242	11.9188	14.0383	0	1.893882	-4.25548	25.88498	270
	SG	0.233743	0.030708	18.41561	-0.96817	1.329734	10.41048	134.7047	270

Variables are defined as follows: net operating profit (NOP),return on assets (ROA), Tobin's q (TQ),inventory turnover in days (ITID),average collection period (ACP), average payment period (APP),cash conversion cycle (CCC), net trading cycle (NTC), financial leverage (FDR), liquidity ratio (CR), firm size (LOS), sales growth (SG)

4.2. Correlation Analysis

Correlation matrix of all variables included in the analysis is presented in Table 3 which is calculated based on data of 54 firms with 270 firm year observations. Correlation analysis is undertaken for the purpose of identifying variables that are highly correlated to each other. A high correlation between variables may indicate the presence of multicollinearity (Saunders et al. 2003; Anderson et al. 2007). Field (2005) suggests that multicollinearity becomes a problem only when the correlation coefficient exceeds 0.80.

NOP is negatively correlated with the three explanatory variables including inventory turnover in days, accounts collection period, average payment period but positively correlated with cash conversion cycle and net trading cycle which signifies that reduction in WCM components leads to higher NOP. However, the correlation between NOP and cash conversion cycle is not significant. These results are consistent with the view that making payment to suppliers, collecting payment from customers earlier and keeping product or inventory in the stock for lesser time are associated with increase in profitability. Similar results were found for study conducted by Deloof (2003) for Belgian firms. ROA negatively correlated with inventory turnover in days, accounts collection period, average payment period but positively correlated with cash conversion cycle and net trading cycle. Relationship among ROA and WCM components are insignificant except ACP. The results suggest that collecting receivables on time enhances the profitability of firms. Tobin's q is negatively correlated with all the five explanatory variables including ITID, ACP, APP, CCC and NTC. However TQ have significant negative relationship with ITID and NTC, but insignificant relationship with other independent variables. A negative relation between average payment period and all profitability measures (NOP, ROA, and TQ) suggest that less profitable firms wait longer to pay their accounts payable. Another measure of working capital management is the Net trading cycle which has also a significant negative relationship with profitability. It implies that if a firm is able to reduce the Net trade cycle period, it can enhance the profitability for the firm and will ultimately create value for the shareholders. Among the explanatory variables, Data reflects high correlations between different measures of working capital management.

Table 3: Correlations Matrix

		NOP	ROA	TQ	ITID	ACP	APP	CCC	NTC	FDR	CR	LOS	SG
NOP	Pearson Correlation	1											
	Sig. (2-tailed)												
ROA	Pearson Correlation	.919*	1										
	Sig. (2-tailed)	0											
TQ	Pearson Correlation	-.148**	-.181*	1									
	Sig. (2-tailed)	0.015	0.003										
ITID	Pearson Correlation	-.012***	-0.001	-.125**	1								
	Sig. (2-tailed)	0.081	0.991	0.04									
ACP	Pearson Correlation	-.073***	-.091***	-0.033	-0.031	1							
	Sig. (2-tailed)	0.093	0.106	0.59	0.613								
APP	Pearson Correlation	-.087***	-0.061	-0.073	.324*	-.120**	1						
	Sig. (2-tailed)	0.105	0.322	0.235	0	0.049							
CCC	Pearson Correlation	0.075	0.058	-0.028	.415*	.216*	-.709*	1					
	Sig. (2-tailed)	0.216	0.339	0.643	0	0	0						
NTC	Pearson Correlation	.087***	0.052	-0.005	-.170*	.287*	-.944*	.789*	1				
	Sig. (2-tailed)	0.104	0.394	0.937	0.005	0	0	0					
FDR	Pearson Correlation	.105***	0.084	0.096	-0.028	-.212*	.173*	-.214*	-.230*	1			
	Sig. (2-tailed)	0.086	0.171	0.115	0.644	0	0.004	0	0				
CR	Pearson Correlation	0.002	0.023	-.121**	-0.001	.185*	-.164*	.173*	.206*	-.275*	1		
	Sig. (2-tailed)	0.976	0.707	0.048	0.986	0.002	0.007	0.004	0.001	0			
LOS	Pearson Correlation	0.044	0.02	0.014	-0.042	-0.024	-.126**	.085***	.106***	-.239**	-.185*	1	
	Sig. (2-tailed)	0.476	0.747	0.821	0.493	0.699	0.039	0.101	0.083	0	0.002		
SG	Pearson Correlation	-0.002	0.019	-0.017	-0.032	-.138**	-0.082	0.034	0.035	0.021	-0.043	.087***	1
	Sig. (2-tailed)	0.975	0.761	0.775	0.605	0.023	0.177	0.579	0.568	0.734	0.481	0.093	

***. Correlation is significant at the 0.01 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed). ***. Correlation is significant at the 0.10 level (2-tailed).**

The correlation between Net Trade Cycle (NTC) and Cash Conversion Cycle (CCC) is (0.789), NTC and ITID is (-1.70), CCC and APP is (-0.709), CCC and ITID is (0.415), CCC and ACP (0.216) and (0.287) between NTC and ACP.

The correlation coefficient between leverage i.e. financial debt ratio and net operating profitability, Return on assets and Tobin's q have a significant positive relationship. The size of the firm, measured in terms of natural logarithm of sales, has a positive relation with the profitability of the firm. It implies that the size is associated with increase in the performance of firm. Similarly sales growth is also associated with increase in the profitability of the firm because increase in sales is associated with increase in profits. There is a negatively significant correlation of Tobin's Q with liquidity ratio. This signifies that higher proportion of liquidity results in lower market valuation of a firm. One of the relationships between Current Ratio and Net Operating Profitability, Return on Assets is contradictory to the traditional belief which shows a positive association between Current Ratio and profitability.

4.3 Empirical Models

Effect of working capital management on SME's performance is also estimated using panel data analysis. A classical test for the panel data is one of random effect model versus fixed effect model. In random effect model it is assumed that there is a single common intercept and it varies from firm to firm in a random manner. In fixed effect model, it assumes firm specific intercepts and capture effects of those variables which are specific to each firm and constant over time. Regression coefficients were estimated by both fixed and random effects to determine which of these two models is appropriate. Using Hausman's test, decision is taken to use random effect model and therefore the main balanced panel data results are obtained by using RE. The results are contained in table 4,5,6. Because the combination of the other three components of WCM including inventory holding period, accounts receivable period and accounts payable period results in the calculation of the cash

conversion cycle and net trading cycle, each WCM variable is therefore run separately with the control variables to avoid collinearity issues (Padachi 2006; Garcia-Teruel & Martinez-Solano 2007; Mathuva 2010).

Regression analysis based on NOP

Referring to model 1, where WCM is used as a vector of ACP, ITID, APP, CCC and NTC, estimated results of panel data using random effect model for 54 firms (270 observations) are presented in following Table 4.

Table 4: Random Effect Regression Results of the Effect of Working Capital Management on NOP

Dependent Variables	**Net operating profitability**				
Random Effect Model	**Random Effect Model**				
Models	**1 ITID**	**2 ACP**	**3 APP**	**4 CCC**	**5 NTC**
Constant	-0.126514 (-0.930026)	-0.094726 (-0.692493)	-0.090794 (-0.669865)	-0.111983 (-0.851900)	-0.101979 (-0.767840)
ITID	-0.0000003067 (-0.006)				
ACP		-0.000393 (-1.39881)***			
APP			-0.0000519 (-1.316187)***		
CCC				0.0000434 (1.251393)***	
NTC					0.000059 (1.382538)***
FDR	0.036696 (1.761891) ***	0.0317 (1.515584)***	0.039257 (1.907989)***	0.040652 (1.986588)**	0.041075 (1.997871)**
CR	0.003755 (0.773731)	0.0045 (0.93044)	0.002776 (0.572132)	0.002977 (0.620985)	0.002606 (0.538179)
LOS	0.012907 (1.192926)***	0.012274 (1.138787)***	0.011079 (1.038511)***	0.011889 (1.137581)	0.011355 (1.077602)***
SG	-0.000107 (-0.00871)	-0.00205 (-0.16787)	-0.001587 (-0.128919)	-0.00106 (-0.08649)	-0.001076 (-0.087746)
R-Square	0.013824	0.020686	0.020768	0.020458	0.021631
Adjusted R-square	0.004854	0.002138	0.002222	0.001906	0.003101
F Statistics	0.740143	1.115279	1.119794	1.102762	1.167356***
Prob.(F-Statistics)	0.593985	0.352543	0.350139	0.359274	0.095570
Hausman's Test chi2 prob.	0.7235	0.1275	0.6119	0.3546	0.4870

***. Correlation is significant at the 0.01 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed). ***. Correlation is significant at the 0.10 level (2-tailed). t statistics are shown in parenthesis.**

In ITID model, coefficient of inventory turnover in days is negatively associated with NOP at no significance This means that the management of inventory turnover in day's minimal affect NOP of listed SMEs. From ACP model of table 4, average collection period is found to have a negative coefficient of (-0.000393). This coefficient is significant at the 10 per cent level suggesting that the management of accounts collection period has an influence on NOP of listed SMEs. In effect, the result means that a reduction in the number of days it takes a firm to recover amounts owed by customers will reflect in increasing NOP of SMEs listed on the KSE. Model 3(APP) reveals that the coefficient of average payment period in association with NOP is (-0.0000519). This relationship is significant at the 10 per cent level, which indicates that the management of accounts payable period has an effect on NOP of SMEs. In CCC model, the coefficient on the relationship between cash conversion cycle and NOP is significant but positive. Theoretically, it implies that a reduction in the cash conversion cycle improves NOP. This finding contradicts the majority of the prior research but it must be borne in mind that this study investigates SMEs, unlike many of the prior studies. Also, it specifically looks at SMEs that are listed on stock exchange – KSE. In the context of listed SMEs this appears to indicate that it is rather the individual components of WCM (inventory turnover in days, average collection period and average payment period) that are important in affecting profitability.

In model 5, we have included Net Trading Cycle instead of Cash Conversion Cycle in this model, while all other variables are same as in the previous models. Results indicate that the coefficient on the relationship between net trading cycle and NOP is positive and significant. These findings contradicts with the results of prior researchers like Raheman et al (2010) and Taghizadeh Khanqah et al (2012) which found significant negative relationship between NTC and NOP. In model 1 to 5 of table 4 contains the results of financial leverage which indicates that the coefficient on the relationship between financial leverage and NOP is significant positive. The positive association between NOP and financial leverage means that when firms have more debt they will earn more profit. These findings contradict with the results of prior researchers which show significant negative relationship between leverage and NOP like Raheman et al (2010), shin & Soenen (1998) and Deloof (2003).

Relationship between liquidity ratio and NOP is positive but insignificant. Current ratio which is a theoretical measure of liquidity has no significant impact on profitability in case of Pakistan SME's. This suggests that, though more liquidity is good for explaining the financial success of listed SME's in Pakistan, it is not a critical factor to consider when taking decision to improve profitability. This result is similar with the research findings of Raheman et al (2010) and Afeef (2011)in Pakistan context those found no significant impact of liquidity on profitability. Firm size has a significantly positive coefficient at 10 % level of significance and sales growth has an insignificantly negative coefficient, specifying that there is no impact on sales growth on NOP.

Regression analysis based on ROA

The coefficient of inventory turnover in days is insignificantly positive associated with ROA in model 1 of table 5. Average collection period is found to have a negative coefficient at the 10 per cent level suggesting that the management of average collection receivable period has an influence on ROA The coefficient of average payment period in association with ROA is (-0.0000352). This relationship is significant at the 10 per cent level, which indicates that the management of average payable period has an effect on ROA. Model 4 of table 5 contains the results on the cash conversion cycle, which indicates that the coefficient on the relationship between cash conversion cycle and ROA is significant positive. This result shows that the management of cash conversion cycle has significant effect on the ROA of listed SME's. But it rejects the hypothesis which suggests significant negative relationship between ROA and CCC.

This contradicts the notion that the cash conversion cycle is negatively related with profitability. Shin & Soenen (1998) argued that the negative relation between profits and the cash conversion cycle could be explained by the market power or the market share, i.e., a shorter CCC because of bargaining power by the suppliers and/or the customers as well as higher profitability due to market dominance. The relationship between net trading cycle and ROA is insignificant positive. Financial leverage in all model is statistically significantly positive related with the measure of profitability i.e. ROA. This finding concludes that firms leverage is positively related to the profitability of firms. Means having more leveraged it helps the firm to increase its profitability.

Other control variables liquidity, firm size and sales growth are positively but insignificantly associated with profitability of SME's in all five models, but liquidity have significant positive impact on profitability in model 2. Thus hypothesis not rejected is concluded that CR, SG and LOS are not statistically significant at 1%, 5% and 10% significance level. This suggests that, more liquidity, larger firm size and sales growth is good for explaining the financial success of listed SME's in Pakistan. It is not a critical factor to consider when taking decision to improve profitability.

Regression analysis based on Tobin's Q

The coefficient of inventory turnover in days is negatively related to TQ but insignificant. This means that the management of inventory turnover in days affect the market value of listed SME's but it is not a critical factor to consider when taking decision to improve market valuation because of its insignificant value. In Average collection period model the coefficient is significantly negative at 10% level of significance. The coefficient of the average collection period in association with TQ is (-0.000413) for small and medium firms. The relationship between accounts payable period and profitability is negative but not significant. The negative coefficient indicates that a one day minimization of accounts payable period will magnify TQ by 0.004 per cent. This finding shows that the decision to make early payment to suppliers of goods and services by a firm will help improve TQ.

The coefficient on the relationship between cash conversion cycle and TQ is negative but insignificant. In contrast, it supports the results of prior studies in WCM (Deloof 2003; Ganesan 2007; Samiloglu & Demirgunes 2008). For example, Deloof (2003) reported a statistically insignificant and negative association between cash conversion cycle and profitability, there are other studies that also found a negative but significant relationship between cash conversioncycle and profitability including: Lazaridis and Tryfonidis (2006), Garcia-Teruel & Martinez-Solano (2007), Raheman & Nasr (2007), Dong & Su (2010), Mathuva (2010), Raheman et al (2010). The coefficient of net trading cycle is also negative. However, the relationship between net trading cycle and TQ is not statistically significant for small and medium firms listed on KSE. The relationship between financial leverage and Tobin's q is significant positive in all models @1% level of significance.

Table 5: Random Effect Regression Results of the Effect of Working Capital Management on ROA					
Dependent Variables	**Return On Assets**				
Random Effect Model	**Random Effect Model**				
Models	**1** **ITID**	**2** **ACP**	**3** **APP**	**4** **CCC**	**5** **NTC**
Constant	-0.129428 (-1.109173)***	-0.100496 (-0.856979)	-0.105246 (-0.900416)	-0.117312 (-1.032872)***	-0.113975 (-0.991323)
ITID	0.00000457 -(0.103415)				
ACP		-0.000361 (-1.44289)***			
APP			-0.0000352 (-.992038)***		
CCC				0.0000357 (1.089522)***	
NTC					0.0000365 (-0.947841)
FDR	0.029838 (1.617522)***	0.024918 (1.341638)***	0.03171 (1.730954)***	0.03322 (1.819938)***	0.032701 (1.780696)***
CR	0.004311 -0.989042	0.005041 (1.158363)***	0.003617 -0.827263	0.003632 -0.840353	0.00356 0.81451)
LOS	0.008019 -0.871391	0.007536 -0.822191	0.006827 -0.747544	0.00721 -0.804099	0.007077 -0.781191
SG	0.002941 -0.250091	0.000834 -0.071353	0.001893 -0.160908	0.002297 -0.196216	0.00239 -0.203951
R-Square	0.011496	0.018802	0.015411	0.016421	0.015188
Adjusted R-square	0.007226	0.000219	0.003236	0.002207	0.003463
F Statistics	0.614035	1.011762	0.826452	0.881517	0.814319
Prob(F-Statistics)	0.689233	0.411101	0.53178	0.493925	0.540325
Hausman's Test chi2 prob	0.506	0.0872	0.4406	0.2933	0.3466
***. Correlation is significant at the 0.01 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed). ***. Correlation is significant at the 0.10 level (2-tailed). t statistics are shown in parenthesis.**					

Table 6: Random Effect Regression Results of the Effect of Working Capital Management on Tobin's Q					
Dependent Variables	**Tobin's Q**				
Random Effect Model	**Random Effect Model**				
Models	**1 ITID**	**2 ACP**	**3 APP**	**4 CCC**	**5 NTC**
Constant	9.221044 (1.777503)***	11.26594 (2.099002)**	9.941638 (1.838553)***	9.227130 (1.737240)***	9.244521 (1.721887)***
ITID	-0.000323（-0.38609）				
ACP		-0.009955 (-1.56855)***			
APP			-0.000413 (-0.48521)		
CCC				-0.000116 (-0.193745)	
NTC					-0.0000945 (-0.10281)
FDR	2.205423 (4.513229)*	2.165791 (4.442814)*	2.217589 (4.531128)*	2.22306 (4.53327)*	2.223826 (4.53554)*
CR	-0.024822 (-0.24044)	-0.011362 (-0.11053)	-0.031004 (-0.2972)	-0.02165 (-0.20807)	-0.022162 (-0.21175)
LOS	-0.308549 (-0.71385)	-0.442016 (-0.99941)***	-0.363935 (-0.81547)	-0.315496 (-0.713373)	-0.317005 (-0.71106)
SG	0.018879 (0.09355)	-0.007644 (-0.03809)	0.013542 (0.067003)	0.021374 (0.105782)	0.020558 (0.101751)
R-Square	0.078324	0.088123	0.07957	0.079376	0.079232
Adjusted R-square	0.060868	0.070853	0.062137	0.06194	0.061793
F Statistics	4.48693*	5.102568*	4.564471*	4.552401*	4.543426*
Prob.(F-Statistics)	0.000609	0.000175	0.000521	0.000534	0.000543
Hausman's Test chi2 prob	0.0953	0.1421	0.1923	0.2851	0.2732
***. Correlation is significant at the 0.01 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed). ***. Correlation is significant at the 0.10 level (2-tailed). t statistics are shown in parenthesis.**					

The positive association between TQ and financial leverage means that when firms have more debt they will have more market value. The results of liquidity ratio coefficient are negative and insignificant in all models. Sales growth has positive coefficient in all five models however results are insignificant. But size of firm having negative and insignificant coefficient in all five models which means size of firm has no significant impact on the market valuation of SME's.

5. Conclusion

The primary aim of working capital management in a firm is to manage short term funds required for day to day business activity of a firm. The firm capital management requires effective working policy for a smooth uninterrupted production and sale activity. In this research have studied the effect of different variables of working capital management including the Average collection period, Inventory turnover in days, Average payment period, Cash conversion cycle, Net Trade Cycle, on the Net operating profitability, Return on Assets and Tobin's Q of Pakistan SME's listed on KSE and Current ratio, financial leverage, sales growth, and size of the firm (measured in terms of natural logarithm of sales) have been used as control variables.

The results from the panel data regression show that average collection period and accounts payable period are the two most important WCM components to affect performance of SME firms. The fact that the quantitative data analysis ranked average collection period and average payment period as first and second respectively means they should be taken more seriously by SME firms and policy makers alike. The results imply that SME firms should forge a strong inter-business relationship with both their suppliers and customers in order to maximize the benefits from both accounts receivable period and accounts payable period. A strong relationship between a firm and customers will generate many benefits including: (1) it will help the firms to better understand its customers. Understanding a customer better will help to tailor-made credit arrangement suitable to that particular customer, thereby reducing the incident of bad debt. (2) The relationship will lead to trust building, which will allow the firm to extend credit facilities to such a customer in order to stimulate sales. On the other hand, a stronger relationship between a firm and its suppliers will lead to better terms being offered to the firm by suppliers. Since suppliers' credit is used by firms, especially SMEs as a source of short-term financing, then any credit facility from suppliers will help improve performance. The indication that cash conversion cycle and net trading cycle has positive significant effect on accounting measures of profitability and negative insignificant on market measure of profitability which rejects the postulated hypothesis. Therefore cash conversion cycle and

net trading cycle has no effect on performance of SME firms. The cash conversion cycle and net trading cycle are the aggregates of the three components of WCM, which means that the level of the cash conversion cycle is dependent on the other three components. This therefore means that concentration and attention should be directed towards the three WCM components including: inventory turnover in days, average collection period and average payment period because their management determines the cash conversion and net trading cycle level. This has brought new light into the WCM literature in that the cash conversion cycle should not be solely relied upon as a measure of a firm's WCM effectiveness. The findings from this research have shown that neither the aggressive nor the conservative strategy of cash conversion cycle influences performance, but rather it is the management of the three components that does affect performance. The implication is that SME firms listed on KSE should not be persuaded in achieving either the aggressive or conservative cash conversion cycle strategy but rather components in the light of the prevailing conditions and opportunities in order they should concentrate on effectively managing the WCM to increase performance.

Finally, the findings suggest that firm size, financial leverage, liquidity ratio and sales growth all affect performance of SME Firms. Leverage, size and liquidity have substantial effect on performance means that SME firms should endeavor to identify these specific characteristics that improve performance and work towards improving these areas. Policy makers, in implementing any regulation and rules should also consider the differences in leverage, liquidity, size and growth so as to tailor made rules and regulations to suit SME firms.

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