Faculty of Economics and Business

The Impact of Static and Dynamic Working Capital on Growth of Manufacturing Firms in Pakistan

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DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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ABSTRACT

The main objective of this research is to determine the impact of working capital management (WCM) on the growth of manufacturing firms in Pakistan. This study mainly targets four separate analyses for measuring the impact of static WCM and dynamic WCM on firms' internal and sustainable growth of the manufacturing firms in Pakistan. A total of 174 companies were selected as study sample over a period of 2007 to 2016. The study employed Static panel regression over a balanced panel data namely, pooled ordinary least square (POLS), Random Effect Model (REM), Fixed Effect Model (FEM) using Hausman test specification. Additionally, a series of diagnostic tests was also performed namely, multicollinearity, heteroscedasticity, and serial correlation test. The findings of the study revealed that static WCM measures (Current Ratio) have a significant negative impact on firms' internal growth. Dynamic WCM measures namely, days sales outstanding DSO and inventory turnover ITO has a significant negative impact on firms' internal growth rate, leverage and current assets investments have also impacted significantly on firms' internal growth. For sustainable growth models, the findings of this study revealed that static WCM does not have any significant impact on the firm's sustainable growth. Moreover, inventory turnover (ITO), and payable deferral period (PDP) which are dynamic WCM measures, show a significant impact on firms' sustainable growth rate. The overall results confirmed that dynamic WCM measures ITO, and PDP predicted firms' internal and sustainable growth rate significantly. This suggests that the Firms will have more internal growth with low liquidity by maintaining the investment in ITO and DSO. Similarly, findings suggest that high investment in ITO and less use of supplier's credit (PDP) may lead to positive results in the sustainable growth of firms. The study further confirmed that size, leverage, dividend payout ratio, and current assets investment policy are critical tools that minimize the risk of achieving a high level of the internal and sustainable growth rate of firms in Pakistan. Based on study findings, it is suggested that business leaders may incorporate optimum use of working capital management practices into overall corporate business policy, thereby aligning working capital requirements with the changing business requirements that support firms' growth internally and sustainably. Moreover, results in the research would be utilized in the efficient identification and exploration of working capital management practices among listed manufacturing sectors of Pakistan in the future.

Keywords: Working capital management, days sales outstanding, inventory turnover, payable deferral period, internal and sustainable growth.

Kesan Modal Kerja Statik dan Dinamik terhadap Pertumbuhan Firma Pembuatan di Pakistan

ABSTRAK

Objektif utama penyelidikan ini adalah untuk menentukan kesan pengurusan modal kerja (WCM) terhadap pertumbuhan firma pembuatan di Pakistan. Kajian ini mensasarkan empat analisis berasingan untuk mengukur kesan WCM statik dan WCM dinamik terhadap pertumbuhan dalaman dan kelestarian firma pembuatan di Pakistan. Sebanyak 174 syarikat telah dipilih sebagai sampel kajian dalam tempoh 2007 hingga 2016. Kajian ini menggunakan regresi panel Statik terhadap data panel yang seimbang iaitu, gabungan sekecil paling kecil (POLS), Model Kesan Rawak (REM), Model Efek Tetap (FEM) menggunakan spesifikasi ujian Hausman. Selain itu, satu siri ujian diagnostik juga dilakukan iaitu, multicollinearity, heteroscedasticity, dan serial korelasi test. Hasil kajian menunjukkan bahawa ukuran WCM statik (Current Ratio) mempunyai kesan negatif yang signifikan terhadap pertumbuhan dalaman syarikat. Langkah-langkah WCM yang dinamik iaitu, penjualan harian DSO yang tertunggak dan perolehan inventori ITO mempunyai kesan negatif yang signifikan terhadap kadar pertumbuhan dalaman firma, pelaburan leverage dan aset semasa juga memberi kesan yang signifikan terhadap pertumbuhan dalaman firma. Untuk model pertumbuhan lestari, penemuan kajian ini menunjukkan bahawa WCM statik tidak mempunyai kesan yang signifikan terhadap pertumbuhan syarikat yang mampan. Lebih-lebih lagi, perolehan inventori (ITO), dan tempoh penangguhan pembayaran (PDP) yang merupakan ukuran WCM dinamik, menunjukkan kesan yang signifikan terhadap kadar pertumbuhan syarikat yang mampan. Hasil keseluruhan mengesahkan bahawa WCM yang dinamik mengukur ITO, dan PDP meramalkan kadar pertumbuhan dalaman dan lestari syarikat secara signifikan. Ini menunjukkan bahawa firma *akan mempunyai pertumbuhan dalaman yang lebih banyak dengan kecairan yang rendah dengan mengekalkan pelaburan dalam ITO dan DSO. Begitu juga, penemuan menunjukkan bahawa pelaburan yang tinggi dalam ITO dan penggunaan kredit pembekal (PDP) yang lebih rendah boleh menyebabkan hasil positif dalam pertumbuhan syarikat yang mapan. Kajian ini selanjutnya mengesahkan bahawa ukuran, leverage, nisbah pembayaran dividen, dan dasar pelaburan aset semasa adalah alat penting yang meminimumkan risiko mencapai tahap pertumbuhan dalaman dan tahap yang berterusan bagi firma di Pakistan. Berdasarkan penemuan kajian, disarankan agar para pemimpin perniagaan dapat memasukkan penggunaan amalan pengurusan modal kerja secara optimum ke dalam dasar perniagaan korporat secara keseluruhan, sehingga menyelaraskan keperluan modal kerja dengan perubahan keperluan perniagaan yang mendukung pertumbuhan perusahaan secara dalaman dan berkesinambungan. Selain itu, hasil penyelidikan akan digunakan dalam pengenalpastian dan penerokaan praktik pengurusan modal kerja yang efisien di antara sektor pembuatan Pakistan yang tersenarai di masa depan.*

Kata kunci: *Pengurusan modal kerja, hari jualan tertunggak, perolehan inventori, tempoh penangguhan hutang, pertumbuhan dalaman dan berterusan.*

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AP	Accounts Payable
ARD	Accounts Receivable Days
CA	Current Assets
CCC	Cash Conversion Cycle
DCP	Debtors Conversion Period
DSO	Days Sales Outstanding
DWC	Dynamic Working Capital
FGCP	Finished Goods Conversion Period
GOC	Gross Operating Cycle
GWC	Gross Working Capital
IGR	Internal Growth Rate
ITO	Inventory Turnover
NWC	Net Working Capital
PDP	Payable Deferral Period
RMCP	Raw Material Conversion Period
ROA	Return on Assets
SGR	Sustainable Growth Rate
SWC	Static Working Capital
WC	Working Capital
WCM	Working Capital Management
WIPCP	Work in Process Conversion Period

CHAPTER 1

INTRODUCTION

1.1 Overview

Working Capital (WC) is referred to the funding for the period of the short time that is applied in order to finance a complete duration and span of time of the operating cycle that is connected with the commerce and business, the period is also called as an accounting period. It is basically a trading capital that is not being retained in the organization for a period greater than a year in any specific structure.

Working capital is referred to that portion of the capital of the organization is needed for funding short-term businesses and organizations or Current Assets (CAs); for example, marketable securities, cash, stocks, and debtors. Finance that is put for the investment in current assets keeps revolving and swinging fast and the CAs are being continuously converted in terms of cash and this specific cash then turns out in exchange again for other current assets. Hence, it is also termed as circulating or revolving or short-term capital.

The literature of the corporate finance has been traditionally flooded with the research on financial decisions which have nature of long-term and which are particularly pertaining to capital structure, company valuation, dividend, and investment decisions. Although, the short-term liabilities and assets are the major components of the company's total assets and thus they should be analyzed carefully. The management of short-term liabilities and assets warrants an in-depth analysis after considering that WCM plays one of the major roles in determining the risk and profitability of the corporate work and ultimately the value of the organization (Ribeiro de Almeida & Eid, 2014).

The substantiality of the management of WC is not a novel thing in the literature of finance. Generally, plenty of researches on an academic level which have focused on various aspects of the management of working capital: securities and cash management (Faulkender & Wang, 2006) and trade credit (Rajan & Peterson, 1997). However, it has been reinforced by Kim and Chung (1990) that there is a need for joint effects of all these aspects related to the management of working capital. Hence, all of these aspects should be studied simultaneously because of their mutual influence. Therefore, all aspects and features of managing the WC impact one another as well as the growth of the organization.

The management inability to manage working capital will enhance the financial difficulties for the firms (Smith, 1973). However, firms that have well-established working capital management are expected to enhance financial performance (Raheman & Nasr, 2007). Empirical studies like (Adekola et al., 2017; Attom, 2016) focuses on the effects of working capital management on firms' liquidity and (Al-abass, 2018; Deloof, 2003; Hien Tran et al., 2017; Panda & Nanda, 2018; Raheman et al., 2010; Raheman & Nasr, 2007) made their studies on profitability. Most of these studies are made on small and medium size enterprises and in different regions and contexts (Afrifa, 2015; Afrifa & Tingbani, 2018; Lamptey et al., 2017) but not in terms of growth specifically in the case of Pakistan.

Furthermore, it has been observed by numerous empirical observations that there is a presence of statistical evidence in terms of the association or impact between the growth and efficiency of the management of the WC (i.e., the growth of an organization is inversely related to its CCC). This has been shown by the studies of Shin and Sonen (1998) and Deloof (2003).

In this context, because of the reality that working capital is undoubtedly an integral component of the operations of the cash flow, and cash flow that is driven out of the operations becomes part of the estimation and computation of free flows of cash, this becomes easy to draw conclusion that the effective and efficient working capital management is basically the value that is relevant to any of the organization. Hence, it can be said that the efficient and effective management of the working capital of the organization is the pivotal segment of the entire strategy of any organization for the creation value of shareholders. For the purpose of testing the relativity and applicability of the concept of management of working capital to the Pakistani market, the main focus of this research is to analyze the impact of working capital management on firms' growth.

If the management of working capital is observed with the perspectives of financial manager it is a common practice that these managers allocate a substantial amount of time in the management and administration of the short-term financing and current assets financing in terms of these assets. The current liabilities and current assets are the actual representatives of a substantial amount of investment and funding by the businesses and organizations. As per research proposed by Gitman and Maxwell in 1985, the financial managers and administrators spend approximately 60% of their overall time period in short-term financing activities (i.e. working capital management).

The highly volatile and dynamic nature of the markets of short time period, the continuous need for the replacement of the current assets and of paying off the level of current liabilities along with the reality of funding on long-term basis are augmented are helpful in explaining that the larger amount of time is allocated in the activities of short term (Lamberson, 1995). One indication of the substantiality of the management of the working capital for the manufacturing organizations is the review of the past performance of one of the advanced nations. This can be clearly observed in the Table 1.1 below:

Table 1.1: Current Assets and Liabilities as a Percentage of Total Assets for Manufacturing Firms by Assets Size

Accounts & Ratios	**All Mfg.**			**All Mfg. with Assets Under $5 Million**		
	1981	**1986**	**1991**	**1981**	**1986**	**1991**
Cash & Marketable Securities	5.1%	6.2%	4.5%	11.0%	12.6%	13.0%
Receivables	16.8	14.7	13.6	27.6	26.8	27.9
Inventories	19.6	16.2	14.2	24.9	23.4	23.6
Total Current Assets	44.3	40.3	35.7	67.9	67.3	68.3
Total Current Liabilities	27.0	26.0	25.3	36.2	34.3	32.6
Current Ratio	1.64	1.55	1.41	1.86	1.96	2.03
Quick Ratio	0.91	0.93	0.83	1.16	1.28	1.32

Source: U.S.Dept. of Commerce. 4th quarter, 1981, 1986, 1991. Quarterly financial report for manufacturing, mining, and trade corporations.

This illustration from the above table has shown that the assets were only 68.3% in 1991 in the manufacturing firms of the USA with a small number of assets whereas the similar accounts contributed around 35.7% of the total amount of assets in the USA for all organizations. The complete information from the table has shown that the current ratios of small organizations were much higher in comparison to the larger firms. Moreover, it has been observed that the current liabilities have made up almost 32.6% in 1991 of the total amount of assets that is considerably greater than all of the manufacturing organizations if taken up together. If an analysis is made from the manufacturing organization of the ’70s and ’60s as per the given information, different kinds of results are driven concerned to relative cash flow positions of the large and small organizations. Gupta (1969) and Walker and Petty (1978) have reported that great organization was having a greater amount of cash as shown by the display of current ratio whereas the data has shown in the above-mentioned table that small organizations in recent time periods have the acid test and current ratios which exceed those of big organizations. It has been studied that the working capital of larger firms may differ from the working capital of the smaller firms therefore, it becomes easier to commit that the working capital has dependency over some factors and one of the major factors among them is the nature of their business.

The basic causes for the variations between small and big organizations in terms of working capital are a) big organizations can spend more resources and skills to manage and administer current assets; b) big organizations have the benefit of achievement of the economies of scale; c) big organizations become directly more inclined towards investment in capital (Pinches, 1990). In short, small organizations have a limited number of alternatives available as compared to large firms in terms of raising finance and funds with fewer safety nets for the purpose of reliance (Lamberson, 1995). When existing research in terms of management of working capital supports the perspective that the manufacturing organizations which are smaller in nature so inclined to get more dependent on easy availability of the cash as compared to big organizations, the presence, and availability of funding for short time period throughout the stages of the economy is impacted by the conditions of economy which are present at a point of time. The commonly held perspective in this regard is that the credit for the short time period is more easily available in the time period of low activities of the economy as opposed to the time periods when the level of the economic activity is high.

Moreover, the needs of business for the working capital rise in the time of expansion of the economic activity however the needs decrease at the time of the contraction of the economic activity. It has been mentioned by Schall and Haley in 1991 and Gup in 1983 that the overall level of the investment that is made in the accounts of working capital should rise as the activities of the economy increase and on the other hand, the accounts of working capital should decrease as the activities of the economy diminish.

On the basis of above mentioned and expected relationships and connections and comparatively large amount of investments which are made in current accounts, the small organizations should actively respond for expanding the economic activity by raising their level of investment in different components and segments of the current assets for instance inventories, receivables, and other available current assets. Moreover, the organizations would probably raise their implementation of the financing for a short period of time.

The ascertained influence of these actions and activities would be a decline in the position of the cash flow of small organizations and the raise on the overall percentage of the assets which are held in the shape of current assets at the time of expansion of the economy. An opposite influence would be supposed at the time of the downturn in the level of the economy of the region. It can be put otherwise that the position of the working capital in small organizations would be assumed to get altered by bringing alteration in the stage of the financial conditions of the country (Lamberson, 1995).

In the Pakistani industry, it has been noticed a negative impact between the firm's growth in the textile sector and the management of working capital by Raheman and Nasr in 2007. Another research that was conducted by Afza and Nazir in 2007 with regards to the time frame of 1998 to 2003 reported that because of the adoption of inefficient management policies of working capital by the firms of Pakistan, the earnings growth of these firms have been negatively impacted. Therefore, it is necessary to analyze the policies of working capital that should be adopted in a way that the profitability along with the growth of the company should be taken under consideration. Furthermore, it is necessary to mention that without efficient policy-making, any organization can never achieve a remarkable growth without an extensive investment of working capital.

These researches have raised concerns for the manufacturing industry of Pakistan and the emergence of a need for the conduct of the analysis by the establishment of the correct relationship between growth and management of working capital in context to Pakistan. Moreover, it has further noticed that Pakistani organizations commonly apply resources of short term finance as sources of long term finance by constant renewal in the credit lines. This practice is applied to discounting of the bill, advances on the contracts of exports, advances for draft presentation and factoring. These means replace the credit lines of long-term which are long term financing subject to the automatic renewals of many lines of credit.

In the scenario where an organization encounters financial constraints could be realized and expected to encounter the higher cost of financing at the time of raising the external funds. Resultantly, the marginal value that lies in the holding of cash along with the marginal value that lies in holding of the working capital might be higher for all the above-mentioned organizations because internal funds make them able to neglect to incur a higher financial cost. Moreover, if these organizations possess good opportunities for investment, the greater cost for raising external finance will increase the probability that these sorts of projects will eventually be abandoned in case of insufficiency of internal funds and finances.

Hence, it can be understood that for the organizations which have restriction of finance, a higher level of working capital and cash holdings raise the probability of taking positive projects with the net present value which otherwise would be abandoned. However, the cash flow position offers no kind of benefit for the unrestricted organizations.

If the working capital is managed efficiently, the organizations can reduce their reliance on external levels of funding and they can apply the released amount of cash for the purposes of more investments and enhancement of the financial flexibility of the organization. Additionally, by efficiently managing the working capital, the organization can lower the costs of financing because less external funds and finance will be sufficient for financing the needs of working capital.

Therefore, an implied relationship or association between financing and investment in WC raises many issues of the means of influencing the overall valuation impacts of investment by financing in working capital. As a result, there is a need to stay focused on the means of influencing the impact of financing by the constraints of the financing of the organization on the association between a value of an organization and working capital (Edi & Saad, 2010).

Over a great span of time, a point to ponder which has been received a considerable amount of attention from many authors is the establishment of the optimality level of the working capital of the organization. It has been mentioned by Deloof (2003) that the organizations look to stabilize and maintain the best attainable status of the working capital for maximizing their value. A great argumentative debate is present with respect to the return, risk, and trade-off among various policies for the management of working capital where a more aggressive kind of policy of working capital is connected with the higher returns and higher risks, whereas more conservative kind of policies are connected with lower returns and lower risks for working capital (Gardner et al., 1986).

The relationship between various accounting measures of growth and CCC has been examined by Shin and Soenen in 1998. The researchers have concluded that the organizations which manage efficiently their working capital have a higher level of operating