Factors Affecting Working Capital Investment: An International Evidence

Zeeshan Zaib Khattak
Institute of Business Studies, Kohat University of Science and Technology

Muhammad Faraz
Institute of Business Studies, Kohat University of Science and Technology

Sammar Abbas
Institute of Business Studies, Kohat University of Science and Technology

Humera Manzoor
Institute of Business Studies, Kohat University of Science and Technology

Romana Bangash
Institute of Management Sciences, Peshawar

Abstract
This study is aimed at determining the major determinants of working capital investment level by different firms across different countries, which include Pakistan, India, Singapore, Japan, Malaysia and United Kingdom. Total numbers of observations are 39,912 for 3932firms, for the time period of 14 years which is from 2001 to 2014. Independent variables in the model are firm-specific variables such operating cash flows, firm-size, profitability, long term debt, leverage ratio, GDP growth rate and assets tangibility. Result indicates that variation in working capital investments are due to both the firm-specific determinants and country-specific variables across countries which determine an efficient working capital investment.
Keywords: Working capital, Firm-size, Profitability, Leverage ratio, Assets tangibility

Introduction

Working capital is firm's investment in assets that are used for firm's day to day business operations such as purchase of raw material, sale of goods and services on credit and cash payments to suppliers of raw materials. Investment in working capital is required to maintain liquidity to meet short term financial debts and to provide the firm with sufficient short term assets, such as cash and inventory, to avoid stock outs and sales disruptions. Due to an ambiguity in capital markets, funds inside firm, are essential component of working capital investments. There is also cost benefit associated with internal funding when the external funding is not available. Deloof (2003) argue that when reasonable amount of funds are not present, a firm will not be able to get new profitable projects. The influence in aggregate number of debts and obligation issued or retired is due to the net increment in working capital (Shyam-Sunder & Myers 1999). Previous researches revealed that one of most important factor that significantly contributes towards working capital investment level, is leverage. (e.g. Kargar, Blumenthal, 1994, Wu, 2001). Therefore, the objectives of this research is to conclude

the determinants affecting a firm's choices with regard to its working capital investment level.

Research Questions:
1. What are factors that determine firm's level of investment in working capital?
2. Are these determining factors of WC investment are country-specific or universal in nature?

It is expected that answers to the above research questions will meet the following research objectives.

Research Objectives:
1. To examine firm specific factors, such as profitability, leverage, firm size etc. that affect working capital investment.
2. To examine whether factors affecting working capital investment are country-specific or universal in nature.

Literature review

Working capital investment:

Efficient investment in working capital is important for the firm to have an operational efficiency and sound financial health (Appuhami, 2008). This also implies that firms need to ensure an efficient working capital investment to achieve objectives of efficiency and profitability. Although there is vast body literatures on the working capital investments impact on profitability of a firm (Lamberson, 1995). Such studies use investment in inventory, account receivable and account payable as working capital measurement and return on equity and return on assets as measure of financial performance measurement (ibid). The findings of these studies suggest that efficient working capital investment contributes to firm's profitability and firm value. However, there is little research on what are the determinants of an optimal level of working capital investment. According to Mathur, Mathur and Kenyon (2012), larger firms with higher credit grades can easily leverage which brings quite better improvement in future financial market. Working capital policy change with the passage of time because of direct relation with country's economic cycle (Filbeck & Krueger. 2005; Yadav, Kamath & Manjrekar, 2009). Furthermore if the firm planning to invest more funds in fixed assets, then they have very low option for to invest in working capital investments (Kieschnick, LaPlante & Moussawi, 2006). The main body of literature on the determinants of working capital investments mainly focus on firm specific factors such as firm size, capital expenditures, cash flow from operations, capital structure, etc. These studies are mainly country specific (Mohamad & Elias, 2013). These country-specific studies, however, limits an opportunity to examine whether the factors affecting working capital investments are either country specific or vary across different countries. This research study attempts to contribute to the literature by analyzing these factors by using data from different firms. In the following we explain these different determinants of working capital investment.

Firm Size

Hill, Kelly and Highfield (2010) observed that as compared to smaller firms, larger firms face issue of capital market entry due to less data asymmetry as observed by the different controllers and regulators of capital. They contend that subsequent to the access to those outsource funds are easier, less data information asymmetry and less acquiring borrowing limits, firms in large size have the capability to have comfortable inventories and receivables strategies. As firms with large size with high sales dealing intensities also needed greater reserves in working capital (Moussawi, LaPlante, Kieschnick & Baranchuk, 2006). Further, big and larger firms have a tendency to be more diversified and fail less often as related to firms in small extent. Soenen (1993) demonstrate that firms in large size can in fact deal with cash conversion cycles well. Chiou, Cheng & Wu (2006), firms in large size can easily raise funds; cash preserved at a minimum then there would be a positive relationship between size and working capital investments. Nazir and Afza (2009) and Zariyawati, Taufiq, Annuar and Sazali (2010) likewise locate this positive correlation in their study. Horrigan (1965) talked about the impact of firm size on financial ratios of a company, demonstrating firm size in positive correlation to long-term debt ratio and short-term liquidity. Previous research on company financial ratios and working capital management have demonstrated the effect of firm size on working capital investment level (Chan, 1993; Peel & Wilson, 1996; Wu, 2001; Su, 2001), the larger companies can easily manage financial resources. By studying different polices of working capital management, the private sector manufacturing companies in Sri Lanka, Pandey and Perera (1997) anl Moussawi et al. (2006) found that the size has greater influence on allocation of financial resources and strategies. According to Mathur et al. (2012), firm performance positively affected by firm size and larger firms can also acquire better results in financial markets on size base leverages. The results in various researches about large size firms were found in positive direction. Kashyap, Stien and Wilcox (1992) observed that constricted monetary strategy will lead to move a firm to raise funds externally using different outsources: while bank loans decline and commercial paper issuance increases. Moreover, such moves in advances have greater influence on firm investment, even for monitoring output and different rates of interest. Oliner and Rudebusch (1996) suggested that the diverse effects of small and large firms is now more essentials to be considered after a monetary shock on usage of bank debts versus nonbank debts. The size of firms is going to include in our study is to check for differential effects of monetary policy on different sized firms.

Ojah and Manrique (2005) review in their study conducted in Spain markets on corporate debt structure. A possible usage of bank obligation is positively correlated to size of the firm and accessibility of information but negative correlation found with firm credit value. Chiou et.al. (2006) observes that accessibility to financial markets and banks by a firm, once budget is made on behalf of variances in firm particular features, like size, firm debt and risk. When interest rates raise these characteristics could cause in larger (or minor) effect due to constriction of firm credits. Assessment of possibilities of the model was accompanied empirically on a big panel board of United Kingdom manufacturing firms. They confirmed that young, small as well as risky firms were highly affected by constricted monetary environments than big, old and secured firms. Two alternatives which are suggested by previous research: one due to the large sales levels, larger firm may require larger investments in working capital or secondly to build

good relationships with suppliers bigger firms might be capable to use their size. Thus, a firm's working capital investments may influence the effectiveness by firm size.

According to the Hill et al. (2010) the working capital requirements fluctuates directly with the size of firm and that this association is more important. Thus, small size firms have limited access in the choice of financing working capital requirements because of having lower ability in issuance of commercial papers or in acquiring credit.

SIZE = Log (Total Assets)

Profitability

Many research studies on the influence of profitability on working capital investments, a significantly high positive correlation was founded (Deloof 2003; Narware 2004; Soenen, 1993). Many researchers observed contradictory association though, when same correlation is measured. Chiou et al.(2006) discussed their views that subsequently it remain stress-free for profitable firm to acquire capital and a minimum level of cash would stay kept back, a positive association is projected among working capital investments and firm profitability/enhancement. Although, Nazir and Afza (2009) intention that subsequently profitable firms have the capability to invest in different profitable projects. Therefore, a positive relationship is existing among profitability and working capital requirement. The similar phenomena was estimated by Hill et al. (2010), claiming that the worth of dollar in regard of good receivable normally exceeds the value of dollar in regards goods payable. Collectively these two studies approve this correlation, although Nazir and Afza (2009) and Hill et al. (2010) measures profitability in different ways. Working capital as well as profitability has double edge relationships. On one side, additional profitability makes firms better to discuss with suppliers as well as customers together, and firms can use these reasonable benefits to improve their liquidity. On the other side, working capital has significant effects on profitability. More investment in working capital means more sources involved and make more opportunity cost for firms (Deloof, 2003). Narware (2004) observed that destructive financing strategy, leverage and traditional investment strategies have a negative influence on firm's value and profitability; whereas firm growth as well as firm size has a positive impact.

ROA = Net Income/ Total Assets

Leverage

Chiou et al. (2006) found that in regard of pecking order theory, a firm would go for to meet its financial need in first priority with internal funds to minimize observing cost and restrictions by investors and likewise to minimize issuing expenses. Therefore, firms with additional liability possessions observing that it sustains a lesser amount of internal finance and that there could be a lesser amount of capital availability for day-to-day operations.

Financing from outside actually is very expensive than internal financial resources which means that firms with a growing liability ratios would give extra consideration to its working capital investment, That may be utilized for other cost-effective investment prospects, occurrence assumed in operating cycle (Nazir & Afza, 2009). An important positive association is estimated to be among leverage (LEV) and firms' working capital investment. By agreeing with pecking order theory, a firm shortage of reserves have a

tendency to rise funds internally before borrowing money externally or allowing new securities (Myers & Majluf, 1984) . By raising funds through new stocks will take further external observing and restrictions moreover experiencing issuing costs. Therefore firms will preserve their particular investment, for inner usage or paying other obligations. Debts in large amount mean a small amount of internal capital existing for day to day operations. Financial slack is the effect of huge possessions of money or securities, or the capability of issuing default risk-free obligation elsewhere what is essential to meet existing operating and debt requirements (Myers & Majluf, 1984; Brealey, Myers, Allen & Mohanty, 2012). Pecking Order Theory clarify in which case profitable firms are most likely to borrow in a very low proportion it's not due to their short debt objectives however they did not require finance from outsource.

LEV = (Short Term Loans+ Long Term Loans)/Total assets

Real GDP Growth Rate

Economic development is one of the probable and most dependable economic indicators; it considers one of the top measures of variations in economic events. The fluctuations in economic environments might probably require an influence on supervision of the firm further proficiently. Lamberson (1995) indicated that by managing working capital investment small firms respond in different way in the expected changes of economic activities. The working capital strategy is not stagnant on interval of time; it change with fluctuations in the national economy. Real GDP Growth uses as an indicator of economic growth. Merville and Tavis (1973) explain that improbability of extensive economic situation is one of the significant factor affecting the working capital investment policies of the firm. Different firms react in different way on the influence of economic situation because of diverse environments of their operational activities. Earlier research papers show that maximum financial ratios differ among different trades (Hawawini, Viallet & Vora, 1986; Kargar & Blumenthal, 1994). Liu (1985) suggests that a firm that expected growth in sales is most likely to increase the investment in inventories. A positive association among working capital investment and sales growth is expected. If financial influence depending upon the country's particular factors and corporate capital structure affects the working capital policy, at that moment national characteristics might have certain impacts upon working capital strategy. Though, it is hard to discover perfect experimental verification of straightforward association among the country specificity and working capital in previous literature. Moreover it is furthermore expected that the country specificity also have impact the way as financial leverage effects working capital. Empirical evidence shows that macroeconomic features such as GDP would affect trade credit and investments in inventories. Smith (1986) suggests that national economy affects level of accounts receivable. Furthermore, Lamberson (1995) have originated that the aggregate quantity of working capital of smaller firms rises during economic strike.

Growth Rate = Sales(x)-Sales(x-1)/Sales(x-1)

Operating Cash Flow

According to Chiou et al. (2006) there are two kinds of relations among investment in working capital and operating cash flow. Because of the rise in short-term investments and cash withholdings, the current investment would have positive impact

with regard their variations in operating cash flow. High operative cash flows will let a firm to follow a conventional functioning working capital policy on the other hand in adverse operating cash flow companies would require to capitalize its working capital necessity from further bases (Hill *et al.*2010). Petersen and Rajan (1997), they argued that with high cash flow firms have more ability to generate cash flow internally and therefore it will have high levels of current assets possibly because of low cost of resources in working capital.

Appuhami (2008) agree with the same result that firms have a tendency to decrease funds in working capital through rising in operating cash flows. Earlier studies show that increase in growth prospects as well as variations of upcoming cash flow raises the short-term investment and cash hold of a firm (Opler, Pinkowitz, Stulz & Willamson, 1999; Wu, 2001). Funds generated from internal resources are the most significant source of working capital investment. Companies having high operating cash flows are capable to capitalize its current resources. Juan- Garcia and Solano (2007) and Hill et al. (2010) using operating cash flow for to signify internal investment. Pecking order theory (Myers and Majluf, 1984) reveals that firms by selecting its bases of funding from internal reserve to equity hence internal sources are low-costly than other financial resources. Fazzari and Petersen (1993) suggested that firms with higher cash flow having larger working capital because these firms having larger internal sources to finance working capital and empower of having higher current assets levels.

$$OCF = (EBIT + Depreciation - Taxes)/Total\ Assets$$

Asset Tangibility

Moussawi et al. (2006) suggested that receivable and inventory difficulties of an automobile industry are furthermost possibly working varies due to the tangibility of its assets. Chan (1993) presented two different views for the association among working capital investment and asset tangibility. At one side, due to the invested funds in fixed assets which participates with the financial resources in working capital on behalf of currently available restricted capitals, a negative relationship is expected. At other side, from the views of agency problems and asymmetric information, firm due to additional intangible assets will have greater agency problems and asymmetric information with difficulty in assessment of intangible assets. Hence it is expected that these firms would ensure greater working capital investments. The tangible portion of investment in fixed assets would affect the productivity of working capital investments. Fazzari and Petersen (1993) assumed that during financial constrictions, the level of working capital may compete with the fixed investment for the contemporary pool of finance. Hence, firms could try to decrease the aggregate level of working capital investments to handle their financial constrictions.

Asset Tangibility= Fixed Assets/Total Assets

The above cited literature proposes the following hypotheses.

Proposed Hypotheses

H_1: Firm size, growth opportunity and leverage positively affect the level of working capital investment.

H_2: Profitability, operating cash flows and asset tangibility has a negative effect on the level of working capital investment.

H_3: Working capital investment factors are not firm and country-specific and they vary across firms and countries.

Research Methodology

This study based on quantitative data and used secondary source of data. Sample of the study comprising the firms listed on different country's Stock Exchanges (SE). Financial data acquired from the annual reports of these firms, available with the compustat database. Study population comprises of firms from different countries i.e. Pakistan, India, Malaysia, Japan, Singapore and UK. Sample time period for data collection is from 2001-2014. To examine various factors affecting investment in working capital Deloof (2003) and Lamberson (1995) models were used in this study. These models takes into account various firm-specific factors of working capital investment as well takes care of the firm-specific factor in the model.

$$NWCit = \beta0 + \beta1LEVit\text{-}1 + \beta2GROWTHit\text{-}1 + \beta3SIZEit\text{-}1 + \beta4TANGit\text{-}1 + \beta5PROFITit\text{-}1 + \beta6OCFit\text{-}1 + eit$$

NWC   - Net Working Capital
LEV   - Leverage
TANG   - Tangibility
PROFIT   - Profitability
OCF   - Operating Cash Flow
SIZE = Log (Total Assets)
ROA = Net Income/ Total Assets
LEV = (Short Term Loans+ Long Term Loans)/Total assets
Growth Rate = Sales(x)-Sales(x-1)/Sales(x-1)
OCF = (EBIT + Depreciation – Taxes)/Total Assets
Asset Tangibility= Fixed Assets/Total Assets

Control Variables

Macro-economic variables are used as control variable in this study. These include time and country effect. For that dummy variables are used in this study which takes a value of 1 and 0. This dummy variable takes on value of 1 for a specific country and 0 for all other countries. In this way, we have 6 dummy variables since we have used data from six different countries.

Findings: Descriptive Statistics

Table 1 provides descriptive statistics for working capital investment and some of the firm-specific accounting variables such cash holding, assets tangibility, leverage, proportion of long-term debt. Tangibility is the proportion of fixed assets as a percentage of total assets. Fixed assets include property, plant and equipment's. Mean value of tangibility for all firms in our sample is 26.396 per cent. Interestingly, minimum and maximum values for this variable are 0 and 86.324 per cent. Mean value for working

capital investment is 18.66 per cent of total assets for all firms in our sample. A large value of standard deviation (25.88 per cent) for working capital investment displays that there are important variations in working capital investment across industries and countries, which is quite understandable as data is fairly heterogeneous across countries and industries. Mean value of profitability is 5.61 per cent for all firms in the sample. Mean value of Cash holding (0.08333) shows that firms hold 8.33 per cent of assets as cash holdings. Leverage ratios for the sample shows that, on average, firms hold 21.65 per cent as debt in their capital structure while standard deviation of the leverage ratio shows significant variation in terms of capital structure in the sample, which is quite expected as firms in the sample have been taken across different industries. Variation in the capital structure is also because of the fact that capital structure also varies across countries. Our sample consist of data from six countries namely Pakistan, India, Singapore, Japan, Malaysia and United Kingdom. Total numbers of yearly observations are 39912 for 3932 firms, for the period of 14 years starting 2001 to 2014.

Table 1: Descriptive Statistics: Working Capital Investment and Firm-specific factors

Variable	N	Mean	Std. Dev.	Min	Max
Profitability	39912	0.056149	0.168509	-0.957117	0.366128
Tangibility	39912	0.2636928	0.210823	0	0.863241
Capital investment	39921	0.1866335	0.258895	-0.7525404	0.820292
Cash holding	39884	0.083323	0.554718	0.0008835	1.006046
Leverage	39912	0.2165455	0.203718	0	0.900316
Long term debts	39912	0.1057091	0.135796	0	0.630287
Number of firms	3932				
Number of years	14				

Table 2 provides regression results for the determinants of working capital investments. Dependent variable is the working capital investment. This variable represent firm's investment in working capital namely accounts receivables and inventory. This variable is represented as a percentage of total assets. Independent variables in the model are firm-specific variables such sales growth, operating cash flows, firm-size, cash holding, profitability, long-term debt to total assets, leverage ratio and tangibility. Besides these firm-specific factors which can affect the investment level of working capital of firms, we also include time dummies in the model. These dummy variables are incorporated in the model to justification for variations in the firm's working capital investment that may be affected by macroeconomic environment over the period of the study. To account for differences in the level of working capital investment that varies across countries, we include a dummy variable for each country. This dummy

variable takes on value of 1 for a specific country and 0 for all other countries. In this way, we have 6 dummy variables since we have used data from six different countries. Moreover, all accounting data was winsorized at the 1 per cent level to account for the outliers in the data.

Empirical outcomes of the model are provided in the Table 2. F-value of the table and its consequence at the 1 percent level shows that the model is adequately fit to the data. Our main interest in the table is the dummy variables for each country. The Table 2 reports results for 5 dummy variables and coefficient values for one dummy (countrydummy1) is automatically omitted by the Stata software (when program was run in the stata). This is done by the stata to avoid dummy variable trap. All these dummy variables stand statistically significant at the one per cent of level of significance as shown by the t-statistics and the corresponding probability values which are less than 0.000 in the table. These significant dummy variables indicate that significant variances are there in the level of working capital investments. Besides firm-specific determinants of working capital investment, there are country-specific variables that also determine what will be an optimum working capital investment level of firm in those countries. These country-specific factors are moderately clarified by the fact that differences in the economic development are exist across countries. These countries differ significantly in terms of capital market development, legal and regulatory environments, corporate governance mechanisms. In addition to differences in the factors that are country-specific, our results also identify several firm-specific factors which determine investment level of working capital. These factors size of firm, growth in sales, operating cash flows, capital structure particularly firm's leverage ratios, tangibility, and level of cash holdings. We draw this conclusion on the basis of the statistically significant coefficient for all these variables as reported in the Table 2. We also take in dummy variables for every single year of the sampling section. These dummy variables were included to account for variations in working capital investment because of the macroeconomic environment during the sample time period.

Table 2: Regression of determinants of Working Capital Investment

Number of obs	37282	R-squared	0.9638	
F(25, 37256)	396.91	Adj R-squared	0.9630	
Prob. F	0.000			
	Coefficient	Robust Std. Error	T-statistic	Prob. (t)
yeardumy1	0	(omitted)		
yeardumy2	-0.0439614	0.01964745	-2.01376	0.000
yeardumy3	-0.048846	0.0218305	-2.23751	0.000

_____

yeardumy4	-0.0266553	0.0491684	-0.54	0.588
yeardumy5	-0.0321308	0.0486771	-0.66	0.509
yeardumy6	0.0125603	0.0484937	0.26	0.796
yeardumy7	0.0034978	0.0486587	0.07	0.943
yeardumy8	0.0428772	0.0489959	0.88	0.382
yeardumy9	0.0385158	0.0493778	0.78	0.435
yeardumy10	0.0460632	0.0496971	0.93	0.354
yeardumy11	0.0377565	0.0500864	0.75	0.451
yeardumy12	0.0443575	0.0503859	0.88	0.379
yeardumy13	-0.0181552	0.0762356	-0.24	0.812
yeardumy14	0.0886569	0.1231165	0.72	0.471
countrydumy1	0	(omitted)		
countrydumy2	-0.03834	0.008157	-4.7	0.000
countrydumy3	-0.21356	0.00727	-29.38	0.000
countrydumy4	-0.01481	0.00721	-2.05	0.040
countrydumy5	-0.04611	0.007003	-6.58	0.000
countrydumy6	-0.03071	0.007356	-4.17	0.000
Growth	2.548601	1.144779	2.23	0.026
Size	-0.00637	0.000564	-11.29	0.000
Profitability	0.429336	0.018113	23.7	0.000
Operating net cash flow	-0.27788	0.019043	-14.59	0.000
Tangibility	-0.32029	0.005364	-59.72	0.000
Cash	0.160446	0.002792	57.47	0.000
Leverage	-0.81567	0.009667	-84.38	0.000
Long term debts	0.693617	0.014056	49.35	0.000
_cons	-2.12944	1.145528	-1.86	0.063

_____

Profitability is earnings before interest, taxes, depreciation and amortization (EBITDA) as a percentage of total assets. Cash is measured as "cash divided by net total assets while net total assets is total assets minus cash. Growth is sales growth and measured as current year's sales divided by previous year's sales. Countrydumy1 – countrydumy6 are dummy variables for each country. Yeardumy1-yeardumy14 are dummy variables for each year of the sample.

Conclusion:

This study aims to determine different factors which effect working capital investment. Mostly financial manager consume huge amount of their precious time, in managing working capital investments. By investigating and analyzing different factors, we use firm size, leverage, profitability, operating cash flow, growth opportunity and assets tangibility as measuring quantities of working capital investments. First hypothesis of current study states that size of firm; growth opportunity and leverage positively affect the level of working capital investment in which two variables size of firm and leverage was found to be insignificant. The result of the hypothesis is reliable with previous studies of (Hill *et al*.,2010, Lamberson, 1995 and Myers, 1984) which states that Working capital requirements differs right away with size of firm and that this relationship is more important. Thus, firms with small size are restricted and having low access to finance its working capital requirements. By managing working capital investment small firms respond in different way in the expected changes of economic activities. Agreeing with pecking order theory, a firm shortage of capital will have a tendency to recover it from inside source of funding before allowing new stocks or borrowing money externally. Second hypothesis states that profitability, asset tangibility and operating cash flows has a negative impact on working capital investment level. In which the first variable profitability was found insignificant whereas other two determinant asset tangibility and operating cash flow was found significant in this study. The result of hypothesis is consistent with earlier study of (Nazir & Afza, 2009; Fazzari & Petersen, 1993) which states that extremely profitable companies having the ability to capitalize its investment projects; it will not be concerned to its proficient investments of working capital. Third hypothesis of this study was found insignificant, stated that working capital investment factors are not country-specific and they vary across industries. On the basis of results of the study, it is determined that there are significant differences in working capital investments level. Besides firm-specific determinants of working capital investment, there are country-specific variables that also determine what will be an optimum investment level in working capital for different companies in those countries. These country-specific factors are partially explaining the fact that there are differences in the economic development across countries. These countries differ significantly in terms of capital market development, legal and regulatory environments, corporate governance mechanisms.

References

Appuhami, B. R. (2008). The impact of firms' capital expenditure on working capital management: An empirical study across industries in Thailand. *International Management Review*, *4*(1), 8.

Brealey, R. A., Myers, S. C., Allen, F., & Mohanty, P. (2012). *Principles of corporate finance*. Tata McGraw-Hill Education.

Chan, C. (1993). The study on working capital management of manufacturing business. *Unpublished master's dissertation, Department of Management Science, Tam Kang University, Taiwan*.

Chiou, J. R., Cheng, L., & Wu, H. W. (2006). The determinants of working capital management. *Journal of American Academy of Business*, *10*(1), 149-155.

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms?. *Journal of business finance & Accounting*, *30*(3- 4), 573-588.

Fazzari, S. M., & Petersen, B. C. (1993). Working capital and fixed investment: new evidence on financing constraints. *The RAND Journal of Economics*, 328-342.

Filbeck, G., & Krueger, T. M. (2005). An analysis of working capital management results across industries. *American Journal of Business*, *20*(2), 11-20.

Hawawini, G., Viallet, C., & Vora, A. (1986). Industry influence on corporate working capital decisions.

Hill, M. D., Kelly, G. W., & Highfield, M. J. (2010). Net operating working capital behavior: a first look. *Financial management*, *39*(2), 783-805.

Horrigan, J. O. (1965). Some empirical bases of financial ratio analysis. *The Accounting Review*, *40*(3), 558-568.

Juan García-Teruel, P., & Martinez-Solano, P. (2007). Effects of working capital management on SME profitability. *International Journal of managerial finance*, *3*(2), 164-177.

Kargar, J., & Blumenthal, R. A. (1994). Leverage impact on working capital in small businesses. *TMA journal*, *14*, 46-46.

Kashyap, A. K., Stein, J. C., & Wilcox, D. W. (1992). *Monetary policy and credit conditions: Evidence from the composition of external finance* (No. w4015). National Bureau of Economic Research.

Kieschnick, R., Laplante, M., & Moussawi, R. (2006). Corporate working capital management: determinants and consequences. *International Journal of Managerial Finance*, *3*(2), 164-177.

Lamberson, M. (1995). Changes in working capital of small firms in relation to changes in economic activity. *American Journal of Business*, *10*(2), 45-50.

Liu, F. L. (1985). The stationary of financial ratio of manufacturing industry in Taiwan from 1973 to 1983. *Master's Dissertation, National Cheng Chi University, Taiwan*.

Mathur, S. S., Mathur, S., & Kenyon, A. (2012). *Creating value: successful business strategies*. Routledge.

Merville, L. J., & Tavis, L. A. (1973). Optimal working capital policies: A chance-constrained programming approach. *Journal of Financial and Quantitative Analysis*, *8*(1), 47-59.

Mohamad, N. E. A. B., & Elias, S. B. (2013). An assessment on determinant of working capital management from Malaysian public listed companies. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *3*(4), 224-228.

Moussawi, R., LaPlante, M., Kieschnick, R., & Baranchuk, N. (2006, November). Corporate working capital management: determinants and consequences. In 36th Financial Management Association Conference (pp. 1-33).

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics*, *13*(2), 187-221.

Narware, P. C. (2004). Working capital and profitability-an empirical analysis. *MANAGEMENT ACCOUNTANT-CALCUTTA-*, *39*, 491-493.

Nazir, M. S., & Afza, T. (2009). Impact of aggressive working capital management policy on firms' profitability. *IUP Journal of Applied Finance*, *15*(8), 19.

Ojah, K., & Manrique*, J. (2005). Determinants of corporate debt structure in a privately dominated debt market: a study of the Spanish capital market. *Applied Financial Economics*, *15*(7), 455-468.

Oliner, S. D., & Rudebusch, G. D. (1996). Monetary policy and credit conditions: evidence from the composition of external finance: comment. *The American Economic Review*, *86*(1), 300-309.

Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings. *Journal of financial economics*, *52*(1), 3-46.

Pandey, I. M., & Parera, K. L. W. (1997). Determinants of effective working capital management-A discriminant analysis approach. *Research and Publication Department Indian Institute of Management*.

Peel, M. J., & Wilson, N. (1996). Working capital and financial management practices in the small firm sector. *International Small Business Journal*, *14*(2), 52-68.

Petersen, M. A., & Rajan, R. G. (1997). Trade credit: theories and evidence. *The review of financial studies*, *10*(3), 661-691.

Shyam-Sunder, L., & Myers, S. C. (1999). Testing static tradeoff against pecking order models of capital structure1. *Journal of financial economics*, *51*(2), 219-244.

Smith Jr, C. W. (1986). Investment banking and the capital acquisition process. *Journal of Financial Economics*, *15*(1-2), 3-29.

Soenen, L. A. (1993). Cash conversion cycle and corporate profitability. *Journal of cash Management*, *13*, 53-53.

Su, F. C. (2001). The impact of the change of business cycle in manufacturing industry. *Master's Dissertation, National Cheng Chi University, Taiwan*.

Wu, Q. S. (2001). The determinant of working capital management policy and its impact on performance. *National Science Council Project*, 89-2416.

Yadav, R., Kamath, V., & Manjrekar, P. (2009). Working Capital Management: A study of Maharashtra's bulk drugs listed companies. *Chemical Business*, *23*(7), 27-34.

Zariyawati, M. A., Taufiq, H., Annuar, M. N., & Sazali, A. (2010, June). Determinants of working capital management: Evidence from Malaysia. In *Financial Theory and Engineering (ICFTE), 2010 International Conference on* (pp. 190-194). IEEE*.*