



ISSN: 2321-8819 (Online) 2348-7186 (Print) Impact Factor: 1.498 Vol. 8, Issue 5, May, 2020

Working Capital Management and Firm Performance

Muhammad Ahmad*¹, Rohani Md-Rus²

School of Economics, Finance and Banking, University Utara Malaysia, Malaysia ⁽¹⁻²⁾

¹ahmadsefb@gmail.com

²rohani@uum.edu.my

Abstract: This study examines the relationship between working capital management and firm's performance in Pakistan. Data used in this study is based on 199 non-financial listed firms for 2006-2016. This study uses three proxies to measure the working capital management, namely, ICP, ACP and APP. To fill the gap in existing literature, this study uses both accounting-based (ROA) and market based (Tobins' Q) measures of firm performance. According to the results, ICP, ACP and APP negatively influence the ROA while ICP and APP positively and ACP negatively influence the Tobins'Q. The relationships remain same when two controls firm age and firm size are added into model. The results of this study are useful for the financial managers of firms in Pakistan and other developing countries.

Keywords: Working capital management; firm performance; emerging markets; Pakistan

JEL Classification: J21; J10

1. Introduction

Since significant decisions of firms primarily focus on long-term financial assets and investments, it may lead to ignore the importance of short-term assets and liabilities. Current unrestrained and dynamic market structure require the effective management of short-term assets and liabilities which may increase the firm profitability in the short-term but increases the business insolvency risk. On the other side, conservative liquidity management will be at the expense of profitability. In other words, a firm must not suffer excess or lack-of liquidity to meet short-term business obligations (Bhunja, 2010). Thus, it is highly challenging for firm managers to achieve trade-off between liquidity and profitability to maximize the firm value (Abuzayed, 2012; Nuhui & D ermaku, 2017).

In this regard, many researchers conducted studies in different countries to determine the working capital management and firm performance relationship. Their findings, especially those studies in Pakistan are inconclusive and often based on textile sector (Tahir & Anuar, 2015) or cement sector (Rehman & Anjum, 2013), employing only return on asset (ROA) as a measure of firm performance. They have often neglected other non-financial sectors and the market-based measure of firm performance for analysis. Although

accounting-based measurements are useful because it conveys value-relevant and timely information, market-based measure captures information available to investors (Deeds, DeCarolis, & Coombs, 1998) and reflects the market perception of the expected future performance of the companies (Dubofsky & Varadarajan, 1987; Wisner & Eakins, 1994). Therefore, this study is set to explore the relationship between working capital management and firms' performance, by employing return on assets and Tobin's Q as dependent variables.

The rest of this paper is organized as follows. In section two, brief literature review is discussed. Section three discuss the research methodology. The fourth section discuss the results of the analysis while section six conclude the paper.

2. Literature Review

Bellouma (2011) argues that working capital management concerns the assets' liquidity where high investments in current assets may adversely influence the firm's profitability while lower investments in current assets may adversely affect the firms' liquidity and possibly increase the risk of stock outs resulting from the difficulties in running the smooth operations. Hence, to have a balance between profitability and liquidity levels, a firm must initiate careful and efficient management of working capital components to avoid a liquidity crisis and income reduction (Ukaegbu, 2014). It is concern of business executives all over the world to formulate a strategy of managing daily business operations to fulfill their obligations for increasing shareholders' wealth (Shin & Soenen, 1998). Thus, working capital management deals with the management of current assets and current liabilities to maintain the appropriate levels of business liquidity and to increase the firm profitability.

Higher inventory conversion periods are assumed to the increase sales and profitability (Petersen & Rajan, 1997). However, high inventory conversion periods may stress the firms to go for external finance such as bank loan to maintain the sufficient inventory levels (Kieschnick, Laplante, & Moussawi, 2013). Moreover, lower inventory levels may increase the cost of goods by loss of



customers or possibility of lower stocks and lack of volume discounts (Lyngstadaas & Berg, 2016).

Suppliers extending the credit to customers incurs the opportunity cost of cash discounts taken by the buyer and cost of funds invested in account receivables. Offering credit to the customers may lead to the increased sales and increased profitability (Yazdanfar & Öhman, 2015). While, offering tight credit policies by means of reduced receivable collection period will force customers to pay earlier, thus leads to the increased profitability (García-Teruel & Martínez-Solano, 2007a; Pais & Gama, 2015).

As the volume of purchases increases, average payment period expands. While extending credit, suppliers may pass opportunity cost or cost of any cash discount to their buyers. In this regard, unawareness of buyer firms regarding such cost may lead to incorrect financing decisions. Suppliers offer credit terms which include cash discount for payment earlier than the maturity. Credit terms offered by suppliers include cash discount if the payment is made within a specified period. A trade-off is involved as the buyer firm has to decide whether or not to avail the discount. A buyer has benefit of less cash outflow, if takes discount by early payment (i.e. reducing average payment period). However, in this case, buyer could no more enjoy the supplier credit beyond discount period. In other case, by paying late, firm can enjoy extended credit period (average payment period) but forego the cash discount. If the firm does not avail cash discount, it incurs an opportunity cost when it does not avail cash discount (Pandey, 2015). Conclusively, mismanagement in inventory conversion period, average collection period and average payment period results in the tied up of cash, which generates no return but increases cost of capital (Zeidan & Shapir, 2017).

In addition, high investment in net working capital provides benefits particularly to low level of net working capital. However, like any investment, it may require external financing which involves opportunity costs and financing costs (Kieschnick *et al.*, 2013). Moreover, it might hamper firms to invest in the profitable projects and decrease firm profitability (Ek & Guerin, 2011). Lower net working capital may decrease the firms' financial flexibility and lower the financing needs to fund its operations in the long run. Indeed, financial flexible firms are capable of taking investment opportunities (Denis & Sibilkov, 2009).

Despite its theoretical appeal, numerous empirical studies, in the last two decades, across globe, have focused the influence of working capital

components (e.g., inventory conversion periods, receivables and payables) on firm performance. Some studies found negative relationship (García-Teruel & Martínez-Solano, 2007b; Padachi, 2006), while others maintain that a positive relationship with firm performance (Nobanee, 2009). Relative to the developed countries, role of working capital management is largely neglected for developing countries.

In India, Bhatia and Srivastava (2016) determine the relationship between working capital management and firm performance in 179 Indian listed firms during the fourteen (14) year period, from 2000-2014. They estimated the firms' panel data using the ordinary least squares, fixed-effects, random-effects model and generalized method of moments (GMM). The result of their study showed that average collection period and average payment period have significantly positive impact and inventory conversion period significantly and negatively impact the firm performance.

In Malaysia, Wasiuzzaman (2014) examine the working capital management and firm performance relationship for 160 manufacturing firms. He found the negative relationship between components of working capital and firm performance. Similarly, in Finland, Enqvist, Graham, and Nikkinen (2014) also found the negative relationship between working capital management and firm performance.

In Iran, Vahid, Elham, Mohsen, and Mohammadreza (2012) focused on the 50 firms for the period 2006-2009. Results of multiple regression revealed the statistically significant and negative relationship between working capital management and firm performance. Moreover, study concluded that managers of Irish firms can increase the performance by reducing the average payment period, inventory conversion period and average collection period. In addition, several authors, Deloof (2003), Raheman and Nasr (2007), García-Teruel and Martínez-Solano (2007b), Napompech (2012) and Salawu and Alao (2014) found the significant and negative relationship between working capital management and firm performance in different countries using different methodologies.

In Pakistan, Tahir and Anuar (2015) used data for 127 listed textile firms from 2001 to 2012. The study revealed that ICP and APP have statistically significant and positively related to firm performance while ACP significantly and negatively affect firm performance. The study recommended that designing and implementing



effective working capital policies leads to increased firm performance.

Kasuma (2018) examines the Indonesian manufacturing firms from 2010 to 2014. Study showed mixed results. Current ratio, APP and ROA are negatively correlated, while ITO and networking capital are positively correlated with ROA. Other authors have also concluded that different components of working capital significantly affect firm's performance (Samiloglu & Akgün, 2016).

Based on the above literature, the following hypotheses are developed,

- H1: There is a relationship between ICP and ROA.
 H2: There is a relationship between ICP and TQ.
 H3: There is a relationship between ACP and ROA.
 H4: There is a relationship between ACP and TQ.
 H5: There is a relationship between APP and ROA.
 H6: There is a relationship between APP and TQ.

3. Methodology

This study uses the data of all non-financial firms listed on the Pakistan Stock Exchange (PSX). A sample of 199 firms with complete variables data is selected for this study. Data is extracted from DataStream from year 2006-2016. DataStream is claimed as one of the established providers of accounting and marketing data of firms (Lara, Osma, & Noguer, 2006). DataStream contains the data for balance sheet, profit and loss and cash flow statement information for companies in the majority of countries.

The literature suggests numerous ways to measure firm performance. Accounting-based measure of firm performance are widely used while market-based measures are neglected often. Hence, this study uses Return on Assets (ROA) and Tobins' Q (TQ) as the dependent variables following (Nurein, Din, & Mohd Rus, 2015). ROA measures the companies' earnings based on their total assets; thus, this ratio is assumed to assess the profitability and performance for the firm. TQ reflects the market-based measure of firm performance. TQ value between zero and one implies that costs involved to replace the firms' assets are higher than their market value. In contrast, if ratio of Tobin's Q is higher than one it implies the possibility of high market value, higher growth and leads to better performance (Smirlock, Gilligan, & Marshall, 1984). Inventory conversion period (ICP), average collection period (ACP) and average payment period (APP) are the independent variables while firm size and sales growth are control variables.

Correlation and multiple regression analysis are used to examine the effect of working capital management on firm performance. Correlation analysis describes the relationship between sample variables. Since, the correlation analysis does not clearly indicate about directional relationship between the variables, the ordinary least square method (OLS) with fixed-effect model are used.

The models are as follows;

$$ROA_{it} = \alpha_0 + \beta_1 ICP_{it} + \beta_2 ACP_{it} + \beta_3 APP_{it} + \beta_4 FA_{it} + \beta_5 SG_{it} + \varepsilon_{it}$$

$$TQ_{it} = \alpha_0 + \beta_1 ICP_{it} + \beta_2 ACP_{it} + \beta_3 APP_{it} + \beta_4 FA_{it} + \beta_5 SG_{it} + \varepsilon_{it}$$

where α_0 is the constant, and $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are regression coefficient, while ε_{it} is the error term Table 1 defines the variables used in this study.

Table 1. Variable Definition

Variable	Label	Name	Definitions
Dependent Variable			
Firm Performance	ROA	Return on Assets	$\frac{\text{Net Profit}}{\text{Total Assets}}$
	TQ	Tobins' Q	$\frac{\text{Market Value of Equity} + \text{Book Value of Debt}}{\text{Book Value of Assets}}$
Independent Variables			
Working Capital	ICP	Inventory Conversion Period	$\frac{\text{Inventory} \times 365}{\text{Cost of Goods Sold}}$



Variable	Label	Name	Definitions
	ACP	Average Collection Period	$\frac{\text{Account Receivables}}{\text{Net Sales}} \times 365$
	APP	Average Payment Period	$\frac{\text{Account Payables}}{\text{Purchases}} \times 365$
Control Variables	FA	Firm Age	A number of activity years since the establishment of company up to observation date
	SG	Sales Growth	$\frac{\text{Current year's Sales} - \text{Previous year's sales}}{\text{Previous year's sales}}$

4. Analysis and Discussion of Result

Table 2. Descriptive Statistics

	Mean	Maximum	Minimum	Std. Dev.
ROA	0.05	0.50	-0.48	0.09
TQ	1.12	10.25	-15.11	1.08
ICP	4.27	5.93	-1.83	0.86
ACP	3.58	6.28	-2.90	1.03
APP	3.35	6.32	-4.61	1.21
FA	16.18	28	1.00	4.79
SG	0.14	15.48	-0.91	0.54

Table 2 shows that mean value of ROA is 0.05, the minimum value is -0.48, while the maximum value is 0.50. The value of standard deviation is 0.09. Relatively, the mean value of TQ is 1.12, the minimum value is -15.11, the maximum value is 10.25 while the value of standard deviation is 1.08. The negative minimum value of performance measure is attributable to the firms' loss which could be traced to the factors as inadequacy of power resources to sectors and high interest rates. ICP shows a mean value of 4.27, ACP shows a mean value of 3.58 while APP has a mean value of 3.35. The mean value of firm age is 16.18, minimum is 1 and maximum is 28. Finally, the mean value of sales growth is 0.14. The minimum value is -0.91 and the maximum value is 15.48.

Table 3. Correlation Matrix

	ROA	TQ	ICP	ACP	APP	FA	SG
ROA	1						
TQ	0.09	1					
ICP	0.09	0.06	1				
ACP	-0.19	-0.08	-0.04	1			
APP	-0.27	-0.08	0.05	0.21	1		
FA	0.05	0.01	0.08	-0.04	0.11	1	
SG	0.08	0.01	-0.03	-0.09	-0.03	-0.08	1

Source: Author's Computation

Table 3 shows the correlation matrix of the variables. ICP is positively correlated with ROA; while ACP and APP are negatively correlated with ROA and TQ. ICP has a positive relationship with TQ, while ACP and APP have a negative correlation with TQ.

After finding the correlation between variables, we estimated both fixed-effect model and random-effect model. Hausman test is applied to select between fixed-effect model and random-effect model. Hausman's test resulted in the selection of fixed method estimation. Estimation results for both models are presented in Table 5.4.

**Table 4. Fixed Effect Estimation Results**

	ROA		TQ	
	FE Model		Fixed Effect	
C	0.239**	0.195**	0.817*	1.163**
ICP	-0.018**	-0.015**	0.183*	0.161*
ACP	-0.018**	-0.019**	-0.162**	-0.146**
APP	-0.009**	-0.009**	0.039***	0.052***
FA		0.002*		-0.021
SG		0.006		-0.011
R Square	0.574	0.580	0.321	0.324
Adj. R Squared	0.526	0.532	0.244	0.247
S.E Regression	0.058	0.057	0.886	0.884
F statistics	11.928	12.080	4.189	4.193
Prob. Value	0.000	0.000	0.000	0.000
Observation	1990	1990	1990	1990

Note: * represents significance at 1 % **significant at 5 % and *** significant at 10%

Table 4 shows the regression results when ROA and TQ are used as dependent variable. Adjusted R² for ROA model shows that working capital management variables are explaining 53% of variance in the model. In ROA model, excluding control variables, ICP, ACP and APP have negative significant effect on ROA. After adding control variables, firm size and sales growth have a positive effect on ROA, while ICP, ACP and APP have negative significant effect on ROA. Negative relationship between ICP and ROA is consistent with the findings by Singhania, Sharma, and Rohit (2014) and Samiloglu and Akgün (2016) while contrast the findings by Tahir and Anuar (2015). Based on the fixed effect results for dependent variable ROA, H1, H3 and H5 are accepted.

For TQ model, working capital management variables are explaining 24% of the variance. Without control variables, ICP, ACP and APP have negative significant effect on TQ while with controlling the effect of firm size and sales growth, ICP and APP significantly and positively influenced the TQ, consistent with the findings by Nurein *et al.* (2015) and inconsistent with the findings by Zhang, Chen, and Yu (2017). ACP, firm age and sales growth have negative effect on TQ. Based on the fixed effect results for dependent variable TQ, H2, H4 and H5 are accepted.

5. Conclusion

A significant proportion of financial decisions are associated with management of working capital, therefore working capital management requires careful analysis to avoid a liquidity crisis (Bagh, Nazir, Khan, Khan, & Razzaq, 2016; Ukaegbu,

2014). Working capital management increases the operating efficiency, competitiveness and thus overall performance of firms. In this context, this study aims to reveal the relationship between working capital management and firm performance by using the data of the Pakistani listed non-financial firms.

Previous research predicts negative significant relationship between ICP and ROA (Mansoori & Muhammad, 2012). Managers can increase firm performance by reducing the inventories levels at optimal level since the results revealed that performance increases with decreased ICP. Higher ICP leads to the increased storage cost. Similarly, ACP significantly and influence the ROA, in line with previous studies (Dong & Su, 2010; Mansoori & Muhammad, 2012; Mathuva, 2010). This implies that firms' managers can increase performance value by reducing the receivable collection period. Furthermore, there is negative relationship between APP and ROA which implies that firms have to pay earlier to their suppliers to maintain the good buyer supplier relationship and increase firm performance. Taking longer time to pay suppliers may strain their business relationship.

There is a significant positive relationship between ICP and TQ in line with the findings of other studies on conservative working capital policies. This implies that maintaining lower inventory levels may lead to the loss of business due to scarcity of products and increase the cost of interruptions in the production process. ACP portrays a negative relationship with TQ which implies that non-financial firms in Pakistan will



increase their performance by reducing average collection period. Findings of Dong and Su (2010) also stresses the significance of reducing the average collection period to enhance firm performance.

APP has statistically significant and positive relationship with TQ. This supports the notion that greater payment period leads to the greater market-based firm performance. Indeed, firms with high profitability levels pay their suppliers earlier relative to the firms with less profitability levels (Abuzayed, 2012; Bagchi, Chakrabarti, & Roy, 2012). The control variables, sales growth and firm age are important factor in improving firm performance. Both are positively related with ROA while negatively related with TQ.

The findings of this study play a vital role for firm managers, financial institutions, entrepreneurs, academic researchers and business consultants. Particularly, managers can improve the firm performance by improving the working capital management. Results of the study extends the literature by identifying how accounting-based and market-based performance is affected by their working capital policies. For future researchers, the study can be improved by adding different firm-specific variables, market-specific or country-specific variables for working capital management. It might prove a strong relationship between those variables and performance of Pakistani firms which could be helpful for other developing economies.

References

- Abuzayed, B. (2012). Working capital management and firms' performance in emerging markets: The case of Jordan. *International Journal of Managerial Finance*, 8(2), 155-179.
- Bagchi, B., Chakrabarti, J., & Roy, P. B. (2012). Influence of working capital management on profitability: a study on Indian FMCG companies. *International Journal of Business and Management*, 7(22), 1-10.
- Bagh, T., Nazir, M. I., Khan, M. A., Khan, M. A., & Razaq, S. (2016). The impact of working capital management on firms financial performance: Evidence from Pakistan. *International Journal of Economics and Financial Issues*, 6(3), 1095-1105.
- Bhatia, S., & Srivastava, A. (2016). Working Capital Management and Firm Performance in Emerging Economies: Evidence from India. *Management and Labour Studies*, 41(2), 71-87.
- Bhunja, A. (2010). A trend analysis of liquidity management efficiency in selected private sector Indian steel industry. *International Journal of Research in Commerce and Management*, 1(5), 48-53.
- Deeds, D. L., DeCarolis, D., & Coombs, J. E. (1998). Firm-specific resources and wealth creation in high-technology ventures: Evidence from newly public biotechnology firms. *Entrepreneurship Theory and Practice*, 22(3), 55-73.
- Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? *Journal of Business Finance & Accounting*, 30(3-4), 573-588.
- Denis, D. J., & Sibilkov, V. (2009). Financial constraints, investment, and the value of cash holdings. *The Review of Financial Studies*, 23(1), 247-269.
- Dong, P. H., & Su, J.-t. (2010). The Relationship between Working Capital Management and Profitability: A Vietnam Case. *International Research Journal of Finance and Economics*, 49, 60-67.
- Dubofsky, P., & Varadarajan, P. R. (1987). Diversification and measures of performance: Additional empirical evidence. *Academy of management journal*, 30(3), 597-608.
- Ek, R., & Guerin, S. (2011). Is there a right level of working capital? *Journal of Corporate Treasury Management*, 4(2), 137-149.
- Enqvist, J., Graham, M., & Nikkinen, J. (2014). The impact of working capital management on firm profitability in different business cycles: Evidence from Finland. *Research in International Business and Finance*, 32, 36-49.
- García-Teruel, P. J., & Martínez-Solano, P. (2007a). *A dynamic approach to accounts receivable*. Paper presented at the Empresa y sociedad [Recurso electrónico]: respondiendo al cambio: comunicaciones presentadas.
- García-Teruel, P. J., & Martínez-Solano, P. (2007b). Effects of working capital management on SME profitability. *International Journal of Managerial Finance*, 3(2), 164-177.
- Kieschnick, R., Laplante, M., & Moussawi, R. (2013). Working capital management and shareholders' wealth. *Review of Finance*, 17(5), 1827-1852.
- Lara, J. M. G., Osmá, B. G., & Noguera, B. G. D. A. (2006). Effects of database choice on international accounting research. *Abacus*, 42(3-4), 426-454.
- Lyngstadaas, H., & Berg, T. (2016). Working capital management: evidence from Norway. *International Journal of Managerial Finance*, 12(3), 295-313.



- Mansoori, D. E., & Muhammad, D. (2012). The effect of working capital management on firm's profitability: Evidence from Singapore. *Interdisciplinary of Contemporary Research in Business*, 4(5), 478-486.
- Mathuva, D. (2010). The influence of working capital management components on corporate profitability: a survey on Kenyan listed firms. *Research Journal of Business Management*, 4(1), 1-11.
- Napompech, K. (2012). Effects of working capital management on the profitability of Thai listed firms. *International Journal of Trade, Economics and Finance*, 3(3), 227-232.
- Nobanee, H. (2009). Working capital management and firm's profitability: an optimal cash conversion cycle. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1471230.
- Nuhiu, A., & Dërmaku, A. (2017). A Theoretical Review on the Relationship between Working Capital Management and Company's Performance. *Acta Universitatis Danubius. Economica*, 13(3), 56-69.
- Nurein, S. A., Din, M. S., & Mohd Rus, R. (2015). Nonlinear relationship between investment in working capital and performance: Innovative evidence from food and beverages industry. *European Journal of Economics, Finance and Administrative Sciences*(77), 64-72.
- Padachi, K. (2006). Trends in working capital management and its impact on firms' performance: an analysis of Mauritian small manufacturing firms. *International Review of business research papers*, 2(2), 45-58.
- Pais, M. A., & Gama, P. M. (2015). Working capital management and SMEs profitability: Portuguese evidence. *International Journal of Managerial Finance*, 11(3), 341-358.
- Pandey, I. M. (2015). *Financial Management* (11 ed.): Vikas Publishing.
- Petersen, M. A., & Rajan, R. G. (1997). Trade credit: theories and evidence. *Review of Financial Studies*, 10(3), 661-691.
- Raheman, A., & Nasr, M. (2007). Working capital management and profitability—case of Pakistani firms. *International Review of business research papers*, 3(1), 279-300.
- Rehman, M. U., & Anjum, N. (2013). Determination of the impact of working capital management on profitability: an empirical study from the cement sector in Pakistan. *Asian Economic and Financial Review*, 3(3), 319-332.
- Salawu, R., & Alao, J. (2014). Determinants of working capital management: Case of Nigerian manufacturing firms. *Journal of Economics and Sustainable Development*, 5(14), 49-56.
- Samiloglu, F., & Akgün, A. İ. (2016). The relationship between working capital management and profitability: Evidence from Turkey. *Business and Economics Research Journal*, 7(2), 1-14.
- Shin, H.-H., & Soenen, L. (1998). Efficiency of working capital management and corporate profitability. *Financial practice and education*, 8, 37-45.
- Singhania, M., Sharma, N., & Rohit, J. Y. (2014). Working capital management and profitability: evidence from Indian manufacturing companies. *Decision*, 41(3), 313-326.
- Smirlock, M., Gilligan, T., & Marshall, W. (1984). Tobin's q and the Structure-Performance Relationship. *The American economic review*, 74(5), 1051-1060.
- Tahir, M., & Anuar, M. B. A. (2015). The determinants of working capital management and firms performance of textile sector in Pakistan. *Quality & Quantity*, 50(2), 605-618.
- Ukaegbu, B. (2014). The significance of working capital management in determining firm profitability: Evidence from developing economies in Africa. *Research in International Business and Finance*, 31, 1-16.
- Vahid, T. K., Elham, G., Mohsen, A. k., & Mohammadreza, E. (2012). Working capital management and corporate performance: evidence from Iranian companies. *Procedia-Social and Behavioral Sciences*, 62, 1313-1318.
- Vishnani, S., & Shah, B. K. (2007). Impact of working capital management policies on corporate performance—An empirical study. *Global Business Review*, 8(2), 267-281.
- Wasiuzzaman, S. (2014). Analysis of corporate cash holdings of firms in Malaysia. *Journal of Asia Business Studies*, 8(2), 118-135.
- Wisner, J. D., & Eakins, S. G. (1994). A performance assessment of the US Baldrige Quality Award winners. *International Journal of Quality & Reliability Management*, 11(2), 8-25.
- Yazdanfar, D., & Öhman, P. (2015). The impact of credit supply on sales growth: Swedish evidence. *International Journal of Managerial Finance*, 11(3), 329-340.
- Zeidan, R., & Shapir, O. M. (2017). Cash conversion cycle and value-enhancing operations: Theory and evidence for a free lunch. *Journal of Corporate Finance*, 45, 203-219.
- Zhang, X., Chen, S., & Yu, S. (2017). Trends in working capital management and its impact on firms' performance—An analysis of SMEs. *Research on Modern Higher Education*, 3, 47-54.