LIQUIDITY MANAGEMENT AS AN EFFECT TO OPERATIONAL PERFORMANCE AND FIRM VALUE

Rony Uncok Cahyadi(*)
STIE GICI

Abstract

Classical theory affirms that effective liquidity management will increase operational performance and firm value. The purpose of this research is to verify the correctness of the theory, by examined the effect of liquidity management to operational performance and firm value. Liquidity management which is examined in this research using the measurement variable of Cash Conversion Cycle (CCC), while the variable for measuring operational performance using ROA, and for the measurement variable of firm value using Tobin's Q ratio. The sample used in this research is 102 firms listed on the IDX, from the manufacturing industry. The data from this research were obtained from the company's annual financial statements for the period of 2023. The analyze method in this research using multiple linear regression model to examining the data variables. The results of this research find that liquidity management is negative, but not correlation and not effect to operational performance, while on firm value it is negative and has a weak correlation and may be effected by liquidity management. The result of examines the effect of liquidity management to operational performance in this research not match the expected result, which is due to the small average of the ROA ratio, this shows that the firm sampled in this research are able to manage their liquidity well, indicated by ability to shorten the Cash Conversion Cycle time, but not equal with the firm's ability to maximize the utilization of its own assets to earn profits.

Keywords: Cash Conversion Cycle, Firm Value, Liquidity Management, Operational Performance

(*) Korespondensi: *ronyucahyadi@gmail.com* (R.U. Cahyadi)

INTRODUCTION

Liquidity is a financial metric to ensuring that a firm have ability to pay off liabilities, and to make a continous flow of funds can be guaranteed from profitable ventures. The importance of cash as an indicator of suistanable financial health is not be surprising in view its crucial role in the business. This requires that business must be run efficiently and effectively (Anjum dan Malik, 2013). Liquidity management can be interpreted as a cycle of changing working capital into cash in one firm's operational cycle, so that the cycle can be in line with the firm's daily operational activities, it is necessary to manage the sources and uses of cash so that the source of funds in the form of cash can be used effectively and efficiently, and can be used as a basis for planning future the firm's activities (Almeida, et al, 2013).

Liquidity management has become an essential aspect of cash flow management as businesses increasingly endeavor to optimize their working capital. More firms operating their businesses on tight margins, it is critical to understand the importance of liquidity and manage it effectively (Das, 2017). Liquidity management is the proactive process of ensuring a firm has the cash on hand to meet its financial obligations as they fall due. It is a critical component of financial performance as it directly impacts a firm's working capital (Karthika, 2020). Firms that have ability to managing their liquidity well, be able to pay better dividends, and usually do not face overtrading and under capitalization problems. They invest excess cash in the right options and can manage financing sources if they face financial distress (Faque, 2022).

The main problem for the firm is the ability to maintain and manage liquidity to be in an optimal position, because by maintaining and managing its liquidity in an optimum position means that the firm's operational performance can be maintained properly and also the firm value can be improved. The firm must be able to determine the amount of liquidity level that be required, and to determining the amount of liquidity level neede is by calculating the cash turnover, in this case what is measured is the amount of time from the cash cycle for a year. According to Eke & Ringin (2022), in managing the liquidity, the firm has to maintain the proper level of working capital, because insufficient working capital will be a worsening situation to the firm's operation. To ensure that liquidity was maintained and managed well, the firm can do several methods below:

1. Reducing the amount of time of the goods in inventory, by improving the process of monitoring inventory or suppliers shipping raw materials during the production process.
2. Accelerate the accounts receivable collection process, by offering discounts to customers who make early payments, and charging interest to customers who make late payments
3. Delaying time in payments debt.

Hutchinson et.al (2007), states that appropriate liquidity management has been recognized as one of the most important aspects of financial management due to the substantial trade-off between risks and returns connected with managing the current assets and current liabilities One of the most important parts of liquidity management is financial management, both for the short-term and long-term financing. The

difference between financial management lies only in the period of cash flow, short-term financial management is the management of cash inflows and outflows for one year, while long-term financial management is the management of cash inflows and outflows for more than one year.

Therefore, in managing liquidity, the firms must be able to optimize their liquid assets, because the more liquid a firm is, the less probably that the firm will have difficulties to pay off their liabilities or buying the assets which is needed (Saksonova, & Savina, 2016). In order to manage liquidity, the firm needs to conduct an analysis of liquidity management to see how far the effectiveness and efficiency of liquidity management to turned assets into cash in short term and can support the firm's performance. The analysis will be able to assist the firm in implementing its policies. There are several method of analysis that can be used in analyzing the firm's ability to manage its liquidity, one of analysis models that modern and easy-to-use is the Cash Conversion Cycle (Goldmann, 2017).

To improve operational performance which will have an impact on firm's profits and value, the firm must be able to shorten the time of Cash Conversion Cycle, because firm that have a shorter Cash Conversion Cycle are able to collect the cash needed for the firm's daily operations, so there is no need to use external funding sources, which means there is no cost for borrowing funds, or in other words that the firm's expenses will be reduced and this will increase firm's profits (Anser dan Malik, 2013). Based on the problem above, it can be concluded that the firm's ability to manage the cash, its means that the firm have ability to manage liquidity, and it will have effect to increasing the operational performance and firm value. For those reasons, this research attempt to replicate the existing research, by taking a sample in the manufacturing industry in Indonesia, to ensure that there is a relationship and effect between the firm's abilitty to manage the liquidity with the firm's ability to increasing the operational performance and the firm value (Yasir, et al. 2014).

According to Uyar (2009), the Cash Conversion Cycle measures the period of time between cash payments for inventory purchases and collection of receivables from customers, this measure illustrates the firm's ability to convert its products into money, through sales which will effect the amount of funds required to be held in current assets. Other opinion come from Wang (2019), Cash Conversion Cycle is the time-lag between the disbursement for the purchase of raw materials and the collection from the customers of the sale of finished goods. The less time working capital is tied up in the business process, the better it will be for the firm's operational flow, or in other words, the shorter the time required in a business process, the more liquid the firm will be (Padachi, 2006).

Zeidan & Shapir, (2017), in their research, states that the Cash Conversion Cycle, controlling for effects on operating margins, increasing the cash flow and higher stock returns and profitability ratios, and another opinion came from Wang (2019), that the Cash Conversion Cycle is equal to the time it takes to sell inventory and collect receivables less the time it takes to pay the firm's payables, it represents the number of days that a firm's cash is tied up within the operation of the business, or a cash flow mechanism that focuses on the time required by the firm in issuing and receiving cash flows. From those opinions, the Cash Conversion Cycle is the net time

distance between actual cash expenditures on the purchase of production resources and the recovery of cash receipts from product sales. It be concuded that the Cash Conversion Cycle is a method for the firm to manage their liquidity, because the measurement model using the Cash Conversion Cycle is not only more dynamic, but it uses data contained in both of the statement of financial position and income statement, also uses the time dimension in a period so that the results obtained are more representative of the firm's condition and it will assist management in conducting analysis to make strategic decisions for the firm. For manufacturing industries, Cash Conversion Cycle show the span of time between cash payment for raw materials and resalable products and the converting of receivables into cash generated from the sale of those goods.

In measuring the effect of liquidity management to operational performance, this research using Return on Assets (ROA) as the first dependent variable, because the measurement of the firm's operational performance is based on the profits obtained by the firm, through the productivity of the utilization of its assets. Return On Assets is a ratio used to measure the firm's ability to generate profits, through returns on the firm's assets. The higher the return on assets means the higher the amount of net profit generated from each rupiah of funds embedded in total assets. Return on Assets is the fundamental balanced metric resulting from accrual accounting in assets utilization. According to Garcia, et.al (2007), Return On Assets is a ratio that shows the return on a number of assets used by the firm in its operations.

Return on Assets is obtained from the efficiency, effectiveness, and competence of the management in utilization its assets to productive usage (Ho and Zhu, 2004). According to Ongore and Kusa (2013), Return On Assets expresses the firm's ability to generating profit as a consequence of the productive usage of resources and effective management, another opinion came from Hull and Rothenberg (2008), which stated that Return On Assets represent the profitability of the firm with respect to using the total of resources and assets, under its control. The higher Return On Assets means the firm's performance more efficient and effective, because the rate of return will be increase too. This will further enhance the firm's attractiveness to investors, or the firm increasingly in demand by investors, because the high Return On Assets can provide high return for investors. In other words, Return On Assets will have an effect to increasing returns of stocks that will be accepted by investors. Based on research of Tsolas *et.al* (2015), the firm's ability to manage the waste product, and pollution management, and also at the same time put the assets to an effective utilization will reflect on the profitability and returns of the establishments .

The use of Return On Assets as a dependent variable in financial analysis has a very important meaning, because it is one of the methods that is comprehensive, and is also an analytical techniques that is usually used to measure the level of effectiveness of the firm's activities, by using the Return On Assets measurement in assessing the firm's operational performance, it will help the firm to ensure that accurate and correct accounting practices have been conducted, to measure the effectiveness and efficiency of the use of capital on every matter that affects the firm's financial condition, so that the firm's position can be known against similar industries. The conclusion obtained from above that the operational performance (ROA) is the

ability of management to maximize the firm's profitability by improving utilization of the assets through successful business operations.

The other dependent variable used in this research to measuring firm value is Tobins Q. From the previous research, found that Tobin's Q is used to assess firm value, similar with this research, because the Tobin's Q measurement is simple, and has much appeal in investment circles for investors and analysts to explain the complex economic and business relationships. On the other hand, Tobin's Q was quickly adopted by a variety of different fields within economics, including micro-economics, finance and the research of investment. Tobin's Q reflects the intellectual capital of firms.

According to Daniliuc & Wee (2020), Tobin's q ratio is the difference between the market value of assets and the book value of assets, its mean that Tobin's Q is a ratio that describes the firm value in the form of firm assets. Tobin's Q ratio also describes the firm's ability to utilize and manage its resources or assets to maximize the profits earned by the firm. The reason why firm value is important, because there is a oportunity for firm to growth in the future; to know the level of firm in the industry; to asses the firm's activity; and also for the relative ability of the firm to sustain its business and to keep its market share. Tobin's Q ratio is a valuable concept, because the measurement using Tobin's Q can show the relationship between financial market estimates and the value of investment returns. If the calculation of this ratio has a value equal to one, it means that the firm is good at generating firm value, while if it is less than one means that the firm value is not good, if the ratio is more than one, then the firm value is very good. Tobin's q calculation is a predictor of firm's ability in the future to maximizing the profitability (Verona, F. 2020), therefore to calculate the Tobin's Q ratio used the measurement method from previous researchs, its intended to be adjusting to the condition of the company's financial statements to obtain more correct and accurate results to describe the firm value.

The reason this research using manufacturing industry as a sample, because the manufacturing industry has a huge impact to the economic growth. According to Triepels et al. (2021), the nations that possess a productive manufacturing industry system tend to develop and grow their economy more rapidly.

RESEARCH OBJECTIVE

The objective of this research is to verify the correctness of the theory, by examined the effect of liquidity management to operational performance and firm value.

RESEARCH METODOLOGY

This study aims to examine the effect of liquidity management on operational performance and firm value, using Cash Conversion Cycle (CCC) as the main measure. Several previous research have shown mixed results depending on the sample and research context used (Deloof, 2003; Gill et al., 2010). Therefore, this study

re-examines the relationship with the expectation that CCC has a significant negative correlation to operational performance and firm value, where the shorter the CCC, the higher the operational performance and firm value (Wang, 2002).

The research hypothesis is formulated as follows:

H1: The length of the Cash Conversion Cycle (CCC) has a negative effect on operational performance.

H2: The length of the Cash Conversion Cycle (CCC) has a negative effect on company value.

The sample in this study was 102 manufacturing companies listed on the Indonesia Stock Exchange (IDX) in 2023. The sample selection was carried out using the purposive sampling method based on the following criteria:

1. Manufacturing companies that consistently publish annual financial reports during the study period.
2. Companies that have complete data related to CCC, operational performance, and company value.
3. Excluding companies experiencing extreme financial conditions, such as bankruptcy or major restructuring.

The data used in this research were obtained from the company's annual financial reports accessed through the official website of the Indonesia Stock Exchange and other secondary sources such as Bloomberg and Refinitiv Eikon. This research using multiple linear regression analysis method to examines the relationship between independent and dependent variables. The regression model used is formulated as follows:

$$OP_{it} = \beta_0 + \beta_1 CCC_{it}$$

$$FV_{it} = \beta_0 + \beta_1 CCC_{it}$$

OP = Operational Performances using ROA measurements

FV = Firm Value using Tobin's Q

CCC = Liqudity Management using Cash Conversion Cycle

Data analysis is conducted using statistical software SPSS to test the significance of CCC's effect on operational performance and firm value.

DATA ANALYSIS AND DISCUSSION OF RESULTS

Based on descriptive statistical examining of the entire total sample used, the results show that the average of Cash Conversion Cycle is 40.12 days, while examining for operational performance, obtained the result of ROA is 1.36, and the test results for the Tobin's Q ratio is 1.76, see Table 1 below:

Table 1. Descriptive Statistic Test

Industry	Statistics	CCC	ROA	Tobins Q
Manufacture	Mean	40.12	1.36	1.76
	Std Deviation	259.41	9.56	5.06
	Minimum	-592.26	-0.29	-1.67
	Maximum	1789.56	85.85	39.83

Description : CCC = Cash Conversion Cycle, ROA = Return On Assets, Q = Tobin's-Q.

Meanwhile the data seen in Table 2 below, it shown that there is positif not correlation at α = 5% between CCC and Tobin's Q, indicated by the Pearson r value of 0.297, but the different result is found in the relationship between CCC and ROA there is negative correlation at α = 5%, this is indicated by the Pearson r value for ROA of -0.004. Based on the results of the analysis using Sig (2-tailed), it can also be concluded that there is not significant correlation between CCC and ROA, which is indicated by Sig. (2-tailed) of 0.483, that indicates that the length or shortness of CCC time may not affect the operational performance, and for firm value using the Tobin's Q ratio, it can be concluded that there is negative correlation between CCC time and firm value, this is in accordance with the results of Sig. (2-tailed) of 0.458, which indicates that there is no relationship between the CCC time with firm value, it means more better liquidity management, not makes the firm value will also be higher, or its mean that the agrresive liquidity management have no effect to the increasing or decreasing the firm value. Beside that, from Table 2, there is a correlation at α = 5% between the independent variable CCC with ROA and as a dependant variable, this indicates that the better of liquidity management in a firm, it may have effect to the operational performance, but not for firm value.

Table 2. Pearson Coefficient Correlation Test

	CCC	ROA	Tobin's Q
CCC	1.000		
ROA Sig. (2-tailed)	-0.004 (0.483)	1.000	
Tobin's-Q Sig. (2-tailed)	0.297 (0.001)	-0.011 (0.458)	1.000

Significant Correlation at the α = 5 % (2-*tailed*)
Number in parentheses indicates *p-value*

From the results of that conducted for the type of partial significance testing (t-test and f-test) to examines the effect of the Cash Conversion Cycle to operational performance and firm value, using linear regression contained in Table 3, it can be concluded that based on the results of the t-test of CCC-ROA at α = 5%, this can be

seen from the significant probability for CCC of 0.483 which is higher than 0.05 or in other words CCC may has effect to operational performance.

Meanwhile in Table 4 it can be seen that for the t-test and f-test on Tobin's-Q, as a dependant variabel for CCC the difference result is obtained, there is significant correlation at α = 5%. This can be seen from the significance probability of the two variables, which is 0.001 or much lower than 0.05, in other words, CCC time has no effect to Tobin's-Q or firm value significantly.

Table 3. Linear Regresision of CCC-*Return On Assets*

	Expected Sign	Unstandardized Coefficient	t	Sig.
		B		
(Constant)		4.713	6.244	< 0.001
CCC	-	-1.743	-0.0625	0.483
Adjusted R-squared	-0.020			
F-statistic	0.040			

ROA = Return On Assets; CCC = Cash Conversion Cycle;
significant at the α = 5%

Table 4. Linear Regression of CCC-*Tobin's -Q*

	Expected Sign	Unstandardized Coefficient	t	Sig.
		B		
(Constant)		3.751	4.051	< 0.001
CCC	-	- 15.330	-2.909	0.001
Adjusted R-squared	0.135			
F-statistic	8.615			

Q = Tobin's-Q; CCC = Cash Conversion Cycle;
signficant at the α = 5%

For hypothesis 1, the effect of CCC to ROA, the results of this research provide the different results as some of the previous research for the relationship between CCC – ROA, that a short CCC will have a significant effect to increasing the operational performance and this can be illustrated through the profits obtained by the firm. In this research the result obtained, that there was negative correlation not significant between CCC and ROA, it can be concluded that this research not meet the expectation, that there is a relationship between CCC and ROA, which is indicated by short CCC and high ROA. Some other research contradict the result of this research, e.g Padachi (2006), Garcia et.al (2007), Uyar (2009) and Owolabi et.al (2012), which state that liquidity management has a negative correlation to operational performances using ROA measurements.

The difference results in this research in the examines of ROA ratio compare with the previous research, that there is negative correlation, but not significant between CCC and operational performance, its because the examine is not conducted as a whole, but only based on one type of industry, its the manufacturing industry. In addition, there are limitations in the time period used, which is only 1 (one) year and other factors as stated by previous researchers in their research results which state that the results obtained do not apply generally to the whole industry, due to the affect of several external factors outside the firm such as the strength of competition, the distribution of product marketing and the selling value of products in the market and firms must also calculate external factors such as competitive environment and benchmarks of each type of industry. The results of the analysis of the effect of liquidity management to operational performance before, shown that liquidity that manage properly by the firm has effect to the increases or decreases operational performance of the firm.

For the hypothesis 2, the effect of liquidity management to firm value, the conclusion obtained is the firm that have a short CCC time, or the firm that have the ability to manage liquidity well, have no effect to increasing or decreasing firm value. The results of this analysis also show that good liquidity management not able to ehance the the firm value. Based on research of Wang (2002) and Vijayakumaran (2019), it was found that CCC has negative correlation to firm value. However, from this research results overall, it is concluded that the firm value is related to the firm's operational performance, or in other words, firm that have good operational performance with maximization of profits obtained, its mean not be able to increase the firm value and vice versa.

CONCLUSION AND RECOMMENDATION

The conclusion of this research that liquidity management using the Cash Conversion Cycle analysis model is negative correlation but not significant to the firm's operational performance, when measured using CCC-ROA analysis, its meaning that the firm's high operational performance is might be effected by the short Cash Conversion Cycle, or in other words, the firm's ability to generate shorten the Cash Conversion Cycle has effect but not significant to increasing the operational performance, while the effect of liquidity management to firm value, has a positive correlation and have no effect, measured by Tobin's Q ratio, it means that even the firm manages liquidity well, the firm value will not be increase.

The discrepancies in the research results imply that the connection between Cash Conversion Cycle with operational performance (ROA) and firm value (Tobin's-Q) may be more complex, depending on internal and external influences, such as the nature of the business, firm size, corporate culture, economic situation, management needs, the type of product solds and etc. From the research results, found that the firm's ability to manage liquidity affects the firm's ability to earn profit if examined by using the Cash Conversion Cycle, but this is not applicable for the firm value.

Reccomendation for further research should use several things that can be used as input, such as expanding the number of samples used by increasing the number of

samples, more and varied types of industries, increasing the number of years samples, and also dividing the research by type of industry and per sector of industry, so that the research results are more generalizable and better results will be obtained.

REFERENCES

Almeida, H., Almeida, H., Campello, M., Campello, M., Cunha, I., Weisbach, M. S., & Weisbach, M. S. (2013). Corporate Liquidity Management: A Conceptual Framework and Survey. *Social Science Research Network*. https://doi.org/10.2139/SSRN.2334300.

Anjum, S., & Malik, Q. A. (2013). Determinants of Corporate Liquidity - An Analysis of Cash Holdings. *IOSR Journal of Business and Management*. https://doi.org/10.9790/487X-07294100.

Anser, R., & Malik, Q. A. (2013). Cash Conversion Cycle and Firms' Profitability - A Study of Listed Manufacturing Companies of Pakistan. *IOSR Journal of Business and Management*. https://doi.org/10.9790/487X-0828387.

Daniliuc, S. O., Li, L., & Wee, M. (2020). Busy Directors and Firm Performance: Evidence from Australian Mergers. *Pacific-Basin Finance. Journal*, 64.

Das, S. (2017). Corporate Cash Management: A Study on Retail Sector. https://doi.org/10.5267/J.AC.2016.5.003 .

Deloof, M. (2003). Does Working Capital Management Affect Profitability of Belgian Firms? *Journal of Business Finance & Accounting, 30*(3-4), 573-588. https://doi.org/10.1111/1468-5957.00008.

Eke, C., & Ringin, K. J. (2022). Liquidity Management and Its Impact on Financial Performance of Quoted Consumer Goods Companies in Nigeria. *Conflict Management and Peace Science, 5*(2).

Faque, M. (2022). Cash Management Strategies and Firm Financial Performance. *Bussecon Review of Social Sciences*. https://doi.org/10.36096/brss.v3i4.295.

Garcia, Teruel, P., Martinez, and Solano, P.M. (2007). Effects of Working Capital Management on SME Profitability. *International Journal of Managerial Finance*, Vol. 3, pp. 164-177. https://doi.org/10.1108/17439130710738718.

Gill, A., Biger, N., & Mathur, N. (2010). The Relationship Between Working Capital Management and Profitability: Evidence from the United States. *Business and Economics Journal, 2010*(BEJ-10), 1-9.

Goldmann, K. (2017). *Financial Liquidity and Profitability Management in Practice of Polish Business*. https://doi.org/10.1007/978-3-319-39919-5_9 .

Ho, C. T., and Zhu, D.S. (2004). Performance Measurement of Taiwan's Commercial Banks. *International Journal of Production and Performance Management*, 53(5), 425-433. https://doi.org/10.1108/17410400410545897.

Hull. C.E and Rothenberg, S (2008). Firm Performance The Interactions of Corporate Social Performance with Innovation and Industry Differentiation. *Strategic Managemen Journal*, 29 (7): 781-789. **https://doi.org/10.1002/smj.675**.

Hutchinson, P. D., Farris II, M. T. and Anders, S.B. (2007). Cash-to-Cash Analysis and Management. *The CPA Journal*, Vol. 77 No. 8, pp. 42-47.

Indonesian Stock Exchange, available at: http//www.idx.go.id.

Ongore, V.O and Kusa, G.B (2013). Determinants of Financial Performance of Commercial Bank in Kenya. *International Journal of Economics and Financial Issues*. 3:257-252.

Owolabi, S. A., and Obida, S. S. (2012). Liquidity Management and Corporate Profitability: Case Study of Selected Manufacturing Companies Listed on The Nigerian Stock Exchange. *Business Management Dynamics*, 2(2), 10-25.

Karthika, A. (2020). Liquidity Management Practices Among Automobile Companies in India. *International Journal of Applied Research*.

Padachi, K. (2006). Trends in Working Capital Management and Its Impact on Firm's' Performance: An Analysis of Mauritian Small Manufacturing Firms. *International Review of Business Research Papers*, Vol.2 No.2, pp. 45-48.

Saksonova, S., & Savina, S. (2016). Financial Management as a Tool for Achieving Stable Firm Growth. *Economics and Business*. https://doi.org/10.1515/EB-2016-0021.

Triepels R., Daniels H., Berndsen R. (2021). Monitoring Liquidity Management of Banks with Recurrent Neural Networks. *Computational Economics*. Volume 57, pp. 89-112. https://doi.org/10.1007/s10614-020-10067-5.

Tsolas, I. E., & Charles, V. (2015). Green Exchange-Traded Fund Performance Appraisal Using Slacks-Based DEA Models. *Oper Res International Journal 15*, 51–77. https://doi.org/10.1007/s12351-015-0169-x.

Uyar, A. (2009). The Relationship of Cash Conversion Cycle with Firm Size and Profitability: An Empirical Investigation in Turkey. International Research Journal of Finance and Economics, Vol. 24, pp 186-193.

Verona, F. (2020). Investment, Tobin's Q, and Cash Flow Across Time An Frequencies. Oxford Bulletin of Economics and Statistics, 82(2), 331-346. https://doi.org/10.1111/obes.12321.

Vijayakumaran, R. (2019). Efficiency of Working Capital Management and Firm Value: Evidence from Chinese listed firms. *International Journal of Financial Research*, 10(6): 133-144. https://doi.org/10.5430/ijfr.v10n6p133.

Wang, Y.J. (2002) Liquidity Management, Operating Performance, and Corporate Value: Evidence from Japan and Taiwan. *Journal of Multi-National Financial Management*, 12, 159-169. https://doi.org/10.1016/S1042-444X(01)00047-0.

Wang, B. (2019). The Cash Conversion Cycle Spread, *Journal of Financial Economics*, vol. 133(2): 472-497. https://doi.org/10.1016/j.jfineco.2019.02.008.

Yasir, M., Majid, A., & Yousaf, Z. (2014). Cash Conversion Cycle and its Impact upon Firm Performance: an Evidence from Cement Industry of Pakistan. *Global Business and Management Research: An International Journal*.

Zeidan, R. & Shapir, O.M. (2017) "Cash Conversion Cycle and Value-Enhancing Operations: Theory and Evidence for a Free Lunch", Journal of Corporate Finance, vol. 45, 203-219. https://doi.org/10.1016/j.jcorpfin.2017.04.014.