

The effect of liquidity ratios management on the profitability of industrial companies listed on the Amman Stock Exchange

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CHRONICLE

Article history:

Received: January 1, 2021
 Received in revised format:
 January 23 2021
 Accepted: February 17, 2021
 Available online:
 February 17, 2021

Keywords:

Liquidity management
 Profitability
 Companies

ABSTRACT

The present study aimed at investigating the impact of liquidity management on profitability in the industrial companies listed on Amman Stock Exchange. Data was obtained from the financial statements of several industrial companies that were listed on Amman Stock Exchange during the period (2010-2018). The data was analyzed through using the SPSS program. The researcher analyzed several financial statements to collect data about liquidity and profitability. It was found that liquidity management affects profitability in the targeted companies.

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1. Introduction

The most important financial goal that companies seek achieving is represented in maximizing the shareholder wealth. This goal requires making effective decisions that are related to the investment of assets and finance. Such decisions include short-term and long-term decisions. Financial management aims at maintaining a specific amount of current assets. It aims at ensuring that they meet specific operational needs and carry out their financial obligations on specific dates. It aims at graining a specific amount of profits and maximizing profitability. It aims at maintaining a specific amount of liquidity. Having a low level of liquidity shall lead to having financial problems. It is necessary to have a kind of balance between the liquidity-related objectives and profitability-related objectives in the company. Managing liquidity is important when carrying out investments. The decisions related to finance and investment focus mainly on profitability and liquidity. In Jordan, some industrial companies face difficulties in achieving a balance between the cash liquidity and profits. Companies may lose opportunities for obtaining returns for maintaining high liquidity level. That shall lead to suffering from insolvency or becoming incapable to do the financial obligations. The Jordanian industrial companies listed on the Amman Stock Exchange are targeted in this study. They significantly affect the Jordanian economy. They must keep having adequate liquidity. They must achieve a balance between liquidity and assets. That's because if they those companies don't pay adequate attention to profitability, they will face many problems related to growth and progress.

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The present study aimed at investigating the influence of liquidity management on profitability in the aforementioned companies. It is significant, because it seeks offering beneficial results and make some suggestions for achieving a balance between liquidity and profitability ratios in the latter companies. Having a good liquidity ratio shall lead to increasing the profitability of industrial companies. It shall lead to improving performance and fostering development. The latter companies seek making effective decisions for having effective liquidity management decisions, raising the market value and increasing profitability.

2. Review of Literature

Several studies shed a light on the meaning of liquidity and liquidity management. There are several definitions for liquidity. Nori and Saeed (2016) define liquidity as: (the easiness of converting assets into cash to do financial obligations without losing time, nor money). Liquidity reflects the company's ability to do its financial obligations on the short terms as expected from it. It's associated with using the normal cash flow and obtaining its receivables from other secondary sources. Turning the assets into cash without incurring loss is called "liquidity" (Al-Homaidi et al., 2020). Liquidity is defined as the difference between the resources owned by the company and the funds used in the various types of assets within the balance. Low liquidity manifests when the company has to borrow money for doing financial obligations, or current liabilities (Bin Saadon, 2019). Liquidity is very significant. For instance, the liquidity department in a company is responsible for ensuring that the financial obligations are done on time. Failure to do such obligations on time shall promote distrust between the customer and the company. While commercial organizations are able to negotiate with the client when demanding a chip. There is a possibility to request for extending the payment deadline without promoting distrust nor negatively affecting the financial position of the enterprise (Khalaf, 2017). Low liquidity has a set of negative effects. Such impacts include: negative impacts on the company's reputation, and wasting new investment opportunities. They include: promoting confusion among the makes of investment decisions (Najim, 2016).

There are implications for having a high liquidity level in companies due to having high cash inflow, or a lack of cash outflow. Such implications include: negative impacts on the company's reputation. The company's reputation shall be linked to the failure of the liquidity management to investment money. Such implications include: negative impacts on profitability and the actual value of capital (Abdel, & Bandar, 2017). On the other hand, profitability is the primary goal of companies. Through having a high profitability level, the company can survive and develop. Having a high profitability level shall enable the company to fulfill its obligations. Profitability reflects the performance level (Anjum et al., 2012). Companies seek meeting their profit-related goals through making effective investment decisions. Such decisions reflect the company's ability to use its existing resources optimally. Companies also need to take finance-related decisions (e.g., choosing selection of finance sources). The company must also avoid exaggeration in obtaining loans. Such exaggeration leads to increasing risks. Profitability is defined as the relationship existing between the company's earnings and the number of investments it carried out to obtain these profits (Bin Saadon, 2019). Due to the importance of liquidity and profitability and the balance between them, several researchers aimed to identify the effect of liquidity management on profitability. Such studies include: the one conducted by Bin Saadon (2019). The latter study aims to identify the effect of liquidity on profitability in Algerian commercial banks. It aimed to search for mechanisms that contribute to achieving a balance between high profitability and meeting liquidity requirements. The latter researcher found that liquidity significantly affects profitability. He found that the decrease in liquidity risk shall lead to an increase in the profitability of Algerian commercial banks. He found that the decrease in liquidity risk shall lead to an increase in the return on the stock in those banks.

Abdel Hamid and Bandar (2017) aimed at investigating the influence of the liquidity risk on profitability in the banking sector. Liquidity risk is measured by (the index of trading, the index of investments to deposits, the index of cash and investment to assets, loans to deposits). Regarding profitability, it is measured through (the rate of return on assets, rate of return on deposits, the right of ownership, and the rate of return on available funds). The latter researchers found that the liquidity risk has a significant impact on profitability in the sampled banks. Khalaf (2017) aimed at exploring the liquidity risk level and its influence on the profitability in commercial banks. He analyzed the annual financial statements for the period (2008-2013). Those statements belong to six Iraqi commercial banks. Percentages are calculated to measure liquidity and profitability. Simple regression analysis and t-test are conducted. SPSS/Version 18 is used. Results indicate that there is a statistically significant relationship between the dependent and independent variables (i.e., liquidity risk and profitability) in the sampled banks. Recommendations were suggested in order for banks to address the liquidity risks. Babi (2015) aimed to explore the impacts of financial risks on the relationship existing between earnings per share and returns on shares in the companies listed on the Tehran Stock Exchange. The results indicate that a significant positive relationship exists between the earnings per share from one hand and the returns of the shares from another hand. Credit and solvency risks significantly influence the relationship existing between earnings per share and returns on stocks. It was found that liquidity risk doesn't have a significant impact on this relationship.

3. Methodology

3.1 Methodology

The researcher adopted a descriptive analytical approach for meeting the goals of the study. This approach aims to describe phenomena, identify problems, justify the conditions, and conduct assessment and comparisons.

The descriptive approach is adopted to collect data from the relevant literature and books. The analytical approach is adopted to analyze the data listed in the financial statements of the sample companies. Those statements were published with the Amman Financial Market.

The descriptive analytical approach is adopted. This relationship is represented in the relationship between liquidity management and liquidity. Liquidity management is represented in (trading ratio, quick liquidity ratio, cash ratio). It serves as the independent variable. Profitability is represented in (return on assets, return on equity). It serves as the dependent variable.

3.2 Theoretical Model

Based on the literature review, the conceptual model is shown through Fig. 1. The independent variable is represented in liquidity management (i.e., trading ratio, quick liquidity ratio and cash ratio). The dependent variable is represented in profitability. It is measured through the return on assets ratio and the return on equity ratio.

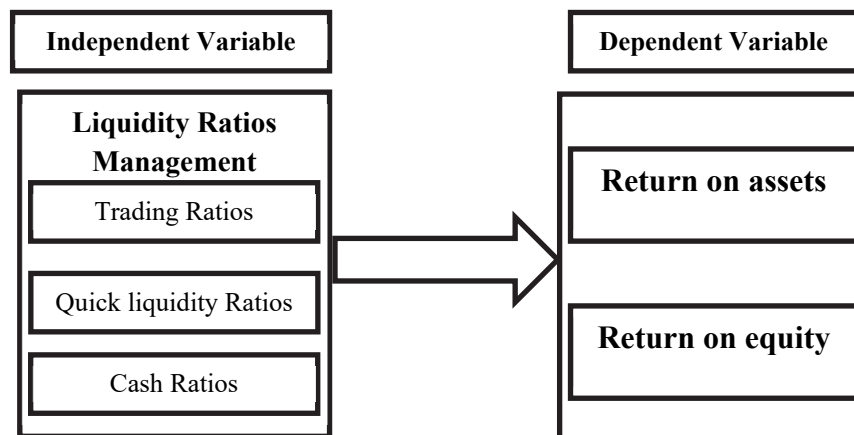


Fig. 1. The proposed study

3.3 The Study's Hypotheses

H₀₁: Liquidity management doesn't have any statistically significant effect -at the level of significance ($\alpha \leq 0.05$)- on the profitability in the Jordanian industrial companies listed on the Amman Stock Exchange.

The following sub-hypotheses are derived from the above hypothesis:

H₀₁₋₁: Trading ratio doesn't have any effect on the return on assets in the targeted companies.

H₀₁₋₂: Quick liquidity doesn't have any effect on the return on assets in the targeted companies.

H₀₁₋₃: Cash ratio doesn't have any effect on the return on assets in the targeted companies.

H₀₁₋₄: Trading ratio doesn't have any effect on the return on equity in the targeted companies.

H₀₁₋₅: Quick liquidity doesn't have any effect on the return on equity in the targeted companies.

H₀₁₋₆: Cash ratio doesn't have any effect on the return on equity in the targeted companies.

3.3 Population and Sample

The population is represented in all the public industrial joint stock companies that are listed on Amman Stock Exchange in Jordan. It consists from (63) companies (Amman Stock Exchange, 2018). The data related to the study's variables was obtained and analyzed through using SPSS program/ version. 18. That was done to meet the goals of the present study.

3.4 Variables

The researcher targets four variables (i.e. three independent variables, and two dependent variables). Data about such variables is shown below:

3.4.1 The Independent Variables

Trading ratio: It measures the degree to which a company can pay the current short-term liabilities through the current assets that can be converted into cash. It is measured through the following equation:

$$\text{Trading ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Quick liquidity ratio: The ratio of quick liquidity shows the ability of the company to do its short-term obligations (Quayyum, 2011). It is measured through the following equation:

$$\text{Quick liquidity ratio} = \frac{\text{Current assets that are easy to transfer to cash}}{\text{Current Liabilities}}$$

Cash Ratio: It refers to the ability of the company to pay its short-term liabilities through its cash and semi-monetary assets (Haddad, 2010). It is measured through the following equation:

$$\text{Cash ratio} = \frac{\text{Cash + short-term securities}}{\text{Current Liabilities}}$$

3.4.2 The Dependent Variables

Return on assets ratio (ROA): It measures the relationship between operating profit and size of assets (Garrison et al., 2006). It is measured through the following equation:

$$\text{Return on assets} = \frac{\text{Net profit after tax}}{\text{Average total assets}}$$

Return on equity (ROE): It is the return on each dinar invested by ordinary shareholders. It takes into account the operating and financing activities. It is measured through the following equation (Garrison et al., 2006).

$$\text{Return on equities} = \frac{\text{Net profit after tax}}{\text{Average shareholders' equities}}$$

4. Data Analysis

4.1 Model suitability test

For testing the suitability of the study's data for analysis, multi collinearity test was tested. The researcher made sure that there isn't any autocorrelation problem. Further details are shown in Table 1 and Table 2.

4.1.1 Multi collinearity test

In order to ensure that there isn't any multiple linear correlation between the sub-variables of the independent variable, the multi collinearity test is carried out. Through this test, Pearson correlation test is calculated between the dimensions of the independent variable (i.e. the dimension of liquidity management).

Table 1
The correlation matrix for independent variable

Variable	Trading ratios	Quick Liquidity ratio	Cash ratio
Trading ratios	1.00	0.22	0.33
Quick Liquidity ratio	0.22	1.00	0.11
Cash ratio	0.33	0.11	1.00

Based on Table 1, the highest value is (0.33). It indicates that there is not any multiple linear correlation between the variables. That's because this value is less than (0.80) (Gujarati, 2004).

4.1.2 Autocorrelation

To carry out the regression analysis, the collected data must be free from any autocorrelation problem. Having this problem leads to having a bias in the value of estimated parameters. It weakens the ability of using the model for making prediction. Therefore, the Durbin-Watson (D-W) Test is conducted. It is the test that is used to most for ensuring that there isn't any autocorrelation problem. The values reached through this test are within the range of (0-4). An autocorrelation problem is considered non-existent if the D-W value equals the maximum value or approaches it (Gujarati, 2004). The second table presents the results reached through the D-W test:

Table 2

The autocorrelation test

Hypothesis No.	D-W calculated Value	D-W minimum Value	D-W maximum Value	Result
1	1.88	1.62	1.67	None
2	1.87	1.62	1.67	None
3	1.92	1.62	1.67	None
4	1.91	1.62	1.67	None
5	1.90	1.62	1.67	None
6	1.99	1.60	1.72	None

Based on the previous table, it can be clear that all the D-W values are greater than the maximum value (DW). Thus, data is free from any autocorrelation problem. It means that there is not any correlation existing between the independent variables (Montgomery et al., 2001).

4.2 Testing hypotheses

To test the study hypotheses, a simple regression test was used at the significance level (0.05).

Testing the Hypotheses

To test the main hypothesis, the sub-hypotheses are tested through carrying out the simple regression. Further details are listed below:

The first sub hypothesis:

H₀₁₋₁: Trading ratio doesn't have any effect on the return on assets in the targeted companies

Table 3

Simple regression test results, the effect of trading ratios at return on assets

Dependent	Model summary		ANOVA			Coefficient				
	r	r ²	F	DF	Sig F*	trading ratios	β	Std. Error	Sig F*	
ROA	-0.774	0.599	987.493	1	0.000		0.774	0.081	17.211	0.000

Based on table (3), the value of r is 0.774. Thus, a negative correlation exists between trading ratios and return on assets in the targeted companies.

The coefficient of determination (r²) value is 0.599. It means that the 59.9% of the changes in the return in assets can be attributed to trading ratio. Based on the analysis of variance, f value is (987.493) when the significance (sig.) level is (sig=0.000). This confirms that the regression is significant at the significance level of at ($\alpha \leq 0.05$) level. Beta value β is (-0.774). Thus, the increase in one unit in the (trading ratios) shall lead to reducing the (return on assets) by 77.4%. The t-value is 17.2111 at a significance (sig.) level of (sig = 0.000). This confirms that the coefficient is significant at the significance (sig.) level of ($\alpha \leq 0.05$). The first null sub-hypothesis is accepted. Thus, it was found that trading ratio doesn't have any significant effect on the return on assets in the targeted companies

The second sub hypothesis

H₀₁₋₂: Quick liquidity doesn't have any effect on the return on assets in the targeted companies.

Table 4

Simple regression test results, the effect of quick liquidity ratio at return on assets

Dependent Variable	Model summary		ANOVA			Coefficient				
	r	r ²	f	DF	Sig F*	quick liquidity ratio	β	Std. Error	t	Sig F*
ROA	0.779	0.607	1021.233	1	0.000		0.779	0.84	14.650	0.000

Based on Table 4, the (r) value is (0.779). A positive correlation exists between the quick liquidity and return on assets in the targeted companies. The determination coefficient value (r^2) is (0.607). It means that 60.7% of the changes in the return on assets can be attributed to quick liquidity. Based on the analysis of variance, the (f) value is (1021.233) when the significance level of (sig = 0.000). This confirms that the correlation is significant at the significance level is ($\alpha \leq 0.05$). Beta value is ($\beta = 0.779$). Thus, an increase of one unit in the (quick liquidity ratio) shall lead to increasing the return on assets by 77.9% in the targeted companies. The t-value is 14.650 at the significance level of (sig = 0.000). This confirms that the correlation is significant at the significance level is ($\alpha \leq 0.05$). The second null sub-hypothesis is rejected and the alternative sub-hypothesis is accepted. Thus, it was found that quick liquidity has a significant effect on the return on assets in the targeted companies.

The third sub hypothesis

H₀₁₋₃: Cash ratio doesn't have any effect on the return on assets in the targeted companies.

Table 5
Simple regression test results, the effect of cash ratios at return on assets

Dependent Variable	Model summary		ANOVA			Coefficient				
	r	r ²	f	DF	Sig F*	Cash ratio	β	Std. Error	t	Sig F*
ROA	0.789	0.623	1092.722	1	0.789		0.789	0.085	12.897	0.000

Based on Table 5, the r value is (0.789). A positive correlation exists between cash ratio and return on assets in the targeted companies. The determination coefficient value (r^2) is (0.623). This means that 62.3% of the changes in the return on assets can be attributed to cash ratio in the targeted companies. Based on the analysis of variance, (f) value is (1092.722) when the significance level is (sig = 0.000). This confirms that the correlation is significant at the significance level ($\alpha \leq 0.05$). Based on the table above, the beta value is (0.789 = β). Thus, an increase of one unit in the (cash ratio) shall lead to increasing the return on assets by 78.9%. The t-value is 12.897 at the significance level ($\alpha \leq 0.05$). This confirms that the correlation is significant at the significance level ($\alpha \leq 0.05$). The third null sub-hypothesis is rejected and the alternative sub-hypothesis is accepted. Thus, it was found that the cash ratio has a significant effect on the return on assets in the targeted companies

The fourth sub hypothesis

H₀₁₋₄: Trading ratio doesn't have any effect on the return on equity in the targeted companies.

Table 6
Simple regression test results, the effect of trading ratios at return on equity

Dependent Variable	Model summary		ANOVA			Coefficient				
	R	r ²	f	DF	Sig F*	trading ratio	β	Std. Error	t	Sig F*
ROE	-0.753	0.568	868.046	1	0.000		0.753	0.093	12.653	0.000

Based on Table 6, r value is (-0.753). A negative correlation exists between trading ratio and return on equity in the targeted companies. The determination coefficient value (r^2) is (0.568). This means that 568% of the changes in the return on equity can be attributed to the trading ratio. Based on the analysis of variance, the f value is (868.046) when the significance level is (sig = 0.000). This confirms that the correlation is significant at the significance level ($\alpha \leq 0.05$). The beta value is (-0.753 = β). Thus, the increase by one unit in the (trading ratio) shall lead to reducing the return on equity by 75.3%. The t-value is 12.654 at the significance level of (sig=0.000). This confirms that the correlation is significant at the significance level ($\alpha \leq 0.05$). The fourth null sub-hypothesis is accepted. Thus, it was found that the trading ratio doesn't have any significant effect on the return on equity in the targeted companies

The fifth sub hypothesis

H₀₁₋₅: Quick liquidity doesn't have any effect on the return on equity in the targeted companies.

The determination coefficient value (r^2) is (0.616). This means that 61.6% of the changes in the return on equity can be attributed to quick liquidity. Based on the analysis of variance, the f value is (1065.287) when the significance level is (sig = 0.000). This confirms that the correlation is significant at the significance level ($\alpha \leq 0.05$).

Table 7

Simple regression test results, the effect of quick liquidity ratios at return on equity

Dependent Variable	Model summary		ANOVA			Coefficient				
	r	r ²	F	DF	Sig F*	quick liquidity ratio	β	Std. Error	t	Sig F*
ROE	0.785	0.616	1065.287	1	0.000		0.785	0.078	17.508	0.000

Based on Table 7, r value is (0.785). A positive correlation exists between quick liquidity and return on equity in the targeted companies. The beta value is (0.785 = β). Thus, the increase in one unit in the (quick liquidity ratio) variable shall increase the return on equity by 78.5% in the targeted companies. The t-value is (17.508) at a significance level of (sig = 0.000). This confirms that the correlation is significant at the significance level ($\alpha \leq 0.05$). The fifth null sub-hypothesis is rejected and the alternative sub-hypothesis is accepted. Thus, it was found that the quick liquidity has a statistically significant effect -at the level of significance ($\alpha \leq 0.05$)- on the return on equity in the targeted companies.

The sixth sub hypothesis

H₀₁₋₆: Cash ratio doesn't have any effect on the return on equity in the targeted companies.

Table 8

Simple regression test results, the effect of cash ratios at return on equity

Dependent Variable	Model summary		ANOVA			Coefficient				
	r	r ²	f	DF	Sig F*	cash ratio	β	Std. Error	t	Sig F*
ROE	0.905	0.819	299.123	1	0.000		0.905	0.067	4.21	0.000

Based on Table 8, r value is (0.905). A positive correlation exists between (cash ratio) and (return on equity) in the targeted companies. The determination coefficient value (r^2) is (0.819). This means that 81.9% of the changes in the return on equity can be attributed to the cash ratio. Based on the analysis of variance, the f value is (299.123) when the significance value is (sig = 0.000). This confirms that the correlation is significant at the significance level ($\alpha \leq 0.05$). The beta value is (0.905 = β). Thus, the increase in one unit in the cash ratio shall increase the return on equity by 90.5% in the targeted companies. The t-value is 4.21 at the significance level of (t = 4.21) at a significance level (sig = 0.000). This confirms that the correlation is significant at the significance level ($\alpha \leq 0.05$). The sixth null sub-hypothesis is rejected and the alternative sub-hypothesis is accepted. Thus, it was found that cash ratio has a significant effect on the return on equity in the targeted companies.

5. Result and discussion

It was found that liquidity management has a significant impact - at the level of statistical significance level of ($\alpha \leq 0.05$)- on profitability measured by return on assets in the targeted companies. Liquidity management is represented in (trading ratio, quick liquidity ratio, cash ratio). Profitability is represented in the (return on assets and return on equity). A negative correlation exists between (trading ratios) and (return on assets). The value of the latter correlation is 77.4%. A positive correlation exists between (quick liquidity ratio) and (return on assets). The value of the latter correlation is 77.9%. A positive correlation exists between (cash ratio) and (return on assets). The value of the latter correlation is (78.9%). It was found that liquidity management has a significant impact on profitability measured by return on equity in the targeted companies. A negative correlation exists between (trading ratio) and (return on equity). The value of the latter correlation is 75.3%. A positive correlation exists between (quick liquidity ratio) and (return on equity). The value of the latter correlation is 78.5%. A positive correlation exists between (cash ratio) and (return on equity). The value of the latter correlation is 90.5%. Based on the aforementioned results, the researcher recommends providing attention to liquidity management dimensions (trading ratio, quick liquidity ratio, cash ratio) in companies. He recommends providing attention to profitability dimensions (i.e., return on assets and return on equity) in companies. He recommends taking the liquidity ratios and profitability ratios into consideration when making decisions related to the investment process in companies.

References

- Abdel Hamid, A., & Bandar, N. (2017). Liquidity risk and its impact on the profitability of Islamic banks: Applied research in a sample of Iraqi Islamic banks for the period (2011 - 2015). *Tikrit Journal of Administration & Economic Sciences*, 40(4), 1-25.

- Al-Homaidi, E., Tabash, M., Al-Ahdal, W., Farhan, N., & Khan, S. (2020). The Liquidity of Indian Firms: Empirical Evidence of 2154 Firms. *Journal of Asian Finance, Economics and Business*, 7(1), 19-27. <https://doi.org/10.13106/jafeb.2020.vol7.no1.19>
- Anjum, N., Saif, M., Iqbal, Q. and Hassan, S. (2012). Earnings Management and Firms' Profitability Evidence from Pakistan, *European Journal of Economics*, 47, 13-50.
- Babi, M. (2015). The effects of financial risks on the relationship between earnings and stock returns. *International Journal of Organizational Leadership*, 4, 154-169.
- Bin Saadon, S. (2019). *The effect of liquidity on profitability in commercial banks: A comparative study of a number of public and private Algerian banks for the period (2013-2017)*, Algeria: Master thesis, College of Economic and Commercial Sciences, 8may University.
- Garrison, H., Noreen, W., & Brewer, C. (2012). *Managerial Accounting*. McGraw-Hill Education.
- Haddad, F. (2010). *Financial Management*, College of Business, University of Jordan, Amman, Jordan.
- Khalaf, M. (2017). Liquidity risk and its impact on the profitability of commercial banks: An applied study on a sample of commercial banks in Iraq, *Journal of Baghdad College for University Economic Sciences*, 52, 401- 414.
- Najim, A. (2016). The Use of Cash Flow Metrics in Evaluating Profit Quality: An Empirical Study at the North Bank for Finance and Investment. *Anbar University Journal for Economic and Administrative Sciences*, 8(15), 445-466.
- Nori, B., & Saeed, A. (2016). Liquidity Assessment in Commercial Banks and their Impact on Profitability: A Comparative Study of American AMERICA OF BANK- CHASE MORGAN JP. *Al-Ghari Journal of Economic and Administrative Sciences*, 37(1), 125-109.
- Quayyum, S. (2011). Effects of Working Capital Management and Liquidity: Evidence from the Cement Industry in Bangladesh, *Journal of Business and Technology*, 5(1), 37-47



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