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Empirical Study of the Relationship between Cash Flow Management and Financial Performance of the Jordanian Insurance Companies

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Abstract: The study aims to examine the impact of cash flow management, namely operating, investing and financing activities on financial performance and the contribution of each of these activities to predict the financial performance of the Jordanian Insurance Companies (JICs). The population under observation consists of the JICs which includes (23) companies. The study covers the period 2009-2013 by analyzing annual reports for each company. The study indicated that net cash flows from operating activities are considered the highest compared with other activities which demonstrates that the JICs generate money from their main business and are not facing liquidity crisis. Regarding the impact of each orientation of these activities and their effect on financial performance, the study revealed that the net cash flows from the operation activities influences the return on assets. Moreover, the net cash from investing activities was found to play a significant role in the financial performance.

Key words: Cash flow management, managerial decisions, financial performance, insurance companies, Jordan

INTRODUCTION

The statement of cash flows have a significant role in increasing the effectiveness of the decisions of investors by strengthening their ability to make decisions related to the pricing of the stock and providing necessary and complementary information to traditional financial statements. It helps to evaluate the ability of payment of the financial obligations and generate positive cash flows in the future. Many studies achieve a consensus on the significant role of cash flows statement in determining the liquidity and helping the management in their decisions in various aspects such as operating, financing and investing decisions established (Collins *et al*., 2014; Zhang and Trafalis, 2013; Chen, 2011; Martani and Khairurizka, 2009; Al-Nimer, 2013; Driver and Guedes, 2012; Spatacean, 2014).

Cash flows can help enhance the ability to compare performance reports for different projects since it eliminates the effects of using different accounting treatments for the same process. Cash flow plays a major role in providing loan and investment to officials with appropriate information that help them take many economic decisions as well as providing information on the firm's operating activities (Khaled, 2012; Eyisi and Okpe, 2014). Studies were conducted on how cash flow contributes in making the company take relevant and useful decisions which in turn influences the overall performance of the firm, particularly financial performance such as profitability (Lin *et al*., 2015; Grecco *et al*., 2014; Al-Nimer and Sleihat, 2015; Warrad *et al*., 2013; Sharma, 2014; Chen *et al*., 2013). Therefore, the current research will attempt to emphasize on the cash flow statement and its activities (operating, investing and financing activities) and attempt to find out the contribution of each activities on predicting the financial performance. Finally, the study will find out the effect of all the activities as a whole on the financial performance represented by Return On Assets (ROA) of the Jordanian insurance companies which are listed at the ASE (Amman Stock Exchange) (Wang and Deng, 2016; Bansal and Kaur, 2016).

The study draws its importance from the cash flows statement that is considered a significant statement as it helps to find out the monetary impact of all activities undertaken by the company during the financial period with the statement of the nature of impact being a cash flow inside the company or out of it. Also that the division of the existing cash flows within the activities have a common nature which helps to identify the strengths and weaknesses in terms of the company's ability to generate cash which will be used to pay obligations, finance expansions and distribution both in the short-term or long-term profits. In addition, the cash flow statement is considered as a future plan for the management of receipts and payments of companies. Moreover, the study will contribute to the literature regarding the examination of activities of cash flow

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statements, examining which activities or orientation affect the financial performance and predict this performance. Recent studies were conducted on cash flow acticities management, therefore this study tackles a debatable subject.

Theoretical framework: A Several studies were conducted concerning cash flow activities management and taking in account many aspects and the impact of these activities on different variables (Hussein, 2016). For instance, Zhang and Trafalis (2013) in their study emphasized on the importance of cash flow statement as an indication for better understanding of financial ratios, particularly cash flow statement operating section. In addition indicated that operating net cash inflow and outflow ratios provide a better visualization of the cash sources and usage which in turn helps analysts to observe major cash flow structure changes and make predication the investing cash flow growth contribution ratio is used to identify irregular investment behavior.

Regarding the influence of cash flow and financial performance, Kroes and Manikas (2014) examined the cash flow management and its impact on financial performance and indicated that both reductions in accounts receivables which are measured as days of Sales outstanding and reductions in Inventory which measured as days of inventory outstanding, impact the firm's improvement in financial performance that persists for several quarters. The study suggested that reductions in days of sales outstanding lead to improved firm financial performance.

Tsai *et al*. (2014) emphasized on investment-cash flow and its sensitivity to the banking reform by investigating the banking system reform in China on cash flow from investment activities and indicated that the politically-oriented investment problem for state controlled listed companies is mitigated by the reform due to foreign participation in the management of Chinese banks.

A study examined the impact of the supply-chain cash flow performance on financial performance and concluded that there is an effect of supply-chain cash flow performance on the financial performance of construction project contractors by emphasizing on the significant behavioral patterns of project owners regarding payment terms with project contractors during the contracting phase of construction projects. Therefore, these behavioral patterns provide project contractors with a base for supporting implementation efforts for improving SC cash flow performance (Chen, 2011).

Martani and Khairurizka (2009) examined in their study that cash flow from operating activities alongside with financial ratios and firm size, affects the stock return and concluded that that profitability, turnover and market ratio has significant impact to the stock return. Concerning the measurement of the impact of cash flow activities, especially the cash flow from investing activities, Bodie *et al.* (2004) attempted to investigate the impact of cash flow ratios and indicators to predict corporate performance and indicted that operating and financing cash flows activities have a noteworthy positive relationship with corporate performance in the Food and Beverage Sector of Nigeria. In addition, the study revealed that investing cash flow activities has no significant impact on corporate performance. Interestingly, the study suggested that regulatory authorities should encourage external auditors to utilize cash flow ratios in evaluating the performance of a company before forming an independent opinion on the financial statement which in turn will give detailed information on the company to enable investors to make rational investment decisions.

Sindhu (2014) examined the relationship between free cash flow and dividends and revealed that free cash flow variable have positive and significant relationship with free cash flow. In addition, the study showed insignificant relationship between free cash flow and dividends by utilizing a panel data analysis to check the time and cross sectional effect dummies has utilized.

Eyisi and Okpe (2014) considers the cash flow ratio as a better tool for assessing corporate performance. The performances were measured using liquidity ratio and asset management ratio. The study revealed that liquidity ratios computed on accrued basis showed good liquidity and that company will be able to meet its financial obligation very well and effective asset management while liquidity ratios computed on cash basis showed negative liquidity position/inefficient asset management which means the organization may not be able to meet up with its financial obligation. As a result, the study summarized that accrued financial ratios can be misleading in making investment decisions and appraising performances thus the cash basis ratio may be preferred as a better tool for assessing corporate performance since it gives a better insight on viability and liquidity position of the corporate organization and serves as a good tool for predicting corporate failures. In this aspect, Heydaria1 and Javadghayed (2014) investigated the relationship between free cash flows and firm performance by examining the following four factors; return on assets, return on equity ratio, Tobin's Q ratio and stock return. The study indicated that there is a valid negative relationship between free cash flows with all evaluated factors of performance. In other words, the findings revealed an

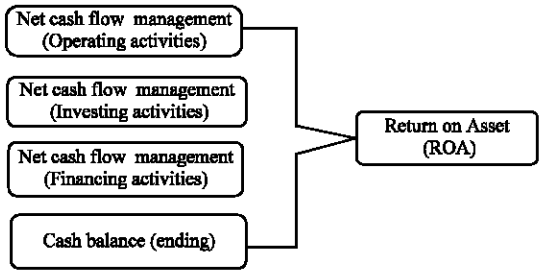

Fig. 1: Cash flow activities framework

increase in the conflict of interests between managers and property owners due to free cash flows which leads to decrease in the firm's performance (Wang and Deng, 2016; Bansal and Kaur, 2016).

Based on the above discussion, this study attempts to investigae the impact of net cash flows from the Operating Activities, net cash flows from Investing Activities, net cash flows from Financing Activities and the cash balance (ending) all combined on return on assets. As presented in Fig. 1. This study argues that the net cash flows from the operation activities influences the return on assets.

Main hypothesis: H_1: There is no impact between cash flows activities of company and ROA of the insurance companies listed at the Amman stock market.

Sub hypotheses:

- H_{01}: There is no impact between net cash flow from operating activities of company and ROA of JICs listed at the ASE
- H_{02}: There is no impact between net cash flow from investing activities of company and ROA of JICs listed at the ASE
- H_{03}: There is no impact between net cash flow from finance activities of company and ROA of JICs listed at the ASE
- H_{04}: There is no impact between cash balance (ending) of company and ROA of JICs listed at the ASE

MATERIALS AND METHODS

The study population from the JICs listed on the ASE are (23) companies, where some of the insurance companies such as Islamic insurance company were excluded due to the lack of financial statements provided, where the study adopted the approach of quantitative descriptive analysis was chosen as the same two goals consisting of insurance companies in the time period between the year 2009-2013 by utilizing content analysis of the annual reports for each company. As the dependents variable (including net cash from operation activities, investing activities, financing activities and ending cash) will be taken from the cash flow statement for the selected period and the dependent variable financial performance will be measured by Return on Asset (ROA). With regard to the primary sources, the study will depend on the financial statements published in the ASE for the insurance companies of the study sample and replace it by using SPSS Statistical Software which will also be calculated by necessary and appropriate to the subject of statistical research tests.

RESULTS AND DISCUSSION

After collecting the data for the study, data was also collected to draw conclusions for companie's sample analysis including this section on the three main axis; the first axis analyzes descriptive variables using several statistical and descriptive measures such as arithmetic mean and standard deviation while the second axis is based upon the verification of link strength between the independent variables of the study and the third axis is to test hypotheses using simple regression model in addition to the calculation of the multiple regression model using the statistical package SPSS and discuss the results.

Descriptive statistics for the sample of the study and their variants: This part of the study illustrates the descriptive analysis of the variables, shown by sector as follows: Notes from Table 1 the arithmetic average of the net cash flows from operating activities totaled (2,009, 300.5) which indicates that the JICs generate money from their main business and are not facing a liquidity crisis in this regard. The arithmetic average of the net flows Cash from investing activities amounted to (1364661) which may indicate poor efficiency of JICs in their investment policies and the lack of investment spending and so on for the net cash flows from financing activities where the mean was (427687.9). This is one of the indicators of the weakness of financial efficiency of enterprises in terms of its ability to meet its financial obligations without having to drain their assets.

Table 2 shows the link between the independent variables of the study; It appears from the table that there is no >80% between the variables of the study link which shows the lack of a high correlation between the independent variables of the study problem. It has reached the highest correlation ratio (59.2%) between net cash flows from operating activities and the balance of cash flows last term.

Table 1: Descriptive statistics

Parameters	Min.	Max.	Mean	SD
Net cash flow from operating activities	5009371	10147752	2009300.5	2773585.356
Net cash flow from investing activities	6374155	5406591	13646610	2717766.204
Net cash flow from finance activities	3667254	3514072	427687.9	1154220.937
Cash balance (ending)	366088	32011277	5394554.2	6107534.270
ROA	0.501	0.072	0.0010000	0.090000000

Table 2: Pearson correlation matrix

Parameters	Net cash flow from operating activities	Net cash flow from investing activities	Net cash flow from financing activities	Cash balance (ending)
Net cash flow from operating activities	1.000			
Net cash flow from investing activities	-0.584	1.000		
Net cash flow from financial activities	-0.273	-0.162	1.000	
Cash balance (ending)	0.592	-0.071	-0.102	1

Table 3: Net cash flows from operating activities and return on assets

Net cash flow from operating activities B	Constant B	Coefficients	t- statistics	Sig.
1.58E-08	-0.033	0.486	4.009	0.000

R^2 = 0.236; Model F-test = 16.071

Table 4: Net cash flows from investing activities and return on assets

Net cash flow from operating activities B	Constant B	Coefficients	t- statistics	Sig.
1.11E-08	-0.016	-0.337	-2.584	0.013

R^2 = 0.114; Model F-test = 6.675

Hypotheses findings: In order to prove or reject this hypothesis and to answer the hypotheses of the study, the researcher used the style of simple and multiple regression analysis following display test hypotheses that branch off the main hypothesis and discuss these results to compare the results of previous studies, results, has adopted a researcher on the value of sig to accept or reject hypotheses where the value should sig be >0.05 for the rejection of the hypothesis nihilism and accept the alternative hypothesis will also be relying on the value of the coefficient of determination R^2 to refer to the extent of accuracy in the interpretation of the change in all of the independent variables.

- H_{o1}: There is link between net cash flow from operating activities of company and ROA of the insurance companies listed at Amman stock market

Table 3 displays the results of simple independent variable regression analysis (net cash flows from operating activities) and its impact on the dependent variable (return on assets), where the results showed that the value of the link coefficients is (0.486) which indicates a strong positive relationship between the variable dependent and independent as the results of the study showed that the moral value Sig. <5%)) hitting (0.000) and depending on the decision rule which provides for the rejection of the hypothesis nihilism H_o if the value of Sig. <(0.05) which means that the net cash flows from the operating activities impact the return on assets. Additionally, the study suggests that the reason for this result is due to the fact that net operating cash flows affect the terms, provisions and precautions compulsory and optional for companies where items can affect the profit which in turn increase or decrease it; This is linked directly to return on assets and the reason for this method of calculating the rate of return on assets is calculated by the net profit on total assets.

Based on the results of the simple regression analysis mentioned above taking into account the value of the selection R coefficient square of $ (0.236), there is an indication that the extent of accuracy in the interpretation of the change the independent variable have been prepared in linear regression of the net cash flows from operating activities and return on assets equation, therefore, in order to predict the return on assets:

$$Y = -0.033+(1.576E-8x)+e$$

Where:

Y = The return on assets

X = The net cash flows from operating activities

- H_{o2}: There is no impact of net cash flow from investing Activities of company on the ROA of the insurance companies listed at the Amman stock market

Table 4 displays the results of simple independent variable regression analysis (Net cash flows from

Table 5: Net cash flows from financing activities and return on assets

Net cash flow from operating activities B	Constant B	Coefficients	t- statistics	Sig.
-9.848E-9	-0.005	-0.928	-0.128	0.358

R^2 = 0.016; Model F-test = 0.862

Table 6: Cash balance (ending) and return on assets

Cash balance (ending) B	Constant B	Coefficients	t- statistics	Sig.
3.381E-9	-0.019	0.231	1.714	0.093

R^2 = 0.053; Model F-test = 0.000

Table 7: Ranking the independents variables by their impact on the dependent variable

Variable	R^2	Sig
Net cash flow from operating activities	0.236	0.000
Net cash flow from investing activities	0.114	0.013
Cash balance (ending)	0.053	0.093
Net cash flow from financing activities	0.016	0.358

investing activities) and its impact on the dependent variable (return on assets) and the results showed that the value of the link coefficients is (0.337) which indicate the presence of a strong relationship between the dependent and independent variable as the results of the study showed that the moral value Sig.<5%)) hitting (0.013). Accordingly, the study associates that the reason for this result is linked to the terms of investments and the purchase of equipment and property and these items are part of the equation calculating the return on assets which is calculated by net profit to total assets; thus, increasing or decreasing investment directly affects the return on assets. Based on the results of the simple regression analysis above, taking into account the value of the selection R coefficient square of $ (0.114) which indicates the extent of accuracy in the interpretation of the change in the independent variable, have been prepared in linear regression of the net cash flows from investing activities and return on assets equation. Therefore, in order to predict the return on assets:

$$Y = -0.016+(-1.106E-8x)+e$$

Where:

Y = The return on assets

X = The net cash flows from investing activities

- H_{03}: There is no impact of net cash flow from finance activities of company on ROA of the insurance companies listed at the Amman stock market

Table 5 displays the results of simple independent variable regression analysis (net cash flows from financing activities) and its impact on the dependent variable (return on assets) and the results showed that the value of the link coefficients is (-0.128) which indicates the presence of a weak relationship between dependent and independent variable as the results of the study showed that the moral value Sig. >5%)) hitting (0.358). Therefore, the study suggests that the reason for this result is due to the net cash flows from financing activities reflected in both the capital increase or decrease items, through operations such as financing or investors to resort to borrowing capital and is one of the indicators related to property rights and does not affect the assets or net profit directly:

- H_{04}: There is no impact of cash balance (ending) of company on ROA of the insurance companies listed at the Amman stock market

Table 6 displays the results of simple independent variable regression analysis (another cash flows of the period) and its impact on the dependent variable (return on assets) and the results showed that the value of the link coefficients is (0.231) which indicates the presence of a weak relationship between the dependent variable and independent as the results of the study showed that the moral value Sig. >5%)) hitting (0.093). Consequently, the study believes that the reason for this is due to the last term cash flow balance is an indicator of the company's performance indicators the ability to recruit liquidity and has no direct link to the return on assets.

Finally, in order to compare and to clarify the differences between the independent variables of the study (net cash flow from operating activities and net cash flows from investing activities, net cash flows from financing activities and the balance of cash flows) and its relationship with the financial performance (return on assets), the following table set shows the degree of impact on the return on assets based on a previous sub-hypotheses results:

Table 7 illustrates the impact of the application of all elements of the statement of cash flows in the preparation of the return on assets and arranging them according to the strength of relationship with each of the return on assets, from most influential to least. Therefore, the study reveals that the most influential variable is the net cash flows from the operating activities as the value of Sig.

Table 8: Multiple regression test results of net cash flows and return on assets

Model F-test	Adjusted R^2	R^2	R	Sig.
3.924	0.181	0.243	0.493	0.008

Table 9: Test multiple regression equation for linear for all variables results

Models	B	SE	Adjusted R^2	Coefficients	Sig.
Constant	-0.031	0.017	0.181	0.493	0.008
X_1	1.53E-08	0.000			
X_2	-2.26E-09	0.000			
X_3	-1.34E-09	0.000			
X_4	-7.60E-10	0.167			

(0.00) and then comes net cash flows from investing activities as the value of Sig. (0.013) while it also notes a weak relationship between the balance of the cash flows from (ending) on return on assets as the value of sig (0.093) and so on for the net cash flows from financing activities as the value of Sig. (0.358).

Test the main hypothesis: H_1: There is no impact of cash flows activities of a company on ROA of the insurance companies listed at the Amman stock market. For the purpose of demonstrating the results previously communicated, multiple regressions were performed for all the independent variables in a combined test, in order to determine whether there was an impact of the components of the statement of cash flows on the return on assets or not. This is also shown in the following Table.

After discussing the sub-hypotheses given in Table 8, it shows that the sig value amounted to (0.008) and this means that there is an impact of the elements of a list (of net cash flows from the operating, net cash flows from investing activities, net cash flows from financing activities and the cash balance (ending) combined on return on assets and is also worth noting that the results of multiple regression analysis showed that specifically R coefficient square of $ (0.243) which indicates the accuracy of the interpretation of the dependent variable (return on assets) change the independent variables (net cash flow from operating activities and net cash flows from investing activities and net cash flows from financing activities and the cash balance (ending) combined. As presented in Table 9 a linear regression has been prepared for all variables of the study, it is possible to prepare linear regression for all study variables equation combined as follows:

$$Y = -0.031+(1.530E-8X_1)+(-2.258E-9X_2)+(-1.339E-9X_3)+(-7.597E-10X_4)+e$$

Where:

Y = The return on assets
X_1 = The net cash flows from operating activities
X_2 = The net cash flows from investing activities
X_3 = The net cash flows from financing activities
X_4 = The cash balance (ending)
E = error rate

CONCLUSION

According to the study objective which emphasizes to examine the impact of cash flow activities management namely operating, investing and financing activities on financial performance and the contribution of each of these activities to predict and influence the financial performance in the JICs which is listed in the ASE. The study revealed that net cash flows from operating activities is marked the highest in comparison with other activities which indicates that the JICs generate money from their main business and are not facing a liquidity crisis. The net flows cash from investing activities is negative which may indicate poor efficiency in their investment policies and the lack of investment spending and followed by for the net cash flows from financing activities which revealed to be more negative as an indicator of the weakness of financial efficiency of enterprises in terms of its ability to meet its financial obligations without having to drain their assets.

Regarding the impact of each orientation of these activities on financial performance, the study revealed that the net cash flows from the operation activities affects the return on assets. Additionally, the study proposed that the contribution of net operating cash flows on net income is due to either a direct or indirect way which is linked directly to the return on assets. The net cash from investing activities were found to have a significant impact on financial performance explained by the link of these flows to the terms of investments and the purchase of equipment and property and these items are part of the equation calculating the return on assets; calculated by net profit to total assets, thus increasing or decreasing investment directly affects the return on assets.

Converse results were found regarding the impact of the net cash from financing activities on financial performance as the study revealed a weak and insignificant relation between financing activities and financial performance represented by the ROA which is explained by the poor net cash flow of financing activities as the descriptive results shown. Similar weak and insignificant impact was found regarding the impact of cash balance (Ending) on financial performance in the Jordanian insurance companies (Wang and Deng, 2016; Bansal and Kaur, 2016). Finally, the study indicated that there is an impact of cash flow activities net cash flows from the operating, net cash flows from investing activities, net cash flows from financing activities and the cash balance (ending), combined on return on assets.

RECOMMENDATIONS

Based on the findings, the study recommends to pay more attention to the operating and investing activities as they are considered useful financial indicators for financial performance and dispread the awareness of the cash flow statements and its activities since they are determined by the companie's orientations and strategies. Finally, more emphasis should be placed on the importance of the cash flow ratio as an indicator for financial performance.

REFERENCES

Al-Nimer, M and N. Sleihat, 2015. The effect of profitability ratios on market capitalization in jordanian insurance companies listed in amman stock exchange. J. Econ. Sustainable Dev., 6: 140-146.

Al-Nimer, M., 2013. The Effect of market capitalization on stock price: A case study from jordanian banks. Int. J. Marketing Financial Serv. Manage. Res.,

Bansal, A. and A. Kaur, 2016. A risk and return analysis of selected unit linked insurance plans of selected public and private sector insurance companies. Int. J. Econ. Bus. Res., 11: 83-99.

Bodie, Z., A. Kane and A.J. Marcus, 2004. Essentials of Investments. 5th Edn., McGraw-Hill, New York, USA., ISBN:0-07-251077, Pages: 765.

Chen, H.L., 2011. An empirical examination of project contractors' supply-chain cash flow performance and owners' payment patterns. Int. J. Project Manage., 29: 604-614.

Chen, Y., L. Zhang and L. Zhang, 2013. Financial distress prediction for Chinese listed manufacturing companies. Procedia Comput. Sci., 17: 678-686.

Collins, D.W., P. Hribar and X.S. Tian, 2014. Cash flow asymmetry: Causes and implications for conditional conservatism research. J. Account. Econ., 58: 173-200.

Driver, C. and M.J.C. Guedes, 2012. Research and development, cash flow, agency and governance: UK large companies. Res. Policy, 41: 1565-1577.

Eyisi, A.S. and I.I. Okpe, 2014. The impact of cash flow ratio on corporate performance. Res. J. Finance Accounting, Vol. 5,

Grecco, M.C.P., C.M.S. Geron, G.B. Grecco and J.P.C. Lima, 2014. The effect of IFRS on earnings management in Brazilian non-financial public companies. Emerging Markets Rev., 21: 42-66.

Heydaria1, M.M.I. and M. Javadghayedi, 2014. Investigating the relationship between free cash flows and firm performance: Evidence from Tehran stock exchange. Indian J. Sci. Res., 4: 269-279.

Hussien, H.A.R.E.T.H.A., 2016. E-Marketplace legal and regulatory framework in jordan: A general view. J. Theor. Appl. Inf. Technol., 85: 221-227.

Khaled, M.H.B., 2012. Financial crisis, cash flows and market value per share in the Jordanian commercial banks for the period 2000-2009. Interdiscip. J. Contemp. Res. Bus., 4: 191-201.

Kroes, J.R. and A.S. Manikas, 2014. Cash flow management and manufacturing firm financial performance: A longitudinal perspective. Int. J. Prod. Econ., 148: 37-50.

Lin, P.T., B. Li and D. Bu, 2015. The relationship between corporate governance and community engagement: Evidence from the Australian mining companies. Resour. Policy, 43: 28-39.

Martani, D. and R. Khairurizka, 2009. The effect of financial ratios, firm size and cash flow from operating activities in the interim report to the stock return. Chin. Bus. Rev., 8: 44-44.

Sharma, N., 2014. Extent of corporate governance disclosure by banks and finance companies listed on Nepal Stock Exchange. Adv. Accounting, 30: 425-439.

Sindhu, M.I., 2014. Relationship between free cash flow and dividend: Moderating role of firm size 2014. Res. J. Finance Accounting, 5: 1-8.

Spatacean, I.O., 2014. Investigations upon the correlations between the efficiency of investment strategies and the market performances of the Romanian financial investment companies. Procedia Econ. Finance, 15: 609-616.

Tsai, Y.J., Y.P. Chen, C.L. Lin and J.H. Hung, 2014. The effect of banking system reform on investment-cash flow sensitivity: Evidence from China. J. Banking Finance, 46: 166-176.

Wang, N. and Y. Deng, 2016. Market responses to loss shocks and insurers' post-catastrophe performance in the US property-casualty insurance market. Int. J. Econ. Bus. Res., 11: 231-246.

Warrad, L., S. Almahamid, N. Slihat and M. Al-Nimer, 2013. The relationship between ownership concentration and company performance, a case of jordanian non-financial listed companies. Interdiscip. J. Contemp. Res. Bus., 4: 17-38.

Zhang, Z. and T.B. Trafalis, 2013. Time-series analysis for detecting structure changes and suspicious accounting activities in public software companies. Procedia Comput. Sci., 20: 466-471.