

Effect of Cash Flows on the Market Value of Jordanian Industrial Companies Stocks

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Abstract

The current study aims to assess the effect of cash flows of activities (operational, investment and financial) on market values in industrial companies stocks. The study adopted secondary sources for data collection from the annual reports of Jordanian industrial companies (52 companies) for the period 2007-2016. Furthermore, the study followed the descriptive analytical approach for data analysis in addition to utilizing the Gretle Stata model to test hypotheses. Results indicated a positive statistically significant effect for each of operational and investment activities on market value of industrial companies, while there was a negative relationship between financial activities and market value of industrial companies.

Keywords: Cash flows; Market value; Industrial companies stocks; Jordan.



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1. Introduction

The significance of financial statements differs based on accounting concepts and principles and at the time the balance sheet and income statement stand prominently among the financial statements regarding importance. This importance has declined because of management's provision of misleading information to cover any deficit in its performance and to facilitate its financial position for the targeted group. However, recently, there has been a great interest in cash flow and the company's ability to generate cash, so much so, the interest has shifted to cash flow statement. This statement is an analytical tool and an extension of the various financial tools and it explains the actual company cash inflows and outflows generated from the operational activities in addition to investment and financial activities. Added to this, the statement offers important indexes through which the financial performance of the company in general and profits quality in particular are evaluated and it also shows investment returns' size (Qaddoumi and Alkeelani, 2006).

A stock's market value is determined based on supply and demand strength through selling and purchasing orders and the market value is expressed by the stock price in the market, which is affected by several factors. These factors include companies' related factors in addition to political, economic, environmental and legislative factors, which are in turn, reflected on a stock's return and the extent of risk it faces (Mansour, 2001; Matar and Eneizan, 2018; Qaddoumi and Alkeelani, 2006).

This study aims to analyze the effect of cash flows with its all activities (operational, investment and financial) on market values among industrial companies listed in Amman Stock Exchange for the period 2007-2016. The results of this study offer financial information that can serve all concerned parties such as, management, shareholders, investors and researchers. In addition, the study offers researchers and specialists, in the field, the opportunity to conduct more in-depth research and studies. Furthermore, this study is among the rare studies that have examined the relationship between cash flows and companies' market value as majority of earlier studies in this field has focused on the Jordanian banking sector, and relied on net profit, assets' return and property right as indexes for evaluating financial performance, while ignoring the stock price as one of the most important performance indexes.

2. Literature Review

Kharboush (2003), conducted a study to assess the relationship of cash flows with market value for Jordanian banks and financial institutions' stocks. The study included (16) institutions from the public financial institutions listed in Amman stock exchange during the period 1998-2001. The study used the Multiple Regression Analysis and results indicated no statistical significant relationship between the stock market value and the net cash flows.

Siam and Khaddash (2003), investigated the importance of cash flows in analyzing the financial status and the financial achievements of the company. They also assessed cash flows based on market value. A unified model was developed to test the entire companies included in the study based on the analysis of model's results using simple and multiple regression analyses. The study included 23 industrial companies listed in Amman Stock Exchange in the year 2002, established prior to 1998 and traded shares for four years (1998-2001). Among the most important results of the study was the existence of a statistically significant relationship between the stock market value and the net cash flow.

Moreover, Alkhalileh (2004) aimed to examine the relationship between profits-based performance indexes and cash indexes and the ability of each of them to explain the changes in stocks' returns. The study utilized (512) perceptions that represented the financial data for (32) companies listed in Amman Stock Exchange during the period 1984-1999. Results indicated a statistically significant and positive relationship between profits-based performance indexes and cash indexes.

In addition to the above studies, Alkhaddash and Ala'bbadi (2005) conducted a study to determine the importance of shareholders' rights return as a financial ratio based on merit and cash flows in evaluating the financial status and the market price of stocks in Jordanian public industrial companies. The sample included (26) companies listed in Amman Stock Exchange for the year 2002, which traded stocks for at least ten years. Results indicated that cash flows statement offers additional important information that support the information provided by other financial statements and there was a statistically significant relationship between the stock market values and the net cash flows.

Moreover, Altamimi and Alqaysi (2012) aimed to measure the relationship between free cash flows and the cost of capital and their impact on market value added. The results of Pearson correlation coefficients analysis found that there is a negative relationship between free cash flow with capital cost and positive with market value added, while the relationship between capital cost and market value added is negative. On the other hand, the results of the multiple regression analysis revealed the explanatory power of both the free cash flow and the cost of capital (the weighted average cost of capital) for the variance in the market value added. Thus, these results confirmed the theoretical framework between these three variables and the importance of using them as indicators when assessing the performance of companies.

In a related aimed to identify the relationship between the adequacy and efficiency of cash flows of operational activities. The study used the multiple regression analysis for hypotheses testing after checking validity of data. The study revealed a statistically significant and positive relationship for cash flows efficiency from operational activities and achieving profits in Amman and Palestine Stock Exchange. In addition, results indicated no relationship between cash flows adequacy related to operational activities.

Similarly, Akumu (2014) aimed to identify the effect of cash flows for companies listed in Nairobi Stock Exchange on their profitability. The study used the multiple regression analysis to identify the effect of cash flows on profitability of these companies during the period 2009-2013. The sample included 61 listed companies. Results indicated a negative effect of cash flows on companies' profitability and a main and negative effect on profits distribution ratio.

In Nigeria, Okpe *et al.* (2015) investigated the effect of cash flow on companies profitability for a sample comprising three banks for the period 2009-2013. The study used multiple regression and results indicated a positive effects for cash flows from operational and financial activities on the profitability of banks.

In the context of Pakistan, Kamran *et al.* (2017) aimed to examine the extent of cash flows effect on companies' profitability. Simple and multiple regression analyses were utilized for quantitative data analysis. It was indicated that cash flows enhance companies' performance but when cash flows exceeded the specific limits, this may create the problem of agency due to the interests' conflicts among owners and performance, which may in turn, lead to declined performance in companies. Results also indicated a positive correlation between cash flows and companies' profitability, with cash flows having a key role in enhancing companies' performance.

In Yook and Gangopadhyay (2010), the author conducted an assessment of cash flows on unusual returns using the ratios of cash flows' returns and the sectional regression analysis. Results indicated that companies with less than one coefficient and higher cash flows achieved more unusual returns compared to other companies.

Based on the above mentioned early studies, the current study is distinguished by focusing on the period from 2007-2016, making it the most current one among the studies reviewed above. In addition, this study focused on Jordanian industrial companies and considered three main activities for cash flows' statement (operational, investment and financial activities) and their effect on market value. Furthermore, this study focused on cash flows and their effect on the market value of companies' stocks.

3. Methodology

This study aims to analyze the effect of cash flows of Jordanian industrial companies' three main activities (operational, investment and financial activities) on the market value of companies stocks during the period 2007-2016. Hence, the main study hypothesis is formulated as follows;

There is a statistically significant effect of cash flows from three main activities (operational, investment and financial activities) on stock market price among Jordanian industrial companies listed in Amman Stock Exchange.

From this main hypothesis, the following sub hypotheses were derived;

- There is an effect of cash flows from operational activities on stock market value among industrial companies listed in Amman Stock Exchange.
- There is an effect of cash flows from investment activities on stock market value among industrial companies listed in Amman Stock Exchange.
- There is an effect of cash flows from financial activities on stock market value among industrial companies listed in Amman Stock Exchange.

To achieve the goals of the study, all (64) industrial companies listed in Amman Stock Exchange for the period 2007-2016 according to the 2017 Statistics of Amman Stock Exchange and the Depository Center were considered. Twelve of these companies were excluded for several reasons, among which, the stopping of some companies of trading during the study period. In addition, some companies have not published their annual reports during the study period. Therefore, the final sample of the study consisted of 52 companies. The study relied on annual reports of the industrial companies listed in Amman Stock Exchange to collect data related to the independent variable represented by cash flows from the three main activities (operational, investment and financial activities) and the dependent variable of the stock market value for industrial companies listed, which was measured using the mean stock price for each year in the period included in the study.

The study followed the descriptive analytical approach for the period 2007-2016. In addition, with regards to data analysis, the study utilized various statistical methods appropriate for the study goals and hypotheses including, Principal Component Analysis, Partial Least Squares Method and fixed effect and random effect models to reach realistic and unbiased results on the effect of cash flows on the stock market of Jordanian industrial companies.

4. Show Results

The independent variable represented by cash flows from three main activities (cash flows from operational activities, cash flows from investment activities and cash flows from financial activities) and the dependent variable of stock market value for Jordanian industrial companies were assessed using the descriptive analysis of data by calculating the means and standard deviations as shown in Table (1).

Table-1. Variables descriptive analysis

Max value	Min value	SD	Mean	Frequency	Variable
3,875,120,180	515,363.6	372,901,996	81,350,853	520	Market value
310,878,000	-44,602,000	27,788,670	5,630,737	520	Operational activities
24,053,307	-189,851,000	15,287,172	-2,838,244	520	Investment activities
40,000,000	-253,143,000	18,008,565.1	-2,717,471	520	Financial activities

Table (1) indicates that the dependent variable (stocks market value) highest mean reached 81,350,853 JDs with a standard deviation of 372,901,996 and the lowest value was 515,363.6 for the national company for steel industry in the year 2012. In contrast, the highest value was for the Arab Potash Company in the year 2012 and reached 3,875,120,180 JDs.

The highest component of the independent variables was the cash flow from operational activities with a mean of 5,630,737 JDs and a standard deviation of 27,788,670 and the lowest value was in the year 2016 for the Jordanian Phosphate Mining Company that reached -44,602,000 while the highest value was in the year 2007 for the Arab Potash Company that reached 310,878,000 JDs. This is followed by the cash flows from financial activities with a mean of -2,717,471 JDs and a standard deviation of 18,008,565.1, whereas the lowest value was for the Arab Potash Company in the year 2012 that reached -253,143,000 and the highest value was 40,000,000 JDs for United Cable Industries Co UCIC in the year 2007. Finally, the cash flow from investment activities obtained a mean of -2,838,244 JDs and a standard deviation of 15,287,172. The lowest value was for the Arab Potash Company in the year 2009 that reached -189,851,000, while the highest value was 24,053,307 JDs for the Jordanian Phosphate Mining Company in the year 2007.

Table (2) shows Pearson correlations analysis results for assessing the correlation between the independent and dependent variables and it indicates that the correlation was less than 0.8, which means that there was no linear regression error 1.

Table-2. Pearson correlations for the relationships among variables

Var/ Var	Mv	Cfoper	Cfinves	Cffina
Market Value	1			
Operational Activities	0.9094	1		
Investment Activities	-0.5278	-0.5964	1	
Financial Activities	-0.8096	-0.7687	0.2376	1

To confirm the absence of multiple linear regression error in the results, which affects the coefficients' estimations for the study variables, the variance inflation factor (VIF) was tested. The rule of thumb followed states that variables with VIF of more than 10.0 are regarded as a problem of linear regression error.

Table (3) shows that there was no multiple linear regression error in all models as the VIF was less than 10.0, which led to using the multiple regression formula, to assess the effect of cash flows on the stock market value.

Table-3. Variance Inflation Factor

Variance	Variance Inflation Factor VIF	1/VIF
Operational activities	4.39	0.227702
Financial activities	3	0.333467
Investment activities	1.9	0.525084

4.1. Testing the Study's Main Hypothesis

H1: There is a statistically significant effect of cash flows from three main activities (operational, investment and financial activities) on stock market price among Jordanian industrial companies listed in Amman Stock Exchange.

Three main models (Ordinary Least Square Model, Fixed Effect Model, and Fixed Radom Effect Model) were compared to test the main hypothesis as follows;

- Ordinary Least Square vs. Fixed Effect - based on the F-test, it was found that the fixed effect model was better than the OLS model as $f(63.575) = 8.1746$ and $P\text{-value} = 0.000$, therefore, the fixed effect model was selected .
- OLS vs. Fixed Random Effect – the Breuch and Bagan test was used to select the best model and results indicated that the OLS model was better than the Random Effect model as $\text{Chi} = 0.13$ and $P = 0.7201$.
- Fixed Effect vs. Fixed Random Effect - the Hausman test was used to identify the best model and results showed that the fixed effect model was the best as $\text{Chi} = 285.65$ and $P = 0.000$. So this model was utilized in this study to test the main hypothesis.

Table-4. Fixed effect model for the analysis of cash flows effect on stock market value

Stocks' market value	Coef	Std. Err	T calculated Value	P>t	95% Conf	Interval
Operational activities	5.016794	0.3505281	14.31	0	4.328317	5.705271
Investment activities	0.9416167	0.4360944	2.16	0.031	0.0850781	1.798155
Financial activities	-0.4109744	0.5011864	-0.82	0.413	-1.395361	0.5734122
_Cons	5.47E+07	4766253	11.47	0	45300000	64000000

Table (4) shows the results of the main hypothesis test and it shows that the cash flow from operational activities component had a statistically significant positive effect on stock market value among Jordanian industrial companies at (0.000) and this value is less than 0.05. In addition, the component of investment activities had a statistically significant positive effect on stock market value for Jordanian industrial companies with a value of (0.03). Meanwhile, no statistically significant effect was indicated for the financial activities on stock market value.

This result is in agreement with the results of [Altamimi and Alqaysi \(2012\)](#), which indicated a positive effect for cash flows on market value, but disagreed with that of [Ala'moudi and Alkhayyal \(2011\)](#), which revealed no positive effect of operational and investment cash flows on market value . On the other hand, this study result disagrees with [Kharboush \(2003\)](#) and [Siam and Khaddash \(2003\)](#), which indicated no relationship between financial cash flows and market value. The researcher attributes this disagreement to the different periods addressed in the two studies and moreover, [Siam and Khaddash \(2003\)](#) study addressed the industrial sector while [Siam and Khaddash \(2003\)](#) study addressed the trading and financial sector.

4.2. Testing the Study Sub-Hypotheses

Sub H1: There is an effect of cash flows from operational activities on stock market value among industrial companies listed in Amman Stock Exchange.

- Comparing the OLS model with Fixed Effect model: based on the F-test, it was shown that the fixed effect model is better than the OSL model as $F(63.575)=12.0802$ and $P\text{-value} = 0.000$, and therefore, the fixed effect model was selected.
- Comparing the OSL model with the Random Effect model: the Breuch and Bagan test was used to select the best model and results indicated that the random effect model was better than the OSL model as $\text{Chi}=14.73$ and $P\text{-value}=0.000$.
- Comparing the Fixed Effect model with the Random Effect model: the Hausman test was used to select the best model and results indicated that the fixed effect model is better than the random effect model as $\text{chi}=337.62$ and $P\text{-value}= 0.000$. Therefore, the study adopted the fixed effect model to test the study first sub-hypothesis.

Table (5) shows the results of the first sub-hypothesis test and from the table, it is evident that the component of cash flows from operational activities had a positive effect with a statistical significance of (0.000), (less than 0.05) on the stocks market value of Jordanian industrial companies.

Table-5. The fixed effect model for analysis of the effect of cash flows from operational activities on stock market price

Stocks' market value	Coef.	Std. Err.	t value	p>t	95% Conf.	Interval
Operational activities	4.86448	0.3157838	15.4	0	4.24425	5.484711
Cons	54000000	4597651	11.74	0	44900000	63000000

This result disagrees with that reported by [Ala'moudi and Alkhayyal \(2011\)](#) as the current study indicated a positive effect of cash flows from operational activities on stock market value, while their study indicated a reverse effect for cash flows of operational activities on stock market value. In contrast, this result is consistent with that of [Altamimi and Alqaysi \(2012\)](#), who found a positive effect of cash flows from operational activities on stock market value.

Sub H2: There is an effect of cash flows from investment activities on stock market value among industrial companies listed in Amman Stock Exchange.

- Comparing the OLS model with the Fixed Effect model: based on the f-test, it was shown that the fixed effect model is better than the OLS model as $f(63.575) = 53.6493$ and $P\text{-value} = 0.000$. Therefore, the fixed effect model was adopted to test the second sub-hypothesis.
- Comparing the OLS model and the Random Effect model: the Breuch and Bagan test was used to select the best model and results indicated that the random effect model was better than the OSL model as $\text{Chi} = 1115.80$ and $P\text{-value} = 0.000$.
- Comparing the Fixed Effect model with the Random Effect model: the Hausman test was used to select the best model and results indicated that the fixed effect model is better than the random effect model as $P\text{-value} = 0.000$. Therefore, the study adopted the fixed effect model to test the study second sub-hypothesis.

[Table \(6\)](#) presents the result of the second sub-hypothesis test and there was no statistically significant effect of the component of cash flows from investment activities on stocks' market value among Jordanian industrial companies.

Table-6. Analysis of the effect of cash flows from investment activities on stock market price

Stock market value	Coef	Std.Err	t value	P>t	95% Conf	Interval
Investment activities	-0.5619164	0.4440618	-1.27	0.206	-1.434097	0.3102645
_cons	79800000	5187832	15.37	0	69600000	89900000

This result is in agreement with that of [Siam and Khaddash \(2003\)](#) and that of [Ala'moudi and Alkhayyal \(2011\)](#), who found no effect of cash flows from investment activities on stock market value.

Sub H3: There is an effect of cash flows from financial activities on stock market value for industrial companies listed in Amman Stock Exchange.

- Comparing the OLS model with the Fixed Effect model: based on the f-test, it was shown that the fixed effect model is better than the OLS model as $f(63.575) = 21.8886$ and $P\text{-value} = 0.000$ and as such, the fixed effect model was adopted to test the second sub-hypothesis.
- Comparing the OLS model and the Random Effect model: The Breuch and Bagan test was used to select the best model and results indicated that the random effect model was better than the OSL model as $\text{Chi} = 135.092$ and $P\text{-value} = 0.000$.
- Comparing the Fixed Effect model with the Random Effect model: the Hausman test was used to select the best model and results indicated that the fixed effect model is better than the random effect model as $P\text{-value} = 0.000$. Thus, the current study adopted the fixed effect model to test the study's third sub-hypothesis.

[Table \(7\)](#) shows the results of testing the third sub-hypothesis and it indicates that the component of cash flows from financial activities had a statistically significant negative effect at (0.000) on stocks' market value of Jordanian industrial companies and this value is less than (0.05).

Table-7. Analysis of the fixed effect model for the effect of cash flows from financial activities on stock market price

Market value	Coef	Std. Err	t value	p>t	95% Conf	Interval
Financial activities	-2.36037	0.5087799	-4.64	0	-3.359664	-1.361076
_cons	74900000	5137208	14.59	0	64800000	85000000

This result disagrees with that of [Ala'moudi and Alkhayyal \(2011\)](#), and that of [Altamimi and Alqaysi \(2012\)](#), who found a positive effect for cash flows from financial activities on market value and this is attributed to the different periods addressed in these studies. Meanwhile, the result is in agreement with that of [Alsa'idi \(2014\)](#) study that found no effect for cash flows from financial activities on market value.

5. Discussion

- Results of the first hypothesis indicated that the component of cash flows from operational activities had a statistically significant and positive effect at (0.000), which is less than (0.05) on stocks' market value among Jordanian industrial companies. In addition, the component of cash flows from investment activities had a statistically significant and positive effect at (0.03) on stocks' market value of Jordanian industrial companies, while no statistical significant effect was indicated for cash flows from financial activities on stocks' market value of Jordanian industrial companies.

- Results of the 1st sub-hypothesis indicated that the component of cash flows from operational activities had a statistically significant and positive effect at (0.000), which is less than (0.05) on stocks' market value of Jordanian industrial companies.
- Results of the 2nd sub-hypothesis indicated statistically significant effect for cash flows from investment activities on stocks' market value among Jordanian industrial companies.
- Results of the 3rd sub-hypothesis indicated a negative effect at (0.000), which is less than (0.05) for cash flows from financial activities on stocks' market value among Jordanian industrial companies.

6. Recommendations

- Further studies have to be conducted to investigate the effect of cash flows on stocks' market value of Jordanian industrial sector and other sectors individually then addressing sectors altogether.
- It is worth noting that the sample size and its provisions represented a limitation for analysis methods and some conclusions, therefore it is recommended to conduct more studies and research that include larger samples and above ten year-periods to be studied so as to conclude with more accurate and reliable findings.
- The study recommends studying the industrial sector for its effective role in economic development and for its importance in the country gross product, which in turn, is reflected on facilitating the payments balance in case the country relies on exporting its industries.
- It is also suggested to further examine the cash flows from operational and investment activities and their affect stocks' prices in Stock Exchange.
- This study recommends using untraditional financial indexes to judge and define what affects a company's stock price in stock exchange in order to make appropriate financial and investment decisions.

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