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Investigating the Effects of Stable Profitability and Free Cash Flow on Stock Returns of Companies Listed in Tehran Stock Exchange

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Abstract *Given economical conditions being dominated in Iran and recent changes in domestic industries, the attention given by different groups, specifically by investors and financial analysts, to the status of enterprises and especially their efficiency has been multiplied. The managers, on the other hand, are also looking to improve their position in the competitive scene. The purpose of this study is to investigate the relationship between free cash flow, return on equity, and factors affecting it. A sample of 84 companies listed in Tehran Stock Exchange was selected through classified random sampling which were investigated for 8 years. Chow and Hausman test were used to specify the statistical methods; finally, results of the regression models indicated a strong relationship between free cash flow and return on equity. Although companies' stable or unstable profitability does not affect this relationship, it can adversely influence efficiency.*

Key words Stable profitability, value of stock market, free cash flow

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1. Introduction

Identifying the variables affecting stock price changes can lead to correct and consistent pricing and improving investors' decisions. This will ultimately result in the development of capital markets. Among the influential factors is the company's available and free cash flow. Creditors are willing to invest in companies that have higher internal funds since these companies have powerful tools for debt repayment and they clearly have greater financial flexibility. On the other hand, cash enables managers to develop growth opportunities and development programs that will lead to an increase in company's value. Another factor can be profitability; examining past trends of companies, it can be concluded that considering only the earnings per share in one year cannot lead to correct valuation of the shares; this is so since this value may be much less in the coming years. Thus, it is better to consider stable profitability as the major criterion. This means that the higher the profits of a given company than the average profit or desired profit in the previous or coming years, the higher the risk of the company and the less its value will be; the reverse is also true, that is this difference being small indicates a lower risk and a higher share value. This study aims at examining the effect of stable profitability and cash flows on companies' stock market value.

2. Review of Literature and Hypothesis

Free cash flow represents the cash that a company owns after paying the current and capital expenditure (Habib, 2011). This concept has been given various definitions; for instance, Hackel *et al*. (2000) proposed two definitions: (1) the traditional method in which the paid funds for company's investment is deducted from operating cash flow. (2) The second definition adds discretionary cash outlays (DCO) and discretionary CAPEX (DCAPEX) to the traditional FCF.

According to Richardson (2006), free cash flow is the net cash obtained from operating activities deduced from development costs; this cost is then added to R&D expenditures and finally investment expenditures in new projects is deducted from that. Penman and Yehuda (2009) defined free cash flow as the cash obtained from operating activities deducted from cash components of investment. Zerni *et al*. (2010) knows cash flow as operating cash flow minus dividends paid for preferred stock, common stock, and CAPEX. The stable benefits are also of great importance and are considered as durable profits; in other words, these profits are not fleeting and temporary, but permanent. The more stable the profit is the more power the company has to maintain current profits and consequently, the higher the profit quality will be. Richardson stated that more sustainable profitability has higher quality; therefore, it has been given various definitions: for instance, Penman investigated the profit quality through the relationship between the future profit and current profit. Antowastel and Philips defined profit quality as the profit ability to provide the primary objectives of financial statements; this way they can provide profit information about the assessment of the enterprise's cash flows for investors, creditors, and other users. Bellovary *et al.* know profit quality as the symbol of reported profit power to reflect real profit of the enterprise, the predictability of future profit, and the sustainability of reported profit. According to Thai, the profit quality is high when:

1. Accrualsquality is high; various measures of estimating the earnings quality show that a favorable benefit is the one that depicts cash;

2. Coefficients of profit stability are significant; low profit quality is defined by low profit stability. Low sustainability decreases profit responsiveness. To investigate the profit stability, Freeman et al. examined the relationship between current profits and future profits as follows:

Profitability: Profit obtained from ordinary activities and alpha estimated the stability of asset returns and is the index for profit sustainability. If the value of this relationship approaches 1, then the higher sustainability is gained. Oslovan believes that placing the same coefficients for cash and commitment section in the above relation is not suitable and it is better to be adjusted. Different divisions have also been proposed to calculate the efficiency. Among which are: (1) Indicator of residual income, in which the capital cost of these indicators are considered. They include CVA and EVA. (2) Indicators of the profit remaining components, in which the capital cost is not included. They include some cases such as earnings before interest and taxes, earnings before interest and taxes and depreciation, earnings before extraordinary items, operating profit after taxes, and net return on assets. (3) market-based indicators which are obtained from return of capital, such as total shareholders' return, market added value, and value index. (4) Cash-based indicators such as operating cash flows and investment cash return. Traditional indicators are based on historical data and include operating profit net income and earnings per share (Samadi Lordegani, 2008). Some studies have been carried out related to the recent research some of which are mentioned below.

Habib (2008) studied companies in New Zealand and revealed that although the profitability's explanatory power is higher than free cash flow; both free cash flow and profitability associated with stock returns have high information components. However, these two factors are also affected by firm specific factors which were addressed in detail in the cited research. Penman *et al.* (2009) evaluated the market value of free cash flow and stated that free cash flows have increasing effect on stock returns; in addition, profitability leads to an increase in the stock price. In a five-year period study on Greek companies, Dimitropolos (2010) showed that in case profitability is temporary, investors look for other tools to evaluate the performance. It also demonstrated that when compared with cash flows, profit has a greater impact on stock returns; of course all these relationships are positive. Moradzade Fard *et al*. (2010) investigated companies in Tehran Stock Exchange between 2004 and 2008 and showed that there is no significant relationship between free cash flows and firms' stock price. Using regression analysis, Kashef (2012) studied Iranian Stock forms in the period between 1996 and 2010 and indicated that company's profit can be used as a factor in predicting stock returns in the next year. In other words, the change in profits will lead to change in stock returns. In another research, Habib (2011) examined the relationship between free cash flows and profit sustainability in the stock returns of Australian companies. His results indicated that free cash flow is positively related to stock returns when profitability is temporary. Da (2012) studied different models of investment regarding the stock return. Findings of his study represented the efficiency and inefficiency of different criteria by providing several evidences and reasons. Using CFNAL-MA3, Du (2012) investigated factors affecting firms' stock returns and stated that the components of this index are effective on stock price.

In a study by Lischewski (2012) on Poland companies, it was found that the size and reputation of companies are effective in developed markets while liquidity is of that most importance in developing countries. Park (2013) examined the relationship between capital structure, free cash flow, stock variety, and performance of different companies; his findings revealed that leverage is an effective way in reducing free cash flow and promoting company's performance. Reducing inappropriate variation in Company's investments from free cash flow may result in enhancing firm performance. According to the theoretical framework and research background, the following assumptions are proposed:

1. Free cash flow influences firms' stock returns.
2. Profit stability influences stock returns.
3. Profit stability influences the relationship between free cash flow efficiencies and firms' stock returns.

3. Research Methodology

Since this investigation scrutinizes the specific parameters in the study and then examines the significance of these observations, it follows an experimental-correlational design; it also tries to determine the relationship between two or more measurable variables and their size. Regarding the obtained results, it is an applied study and regarding the operational logic, it is considered an inferential study. The sample was selected using classified random sampling. Eviews was also used to examine and evaluate the models and perform necessary statistical calculations.

3.1 Population and sample

All listed companies in Tehran Stock Exchange having the following conditions make up the study population:

1. They must not be among financial intermediary companies, banks, insurance, and investment companies.
2. Their fiscal year must be finished by March, 20 of each year and also, they must not change their fiscal year during the investigated years.

Among 384 companies having these conditions, a sample of 84 companies was examined during an eight-year period between 2004 and 2012. The required financial data were collected through Tehran Stock Exchange websites including their financial statements and notes. In order to complete and check them, some informing software such as Rahavard Novin was used.

3.2 Variables and calculation method

a) Dependent variable: it was stock returns which contained valid information for investors and its changes were regarded as a criterion for companies' performance; the following method was used to calculate it (Habib, 2011).

Stock return = (stock price at the beginning of the year – stock price at the end of the year)/stock price at the beginning of the year

b) Independent variables: Given the importance of return on equity for the companies, factors which may affect it are examined as follows:

1) Free cash flow: it has always been considered as an internal and ideal resource for companies; it can also be used in predicting stock returns in future periods as well. Given the fact that flow in Iran has 5 classifications in Iran, it is adjusted according to the following formula (Habib, 2011):

Free cash flow = operational cash flow + received dividends and received profits for short-term deposits - paid finance costs– paid taxes – purchases of tangible and non-tangible assets

2) Profit sustainability: this can also be effective in firm's performance. And is calculated using the following method:

3) Profit sustainability = (the current year's net profit – the net profit of the previous year)/net profit of previous year

Profit stability is divided into two parts from the mean. The part smaller than the mean (which is shown by 1) include companies with sustainable profit, and the part greater than the mean include the companies with unsustainable profit (Habib, 2011).

c) Control variables: According to the studies conducted so far, many factors can affect the relationships between these variables. It has been tried, as much as possible, to control their effect; they consist of the followings:

1) Book value per share = sum of equity/number of shares.
2) Dividends per share which have been extracted from the companies' financial statements.
3) Firm size which is calculated using total revenues of the firm (total sales) in each year.
4) Leverage = Total Assets/Total Liabilities.

4. Descriptive Statistics

Table 1 represents the descriptive statistics of research variables including mean, median, minimum, maximum, and standard deviation.

Table 1. Descriptive Statistics

	BV	DPS	FCF	LEV	RETURN	EP	SIZE
Mean	0.024483	535.7783	-29962.1	0.693531	28.29726	-0.81619	12.72673
Median	0.001392	270	3076	0.688584	7.79	0.04	12.50276
Maximum	3.384579	6500	6596692	3.284909	734.14	109.14	18.49227
Minimum	-0.03757	0	-2.8E+07	0.040548	-77.71	-315.58	2.397895
Std. Dev.	0.154017	799.9047	1625781	0.277982	89.76301	18.86131	1.777643
Observations	627	627	627	627	627	627	627

Mean is a good indicator to show the data centralization. Median is also among indicators that show the population status and these two values being equal indicated the normality of the desired variable such as leverage variables and firm size. Standard deviation is also a dispersion variable which shows that the maximum distribution belongs to free cash flow and the minimum one belongs to book value.

5. Data Analysis

5.1 Chow test

The test is performed to choose between two alternative ways of pooling and panel model for estimating the model; results are shown in the table below:

Studying tables 2 and 3, it can be concluded that pooling is appropriate for investigating the desired models.

Table 2. Results of fixed effects

Redundant Fixed Effects Tests			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.377862	-80,556	0.**000**
Cross-section Chi-square	188.9176	80	0.**000**

Table 3. Results of fixed time effects

Redundant Fixed Effects Tests			
Test period fixed effects			
Effects Test	Statistic	d.f.	Prob.
Period F	6.761548	-7,629	0.0654
Period Chi-square	46.57781	7	0.1387

5.2. Hausman test

This test is based on the presence or absence of correlation between the estimated regression error and independent variables of the model; if such a relationship exists, fixed effect model is used; if not, the random method is used. The obtained results are presented in Table 4.

Table 4. Hausman test results

Test summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	Test results
Cross-section random	5.388083	5	0.03704	(Fixed Effect)

Given the Chow test and Hausman test results, the most appropriate method to estimate the parameters and research hypothesis is the fixed effect model. Then the models are reviewed and finally the hypotheses are tested.

5.3 Testing models

First, the validity of defined regression models was examined and then, if they were confirmed, hypotheses can be tested. The obtained results are presented in Table 5.

Table 5. Regression models test

Durbin-Watson stat.	Prob (F-statistic)	F-statistic	Adjusted R-squared	R-squared	Cross-section fixed (dummy variables)
2.292085	0	10.7361	0.56352	0.6214	Fist model
2.288938	0	11.49757	0.587593	0.643567	Second model

Given the probability of F statistics (being zero), it was determined that the defined by the regression models are significant and testable at 99% confidence coefficient. The value of Durbin-Watson suggests that there is no correlation between the data. The adjusted coefficient of determination also shows the rate of change of the independent variable for each dependent variable. The hypotheses can then be examined.

6. Results

The first hypothesis sought to examine the effect of free cash flow on stock returns; to this aim, regression model was used. The corresponding results are demonstrated in Table 6.

$$RETURN_{it} = a + B_1 FCF_{it} + B_2 SIZE_{it} + B_3 LEV_{it} + B_4 DPS_{it} + B_5 BV_{it} + E_{it}$$

Table 6. The first hypothesis test results

Variable	Coefficient	t-Statistic	Prob.	Level of confidence
FCF	**2.72**E-06	2.462099	0.0141	**95**%
SIZE	5.065768	3.119999	0.0019	**99**%
LEV	3.569148	1.652866	0.0989	Not significant
DPS	-0.00458	-1.80924	0.071	Not significant
BV	4.289856	0.679929	0.4968	Not significant

The above results confirm the first hypothesis; among auxiliary variables, the firm size was the only effective variable. Then the second hypothesis and the effect of stable profitability on stock returns was tested, and finally the effect of stable profitability on the relationship between free cash flow and stock return was examined in the third hypothesis; regression equation was used to test these hypotheses the results of which are shown in Table 7.

$$RETURN_{it} = a + B_1 FCF_{it} + B_2 SIZE_{it} + B_3 LEV_{it} + B_4 DPS_{it} + B_5 BV_{it} + B6\ EP_{it} + B7\ FCF_{it} . EP_{it} + E_{it}$$

Table 7. Test results of hypotheses 2 and 3

Variable	FCF	SIZE	LEV	DPS	BV	EP	FCF. EP
Coefficient	2.44E-06	5.567891	-0.24738	-0.00457	5.760081	-2.41752	9.98E-07
t-Statistic	2.051409	2.849419	-0.2647	-1.77146	1.047786	-2.19654	0.527052

Variable	FCF	SIZE	LEV	DPS	BV	EP	FCF. EP
Prob.	0.0407	0.0045	0.7913	0.077	0.2952	0.0285	0.5984
Level of confidence	**95**%	**99**%	Not. Sig	Not. Sig	Not. Sig	Not. Sig	Not. Sig

The results presented in the table indicate the impact of stable profitability on stock returns which is confirmed in 95% confidence level. Yet, stable profitability has no effects on the relation of free cash flows and firm's stock returns indicating that the third hypothesis is not confirmed.

7. Conclusion

There are several ways to supply the required cash of firms such as borrowing from the bank and getting a loan, issuing shares, and using extra cash inside the company. Companies usually turn to borrowing or issuing shares when there is no internal fund for them or it is considered to be paid for special expenditures. This is the most efficient way to develop and expand the company's activities, settling debts, and investing in new projects. However, when compared with loans or equity, it has no obligation to pay interests, loans, or even profits. It is obvious that this is more favorable for companies which are also confirmed by the study results. In other words, confirmation of the first hypothesis means that free cash flow has an impact on stock returns, i.e. according to analysts and investors, and managers, having more cash indicates good performance of the company; this is consistent with findings of Penman *et al.* (2009), but differs from that of Moradzade *et al*. (2010). It could be because of the fact that financial firms were not included in this study due to their different nature from other companies. The second hypothesis examined the relationship between profit stability and instability and its impact on the firm's efficiency which was confirmed at 95% confidence level. In other words, it can be said that its profitability and stability affects firm's efficiency and this effect is negative. In case the corporate profits being permanent and stable, they are reassured to be used in development and investment decisions. In other words, the corporate risks of using free cash for short-term and long-term decisions are reduced and managers tend to utilize internal funds more which lead in increasing efficiency and share price. Earnings quality is among the issues that have been given great attention in recent years and what is mean by that is the potential growth rate of earnings and the likelihood of future realization of the company's profits. In other words cannot be stated that value per share is only associated with this year's profit of the company, but with the expectations of the company's future ability in creating profits in the coming years and also with the confidence made in the realization of these expectations. Hence the third hypothesis, stating the impact of stable profitability on free cash flow, is rejected. One of the reasons may be the different methods used to calculate the profit which are easily manipulated by managers' decisions. This can lead not to trust the announced profit and its stability. The findings are different from that of Habib (2011). Covariates results also show some interesting findings: firm size is among the variables that affects both stock returns and also the relationship between free cash flows and stock returns with high confidence level. This means that the higher the company' sale and the better the position of the company in sale market, the higher its value market will be; consequently, it will attract more investors, too. This is in line with findings of Lischewski (2012). It is clear that as the sales increase, the profitability also increases and as the cash purchase raises, the cash flows also raise. The other variables including leverage, dividend, and book value have no effect on the mentioned variables. This is different form findings of Park (2013) which stated that regarding the above mentioned cases can help analysts to evaluate the firm's efficiency.

8. Pending application

The obtained results indicate a strong positive relationship between free cash flow and firms' return on equity. However, these results should be taken into account with the current conditions prevailing in Iran and its position in the world economy. Results also indicate that having cash for the Iranian companies greatly affects their performance. The reason behind the companies' tendency towards using more internal funds can be the difficult way of foreign borrowing, the relevant obligations, and stringent rules for issuing new shares. In this regard, the directors are recommended to give special attention to improving cash flow. Since size or the amount of company's sale is among effective factors, it is recommended to have cash sales rather than accrual; regarding the high inflation dominating Iran's economy, receiving current funds rather than later

funds is highly recommended and emphasized. The stability of profit also affects stock returns; thus, it is recommended to analysts, users of firms' financial statements, and those interested in following firms' performance to take into account the above-mentioned cases and the way sustainability is calculated. Finally, it is suggested that variables such as risk and inflation be also considered in similar studies as control variables since required information for conducting the present study is obtained from historical financial statements.

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