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Investigating Relations of Free Cash Flow, Operational Profit and Dividend Yield To Dividend Division Changes

Masoud Sotoude[1], Mohammad Sarchami[2*]

[1]Department of Accounting, Sirjan Branch, Islamic Azad University, Sirjan, Iran
[2]Young Researchers Club, Sirjan Branch, Islamic Azad University, Sirjan, Iran

ABSTRACT

Presentation of useful and reliable information and to capital markets and investors can attract investors' trust and in that way lead to dynamic and efficient market share. Forms of cash fund flow are one of the parts of financial reports that are given to investors. This information is a tool for assessing transfer of debt payment power, inventory, and financial flexibility. The purpose of this research is to investigate relations among free cash flow, operational profit dividend yield variables, and dividend division changes. The hypotheses are the following: 1) Free cash flows, operational profit, and dividend yield are related to dividend division changes; 2) free cash flows, operational profit, and dividend yield are related to dividend division changes in firms which have low free cash flows; and 3) free cash flows, operational profit, and dividend yield in middle growth firms are better predictors of dividend division changes. Eighty accepted firms in Tehran's stock exchange from 2005 to 2009 are examined. The hypotheses are examined by correlation coefficients and f tests using SPSS. The results of the research confirm the first hypothesis and reject the second and third hypotheses.
KEYWORDS: free cash flow, operational profit, dividend yield and dividend division changes

1. INTRODUCTION

Financial reports are a connecting bridge between commercial units and users of financial forms, and users make decisions according to information from these financial forms. The forms of cash fund flow are basic financial forms and acquired cash funds from operational activities shows the ability of the firm to produce cash flows. Acquired cash funds from operational activities are not only invested in new properties in order that firm maintains the current level of operational activities, but some parts of these funds are distributed among investors as dividends. Therefore, acquired cash funds from operational activities are not the only indication of a commercial unit's ability to produce cash flows. Hence, it is necessary that free cash flows be calculated and evaluated alongside acquired cash funds from operational activities [1].

Previous accounting criteria including share profits and property yield cannot explain commercial unit performance alone but should be used alongside other criteria including the commercial unit's free cash flows [2].

Free cash flow is the sum of the cash available for purchasing of target investments (acquiring other governmental units or investing in shares and stock of other units), dividend payment, debt reimbursement, or increasing inventory [3]. This index shows the degree of financial flexibility of the firm. Currently most analysis sees net profit as the basic factor and the only valid factor for explaining firms' performance. According to this simple approach, a firm works better when net profit increases and does worse when net profit decreases. It is said that a firm that has had more net profit in the previous year has created more wealth and benefit for its investors in relation to a firm that has had less net profit. Also according to this sense, a positive net profit leads to increasing the firm's value and a loss leads to decreasing the firm's value (investors) [4].

2. REVIEW OF LITERATURE

Wilson (1986) investigated the rational information content of obligational and cash flows on profit declaration time and date of annual financial report presentation. The results of his research show that obligational components and cash profit have additive informational content in relation to profit and in particular, profit obligational components add information related to cash components.

Simons (1994) has considered the relation between cash flows and dividend changes by separating firms whose relation of profit and cash flow is weak. The results of this research show that none of the inventory criteria in this

*** Corresponding Author:** Mohammad Sarchami, Young Researchers Club, Sirjan Branch, Islamic Azad University, Sirjan, Iran. Email : mohammadsarchami@yahoo.com , Tel: 09133477299

research have additive value for explaining dividend changes and that showing a relation between these two variables is not possible.

Agnes Cheng and colleagues (1996) researched the additive information content of acquired cash flows from operational activities according to a fixed rate of profits. They assumed that the informational additive content of accounting profit was increased by profit permanence decreasing and the informational additive content of acquired cash flows from operational activities was increased by profit permanence decreasing. The results of their research show that despite profit instability, the operational cash flow variable has more effect on abnormal yields. In terms of profit stability, both profit and operational cash flow variables have informational additive content. Finally, the researchers concluded that the informational content of acquired cash flow from operations was increased when profit stability decreased.

Charitou and Nikos (1998)researched The Association between operational cash flow and dividend division changes. They main hypothesis is that operational cash flows should have a positive relation to dividend changes because cash flows are an appropriate criterion for measurement of firm performance and inventory. The results of their research show no appropriate relation between operational cash flow and dividend division changes; however, operational cash flows are related positively to dividend division changes in firms that have low operational cash flows and operational cash flows in firms that have middle growth are a better determinant of dividend changes.

Ferdinand and Kealey (1999) researched investment opportunities, amount of debt, and profit division policies in Korean firms. They investigated the relation between the amount of debt and profit division policies in consideration of investment opportunities. Their hypothesis was that the relation between investment opportunities and debt and policies for profit division is negative. The results of this research confirmed their hypothesis. They show that investment opportunities with debt have a negative relation with policies of profit division, that investment opportunities can influence debt policies of a firm and that when the amount of debt is higher, the investment opportunities are lower.

Ferdinand and Tsui (1998) researched of the free cash flow and debt monitoring hypotheses: Evidence from audit pricing in Hong Kong business. They investigated the relation among variables for firms that have low investment opportunities. They divided their sample of firms that have low investment opportunities into two groups: firms with high debt and firms with low debt. They considered the relation between free cash flow and accounting fees in these two groups. The results show that free cash flow and amount of debt influence accounting fees and the relation between free cash flow and accounting fees in firms that have low growth and high debt is weaker than in firms with low debt and that a positive relation between free cash flow and accounting fee variables depends on the amount of debt; the relationship decreased as the amount of debt increased. Auditors expect higher fees when free cash flows are high and growth opportunities are low, but this positive relation decreased as debt increased.

Dastgir and Sharifi Mobarake (2012) researched in consideration of relation between cash flows and share yield of firms, Examines three hypotheses: 1) there is a significant relation between operational cash flows and share yield of accepted firms in stock exchange. 2) There is a significant relation between free cash flows and share yield of accepted firms in stock exchange, and 3) free cash flows have higher informational content than operational cash flows in explanation of and share yield of accepted firms in Tehran's stock exchange. The first hypothesis was rejected and the second and third hypotheses were confirmed. The results show a low power of operational cash flows for firms' performance evaluation.

3. HYPOTHESES

The hypotheses in this research are as follow:

1. Free cash flows, operational profit, and dividend yield are related to dividend division changes.
2. Free cash flows, operational profit, and dividend yield are related to dividend division changes in firms that have low free cash flows.
3. Free cash flows, operational profit, and dividend yield are related to dividend division changes in firms that have middle growth.

4. METHODOLOGY

This theoretical foundations and basic context of this research subject come from, books and Persian and foreign articles. The hypotheses are tested by multi-variable regression using SPSS statistical software at a 95% certainly level, which is modified for confirmation or rejection of some criteria such as R2 and t tests.

5. STATISTICAL POPULATION AND SAMPLE

Information has been provided by using stock exchange reports and informative systems related to stock exchange including "Dena Sahm" system. According to our information, 310 firms were accepted in Tehran's stock exchange from 2005 to the end of 2009. The sample consists of all those firms that meet the following conditions:

1. Required financial information related to them during research years is available.
2. The date of their acceptance in the stock exchange is before 2005.
3. The firms declared a cash share profit change.

Eighty firms in Tehran's stock exchange were chosen for the sample based on these conditions.

6. Variables and how to calculate and derivation them

The table below needs to be introduced in the text. It also needs a number and title.

Table 1 - Variables and how to calculate and derivation them

	variables	Data	source	Calculating way
independent variables	Free cash flow (FVF)	Tax cost- cash dividend- financial securement cost-operational profit before amortization and market value of stockholders equity	income statement, cash flow statement and attached note of financial forms	**Tax cost-dividend-financial securement cost-operational profit before amortization / Market value of stockholders equity at beginning of the fiscal year**
	Operational profit (OPNI)	Operational costs-operational incomes and market value of stockholders equity	Income statement, cash flows statement	**Operational costs- operational incomes / Market value of stockholders equity at beginning of the fiscal year**
	(DIVL) Dividend yield	Cash profit and market value of stockholders equity	Income statement, cash flows statement and attached note of financial forms	**Cash dividend of current year / Market value of previous year stockholders equity**
Dependent variable	Dividend division changes (ΔDIV)	Cash dividend and market value of stockholders equity	Income statement, cash flows statement and attached note of financial forms	**Cash dividend of previous year-cash share of current year / Market value of stockholders equity at beginning of the fiscal year**
Meddlesome variable	growth (G)	Book value of debt, market value of stockholders equity and Book value of total properties	Balance sheet, attached note of financial forms	**Book value of debts- Market value of stockholders equity / Book value of total properties**

7. FINDINGS AND ANALYSIS

All research information and data were quantities and the relations among the target hypotheses are on the basis of correlation coefficients, so this research uses regressions and correlation coefficients to test the hypotheses. Some steps for hypotheses testing follow:

1) Table design and classification of information related to research variables including operational profit, free cash flow, and dividend yield and dividend division changes by using Excel software.
2) Application of the after following statistical methods for related information regression:

Testing models:

1-DIVit=Bo+B1OPNI+B2FCF+B3DIVL+e
2-DIVit=Bo+B1OPNI+B3DIVL+e
3-DIVit=Bo+B2FCF+B3DIVL+e
4-DIVit=Bo+B1OPNI+B2FCF+e

DIV=dividend division changes
OPNI=operational profit
DIVL= dividend yield

FCF= free cash flow

3) On the basis of these models, for testing the first hypothesis, it is expected that the free cash flow coefficient (B2) is positive and statistically significant, that is, that declaring the amount of free cash flow influences the explanation of dividend division changes.

4) For testing the second hypothesis, the sample member firms are divided into three equal groups according to their free cash flows (FCF). Group 1 shows the lowest FCF, group 2 show the middle FCF, and group 3 shows the highest FCF. Statistical model number 1 is used for each groups separately and it is expected that the free cash flow coefficient is positive and significant for group one (lowest FCF).

5) For testing the third hypothesis, the sample firms are classified on the basis of the ratio of market values to book value (growth index) and divided into three groups based on the amount of growth (MB). Group 1 shows low growth, group 2 shows middle growth, and group three shows the highest growth. Statistical model number 1 is used for each group separately and it is expected that the free cash flows coefficient is positive and significant for group two (middle growth).

First hypothesis testing

The first hypothesis is stated as follows:

Hypothesis 1: Free cash flows, operational profit, and dividend yield are related to dividend division changes.

This hypothesis was examined by dividend division changes regression (ΔDIV) on operational profit (OPNI), free cash flows (FCF), and dividend yield (DIVL). Table 2 shows the results of the regression related to this hypothesis. On the basis of the results, OPNI and FCF have a negative relation with ΔDIV and the relation of FCF is more powerful; it is significant at the 1% level. The relation of OPNI is not significant. DIV has a positive and significant relation with ΔDIV at the 1% significance level statistically. The determination coefficient of model number one is 0/51 and the correlation coefficient is 0/71.

In model 2, the coefficient of OPNI is negative at the 5% significance level and in model 4, the coefficient of OPNI is positive at the 1% significance level.

In models 3 and 4 the coefficient of FCF is negative at the 1% significance level statistically.

Also, the coefficient of DIVL in models 2 and 3 is positive at the 1% significance level.

The explanatory power of all models is good and significant, and the correlation coefficient is nearly equal in all models except model 4.So, according to these results, we conclude that there is a relation between free cash flows and dividend division changes.

Table 2 shows the results from the first hypothesis testing done on the basis of statistical model 4.

1- Δ DIVit=Bo+B1OPNI+B2FCF+B3DIVL+e

2- Δ DIVit=Bo+B1OPNI+B3DIVL+e

3- Δ DIVit=Bo+B2FCF+B3DIVL+e

4- Δ DIVit=Bo+B1OPNI+B2FCF+e

Table 2 - Results of regression testing of first hypothesis using the following models

Variables title	MODEL 1	MODEL 2	MODEL 3	MODEL 4
constant	-٠/٠388 (-4/286)**	-٠/٠458 (-5/164)**	-٠/٠388 (-4/286)**	-٠/٠246 (-2/423)**
OPNI	-٠/٠669 (-٠/855)	-٠/139 (-1/911)*		٠/259 (15/68)**
FCF	-٠/110 (-3/٠35)**		-٠/110 (-3/٠35)**	-٠/203 (-4/80)**
DIVL	٠/382 (20/45)**	٠/374 (20/٠24)**	٠/382 (20/45)**	
n	400	400	400	400
R	٠/71	٠/70	٠/71	٠/61
R^2	٠/51	٠/49	٠/51	٠/38
F – VALUE	209/181**	400/944**	209/181**	122/927**

*: at the 5% significance level **: at the 1% significance level

Second hypothesis testing:

The second hypothesis is stated as follows:

Hypothesis 2: Free cash flows, operational profit, and dividend yield are related to the dividend division changes in the firms which have low free cash flows.

This hypothesis was examined by regressing dividend division changes (DIV Δ) on operational profit (OPNI), free cash flows (FCF) and dividend yield (DIVL).

In Table 3, the second hypothesis is tested using statistical model 1 separately for each group, which has been classified on the basis of free cash flows. According to the results shown in this table, the coefficient of FCF was positive in group 1(lowest FCF) but it was not significant.The coefficient of OPNI is negative and insignificant, but the coefficient of DIVLis strongly positive at the 1% significance level. The coefficient of model determination was 0/92, which is very high and significant, and its explanatory power is extremely high and is at the 1% significance level.

The coefficient of FCF is negative in group 2 (middle FCF) and it is not significant but the coefficients of OPNI and DIVL are positive. Only the coefficient of DIVL is significant at the 1% level. The coefficient of model determination is 0/68 and its correlation coefficient is 0/82, which is positive and significant. The explanatory power of this model is high and is significant at the 1% level. In group 3 (highest FCF), the coefficients of FCF and DIVL are positive but the coefficient of OPNI is negative and none of them is statistically significant. The determination coefficient and correlation coefficient ofthe model is low and also the explanatory power is low and significant.

So according to these results, the relation between free cash flows and dividend division changes in firms which have low free cash flows is negative and it is not statistically significant.

Table 3 shows the results from testing the second hypothesis testing using following model for different FCF levels:

Model: Δ DIVit= Bo+B1OPNI+B2FCF+B3DIVL+e

Table 3 - Results of second hypothesis regression testing

Variables title	MODEL 1 Lowest FCF	MODEL 2 Middle FCF	MODEL 3 Highest FCF
constant	·/·88 (-11/50)**	-·/·78 (-9/408)**	·/·428 (1/978)*
OPNI	-·/·64 (-·/511)	·/123 (1/314)	-·/·129 (-·/314)
FCF	·/·18 (·/774)	-·/·18 (-·/365)	·/·206 ·/372
DIVL	·/569 (41/83)**	·/492 (16/94)**	·/·78 (1/277)
n	137	131	127
R	·/96	·/82	·/16
R^2	·/92	·/68	·/·28
F - VALUE	1750/30**	287/23**	1/249

*: at the 5% significance level **: at the 1% significance level

Third hypothesis testing:

The third hypothesis is stated follows:

Hypothesis 3: Free cash flows, operational profit, and dividend yield in middle growth firms are better predictors of dividend division changes.

This hypothesis, the same assecond hypothesis, was examined by regressing dividend division changes (DIV Δ) on operational profit (OPNI), free cash flows (FCF), and dividend yield (DIVL).

Table 4 shows the results of the third hypothesis regression for each of three groups that are classified on the basis of the growth index (MB). As shownin this table, in group 1(lowest growth) the coefficient of OPNI is negative at the 5% significance level. The coefficient of FCF is negative and not significant but the coefficient of DIVL is positive at the 1% significance level.The determination coefficient is 0/75 and its correlation coefficient is 0/86, which is positive and significant;the explanatory power of this model is high and significant. In group 2 (middle growth), the coefficient of OPNI is positive at the 1% significance level, the coefficient of FCF is negative and not significant, and the coefficient of DIVL is positive and non-significant. The determination coefficient is 0/08 and the correlation coefficient is 0/28, which is low, but the explanatory power of the model is high and significant.

In group three (highest growth), the coefficients of OPNI and FCF are negative and not significant, but the coefficient of DIVL is positive at the 1% significance level.The determination coefficient of the model is 0/50 and its correlation coefficient is 0/71, which is positive and significant,and the explanatory power of this model is high

and significant.So, according to these results, we can conclude that free cash flows in middle growth firms are not better predictorsof dividend division changes.

Table 4 shows the results of this model regression:

Model: Δ DIVit= Bo+B1OPNI+B2FCF+B3DIVL+e

Table 4 - Results of regression testing by using the following model for different growth levels (MB)

Variables title	MODEL 1 Lowest growth	MODEL 2 Middle growth	MODEL 3 Highest growth
constant	-٠/٠85 (-5/914)**	٠/222 (1/465)	-٠/٠57 (-4/558)**
OPNI	-٠/172 (-2/٠84)*	٠/٠87 (3/496)**	-٠/٠39 (-٠/359)
FCF	-٠/٠47 (-1/112)	-٠/154 (-1/252)	٠/٠٠8 (-٠/129)
DIVL	٠/502 (20/409)**	٠/٠69 (٠/30)	٠/457 (11/4)**
n	137	135	125
R	٠/86	٠/28	٠/71
R^2	٠/75	٠/٠8	٠/50
F - VALUE	416/538**	12/220**	129/96**

*: at the 5% significance level **: at the 1% significance level

8. Conclusion and suggestion

The purpose of this research was to consider the relation of free cash flow, operational profit, and dividend yield to dividend division changes in accepted firms in Tehran's stock exchange. Three hypotheses were explored. In the first hypothesis, the relation of free cash flow, operational profit, and dividend yield to dividend division changes was confirmed. In the second hypothesis, the relation between free cash flow, operational profit, and dividend yield with dividend division changes in firms which have low free cash flows was not confirmed. In the last hypothesis, the relation between free cash flow, operational profit, and dividend yield with dividend division changes in firms which have middle growth was not confirmed. On the basis of these results, we suggest the following:

1) In regard to the importance of the from cash flows, especially free cash flows, operational profit, and dividend yield, which could be effective factors in determination of dividend division changes, it is suggested that Tehran's stock exchange organization encourage firms to present mid-term information.
2) Sincedividends is one of the important factors in evaluation of share price, expected dividends could be forecast by free cash flows, because free cash flows are an appropriate criterion for inventory assessment and firms' ability to pay dividends and meet other obligations.
3) Investors who want to perceive cash profit should not just examine profit-making procedures, and the amount of firms' profit, but also pay attention to the forms of firm cash flows.

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