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The Relationship between Free Cash Flows,Accruals and Firm Value

javanshir hadi[1], Oladi Bashir[2],Ghadiri Moghaddam Abolfazl[3], Mojarad Maryam[4]

[1,2]Department of accounting, shirvan Branch, Islamic Azad University, shirvan, Iran

[3,4]Department of accounting, Mashhad Branch, Islamic Azad University, Mashhad, Iran

ABSTRACT

Free cash flows are of great importance for internal and external users of an organization. Firms with high free cash flows increase their profits using accruals. They balance and naturalizelow profits. This will improve the firm's market value and return on equity. The present study aims toevaluate the incremental information content of free cash flows to describe changes in accruals and firm value. Research hypotheses were tested using data from a sample of 120 firmsfor a period of six years from the beginning of the fiscal year 2005 to the end of fiscal year 2010. The results showed that there is a significant relationship between free cash flows and accruals. Furthermore, a significant correlation was found between free cash flows and firm value.

KEYWORDS: Cash Flows (FCF), Accruals, Firm (Enterprise) Value

Corresponding author: Hadi Javanshir

Email: H_javanshir@iau-shirvan.ac

Introduction

Cash flows entering and leaving a profitunit are of the most essential events forming a basis for many decisions and judgments of investors, creditors andsome of the main groups of financial information users about that unit. Many advocates of the cash flows information do not believe in reliability of mandatory profit,because it could be manipulated by profit calculators who have some authority, thereby it may be unreliable. On the other hand,cash from operationsis considered very robust and reliable which comes from theextraordinary sameness of cash and its countability.

2–Theoretical Background and Literature Review

2-1- Literature Review

Free cash flow (FCF) is the amount of cash flow available to the firm that can be used to purchase investments,payment of dividends,debt repayment or to increase liquidity.

Managers change the corporate profits effectively using accruals. Enterprises that have high free cash flows increase their profitsusing different techniques. They balance and naturalize the lower profits which creates a negative net present value. This may lead to changes in equity returns. Furthermore, the control and direct of free cash flow and accruals will improve the firm's market value and return on equity. Moreover, the positive free cash flow is indicative of cash available for dividends among shareholders. In the case where FCS is negative, shareholders need to inject cash into the firm.

2-2- Review of Previous Studies

A. Saghafi and A. Hashmi examined the relationship between operating cash flow and accruals and proposed a model to predict operating cash flows. Their results showed that there is a significant relationship between operating cash flows and accounting profits and its components (A. Saghafi and A. Hashmi, 2004).

A. Homayoun studied the relationship between accruals and income quality and also between accruals quality andfirm’s features. His findings showed that there is a significant positive relationship between the persistence of income and accruals quality. A significant negative correlation was found between accruals and accruals quality. There was also a significant positive relationship between firm size and the quality of accruals. A positive significant relationship was observed between operating cash flows and accruals quality (A. Homayoun, 2005).

A. Khohdel Nezami examined the relationships between operating profit, free cash flow, return on equity,return on common equity, return on assets and the market value of net operating assets. His results indicated that there is a significant positive correlation between the net profit and return on equity, and also between return on common equity and return ontotal assets. Furthermore, a significant positive relationship was found between operating profit and return on common equity,return of total assets and the growth of market value of net operating assets. However, the relationship between free cash flow and return on equity,return on common equity and return on total assets was insignificant. They had only a negative significant correlation with the growth of the market value of net operating assets (A. Khohdel Nezami, 2006).

Rayburn studied the relationship between operating cash flows, accruals and stock returns. The results suggested that there is a relationship between operating cash flows, accruals and abnormal stock returns (Rayburn, 1986).

Corresponding author: Hadi Javanshir

Email: H_javanshir@iau-shirvan.ac

Wilson examined whetherthe accrual and cash components of income (profit) have incremental information content on informational content ofincome or not. The results indicated that the accruals and cash flows from operations have incremental information content onthe income content (Wilson, 1987).

Sloan studied the nature of the accrual and cash components of income information and reflect of this information on the price of stock. The results showed that the performance of profits of the accrual component is less stable than cash components of the earnings. Also, stock prices do not fully reflect this information and the information content of cash and accrual components of earnings vary systematically. Furthermore, firms that have relatively high (low) accrual components of earnings show positive (negative) abnormal stock returns. The abnormal returns are concentrated at the time of annual profits announcement (Sloan, 1993). Richardson examined the relationship between free cash flow and extra investment. The results indicated that there is a significant relationship between free cash flow and extra investment in public corporations in USA (Richardson, 2005).

3- Research Hypothesis

First hypothesis: There is a significant relationship between free cash flows and accruals.

Second hypothesis: There is a significant relationship between free cash flows and firm value.

4- Methodology

4-1- Data Collection Method

The statistical sample was selected using systematic sampling method. The research sample includes all firms with following conditions. The firms without following conditions have been excluded from the research sample:

1- The firms should be listed on Tehran Stock Exchange (TSE) before 2005.

2- Their stocks should be traded in TSE since the beginning of 2005.

3-The firm's stock exchanges should not be stopped for more than three months.

4 - Financial year should not be changed. It also should be ended on 29.12.

4-2- Hypotheses Testing Method

To test the research hypotheses, the correlation between the independent variables with each of the dependent variables were determined using the correlation coefficient test. Then,using the probability (P-Value) and the desired level of significance, it was specified that whether there is a relationship between the independent and dependent variables or not. T-test and F-test were performed to determine the significance of the regression line slope and the whole regression model, respectively.Coefficient of determination, R^2, was used to test the goodness of fit. Furthermore, other statistical analyses including residual analysis and descriptive statistics were used.

Corresponding author: Hadi Javanshir

Email: H_javanshir@iau-shirvan.ac

4-3- Operational Definition of Variables

Independent Variable: Free cash flow (FCF)

The free cash flows of the business unit is the cash flows from operating activities of the business unit which is excess of the invested cash for development. If all cash payments and expenses are deducted from the total cash receipts from continuing operations, what remains is the free cash flows which is calculated as follows:FCF = cash flow from operating activities - capital expenditures (increase in investment)

Capital expenditures = the total fixed assets of the current year - the total fixed assets of the last year

Dependent Variables

Accruals

In this study, by the accruals, we mean the short-term accruals (working capital accruals) which is defined as follows:

CFO=OPINC-ACC

CFO=operating cash flows

OPINC=operating income

ACC=Accruals

ACC = GWC-DEPAMORT

GWC=growth working capital

DEP=depreciation and amortization

Firm Value

The firm value (firm size) is the market price of shares at the end of period multiplied by the number of shares at the end of the period.

$$market\ \ value = \mathrm{N} \times \mathrm{P}_n$$

N = Number of shares at end of period

P= Market price per share at the end of the financial year

5–Test of Hypotheses

First hypothesis: There is a significant relationship between free cash flows and accruals.

Before testing this hypothesis,the data were examined in terms of normality. Outlierswere identified and then removed usingquarter-quarter (Q-Q) charts. The logarithmic transformation was used to normalize the data. Therefore the number of data for testing the first hypothesis for all firms was reduced from 120 to 83. After performing the necessary calculations, the relationship between free cash flows (FCF)as the independent variable and the accruals (ACC)as the dependent variable was tested. The results obtained from correlation coefficient and regression test forexamining the relationship betweenFCF and ACCare as follows:

Corresponding author: Hadi Javanshir

Email: H_javanshir@iau-shirvan.ac

Table 1. Pearson's correlation coefficient for testing first hypothesis

Variables	FCF	Log ACC
FCF: correlation coefficient Sig: probability N: number	1 113	0.271 0.013 83
Log ACC: correlation coefficient Sig: probability N: number	0.271 0.013 83	 89

Table 2. Regression coefficients fortesting the first hypothesis

Model	Coef	Std. e	T	P
Constant	3.659	0.117	31.24	0.000
FCF	2.726	1.078	2.529	0.013

Table 3. ANOVA resultsfor testing the first hypothesis

Source	SS	DF	MS	F	P
Regression	2.021	1	2.021	6.397	0.013
Error	25.589	81	0.316		
Total	27.610	82			

Second hypothesis: There is a significant relationship between free cash flows and firm value.

Before testing this hypothesis,the data were examined in terms of normality. Outlierswere identified and then removed using quarter-quarter (Q-Q) charts. The logarithmic transformation was used to normalize the data. Therefore the number of data for testing the first hypothesis for all firms was reduced from 120 to 104. Afterperforming the necessary calculations, the relationship between free cash flows (FCF)as the independent variable and the firm value (SIZE)as the dependent variable was tested. The results obtained from correlation coefficient and regression test forexamining the relationship betweenFCF and SIZEare as follows:

Corresponding author: Hadi Javanshir

Email: H_javanshir@iau-shirvan.ac

Table 4. Pearson's correlation coefficient for testing the second hypothesis

Variables	FCF	Log ACC
FCF: correlation coefficient Sig: probability N: number	1 113	0.542 0.000 104
Log SIZE: correlation coefficient Sig: probability N: number	0.542 0.000 104	1 111

Table 5. Regression coefficients fortesting the second hypothesis

Model	Coef	Std. e	T	P
Constant	4.658	0.082	57.209	0.000
FCF	4.906	0.753	6.513	0.000

Table 6. ANOVA resultsfor testing the second hypothesis

Source	SS	DF	MS	F	P
Regression	8.001	1	8.001	42.420	0.000
Error	19.240	102	0.189		
Total	27.241	103			

Testing the Significance of Regression Coefficients (t-test):

According to the table of regression coefficients,since the p-value, i.e. 0.000, is smaller than α at significance level of 5%, it can be concluded that there is a relationship between the free cash flows (FCF) as the independent variable and the firm value (SIZE) as the dependent variable at the significance level of 5%. Since the beta coefficient (β) and the slope are positive,so there is a direct relationship between the firm value (SIZE) and free cash flow (FCF).

Also, the slope significance test (t-test) indicates that the t values obtained from the test and table are 6.513 and 2.021, respectively. Note that the t value in the table is less than t value obtained from the test at the error level of 5%,therefore the hypothesis H_0: β=0 (the lack of correlation) is rejected and H_1: β≠0 (the existence of correlation) is accepted.

Corresponding author: Hadi Javanshir

Email: H_javanshir@iau-shirvan.ac

Table 7. The results of hypothesistesting

Description	Statistical methods	Result	Interpretation
First hypothesis	Correlation coefficient test and linear regression	H_0 is rejected	There is a significant correlation between free cash flows (FCF) and accruals (ACC)
Second hypothesis	Correlation coefficient test and linear regression	H_0 is rejected	There is a significant correlation between free cash flows (FCF) and firm value (SIZE)

6 – The Results of Hypotheses Test

6-1- The First Hypothesis

This hypothesis examined the relationship between free cash flows (FCF) as the independent variable and accruals (ACC) as the dependent variable. According to the results of statistical tests,since the p-value, i.e.0.013, is smaller than α at the significance level of 5%, so the H_0: β=0 (the lack of correlation) is rejected at the significance level of 5% and H_1: β≠0 (the existence of correlation) is accepted. It can be concluded that there is a relation between accruals and free cash flows at significance level of 5%. Since the beta coefficient (β) and the slope are positive,so there is a direct correlation between accruals and free cash flows.

6-1- The Second Hypothesis

This hypothesis examined the relationship between free cash flows (FCF) as the independent variable andfirm size (SIZE) as the dependent variable. According to the results of statistical tests,since the p-value, i.e.0.000, is smaller than α at the significance level of 5%, so the H_0: β=0 (the lack of correlation) is rejected at the significance level of 5% and H_1: β≠0 (the existence of correlation) is accepted. It can be concluded that there is a relation between the firm value (SIZE) as the dependent variable and free cash flows as independent variable at significance level of 5%. Since the beta coefficient (β) and the slope are positive,so there is a direct correlation between the free cash flows (FCF) and firm value (SIZE).

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Corresponding author: Hadi Javanshir

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Corresponding author: Hadi Javanshir

Email: H_javanshir@iau-shirvan.ac