

OPERATING CASH FLOW AND CORPORATE FINANCIAL PERFORMANCE OF LISTED COMPANIES IN VIETNAM

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Abstract

The paper investigates the effect of operating cash flow on the corporate financial performance of non-financial companies listed on the stock market in Vietnam, spanning the period from 2009 to 2018. The study uses the fixed effects model, with panel data. The results show that operating cash flow has a positive effect on operational efficiency which is measured through ROA and ROE. In addition, the results also indicate that asset growth and investment opportunities have a positive effect on business performance. In contrast, the debt ratio has a negative impact on the performance of the business. From which, the paper highlights the importance of cash flow management and provides recommendations for regulators and managers to improve firms' operational efficiency.

Keywords: *Cash flow; Financial performance; Stock market; Investment opportunities.*

1. Introduction

The operational efficiency of the business is an essential financial factor that attracts investors and managers' attention [18]. Induced organizational effectiveness plays a significant role in the company's safety and growth, supporting the company to succeed in the market. Therefore, operational efficiency remains a vital factor that investors consider in making a decision to purchase or sell stocks. Managers, hence, always attempt to detect manners to improve the firm's operational efficiency. From these two perspectives, this research evaluates the factors that influence a firm's operational efficiency - one of the most salient topics in corporate finance.

Cash flow is defined as an "in and out" movement of money in a company or an entity given a certain time [11]. Indeed, cash flow management is a prominent part of the company and will determine the survival of a business. On the one hand, cash flow plays a substantial role in influencing the decision-making process of a company since the company's purpose is to generate positive net cash flow. Besides, enterprises need to manage their cash flow properly to achieve their financial needs while reducing costs and increasing firm performance.

Several researchers have studied the relationship between cash flow and operational efficiency. The test findings are, however, contradictory. A positive connection between cash and performance has been found in particular authors. Adelegan [1] has experimentally

analyzed the relationship between cash flow and dividends on the Nigerian stock market. The author uses the ordinary least squares regression method, with 63 companies from 1984 to 1997. The research results show that cash flow affects the change of dividend in the firm. The author also finds a positive and meaningful relationship between the company's cash flow and efficiency. Tsuji [21] studies the revenue and operational efficiency of the electrical equipment sector in the Tokyo stock exchange, applying ordinary least square with annual data from 2009-2011. The findings demonstrate the different relationships between the cash flow and efficiency of the business. Cash flow factors help companies to forecast future stock profits.

The link between cash flow and productivity in hospitals and the media industry in Nigeria was investigated by Frank and James [6]. Pearson's descriptive statistical analyzes and analysis have shown that the link between cash flow and net income is positive and statistically meaningful. The author has since affirmed that the cash flow has an impact on the business output of the company. In the Nigerian stock market, another study was carried out. The research evaluates the cash flow-to-financial output of listed banks in the emerging economies from Ogbonnaya, et al. [16]. The findings show that cash flow in operations has a positive effect on banks' financial performance. Cash flow from investment and financial activities, by contrast, has a negative but weak effect on the bank's financial performance.

On the other hand, cash flow could have a negative influence on operational efficiency. Hong, et al. [10] examined Chinese listed immobiliier companies' relation between free cash flow and financial results from 2006 to 2011. Free cash flow is negatively related to a company's financial performance. However, surplus free cash flow can affect the company's financial results. Ashtiani [3] shows a negative but not significant link between the cash flows, investment efficiency, and financial results of listed companies on the Tehran Börse. Significance of statistics. Whereas, Watson and Wells [23] find the relationship between the cash flow and operating performance was negative and statistically significant. The relationships between profit and cash flow variables in the Iran stock market have been analyzed by Mazloom, et al. [15]. Multi-variable method for analyzing regression using data from 2003 to 2011. The results of the regression indicate a significant negative correlation between firm performance and cash flow.

In Vietnam, Thanh and Ha [22] explore the effect on market performance in Vietnam from banking relations. The author uses a multiple regression analysis based on data from 465 Vietnamese companies from 2007 to 2010. Research shows that the efficiency of business decreases with increased banking ties. Moreover, the study shows that cash flow is inversely linked to the company's revenue-to-equity ratio. Cash flow, therefore, has an adverse impact on the efficiency of Vietnamese-listed companies.

From the above reviews, a variety of empirical studies have been conducted worldwide and in Vietnam to determine the effect of cash flow on firm operational efficiency. However, their research results are contradictory and distinct. The results of empirical studies are different between countries and industries. The purpose of this article, hence, to investigate the effect of cash flow on firm operational efficiency in Vietnam.

The study based on agent theory and free cash flow theory Agency theory focuses on the conflict between managers and shareholders [9]. Practically, Chief executive officers are not always the same as the chairman, and managers are not members of the board. Therefore, managers do not adhere to shareholders' interests and thus take steps to the detriment of shareholders or devalue the enterprises [20]. Shareholders pay the costs of the agency in conjunction with supervising managers, and these costs of the agency represent a possible expense because of a conflict of interests between the shareholders and public managers

Consistent with agency theory, the free cash flow hypothesis implies that managers tend to pursue their personal goals and ignore shareholder value when firms have excessive free cash flow [12, 13]. Due to the conflict between managers and shareholders, the chief executive of the firm tends to invest extra cash in new projects despite the low net present value, leading to a deterioration in firm value. Jensen and Meckling [13] followed this hypothesis and then replicated it in Jensen [12]. Following Jensen [12] suggestions, managers are expected to expand resources beyond the optimum scale. The shortage of money would prevent the firm expenditure on inefficient projects [14]. Coincidentally, managers are enforced to participate in foreign markets to increase their resources. Therefore, a company's cash flow can affect the company's operational efficiency. One way to alleviate the effect of free cash flow is by employing debt financing that restrains overinvestment behaviors, implying that this issue might be mitigated through a higher level of debt in the capital structure.

2. Method

2.1. Sample

To examine the effect of cash flow on firm operational efficiency, we collect financial information of 502 listed companies listed in the Ho Chi Minh stock exchange from 2009 to 2018. The sample is restricted by excluding insurance, real estate, securities, and banks because of their different financial reporting systems and a higher leverage level than other sectors [5]. We acquire financial data from the StoxPlus database.

2.2 Models and Variable Construction

In order to analyze the impact of cash flow on the efficiency of Vietnamese stock-market firms, we propose the following models:

$$ROA_{it} = \delta_0 + \delta_1 * Cashflow_{it} + \delta_2 * Firm\ size_{it} + \delta_3 Firm\ growth_{it} + \delta_4 * Market - to - book_{it} + \delta_5 * Firm\ leverage_{it} + \gamma_i + \lambda_t + \epsilon_{it} \quad (1)$$

$$ROE_{it} = \delta_0 + \delta_1 * Cashflow_{it} + \delta_2 * Firm\ size_{it} + \delta_3 Firm\ growth_{it} + \delta_4 * Market - to - book_{it} + \delta_5 * Firm\ leverage_{it} + \gamma_i + \lambda_t + \epsilon_{it} \quad (2)$$

The dependent variable is Firm performance measured by two indicators: returns on assets (*ROA*) and returns on equity (*ROE*), and the main independent variable is the *Firm cash flow* measured by the cash flow from the market divided by the total assets of the company. The control variable in the model includes *Firm size*, *Market-to-Book*, *Firm growth*, and *Firm leverage*.

Table 1: Variable construction

ID	Variable name	Abbreviation	Definitions
1	Return on asset	<i>ROA</i>	Net income divided by total asset
2	Return on equity	<i>ROE</i>	Net income divided by total equity
3	Firm cash flow	<i>Firm cash flow</i>	Annual cash flow divided by total assets
4	Firm size	<i>Firm size</i>	Ln(total assets)
5	Asset growth	<i>Firm growth</i>	Annual changing ratio: Firm growth = (TA _t - TA _{t-1}) / TA _{t-1}
6	Market to book ratio	<i>Market-to-Book</i>	Market value divided by book value
7	Firm leverage	<i>Firm leverage</i>	Total leverage divided by total assets

The fixed effects model (FEM) and random effects model (REM) were used to perform regression analysis. First, the author estimates the above two models with the FEM and REM. Then, the author uses Hausman test to compare between FEM or REM model. Hausman test results show that the fixed effects model (FEM) is more suitable than the random effects model (REM). Therefore, the study uses the FEM with the STATA to test the models.

Next, We investigate the autocorrelation phenomenon, heteroskedasticity, and multicollinearity in the models. The Wooldridge test (with the xtserial command) is used to test for autocorrelation. The analysis of variance change in the FEM model is done with xttest3 command. To check the phenomenon of multicollinearity, the author used the vif command in STATA.

Table 2: Validity test

Panel A: Autocorrelation test

Wooldridge test for autocorrelation in panel data	
H ₀ : no first-order autocorrelation	
Model 1	Model 2
F(1, 542) = 140.465	F(1, 542) = 99.369
Prob > F = 0.0000	Prob > F = 0.0000

Panel B: Heteroskedasticity test

Modified Wald test for groupwise heteroskedasticity in the fixed effect regression model	
H ₀ : $\sigma(i)^2 = \sigma^2$ for all i	
Model 1	Model 2
chi2 (601) = 5.9e+35	chi2 (502) = 2.4e+33
Prob>chi2 = 0,0000	Prob>chi2 = 0,0000

Panel C: Multicollinearity test

	VIF	1/VIF
Firm cash flow	1.34	0.74
Firm size	8.29	0.14
Firm Market-to-book	1.40	0.71
Firm growth	1.46	0.68
Firm leverage	7.38	0.13
Mean VIF	4.27	

Source: Author's calculations

The results of the Wooldridge test (Panel A) and the Modified Wald test (Panel B) show that the two models have the phenomenon of autocorrelation and heteroskedasticity. The results of the VIF magnification coefficients of the independent variables are less than 10, so there is no multicollinearity phenomenon in the model. Therefore, the cluster and

robust command in STATA is used to correct the autocorrelation and heteroskedasticity in the FEM model.

3. Results

3.1. Descriptive statistics and correlation analysis

The mean, standard deviation, minimum value, and maximum value of the variables in the research model are described in Table 3.

Table 3: Summary statistics

	Obs.	Std. Dev.	Mean	Minimum	First quartile	Median	Third quartile	Maximum
<i>ROA</i>	5584	0.07	0.07	-0.07	0.02	0.05	0.10	0.30
<i>ROE</i>	5584	0.13	0.14	-0.17	0.05	0.13	0.21	0.53
<i>Firm cash flow</i>	5531	0.14	0.06	-0.27	-0.03	0.05	0.13	0.42
<i>Firm size</i>	5606	1.43	12.98	10.01	12.04	12.89	13.91	16.49
<i>Firm growth</i>	5003	0.32	0.16	-0.26	-0.02	0.09	0.24	1.55
<i>Market-to-Book</i>	4555	0.58	0.73	0.13	0.34	0.55	0.91	2.82
<i>Firm leverage</i>	5606	0.23	0.50	0.06	0.32	0.52	0.68	0.89

Source: Author's calculations

The mean, standard deviation, minimum value, and maximum value of the variables in the research model are described in Table 3. The table shows that the average *ROA* value for the Vietnam stock market of non-financial firms is 7.00 percent for the period 2009 to 2018, while the mean *ROE* value is 14 percent. That means that the average profit after tax is 7 dongs when the company spends 100 dongs of assets, and the most considerable gain is 30. Additionally, the total net profit of 100 VND invested in the company would be VND 14 on average and record 53. The average value of the *Firm cash flow* statistics is 0.06, which means the average operating cash flow for non-financial companies listed on the stock exchange of Vietnam in the 2009-2018 period is 6% of their total company assets. The mean value of the variable *Firm leverage* is 0.50, meaning that on average, firms use about 50% of borrowed capital to build the company's assets.

Table 4 represents the correlation between variables in the model (1) and (2) as follows:

Table 4: Pairwise correlations

<i>Panel A: Correlation matrix for the first model</i>						
Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) <i>ROA</i>	1.000					
(2) <i>Cash flow</i>	0.373***	1.000				
(3) <i>Firm size</i>	-0.071***	-0.014	1.000			
(4) <i>Firm growth</i>	0.186***	-0.194***	0.084***	1.000		
(5) <i>Market-to-book</i>	0.329***	0.149***	0.164***	0.109***	1.000	
(6) <i>Firm leverage</i>	-0.436***	-0.193***	0.330***	0.064***	-0.140***	1.000

<i>Panel B: Correlation matrix for the second model</i>						
Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) <i>ROE</i>	1.000					
(2) <i>Cash flow</i>	0.286***	1.000				
(3) <i>Firm size</i>	0.060***	-0.014	1.000			
(4) <i>Firm growth</i>	0.249***	-0.194***	0.084***	1.000		
(5) <i>Market-to-book</i>	0.266***	0.149***	0.164***	0.109***	1.000	
(6) <i>Firm leverage</i>	-0.037***	-0.193***	0.330***	0.064***	-0.140***	1.000

Note: This table reports the correlation matrix between variables. The main dependent variables are *ROA* and *ROE* measured by net income divided by total assets and total equity, respectively. Control variables are *Firm size*, *Firm growth*, *Market-to-book*, and *Firm leverage*. Significance at the 10%, 5%, and 1% level is indicated by *, **, *** respectively.

As can be illustrated from Panel A and Panel B, the results of the correlation coefficient matrix between pairs of variables have absolute values less than 0.8, so there is no multicollinearity issue between the variables in the model. Therefore, eliminating research variables is not necessary, and the model is rational.

3.2. The impact of cash flow on firm operational efficiency

In this section, we investigate the effect of cash flow on firm operational efficiency. The primary dependent variables are the Return on assets and the Return on equity. The results are illustrated in table 5 below:

Table 5: The effect of cash flow on firm operational efficiency

Dependent variable	ROA	ROE
<i>Cash flow</i>	0.058***	0.105***
	(0.008)	(0.016)
<i>Firm size</i>	-0.006	-0.002
	(0.004)	(0.008)
<i>Firm growth</i>	0.055***	0.104***
	(0.004)	(0.009)
<i>Market-to-book</i>	0.02***	0.04***
	(0.003)	(0.005)
<i>Firm leverage</i>	-0.152***	-0.146***
	(0.013)	(0.025)
<i>Constant</i>	0.212***	0.233**
	(0.043)	(0.092)
Observations	4325	4325
R-squared	0.305	0.248

Note: Significance at the 10%, 5%, and 1% level is indicated by *, **, *** respectively.

Source: Author's calculations

➤ *Firm cash flow*

The *Firm cash flow* variable coefficient (δ_1) in model 1 is 0.058, at a significant level of 1%. The coefficient of the cash flow variable in model 2 is 0.105 at 1% of significance. Therefore, operating cash flow has a positive and statistically significant impact on two indicators that measure the company's performance, namely return on asset and return on equity of non-financial companies listed on the stock market in Vietnam. It means that, as the company's operational cash flow ratio rises, operational efficiency always improves. Adelegan [1], Frank and James [6], and Ogbonnaya, Ekwe and Uzoma [16] have considered this analysis. The above relationship, however, contrasts with the results found in the Iran stock market of Ashtiani [3] on the Tehran Stock Exchange, Watson and Wells [23], Mazloom, Azarberahman and Azarberahman [15] with the dependent equity income variable, Hong, Shuting and Meng [10] on the Chinese listed real estate companies, Tsuji [21], the Tokyo Stock Exchange (2013).

➤ ***Firm size***

Coefficients of the *Firm size* variable in model 1 and model 2 have negative values of 0.006 and 0.002, respectively. Nevertheless, firm size has no impact on the business performance of non-financial companies listed on Vietnam's stock market. Some author found no correlation between firm size and operational efficiency, such as Ha-Brookshire [8] found no evidence of the impact of firm size variable. Thus, it can be seen that the results on the effect of scale on operational efficiency are not consistent among studies, depending on the characteristics of each different industry.

➤ ***Market-to-Book***

The coefficient of the market-to-book variable in model 1 and model 2 are both positive values: 0.02 and 0.04 at 1% of significance correspondingly. That means investment opportunities have a strong statistical positive effect on income on both assets and equity of non-financial companies listed on Vietnam's stock market.

➤ ***Firm growth***

The growth rate variable - *Firm growth* has positive Beta coefficients (0.055 and 0.104) and has a very high statistical significance of 1% in the two above models. Therefore, if the company has a high growth rate, its operational efficiency will also increase. Thus, investment opportunities and growth rates have a positive impact on the operational efficiency of non-financial companies listed on Vietnam's stock market. This result shows that companies with more investment opportunities and are in a period of high growth are also more efficient than firms with fewer investment opportunities and low growth. This result is similar to many studies in the world, such as Amidu [2], Onanjiri and Korankye [17], and Gill, et al. [7].

➤ ***Firm leverage***

The coefficient of the debt ratio variable (*Firm leverage*) in model 1 and model 2 are both negative (-0.152 and -0.146), with high statistical significance at 1%. Therefore, the debt ratio has a negative impact on the operational efficiency of the firm. Thus, with the non-financial companies listed on Vietnam's stock market using more debt, their operational efficiency decreases. The same result is also found in the study of Amidu Amidu [2], Dogan and Topal [4] with the dependent variable of ROA. However, some studies have found a positive effect of debt use on operational efficiencies such as Sunday & Partners (2015) with the dependent variable ROA, Priya and Nimalathan [19], and Dogan and Topal [4] with the dependent variable ROE.

4. Discussion and Conclusion

The article examined the influence of operating cash flow on the performance of non-financial companies listed on the Vietnam stock market in the period 2009-2018. The results

have shown that operating cash flow has a positive effect on operating performance, measured through two indicators of return on assets (ROA) and return on equity (ROE). Besides, investment opportunities and growth rate of total assets also have a positive effect on the performance of the company. In contrast, debt ratio have a negative effect on performance.

The company's operational efficiency is positively correlated with the ratio of operating cash flow to total assets. So if the company wants to increase its operational efficiency, it is necessary to control the proportion of cash flow operating in the company. Companies should consider increasing operating cash flows as their total assets increase. Besides, investment opportunities and growth of the company are also important indicators that have a significantly positive impact on operational efficiency. However, according to the life cycle theory, these two indicators will change according to different development cycles of the company. In the early stages and growth phases, a company often has various excellent investment opportunities to expand its customer base and reach potential markets. Therefore, the company should maintain higher amount of cash to carry out investment and development activities, increase assets, thereby helping to improve operational efficiency. When the stage is ripe, investment opportunities decrease, and competition in the market increases, leading to a decrease in efficiency in using assets and equity of enterprises. In that case, the company should reduce the amount of cash by distributing it to its shareholders, like paying a cash dividend. The above move can help stabilize investor sentiment when receiving dividends from businesses. Finally, to improve operational efficiency, companies need to limit the use of debt. Using too much debt will have a negative effect on operational efficiency. Therefore, managers need to calculate to determine the optimal debt structure for each enterprise to improve operational efficiency.

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