# The Relationship between Cash Flows of Operating, Investments, and Financing Activities with the firm value

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## ABSTRACT

The purpose of this study is to investigate whether cash flows from operating, investing, and financing activities can affect the firm value. In this study, we are using the data of 137 companies which are listed on the Tehran Stock Exchange from 2004 to 2020, and also, we are using the combined data approach and the relationship between cash flows resulting from operating activities, investments, and financing and the value of the company has been investigated. Based on the results which have been indicated the cash from operating activities and financing have a positive and significant relationship with firm value and the relationship between cash flows from operating activities and company value, are included in some companies with positive net cash flows, which would also more than other companies. Cash flows from operating and financing activities can affect and increase the value of companies that are surveyed on the Tehran Stock Exchange.

## Keywords:

Cash flows, cash flows from investment activities, cash flows from financing activities, firm value.

## 1. Introduction

The main goal of the company is to maximize the shareholders' equity. management is always looking for variables and stimuli that play an effective role in increasing the value of the stock market and consequently in increasing the value of equity (Hall and Brummer, 1999), Which would also help us to achieve this goal. Determining the value of the company is one of the important factors in the investment process. The value of each company is determined by the value of the stock. Therefore, the investor determines the priority in investing according to the value of the company. Tobin's Q ratio is one of the tools for measuring the performance and value of companies that is obtained by dividing the market value of the company by the book value or the value replacement of the company's assets (Mehrani et al., 2013). The cash flow statement may provide information about the assessment of future cash flows and their uncertainty and the market value of companies (Akbar, Shah, and Stark, 2011). Krishnan and Largai (2000) have stated that forecasting future cash flows is essential for evaluating and analyzing a company's investment.

In addition, Dickinson (2011) stated that investors do not fully capture the information contained in cash flow models, which makes firms less valuable than they are in their field. Dickinson also mentioned that appropriate indicators of cash flow are useful tools that are used for analysis, prediction, and evaluation in future research. Despite the long-standing need for cash flows, the debate over the usefulness of the information contained in them permanently (Barton, Hansen & Paunal, 2010; Kumar and Krishnan, 2008; Subramaniam and Venkatachalam, 2007). In addition, cash flows are divided into the following general categories: cash flows from operating activities, cash flows from investing activities, and cash flows from financing activities. Therefore, this study determines this problem whether cash flows from operating, investing, and financing activities are at company value instead of abnormal annual returns (Levant and Zarovin, 1990) after controlling for corporate governance variables. Whether the financial statements and others are effective or not, given that the purpose of financial statements is to provide information in line with the value of companies. In domestic research, less attention has been paid to the relationship between cash flows from operating activities, investment and financing, and the value of the company. In most of the domestic research that has been done so far in the field of cash reporting, most issues take so much attention of the type of classification (three, four, or five parts) (Anvari Rostami and Tari Verdi, 2010; Foroughi et al., 2013). Also, the form of internal research in the field of company value includes all the details that are mentioned in this study (Asadi and Baghdar, 2015; Noroush et al. 2019; Judy et al. 2020).

The effect of different components of the optimal level of held cash, cash hold, corporate governance, and information asymmetry on the value of the company has been examined, but the relationship between cash flows arising from the three main categories of cash flow statement with a value of the company has not been considered. Therefore, in this study, the relationship between cash flows from operating activities, investment, and financing with the value of the company has been investigated. This study contributes to the literature on value relevance of cash flow statement categories, the subject that has not been reviewed in previous studies. In this study, I examine whether the value relevance of different categories of cash flow statements are equal or not. On the other hand, this study also contributes to the literature on firm value. In this view, I examine the cash factors affecting changes in firm value including cash flows from operating, investments, and financing activities. This issue also has not been studied in previous studies. In the following, the theoretical foundations and background of the research, methodology, research findings, and finally conclusions and suggestions are presented.

## A review of theoretical foundations and research background

According to the literature on cash flows, some relevant studies have examined the relationship between accounting data in predicting future cash flows, and have focused on the relative ability to predict total cash flows from income and operations (Badertcher, Collins, & Liz, 2012. Bowen, Bergstahler and Daly, 1986; Dicho, Kotari, and Watts, 1998; Subramaniam and Venkatachalam, 2007). In addition, Barth, Cram, and Nelson (2001) have documented the superiority of operating cash flows over revenue in predicting future cash flows. These related studies show that cash flows have the power to predict future

revenues and operating cash flows. In addition, although the results of previous research using estimated cash flow are composite (Bowen et al., 1986; Greenberg, Johnson, & Ramesh, 1986), most recent studies have used cash flow information, as Which has been reported in cash flow statements and it has shown that cash flow is a better predictor of future cash flows than incomes (Barth et al., 2001; Sabramaniam and Wankatachalam, 2007). Regarding corporate cash flows and valuations of the companies, Barth et al. (2001) explained that the main purpose of financial reporting is to provide information that helps users assess the outlook for a company's future cash flows, especially since future cash flows are the basis for valuation of the companies. Also, Kumar and Krishnan (2008) examined whether cash flows and realized incomes are different concerning investment opportunities and showed that the value of cash flows and realized revenues can be different in companies and under different conditions. Levant and Zarovin (1990) examined whether the operating, financing, and investment components of cash flows are differently related to abnormal annual returns, as predicted by theoretical models in economics and finance, and suggests that the dispersion of financing and operating cash flows into their components significantly improves the unusual annual returns. Krishnan and Largai (2000) also showed that predicting future cash flows is essential for evaluating and analyzing a firm's investment. Artikis and Papanastasopoulos (2016) found that the liquidity component of income is more stable than the realized component, and this higher stability can be attributed in the first place to capital holders.

In addition, relevant studies show that cash flow information can be useful in predicting financial turmoil that affects company value (Aziz, Emmanuel & Lawson, 1988; Aziz & Lawson, 1989; Beaver, 1966; Bloom, 1974; Casey and Bartz, 1984, 1985; Daikin, 1972; Gentry, Newbold and Whiteford, 1987; Gilbert, Menon & Schwartz, 1990). Barth et al. (2001) documented the superiority of operating cash flows over revenue in predicting future operating cash flows. These related studies show that cash flows have the power to predict income, financial turmoil, and future cash flows. In foreign studies, Barth et al. (1999) found that accruals and cash flows as components of earnings have different capabilities in predicting unusual future earnings and book value of equity.

Another result of their research indicates that the components of profit in determining the value of the company have explanatory power. Mohd Nasir and Abdullah (2004) concluded that current earnings alone cannot provide information on a company's operations, investments, and financing, so measuring cash flows may be an additional source of information to find the company's performance. The results of the research of Itoriga and Chrysostama (2010) showed that in the presence of growth opportunities, there is a negative relationship between profit sharing and company value. They believe that assuming information symmetry and in the presence of growth opportunities (investment), profit sharing by the company can reduce internal resources and ultimately, reduce the value of the company. Therefore, it is expected that in the presence of growth opportunities, there is a negative relationship between dividends and company value. Aman et al. (2011) found that there is a positive and significant relationship between all corporate governance characteristics as well as corporate social behavior with firm value. Yaram (2012) found that board independence has no significant effect on company value while cash retention has a significant effect on company value. Nasram (2013) concluded that the structure of corporate ownership and governance has a positive effect on investment decisions and the value of the company. According to Amer's (2012) research, the valuation of the company has a negative relationship with cash retention and a positive and significant relationship with managerial ownership. Managerial ownership also moderates the relationship between holding cash and the value of the company. Gao and Zhang (2015) concluded that smoothing alone does not increase firm value and improve the profit-return relationship. Therefore, smoothing companies with higher social responsibility are significantly associated with company performance.

Saleh Khatak et al. (2017) found that there is a positive and significant relationship between financial leverage and company value, the concentration of ownership, and company value. There is little relationship between dividend payment and company value. Bahat et al. (2018) concluded that there is a positive and significant relationship between corporate governance and company value. Nicholas (2018) found that the company's board of directors, using a strong corporate governance mechanism, will increase

management tenure, reduce motivation and short-sighted behaviors, and help restore the long-term value of the company's investments. It will also generate long-term profits for investors and other stakeholders and improve the volume of shares traded and increase the value of the company's traded shares. Al-Shehi et al. (2018) have reviewed 132 valid articles on the effect of disclosure of sustainability information on financial performance and value of companies, and the results of these studies strengthen the possibility of a positive relationship between these variables. The results of Kariokhin (2018) show that there is a negative and statistically significant relationship between the traditional measure of the quality of Dicho and Daichu (2002) accruals and the value of the company, but when the volatility of all accruals and company characteristics is controlled, the relationship between quality of Dicho accruals Vedicu becomes a small and insignificant company with value. On the other hand, the quality criterion of Nikolf's (2018) accruals shows a negative and significant relationship with the value of the company. In addition, operational volatility has a stronger and more negative relationship with firm value. It has also been concluded that the effect of accruals quality on firm value is largely influenced by operational risk, and this effect is weakened when operating volatility is separated from accounting error fluctuations. Ney et al. (2019) found that cash inflows from investment activities and cash inflows from financing activities increase the value of the firm, while cash inflows from operating activities may serve as a positive message for do not consider companies. In internal research, Saeedi and Ghaderi (2008) found that book value and accounting profit have more explanatory power in determining the value of companies than the cash flow of operating and investment, and also the explanatory power of book value alone is higher than the explanatory power of accounting profit in determining value. There are companies. The results of research (Namazi and Zaraatgari, 2009) showed that the use of Tobin's q ratio in companies listed on the Tehran Stock Exchange has no place yet. Also, Tobin's q ratio has a significant relationship with the stock price, return on assets, and earnings per share criteria and it has no significant relationship with current, future, asset turnover, residual earnings, sales growth, earnings growth, operating profit, and sales ratios. Examining the ratio of Tobin's q in different industries, it was found that the automotive industry has the highest amount of Tobin's q and the textile industry has the lowest amount of Tobin's q. Hashemi et al. (2010) found that the ability of cash flows and total accruals to determine the value of the company and predict profits was unusual. Ghorbani and Adili (2012) showed that in the situation of information asymmetry, there is an inverse and significant relationship between cash holdings and company value.

The findings support the theory of free cash flows. Foroughi and Adineh (2012) concluded that there is a significant relationship between total, mandatory and optional disclosure of valuable information of the company. The results of Rahimian et al. (2013) showed that the variables of company size, working capital, operating cash, cash from financing activities, and cash held by companies, have a positive and significant relationship and the variables of financial leverage, opportunities Growth, changes in cash flows, cash flows arising from investment activities and changes in operating cash flows had no statistically significant relationship with cash holdings. Tavakolonia and Tirgari (2014) found that there is a non-linear relationship between financial leverage and the level of cash holdings and between the level of cash holdings and the value of the company. Mehrani et al. (2014) concluded that the company life cycle is effective on the relationship between capital structure and company value; This relationship is more intense in growing companies than in mature companies. The results of studies (Asadi and Baghdar, 2015) show a concave relationship between retained cash and company value, which confirms that there is an optimal level of cash that maximizes company value. The results also show that a positive deviation from the level of cash, which is estimated based on the specific characteristics of companies, has a positive effect on the value of the company. Darabi et al. (2016) found that there is a significant relationship between social responsibility reporting and company risk and value. Plato (2015) Realizing the existence of growth opportunities creates value for a company. Nazemi Ardakani et al. (2015) concluded that the percentage of online financial reporting and the percentage of content items of online financial reporting has a positive and significant effect on the value of the company, but the percentage of items based on online financial reporting has no effect on company value.

Drobetz et al. (2017) show that moderate liquidity crises mostly affect firms' financing activities and financially healthy firms are able to protect their investments by maintaining financial flexibility. Ni et al. (2019) find that firms raising funds for capital budgeting projects can enhance their firm value, resulting in cash inflows from financing activities and cash outflows to investing activities. Furthermore, they find that cash inflows from operating activities may not be regarded as a positive signal different from the relevant studies. Gul and Tastan (2020) show that the sensitivity of investment to cash flow is positive and statistically significant, implying that firms are constrained by internal finance. This suggests that the degree of investment-cash flow sensitivity significantly varies with the monetary policy stance. They also find that investment-cash flow sensitivity declines when broader macro-financial conditions are relatively supportive. Furthermore, firms' cash flow needs grow considerably during recessionary periods compared to expansionary periods due to less availability of external funds. Mohamed (2021) show that the investment cash flow sensitivity exists and is significant especially for firms that run agency costs. They also demonstrate that a large block-holders holding may succeed to reduce investment cash flow caused by CEOs optimism bias. Ball and Nikolaev (2022) find that when comparing the predictive ability of operating cash flows with that of an equivalent earnings measure calculated on an accrual basis, earnings outperform operating cash flows. The result becomes more pronounced when allowance is made for cross-sectional differences in the relation between firms' earnings and future cash flows. In fact, even "bottom line" earnings then have similar explanatory power as operating cash flows.

## Research Hypotheses

According to the theoretical foundations and previous research, the research hypotheses are presented as follows:

**Hypothesis 1**: There is a positive and significant relationship between cash flows from operating activities and firm value.

**Hypothesis 2**: There is a positive and significant relationship between cash flows arising from investment activities and firm value.

**Hypothesis 1**: There is a positive and significant relationship between cash flows from operating activities and the firm value.

**Hypothesis 2**: There is a positive and significant relationship between cash flows arising from investment activities and firm value.

**Hypothesis 3**: There is a positive and significant relationship between cash flows from financing activities and firm value.

**Hypothesis 4**: The relationship between cash flows from operating activities and firm value is higher in firms with net cash flow from operating activities than in other firms.

**Hypothesis 5**: The relationship between cash flows from investing activities and firm value is less in firms with a net cash flow from investing activities than other firms.

**Hypothesis 6**: The relationship between cash flows from financing activities and firm value is higher in firms with net cash flow from financing activities than in other firms.

## Research method

This research is applied in terms of results and descriptive in terms of data collection and is a post-event and retrospective research design. The research method is descriptive. Also, according to the purpose of this study, the present study is of the correlation type. The research data is a hybrid type and the combined data method is used to analyze the data and test the hypotheses and formulate a general research model, given that there is more than one independent variable while there is only one dependent variable. Excel and EViews software are used to perform calculations related to the multiple regression model and the information required in this research and also to analyze them. The statistical population of this research is all companies listed on the Tehran Stock Exchange from 2004 to the end of 2020 (513 companies, 7695 years-companies). To determine the statistical sample by systematic elimination method, first, companies whose fiscal year does not end on March 20 or 20 are eliminated (155 companies, 2325 years-companies). Banks and financial institutions and financial investment companies are then eliminated (due to the different nature of their activities from other business units) (96 companies, 1440 years-company). In the end, Perth observations (first percentile and 99th percentile of all observations), as

well as all companies whose data were not available for calculating research variables, were excluded (125 companies, 1875 years-company). By applying the above conditions, 137 companies (equivalent to 2055 years-company) have been selected to estimate the models and test the research hypotheses.

## 3.1. Research models and variables

After collecting the required data, the following models are used to test the first to third hypotheses of the research by following Ney et al. (2019):

$$\text{Tobin's } Q_{it} = \alpha + \beta CFO_{it} + \sum_{j=1}^{6} \gamma_j \text{ Controls}_{j,it} + \varepsilon_{it}$$
(1)
$$\text{Tobin's } Q_{it} = \alpha + \beta CFI_{it} + \sum_{j=1}^{6} \gamma_j \text{ Controls}_{j,it} + \varepsilon_{it}$$
(2)
$$\text{Tobin's } Q_{it} = \alpha + \beta CFF_{it} + \sum_{j=1}^{6} \gamma_j \text{ Controls}_{j,it} + \varepsilon_{it}$$
(3)

Where Tobin Q Q's Q-ratio (equivalent to the ratio of stock market value to total debt and the book value of the stock) is a substitute for firm value, CFO is net cash flow from operating activities, CFI is net cash flow from investment activities And CFF is the net cash flow from financing activities. In addition, the symbol $\sum_{j=1}^{6} \gamma_j \text{ Controls}_{j,it}$ to 6 variables Size of company size (equivalent to the natural logarithm of assets), Growth of company growth (percentage of changes in sales revenue), Profit Company profitability (Ratio of operating profit to total assets), Lev financial leverage (ratio of total liabilities to total assets), A turnover ratio of turnover of assets (ratio of sales revenue to total assets) and Current ratio are included in this part(ratio of current assets to current liabilities). Ney et al. (2019) and to control their effect

on the dependent variable, have been included as control variables in the models. In the above models, the positive and significant factor of β indicates that the hypothesis is not rejected. To test the fourth to sixth hypotheses of the research, the following models have been used, respectively, which have been developed based on the research of Ney et al. (2019):

$$\text{Tobin's } Q_{it} = \alpha + \beta_1 DPCFO_{it} + \beta_2 CFO_{it} + \beta_3 DPCFO_{it} \times CFO_{it} + \sum_{j=1}^{6} \gamma_j \text{ Controls}_{j,it} + \varepsilon_{it}$$
(4)
$$\text{Tobin's } Q_{it} = \alpha + \beta_1 DPCFI_{it} + \beta_2 CFI_{it} + \beta_3 DPCFI_{it} \times CFI_{it} + \sum_{j=1}^{6} \gamma_j \text{ Controls}_{j,it} + \varepsilon_{it}$$
(5)
$$\text{Tobin's } Q_{it} = \alpha + \beta_1 DPCFF_{it} + \beta_2 CFF_{it} + \beta_3 DPCFF_{it} \times CFF_{it} + \sum_{j=1}^{6} \gamma_j \text{ Controls}_{j,it} + \varepsilon_{it}$$
(6)

In which, DPCFO is a two-value variable that will be 1 when the CFO value is positive and zero in other cases. Also, DPCFI is a dual value variable that is 1 when the CFI value is positive and zeroes in other cases. Finally, DPCFF is a two-valued variable that will have a value of 1 when the CFF value is positive and zero in other cases. Other variables are already defined. In models (4) and (6), the positive and significant coefficient $\beta_3$ and model (5), the negative and significant coefficient $\beta_3$ indicate that the relevant hypothesis is not rejected.

## Research Findings
### Descriptive Statistics

Descriptive statistics related to research variables are presented in Figure (1). These statistics provide an overview of the status of research data distribution.

**Figure (1): Descriptive statistics of research**

| Variable | Average | Median | Maximum | Minimum | Standard deviation |
|---|---|---|---|---|---|
| TOBINQ | 1.56 | 1.37 | 4.12 | 0.88 | 0.62 |
| CFO | 0.10 | 0.10 | 0.36 | -0.09 | 0.09 |
| CFI | -0.05 | -0.03 | 0.04 | -0.23 | 0.05 |
| CFF | 0.03 | 0.02 | 0.21 | -0.10 | 0.06 |
| SIZE | 13.41 | 13.34 | 16.69 | 10.72 | 1.32 |
| GROWTH | 0.15 | 0.13 | 1.09 | -0.45 | 0.27 |
| PROFIT | 0.13 | 0.12 | 0.37 | -0.11 | 0.09 |
| LEV | 0.66 | 0.66 | 1.33 | 0.20 | 0.19 |
| ATURN | 0.78 | 0.78 | 1.81 | 0.06 | 0.35 |
| CRATIO | 1.21 | 1.13 | 3.21 | 0.37 | 0.47 |

The presented results show that the average (average) of the company's value variables is 1.56 (1.37), operating cash flow is 0.10 (0.10), cash flow from investment activities is -0.05 (0.03), Cash flow from financing activities 0.03 (0.02), company size 13.41 (13.34), growth opportunities 0.15 (0.13), company profitability 0.13 (12 0.), the leverage ratio is 0.66 (0.66), the asset turnover ratio is 0.78 (0.78) and the current ratio is 1.21 (1.13). The results show that the total stock market value and the book value of the debts of the surveyed companies are 1.56 times the total assets, the net cash from operating activities, investment, and financing is equal to 10, 5- and 3% of total assets, respectively. Corporate sales growth averages 15 percent, operating profit is 13 percent of assets, and about 66 percent of the firms' capital comes from debt. In addition, the results show that in the period under review, current assets were about 1.21 times the current liabilities of companies. The maximum, minimum, and dispersion values of the observations of the research variables are presented in the final column of Figure (1).

## Test of research hypotheses
## Test the first to third hypotheses of the research

To test the first to third hypotheses of the research, models (1), (2), and (3) have been estimated with the combined data approach and the results are presented in Figure (2).

In all three models, the significance of the Limer statistic indicates the superiority of the pattern of the fixed effects over the pattern of the joint effects (constrained) and the significance of the Breusch–Pagan statistic indicates the preference of the pattern of the random effect over the pattern of the joint effect (constrained). Also, the lack of significance of Hausman's statistics indicates the priority of the pattern of the random effect over the pattern of the fixed effect. The results of estimating models (1), (2), and (3) with a random-effects pattern indicate that the width of the origin and the coefficient of variables of firm size, firm profitability, leverage ratio, and current ratio are significant at the level of percent. The results of estimating models (1) and (3) show that the operating cash flow variable coefficient (0.361) and the cash flow variable coefficient resulting from financing activities (0.326) are significant at the 5% error level. The value of the variance inflation index also shows that the independent variables of the model (1) and model (3) are not in line. The value of variance inflation index of the model (2) shows that the independent variables of the model (2) do not have a strong correlation problem with each other. In all three models, the significance of the Fisher statistic at the level of 1% indicates the overall significance of the model.

**Figure (2): Estimation results of the first to third models**

| Variable | Results of model (1) | | | Results of models (2) | | | Results of model (3) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Coefficient | Significant | VIF | Coefficient | Significant | VIF | Coefficient | Significant | VIF |
| Intercept | 2.819 | 0.00 | | 2.752 | 0.00 | | 2.677 | 0.00 | |
| CFO | 0.361 | 0.02 | 1.37 | | | | | | |
| CFI | | | | 0.233 | 0.13 | 1.12 | | | |
| CFF | | | | | | | 0.326 | 0.02 | 1.02 |
| SIZE | -0.087 | 0.00 | 1.06 | -0.085 | 0.00 | 1.07 | -0.078 | 0.00 | 1.07 |
| GROWTH | -0.009 | 0.87 | 1.12 | -0.051 | 0.31 | 1.10 | -0.070 | 0.17 | 1.11 |
| PROFIT | 1.789 | 0.00 | 1.65 | 1.891 | 0.00 | 1.43 | 2.320 | 0.00 | 1.43 |
| LEV | -0.301 | 0.00 | 1.77 | -0.271 | 0.00 | 1.79 | -0.256 | 0.00 | 1.74 |
| ATURN | -0.009 | 0.81 | 1.19 | 0.017 | 0.65 | 1.17 | -0.011 | 0.79 | 1.18 |
| CRATIO | -0.089 | 0.00 | 1.61 | -0.093 | 0.01 | 1.66 | -0.131 | 0.00 | 1.52 |
| Adjusted $R^2$ | 39.20 percent | | | 40.35 percent | | | 42.78 percent | | |
| F-stat | (0.00)137.62 | | | (0.00)140.12 | | | (0.00)138.95 | | |
| Durbin-Watson | 2.03 | | | 2.11 | | | 2.12 | | |
| Limer | (0.00)35.03 | | | (0.00)34.13 | | | (0.00)30.16 | | |
| Breusch–Pagan | (0.00)5948.68 | | | (0.00)4606.61 | | | (0.00)4864.26 | | |
| Hausman | (0.15)10.85 | | | (0.26)8.94 | | | (0.15)10.77 | | |

To avoid the problem of variance heterogeneity, all three models have been estimated using the generalized least squares approach. Durbin-Watson statistics indicate that there is no problem with first-order serial autocorrelation in the components of the estimated models. In models (1), (2), and (3), the adjusted coefficient of determination shows that the independent variables together explain about 39, 40, and 43% of the changes of the dependent variable, respectively. The positive and significant variable coefficient of operating cash flow (0.361) indicates that with increasing the flow of operating cash of the company, its value also increases significantly. This indicates that the first hypothesis of the research has not been rejected. In model (2), the non-significance of the coefficient of change of cash resulting from investment activities (0.233) shows that there is no significant relationship between the mentioned variables and the value of the company. This indicates that the second hypothesis of the research has been rejected. In model (3), the positive and significant cash flow coefficient resulting from financing activities (0.326) indicates that with increasing cash flow from

financing activities, the value of the company also increases significantly. Therefore, the third hypothesis of the research is not rejected.

## Test the fourth to sixth hypotheses of the research

To test the fourth, fifth, and sixth hypotheses of the research, models (4), (5), and (6) have been estimated with the combined data approach and their results are presented in Figure (3).

In all three models, the significance of the Limer statistic indicates the preference of the pattern of the fixed effect over the joint (constrained) pattern, and the significance of the Breusch–Pagan statistic indicates the preference of the pattern of the random effect over the joint (constrained) pattern. Also, the significance of the Hausman's statistics in two models (4) and (5) indicates the priority of the fixed effects model over the random-effects model. In model (6), the lack of significance of Hausman's statistics (9.69) indicates the priority of the random effects model over the fixed effects model.

**Figure (2): Estimation results of the Fourth to six models**

| Variable | Results of model 4 | | | Results of models 5 | | | Results of model 6 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Coefficient | Significant | VIF | Coefficient | Significant | VIF | Coefficient | Significant | VIF |
| Intercept | 2.531 | 0.00 | | 2.482 | 0.00 | | 2.725 | 0.00 | |
| DPCFO | -0.032 | 0.49 | 1.11 | | | | | | |
| CFO | 0.221 | 0.04 | 1.26 | | | | | | |
| DPCFO*CFO | 0.180 | 0.05 | 1.44 | | | | | | |
| DPCFI | | | | 0.004 | 0.92 | 1.44 | | | |
| CFI | | | | 0.396 | 0.10 | 1.31 | | | |
| DPCFI*CFI | | | | 0.124 | 0.10 | 1.34 | | | |
| DPCFF | | | | | | | -0.093 | 0.01 | 2.44 |
| CFF | | | | | | | 0.311 | 0.06 | 1.96 |
| DPCFF*CFF | | | | | | | 0.193 | 0.09 | 1.46 |
| SIZE | -0.073 | 0.00 | 1.06 | -0.071 | 0.00 | 1.08 | -0.077 | 0.00 | 1.07 |
| GROWTH | -0.015 | 0.76 | 1.12 | -0.036 | 0.42 | 1.10 | -0.067 | 0.19 | 1.11 |
| PROFIT | 1.670 | 0.00 | 1.67 | 1.800 | 0.00 | 1.44 | 2.322 | 0.00 | 1.43 |
| LEV | -0.105 | 0.15 | 1.77 | -0.111 | 0.12 | 1.80 | -0.256 | 0.00 | 1.74 |
| ATURN | -0.055 | 0.08 | 1.19 | -0.029 | 0.38 | 1.18 | -0.002 | 0.96 | 1.19 |
| CRATIO | -0.049 | 0.07 | 1.61 | -0.66 | 0.03 | 1.66 | -0.132 | 0.00 | 1.53 |
| Adjusted $R^2$ | 39.20 percent | | | 54.37 percent | | | 42.83 percent | | |
| F-stat | (0.00)137.62 | | | (0.00)82.66 | | | (0.00)111.56 | | |
| Durbin-Watson | 2.03 | | | 2.11 | | | 2.11 | | |
| Limer | (0.00)35.03 | | | (0.00)34.20 | | | (0.00)30.13 | | |
| Breusch–Pagan | (0.00)5948.68 | | | (0.00)5360.27 | | | (0.00)4885.01 | | |
| Hausman | (0.15)10.85 | | | (0.26)8.94 | | | (0.15)10.77 | | |

The estimation results of model (4) with the pattern of fixed effects indicate that the width of the origin, firm

size, and profitability of the company are significant at the level of% and operating cash flow coefficient

(0.221) and the interactive variable DPCFO * CFO (0.80). At the 5% level, they are significant. The adjusted coefficient of determination in a model (4) shows that the independent variables together explain about 53% of the changes in the dependent variable. The significance of the DPCFO * CFO interaction coefficient (0.80) shows that the relationship between cash flows from operating activities and firm value is higher in companies with a net positive cash flow than other firms. This shows that the fourth hypothesis of the research is not rejected. The results of estimating the model (5) with the pattern of fixed effects indicate that the width of the origin, company size, and profitability of the company are significant at the level of A percent, and the coefficient of variable ratio (-0.666) is significant at the level of 5 percent. In this model, the adjusted coefficient of determination also shows that the independent variables together explain about 54% of the changes in the dependent variable. Lack of significance of DPCFI * CFI interaction coefficient (0.124) shows that the intensity of the relationship between cash flows resulting from investment activities and firm value is statistically the same in companies with net positive and negative investment cash flows. This indicates that the fifth hypothesis of the research has been rejected. The estimation results of model (6) with the pattern of random effects indicate that the width of the origin, firm size, firm profitability, leverage ratio, and current ratio are significant at the level of 1% and the coefficient of dual value variable DPCFF (-0.093) at the level of 5% Is significant. The adjusted coefficient of determination also shows that the independent variables together explain about 43% of the changes in the dependent variable. Lack of significance of DPCFF * CFF interaction coefficient (0.193) shows that the intensity of the relationship between cash flows from financing activities and firm value in companies with net cash flows from positive and negative financing activities is statistically significant. There is no significant difference. This result indicates that the sixth hypothesis of the research has been rejected. In models (4), (5), and (6), the significance of Fisher statistic at the level of 1% indicates the overall significance of the estimated models. To avoid the problem of variance heterogeneity, all three models have been estimated using the generalized least squares approach. The value of Durbin-Watson statistics indicates that there is no problem with first-order serial autocorrelation in the disturbance components of the estimated models. Inflation variance index values in all three models show that the independent variables of these models are not in line.

## Conclusion and discussion

The existence of a positive and significant correlation between the value of the company and the two variables of operating cash flow and cash flow resulting from financing activities provide initial evidence that the first and third hypotheses of the research are not rejected. However, to test the research hypotheses, regression analysis with composite data and control of the effect of some variables have been used. The results show that with increasing cash flow from operating activities and financing, growth opportunities, company profitability, asset turnover ratio, and current ratio, and also with decreasing leverage ratio, the value of the company increases. The results show that cash from operating activities and financing have a positive and significant relationship with company value and the relationship between cash flows from operating activities and company value, in companies with a net cash flow of positive operating, more than Other companies. However, the results of the present study regarding the relationship between operating cash flows and company value are not consistent with the results of the research of Ney et al. (2019) and Aktas, Kroki, and Pitmza (2015). According to Ney et al. (2019), apart from recognizing that more cash inflows from operating activities can improve the value of the company, it was shown that cash flows from operations cannot be considered as positive messages in Taiwan. due to the increasing competition faced by Taiwanese companies, the positive cash flow resulting from operations by cash inflows has been collected from accounts receivable due to higher sales discounts or cash inflows from the list of assets is not created due to lower sales prices and cannot be considered as positive messages.

However, according to Levant and Zarvin (1990), due to the increase in cash inflows from higher net income, the value of the company increases, especially during operating activities. Estimation of the results of this study also showed that cash flows from investment activities harm the value of the company, which are consistent with the results of research by Ney et al. (2019) and McConnell and Muscarla (1985) and cash flows from financing activities. It has a positive effect

on the value of the company. Which are consistent with the results of research by Ney et al. (2019). In this research, the ratio of Tobin's q (market value to book value) has been used to measure the value of the company. Using other methods of measuring company value may lead to different results. To moderate the possible effect of variance heterogeneity and serial autocorrelation on the disruptive components of research models, an amplified standard deviation has been used to calculate the student-student statistics and significance levels. However, some limitations may reduce the generalizability of the research findings. For example, although appropriate control variables are included in the models, there is a possibility of bias of correlated deleted variables and this can affect the research results. Investors and market analysts can use the results of this research to identify companies with better returns and higher value. Also, decision-makers in the banking and financing system can use these results to identify companies with better financial credit and value based on net changes in cash flow and to provide credit to them.

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