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Can Dividends Affect the Investment Decisions of Listed Firms in Vietnam?

Quoc Trung Nguyen Kim

Faculty of Accounting and Auditing, University of Finance – Marketing, Ho Chi Minh City, Vietnam

Abstract: This paper aims to estimate the impact of dividends on the investment decisions of listed firms in Vietnam. The relationship between dividends and investments is explained using agency and asymmetric information theories. In markets with low information transparency, such as the Vietnamese stock market, these theories are used. Fama and Miller (1972), for example, argued that the dividend should not be based on the investment of firms. The study, however, uses a quantitative research method known as the System Generalized Method of Moments (SGMM), which addresses the endogeneity issue and tests the hypothesis in the model to highlight dependent investment decisions on dividends. As a result, the author concludes that dividends have a statistically significant negative impact on investment decisions.

Keywords: agency theory, asymmetric information theory, dividends, investment, SGMM, Vietnam.

股息会影响越南上市公司的投资决策吗？

摘要：本文旨在评估股息对越南上市公司投资决策的影响。使用代理和不对称信息理论来解释股息和投资之间的关系。在信息透明度低的市场，例如越南股市，这些理论被使用。例如，法玛和米勒(1972) 认为股息不应基于公司的投资。然而，该研究使用了一种称为系统广义矩量法的定量研究方法，该方法解决了内生性问题并检验了模型中的假设，以突出对股息的依赖投资决策。因此，作者得出结论，股息对投资决策具有统计上显着的负面影响。

关键词：代理理论, 不对称信息论, 股息, 投资, 系统广义矩量法, 越南。

1. Introduction

Dividends are profits after tax paid to the existing shareholders. Depending on the firm's performance, the general meeting of shareholders decides the dividend payment form paid to shareholders or the dividend rate under the company's dividend policy. The company retains more profits for re-investment, fewer dividends are paid, and vice versa. Therefore, the dividend policy is one of the most critical policies in corporate finance to determine between paying profits to shareholders versus keeping profits for re-investment. So, the dividend policy plays a vital role for many reasons. First, the dividends' different forms affect the book value of shares, the actual asset value of shareholders, and investment capital. Second, the dividend directly affects the current income of shareholders. Third, dividend payments also signal the company's prospects, because it attracts the interests of shareholders and potential investors and affects firms' future growth. Fourth, the dividend policy is related to the company's cash usage and liquidity. Therefore, it closely connects with the firm's investment and financing policies, affecting its growth. Using net income to distribute dividends paid to the existing shareholders forced the enterprise to give up potential investment opportunities. Therefore, this means the growth rate of dividends in the future will decrease and lead to a decline in the stock price. However, there is no legal requirement for dividends paid to shareholders. Most profitable companies set up dividend payment ratios higher than others. The decision on a company's dividend payment methods or re-investment depends on each company's strategy. Typically, large, and reputable companies in the market can spend a high percentage of their profit after tax on paying dividends. At the same time, some developing companies may spend most or even all their profits after tax re-investing to meet their growth needs.

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About the authors: Quoc Trung Nguyen Kim
Corresponding author Quoc Trung Nguyen Kim, nkq.trung@ufm.edu.vn

Financial markets are also concerned by governments and authorities in all countries worldwide, as they play a critical role in boosting economic development by accumulating individual and institutional savings and converting them into investment channels. The Vietnam capital market is one of the developing stock markets in the Asia region, and the reality in Vietnam shows the urgent need to recognize the most important variables affecting investment activity. The dividend policy of publicly traded companies and its impact on investment activities is a key factor that many researchers are interested in. There were two opposing schools in this relationship: Dividend Irrelevance and Dividend Relevance. As a result, many empirical studies worldwide show no dividend-investment relationship, but other research shows that dividend policy affects investment activities. The attention of empirical research at ascertaining the relationship between investment and dividend has been the focus of extensive research from Fama and Miller [1]. However, these findings have failed to establish a clear linkage of the two above factors. The majority of these studies concentrate on developed markets. However, little is known about the impact of dividends on investment in emerging markets, like Vietnam. Therefore, this present study contributes to the extant literature by focusing on empirical information of Vietnamese listed firms.

This paper aims to estimate the effect of the dividend on the investment of Vietnamese listed firms from 2009 to 2020, based on the agency theory and asymmetric information theory. The paper tries to answer the research question “How does dividend policy affect investment activities of Vietnamese listed companies from 2009 to 2020?” to achieve this goal.

2. Literature Review and Empirical Studies

2.1. Literature Review

From a financial perspective, an investment is a series of spending activities of an investor to obtain a cash flow higher than the original amount, realizing the goal of return and return. At the firm level, investment is the use of money or assets to buy other assets, expecting these assets will provide future (short or long-term) benefits to the business. According to Vietnamese accounting principles, the amount of capital spent is considered investment expenditure (capital expenditure) when it is used to purchase or upgrade fixed assets. Therefore, in the research scope, the authors only mentioned investment activities in fixed assets. Investment can be measured by various methods, including scales on fixed assets, investment spending, or cash flow, all of which are used in many studies worldwide and the Vietnamese market. Vo [2] measured investment by the change in fixed asset balances (closing balance minus opening balance) plus depreciation during the year. Investments measured by this method will include investments in tangible and intangible fixed assets.

In this article, the author will use data on capital expenditures during the year to measure the firm's investment after recognizing that this is a popular and appropriate calculation for the Vietnamese market. Data are taken from a listed enterprise's cash flow statement, showing the amount of cash invested by the enterprise in fixed assets during the year (excluding liquidation of fixed assets).

In newly emerging stock markets like Vietnam, investors often rely on the payout level of dividends as a signal to identify the company's prospects in the future because of asymmetric information. Besides, the dividend policy is considered one of the significant decisions of corporate financial management, having a great influence on the stock price and the value of the enterprise. Therefore, it can be said that the choice of dividend policy is one of the crucial decisions that managers need to consider.

The dividend-investment relationship is explained by using the Asymmetric Information Theory. This theory arises because, in an economic relationship, two parties possess an unequal amount of information, and the party with more information has a tremendous advantage in delivering economic decisions.

Besides using asymmetric information, the relationship between dividends and investments could be explained based on agency theory. From the practical point of view, owners' constraints relate to management and operation ability. It is compulsory to hire managers to deal with entity activities, including steadily increasing performance and earnings per share. The managers' presence in the entity has accelerated the conflicts of interests between owners and managers [3]. It is considered a platform of agency theory found by Jensen and Meckling [4] who have empirically shown how to assign shares between managers and owners. It means the managers must reconcile the shareholders' different interests.

Many studies show that managers will try to achieve more incentives and bonuses provided they obtain higher realized performance, especially in the face of uncertainty and asymmetric information. Paying dividends at a low rate helps to maintain the number of assets under the management's control. When profits are retained, it also helps the management board be more flexible in investment decisions and actively use internal capital instead of mobilizing external capital at a high cost. Therefore, it is clear that managers prefer to pay dividends at a low rate, while shareholders will prefer to receive more profits through dividends paid. It is because of the divergent interests that ultimately lead to many negative consequences. Specifically, in response to the needs of shareholders,

the management board will have over-investment behavior, limit dividend payments, and spend most of the profits on investment in projects with low profitability. This goes against the interests of shareholders and reduces the value of the business.

The agency theory clarifies the dividend-investment relationship through the effect of cash flow on over-investment. Over-investment is a phenomenon where a firm invests in potential projects and projects with a negative net present value (NPV). The manager has an incentive to invest more than optimal because growth in firm size gives the manager more power, reputation, and high returns [5]. According to Jensen [5], the phenomenon of investment in excess can be minimized when funding internal businesses is scarce, and this will become particularly acute if the company holds abundant resources inside. In addition, the use of external capital, issuing shares, puts the business under closer scrutiny by shareholders. Moreover, paying dividends to shareholders will cut off the excess cash to avoid the executive board making over-investment for profits. From the above analysis, the effect of dividends on investment decisions can be explained by the question of the paper.

2.2. Empirical Studies

The studies of Jensen and Meckling [4], Brav et al. [6] confirm there is a relationship between dividends and investment. This prompted many studies with diversified approaches from many markets worldwide to be carried out to test the relationship between dividend policy and investment decisions, based on dividend theory, which belongs to two opposing schools, namely: Dividend Irrelevance and Dividend Relevance.

The Dividend Irrelevance Theory is a financial theory that asserts that paying dividends does not affect a company's potential profitability or stock price. It implies that owning shares of companies that pay dividends is no better than owning shares of companies that do not. According to it, the dividend policy has no effect on firm value and provides no meaningful information to investors, and those dividends do not create or detract from the firm's value, but cash flows will create firm value. Therefore, the dividend policy is entirely independent of the investment decisions of the enterprise. However, it is argued that dividend policy affects the firm's value. The Dividend Relevance is explained by many theories including Bird-in-the-hand Theory, Signaling Theory, and Agent Theory. Researchers from different perspectives and aspects explain these theories, but all of them demonstrate a correlation between dividend policy and investment decisions of enterprises. Some papers have demonstrated that, including [4, 6].

Jensen [5] analyzes the impact of agency costs on a firm's investment in the stock market. According to Jensen [5], when the supervision is not carried out rigidly by the enterprise, managers (who will act in the interests of shareholders) can make many decisions detrimental to the owners' interests. Especially when the company has excess cash flow, it can create opportunities for management to over-invest in projects with negative net present value (NPV), causing severe effects on shareholder interests. The agency problem is not limited to the stock market, but also the debt market. The conclusion of Jensen's research shows that increasing dividends can solve agency costs and over-investment behavior [5]. This is simply explained because the more dividends paid, the less free cash flow in the business. Since then, managers who want to invest must mobilize additional external capital at a specific cost. Therefore, managers will carefully select potential investment projects and reduce ineffective investment behavior.

Kato et al. [7] demonstrated that after controlling for cash flow, investment opportunities, and external financing, an increase (decrease) in dividends usually accompanies an increase (decrease) in investment in Japan.

According to Wang, Huang, and Wang [8], dividends harm investment at different stages of a company's life cycle. They also noticed that the impact of investment decisions on borrowing and borrowing decisions on investment decisions varied at different levels, implying that the capital market was imperfect.

Evans and Hadrat [9] also investigated the impact of dividend policy on investment decisions (stockholder wealth) of selected Ghana Stock Exchange-listed companies (GSE). From 2005 to 2011, secondary data on 25 publicly traded companies was gathered using annual reports. According to the regression results, dividend payments retained earnings, and the price-earnings ratio significantly positively impact the stock market price. With companies listed on GSE, it was also discovered that dividends have a more significant impact than retained earnings.

The impact of dividend policies on investment decisions (Shareholders Wealth) in technology companies in the United States was investigated by Sahibzada and Zubair [10]. The study looked at 60 companies in the Technology sector listed on the NYSE and AMEX stock exchanges between 2010 and 2014 for 150 observations.

Moreover, using panel data from 2007 to 2016, Saddiq et al. [11] investigated the impact of dividend policies (dividend per share, dividend-payout ratio, earnings per share, and dividend yield) on blue-chip companies' investment decisions in Nigeria. The study found that Earnings Per Share (EPR) and Dividend Yield (DY) have a negative and significant effect on investment decisions (ID) of Blue-Chip companies in Nigeria. The Payout Ratio (POR) has a significant positive effect on the investment decisions (ID) of

Blue-Chip companies in Nigeria. The Dividend Per Share (DPS) has an insignificant positive effect on the investment decisions (ID) of Blue-Chip companies in Nigeria. Because of the findings, investors are advised to invest in companies that pay cash dividends regularly, as this will increase investment decisions in the long run due to their ability to send positive signals. It is also suggested that blue-chip company management consider paying a higher payout ratio rather than a share dividend because it positively impacts investment decisions.

In Vietnam, Phan and Phan [12], Dang and Pham [13] have found the influence of dividend policy on stock price fluctuations of companies listed on the Vietnamese stock market. They have determined the dividend-investment relationship in their research papers in the Vietnamese context.

The relationship between investor sentiment and dividend policies is investigated by Nguyen and Bui [14]. This paper shows that managers do not consider investor sentiment when making dividend payment decisions, based on data from listed firms on the Ho Chi Minh City Stock Exchange (HSX) and the Hanoi Stock Exchange (HNX) from 2009 to 2017. However, the study has not considered the specific impact of the dividend policy on the investment of Vietnamese listed firms

3. Research Method

3.1. Samples

Yamane's formula (1967) showed the way to calculate research samples:

$$n = \frac{N}{1 + Ne^2} \quad (1)$$

where:

n: samples.

N: population.

e: error. In this paper, the error is assumed 10%.

In Ho Chi Minh City Stock Exchange (HOSE), the author finds 329 firms (except for the financial, banking, and insurance sectors), including:

— Consumer Staples: 30 firms.
— Energy: 35
— Health care: 12
— Industrials: 164
— Materials: 35
— Real Estate: 47
— Information Technology: 4
— Communication Services: 2

The total number of listed firms on HOSE as of December 31, 2020, is 329. According to Yamane's formula, the required sample is approximate 80 firms using the random sampling method, non-probability. The research period is from 2009 to 2019, and the number of firms is 80, so the observed sample for the corresponding topic is 80 × 11 = 880 observations.

3.2. Proposed Model

$$Investment_{i,t} = a_0 + a_1\ dividend_{i,t} + \sum a_k\ control_variables_{i,t-1} + \varepsilon_{i,t} \quad (2)$$

Model (1) examines the impact of dividends on firm investment and is modified as follows:

$$inv_{i,t} = a_0 + a_1 div_{i,t} + a_2 size_{i,t-1} + a_3 lev_{i,t-1} + a_4 cash_{i,t} + a_5 roa_{i,t-1} + a_6 tang_{i,t-1} + a_7 cycle_{i,t-1} + a_8 loss_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

$inv_{i,t}$: investment on firm i at time t;

$div_{i,t}$: dividend policy of firm I at time t;

$size_{i,t-1}$: the size of firm i at time t;

$lev_{i,t-1}$: leverage ratio of firm i at time t-1;

$cash_{i,t}$: cash ratio of firm i at time t-1;

$roa_{i,t-1}$: return on assets of firm i at time t-1;

$tang_{i,t-1}$: tangible assets of firm i at time t-1;

$cycle_{i,t-1}$: business cycle of firm i at time t-1;

$loss_{i,t-1}$: loss in business activities of firm i at time t-1.

3.3. Measurement of Variables and Development of Hypothesis

Investment (dependent variable): McNichols and Stubben [15] used capital expenditure less for depreciation for the year, based on the amount published in the cash flow statement of the firm when measuring investment. This variable used in the model will be estimated as the ratio between investment expenditure minus the cash received from the liquidation of fixed assets and total assets of the firm at the beginning of the year:

$$inv_{i,t} = \frac{invest\ in\ fixed\ assets_{i,t}}{total\ assets_{i,t-1}} \quad (4)$$

Dividend (independent variable):

Since the inception of joint-stock companies, dividend policy has been a topic of discussion in the financial literature. Dividends are commonly defined as the distribution of earnings in real assets (past or present) among the firm's shareholders in proportion to their ownership. The dividend policy refers to the payout policy, stability of dividends and bonus shares, as well as stock splits that managers consider when determining the size and pattern of cash distribution to shareholders over time [16].

Quiry [17] measures dividends by dividend-payout ratio, dividend yield, dividend per share. From the perspective of investors, that ratio helps shareholders confirm how much they will receive in the total profit generated by the firm. In another perspective, the dividend-payout ratio directly reflects a business's amount to pay dividends when combined with investment and financing decisions.

The interaction between dividends and investment was suggested to be irrelevant based on the study by Miller and Modigliani [18]. While Jensen and Mecking [4] followed by others, have found that dividends varied negatively with investment. According to Nazir et al.

[19], the index of dividend policy is presented by the following formula:

$$div_{i,t} = \frac{announced\ dividend\ _{i,t}}{total\ assets_{i,t-1}} \quad (5)$$

The article only uses cash dividends paid because paying dividends in cash directly affects the company's capital. Thereby, it potentially will cause a lack of capital to invest in projects. Therefore, the expectation sign when conducting the effect of dividends on investment is negative.

Firm size is used as a control variable in the research of Hennessy and Whited [20], defined as a reasonable measure of the firm's financial constraints. Hennessy and Whited [20] have found that large firms have low costs of raising external funds, and conversely. Ali and Yousaf [21] also admit that the larger the enterprise, the easier it is to access external capital sources at a lower cost. Besides, other researchers demonstrated the positive correlation between firm size and investment, including Jangili and Kumar [22]. Therefore, firm size is expected to affect investment positively.

$$size_{i,t-1} = \ln(total\ assets_{i,t-1}) \quad (6)$$

Leverage ratios are used to determine the degree of financial risk assumed by a business. It indicates an optimal capital structure, showing that banks have equity ratios and creditors. The debt-to-assets ratio shows the proportion of assets financed by debt by comparing total liabilities (short-term + long-term debt) to total assets [23]. The ratio of total liabilities to total assets shows as a complement to equity holders' residual claims. The following studies by Dang [24], Aygun et al. [25] found the financial leverage to be negatively related to investment. Therefore, the proposed hypothesis is that leverage hurts the investment of the firms.

$$lev_{i,t-1} = \frac{total\ liabilities_{i,t-1}}{total\ assets_{i,t-1}} \quad (7)$$

Alzoubi [26] has considered the role of cash as one factor affecting enterprises' investment. Many previous studies always focused on cash flow but ignored the critical cash factor, Alzoubi [26] shows that availability of cash is one of the significant explanatory variables for corporate investment, especially for businesses with some constraints of funds resources. As a result, cash affects investment positively.

$$cash_{i,t-1} = \frac{cash\ and\ cash\ equivalent_{i,t-1}}{total\ assets_{i,t-1}} \quad (8)$$

Bikas and Glinskyt'e [27] have examined the relationship between profitability and investments. Their findings show that the financial structure is unimportant to make investment decisions, while the increases in the company's productivity and profitability will promptly reflect the rise of investments. Davis [28], Bikas and Glinskyt'e [27] also argue that a change in profitability can affect a company's investments. From these discussions, the author proposes that the hypothesis is the return on assets has a positive effect on investment.

$$roa_{i,t-1} = \frac{net\ income_{i,t-1}}{total\ assets_{i,t-1}} \quad (9)$$

Many previous studies prove that when a company has many fixed assets, it will increase its investment capacity because the asset structure determines the firm's change of fixed and variable costs, leading to its performance effectively. Concretely, the research by Myers [29] demonstrated that many tangible assets in a firm could assist it to improve activities and increase its investment opportunities. Therefore, there is a positive correlation between tangible assets and investment.

$$tang_{i,t-1} = \frac{\text{tangible assets}_{i,t-1}}{total\ assets_{i,t-1}} \quad (10)$$

Companies in different business cycle stages will have different discretionary accruals occurring from differences in business models. It has been proved by Zhai and Wang [30]. The proposed hypothesis is that as business cycle affects investment.

$$cycle_{i,t-1} = \ln\left(\frac{average\ account\ receivables_{i,t-1}}{net\ sales_{i,t-1}} + \frac{average\ inventory_{i,t-1}}{cost\ of\ goods\ sold_{i,t-1}}\right) \quad (11)$$

Many previous studies have confirmed that the loss in activities of the previous year also significantly impacts the investment of enterprises this year [30, 31]). Therefore, the loss variable is included in the model to measure the investment with the hypothesis that a loss of activities affects investment negatively.

$$loss_{i,t-1} = \frac{net\ income_{i,t-1}}{total\ assets_{i,t-1}} \quad (12)$$

3.4. Methodology

According to the research by Brown and Petersen [32], variables related to cash flow, such as dividends, can cause endogeneity when examining the dividend-investment relationship. In these terms, we can say that a company's investment during the year can hurt dividends. Another study by Ramalingegowda et al. [31] also conduct the interaction between dividend and investment, they also found the endogeneity in their model. Besides, the model consists of endogeneity because of the two-way relationship between dividends and investment. Hence, estimating equation (1) using an OLS technique would not produce unbiased because some lagged dependent variables may be correlated with firm-specific effects, the estimates may be inconsistent.

To overcome the endogeneity, the author uses the Arellano-Bond two-step difference GMM estimation with robust standard errors. They suggest that GMM controls for the endogeneity because it employs

additional instruments obtained by utilizing the orthogonal conditions that exist between the error term and the lagged dependent variable. The number of instruments is always kept below the number of groups in all our SGMM specifications. AR(1) and AR(2) are the Arellano-Bond tests for first- and second-order autocorrelations of the residuals. One should reject the null hypothesis of no first-order serial correlation and not reject the null hypothesis of no second-order serial correlation of the residuals. Test for AR(2) errors shows that the endogeneity problem is solved at the AR(2) level. According to the Sargan test statistics, the null hypothesis is that the over-identifying restrictions are valid. The models' test results do not reject the null hypothesis of valid instruments (because prob $\chi 2$ are greater than 0.05). The Wald (joint) test chi-square statistics show that the overall model of SGMM is fit.

The SGMM model is used significantly at 5 percent. In this model, The Sargan test and Arellano-Bond test are applied to test its results' reliability. The endogeneity exists in the model discussed above. The author uses the SGMM method. The advantage of the quantitative research method (SGMM) is to determine the strong instruments that have better Sargan p-value and Hansen p-value significantly to solve the endogeneity and test the validity of the model specifications. Therefore, an efficient two-step SGMM estimator is suitable for obtaining reliable and unbiased results in small samples. Under the extended GMM-SYS technique, the model is estimated in both levels and first differences; that is, in stacked regressions level equations are simultaneously estimated using differenced lagged regressors as instrument variables.

One rule of thumb in GMM is that the 'number of instruments should not be larger than the number of groups' [33]. AR(1) and AR(2) denote the Arellano-Bond tests for the first- and second-order autocorrelations of the residuals. One should reject the null hypothesis of no first-order serial correlation and support the null hypothesis of no second-order serial correlation of the residuals.

4. Research results and discussions

4.1. Research Result

Table 1 Test of autocorrelation and heteroskedasticity (calculated with Stata)

No.	Test	F-statistic	p-values	H0
1	Wooldridge test for autocorrelation in panel data	8.189	0.0056	Reject
2	Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	687.18	0.0000	Accept

Regarding the Wooldridge test for autocorrelation in panel data, the p-value is smaller than 5%; thus, we have enough evidence to reject H0: "There is no autocorrelation". It means the model contains the autocorrelation issue. Furthermore, the p-value of variance change test (Breusch-Pagan/ Cook-Weisberg test) has a value greater than 5%; thus, H0: "Residuals with variance unchanged" has insufficient evidence to be rejected. Therefore, the heteroskedasticity phenomenon does not exist.

As discussed above, the model contains endogeneity. The instrument variables should improve the model faults. In this paper, the lagged investment and return on assets are chosen as instrument variables to apply the SGMM.

Table 2 SGMM results (calculated with Stata)

inv	Coef.	P>z
linv	-0.9755	*0.0220*
div	-0.0724	*0.0460*
size	0.1507	*0.0160*
lev	-0.8352	*0.0010*
cash	0.4129	*0.0050*
roa	0.0632	0.7740
tang	0.3818	*0.0240*
cycle	0.3590	*0.0190*
_cons	-0.4534	0.5940
Arellano-Bond test for AR(1) in first differences: z = 0.96 Pr > z = 0.337		
Arellano-Bond test for AR(2) in first differences: z = -1.20 Pr > z = 0.232		
Sargan test of overid. restrictions: chi2(10) = 1.44 Prob > chi2 = 0.999		
Hansen test of overid. restrictions: chi2(10) = 5.48 Prob > chi2 = 0.857		

The author uses the Arellano and Bond tests to check the condition of no correlation in the error term. The AR(2) error test is rejected in the Arellano-Bond model because the p-value = 0.232 larger than 0.05 with the Null hypothesis is H0: "Autocorrelation does not exist". This result means that the probability of AR(2) is insignificant at 5%. Thus, the absence of serial autocorrelation in the errors can be confirmed in the model.

The following section discusses the Sargan and Hansen tests (Table 1), which aim to detect an overidentifying restriction problem related to the heterogeneity of the subsets of the instrumental variables and support the validity and reliability of the SGMM 2-step results. In this model, the p-value in the Sargan test (under the "H0: overidentifying restrictions are valid" hypothesis) is large (p-value = 0.999). Therefore, no sufficient evidence exists to reject hypothesis H0.

Table 6 also shows the difference-in-Hansen tests of the exogeneity of instrument subsets under the null hypothesis of the joint validity of a specific instrument subset. The test statistics are asymptotically chi-square distribution with degrees of freedom equal to the number of questionable instrumental variables [14].

The good practices in implementing the SGMM estimation and applying the difference-in-Hansen test to the subsets of SGMM-type instruments and standard instrumental variables for the level equation. Table 2 also presents the difference in Hansen tests of the exogeneity of instrument subsets under the null hypothesis (H0) of the joint validity of a given instrument subset. As a result of statistical evidence at 5%, the null hypothesis cannot be rejected. This finding leads to the suggestion that the subsets of instruments are econometrically exogenous. In this paper, the number of instruments is 19, which is less than the number of observations at 71. Therefore, the rule of thumb is satisfied. Hence, the instrument variables are adequate to deal with the endogeneity.

4.2. Discussions

The research results show that seven variables are statistically significant and impact the investment of listed companies in Vietnam, including the lagged investment, dividends, firms' size, leverage, cash, asset structure (tang), and business operating cycle. The dividend variable is the primary variable that the study analyzes and estimates its impact on investment. Since the coefficient of regression is negative, the dividend variable hurts investment. The author has discussed the dividend-investment relationship above, and through that analysis, this research has contributed to solving common inadequacies in the current market, such as information asymmetry, lack of transparency, and agency problems. In particular, the study results also helped strengthen the basis for subsequent studies looking at the negative impact of dividends on investment.

The lagged investment, dividends, leverage harm investment of listed firms in Vietnam. While the remaining factors, namely firms' size, cash, asset structure (tang), and business operating cycle have a positive relationship to investment. However, all the above factors are statistically significant at 5%.

First, according to Table 5, the first lag of investment is an important factor in making investment decisions for listed firms in Vietnam. The estimated coefficient of-0.9755 shows that past investment is highly statistically significant and negatively correlated with investment at the 1 percent level. An increase of 1% in past investment can explain the 0.9755% fluctuation in investment, while other variables are kept unchanged. This result is consistent with previous studies [12]. These authors emphasize the importance of lagged investment as a predictor of current investment, which is consistent with the research results of Bloom et al. [34]. The authors assume that when senior managers allocate budgets for activities, the budget for the current period is always equal to that of previous years. The plant managers in enterprises always suggest that the following year's investment budget for business activities is larger than the previous year, which is creating the difference between the previous and last year's budget. The bigger the difference, the harder for the budget to be approved. Therefore, the current year's budget should be equal to or lower than the previous year's budget. In addition, Bloom et al. [34] encourage future research to delve into the investment budgeting process for companies to provide an appropriate approved budget level.

Second, the findings show that the dividend factor (div) has a negative coefficient of -0.0724 and has a statistical significance of 5% by performing the SGMM. This result is contrary to Fama's view of the "Dividend Irrelevance theory" [35], but it is in line with the previous empirical studies [6, 31] which followed the Dividend Relevance theory. In the practical economy, the result shows that there is a negative relationship between investment and dividends. That means if dividend payments increase, the investment of enterprises decreases, and vice versa. The result is also consistent with the proposed hypothesis. The results prove that asymmetric information in the Vietnamese market affects the dividend-investment relationship about the possibility of signaling from dividends. They confirm that when a firm decides to pay a higher ratio of dividends, future investment opportunities are no longer available because the firm does not have more retained earnings to reinvest. Furthermore, the results are considered reliable and unbiased, because of the free of endogeneity and over-identifying restrictions (Table 2).

Other factors in the model, such as firm size (size), leverage, cash, asset structure, and cycle, are also statistically significant at the 5% significance level. The firm size gets the coefficient of 0.1507, which is higher than 0, so this factor affects investment positively at the listed firms in Vietnam. The research results of this study are consistent with the findings proved by Jangili and Kumar [22]. These authors argue that large firms have a better reputation, are more experienced, and have the availability of more information than small companies, allowing them to access external capital sources and be more diversified. As a result, they encourage incentives in investment activities. Hence, the firm size is expected to be a mix of investment-related variables.

Financial leverage (lev) also has a negative correlation coefficient (-0.8352) with investment, and the confidence level is at 5%. The research results are consistent with the proposed hypothesis and the findings of Dang [24], Aygun et al. [25]. According to them, the leverage ratio can have a variety of effects on investment. It may limit the amount of cash available for investment. Excess leverage may impair a firm's ability to raise additional capital for reasons previously discussed by Myers [29], Jensen and Meckling [4].

Consistent with the hypothesis, the "cash" variable

has a positive correlation with the investment of the enterprise (0.4129) at the significance level of 5% (p-value is 0.0050). In line with the previous studies [26, 31], cash is always considered a motivating factor for businesses to invest and is also one of the causes of over-investment by managers. Aside from a company's cash flow, cash holdings are an important source of internal financing. Cash holding, on the other hand, is a managerial decision similar to investment decisions, which mean that cash holding is expected to have a more significant impact on the firm's investments than cash flow, particularly if the firm is experiencing difficulties or limited access to external sources of finance, challenging economic conditions, or both. As a result, managers should save the cash needed to fund profitable projects instead of investing in projects with negative net present value and distributing the excess cash to shareholders. That will prevent the manager from over-investing.

Regarding the "tang" factor (asset structure), the regression coefficient is positive (0.3818) at the confidence level of 5%. So, this variable affects investment statistically significantly. The research results are in line with the proposed hypothesis, and also confirmed the argument of Myers [29] that having more tangible assets helps the company to improve its image and increase investment opportunities. In addition, the relationship between asset structure and investment is proven from the empirical study of Phan and Phan [12]. They used fixed assets divided by total assets to measure fixed capital intensity. These data are taken from the Balance Sheets of firms. It is concluded in [12] that when fixed capital increases, it means firms invest more in machinery to satisfy the demand for production. Furthermore, tangible assets can be used as collateral for bank loans to assist firms' activities and can serve as a guarantee to the investor for the received other funds. The structure of a company's assets reveals the company's management's investment decisions. Fixed assets are assets that have a longer economic life than a year and are used to support a company's operating activities. Because it relates to the company's costs, the accuracy of the decision made in selecting the type of assets to invest in is critical. The effectiveness of the use of fixed assets is expressed in the high sales of firms.

Finally, the control variable – operational cycle (cycle) has a positive correlation coefficient with an investment of (0.0112) at 5% confidence level. This proves that the cycle of Vietnamese enterprises has a positive relationship with investment. Although their interaction is statistically significant, the direction of the impact of the cycle variable on investment contrasts with the results of Ramalingegowda et al. [31]. Because they argue that the longer the operational cycle, the more discretionary accruals arise and negatively impact corporate investment. The average account receivable and average inventory related to net sales and cost of goods sold, respectively, are used to calculate the cycle variable. These figures come from financial statements, which provide users with useful information. According to Horne and Wachowicz [36], financial statement analysis, or analyzing the company's financial ratios, is a major tool for making investment decisions based on a company's financial report analysis because it evaluates various aspects of the firm's financial condition through these statements. Furthermore, according to Gitman [37], financial ratios are divided into five categories: liquidity, activity, debt, profitability, and market ratios. According to this study, analyzing a company's financial performance and calculating its market value could be considered fundamental analysis for investors to make an investment decision because we can see the healthiness of a company's financial condition to predict the company's future and build investor confidence to invest in the company.

5. Conclusions and Recommendations

Many studies have attested to the relationship between dividends and investment in world markets. With low information transparency in the Vietnamese stock market, exploring this relationship in the Vietnamese market is reasonably necessary for stakeholders, especially managers and investors. Therefore, the study focuses on estimating the impact of dividends on the investment of Vietnamese listed firms during 2009-2020. Besides, this research explores the other variables influencing these firms' investment decisions. At a confidence level of 5%, except for the loss variable, the dividend, and leverage factors hurt investment, while the remaining variables impact investment positively. The findings show that the Vietnamese market cannot fully function as an effective capital channel. Hence, enterprises face high capital mobilization costs, and as investors, they must face many risks. To overcome these phenomena and improve the investment environment, the Vietnamese State Securities Commission needs to enhance the transparency of information for the market, synthesize, collect, and establish a database system for the whole market so that investors can have unified and reliable information channels for their investment decisions. Again, the correlation between dividends and investment decisions confirms the asymmetric information and agency problems in the Vietnamese market.

Despite obtaining specific results, the research still suffers from certain limitations. First, the study is limited to listed companies in Vietnam in the period 2009–2020 and does not clarify the specifics in each industry. So, future studies can expand the relationship between dividends – investment decisions, not only in specific listed companies but also in other different

sectors, such as financial and banking businesses. Second, the new research needs to consider the role of a moderating or mediating factor to emphasize the impact of the dividend on investment decisions instead of their direct relationship. Finally, the author says that future research could develop new ways to find and solve the problem of endogeneity among the independent variables in the model, which could help reduce errors and improve the reliability of the results.

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