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# Testing Effects of Changes in Earnings to Dividend Actions of Listed Firms on Vietnamese Stock Exchanges Using the Multinomial Logistic Regression Model

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**Abstract:** This paper aims to fill the gap in dividend policy research of listed companies in Vietnam. Effects of changes in earnings to changes in dividend actions of selected listed firms are tested in order to figure out their relationships. The multinomial logistic regression model is employed with the data from a balanced panel of 310 listed firms on Vietnamese Stock Exchanges during the period 2008-2016. The study has estimated odds and odds ratios of four dividend change cases in response to each of three cases of earnings changes. The results show that the dividend actions of firms are very sensitive to earnings changes. When earnings decrease, the odds that firms remain dividend action higher than odds that increase dividend, lower than odds that decrease dividend. When earnings negative, the odds that firms remain dividend action lower than odds that firms move to zero dividend. In addition, in 26% of the cases there was no change to dividends when earnings increased and in 27% no change when earnings decreased. The results are supportive of the hypothesis that dividend actions are strongly affected by firms' earnings and past dividend actions. The research results are meaningful to dividend income investors in formulating their investment strategies and for management of firms in designing firms' dividend policies.

*Keywords:* Dividend, earning, odds, multinomial logistic regression model.

## 1. Introduction

Dividend decisions are among three important decisions in corporate finance management. These are capital budgeting, capital structure and working capital management. Dividend decisions involve the choices between retaining earnings to reinvest in businesses and to distribute earnings to shareholders. Therefore they relate to the capital structure questions, which concern the structure of debt and equity in long term financing.

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There are two main opposing schools of dividend theories. The first states that dividend policy does not matter. That means the dividend policy does not affect firms' value, share value and shareholders' wealth. The possible cause is that, with the availability of perfect financial markets, it is easy for investors to design their homemade dividend policies to meet their cash demand/position. Two of the most well known representatives for this school of thought are Miller and Modigliani (1961) [1]. The second school believes that dividend policy matters as it sends a signal to investors and markets. Higher dividends or an increase in dividend payments send a good signal of a firm's performance in the future, thus its improving share value. Therefore, investors pay much attention to dividend policy, Ross (1977) [2], Bhattacharya (1979) [3], Miller and Rock (1985) [4].

Many researches prove the important effects of earnings to dividend payment decisions with clear empirical evidence (signal theory). However, for a transition economy like Vietnam, when the stock market is developing from a marginal to an emerging one, whether this signal theory works and how earnings of firms affect their dividend policy is still a question for us.

In this paper, the authors focus on exploring the effects of changes in earnings to changes in cash dividends. The test covers three cases of earning change: increase, decrease and negative earnings and four cases of changes in dividends: increase, no change, decrease and zero. For each case of earnings change, there would be four possible changes in dividend payment. To estimate the odds of the changes in dividends, we use the multinomial logistic regression model for 2,480 annual observations from 310 selected listed firms during a time period of 9 years (2008-2016).

## 2. Literature review

The origin of signal theory can be found in Lintner [5], in which he proved how market values respond to changes in dividends. Through a survey of the management of 28 firms, he proved the most significant factor affecting firms' dividend decisions is big changes in past dividend levels. Similar findings have been found in studies by Stephen and Gitma (1991) [6] and Baker et al. (2000) [7]. These authors concluded that the determinant of dividend payment is prospective earnings and past dividend models, therefore, dividend payments are affected by current and past earnings, changes and annual growth of earnings. However, findings by Farsio et al. (2004) [8] are not in agreement with this result. They proved there was not a significant relationship between dividends and earnings in the long term. The previous findings were based on short-term relations between the two, therefore it confused potential investors. As firms that pay high dividends may not pay attention to investment demands in the future, it can result in lower income in the future. While firms with higher returns tend to pay more dividends, firms with unsure future returns are considered to pay lower dividends.

On the other hand, dividend payment behavior in various markets will be different. Glen, Karmokolias et al. (1995) [9] discovered significant differences in dividend policies of firms in emerging markets in comparison to those in developed markets. He argued that dividend payments are much lower in emerging markets and firms in these markets carried out less stable dividend policies despite having target payout rates. The reasoning of Glen, Karmokolias et al. (1995) [9] is agreed with by a number of empirical studies in Malaysia (Pandey, 2001 [10]; Kighir, Omar et al. (2015) [11]); in Oman (Al-Yahyaee, Pham et al. (2011) [12]); in Jordan (Al-Najjar, 2009 [13]); in Turkey (Adaoglu, 2000 [14]). A reason for the difference could be that in these markets, economic shocks are more severe and happen more often than in developed markets. So, both controlling shareholders and managers are likely to push for dividends reductions when earnings decrease (Adaoglu, 2000 [14]; Al-Malkawi, 2007 [15]; Al-Yahyaee et al., 2011 [12]; Nguyen and Tran, 2016 [16]).

With the effects from the global financial crises, firms confronted more financial challenges from outside; therefore, they tended to change dividend policies in response to these external shocks. Nguyen and Tran (2016) [16] studied differences in dividend policies between periods prior and post the crises from 2003 to 2007 and from 2008 to 2012 for two typical market types: the US markets and South East Asia markets (including Singapore, Thailand, Indonesia, Malaysia and the Philippines). Their research applied the Tobit model to overcome limitations of the OLS model. The results showed that US firms executed stable dividend policies and followed the signal theory in a way that dividends increased during the post crises period to improve their good prospects. In Malaysia and the Philippines, firms did not have different dividend policies between the 2 periods. Firms in Indonesia showed a decrease in dividends in the post crises period due to difficulties in finance and cash flows. Differently, firms in Thailand and Singapore paid higher dividends in the post crises period but did not follow stable dividend policies.

In addition, institutional factors have been mentioned in many previous studies [13, 15, 17, 18]. Aivazian et al. (2003) [18] examined a sample of firms from eight emerging markets (Thailand, Malaysia, Zimbabwe, Pakistan, Turkey, Korea, India, Jordan) where financial systems are significantly different from those in the United States, and compared them with a sample of ninety-nine firms from the United States. The results provide insight into the role environmental factors play in creating dividend policy at the firm level. The dividend policies of firms in emerging markets react to variables similar to those in the United States; however, their sensitivity to these variables varies across countries.

In Vietnam, there have been some changes in views of dividend policies. The change is from the old view to a new one. The old view concluded that firms follow the state regulations that firms' dividends depend on their earnings. It means higher dividend payments for higher earnings [19, 20]. The new view respected the importance of dividend policies and looked for optimal dividend policies [21]. In a number of researches on factors affecting dividend policies, most of the findings agreed that earnings are the main determinant of dividend policy for listed firms in Vietnamese Stock Exchanges [22-25]. However, past dividend policies have not been focused much on these researches.

With aims to identify determinants of dividend policy, applying two estimation models, which are FEM and REM, to the 95 listed firms in Viet Nam during the period from 2008-2013, Dinh Bao Ngoc and Nguyen Chi Cuong [22], Nguyen Thi Minh Hue et al. [23], Ngo Thi Quyen [24], Tran Thi Tuan Anh [25] show that earnings per share, profitability and past dividends affect the dividend policy of the firms. While the research results of Nguyen Thi Minh Hue et al. [23] report that the profitability rate and company size have significant effects on dividend policy, past dividends have not been focused on this research. Although these researches have used similar research methods and periods of study.

The disagreement in results, together with applied research methods, which are mainly descriptive statistics and applied to small samples, mean the results are not very convincing. Therefore, a quantitative research method based on a larger sample may result in more reliable findings on the effects of earnings changes on dividend policy changes of listed firm in Vietnam's Stock Exchanges.

## 3. Research methodology

### *3.1. Variables and models*

Do earnings changes affect a firm's choice of dividend actions? To answer this question, the following hypotheses (Pandey, 2001) are tested.

*H1: Firms' decisions to change dividend payments are affected by changes in earnings.*

*H1a: Firms' decisions are to increase dividends when their earnings increase.*

*H1b: Firms' decisions are to reduce dividends when their earnings decrease.*

*H1c: Firms' decisions are to pay no dividends (zero dividends) when earnings are negative.*

The outcome variables (response variables - coded as Y) are changes in dividend per share, ddps. We define the changes in dividends falling in four cases:

Where dividend per share (DPS) is measured as the total dividends divided by the number of outstanding shares and DPSt is the dividends per share at year t, $DPS_{t-1}$ is the dividend per share at year (t-1).

| Case | Cod | Value | Notes |
|---|---|---|---|
| Increase | Y = 1 | ddps = $(DPS_t - DPS_{t-1}) > 0$ | This year's dividend is higher than last year's dividend |
| No change | Y = 2 | ddps = $(DPS_t - DPS_{t-1}) = 0$ | This year's dividend is the same as last year's dividend |
| Decrease | Y = 3 | ddps = $(DPS_t - DPS_{t-1}) < 0$ | This year's dividend is lower than last year's dividend |
| Zero | Y = 4 | $DPS_t = 0$ | No dividend |

There are 4 possible changes for each case of changes in earnings per share. Predictor variables (explaining variables) are changes in earnings per share (deps - coded as X). There are three cases of changes in earnings per share identified: (1) increase; (2) decrease and (3) negative earnings as follows:

| Case | Cod | Value | Notes |
|---|---|---|---|
| Increase | X = 1 | deps = $(EPS_t - EPS_{t-1}) >$ | This year's earnings are higher than last year's earnings |
| Decrease | X = 2 | deps = $(EPS_t - EPS_{t-1}) < 0$ | This year's earnings are lower than last year's earnings |
| Negative | X = 3 | $EPS_t <= 0$ | Negative or zero earnings this year |

(No observation shows deps = 0)

Where earnings per share (EPS) are measured as total net income divided by the number of outstanding shares and EPSt is earnings per share at year t, $EPS_{t-1}$ is earnings per share in year t-1.

We use the mlogit command to estimate a multinomial logistic regression model. Both Y and X are treated as indicator variables (categorical variables). We have chosen to use Y = 2 "no changes" as the baseline category. That means, the research will compare the probabilities of dividend increase, decrease and zero with the case of no change to test the above hypothesis.

Based on the basic logistic model is: logit (p) = log odds = $\log\left(\frac{p}{1-p}\right)$

with $odds = \frac{p}{1-p}$ and odds ratio $= \frac{odds_1}{odds_2}$

We fit the following logit model:

$$\ln\left(\frac{p_{i,j}}{p_{2j}}\right) = b_{i0} + b_{i1}(X=2) + b_{i2}(X=3) \quad (1)$$

Where b's are the regression coefficients; i is the index for dividend change and j for earnings change. Because Y = 2 is the baseline comparison group, then Eq. (1) becomes:

$$\ln\left(\frac{p(Y=1)}{p(Y=2)}\right) = b_{10} + b_{11}(X=2) + b_{12}(X=3) \quad (1a)$$

$$\ln\left(\frac{p(Y=3)}{p(Y=2)}\right) = b_{30} + b_{31}(X=2) + b_{32}(X=3) \quad (1b)$$

$$\ln\left(\frac{p(Y=4)}{p(Y=2)}\right) = b_{40} + b_{41}(X=2) + b_{42}(X=3) \quad (1c)$$

### *3.2. Sample and data collection*

We collected a sample including firms listed on the Ho Chi Minh City Stock Exchange and the Hanoi Stock Exchange. There were 747 firms listed on both at December 31st, 2017. The following sample selection criteria were employed:

(i) We excluded financial sector firms, because firms in this sectors are generally governed by different rules and they have different financial statement structures [10].

(ii) We excluded firms which adjusted data in the research period, such as firms equitized after 2007 or firms which had stock split.

(iii) In order to compute changes in earnings and dividends, each selected firm needed to have full data for the period. In addition, the time period needed to be long enough to observe trends of dividend policies. Therefore, we selected firms listed in 2012 and earlier. We also excluded firms that paid stock dividends.

These criteria provided us with a balanced panel of 2,790 firm-year observations representing 310 firms over the 9-year period from 2008 to 2016.

Data used in this research are from financial statements, annual reports of sample firms provided by StoxPlus - a company specialized in collecting and analyzing financial data in Vietnam.

We used a package of STATA software version 14 to estimate the multinomial logit model where the odds of a particular dividend action of each firm were based on its earning changes.

## 4. Research results

### *4.1. Descriptive statistics*

With selected 310 firms, we have 2,790 observations. However, because variables were treated as categorical and changed variables, observations in 2008 were not valid. Therefore, we used the remaining 2,480 observations.

Table 1. Count of earnings and dividend changes

| **Earnings change (deps)** | **Dividend change (Y)** | | | | |
|---|---|---|---|---|---|
| | Increase (Y = 1) | No change (Y = 2) | Decrease (Y = 3) | Zero (Y = 4) | Total |
| Increases (X = 1) | 674 | 320 | 159 | 73 | 1.226 |
| Decreases (X = 2) | 243 | 328 | 533 | 107 | 1.211 |
| Negative (X = 3) | 1 | 1 | 4 | 37 | 43 |
| Total | 918 | 649 | 696 | 217 | 2.480 |

Table 2. Percentages of earnings and dividend changes

| **Earnings change (deps)** | | **Dividend change (Y)** | | | | |
|---|---|---|---|---|---|---|
| | | Increase (Y = 1) | No change (Y = 2) | Decrease (Y = 3) | Zero (Y = 4) | Total |
| Increases (X = 1) | % X | 54.98 | 26.10 | 12.97 | 5.95 | 100.00 |
| | % Y | 73.42 | 49.31 | 22.84 | 33.64 | 49.44 |
| Decreases (X = 2) | % X | 20.07 | 27.09 | 44.01 | 8.84 | 100.00 |
| | % Y | 26.47 | 50.54 | 76.58 | 49.31 | 48.83 |
| Negative (X = 3) | % X | 2.33 | 2.33 | 9.30 | 86.05 | 100.00 |
| | % Y | 0.11 | 0.15 | 0.57 | 17.05 | 1.73 |
| Total | % X | 37.02 | 26.17 | 28.06 | 8.75 | 100.00 |
| | % Y | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

Tables 1 and 2 show that, of 2,480 observations, 49.44% have an increase in earnings, 48.83% have a decrease in earnings and 1.73% have negative earnings; 37.02% have a dividend increase, 26.17% have unchanged dividends, 28.06% have a decrease in dividends and 8.75% have zero dividends.

There are about 55% of the cases with an increase in dividends; 26% of the cases in which the dividend remained as last year when earnings increased. In cases of earnings decrease, for about 47% the dividends remained unchanged or increased, and for 55% the dividends decreased. In cases of negative earnings, most firms did not pay a dividend (95%), whereas 2 firms still paid dividends..

### *4.2. Regression results*

We used the margin command to calculate the odds of Y at each case of X. Since there are four possible cases, the margin command is used four times. Estimated results are as shown in Table 3.

We can see from Table 3:

At X = 1, probabilities that Y = 1, Y = 2, Y = 3 and Y = 4 are 55%, 26%, 13% and 6% respectively. These values are all statistically significant at 1%.

At X = 2, probabilities that Y = 1, Y = 2, Y = 3 and Y = 4 are 20%, 27%, 44% and 9% respectively. These values are all statistically significant at 1%.

At X = 3, probabilities that Y = 1, Y = 2 have not statistically significant, Y = 3 is 9% at a significance of 5% and Y = 4 is 86% at a significance of 1%.

The results partly show when earnings increase, the probability of dividend increase is high and vice versa. When earnings decrease, the probability of dividend decrease is high.

Tables 4 and 5 present multinomial logistic regression results with outcome variable Y and predictor variable X. The likelihood ratio chi-square of 586.51 with a p-value < 0.0000 tells us that our model as a whole fits significantly.

Table 3. Marginal effect

| **Deps** | **Pr(ddps = 1)** | | **Pr(ddps = 2)** | | **Pr(ddps = 3)** | | **Pr(ddps = 4)** | |
|---|---|---|---|---|---|---|---|---|
| | Margin | SE | Margin | SE | Margin | SE | Margin | SE |
| 1 | .5498*** | .0142 | .2610*** | .0125 | .1297*** | .0096 | .0595*** | .0068 |
| 2 | .2007*** | .0115 | .2709*** | .0128 | .4401*** | .0143 | .0884*** | .0082 |
| 3 | .0233 | .0230 | .0233 | .0230 | .0930** | .0443 | .8605*** | .0528 |

*Notes*: ***, ** and * stand for significance at the 1%, 5% and 10% levels, respectively.
deps: (1) increase, (2) decrease, (3) negative
ddps: (1) increase, (2) no change, (3) decrease, (4) zero

Table 4. Generalized log-odds ratio

Multinomial logistic regression — Number of obs = 2.480
LR chi2(6) = 586.51
Prob > chi2 = 0.0000
Log likelihood = -2902.1235 — Pseudo R2 = 0.0918

| **Y** | | **Coef.** | **SE.** | **Z** | **P > \|z\|** | **[95% Conf. Interval]** | |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| | X | | | | | | |
| | 2 | -1.044861 | .108502 | -9.63 | 0.000 | -1.257521 | -.8322013 |
| | 3 | -.7449967 | 1.415798 | -0.53 | 0.599 | -3.51991 | 2.029917 |
| | _cons | .7449091 | .0678873 | 10.97 | 0.000 | .6118526 | .8779657 |
| 2 | | (base outcome) | | | | | |
| 3 | | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | X | | | | | |
| | 2 | 1.184924 | .1197466 | 9.90 | 0.000 | .9502252 | 1.419623 |
| | 3 | 2.085602 | 1.12219 | 1.86 | 0.063 | -.11384 | 4.285053 |
| | _cons | -.6994165 | .0970274 | -7.21 | 0.000 | -.8895866 | .6927 |
| 4 | | | | | | | |
| | X | | | | | | |
| | 2 | .3576768 | .1709333 | 2.09 | 0.036 | .0226536 | .6927 |
| | 3 | 5.088671 | 1.021638 | 4.98 | 0.000 | 3.086296 | 7.091045 |
| | _cons | -1.477862 | .1297059 | -11.39 | 0.000 | -1.732081 | -1.223643 |

*Notes*: X: (1) increase, (2) decrease, (3) negative.
Y: (1) increase, (2) no change, (3) decrease, (4) zero

Table 5. Generalized Odds ratio

Multinomial logistic regression — Number of observations = 2.480
LR chi2(6) = 586.51
Prob > chi2 = 0.0000
Log likelihood = -2902.1235 — Pseudo R2 = 0.0918

| **Y** | **Value** | **SE.** | **z** | **P>\|z\|** | **[95% Conf. Interval]** | |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| X | | | | | | |
| 2 | .3517406 | .0381646 | -9.63 | 0.000 | .284358 | .4350905 |
| 3 | .4747359 | .6721302 | -0.53 | 0.599 | .0296021 | 7.613454 |
| _cons | 2.10625 | .1429875 | 10.97 | 0.000 | 1.843844 | 2.406 |
| 2 | (base outcome) | | | | | |
| 3 | | | | | | |
| X | | | | | | |
| 2 | 3.270439 | .3916242 | 9.90 | 0.000 | 2.586292 | 4.135563 |
| 3 | 8.049437 | 9.032994 | 1.86 | 0.063 | .8923928 | 72.60641 |
| _cons | .4968751 | .0482105 | -7.21 | 0.000 | .4108255 | .6009483 |
| 4 | | | | | | |
| X | | | | | | |
| 2 | 1.430003 | .2444352 | 2.09 | 0.036 | 1.022912 | 1.999106 |
| 3 | 162.1741 | 165.6833 | 4.98 | 0.000 | 21.89583 | 1201.163 |
| _cons | .228125 | .0295892 | -11.39 | 0.000 | .176916 | .2941567 |

*Notes*: X: (1) increase, (2) decrease, (3) negative.
Y: (1) increase, (2) no change, (3) decrease, (4) zero.

- When earnings change from an "increase" to a "decrease" position, the probability of Y = 1 decreases by 1.045 times in comparison to the probability of Y = 2. In other words, with an odds ratio (OR) of 0.352 exp (-1.044861), the probability (or odds) of a decision to maintain dividends at the same level as the previous year are higher than the probability of a dividend increase by 64.8%.

Comparing the case Y = 3 with the case Y = 2, the log-odds = 1.185 and the OR = 3.27, it implies the probability (or odds) of a dividend "decrease" is higher than the odds of a dividend "no change" about 2.27 times. Similarly, the probability (or odds) of a "zero" dividend is higher than the odds of an "unchanged" dividend by about 0.45 times at a significance of 5%.

- When earnings change from an "increase" to a "negative" position, the probability of a dividend change to "decrease" increases by 2.086 times in comparison to the probability of "no change" to a dividend at a significance of 10%, together with a sign change in the reliability gap showing that this relationship is not consistent. However, when comparing between the case "zero" dividend and "un changed" dividend, "+" signs showed clearly at a significance of 1%, and a very high OR (162.7). This convinces us that when earnings decrease to negative, a firm would stop paying dividends. It's clear that dividends are paid from a current year's earnings. Not many firms have financial reserves for this purpose.

The above results support the stated hypothesis that dividend decisions are affected by changes in earning. We assume that there is likelihood that firms increase dividends when their earnings increase, decrease dividends when their earnings decrease and stop paying dividends when their earnings are negative. This assumption has been proved with the result showing that the possibility of a decrease in dividends is much higher than that of a dividend remaining unchanged when earnings decrease, and when earnings are negative, firms immediately stop paying dividends. However, the possibility of not paying dividends is very low compared to dividends remaining unchanged when earnings decrease. Especially, despite changes in earnings, many firms still pay at past dividend levels. We can see this when checking the marginal effect at X = 3 in Table 3.

## 5. Conclusion and research implications

### *5.1. Conclusion*

The research aims to test the effects of changes in earnings to dividend decision changes. By using the multinomial logistic regression model, the odds and odds ratios for four cases of dividend changes (increase, unchanged, decrease and zero) in response to each earnings change case (increase, decrease and negative) are estimated. In addition, the study has determined a marginal effect for earnings change cases for four possible cases of dividend changes. On average, there 54,98% cases of increase and 26,1% cases of no change to dividends when earnings increase; 44,01% cases of decrease and 27,09% cases of no change to dividends when earnings decrease and 86,05% cases where firms have stopped paying dividends when firms have negative earnings.

The research results show that a large number of firms increase dividends when their earnings increase, decrease dividends when their earnings decrease and stop paying dividends when their earnings are negative.

However, a number of firms did not change dividends when their earnings increased. Instead, they tried to keep the past year's dividend levels when earnings decreased. These firms only cut down dividends when they made a loss. The management of these firms may believe that dividends have an important role in signaling to shareholders and market investors about firms' business prospects, therefore, they will only change dividend levels when they have forecast earnings change consistency.

These results are in line with the research of Pandey (2001) [10], where the results showed that Malaysian firms relied both on past dividends and current earnings in deciding the current period's payment of dividends. Our findings also support the results of Dinh Bao Ngoc and Nguyen Chi Cuong (2014) [22]. However, this study does not support the views of Vu Van Ninh (2008) [19] and Nguyen Minh Kieu (2012) [20], when the authors concluded that the dividend policy of listed firms in Vietnam completely depends on earnings. However, the above reasoning has not shown enough evidence to conclude whether the dividend policies of listed firms in Vietnam supports signaling theory.

### *5.2. Research implications*

From these quantitative results, the research can be useful for income investors to make relevant decisions, as information about firms' earnings and past dividends are the basis for firms to decide dividend payments. Possibilities that firms increase dividends when earnings increase and decrease dividends when earning decrease are relatively high. At the same time, some other firms try to keep dividends unchanged when earnings decrease or increase but not consistently. Therefore, investors need to timely update their information in order to be better off for their stock investment.

On the other hand, this research may help firms' managements to adjust their firms' dividend policies in order to optimize share prices, keeping in mind that markets often have positive responses with dividend increase signals and negative responses with cutting-down dividend signals [26]. Therefore, it may be better if firms wait until they believe that earnings will increase consistently before deciding to increase dividends, and only decide to reduce dividends when they cannot stop the trend of earning decreases for a long time in the future.

The research has not been able to control sectoral factors. Therefore, implications on investments as well as dividend policy have not been suggested. In addition, this research focuses only on cash dividend actions; stock dividend actions are not included. Expanding research scope to include stock dividends may better explain the effects of earnings changes to dividend policy adjustments. Further studies on this are suggested.

## References

[1] Miller Merton H and Franco Modigliani, "Dividend policy, growth, and the valuation of shares", The Journal of Business, 34(4) (1961) 411.

[2] Ross, S. A., "The determination of financial structure: The incentive signaling structure", Bell Journal of Economics, 8 (1977) 23.

[3] Bhattacharya Sudipto, "Imperfect information, dividend policy, and "the bird in the hand" fallacy", Bell Journal of Economics, 10(1) (1979) 259.

[4] Miller Merton H and Kevin Rock, "Dividend policy under asymmetric information", The Journal of Finance, 40(4) (1985) 1031.

[5] Lintner John, "Distribution of incomes of corporations among dividends, retained earnings, and taxes", The American Economic Review Journal, 46(2) (1956) 97.

[6] Pruitt Stephen W and Lawrence J Gitma, "The interactions between the investment, financing, and dividend decisions of major US firms", Financial Review, 26(3) (1991) 409.

[7] Baker H Kent and Gary E Powell, "Determinants of corporate dividend policy: a survey of NYSE firms", Financial Practice and education, 10 (2000) 29.

[8] Farsio, F., Geary, A., & Moser, J., "The relationship between dividends and earnings", Journal for Economic Educators, 4(4) (2014) 1.

[9] Glen Jack D, Yannis Karmokolias, Robert R Miller and Sanjay Shah, "Dividend policy and behavior in emerging markets: To pay or not to pay", The World Bank, 1995.

[10] Pandey Indra M, "Corporate dividend policy and behaviour: The Malaysian experience", Working paper (2001).

[11] Kighir Apedzan Emmanuel, Normah Haji Omar and Norhayati Mohamed, "Corporate cash flow and dividends smoothing: A panel data analysis at Bursa Malaysia", Journal of Financial Reporting and Accounting, 13(1) (2015) 2.

[12] Al-Yahyaee KH, TM Pham and TS Walter, "Dividend smoothing when firms distribute most of their earnings as dividends", Applied Financial Economics, 21(16), (2011) 1175.

[13] Al-Najjar Basil, "Dividend behaviour and smoothing new evidence from Jordanian panel data", Studies in Economics and Finance, 26(3) (2009) 182.

[14] Adaoglu Cahit, "Instability in the dividend policy of the Istanbul Stock Exchange (ISE) corporations: evidence from an emerging market", Emerging Markets Review, 1(3) (2000) 252.

[15] Al-Malkawi, H. N., "Determinant of Corporate Dividend Policy in Jordan", Journal of Economic and Administrative Since 23, (2007) 44.

[16] Nguyen, X. M. and Q. T. Tran, "Dividend Smoothing and Signaling Under the Impact of the Global Financial Crisis: A Comparison of US and Southeast Asian Markets", International Journal of Economics and Finance 8(11) (2016) 118.

[17] La Porta Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert Vishny, "Investor protection and corporate governance", Journal of Financial Economics, 58(1) (2000) 3.

[18] Aivazian Varouj, Laurence Booth and Sean Cleary, "Do emerging market firms follow different dividend policies from US firms?", Journal of Financial research, 26(3) (2003) 371.

[19] Vu Van Ninh, "Completion of dividend payment policy in joint stock companies listed in Vietnam", Doctoral Thesis Academy of Finance (2008) (Vietnamese).

[20] Nguyen Minh Kieu, "Dividend Policy", 2012, http://www.saigondautu.com.vn/Pages/20120211/Chinh-sach-co-tuc.aspx.

[21] Tran Thi Hai Ly, "Viewpoint of Vietnamese business managers on dividend policy with corporate value", Journal of Development and Integration, 4 (2012) 13 (Vietnamese).

[22] Dinh Bao Ngoc and Nguyen Chi Cuong, "Factors influencing dividend policy of listed companies on the stock market of Vietnam", Economics Development Journal, 290 (2014) 42 (Vietnamese).

[23] Nguyen Thi Minh Hue, Nguyen Thi Thuy Dung and Nguyen Thi Thuy Linh, "Factors affecting dividend policy of joint stock companies in Vietnam", Jounal of Economics & Development, 210 (2014) 33 (Vietnamese).

[24] Ngo Thi Quyen, "Factors influencing dividend policy of listed companies on the stock market of Vietnam", Doctoral Thesis National Economics University (2016) (Vietnamese).

[25] Tran Thi Tuan Anh, "Factors influencing dividend policy of Vietnamese companies approached by quantile regression", Economics Development Journal (2016) 108 (Vietnamese).

[26] Nguyen Thi Minh Hue, "Impact of dividend announcement on stock price of listed companies on Ho Chi Minh City Stock Exchange", Economics Development Journal, 26(5) (2015) 44 (Vietnamese).