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The solution to overcome the disappearing dividend phenomenon: Learning from the experience of the Indonesia Stock Exchange

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Abstract: The purpose of this article is to determine what causes the phenomenon of disappearing dividends, which mostly occurs in stock exchanges in developed and emerging countries. This is the phenomenon of the decreasing probability of issuers to choose to pay dividends (cash, stock, and mixed) rather than not to pay. The results of multinomial logit model show, that size and profitability have a significant positive effect on cash, stock, and mixed dividend decisions. The decision not to pay dividends is influenced by low agency costs, high debt, over-liquidity, and excessive investment opportunities. To overcome this phenomenon, all stakeholders must be able to manage the above cause variables in an integrated manner.

Subjects: Economics; Finance; Business, Management and Accounting

Keywords: agency cost; size; profitability; solvency; investment opportunity; liquidity; multinomial logit; dividend decisions

1. Introduction

In the beginning, financial managers recognized that there were two crucial financial decisions for companies: investment decisions (capital budgeting) and funding decisions (financing). Investment decisions affect how companies procure assets. Funding decisions consider the financing of the procurement of these assets. In the process, when the company profits from these assets, they face a third decision: the dividend decision.

ABOUT THE AUTHOR

Zainul Kisman is a lecturer and researcher at the Faculty of Economics and Business at, Trilogy University in, Jakarta. Indonesia. So far, he has taught on campus, conducted training, and worked as a consultant in the field of corporate finance and risk management. He studied at the University of Indonesia and Padjadjaran University in Bandung. His research explores topics in Corporate Finance, Banking, and the Capital Market. He has extensive experience in innovative financing and investment.
This article will show the role of analysis along with the model after the COVID-19 pandemic. It is predicted that many companies that before the pandemic diligently paid dividends did not pay dividends. This is an advantage of this study.

PUBLIC INTEREST STATEMENT

The purpose of this article is to identify the variables causing the phenomenon of disappearing dividends. This is the decreasing probability of the issuer chooses dividend decisions (cash, stock, and mixed) rather than selecting the decision not to pay.

This phenomenon will be a problem in the development of stock exchanges. This article provides a solution through a financial approach and multinomial logit analysis. The answer is that it is better to select cash dividend decisions when increasing size and profitability and decreasing debt, over-liquidity, agency costs, and investment opportunities. A stock dividend decision is a good choice if the size increases and the agency cost decreases. A mixed dividend is appropriate, if the size and profitability increase, and debt and agency costs decrease.

Are those profits divided as dividends or kept as retained earnings to the company? If the company pays dividend to shareholders, what percentage is distributed (dividend payout)? Are dividend payouts in cash or shares, a combination or does the firm simply decide not to pay a dividend? The decision on dividends is an important factor that can improve the welfare of the company's shareholders. Therefore, not only from the standpoint of the interests of corporate investment and funding but one also must consider the impact on company value and market reaction, namely the company's share price in the market (Baker, 2009; Budiarso et al., 2019; Farrelly et al., 1986; Megginson, 1997).

Many financial observers explain in their research that dividend payment patterns generally follow the pattern of corporate profits (Baker & Wurgler, 2004; DeAngelo et al., 2004; Denis & Osobov, 2008; Fama & French, 2001). The higher the profit, the greater the dividends distributed by the company to shareholders, and vice versa. Agreeing with this, V. Aivazian et al. (2003), Kurniasih et al. (2011), and Sawitri (2004) found the same relationship between dividend payments and patterns of earning movements. Theoretically, the dividend payment will increase because of an increase in profits. However, the facts on the IDX in the period 2005–2012 are why dividend payments by issuers tend to decline (Kisman, 2016). The decline in dividend payout is a phenomenon that shows the reluctance of issuers in general to pay dividends. More and more companies are choosing not to pay dividends. This is a frequently encountered phenomenon in many stock exchanges. According to financial experts, the most significant companies that went public in that period were small issuers (market capitalization), low profit (earnings before interest to its total assets), and high growth (growth of assets). The motives of issuers not to pay dividends include maintaining access to the capital market, profitability, and financing investment opportunities that are experiencing growth.

The phenomenon of the increasing decisions by companies not to pay dividends can also be seen in the research of Denis and Osobov (2008) in six developed countries of the US, UK, Canada, Germany, France, and Japan from 1994 to 2002. The results of this study using logistic regression concluded that an increasing number of companies did not pay dividends because most of the newly listed companies that should have started paying dividends but did not pay dividends (disregarding dividends). They did not pay because of the small size of the company and low profitability despite high investment opportunities.

Meanwhile, according to agency theory, if the company's dispersion of ownership does not spread, and a number of shareholders control the company's share ownership, the agency cost of the company will be low. When agency costs are low, shareholders and companies tend to choose the decision not to pay dividends (Rozeff, 1982; Easterbrook, 1984; Jensen, 1986; Boban, 2011). Related to this, Porta et al. (1998) found evidence in their research that in developing countries, including Indonesia, why many issuers chose not to pay dividends due to the company's ownership structure, which is generally highly concentrated (low dispersion of ownership).

The aforementioned phenomenon of issuers' reluctance to pay dividends in financial management is known as the disappearing dividend phenomenon, in which issuers in the capital market, generally achieve higher profits but also reluctant to pay dividends. This phenomenon is the focus of this research. In the Indonesia Stock Exchange (IDX) currently, what factors influence the probability of a company choosing to distribute rather than selecting not to pay dividends, especially in the period 2005–2012 wherein there was a stronger tendency for companies not to pay dividends? This research intends to provide insight for all parties, including investors, issuers, and regulators of the IDX, who are all affected by the disappearing dividend phenomenon.

The waning desire of issuers to pay dividends is a problem for the development of exchanges seeking investment in the capital market industry. This phenomenon is also a problem for investors whose main motivation to hold shares is to get dividends. In particular, the number of financial institutions in Indonesia is increasing and these institutions who need certainty, and invest mainly to receive dividend payment. If this problem is not addressed, many investors will lose interest in

investing in the capital market in Indonesia. As a result, this phenomenon hindered stock exchange's role as a place to find corporate financing. Regular dividend payments will increase management discipline, and are also needed to protect small/retail/public investors as minority shareholders.

On the other hand, A Law On Limited Liability Company (Number 40 of 2007) does not require companies to distribute dividends. The law only requires that the distribution of dividends after the financial year ends must first obtain approval from the General Meeting of Shareholders (GMS). The payment of dividends depends on the decision of the GMS. Therefore, IDX plans to iniate rule that requires dividend distribution occur at least once every 3 years, but the regulation has not yet been enacted. This rule will contain articles regarding the minimum dividend limit that must be distributed and the fines imposed for violations. The reason for the IDX to pass this regulation is to make issuers more disciplined in distributing dividends to shareholders. In addition, it will balance investors' profits, distinct from capital gains. Regarding this regulation, the Indonesian Issuers Association (AEI) believes that the process of giving dividends should be left to the mechanism of the GMS as stipulated in the Law on Limited Liability Company.

A dividend decision is considered a successful financial decision if it can maximize the value of the firm or maximize the welfare of shareholders, as reflected in an increase in share prices (Brealey et al., 2014).

This study refers to the well-known research of Fama and French (2001) in the US, Sawitri (2004), from the Indonesia Stock Exchange and Al-Malkawi (2008), from the Amman Stock Exchange (Jordan), representing the Emerging Capital Market and applying similar research in the period 2005–2012 (period of disappearing dividend) on the Indonesian stock exchange. Mainly, these studies examine the factors that influence the declining probability of issuers choosing to pay cash/stock/mixed dividends compared to companies choosing not to pay dividends (lower willingness to pay a dividend).

Based on the description and background above, the purpose of this study is to examine whether there is an influence of agency cost, size, profitability, solvency, investment opportunity, and liquidity, both simultaneously and partially, on the probability of a company choosing to pay cash dividends, stock dividends, or a combination of cash and stock dividends (mixed), rather than choosing not to pay dividends. Disappearing dividend is essential because it occurs not only in the Indonesian capital market but also occurs in many other countries, especially emerging markets (Al-Malkawi, 2008; Denis & Osobov, 2008; Fama & French, 2001; V. A. Aivazian et al., 2006; V. Aivazian et al., 2003). The results of this study will advise investors, issuers, and regulators to understand the phenomenon of disappearing dividends. This work is novel in using a multinomial logit for analyzing the causes of disappearing dividends using sophisticated methods. To the best of our knowledge, no previous study has used this to investigate the disappearance of dividends. Where the dividend decision is made more specifically, such as cash, stock, mixed, and non-paid dividends (multinomial logit), before this study, only two categories of dividend decisions (binomial logit).

2. Literature review and hypothesis development

2.1. Relationship between agency costs and dividend decisions

Agency theory explains that dividend decisions are one way to reduce the agency problem (Rozeff, 1982; Holder et al., 1998) later (Saxena, 1999; Al-Malkawi, 2008). Agency costs are the costs borne by shareholders to prevent or minimize agency problems (total agency costs and transaction costs) to maximize the value of the company (Jensen & Meckling, 1976). The most challenging thing here is to proxy the rights of agency costs. Rozeff and other researchers argue that the higher the number of shareholders (the number of common stockholders), the higher the spread of ownership, which makes costs more difficult for managers to monitor. This also means that agency costs increase with increasing ownership spread.

To control agency costs in companies, there is a tendency for shareholders to agree to ask for higher dividend payments or high dividends where share ownership is more widespread. A higher dividend payout means less free cash flow under the manager's control, and a smaller agency problem. (Alli et al., 1993; Easterbrook, 1984; Jensen, 1986; Rozeff, 1982).

In short, the higher the agency cost, the higher the desire of shareholders to receive dividends, especially cash, and the relationship is positive. Rozeff (1982), for this proxy agency cost, uses two variables, namely STOCK (number of common stockholders), showing the number of shareholders at the end of the fiscal year and INS (insiders ownership). To overcome the scale effects, we use the logarithm of the number of common stockholders. Rozeff, in his study in US market from 1974 to 1980 used model regression and found a significant and positive effect between agency cost (STOCK) and dividend and negative payments for INS (insider). Rozeff's findings are reinforced by the research results of Boban (2011) with logistic regression analysis. He documents that agency cost (the number of common shareholders) positively affects the probability of a company choosing to pay dividends compared to the decision not to pay dividends. In this condition, issuers are more likely to choose the choice to pay dividends, whether cash, stock, or mixed dividends.

Jensen et al. (1992) used three-stage least squares to test the effect of insider ownership and debt on dividend policy in several companies in different countries. Based on statistical tests, the results show that insider ownership (agency cost) has a negative and significant effect on dividend policy. This finding is consistent with the results of Rozeff (1982) and the agency costs hypothesis.

For this study, the proxy of agency cost follows Rozeff (1982), Holder et al. (1998), Saxena (1999), and Boban (2011) using the natural logarithm of STOCK (number of common stockholders) which shows the total number of shareholders at the end of the fiscal year. The results of the studies concluded that the relationship between agency costs and dividend payments, both cash/stock and mixed, is expected to be positive.

It can be presented in the following hypotheses:

H1: The agency cost has a positive effect on the probability of a firm choosing to pay cash dividends, stock dividends, or a combination of cash dividends and stock (mixed) compared to select the decision not to pay dividends.

2.2. Relationship between size and dividend decisions

When seeking funds from the capital market, large companies generally have access to lower costs and fewer constraints than small companies. This indicates that when the size of the company increases, the company's dependence on internal financing is increasingly less (Al-Malkawi, 2008). Therefore, large companies usually pay significant dividends to their shareholders and feel less need to hold their profits for expansion because they have easy access to the capital market. Many empirical studies confirm this finding (Denis & Osobov, 2008; Fama & French, 2001; Holder et al., 1998).

Fama and French (2001) found using logistic regression a significant and positive effect of size (here using proxy market capitalization) on the probability that the issuer chose to pay dividends rather than deciding not to pay dividends. Likewise, Denis and Osobov (2008) use the same model, supporting the results of the above research.

We measure the size by the natural logarithm of market capitalization. The goal is to follow previous research by, Fama and French (2001), and Al-Malkawi (2008). This study focuses on the analysis of Indonesia to examine the effect of size using proxies market capitalization on the tendency of companies to pay dividends. Based on previous studies, mentioned above, we expect a positive relationship between size and dividend decisions.

Then, the following hypothesis can be made:

H2: The size of the company has a positive effect on the probability of a company choosing cash dividend decisions, stock dividends, and a combination of cash and stock dividends (mixed) rather than selecting the decision not to pay dividends.

2.3. Relationship between profitability and dividend decisions

The company's decision to pay or not pay dividends is certainly first seen as to whether the company profits or not. The results of this study can be seen from the research notes of Lintner (1956), Fama and French (2001), and DeAngelo et al. (2004), and Denis and Osobov (2008).

Fama and French (2001), using the logit model, found evidence of the effect of profitability (earnings before interest to total assets as significant and positive) on the probability of a company choosing a dividend pay decision rather than the decision not to pay dividends.

DeAngelo et al. (2004) using time series analysis, provides evidence of the influence of profitability as measured by earnings towards the increase in dividends. DeAngelo, DeAngelo, and Stulz (2006) using multivariate logit models, found evidence of profitability (in proxy with ROA) a positive and significant effect on the probability that the issuer chooses the decision to pay dividends compared to the decision not to pay dividends. Furthermore, Denis and Osobov (2008) conducted a study using logit regression models in developed countries reinforcing the above studies that profitability (measured by EBIT/Book value of Total Assets) significantly and positively influences the tendency to pay dividends. Another research from the capital market in developing countries that provides evidence to strengthen the idea that profitability is one of the essential factors influencing dividend policy (Sawitri, 2004; V. Aivazian et al., 2003).

Based on some of the previous studies above, for this study, proxies for profitability are measured by after-tax earnings per share following the research of Mirza and Afza (2014) and Al-Malkawi (2008). Earning per share was chosen because it was considered to be more directly related to the size of the dividend and expected positive relations. The higher the profitability (EPS), the greater the probability that the issuer chooses dividend decisions, primarily cash dividends (He et al., 2011). The EPS measure is used because investors have more information on this variable.

Based on existing studies, the following hypothesis was developed:

H3: Profitability has a positive effect on the probability of a company choosing the decision to pay cash dividends, stock dividends, or a combination of cash dividends and shares (mixed) compared to selecting not to pay dividends.

2.4. Relationship between solvency and dividend decisions

The company's financing structure consists of debt (liabilities) and equity. Long-term debt is often seen as a reflection of the company's capital structure. The extent to which companies use long-term debt shows the level of corporate solvency.

The higher the level of corporate debt, the smaller the dividends paid and stronger the negative relationship. The company prefers to pay interest obligations rather than distributing profits in the form of dividends for its shareholders, which is another reason to minimize transaction costs when using external financing and restrictions from existing creditors on debt covenants (Rozeff, 1982).

V. Aivazian et al. (2003), with OLS regression, found evidence that there was a significant negative relationship between debt (total debt to total assets) and dividends both in the US and in the emerging market. Then, V. A. Aivazian et al. (2006) examined companies in the US using logistic regression and found evidence that debt had a negative and significant effect on the probability of companies paying dividends. The same result was also found by He et al. (2011), especially on the cash dividend decision.

In order to capture the impact of corporate debt on the size of dividend payments, this study uses the ratio of debt to equity as a proxy for the level of solvency, following Al-Malkawi (2008). In his study (on the Amman Stock Exchange), he documents that debt-to-equity is negative and negatively related to dividend distribution. Debt plays a considerable role in companies in developing countries like Indonesia. Most companies rely on financing through bank loans. Therefore, debt is expected to the company's dividend decision. Based on the above studies, it is likely that the relationship between the two variables is negative (Al-Malkawi, 2008; Rozeff, 1982; V. A. Aivazian et al., 2006; V. Aivazian et al., 2003).

Based on existing literature, the following hypothesis is proposed:

H4: Insolvency has a negative effect on the probability of a company choosing cash dividend decisions, stock dividends, a combination of cash dividends and shares (mixed) rather than choosing the decision not to pay dividends.

2.5. The relationship of investment opportunities to dividend decisions

According to Miller and Modigliani (1961), in perfect capital markets, investment decisions do not affect dividend decisions. However, because of taxation, flotation costs, and agency costs, the capital market is imperfect. Investment and dividends, may be interdependent.

To test the effect of investment opportunities on dividend decisions, the price-earnings ratio (PER) is used as a proxy for investment opportunity. The better the prospects and investment opportunities of the company, the more investors are willing to buy company shares at higher prices. This means that the more excellent the investment opportunity, the higher the PER of the company's shares (Adam & Goyal, 2000; Al-Malkawi, 2008). On the other hand, the higher the PER due to increased investment opportunities, the lower the dividend payments because of retained earnings for expansion. In addition, Fama and French (2001) and He et al. (2011) found that stock and mixed dividend decisions have a positive relationship.

Based on the discussion above, the following hypothesis is proposed:

H5: Investment opportunities negatively affect the probability of a company choosing cash dividend decisions, positively affecting stock dividend decision and a combination of cash and stock dividends (mixed) rather than choosing the decision not to pay dividends.

2.6. The relationship of liquidity to dividend decisions

The company's ability to meet its obligations that are due soon is a situation that must be considered when an issuer wants to determine a dividend decision. In general, the company's ability to distribute cash dividend will depend on the amount of liquid assets (cash and securities) owned by the company. Even though a company may not have sufficient liquid assets, it could borrow from creditors. However, creditors are usually reluctant to make loans in such cases.

According to Sutrisno (2001), the company's cash position determines the size of the dividends paid because dividends are considered as cash outflows. Then, the higher the

company's cash position, the greater the company's ability to pay dividends. Increasing cash dividend payments is one way to reduce agency costs and shareholder oversight of management.

Other researchers, namely Suharli (2007) on the IDX, then Gupta and Banga (2010) in India also agrees that liquidity measured by the current ratio significantly and positively influences the dividend decisions of companies that go public. Likewise, Sawitri (2004) and, Mirza and Afza (2014), found evidence of a significant and positive liquidity effect using logistic regression. Agreeing with that, He et al. (2011) documents that the impact of liquidity on share and mixed dividend decisions was positive, especially on cash dividends.

We control for the effect of liquidity positions on dividend decisions, by the current ratio, such as Suharli's (2007) research in Indonesia, Gupta and Banga (2010) in India. The better the current ratio, the higher the probability that a company will pay dividends.

Based on the above, we propose the following hypotheses:

H6: Liquidity has a positive effect on the probability of a firm choosing to pay cash dividends, stock dividends, and the combination of cash and stock dividends (mixed) compared to choosing not to pay dividends.

2.7. Research paradigm

Figure 1, below is the research paradigm that explains the relationship and pattern of relationships between research variables of the model: multinomial logit. This paradigm emphasizes the effect of agency cost, size, profitability, solvency, investment opportunity, and liquidity on the probability of a company's decision to pay cash/stock/mixed dividends compared to the decision not to pay dividends (willingness to pay a dividend).

Figure 1. Logit model research paradigm.

Source: Literature review and previous research.
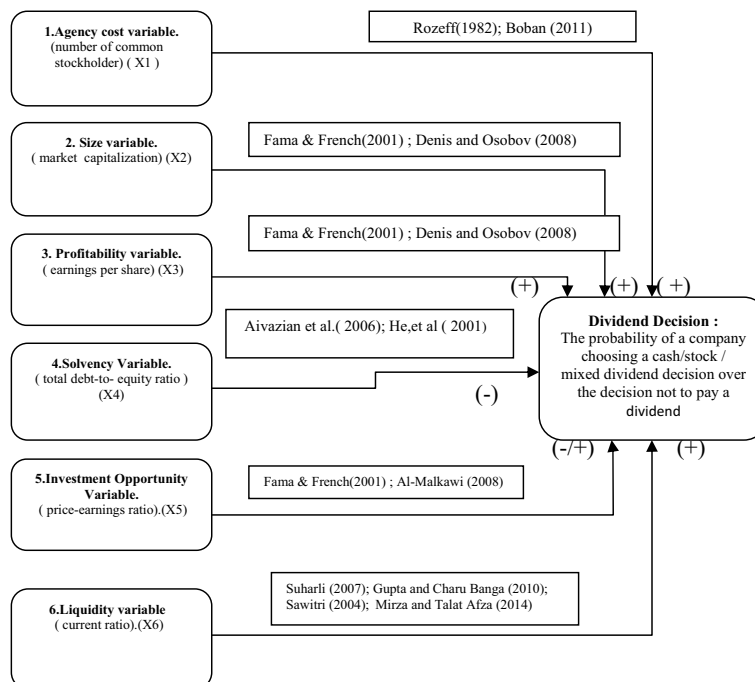
2.8. Choosing a model

This study examines the influence of the explanatory variables above on dividend decisions using the multinomial logit approach model. In contrast to previous studies, Fama and French (2001), Sawitri (2004), DeAngelo, DeAngelo, and Stulz (2006), Denis and Osobov (2008) and Al-Shubiri (2011) use binomial logit model.

3. Methodology

3.1. Data and sample

The reason for selecting the 2005–2012 observation period was due to the condition of the capital market in Indonesia's stock exchange, which experienced a decline in the issuer's willingness to pay dividends (disappearing dividend) during this period (Kisman, 2016).

The unit of analysis in this study is all companies listed on the Indonesia Stock Exchange in 2012 that announced either dividend decisions (cash/stock/mixed) or not. Table 1 summarizes the classification of the sample.

The data on variables are obtained from company's financial statements, IDX statistical data, finance.yahoo.com and Bloomberg.com, Bank Indonesia, and Indonesian Capital Market Directory from 2005 to 2012.

3.2. Analysis tools: multinomial logistic regression

The logistics regression model (commonly abbreviated as Logit) is a regression model to solve research cases where the dependent variable is qualitative in the form of binomial (two classes or categories) or can also be multinomial (more than two categories) model. This study uses a multinomial regression analysis because we want to see what factors influence the probability of a company choosing dividend decisions (whether cash, stock, or mixed) rather than selecting the decision not to pay dividends. Thus, the dependent variable is divided into four categories.

Table 1. Issuer selection criteria		
No.	**Issuer selection criteria**	**Number of issuers that fulfill criteria**
1	All companies listed on the Indonesia Stock Exchange in 2012, which announced dividend decisions (cash/stock/mixed) or did not pay.	459
2	Companies listed on the Indonesia Stock Exchange from 2005 to 2012 that announced dividend decisions (cash, stock, or mixed) or those that did not pay, were not Bank and Non-Bank Financial Institutions and their equity was not negative.	227
3	The company did not take any corporate action or other announcements around the date of the dividend announcement (declaration date).	226
4	Companies that have complete data on variables that are the object of research.	204

Source: IDX Secondary Data Processed, 2012.

With four categories, the multinomial logit model to examine the effect of explanatory variables of the probability of a company paying dividends can be written as follows:

Probability of the company i chooses not to pay dividends, seen in the following equation:

$$P_{i1} = \frac{1}{1 + e^{\beta_{02}+\beta_{12}X_i} + e^{\beta_{03}+\beta_{13}X_i} + e^{\beta_{04}+\beta_{14}X_i}} \tag{3.1}$$

- Probability of company i chooses of cash dividend

$$P_{i2} = \frac{e^{\beta_{02}+\beta_{12}X_i}}{1 + e^{\beta_{02}+\beta_{12}X_i} + e^{\beta_{03}+\beta_{13}X_i} + e^{\beta_{04}+\beta_{14}X_i}} \tag{3.2}$$

• Probability of company i chooses of stock dividends

$$P_{i3} = \frac{e^{\beta_{03}+\beta_{13}X_i}}{1 + e^{\beta_{02}+\beta_{12}X_i} + e^{\beta_{03}+\beta_{13}X_i} + e^{\beta_{04}+\beta_{14}X_i}} \tag{3.3}$$

• Probability of the company i chooses mixed dividend

$$P_{i4} = \frac{e^{\beta_{04}+\beta_{14}X_i}}{1 + e^{\beta_{02}+\beta_{12}X_i} + e^{\beta_{03}+\beta_{13}X_i} + e^{\beta_{04}+\beta_{14}X_i}} \tag{3.4}$$

Similar to the binomial logit model, the most important interpretation for the multinomial model is the same, namely, the importance of information about the probability ratio of dividend decision choices are available. In this study, there are four choices for dividend decisions (cash dividends, stock dividends stock, mixed dividends, or non-paid dividends). Therefore, it is necessary to determine which decision is the basis for comparison as a base or reference category. Here, the basis for comparison (base category) is the choice of the decision not to pay dividends. Therefore, the odds ratio after being transformed in the form of a natural logarithm (ln) can be written using the multinomial logit equation as follows:

$$L_2 = Ln\left(\frac{P_{i2}}{P_{i1}}\right) = \beta_{02} + \beta_{12}X_i \tag{3.5}$$

$$L_3 = Ln\left(\frac{P_{i3}}{P_{i1}}\right) = \beta_{03} + \beta_{13}X_i \tag{3.6}$$

$$L_4 = Ln\left(\frac{P_{i4}}{P_{i1}}\right) = \beta_{04} + \beta_{14}X_i \tag{3.7}$$

The multinomial logit equations are expressed as follows:

$$L_2 = \ln\left(\frac{P_{i2}Cash}{P_{i1}NoDiv}\right) = Z_i = \beta_{02} + \beta_{12}X_1 + \beta_{22}X_2 + \beta_{32}X_3 + \beta_{42}X_4 + \beta_{52}X_5 + \beta_{62}X_6 + \beta_{72}D_{it} \tag{3.8}$$

$$L3 = \ln\left(\frac{P_{i3}Stock}{P_{i1}NoDiv}\right) = Z_i = \beta_{03} + \beta_{13}X_1 + \beta_{23}X_2 + \beta_{33}X_3 + \beta_{43}X_4 + \beta_{53}X_5 + \beta_{63}X_6 + \beta_{73}D_{it} \tag{3.9}$$

$$L_4 = \ln\left(\frac{P_{i4}Mixed}{P_{i1}NoDiv}\right) = Z_i = \beta_{04} + \beta_{14}X_1 + \beta_{24}X_2 + \beta_{34}X_3 + \beta_{44}X_4 + \beta_{54}X_5 + \beta_{64}X_6 + \beta_{74}D_{it} \tag{3.10}$$

$\beta_{12}, \beta_{13}, \beta_{14} > 0; \beta_{22}, \beta_{23}, \beta_{24} > 0; \beta_{32}, \beta_{33}, \beta_{34} > 0; \beta_{42}, \beta_{43}, \beta_{44} < 0;$
$\beta_{52}, \beta_{53}, \beta_{54} < 0; \beta_{62}, \beta_{63}, \beta_{64} > 0 \& \beta_{72}, \beta_{73}, \beta_{74} < 0$

where

L_2 = Probability of whether the issuer will choose the cash dividend or choose not to pay a dividend.

L_3 = Probability of whether the issuer will choose the stock dividend or choose not to pay a dividend.

L_4 = Probability of whether the issuer will choose the mixed dividend or choose not to pay a dividend.

The tendency of the type of dividend decision chosen is determined by the characteristics of the company:

X_1 = Agency cost (the number of common stockholders).

X_2 = Size (the natural log of market capitalization).

X_3 = Profitability (earnings per share).

X_4 = Solvency (the total debt-to-equity ratio).

X_5 = Investment opportunity (price earnings ratio).

X_6 = Liquidity (current ratio).

D_{it} = 1 for a crisis year.

D_{it} = 0 for a year, not a crisis.

β = Logistic regression coefficient.

4. Result and discussion

Based on the established criteria, the sample of this study was selected from all companies listed on the Indonesia Stock Exchange from 2005 to 2012 that announced dividend decisions (cash/stock/mixed) or did not pay dividends. Excluding bank and non-financial institutions with negative equity. Final data set consists of 204 companies. Table 2 summarizes each company sector that meets the criteria.

Based on Table 2, the majority from the trade, services, and investment sector (26% of the 204 listed companies). In comparison, the smallest comes from industry/sector agriculture, 4%.

Source: Data processed from IDX Statistics (2013).

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Table 2. Number of research samples and percentages for each industry on the IDX			
No:	**Industry**	**Number of issuers**	**Percentage of total amounts of issuers**
1	Agriculture, forestry, and fishing	9	4%
2	Mining	15	7%
3	Basic industry and chemicals	39	19%
4	Miscellaneous industry	26	13%
5	Consumer goods industry	25	12%
6	The property, real estate, and building construction	25	12%
7	Infrastructure, utilitiesand transportation	12	6%
8	Trade, services and investment	53	26%
Total		204	100%

Source: Data processed from IDX Statistics (2013).

Table 3 shows that of the 204 companies, in the 2005–2012 period, 52% of dividend decisions chosen by issuers at the time of the GMS was not to pay. The issuers on the IDX are somewhat reluctant to pay dividends throughout the entire observation period.

Table 3. BEI issuers paying dividends: cash, stock, mixed, and not paying by sector in 2005–2012					
		2005–2012			
		Cash	**Stock**	**Mixed**	**No dividend**
No.	Industry				
1	Agriculture	38	0	0	34
		2%	2%	2%	2%
2	Mining	56	0	1	63
		3%	0%	0%	4%
3	Basic industry and chemicals	142	2	9	159
		9%	0%	1%	10%
4	Miscellaneous industry	102	1	6	99
		6%	0%	0%	6%
5	Consumer goods industry	111	0	2	87
		7%	0%	0%	5%
6	Property and real estate	53	3	8	136
		3%	0%	0%	8%
7	Infrastructure and transportation	48	1	2	36
		3%	0%	0%	2%
8	Trade, services and investment	190	5	10	219
		12%	0%	1%	13%
Total		740	12	38	842
		45%	1%	2%	52%

4.1. Research results and discussion of the multinomial logit model

The main purpose of this study is to determine the factors that influence the phenomenon of the decreasing probability of the issuer choosing dividend distribution (cash, stock, and mixed) rather than selecting not to pay.

Regression results obtained will be used as a basis for hypothesis testing and analysis for discussion. Therefore, it will be known what factors influence the company to make certain dividend decisions in each period.

Correlation analysis between variables needs to be checked to avoid serious multicollinearity problems, which can lead to biased results. However, according to Hill et al. (2001), multicollinearity does not interfere with overall model reliability but only affects individual predictor variables. Table 4 that shows the correlation between variables using Pearson correlation.

Referring to the opinion of Gujarati and Porter (2008), and Al-Malkawi (2008), the rule of thumb is that, if the correlation coefficient between variables (pairwise correlation) is greater than 0.8 there is serious multicollinearity. However, in this study, correlations between independent variables are considered to be free from multicollinearity because almost all bivariate correlations are below 0.8.

4.1.1. Probability of whether the issuer will choose the cash dividend or choose not to pay dividends (L_2)

Evaluation of the regression coefficient, variable size (+), profitability (+), debt (–), and investment opportunities (–) are in the line with hypotheses while agency cost (–) and liquidity (–) do not match the hypothesis.

Judging from the odds ratio of the logistic regression equation of model 1a, the most influential, significant, and positive variables on the probability of the issuer choosing the cash dividend are size and profitability. In contrast, the variables that have a negative effect and causes the issuer to choose not to pay dividends are agency costs, debt, liquidity, and investment opportunities.

Results indicate that the larger the size and profitability, the higher the probability that the issuer chooses the decision cash dividend compared to the decision not to pay dividends. The tendency not to pay dividend increase with agency cost (number of common stockholders), debt, liquidity, and investment opportunities.

Table 4. Pearson correlations—2005–2012						
	ncs	**mc**	**eps**	**der**	**per**	**cr**
ncs	1					
mc	.33	1				
eps	−.03	.11	1			
der	−.01	−.01	−.01	1		
per	.00	−.01	−.01	−. 00	1	
cr	−.02	−.03	−.01	−.01	−.01	1

Source: IDX, data processed.

ncs = number of common stockholders.

per = price earnings ratio.

mc = market capitalization.

cr = current ratio.

eps = earnings per share.

der = debt-to-equity ratio.

dcri = dummy crisis; = 1 if the year of the global financial crisis and 0 others.

4.1.2. Probability that the issuer will choose the stock dividend or choose not to pay dividends
(L_3)
Looking at the column of odds ratio model 1b, Table 5 for each variable, the most positive,
significant, and most influential factors that encourage companies to choose stock dividends are
the financial crisis and increasing firm size. The financial crisis has a substantial and positive odds
ratio, meaning that the condition of the global financial crisis in 2008 was the most dominant
factor driving whether the company made a stock dividend decision compared to not paying
a dividend. At those times, many issuers experienced liquidity problems, low profitability, and
high debt. Paying a dividend in the form of a stock dividend allows a company to continue paying
dividends without allocating cash (Bird in the Hand Theory).

4.1.3. Probability that the issuer will choose a mixed dividend or choose not to pay a dividend
(L_4)
Considering the odds ratio, the most influential, significant, and positive variables to encourage
companies to tend to choose to pay mixed dividends (compared to choosing not to pay dividends)
are the financial crisis, size, and profitability.

However, the variables that have significant, and negative effect mean that issuers are more likely
to choose not to pay dividends compared to paying mixed dividend because of agency costs and debt.

4.2. Discussion of the multinomial logit model

4.2.1. Assessing the goodness of the fit model
4.2.1.1. Likelihood ratio test (LR-test). The LR test in a multinomial logit is a kind of F test in the linear
regression model. Significant result indicates that predictor variables or at least one of these variables
affect the probability that the issuer chooses cash, stock, or mixed dividends compared to not paying
dividends (as a base category) in the 2005–2012 period. The overall accuracy of the model to predict
dividend grouping is 71.0% (classification accuracy rate) indicates that this model is satisfactory.

4.2.1.2. Pseudo R-square. The magnitudes of Pseudo R^2 results were 29.8%, 37%, and 21.5%
indicating that the independent variables in the multinomial logit model were able to explain
variations in the probability that the company chooses pay a cash dividend, stock or mixed
dividend (compared to choosing a decision not to pay a dividend) of 29.8%, 37%, and other
variables outside the model influence 21.5%.

4.2.1.3. Deviance χ^2. In addition to Pseudo R^2 to determine the goodness of fit or the overall
performance of the multinomial logit models, deviance is also a commonly used measure. This
measure is used to determine the overall fit of the model with data. The result is Chi-square with
insignificant probability ($p = 1.000$ and >0.05). That means that the model is fitted with the data.
4.2.2. Discussion of multinomial logit model research results
In Table 5, Model 1a, the regression coefficient of the variable agency cost is negative and does not
follow hypothesis H1: that is, agency cost has a positive effect on the probability of a firm choosing
a decisions cash dividend. The overall observation period of 2005–2012 when the agency cost on
the issuers on the IDX increased, the company tended to choose not to pay dividends over the
decision cash dividend.

A family or a large group of shareholders could be behind this relationship. Rozeff (1982) argues
that insider ownership could be behind this result. Thus, there is less concern about agency
problems. As a result, it is less necessary to choose to distribute cash dividends and the family
company tends to select the decision not to pay dividends. This finding is consistent with the
results of Rozeff (1982) and the agency costs hypothesis. Confirming the results of Porta et al.
(1998) and Al-Malkawi (2008) in emerging markets and not following agency theory (Jensen &
Meckling, 1976).

Table 5. Multinomial logit results for testing the effect of issuer characteristics on probability of choosing cash dividend, stock dividend, mixed dividend decisions versus choosing a non-pay dividend decision. Period 2005–2012

Dep.Var:	Model 1a: cash dividend decision				Model 1b: stock dividend decision				Model 1c: mixed dividend decision			
			Odds ratio				Odds ratio				Odds ratio	
Ind.Var.	Coefficient	Prob.	Value	% Influence	Coefficient	Prob.	Value	% Influence	Coefficient	Prob.	Value	% Influence
Intercept	−5.75	0.00			−25.47	0.00			−9.53	0.00		
lnncs	−0.16	0.00*	0.85	−14.90	−0.51	0.02**	0.60	−40.03	−0.34	0.01*	0.71	−28.92
lnmc	0.47	0.00*	1.60	59.63	0.56	0.00*	1.75	75.43	0.52	0.00*	1.68	68.42
eps	0.004	0.00*	1.004	0.377	−0.001	0.63	0.999	−0.132	0.004	0.00*	1.004	0.370
der	−0.07	0.01*	0.93	−6.88	−0.02	0.85	0.98	−1.79	−0.10	0.05**	0.90	−9.62
per	−0.001	0.01*	0.999	−0.128	−0.001	0.63	0.999	−0.083	−0.001	0.35	0.999	−0.122
cr	−0.03	0.01*	0.97	−3.11	0.01	0.81	1.01	0.52	−0.09	0.25	0.91	−8.65
dcri	0.29	0.12	1.33	33.24	17.19	0.00*	2.93	193.00	1.76	0.09***	5.83	483.22
Pseudo R-square					**Simultaneous-test**							
Cox and Snell 0,298			0.298			Prob. (LR-statistic) 0.000						
Nagelgerke 0.370												
McFadden 0.215												
Goodness-of-fit					**Classification accuracy rate**							
Prob. (Deviance) 1.000					Overall Percentage (Percent Correct) 71.0%							

Source: IDX,KSEI 2012–2015, data processed.
Notes: *, **, ***, significant at 1%, 5% and 10%, respectively.

This is the challenge facing capital markets in emerging markets where a group of family companies controls shares. It is better to increase ownership dispersion of the number of common stockholders to overcome it.

Agency cost has a similar effect on share dividends and mixed dividends. The results for 1b and 1c further support the negative impact of agency costs. Therefore, there is a growing suspicion that there is a tendency for issuers to choose the decision not to pay dividends in the IDX due to agency costs.

Results in Table 5 regarding size confirm H2, the effect is very significant, and the sign of the regression coefficient is positive as expected. This means that the company's stock market capitalization (size) determines issuers choice of cash, stock, or mixed dividend rather than choosing not to pay dividends. It shows that when the size (market capitalization) of the company increases, the company has easy access to the capital market. Thus, that if the company is profitable then these profits will be distributed as dividends in all three forms. If the company later needs more funds, it could raise capital again. Hence, the effect of size is positive on any dividend decision. Confirming empirical studies such as Holder et al. (1998), Fama and French (2001), and Denis and Osobov (2008). The dividend payments are considered as one way to overcome agency problems (Jensen & Meckling, 1976) that arise because of the increasing size of the company.

The multinomial logit Models 1a and 1 c document that profitability has also a positive and very significant effect on the probability of issuers choosing to distribute cash dividends or mixed dividends compared to deciding not to pay dividends. The choice to pay a dividend depends on whether the company is profitable or not. In other words, the condition of a company's profitability is one of the motivating factors that an issuer decides to pay cash or mixed dividends. These results confirm the studies of Mirza and Afza (2014), Al-Malkawi (2008), Fama and French (2001), and Denis and Osobov (2008).

Other essential variables affect the probability of cash dividend (Models 1a) and mixed dividends (Model 1 c) are the conditions of the Solvency (debt to equity) company. The logistic regression coefficient is negative in accordance with hypothesis (H_4) and significant at 1%. The finding is consistent with the results of previous research. Paying debt reduces the desire of companies to pay cash dividends and even encourages issuers not to pay dividends. Especially in Indonesia and other developing countries, companies rely on debt as a way of corporate financing rather than accessing the capital market. As a result, when profits are made, profits are mostly used to pay interest, with less remaining to pay dividends.

Results suggest that investment opportunity has a negative and significant effect on the likelihood of companies choosing to pay a cash dividend (Model 1a). These results are consistent with the H5 hypothesis. It further confirms the findings of previous studies, which noted a significant decrease in the probability of companies paying cash dividends due to increased investment opportunities (Al-Malkawi, 2008; Fama & French, 2001; Rozeff, 1982) and Denis and Osobov (2008).

Table 5 notes that the effect of the liquidity decisions cash dividend (Model 1a) is negative and significant at the 1% level, which is H6 expected to be positive. The interpretation of these results means that when the company's liquidity increases, the company does not increase the likelihood of cash dividend distribution, as expected by the hypothesis. It even reduces the possibility of paying cash dividends, and there tends to be a decision to decide not to pay dividends. This decrease was due to the majority of issuers on the IDX, which were small companies with low profitability and little access to finance. These results are in line with Kumar and Tsetsekos (1999) and Faccio et al. (2001). Thus, when profits increase, they are not distributed as cash dividends but are retained to finance investment opportunities and maintain liquidity (Denis & Osobov, 2008; Fama & French, 2001).

Regarding odds ratio, in the whole period of 2005–2012, the most influential variables on the probability of the issuer choosing cash dividend (compared to choosing the decision not to pay a dividend) are size and profitability. Their odds ratios are the largest and significant. If the size (market capitalization) and profitability (earnings per share) of the company are increasing. Companies are more likely to make a cash dividend decision possibly because the company does not need to worry if there is a need for new funds. The company can easily access funds through capital market. This is also supported by a good cashflow because of increasing profitability. When this decision is made, the investor's reaction is positive because adequate financial conditions support the issuer's decision. The results are in line with Bird in Hand and Signalling Theory.

On the contrary, companies are likely to avoid cash dividend and choose not to pay dividends. If the agency costs are low, there is a need to pay large debts and, to maintain liquidity and significant investment opportunities. These variables are chosen because in Table 5, has an odds ratio <1 and is significant. The result are in line with studies by V. A. Aivazian et al. (2006), Kumar and Tsetsekos (1999), Faccio et al. (2001), and Porta et al. (1998), and residual dividend theory and signalling theory.

Furthermore, the most influential variables encouraging companies to choose stock and mixed dividends (Models 1b and 1 c) are the financial crisis and size. During the global financial crisis of 2008, although liquidity declined, profitability and market capitalization of the company increased. In such conditions, it is difficult for the issuer to make the decision not to provide dividends, due to that it will get a negative market response. The company distributed stock dividends rather than cash dividends even though small. The results of this research are supported by research by Lakonishok and Lev (1987).

5. Conclusion

Based on the results of the discussion above using the logit model regarding the phenomenon of disappearing dividend in Indonesian Stock Exchange for 204 companies, in the period 2005–2012. It can be concluded as follows:

Size and profitability have a significant positive effect on cash, stock, and mixed dividend decisions. The decision not to pay dividends is influenced by low agency costs, high debt, over-liquidity, and excessive investment opportunities. Therefore, in order to overcome the phenomenon of disappearing dividends in the stock exchange, all stakeholders must be able to manage the above variables in an integrated manner. For regulators, such as the Financial Services Authority (OJK) and the Stock Exchange, it is better to make rules regarding the issuer's decision not to pay dividends so that investors' interests are protected.

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