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# Are investors' desires for dividend increases stronger than dividend initiation?

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**Abstract:** This study aims to explore whether information asymmetry premium (IAP) as the foundation of the investors' desire in the dividend increases decision is stronger than the dividend initiation decision. This study finds that IAP can significantly complement the dividend increases decisions and substitute dividend premium for dividend initiation. The results of the study support Li and Lie (2006) and Chazi et al. (2018), who fleshed out Baker and Wurgler (2004b). The findings of this study show that the investor's desire towards dividend increases reflects investor sentiment on dividends, explained through the level of information asymmetry between dividend payers and non-payers. Further analysis shows that irrational investor behaviour in expecting dividend increases to be paid continuously is significant compared to dividend initiation. This research contributes to behavioural finance research in bonding dividend catering incentives and dividend signaling theory.

**Keywords:** dividend increases; dividend initiation; IAP; information asymmetry premium; dividend premium; investors' desire; behavioural finance; dividend catering incentives; dividend signaling theory.

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## 1 Introduction

Dividend theories attempt to describe the reason why companies pay dividends that is seemingly because dividends are still believed to be a major factor in stock price movements (Allen and Michaely, 2003; Zaman, 2011; Srinivasan, 2012; Batabyal and Robinson, 2017). Of the many, who tested this thinking, in 2004, came the perspective of dividend theory originated from the perspective of behavioural finance through investors' desire for dividends, namely dividend catering theory by Baker and Wurgler (2004a). The idea for dividend catering theory is that companies cater investors' desire for dividends in order to enable companies get premium price incentives for their shares (Baker and Wurgler, 2004a; Li and Lie, 2006; Hoberg and Prabhala, 2009; Kuo et al., 2013; Tangjitprom, 2013; Anouar and Aubert, 2017; Karpavicius and Yu, 2018). This finding is a breakthrough because the basis of the company dividing dividends was not of fundamental value but driven by investors' desire that did not have complete information about the company. On the other hand, the conventional financial theory uses the fundamental base or intrinsic value (Bhattacharya, 1979; Miller and Rock, 1985: Fama and French, 2001; Nissim and Ziv, 2001; Grullon et al., 2002; Bae and Elhusseiny, 2017; Pražák and Stavárek, 2018).

Li and Lie (2006) and Tangjitprom (2013) criticise Baker and Wurgler (2004b) model for an inability to explain why companies change dividends and fail to support hypotheses in the period of the announcement of initiation. Baker and Wurgler's empirical model could explain why companies initiate paying dividends, but could not explain why companies change or increase dividends. Baker and Wurgler (2004b) results are supported by Baker and Kolb (2009), Grullon et al. (2005), Hsieh and Wang (2006), Ferris et al. (2009), Kale et al. (2012) and Trabelsi et al. (2019). This weakness is considered significant because managers realistically face more dividend increases decision than dividend initiation decision (Sharma, 2001; Bulan et al., 2007; Lee and Mauck, 2016). The results of Baker and Wurgler's research raise doubts on the empirical validity of the dividend catering theory. If investors demanded dividends, investors should respond to the initiation of dividends. However, Baker and Wurgler find that there is no effect of dividend premium on the return of dividend initiation announcements.

Based on this criticism, Li and Lie (2006), supported by Ali and Urcan (2012), Tangjitprom (2013), and Kuo et al. (2013) includes the manager's decision to increase the dividend, where the results significantly support the dividend catering theory in terms of the decision or the magnitude of the increased dividend. On the other hand, the results of the study of Cooper and Lambertides (2018), Chazi et al. (2018) and Neves (2018) support that investor's sentiment towards dividend initiation is a sign that the company has a good prospect in the future. The dividend initiation and dividend increases are two dividend policies that will be used by companies to increase share prices. The supporting facts from previous research show that there is still a research gap.

Baker and Wurgler (2004a, 2004b) and Li and Lie's (2006) research inspires the development of the dividend catering theory to get the answers that actually underlie the formation of investors' desire for dividends (Aslan et al., 2011; Cerqueira and Pereira, 2015; Zhang and Zheng, 2015; Mian and Sankaraguruswamy, 2012). There is an indication of the information gap between insiders (managers) and outsiders (investors) because of the information asymmetry. The information gap causes an obstacle for the uninformed to understand the actual company condition, including the prospect and risk of the company as a whole due to the lack of corporate transparency (Firth et al., 2015; Rahman and Essayyad, 2019). In contrast to superior managers, investors are in a position that has limited information. The existence of information asymmetry encourages investors to interpret firm performance based on sentiment because investors find it challenging to control management actions in dividend payments effectively. Information submitted by managers may not be the same as the actual company condition because managers tend to report something that maximises their performance. This is supported by Purwaningsih et al. (2019), who state that the lack of transparency, including the practice of profit management, could mislead the users of financial reports in decision making. The dividend catering theory does not in line with the Miller and Modigliani (1961) assumption that says the company's future earnings and risk information are the same for all parties. The reality is that the information is incomplete and not homogeneous among market participants (Zhang and Zheng, 2015; Ali and Abdelfettah, 2016; Jalilvand et al., 2018).

Basically, investors have a preference for companies with specific characteristics. High information asymmetry influences irrational investors in their decision to accept or reject dividends. The company will respond to investors based on the level of information asymmetry. The higher the information asymmetry, the stronger it drives investors' desire for dividend increases and dividend initiation. In this case, managers have the option to increase dividends or perform dividend initiation. The issue of information asymmetry as the basis for an investor's desire for dividends is critical. This happens because the information asymmetry in emerging markets like Indonesia is relatively high compared to other ASEAN countries like the Philippines, Malaysia, Singapore, and Thailand (Barnett and Sergi, 2018).

The measurement of information asymmetry premium (IAP) is conducted using two proxies, namely the standard deviation of daily stock return (DSR) and high to low spread (HLS) estimator for the sake of robustness check on this study. The reason for using DSR is because it is a simple but robust measurement to prove that the market values IAP. Liu and Shan (2007) use DSR to prove that there was an information gap in the capital market because the information quality was not the same. Liu and Shan (2007) follow Bhagat and Frost (1986), Dierkens (1991), Thomas (2002), who use DSR to estimate the information asymmetry level in the capital market. The findings of the four

researchers prove that the bigger the volatility of DSR, the higher the information asymmetry level in the capital market. This evidence shows that the volatility of the DSR is acceptable to measure the information asymmetry level.

The reason for using HLS as the second proxy of IAP is because the market microstructure study uses transaction-level by high-frequency data. HLS estimator is an information asymmetry measurement developed by Corwin and Schultz (2012) using the basis of the highest and lowest daily stock price. The empirical testing shows that the HLS estimator has similar performance compared to the alternative high-frequency database measurement model used by Bhattacharya et al. (2013). This information asymmetry measurement is used to capture the adverse selection component on the spread. HLS is also applied by Cerqueira and Pereira (2015), who prove that the HLS estimator is more accurate in capturing the information asymmetry in the market compared to the relative bid-ask spread. HLS proves that intraday and daily data have similar performance in capturing the information asymmetry in the market.

This research finding contributes to the development of behavioural finance research because it focuses on proving that investor's desire rises not due to investors understand the firm performance, but because of investor's perception instead. Uninformed investors assume that companies that are able to increase or initiate dividends are outperformed companies. In this case, investors act irrationally, relying only on their personal information (Guo et al., 2017). Investor behaviour, which is based only on their perceptions, refers to the investor's sentiment behaviour. This sentiment behaviour is formed by a high level of information asymmetry between companies that increase dividend payment and those that initiate dividends. Information asymmetry becomes the basis for the investor's desire for dividends that results in the fluctuation of the stock price in companies, which pay dividend increases and initiate dividends (Zhang and Zheng, 2015; Jalilvand et al., 2018).

## 2 Hypothesis development

Investor's desire for dividends is the basis of the company in sharing dividends to increase firm value Baker and Wurgler (2004a). If investors have limited information, investors' desire for dividends is mainly formed based on information asymmetry, namely the imbalance of information between managers and investors (Cerqueira and Pereira, 2015; Zhang and Zheng, 2015; Jalilvand et al., 2018). Information limitations cause low transparency in the market, which associate low information quality and increase firm-specific return volatility to cause noise (Ivanova et al., 2017; Cerqueira and Pereira, 2018). Information distribution becomes increasingly uneven due to information technology issues in emerging markets (Morck et al., 2000; Barnett and Sergi, 2019). The higher the information asymmetry, the lower the transparency of information, which results in investors' desire for high dividends. Thus, the higher the IAP, the higher the investor sentiment towards dividend, which means the stronger the investor expects the company to share dividends. This study adopts the model scrutinised by Baker and Wurgler (2004b, 2006), who use dividend premium as investor sentiment's proxy on the dividend in the aggregate market (supported by Labidi and Yaakoubi, 2016). The company will respond it by making a dividend initiation decision, which is the decision to start paying dividends again after a long period of not paying (Venkatesh, 1989; Jain et al., 2009; Kale et al., 2012).

In the investor's perception, dividend initiation shows that the company has good prospects because it has excess cash that can be distributed to investors (Sharma, 2001). Dividend initiation can be used to signal better firm prospects so that investors are interested in investing. In other words, the market reacts positively (i.e., dividend signalling theory). If the actual conditions of the company are the same as those perceived by investors, then as proven by Mitra and Owers (1995), Healy and Palepu (1988), and Dhaliwal et al. (2003), the initiation of dividends shows the company's commitment to shareholders to consistently distribute cash in the form of regular dividends in the future. Unfortunately, investors do not know the real reason why a company pays dividends, so investors' desire for dividends occurs in high information asymmetry conditions. Therefore, a higher IAP will motivate managers to make dividend initiation decisions as a sign that the company has good liquidity and prospect in the future.

*$H_1$: dividend premium has a positive effect on dividend initiation decisions.*

*$H_2$: information asymmetry premium has a positive effect on dividend initiation decisions.*

Li and Lie (2006) fleshes out the dividend catering theory by proving that dividend premium has a significant positive effect on the decision to pay dividend increases. This finding can be interpreted that the higher the dividend premium, the stronger the investor's desire for dividends because the level of information asymmetry of companies that pay dividends is higher than companies that do not pay dividends. Thus, the value of IAP becomes positive, which signifies that the probability of a company's decision to increase dividends becomes higher to meet investor demand because investors expect high dividend (Tangjitprom, 2013; Liu and Sing Chen, 2015; Esqueda, 2016).

Tangjitprom (2013) supports Li and Lie (2006) by stating that the higher the dividend premium, the greater the increase in dividends. The higher the dividend premium, the higher the investor's desire for dividends. This encourages managers to serve investors' desire by paying higher dividends. The high investor's desire for dividends is due to the information asymmetry for higher payers, so investors ask for higher dividends to secure their investments. When the information asymmetry of payers begins to decline, investors' desire to dividends decreases because the sentiment of payers decreases. Dividend increases decisions will decrease following the decline in information asymmetry from companies that pay dividends.

In the dividend signalling theory (DST), the higher the information asymmetry level between the manager and investor, the stronger the signal of increasing dividend distribution. The company informs the actual condition of the company by increasing the dividend in order to lower the information asymmetry. Therefore, information asymmetry has a positive relationship on the company's decision of dividend increases (DDI). It denotes that if the information asymmetry is high, the company will decide to increase the dividend distribution (Miller and Rock, 1985; Liu and Sing Chen, 2015). Hussainey and Walker (2009) prove that information asymmetry has a positive effect on the decision of dividend increase (DDI). Basiddiq and Hussainey (2012) and Hussainey and Al-Najjar (2011) report the positive relationship between information asymmetry and

DDI, which supports the hypothesis of DST. Howe and Lin (1992), Khang and King (2006) support Lin et al. (2017), who prove that DST is in effect in China's capital market. Lin et al. (2017) scrutinise that higher information asymmetry has a significant positive effect on the company's decision to distribute the higher dividend.

DST hypothesis is proven using a new information asymmetry measurement, which is IAP in order to distinguish the dividend payers and non-payers' information asymmetry. IAP uses an aggregate market level based on DSR and HLS proxy. Positive IAP means the company that pays the dividend has a higher information asymmetry, which works the other way for negative IAP. Correspondingly, the higher the IAP shows higher market information asymmetry level. The company decides to increase dividend payments because the company paying dividends has higher information asymmetry. IAP is an indicator that shows that the asymmetry of information on the market on average increases, thereby the decision to increase dividends also increases. The company will adopt a strategy to reduce information asymmetry by paying higher dividends so that investors can catch signals that the company has good prospects in the future and adequate liquidity. An increase in dividend signals is considered effective to show that the company is in a safe condition and good performance. This research supports that DST is in effect and that increasing dividend payments are good news so that the market will respond positively. Therefore, the higher the IAP means the company will decide to pay a higher dividend because the information asymmetry level in dividend payers is higher than non-payers.

*$H_3$: dividend premium has a positive effect on the decision to increase dividends.*

*$H_4$: Information asymmetry premium has a positive effect on the decision to increase dividends.*

## 3 Data and methodology

This study uses secondary in the form of panel data from 2010–2018, excluding the financial institutions, where the criteria for sample selection is provided in Table 1.

- the financial report of a public company obtained from the Indonesian Stock Exchange, downloaded from the official site of IDX, www.idx.co.id and the company's website
- Osiris database
- stock market data from the official site of TICMI, www.ticmi.co.id.

The variables in this study consist of the dependent variable and the independent variable. The dependent variable is a dividend policy, namely dividend increases decision and dividend initiation decision. The independent variable consists of two main variables, namely dividend premium and IAP. IAP is measured using two proxies, namely standard deviation of DSR and HLS. This study uses six control variables.

**Table 1** Sample selection

| *Description* | *Firm years* |
|---|---|
| Firms listed in Indonesian Stock Exchange | 3936 |
| Firms with inactive trading stocks | (351) |
| Firms with active trading stocks | 3585 |
| Firms without published financial statement | (45) |
| Firms with published financial statement | 3540 |
| Firms that do not meet panel data | (20) |
| Firms that meet panel data | 3520 |
| Outlier data (DNET company) | (1) |
| Firms that meet the requirement | 3519 |
| Dividend non-payers firms | (1930) |
| Dividend payers firms: | 1589 |
| Firms that distribute dividend increases | 989 |
| Firms that distribute dividend decreases | 429 |
| Firms that initiate dividends | 218 |

*Variable and definition of operational variable*

1 Dividend premium (independent variable), is defined as the difference between the logarithm average market to book ratio of dividend payers and non-payers on the IDX over the period of 2010-2018, using the aggregate market base.

2 Information asymmetry premium (independent variable), is defined as the difference between the logarithm of dividend payers and non-payer's book-value weighted average standard deviation of DSR and HLS on the IDX over the period of 2010-2018, using the aggregate market base.

3 Dividend initiation decision (dependent variable) is the company's decision to start dividend distribution after at least two consecutive years, not sharing dividends from companies whose shares were actively traded on the Indonesia Stock Exchange over the period of 2010–2018. Measurement of dividend initiation decisions uses the binary logistic regression equation (dummy variable), namely dummy = 1 (reference category) for the dividend initiation decision category and dummy = 0 for the dividend non-payers category.

4 Dividend increases decision (dependent variable) is the company's decision to distribute higher dividends compared to the previous year from companies whose shares were actively traded on the Indonesia Stock Exchange over the period 2010–2018. Measurement of dividend increases decision uses the binary logistic regression equation using dummy variables, namely dummy = 1 (reference category) for the category of dividend increases decision and dummy = 0 for the category of dividend decreases decision.

**Analysis model:**

**Hypothesis 1:**

**Panel A: Robustness check**

**Model 1:**

$$pr\left(DDINI_{i,t}=1\right)=\ln\left(\frac{\hat{p}}{1-\hat{p}}\right)$$
$$=Logit\{\beta_0+\beta_1 DP_{i,t}+\beta_2 DY_{i,t}+\beta_3 MCap_{i,t}+\beta_4 LDTA_{i,t}$$
$$+\beta_5 CR_{i,t}+\beta_6 MBA_{i,t}+\beta_7 ROA_{i,t}+\varepsilon_{i,t}\}$$

**Model 2:**

$$pr\left(DDINI_{i,t}=1\right)=\ln\left(\frac{\hat{p}}{1-\hat{p}}\right)$$
$$=Logit\{\beta_0+\beta_1 IAP(DSR_{i,t})+\beta_2 DY_{i,t}+\beta_3 MCap_{i,t}+\beta_4 LDTA_{i,t}$$
$$+\beta_5 CR_{i,t}+\beta_6 MBA_{i,t}+\beta_7 ROA_{i,t}+\varepsilon_{i,t}\}$$

**Model 3:**

$$pr\left(DDINI_{i,t}=1\right)=\ln\left(\frac{\hat{p}}{1-\hat{p}}\right)$$
$$=Logit\{\beta_0+\beta_1 IAP(HLS_{i,t})+\beta_2 DY_{i,t}+\beta_3 MCap_{i,t}+\beta_4 LDTA_{i,t}$$
$$+\beta_5 CR_{i,t}+\beta_6 MBA_{i,t}+\beta_7 ROA_{i,t}+\varepsilon_{i,t}\}$$

**Panel B: Full model**

**Model 4:**

$$pr\left(DDINI_{i,t}=1\right)=\ln\left(\frac{\hat{p}}{1-\hat{p}}\right)$$
$$=Logit\{\beta_0+\beta_1 DP_{i,t}+\beta_2 IAP(DSR_{i,t})+\beta_3 DY_{i,t}+\beta_4 MCap_{i,t}$$
$$+\beta_5 LDTA_{i,t}+\beta_6 CR_{i,t}+\beta_7 MBA_{i,t}+\beta_8 ROA_{i,t}+\varepsilon_{i,t}\}$$

**Model 5:**

$$pr\left(DDINI_{i,t}=1\right)=\ln\left(\frac{\hat{p}}{1-\hat{p}}\right)$$
$$=Logit\{\beta_0+\beta_1 DP_{i,t}+\beta_2 IAP(HLS_{i,t})+\beta_3 DY_{i,t}+\beta_4 MCap_{i,t}$$
$$+\beta_5 LDTA_{i,t}+\beta_6 CR_{i,t}+\beta_7 MBA_{i,t}+\beta_8 ROA_{i,t}+\varepsilon_{i,t}\}$$

**Hypothesis 2:**

**Panel A: Robustness check**

**Model 1:**

$$pr\left(DDI_{i,t}=1\right)=\ln\left(\frac{\hat{p}}{1-\hat{p}}\right)$$
$$=Logit\{\beta_0+\beta_1 DP_{i,t}+\beta_2 DY_{i,t}+\beta_3 MCap_{i,t}+\beta_4 LDTA_{i,t}$$
$$+\beta_5 CR_{i,t}+\beta_6 MBA_{i,t}+\beta_7 ROA_{i,t}+\varepsilon_{i,t}\}$$

**Model 2:**

$$pr\left(DDI_{i,t}=1\right)=\ln\left(\frac{\hat{p}}{1-\hat{p}}\right)$$
$$=Logit\{\beta_0+\beta_1\ IAP(DSR_{i,t})+\beta_2 DY_{i,t}+\beta_3 MCap_{i,t}+\beta_4 LDTA_{i,t}$$
$$+\beta_5 CR_{i,t}+\beta_6 MBA_{i,t}+\beta_7 ROA_{i,t}+\varepsilon_{i,t}\}$$

**Model 3:**

$$pr\left(DDI_{i,t}=1\right)=\ln\left(\frac{\hat{p}}{1-\hat{p}}\right)$$
$$=Logit\{\beta_0+\beta_1\ IAP(HLS_{i,t})+\beta_2 DY_{i,t}+\beta_3 MCap_{i,t}+\beta_4 LDTA_{i,t}$$
$$+\beta_5 CR_{i,t}+\beta_6 MBA_{i,t}+\beta_7 ROA_{i,t}+\varepsilon_{i,t}\}$$

**Panel B: Full model**

**Model 4:**

$$pr\left(DDI_{i,t}=1\right)=\ln\left(\frac{\hat{p}}{1-\hat{p}}\right)$$
$$=Logit\{\beta_0+\beta_1 DP_{i,t}+\beta_2\ IAP(DSR_{i,t})+\beta_3 DY_{i,t}+\beta_4 MCap_{i,t}$$
$$+\beta_5 LDTA_{i,t}+\beta_6 CR_{i,t}+\beta_7 MBA_{i,t}+\beta_8 ROA_{i,t}+\varepsilon_{i,t}\}$$

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$$=Logit\{\beta_0+\beta_1 DP_{i,t}+\beta_2\ IAP(HLS_{i,t})+\beta_3 DY_{i,t}+\beta_4 MCap_{i,t}$$
$$+\beta_5 LDTA_{i,t}+\beta_6 CR_{i,t}+\beta_7 MBA_{i,t}+\beta_8 ROA_{i,t}+\varepsilon_{i,t}\}$$

| *Variables* | *Note* | *Formula* |
|---|---|---|
| $pr\left(DDINI_{i,t}=1\right)$ | Decision to share dividend initiation | Dummy: 1=decision to share dividend initiation; 0 = decision other than dividend initiation |
| $pr\left(DDI_{i,t}=1\right)$ | Decision to increase dividends | Dummy: 1 = decision to increase dividends; 0 = decision other than to increase dividends |
| $DP_{i,t}$ | Dividend premium, market base | $DP_{i,t}=\log\left(\overline{MTB}_{p,t}\right)-\log(\overline{MTB}_{np,t})$<br>$\overline{MTB}_{p,t}=$ average market to book ratio dividend payers<br>$\overline{MTB}_{np,t}$ = average market to book ratio non-payers |
| $IAP(DSR_{i,t})$ | Information asymmetry premium measured by the standard deviation of daily stock return, market base | $R_{i,t}=\frac{P_{i,t}-P_{i,t-1}}{P_{i,t-1}}\times 100\%$<br>$\overline{R_{i,t}}=\sum_{i}^{t}R_{i,t}/N$<br>$\sigma\left(R_{i,t}\right)=\sqrt{\frac{\sum_{i=1}^{k}\left(R_{i,t}-\overline{R_{i,t}}\right)^2}{n}}$<br>$IAP(DSR)_t=\log\left(\overline{\sigma(R)}_{p,t}\right)-\log(\overline{\sigma(R)}_{np,t})$<br>$R_{i,t}$ = *daily stock return*; $\overline{R_{i,t}}$ = average *daily stock return*<br>$P_{i,t}$ = daily stock price in *t* year; $P_{i,t-1}$ = daily stock price in *t* – 1 year; $\sigma\left(R_{i,t}\right)$ = standard deviation of *daily stock return*<br>$\overline{\sigma(R)}_{p,t}$ = average daily stock return volatility level of dividend payers<br>$\overline{\sigma(R)}_{np,t}$ = average daily stock return volatility level of *non-payers* |
| $IAP\left(HLS_{i,t}\right)$ | Information asymmetry premium measured by the high to low spread, market base | $HLS_{i,t}=\frac{H1_{i,t}}{L1_{i,t}}$<br>$IAP(HLS)_t=\log\left(\overline{HLS}_{p,t}\right)-\log(\overline{HLS}_{np,t})$<br>$HLS_{i,t}$ = daily *high to low spread estimator*<br>$H1_{i,t}$ = daily highest stock price<br>$L1_{i,t}$ = daily lowest stock price<br>$\overline{HLS}_{p,t}$ = average *high to low spread* of daily stock of dividend payers<br>$\overline{HLS}_{np,t}$ = average *high to low spread* of daily stock of non-payers |

| *Variables* | *Note* | *Formula* |
|---|---|---|
| $DY_{i,t}$ | *Dividend yield* of *i* company in *t* year | $DY_{i,t} = \frac{DPS_{i,t}}{P_{i,t}}$ $DPS_{i,t}$ = dividend per share; $P_{i,t}$ = closing price |
| $MCap_{i,t}$ | *Market capitalisation* of *i* company in *t* year | $MCAP_{i,t}$ = closing price of $stock_{i,t}$ *x* outstanding $share_{i,t}$ |
| $LDTA_{i,t}$ | *Long-term debt to total asset* of *i* company in *t* year | $\text{LDTA}_{i,t} = \frac{\text{Longterm Debt}_{i,t}}{\text{Total Assets}_{i,t}}$ |
| $CR_{i,t}$ | *Cash to total asset* of *i* company in *t* year | $\text{CR}_{i,t-1} = \frac{(\text{Cash} + \text{Equivalent Cash})_{i,t-1}}{\text{Total Asset}_{i,t-1}}$ |
| $MBA_{i,t}$ | *Market value to book value of asset* of *i* company in *t* year | $MVA_{i,t} = BVA_{i,t} - BVE_{i,t} + MVE_{i,t}$ $MVE_{i,t} = outsianding\ shares_{i,t} \times closing\ price_{i,t}$ $MBA_{i,t} = \frac{MVA_{i,t}}{BVA_{i,t}}$ $MVA_{i,t}$ = market value of assets; $BVA_{i,t}$ = Book value of asset; $BVE_{i,t}$ = Book value of equity; $MVE_{i,t}$ = Market value of equity; $MBA_{i,t}$ = Market to book value of asset |
| $ROA_{i,t}$ | Net operating profit of the total asset of *i* company in *t* year | $\text{ROA}_{i,t} = \frac{\text{Net Operating Income}_{i,t}}{\text{Total Asset}_{i,t}}$ |
| $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ | Regression coefficient | |
| $\varepsilon_{i,t}$ | Error term of *i* company in *t* year | |

## 4 Result and discussion

### *4.1 Data*

Descriptive statistics are presented in Table 2.

In order to obtain the information value of IAP, which is the calculation of DSRs and HLSs, daily active stock transaction data in the 2010-2018 period of 544 companies is processed. The maximum value of IAP(DSR) occurred in 2016 and IAP(HLS) in 2014, while the maximum value of DP is the same as IAP(DSR) in 2016. The minimum value of IAP (DSR) and IAP(HLS) occurred in 2013 and 2011, and the minimum value of DP occurred in 2013, the same as the minimum value of the IAP(DSR) in 2013 as well. Thus, the maximum and minimum DP values are the same as IAP(DSR) in 2016 (max) and 2013 (min). The standard deviations show the distribution of data with the lowest standard deviations are DP, then IAP(HLS), and IAP(DSR).

**Table 2** Descriptive statistic

| *Variable* | *Mean* | *Median* | *Maximum* | *Minimum* | *Std. dev.* |
|---|---|---|---|---|---|
| Dividend premium | –0.0043 | –0.0041 | –0.0029 | –0.0059 | 0.0010 |
| IAP (DSR) | –0.2802 | –0.2699 | –0.1589 | –0.3998 | 0.0771 |
| IAP (HLS) | –0.0078 | –0.0080 | –0.0039 | –0.0107 | 0.0022 |
| Dividend yield | 0.0132 | 0.0000 | 0.5099 | 0.0000 | 0.0277 |
| Market capitalisation | 0.0023 | 0.0003 | 0.0917 | 0.0000 | 0.0078 |
| Longterm debt to total asset | 0.1654 | 0.1038 | 1.8188 | 0.0000 | 0.1751 |
| Cash ratio | 0.0899 | 0.0477 | 0.9913 | 0.0000 | 0.1112 |
| Market to book asset | 1.6747 | 1.0811 | 109.1093 | 0.1228 | 2.8523 |
| Return on asset | 0.0637 | 0.0527 | 1.2014 | –1.5897 | 0.1290 |

As seen in Table 3, the correlation value between independent variables is lower than 0.70, so it passes the multicollinearity test. The model also passes the heteroscedasticity test after being treated with the white test. Based on the Chow test and the Hausman test, it is found that the fixed effect model is the best.

**Table 3** Multicollinearity test results

| | *DP* | *IAP(DSR)* | *IAP(HLS)* | *DY* | *MCAP* | *LDTA* | *CR* | *MBA* | *ROA* |
|---|---|---|---|---|---|---|---|---|---|
| DP | 1.0000 | | | | | | | | |
| IAP(DSR) | 0.6553 | 1.0000 | | | | | | | |
| IAP(HLS) | 0.6465 | 0.6098 | 1.0000 | | | | | | |
| DY | –0.0215 | –0.0261 | –0.0364 | 1.0000 | | | | | |
| MCAP | –0.0216 | –0.0227 | –0.0147 | 0.1579 | 1.0000 | | | | |
| LDTA | 0.0344 | 0.0342 | 0.0316 | –0.1043 | –0.0419 | 1.0000 | | | |
| CR | –0.0387 | –0.0352 | –0.0185 | 0.1424 | 0.0312 | –0.1357 | 1.0000 | | |
| MBA | –0.0017 | 0.0031 | –0.0064 | 0.0239 | 0.1934 | –0.0511 | 0.0768 | 1.0000 | |
| ROA | –0.0496 | –0.0563 | –0.0128 | 0.2455 | 0.2192 | -0.0998 | 0.2277 | 0.1753 | 1.0000 |

## 4.2 Result and discussion

### 4.2.1 Dividend initiation decision

Based on Table 4, Hypothesis 1 testing in panel B (full model) is model 4 and model 5. The result proves that $H_1$ is not supported for both model 4 and model 5. This result is supported by Baker and Wurgler (2004b), who find that investors' desire for dividends has no significant effect on dividend initiation decisions. Li and Lie (2006) criticise Baker and Wurgler (2004b) by stating that if an investors' desire for dividends has no significant effect on dividend initiation decisions. This result is considered to weaken the validity of the dividend catering theory itself.

**Table 4** Binary logistic regression: decision to dividend initiation

| *Variable* | *Panel A* | | | *Panel B* | |
|---|---|---|---|---|---|
| | *Model 1* | *Model 2* | *Model 3* | *Model 4* | *Model 5* |
| *C* | –3.2854 | –3.1528 | –2.7029 | –3.3491 | –3.1737 |
| | (–9.78)*** | (–10.66)*** | (–9.61)*** | (–9.57)*** | (–9.35)*** |
| $DP_{i,t}$ | –103.3341 | – | – | –247.6283 | –239.0201 |
| | (–1.48) | | | (–1.06) | (–2.41)** |
| $IAP(DSR_{i,t})$ | – | –1.1144 | – | 1.9847 | – |
| | | (–1.22) | | (0.65) | |
| $IAP(HLS_{i,t})$ | – | – | 17.1302 | – | 89.6983 |
| | | | (0.54) | | (2.03)** |
| $DY_{i,t}$ | 5.4928 | 5.4765 | 5.5843 | 5.5368 | 5.6974 |
| | (2.98)*** | (2.98)*** | (3.05)*** | (2.99)*** | (3.09)*** |
| $MCap_{i,t}$ | –58,4112 | –58,1682 | –57,3776 | –58,5266 | –58,4631 |
| | (–2.44)** | (–2.43)** | (–2.42)** | (–2.44)** | (–2.45)** |
| $LDTA_{i,t}$ | –0.4751 | –0.4806 | –0.5069 | –0.4737 | –0.4954 |
| | (–1.05) | (–1.06) | (–1.12) | (–1.05) | (–1.09) |
| $CR_{i,t}$ | 0.9695 | 0.9779 | 0.9975 | 0.9636 | 0.9612 |
| | (1.67)* | (1.69)* | (1.73)* | (1.66)* | (1.66)* |
| $MBA_{i,t}$ | –0.0749 | –0.0750 | –0.0771 | –0.0754 | –0.0762 |
| | (–1.48) | (–1.48) | (–1.54) | (–1.49) | (–1.49) |
| $ROA_{i,t}$ | 2.7323 | 2.7313 | 2.7661 | 2.7440 | 2.7443 |
| | (4.38)*** | (4.38)*** | (4.45)*** | (4.40)*** | (4.38)*** |
| Prob. > $chi^2$ | 0.0000 | 0,0000 | 0,0000 | 0,0000 | 0,0000 |
| Correctly classified | 93.7500 | 93.7500 | 93.7800 | 93.7800 | 93.7500 |
| Odds ratio | 0.0001 | 0.3281 | 2.7500 | 0.0002 | 0.0001 |
| | | | | 7.2767 | 9.0300 |

*, ** and *** significant at the 10%, 5% and 1% levels.

*Source*: Stata 14 Output

For Hypothesis 2, it is found in model 4 that the IAP, which is measured by DSR proxy, does not affect the dividend initiation decision, so $H_2$ is not supported for model 4. This result supports Hameed and Xie (2019). In model 5 testing, IA(HLS) is proven to have a positive effect on the dividend initiation decision, so $H_2$ is supported by model 5. The higher the IAP(HLS), the higher the chance for the manager to decide to perform dividend initiation. This result is supported by Subkhan and Pratiwi (2011) and Pertiwi and Wirama (2019), who state that the company responded by deciding to start paying dividends again after a long period of not dividing dividends. In investor's perception, dividend initiation contains good prospective company information because it has excess cash that can be distributed to investors (Dyl and Weigand, 1998; Sharma, 2001; Lee and Mauck, 2016). Basically, dividend initiation is used to give a signal about the prospect of future company profits so that the market reacts positively. If the company's condition is

the same as what investors perceive, as proven by Asquith and Mullins (1983), Dhaliwal et al. (2003) and Officer (2011), the initiation of dividends shows the company's commitment to shareholders to distribute cash in the form of regular dividends. Since $H_1$ is not supported and $H_2$ is supported by model 5, it proves that IAP(HLS) may substitute investors' desire because IAP(HLS) is stronger so that investors' desire does not significantly affect dividend initiation decision.

The robustness check result for the testing of a dividend initiation decision is shown in Table 4 panel A in models 1, 2, and 3. It shows that the testing result proves that the dividend initiation decision model is not robust. It is proven that DP (model 1), IAP(DSR) (model 2), and IAP(HLS) (model 3) are not significant.

### *4.2.2 Dividend increases decision*

Table 5 shows the result of Hypothesis 3 testing in panel B models 4 and 5. The result shows that $H_3$ on model 4 is not supported because the DP is not significant. This is supported by Tsuji (2011) and Tangjitprom (2013), who stated that DP is a subset of information asymmetry premium because IAP (DSR) is stronger than investors' desire. In model 5, $H_3$ is supported. It means DP has a significant positive effect on dividend increases. This result proves that investor's desire becomes the basis of the company in distributing dividend increases (Li and Lie, 2006; Lee, 2011; Ali and Urcan, 2012; Liu and Sing Chen, 2015; Wang et al., 2016; Neves, 2018). Baker and Wurgler (2004b) model could not explain why the company decided to increase dividends, whereas managers empirically decided to increase instead of initiate dividends. Moreover, the empirical result by Baker and Wurgler (2004b) failed to support the hypothesis in the period of dividend initiation announcement. There was no significant relationship between the return of dividend initiation announcement and DP. Li and Lie's (2006) model successfully shows that DP has a significant positive effect on the announcement of dividend increases.

The Hypothesis 4 testing on model 4 and 5 proves that $H_4$ is supported on both models, which means that IAP(DSR) and IAP(HLS) has a significant positive effect on the dividend increases decision. This supports Cerqueira and Pereira (2018) and Jalilvand et al. (2018) that if investors have limited information, then the investor's desire for the dividend is formed on the basis of information asymmetry between managers and investors. However, investors do not know the real reason companies make a dividend increases decision, so investors' desire for dividends occurs in conditions of high information asymmetry (Charitou et al., 2011; Kale et al., 2012; Chau et al., 2016). Irrational investors become overconfident with their decisions. This is understandable because investor's rationality is influenced and persuaded by factors such as political, cultural, and social influences (Chun Tsai, 2017; Sergi et al., 2019a).

By finding that $H_1$ is not supported (model 4 and 5) while $H_3$ (model 5) and $H_4$ are supported, with the value of DP coefficient higher than IAP, it shows that investors' desire is stronger for dividend increases than dividend initiation in the condition of high information asymmetry. In practice, managers are highly interested in the decision to increase dividends, not the decision to start (initiate) dividends. This argument is based on a phenomenon that the frequency of companies that make dividend initiation decisions is limited because companies are more interested in dividend increases decisions, which are believed to be a signal of good news (Simiyu, 2014; Cesari and Huang Meier, 2015; Hameed and Xie, 2019). Therefore, Li and Lie fleshes out the original dividend catering

theory with the decision to increase dividends and not to initiate dividends. The higher the dividend premium, the stronger the investor's desire for payers because the asymmetry of payers' information is higher than non-payers. This signifies that the probability of a company deciding to increase dividends becomes even higher to meet investor demand because investors behave in a way for the dividends to be paid highly (Liu and Sing Chen, 2015; Esqueda, 2016).

**Table 5** Binary logistic regression: decision to dividend increases

| | *Panel A* | | | *Panel B* | |
|---|---|---|---|---|---|
| *Variable* | *Model 1* | *Model 2* | *Model 3* | *Model 4* | *Model 5* |
| C | 0.0469 | 0.0532 | –0.3827 | –0.1608 | 0.1756 |
| | (0.17) | (0.21) | (–0.16) | (–0.56) | (0.62) |
| $DP_{i,t}$ | 216.5128 | – | – | –286.0467 | 103.6801 |
| | (3.72)*** | | | (–1.48) | (1.37)*** |
| $IAP(DSR_{i,t})$ | – | 3.3755 | – | 7.0116 | – |
| | | (4.34)*** | | (2.72)*** | |
| $IAP(HLS_{i,t})$ | – | – | 107.5909 | – | 78.7964 |
| | | | (4.26)*** | | (2.41)** |
| $DY_{i,t}$ | –3.6501 | –3.5382 | –3.4550 | –3.4523 | –3,4731 |
| | (–1.76)* | (–1.71)* | (–1.66)* | (–1.67)* | (–1.68)* |
| $MCap_{i,t}$ | 0.4058 | 0,5146 | 0.4848 | 0.4524 | 0.6053 |
| | (0.07) | (0.09) | (0.09) | (0.08) | (0.11) |
| $LDTA_{i,t}$ | 0.5418 | 0.5460 | 0.5435 | 0.5621 | 0.5348 |
| | (1.28) | (1.29) | (1.28) | (1.32) | (1.26) |
| $CR_{i,t}$ | –0.3510 | –0.3468 | –0.3763 | –0.3605 | –0.3563 |
| | (–0.65) | (–0.64) | (–0.69) | (–0.66) | (–0.65) |
| $MBA_{i,t}$ | 0.0119 | 0.0110 | 0.0096 | 0.0121 | 0.0084 |
| | (0.28) | (0.25) | (0.22) | (0.28) | (0.19) |
| $ROA_{i,t}$ | –0.3353 | –0.2996 | –0.3533 | –0.3079 | –0.3105 |
| | (–0.43) | (–0.39) | (–0.45) | (–0.40) | (–0.40) |
| Prob. > $chi^2$ | 0.0016 | 0.0002 | 0.0003 | 0.0002 | 0.0003 |
| Correctly classified | 72.1500 | 72.1500 | 72.1500 | 72.1500 | 72.1500 |
| Odds ratio | 1.0700 | 29.2394 | 5.3200 | 0.0005 | 1.0700 |
| | | | | 1.1094 | 1.6600 |

*, ** and *** significant at the 10%, 5% and 1% levels.

*Source*: Stata 14 Output

The result of the robustness check for the decision of dividend increases is shown in Table 5 panel A, which are models 1, 2, and 3. It shows the test result proving that the decision of dividend increases is robust because DP (model 1), IAP(DSR) (model 2), and IAP(HLS) (model 3) are significant.

## 5 Conclusion

This research proves that information asymmetry is the basis of an investor's desire for dividend increases decisions. This result proves that investors put their sentiments towards companies that distribute dividend increases because the payers' information asymmetry is higher than non-payers.

For dividend initiation decisions, the dividend premium as a measure of investor's desire has no significant effect. In this case, the IAP, which is measured using HLS, is stronger than the dividend premium. As a result, DP becomes a subset of IAP so that IAP substitutes dividend premium. This is due to the effect of IAP, which is stronger than the dividend premium for the decision of dividend increases using the measurement of HLS proxy.

Investors' desires for dividend increases decision are stronger than dividend initiation because the desire for dividend increases decision is significant and has a higher sensitivity (the highest coefficient). Thus, it can be concluded that information asymmetry can explain an investor's desire when a company caters to investor demand for dividends to rise. Investor preferences tend to favour companies that can provide security by sharing dividends continuously in an increasing amount in the future, which indicates that the company has good prospects and stable profits. This proves that the dividend signalling theory applies in conditions of information asymmetry of payers higher than the asymmetry of non-payers' information. In this case, the investor response is not very strong because the frequency of companies to make dividend initiation decisions after not paying dividends for at least two consecutive years is weak compared to dividend decisions on a regular basis.

This research area can be further developed to international market scope, covering countries with different capital market characteristics. This will be very interesting, considering the rationality of investor in decision making are influenced by culture, social systems, information technology development, law system (common law and civil law), and politic in which those factors are still not yet included in this research model (Ferris et al., 2009; Adekola and Sergi, 2017). Another interesting study is to include consideration of investor demographic structure, which includes the proportion between younger vs. older investors (Lee, 2011) and company restructuring issues such as mergers, acquisitions, and corporate control in the discussion of investor's desire towards decision to increase dividends or initiate dividends (Sergi et al., 2019b).

Realising that investors' desire on the dividend is formed due to the high information asymmetry in the Indonesian Capital Market, the government, as the financial service authority, is expected to monitor the principles of information transparency. The capital market can be dynamics, efficient, reasonable, and transparent internationally. In this case, the government has the power as the policy-maker to uphold the regulation so that public companies perform disclosure principles (Aryani and Hussainey, 2017; Lazarov, 2019). Therefore, further research can discuss the good corporate governance variable as an effort to decrease information asymmetry and protection towards investor's interest. This is supported by Setiawan et al. (2016) and Suhardjanto et al. (2018), who prove that there is a positive effect between good corporate governance and social disclosure. Consequently, environmental disclosure significantly has a positive effect on financial performance (Haninun et al., 2018). Therefore, the market player has complete and high-quality information concerning the issuer's performance to catch the dividend signal appropriately.

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