Why lucrative firms do not pay dividends?

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Abstract

This paper investigates the determinants and future performances of non-dividend payers with high profitability compared to those with low profitability in the U.S. 'Voluntarily lower dividend paying' firms are defined as the ones whose incomes are above the median and yet whose dividend payouts are below the median in a given industry and a given year (or, HILND: High Income Low or No Dividend). Signaling model, agency model, residual dividend model, life cycle model explain the relations between firm characteristics and dividend payouts. This paper builds upon these models and, controlling for all the variables so far known, additionally examines CEO overconfidence and market competition. We discover that CEO overconfidence, as well as its interaction with CEO ownership, affects HILND positively. Young, small firms with more growth opportunities are more likely to perform HILND. Moreover, HILND policy relates positively to capital expenditures on fixed assets, but negatively to capital expenditures on R&D which is intangible and risky. Firm risk has nothing to do with HILND. Higher market competition leads to more HILND decisions, which supports the substitution model rather than the outcome model of market competition and dividend. Finally, HILND firms have better market and operating performance.

Key words: Dividends policy, CEO overconfidence, Market competition

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1. Introduction

Prior literatures on payout policy recognize that firms pay low, sometimes zero, dividends or high dividends. Prior literatures recognize that, in dynamic terms, firms increase or decrease dividend payout. Therefore, categorizing firms on dividend topic, they divide firms into low (or zero) dividend paying and high dividend paying ones, or dividend increasing and decreasing ones

In our study, we draw on the phenomenon of 'voluntarily lower (or zero) dividend paying firms'. We try to discover their determinants and consequences such as market and operating performances. 'Voluntarily lower dividend paying firms' are defined as follows. If a firm's profitability in a given industry and a given year is above the median of the group, the firm is categorized as High-Income firm; if below the median, Low-Income firm. We establish that High-Income firms, if they pay low or even no dividends, should be referred to as 'voluntarily lower dividend paying firms' (or, HILND: High Income Low or No Dividend). Low-Income firms that pay low or no dividends shall be referred to as 'inevitably lower dividend paying firms.'

We divide, therefore, lower dividend paying firms into 'voluntarily paying firms' and 'inevitably paying firms' and examine their firm characteristics and performances. We expect that 'voluntarily lower dividend paying firms' minimize dividend payouts for future investments even though they are well enough able to pay dividends. We also expect that they have contrasting characteristics and performances as against 'inevitably lower dividend paying firms' that are unable to pay dividends for deficits.

This study receives the conceptual framework of 'voluntarily' and 'inevitably lower dividend paying firms' for the first time initiated by D'Mello et al. (2001) and empirically tested by Ko and Park (2014). There are few prior literatures testing 'voluntary'/'inevitable' payout phenomena in any stock markets whatsoever, not to say the U.S. markets. In this study, we also add behavioral-psychological and industry-level variables such as CEO overconfidence and market competition (HHI) in order to see a fuller picture of the phenomenon.

2. Hypotheses development based on related models

2.1. Related studies about the determinants of dividends

Miller and Modigliani (1961) claim irrelevance model of dividend that dividend payout and shareholder value are unrelated under the presumption of frictionless market without tax, any transaction costs, etc. In actual markets, however, 'frictions' such as tax, transaction costs do exist, and many models try to explain dividend payout phenomenon, taking such 'frictions' into account.

2.1.1. Signaling model

In the signaling model of dividend, it is claimed that, under information asymmetry between firms and markets, firms use dividend payouts as the means to convey to markets information on their superior future values (Miller and Rock, 1985; John and Williams, 1985; Kale and Noe, 1990). When firms either initiate dividends or increase dividend payouts, it is received as 'a good news' concerning the firms' future values and it raises their stock prices. When, on the contrary, firms either stop dividends or decrease dividend payouts, it is 'a bad news' and it drags down their stock prices. In other words, higher dividends serve as the signal for firms' higher future values.

When high volatility of cash flow is expected in a firm, managers tend to avoid paying dividends because they are supposed to undergo financial distress otherwise. Dividends signal the level of cash flow in a firm (Bhattacharya, 1979; John and Williams, 1985; Miller and Rock, 1985). Or else dividends signal the variance of cash flow (Kale and Noe, 1990). According to signaling model, (the level of) dividend is expected to relate positively to retained earnings, negatively to cash flow volatility (risk).

2.1.2. Agency model

Agency model claims that, under information asymmetry between shareholders (owners) and managers, dividends function as the means to relieve managers' appropriation problems (Lintner, 1956; Rozeff, 1982; Lang and Litzenberger, 1989; Smith and Watts, 1992; Benartzi et al., 1997). As corporate ownership becomes more fragmented, 'agency' problems between shareholders and managers increase; therefore, higher agency costs result. Especially when firms pass their growing stage and blow in maturity, investment opportunities decrease and free cash flow increases; thus, conflicts between shareholders and managers become serious. Given such state of things, increases in dividends prevent managers from possible appropriations, such as overinvestments in projects with negative NPVs, and relieve agency problems thereof. Therefore, we expect that (the level of) dividend relates negatively to firms' future growth opportunities, positively to retained earnings, furthermore, negatively to capital expenditure, R&D expenditure, and leverage.

According to Rozeff (1981), firms with higher agency costs necessarily require heightened monitoring and shareholders tend to keep the level of dividend at high for such monitoring. However, as managers' ownership increases, managers' and investors' interests come to coincide and monitoring through dividends is less required. Thus, (the level of) dividend relates negatively to managers' ownership. On the other hand, Schooley and Barney (1994) claim that dividend and managers' ownership do not simply hold negative relation. That is, when managers' ownership goes beyond a certain limit, managers are inclined to be trenched, agency problems arise, and dividends increase accordingly. Chay and Suh (2009) claim that, testing worldwide firm-level data, insider ownership and dividend do not have any significant relation in most countries.

2.1.3. Residual dividend model

Residual dividend model states that firms pay dividends when they have cash residuals after having fulfilled investment demands. This indicates that higher investment expenditure leads to lower levels of dividends.

2.1.4. Life cycle model

Firms tend to increase dividend payouts and decrease internal reserves, as they enter into maturity having passed the phase of growth (Fama and French, 2001; Grullon et al., 2002; DeAngelo et al., 2006). Firms in the life cycle of growth increase cash reserves, whereas firms in maturity increase dividend payouts. In other words, firms in the growing phase have many attractive investment opportunities but not enough funds for them and they prefer, therefore, to reserve cash rather than pay it out for dividends. Firms in maturity have an increasing amount of retained earnings but fewer new investment opportunities and they prefer to pay them out for dividends.

So, we expect that, following residual dividend and life cycle models, dividend relates negatively to investment opportunities, capital expenditure, R&D expenditure, and leverage, positively to retained earnings, firm size, and firm age.

Other than dividend models so far mentioned, there are researches explaining that CEO overconfidence, market competition, and others affect firms' dividend policies. First, Deshmukh et al. (2013) report that, because they consider external financing as costly, overconfident managers decrease the present level of dividend and thereby try to build financial slack for future investments. So, we expect that CEO overconfidence relates negatively to dividend.

Next, models on market competition and dividend are as follows. The 'outcome model' based on the threat-of-liquidation hypothesis (Schmidt, 1997) says, when managers misuse resources under high market competition, e.g. managers make overinvestments in projects with negative NPVs, firms will lose competitive advantages and managers will come to fail. Therefore, under high market competition, firms shall increase dividends in order to circumvent negative consequences coming from misplaced managerial and financial actions. Moreover, La Porta et al. (2000) claim, managers in competitive markets prefer to pay out income reserves for dividends because they face relatively high risks of bankruptcy. Bolton and Scharfstein (1990), Grullon and Michaely (2007) claim that firms in non-

competitive markets prefer to reserve cash rather than pay out dividends in order to prepare for the threats from competitors possible in the future. Following the ‘outcome model,’ we expect that market competition relates positively to dividend.

The ‘substitution model’ propounds that under high information asymmetry due to lower market competition firms tend to increase dividends, conveying positive signals, and try to build up good reputation (Gomes, 2000). Therefore, following the ‘substitution model,’ we expect that market competition relates negatively to dividend.

2.2. Hypotheses

Prior literatures report that CEO overconfidence affects financial decision makings. Malmendier and Tate (2005) empirically support that CEOs’ investment decisions are susceptible to internal cash flow. When firms have enough internal cash flow, overconfident CEOs overestimate the NPVs of possible cash flow arising from their investment projects and consequently make excessive investments, i.e., investments in projects with negative NPVs, unlike other rational CEOs. Conversely, when internal cash flow dries out and they need external financing, overconfident CEOs believe that their stocks are underestimated in the market and consequently make less investments than rational CEOs. After all, when CEOs are overconfident, firms’ investment decisions are susceptible to internal cash flow.

Deshmukh et al. (2013) report that, because overconfident CEOs consider external financing as costly, they try to build financial slack for future investments by decreasing dividends at present. Therefore, we presume that, in cases of ‘voluntarily lower dividend paying firms’ reserving incomes, not paying them out for dividends, due to much growth opportunities, overconfident CEOs will consider external financing as costly and will all the more curtail dividends to reserve incomes for future investments (Hypothesis 1-1). On the other hand, however, as CEOs’ ownership increases, CEOs’ and owners’ (shareholders’) interests come to coincide. So we expect that, as CEOs’ ownership increases, firms are all the more likely to ‘voluntarily pay lower dividends’ (Hypothesis 1-2).

Hypothesis 1-1. Decision to voluntarily pay lower dividends will relate positively to CEO overconfidence.
Hypothesis 1-2. This positive relation will be all the stronger, as CEOs' ownership increases.

Decisions to voluntarily pay lower dividends are made in order to reserve incomes for future investments, considering the firms' high growth opportunities. Of course, firms with high growth opportunities will decide to internally reserve more incomes for new investment projects (Rozeff, 1983; Jensen et al., 1992; Fama and French, 2001). Therefore, we expect that firms with high growth opportunities are more likely to voluntarily pay lower dividends (Hypothesis 2-1). Moreover, we also expect that, because decisions to voluntarily pay lower dividends are to prepare for new investment projects, firms making such decisions are more likely to have high capital expenditure and R&D expenditure rates (Hypothesis 2-2). After all, dividend policy is a financial decision either to pay out business incomes to shareholders or to internally reserve them for future reinvestments. Therefore, firms making active, much investment are more likely to pay voluntarily lower or zero dividends.

Hypothesis 2-1. Decisions to voluntarily pay lower dividends will relate positively to growth opportunities.
Hypothesis 2-2. Decisions to voluntarily pay lower dividends will relate positively to capital expenditures and R&D expenditures.

3. Data and Model Specification

3.1. Sample

The sample period for our study ranges 1992-2013. Financial and stock data for sample firms are pooled from Compustat, CRSP, and ExecuComp databases. Financial data were pooled from Compustat North America, stock data from CRSP, and ownership data

from ExecuComp. We excluded financial and utility firm data (SIC 6000-6999, 4900-4999) for their deviant financial constitutions. The values for all the financial variables were winsorized at the 1st and 99th percentiles.

3.2. Model Specification

As briefly mentioned in the introduction, out of lower and zero dividend paying firms, this study classifies as ‘voluntarily lower dividend paying firms’ the ones that choose to pay lower (or zero) dividends even if they have the ability to pay enough dividends (Ko and Park, 2014). If their payout ratios (cash dividends paid to common and preferred stocks divided by net income: (DVP+DVC) / NI) are below the median in a given year and a given industry (two-digit SIC codes), the firms are classified simply as lower dividend paying firms (or, LND: Low or No Dividend). If their payout ratios are above the median, the firms are classified simply as higher dividend paying firms (or, HD: High Dividend).

At this point, lower dividend paying firms include both the ones inevitably paying lower, zero dividends for the lack of cash resources due to poor earnings and the ones voluntarily paying lower, zero dividends despite high earnings. Therefore, we need to further divide them.

We divide earnings before interest, taxes, depreciation and amortization by total assets (EBITDA / AT) for each sample firm at each year. If the result is above the median in a given year and a given industry, we classify it as high-income firm (or, HI: High Income). If the result is below the median, we classify it as low-income firm (LI: Low Income).

According to payout ratio and income, the ones belonging to high-income firms (HI) out of simply lower dividend paying firms (LND) are defined as ‘voluntarily lower dividend paying firms,’ because they chose to pay lower or zero dividends in spite of their high earnings (or, HILND: High Income Low or No Dividend). On the contrary, the ones belonging to low-income firms (LI) out of simply lower dividend paying firms (LND) are defined as ‘inevitably lower dividend paying firms,’ because they are not able to pay dividends for the lack of cash (or, LILND: Low Income Low or No Dividend). Finally,

more specifically, among firms paying no dividends (or, ND: No Dividend), the ones belonging to the high-income group are defined as 'voluntarily zero dividend paying firms' (or, HIND: High Income No Dividend) and the ones belonging to the low-income group are defined as 'inevitably zero dividend paying firms' (or, LIND: Low Income No Dividend). We can visualize them in the following lattice. The shaded areas are of our interest.

<table>
<tr><td></td><td colspan="2">HI (High Income)</td><td colspan="2">LI (Low Income)</td></tr>
<tr><td>HD (High Dividend)</td><td colspan="2">High Income High Dividend</td><td colspan="2">Low Income High Dividend</td></tr>
<tr><td rowspan="2">LND (Low or no Dividend)</td><td colspan="2">High Income Low or No Dividend (HILND)</td><td colspan="2">Low Income Low or No Dividend</td></tr>
<tr><td>High Income Low Dividend</td><td>High Income No Dividend (HIND)</td><td>Low Income Low Dividend</td><td>Low Income No Dividend</td></tr>
</table>

We establish the following logistic regressions to examine the effects of firm characteristics on 'voluntarily lower dividend paying phenomenon.'

$$\log\left(\frac{prob(NDR)}{1-prob(NDR)}\right) = \beta_0 + \beta_1 Overconfidence + \beta_2 OWN + \beta_3 MB + \beta_4 CAPEX + \beta_5 RND + \beta_6 SIZE + \beta_7 RISK + \beta_8 LEV + \beta_9 AGE + \beta_{10} LRE + \beta_{11} IndustryHHI + \varepsilon \quad (1)$$

$$\log\left(\frac{prob(NDR\_HP)}{1-prob(NDR\_HP)}\right) = \beta_0 + \beta_1 Overconfidence + \beta_2 OWN + \beta_3 MB + \beta_4 CAPEX + \beta_5 RND + \beta_6 SIZE + \beta_7 RISK + \beta_8 LEV + \beta_9 AGE + \beta_{10} LRE + \beta_{11} IndustryHHI + \varepsilon \quad (2)$$

$$\log\left(\frac{prob(NDR\_LP)}{1-prob(NDR\_LP)}\right) = \beta_0 + \beta_1 Overconfidence + \beta_2 OWN + \beta_3 MB + \beta_4 CAPEX + \beta_5 RND + \beta_6 SIZE + \beta_7 RISK + \beta_8 LEV + \beta_9 AGE + \beta_{10} LRE + \beta_{11} IndustryHHI + \varepsilon \quad (3)$$

To explain dependent variables, prob(LND) from the equation (1) denotes the dividend probability of firm i at year t categorized as LND (Low or No Dividend). The variable LND has the value of 1 if the firm's payout ratio (cash dividends paid to common and preferred stocks divided by net income: (DVP+DVC) / NI) is smaller than the median from a given

year and a given industry and the value of 0 if otherwise. The distribution of LNDs follows a logistic function.

prob(HILND) from the equation (2) denotes the dividend probability of firm i at year t categorized as HILND (High Income Low or No Dividend). The variable HILND has the value of 1 if the firm is ‘a voluntarily lower dividend payer’ considering the median from a given year and a given industry and the value of 0 if otherwise. The distribution of HILND follows a logistic function. prob(HIND) from the equation (3) denotes the dividend probability of firm i at year t categorized as HIND (High Income No Dividend). HIND has the value of 1 if the firm is ‘a voluntarily zero dividend payer’ considering the median from a given year and a given industry and the value of 0 if otherwise. HIND follows a logistic function.

Now we discuss explanatory variables. Overconfidence from the equations (1), (2), and (3) is the variable to test the relationship between CEO overconfidence and ‘voluntary lower dividend paying.’ Following Malmendier and Tate (2005), we regard a CEO as overconfident if the value of his unit stock option ends up in-the-money with a probability over 67% at year-end (calculation with ExecuComp codes: (OPT_UNEX_EXER_EST_VAL / OPT_UNEX_EXER_NUM)-1) and nevertheless the CEO does not exercise his options. We give the value of 1 if the CEO is overconfident and the value of 0 if otherwise. Hsieh et al. (2014) regards a CEO as overconfident if under the same condition the CEO does not exercise his options at least twice or more in the data period. However, our study accepts Malmendier and Tate’s (2005) way of measuring CEO overconfidence.

OWN is the variable to test the relationship between CEO ownership (percentage of outstanding shares owned by the CEO) and ‘voluntary lower dividend paying’ (calculation with Compustat and ExecuComp codes: (shares owned - options excluded (SHROWN_EXCL_PTS) + unexercised exercisable options (OPT_NEX_XER_UM) + unexercised unexercisable options (OPT_NEX_NEXER_UM)) / common shares outstanding (CSHO)).

As we test the relationship between growth opportunities, viz. investment rate, and 'voluntary lower dividend paying,' we calculate MB, a proxy for growth or investment opportunities, as the market value of the equity plus the book value of the assets minus the book value of the equity, all divided by the book value of the assets (Compustat codes: [AT + (CSHO*PRCC_F) – CEQ] / AT). CAPEX, a proxy for investment rate, indicates the rate of investment on fixed assets (Compustat codes: CAPX / AT). RND, another proxy for investment rate, indicates the rate of investment on R&D (Compustat codes: XRD / AT).

SIZE, measured as the natural logarithm of total assets (ln(AT)), is the variable to test firm size and 'voluntary lower dividend paying.' RISK, measured as the standard deviation of the ratio of EBITDA to total assets over the sample period, tests the relationship between firm risks and 'voluntary lower dividend paying.'

LEV represents leverage (Compustat codes: (DLC+DLTT) / AT), AGE represents firm age and is calculated as the natural logarithm of the number of years since the firm's IPO date, and LRE represents the beginning of retained earnings and is calculated as retained earnings at year t-1 divided by total assets at year t (Compustat codes: RE_{t-1} / AT_t).

The explanatory variable IndustryHHI is a proxy for market competition. It is measured as Herfindahl-Hirschman Index (Tirole, 1988; Grullon and Michaely, 2007; Giroud and Mueller, 2011). Herfindahl-Hirschman Index (HHI) is computed as the sum of the squared market shares of individual firms within an industry (following 2-digit SIC codes) for each accounting year. A market share of an individual firm, before squared, is calculated as the sales of the firm divided by the total sales of the industry.

$$HHI_{jt} = \sum_{i=1}^{N} S_{ijt}^2$$

From this equation, S indicates firm i's market share within industry j at year t. A firm's high HHI means that the firm belongs to a relatively less competitive market, whereas a firm's low HHI means that it belongs to a relatively more competitive market.

4. Empirical results

4.1. Descriptive statistics

Table 1 reports descriptive statistics for the variables from the regression equations. Panel A compares simply lower (LND) and higher dividend paying firms (HD) from the entire pool of samples, and Panel B compares 'voluntarily lower dividend paying firms' (HILND) and 'inevitably lower dividend paying firms' (LILND) from the subsamples of simply lower dividend paying firms (LND). The entire samples for our study contain 13,220 firm-years. LNDs contain 7,656 firm-years and HILNDs out of LNDs are 4,739 firm-years. HILNDs take up 36% of the entire samples and 62% of the LND samples.

Here Table 1.

First of all, let's look at firm characteristics of LNDs and HDs from Panel A. Except for CAPEX, LNDs and HDs show significant mean differences on all the characteristics. LNDs show significantly lower CEO overconfidence (Overconfidence), higher CEO ownership (OWN), higher growth opportunities (MB), higher R&D expenditure (RND), smaller firm size (SIZE), higher firm risk (RISK), lower leverage (LEV), younger firm age (AGE), lower retained earnings (LRE), and lower HHIs (IndustryHHI) than HDs.

Panel B reports that HILNDs have significantly higher CEO overconfidence, higher CEO ownership, higher capital expenditure on fixed assets (CAPEX), higher growth opportunities, lower R&D expenditure, larger firm size, lower firm risk, lower leverage, younger firm age, higher retained earnings, and lower HHIs than LILNDs. From these descriptive statistics, we recognize that HILNDs are obviously different from LILNDs.

4.2. Determinants on the voluntary low or no dividend

In this section, we regress, first of all, firm and other characteristic upon LNDs (over against HDs) (Model (1)). Next, we regress these characteristics on HILNDs (Model (2)) and finally, more specifically, on 'voluntarily zero dividend paying firms' (HIND: High Income No Dividend).[1] The test results are reported on Table 2.

Here Table 2.

Model (1) reports that CEO overconfidence has coefficient at no significant level and, therefore, we find that our result contradicts Deshmukh et al. (2013) reporting that CEO overconfidence affects dividend payouts negatively. Models (2) and (3) report that CEO overconfidence has significantly positive effect on HILND and HIND. These indicate that the overconfident CEOs of HILNDs, paying lower or zero dividends due to high growth opportunities, will consider external financing as far more costly and thereby try to increase cash reserves and decrease dividend payouts. Therefore, our results support Hypothesis 1-1.

Next, Model (1) reports that CEO ownership does not have coefficient at a significant level. Our result contradicts Rozeff (1981) who reports that CEO ownership relates negatively to payouts. However, our result is in line with Chay and Suh (2009) who report that in most countries insider ownership and payout have nothing significant to do with each other. Models (2) and (3) make sure that CEO ownership has significantly negative effect on HILND and HIND.

Now, the interaction of CEO overconfidence and CEO ownership comes to the fore. Model (1) reports that the interaction term has significantly positive coefficient. This indicates that, when the CEO is overconfident, he decreases dividend payouts as his ownership increases. Moreover, Models (2) and (3) report that the interaction coefficient is significantly positive in general and HILNDs rather than LNDs, HINDs rather than

[1] Model (1) aims to compare the general firm and other characteristics between HDs and LNDs. From the entire pool of samples, we classify firms as LNDs and give the dummy value of 1if their payout ratios are below the median within a given year and a given industry, and classify firms as HDs and give the dummy value of 0 if otherwise. In Model (2), from the entire pool of samples, we give the dummy value of 1 if it is a HILND and the dummy value of 0 if otherwise. In Model (3), from the entire pool of samples, we give the dummy value 1 if it is a HIND and 0 if otherwise.

HILNDs, have larger coefficient values. That is to say, overconfident CEOs cognize that his and shareholders' interests coincide all the more, as his ownership increases, and the costs of external financing would be all the more expensive. Overconfident CEOs will choose either HILND or HIND. These results support Hypothesis 1-2.

Concerning MB the proxy for growth and investment opportunities, Model (1) reports that it has significantly negative coefficient; the more growth opportunities, the more dividend payout. This result contradicts the claim that MB relates negatively to dividend payouts because firms with much growth and investment opportunities lack cash reserves (Rozeff, 1984; Smith and Watts, 1992; Fama and French, 2001; DeAngelo, DeAngelo and Stulz, 2006). Nevertheless, our result more or less corresponds to Chay and Suh's (2009) report that MB and payout do not relate significantly to each other in most countries. Models (2) and (3) report that MB has significantly positive coefficients; therefore, firms with more growth opportunities are more likely to choose either HILND or HIND. This supports Hypothesis 2-1. To rephrase, firms with more growth opportunities generally choose HD policy, on the one hand, but sometimes choose HILND or HIND policy, on the other, in which they decrease, or minimize, dividends for future investments even if they are able to pay dividends.

CAPEX is a proxy for the rate of investment on fixed assets and RND a proxy for the rate of investment on R&D. Model (1) reports that CAPEX and RND have significantly positive coefficients, which shows that investment expenditures have negative effect on dividend payouts. Models (2) and (3) report that CAPEX has significantly positive effect on HILND and HIND and thereby support Hypothesis 2-2. In both Models, however, RND has significantly negative effect on HILND and HIND and thereby does not support Hypothesis 2-2. Therefore, we can understand that 'voluntarily lower dividend paying' decisions work positively on investments on fixed assets but, in turn, negatively on investments on R&D that lacks in tangibility and brims with risks, compared with fixed assets.

In Model (1), SIZE has significantly negative coefficient. Firm size relates negatively to dividend payout. In Models (2) and (3), again, SIZE turns out to have significantly negative coefficients. The smaller firm size, the more HILND and HIND.

RISK from Model (1) has significantly positive coefficient. The higher the firm risk, the smaller dividend payout (Bhattacharya, 1979; John and Williams, 1985; Miller and Rock, 1985; Kale and Noe, 1990). In Models (2) and (3), the coefficients of RISK do not turn out significant.

From Model (1), leverage (LEV) turns out to have significantly negative coefficient. The more leverage, the more dividend payout. From Models (2) and (3), leverage does not have any significant relations to HILND or HIND.

From Model (1), firm age (AGE) has significantly negative coefficient. That is to say, older firms are likely to pay more dividends. Models (2) and (3) report that firm age has significantly negative coefficients and thereby it becomes apparent that younger firms are more likely to choose HILND or HIND.

LRE is a proxy for the beginning of retained earnings. LRE from Model (1) has significantly negative coefficient and therefore, as LRE increases, dividend payout increases. According to Models (2) and (3), LRE has significantly positive coefficients and therefore, as LRE increases, firms turn out more likely to choose HILND or HIND.

IndustryHHI is a proxy for market competition. Model (1) reports a significantly negative coefficient on IndustryHHI. This implies that, as IndustryHHI increases (market competition decreases), dividend payout increases. This statistical result shows that the 'substitution model' claiming higher market competition (lower IndustryHHI) leading to lower dividend payouts wins over the 'outcome model' claiming it leading to higher dividend payouts. Models (2) and (3) show significantly negative coefficients on IndustryHHI. Once again, this implies that, as market competition increases (IndustryHHI decreases), firms are more likely to choose HILND or HIND.

4.3. Performances of the voluntarily lower dividend paying firms

In this section, we examine the consequential operating performance of those voluntarily lower dividend paying firms. As we pointed out, they are supposed to reserve cash resources for investments for sustained growth.

Here Figure 1.

Here Table 3.

Figure 1 and Table 3 present the operating performance of firms HD, LND, HILND, HIND, and LILND altogether.[2] The performance of HDs, measured as EBITDA divided by total assets at the moment of dividend policy decision (t=0), is 16.91% which is higher than the performance of LNDs, 11.83%. Moreover, the performances of HILNDs and HINDs that, having payout capability, minimize dividends for future investments are respectively 17.60% and 17.41%, which are higher than the performance of HDs, 16.91%. The performance of LILNDs that, having poor incomes, inevitably pay lower or zero dividends turns out to be 2.42%. If we look at the performance of HDs, LNDs, HILNDs, HINDs, and LILNDs at a year's elapse after dividend policy decision (t=1), all of them except LILNDs show worse performance than a year before. LILNDs show rather improved operating performance. Statistically cross-checking their operating performances, HDs and HILNDs outperform LNDs, HILNDs, and LILNDs. For example, HDs' profitability is 16.45% and it is higher than LNDs' 11.76% and also higher than HINDs' 15.99% at the 1% significance level (t-value=22.20, 2.68 respectively); however, it does not show any significant difference from HILNDs' 16.21% (t-value=1.41). Surprisingly, against our natural expectations, voluntarily lower (or zero) dividend paying firms turn out to have poorer operating performance than before a year's elapse and, even if we cross-check the 5 groups HD, LND, HILND, HIND, LILND, voluntarily lower dividend paying firms do not outperform HDs.

In order to interpret these counter-intuitive results, we apply to them signaling and agency models of dividend. One possible explanation out of such models is that positive

[2] Figure 1 and Table 3 present firms' operating performances ranging 3 years prior (t=-3) and posterior (t=3) to the moments of payout decisions. However, our study focuses on the time span of payout decision (t=0) and 1 year posterior to it (t=1). The reason is that, if a firm voluntarily paying lower dividends at t=0 once again voluntarily pays lower dividends at t=1, its operating performance at t=2 can possibly be the outcome of double effect absorbing decisions at t=0 and t=1.

signaling effect and decreased agency cost resulting from higher payout policy weigh much more than the effect of 'voluntarily lower dividend paying' policy. In this line of thought, the performance of higher dividend paying firms will turn out better than that of voluntarily lower or zero dividend paying firms. As we propounded earlier, the latter are regarded as having more growth opportunities, and actively, continuously investing in new projects. Therefore, investors expect their firm value increasing in the long run, even if they do not have immediate cash pay-ins. One might expect that, as dividend payouts and investment expenditures are made on such long-term discretion, the firms would have better future operating performance (the effect expected of voluntary lower dividend paying policy). However, it is reported that the market prefers much dividend paying firms and responds negatively to lower dividend paying ones. As firms pay lower levels of dividends or even omit dividends, it gives to the market negative signals concerning firms' future performance and signs of increased agency costs resulting from managers' hidden, private appropriation. Therefore, our empirical results lead us to suspect that the policy of higher dividend payouts involving positive signaling effects on firm value and alleviating effects on agency costs dominates the policy of 'voluntary lower or zero dividend payouts,' as we try to explain firms' consequentially better operating performance.

5. Concluding remarks

'Voluntarily lower dividend paying firms' (or, HILND) are defined as those whose incomes are above the median but whose payouts are below the median within a given industry and in a given year. The characteristics of these firms are apparently different from those of others. Controlling for the firm-level variables known to affect dividend payouts from traditional dividend models, we additionally tested CEO overconfidence and market competition (HHI). Overconfident CEOs are more likely to choose HILND or even 'voluntary zero dividend paying' (or, LIND) policy and this likelihood will be even stronger with interaction with CEO ownership. Firm age and firm size have negative effects, but growth opportunities have positive effect, on firms' HILND and LIND choices. That is,

smaller and younger firms with more growth opportunities are more likely to be ‘voluntarily lower dividend paying’ ones. Moreover, HILND and LIND firms relate significantly positively to capital expenditure on fixed assets, but significantly negatively to capital expenditure on R&D. This implies that ‘voluntarily lower dividend paying firms’ take negative attitude towards R&D investments that are intangible and risky. Firm risk and leverage do not relate significantly to HILND or LIND. Higher market competition, viz. lower HHI, turns out to relate significantly positively to firms’ HILND and LIND choices. This reassures the ‘substitution model,’ not the ‘outcome model,’ that a less competitive market has higher information asymmetry and firms tend to pay more dividends for reputation building. Finally, ‘voluntarily lower dividend paying firms’ have better operating performance.

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Table 1. Summary statistics

Panel A. Lower dividend paying firms (LND) versus higher dividend paying firms (HD)					
	LND (n=7,656)		HD (n=5,564)		Mean tests
	Mean	SD	Mean	SD	t-Stat
$Overconfidence$	0.699	0.459	0.823	0.382	-16.44***
OWN	0.039	0.049	0.024	0.041	18.97***
$CAPEX$	0.051	0.045	0.051	0.035	-0.07
MB	2.341	1.571	2.065	1.083	11.3***
RND	0.070	0.073	0.032	0.038	35.23***
$SIZE$	6.620	1.395	7.909	1.582	-49.57***
$RISK$	0.141	0.073	0.088	0.043	48.24***
LEV	0.159	0.174	0.214	0.143	-19.23***
AGE	2.451	0.791	3.058	0.693	-45.90***
LRE	-0.055	0.774	0.328	0.286	-35.15***
IndustryHHI	0.105	0.099	0.112	0.106	-4.00***
NYSE	0.361	0.480	0.797	0.402	-55.11***
AMEX	0.007	0.084	0.005	0.068	1.83**
NASDAQ	0.632	0.482	0.198	0.399	54.80***

Panel B. Voluntarily lower dividend paying firms (HILND) versus inevitably lower dividend paying firms (LILND)					
	HILND n=4,739		LILND n=2,917		Mean tests
	Mean	SD	Mean	SD	t-Stat
$Overconfidence$	0.817	0.387	0.507	0.500	30.37***
OWN	0.040	0.052	0.038	0.045	1.69**
$CAPEX$	0.056	0.047	0.042	0.040	12.64***
MB	2.666	1.639	1.813	1.290	23.91***
RND	0.064	0.064	0.079	0.086	-8.89***
$SIZE$	6.708	1.314	6.477	1.506	7.06***
$RISK$	0.131	0.067	0.156	0.080	-14.87***
LEV	0.150	0.168	0.175	0.182	-6.09***
AGE	2.431	0.783	2.483	0.802	-2.77***
LRE	0.078	0.583	-0.270	0.973	19.59***

IndustryHHI	0.101	0.092	0.113	0.109	-5.20***
NYSE	0.366	0.482	0.354	0.478	1.07
AMEX	0.006	0.079	0.009	0.092	-1.13
NASDAQ	0.628	0.483	0.638	0.481	-0.87

Table 2. Determinants of voluntarily lower dividend paying firms

Model (1) aims to compare the general firm and other characteristics between HDs and LNDs. From the entire pool of samples, we classify firms as LNDs and give the dummy value of 1if their payout ratios are below the median within a given year and a given industry, and classify firms as HDs and give the dummy value of 0 if otherwise. In Model (2), from the entire pool of samples, we give the dummy value of 1 if it is a HILND and the dummy value of 0 if otherwise. In Model (3), from the entire pool of samples, we give the dummy value 1 if it is a HIND and 0 if otherwise.

	Model (1)		Model (2)		Model (3)	
	LND		HILND		HIND	
	Coef.	P>z	Coef.	P>z	Coef.	P>z
$Overconfidence$	0.0547	0.41	0.5637	0.00	0.5432	0.00
OWN	-0.1644	0.87	-2.0214	0.03	-2.6280	0.00
$Overconfidence \times OWN$	2.4605	0.03	3.7272	0.00	4.4342	0.00
$CAPEX$	3.1045	0.00	8.1742	0.00	8.0531	0.00
MB	-0.0597	0.00	0.2108	0.00	0.2089	0.00
RND	6.7100	0.00	-1.7137	0.00	-1.6414	0.00
$SIZE$	-0.2150	0.00	-0.1295	0.00	-0.1330	0.00
$RISK$	7.5226	0.00	0.1433	0.72	0.2953	0.47
LEV	-0.7802	0.00	-0.1042	0.48	0.0189	0.90
AGE	-0.7065	0.00	-0.5185	0.00	-0.5437	0.00
LRE	-1.2689	0.00	0.1535	0.00	0.1638	0.00
IndustryHHI	-1.4518	0.02	-1.0585	0.07	-1.5548	0.01

Table 3. Operating performance

Figure 1 and Table 3 present firms' operating performances ranging 3 years prior (t=-3) and posterior (t=3) to the moments of payout decisions. However, our study focuses on the time span of payout decision (t=0) and 1 year posterior to it (t=1). The reason is that, if **a firm** voluntarily paying lower dividends at t=0 once again voluntarily pays lower dividends at t=1, **its** operating performance at t=2 can possibly be the outcome of double effect absorbing decisions at t=0 and t=1.

Panel A. Profitability over time

	-3	-2	-1	0	1	2	3
HD	16.67%	16.67%	16.78%	16.91%	16.45%	16.09%	15.88%
LND	11.83%	11.79%	11.78%	11.83%	11.76%	11.61%	11.52%
HILND	15.29%	15.69%	16.49%	17.60%	16.21%	15.24%	14.83%
HIND	15.12%	15.49%	16.30%	17.41%	15.99%	15.01%	14.61%
LILND	6.58%	5.76%	4.27%	2.42%	4.31%	5.46%	5.85%

Panel B. Mean difference test

t=0						t=1					
HD (n=5,561)		LND (n=7,645)		Diff.	t-value	HD (n=4,800)		LND (n=6,463)		Diff.	t-value
MEAN	SD	MEAN	SD			MEAN	SD	MEAN	SD		
0.1691	0.0015	0.1183	0.0009	0.0508	25.79***	0.1645	0.0010	0.1176	0.0017	0.0470	22.20***
HD (n=5,561)		HILND (n=4,739)		Diff.	t-value	HD (n=4,800)		HILND (n=4,044)		Diff.	t-value
MEAN	SD	MEAN	SD			MEAN	SD	MEAN	SD		
0.1691	0.0009	0.1760	0.0012	-0.0069	-4.65***	0.1645	0.0010	0.1621	0.0015	0.0024	1.41
HD (n=5,561)		HIND (n=4,516)		Diff.	t-value	HD (n=4,800)		HIND (n=3,850)		Diff.	t-value
MEAN	SD	MEAN	SD			MEAN	SD	MEAN	SD		
0.1691	0.0009	0.1741	0.0012	-0.0051	-3.39***	0.1645	0.0010	0.1599	0.0015	0.0047	2.68***
HILND (n=4,739)		LILND (n=2,906)		Diff.	t-value	HILND (n=4,044)		LILND (n=2,419)		Diff.	t-value
MEAN	SD	MEAN	SD			MEAN	SD	MEAN	SD		
0.1760	0.0012	0.0242	0.0028	0.1517	57.05***	0.1621	0.0015	0.0431	0.0032	0.1189	38.20***

Figure 1. Operating performance