

How Relevant is Dividend Policy under Low Shareholder Protection?

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Abstract - This paper reopens the debate on why firms pay lower dividends in the stakeholder-oriented governance regimes of Continental Europe than in the market-oriented Anglo-American world. Previous studies observe the concentrated ownership structures of Continental European firms, and infer that in the presence of a large controlling shareholder, dividends need not function as an agency control device. We examine the typical stakeholder-oriented regime of the Netherlands, and find that (i) the payouts of Dutch firms are low due to their habitual use of powerful anti-shareholder provisions, and that (ii) dividends and shareholder control are *complementary* rather than *substitute* mechanisms in mitigating agency concerns. We find no evidence that controlling shareholders would allow firms to relax their dividend behavior. On the contrary, they demand higher rather than lower dividends to counterbalance the negative impact of anti-shareholder provisions and ensure greater focus on shareholder value. Moreover, the highest dividends are actually paid by firms controlled by corporate insiders, along with institutional investors with superior monitoring skills and incentives. These findings are unlikely to be specific to the Netherlands and could possibly be extended to other stakeholder-oriented regimes.

Keywords: Dividend policy; corporate governance; anti-shareholder provisions; ownership and control.

JEL Classification: G35, G32, G30

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1. Introduction

The agency literature attributes an important control function to dividends in mitigating managerial discretion, and as such regards dividend policy as part of the firm's optimal monitoring/bonding package (Rozeff, 1982). Jensen (1986) describes how dividends reduce free cash flow which management would otherwise divert for personal use or to fund unprofitable projects. Easterbrook (1984) adds that the cash flow commitments imposed by dividends payouts may force management to raise external capital for new projects, thereby inflicting market discipline on the firm.

Why firms pay lower dividends in the stakeholder-oriented governance regimes of Continental Europe than in the market-oriented Anglo-American world, is one of the great puzzles of the comparative corporate governance literature. Previous studies observe the highly concentrated ownership structures of Continental European firms, and propose two alternative explanations rooted in agency theory. On one hand, Goergen, Renneboog and Correia da Silva (2005) view dividends and shareholder control as substitute devices in mitigating managerial agency costs. Then, dividends should be lower in the presence of a large controlling shareholder, because they need not constitute an additional control device and would lead to unnecessary liquidity constraints. On the other, Gugler and Yurtoglu (2003) argue that low dividends may additionally be explained by the agency conflict between the large controlling shareholder and small minority shareholders. In this interpretation, if the incumbent shareholder is sufficiently powerful, it withholds dividends to expropriate minority investors for its private benefit.

This paper reopens the debate on the relationship between dividends and shareholder control, by examining whether firms' dividend behavior is affected by their use of anti-shareholder provisions. The argument that Continental European firms pay low dividends because they have large controlling shareholders is clearly incomplete. It is a well-known fact that firms in stakeholder-oriented governance systems often adopt anti-shareholder devices which violate the one-share-one-vote rule. This may be symptomatic of the fact that they prioritize stakeholder interests over the maximization of shareholder value, and may actually be the key reason behind their low dividend payouts. If this is indeed the case, it is difficult to see why the presence of large shareholders would make dividends redundant as an agency control device. On the contrary, large shareholders should demand higher rather than lower dividends, in order to prevent being expropriated and ensure greater focus on shareholder

value. This argument implies that dividends and shareholder control are not *substitute* but *complementary* devices in mitigating agency concerns.

The stakeholder-oriented governance regime of the Netherlands is a natural choice for the investigation of these issues. Dutch firms are well-documented to pay low dividends and have highly concentrated ownership structures (La Porta et al., 2000). At the same time, most firms impose quite severe restrictions on shareholder control. Firstly, they often adopt poison pills and golden shares (called preference and priority shares), or simply replace ordinary voting shares with tradable non-voting depository receipts (called certificates). Secondly, once Dutch firms reach a certain size, they are actually required by law to adopt an institutional form called the structured regime, which formally strips shareholders of most of their rights. The occurrence of the structured regime and the three anti-shareholder devices is extremely common among Dutch listed firms; more than 90% restrict shareholder control one way or another, and over two thirds have at least two of these restrictions in place.

We use an extension of Lintner's (1956) partial adjustment model and random-effects panel probit regressions to investigate whether these shareholder power restrictions affect dividend behavior, and whether accounting for these challenges the substitutability of dividends and shareholder control as alternative control devices. The general patterns of Dutch dividend behavior are already very interesting. Dividend payouts tend to be low and fairly flexible, and are unrelated to reported earnings. Dutch firms formulate their dividend decisions based on operating cash flows instead, presumably to avoid liquidity constraints. Also, the actual dividend dynamics show no statistical relationship with the severity of agency problems as measured by firm size, leverage, and investment opportunities (Fama and French, 2001). Overall, it appears that Dutch firms interpret dividend policy fairly flexibly, and only to a limited extent do they pay dividends with the purpose of disgorging free cash flow. This may owe to the fact that many firms have large shareholders with powerful monitoring incentives, which makes dividends redundant as an agency control device. However, it is equally likely that firms often restrict shareholder control to an extent that shareholders are too weak to enforce optimal payout policies.

Our empirical results support this latter argument. Of the anti-shareholder devices, only preference shares have an adverse impact on dividend behavior. The scale of this problem is very substantial, however, because more than 70% of the sample firms use preference shares to restrict shareholder control. We find that the use of preference shares reduces both firms' target payout ratios and the extent to which firms smooth dividends over time. This is

unsurprising, given that these devices dilute shareholders' voting and cash flow rights simultaneously, to the benefit of management-friendly third parties.

We additionally find that firms which adopt the structured regime, and those Dutch multinationals which voluntarily retain it despite being exempted, pay lower dividends and smooth dividends to a lesser extent. Firms which only have to adopt a mitigated form of the regime because they are majority-owned by a foreign shareholder, show signs of being tightly monitored and do not relax their dividend behavior. Further analysis shows that firms under the full and voluntary regimes, which constitute nearly 60% of the sample firms, reduce their target payout both *ceteris paribus*, and because they are much more likely to use preference shares.

In light of these conditions, it is not surprising that we find no evidence that large controlling shareholders would allow firms to relax their dividend policy further. Once these restrictions on shareholder control are accounted for, we find that both the target payout ratio and the extent of dividend smoothing *increase* rather than *decrease* in the equity share of the largest shareholder. There is also little indication that dividend behavior in the Netherlands would be driven between the agency conflict between large shareholders and small minority shareholders. In other words, we find that firms relax their dividend behavior because of their habitual use of shareholder power restrictions, and the presence of a strong main shareholder actually forces them to increase their payouts to more optimal levels.

The relationship between the dividend dynamics and the identity of the large shareholders lends further support to this argument. We find that firms' target payout ratios are significantly higher when they are controlled by institutional investors with superior monitoring skills and incentives. In addition, we show evidence that share ownership by corporate insiders such as management and supervisory board members also leads to an increase in payout levels. Overall, these findings challenge much of the evidence presented in the prior literature, and suggest that dividends and shareholder control act as *complementary* rather than *substitute* devices in mitigating agency concerns. This finding is unlikely to be specific to the Netherlands, and could thus be extended to other stakeholder-oriented governance regimes.

The remainder of the paper is set out as follows. In Section 2 we provide an overview of the background literature, describe the Dutch governance regime, and formulate testable conjectures. A description of our sample and the methodology employed is provided in Section 3. The empirical results are discussed in Section 4. Finally, Section 5 allows for some concluding remarks.

2. Agency problems, payout policy, and the implications of the Dutch governance system

2.1. The agency control function of payout policy

From an agency perspective, corporate payout is generally viewed as a control device that helps reduce managerial discretion, and as such is part of the firm's optimal monitoring/bonding package (Rozeff, 1982). Easterbrook (1984) describes how regular dividend payments may force management to raise external capital for new projects, thus inflicting market discipline on the firm. Jensen (1986) adds that payout reduces free cash flow that managers may otherwise divert for personal use or to fund unprofitable projects. Dividends and share repurchases are alternative mechanisms in mitigating free cash flow concerns. However, dividends impose a more permanent cash flow commitment; managers believe that markets attach a premium to consistent dividend payers and interpret dividend cuts as a negative signal (Brav et al., 2005). That managers enter into dividend smoothing has been well-documented since Lintner (1956) and Fama and Babiak (1968), and has been attributed to the private control benefits enjoyed by management (Fudenberg and Tirole, 1995). Marsh and Merton (1987) and DeAngelo and DeAngelo (1990) observe that managers avoid dividend cuts at all costs, and prefer to leave dividends unchanged if a dividend increase would likely have to be reversed in the future. Accordingly, firms with permanently high operating cash flows tend to pay dividends, while those with greater non-operating or more volatile operating cash flows resort more to share repurchases (Jagannathan, Stephens and Weisbach, 2000).

The control function of corporate payout is evidently linked to the severity of the manager-shareholder conflict. Agency costs are assumed to be lowest in small firms with abundant growth prospects (Fama and French, 2001). In these firms, high payouts may lead to excessive reliance on external financing, which can exacerbate underinvestment risk (Myers, 1977) and harm the incumbent shareholders (Goergen, Renneboog and Correira da Silva, 2005). Agency problems may also be alleviated by alternative mechanisms which reduce the marginal control benefits of corporate payout. Fluck (1999) develops a model where the amount of dividends depends on the effectiveness of outside shareholders in disciplining management. The control function of payout may also be substituted by leverage and managerial ownership (Jensen, Solberg and Zorn, 1992), though the desired relationship with

the latter is non-monotonic due to managerial entrenchment concerns (Schooley and Barney, 1994; Morck, Shleifer and Vishny, 1988; Fenn and Liang, 2001).

Regarding the monitoring effectiveness of outside shareholders, several issues warrant consideration. Firstly, shareholders have better incentives and ability to monitor management when they hold large, concentrated equity blocks (Grossman and Hart, 1980). This suggests that when strong shareholders exert their power, dividends need not constitute an additional control device and may simply lead to unnecessary liquidity constraints and underinvestment risk (Goergen, Renneboog and Correia da Silva, 2005). Country-level studies show some evidence in this regard. Rozeff (1982) and Moh'd, Perry and Rimbey (1995) find that US firms with less dispersed ownership pay fewer dividends. The presence of strong shareholders or their coalitions also lowers payout levels in the UK and weakens the relationship between earnings and payout dynamics (Renneboog and Trojanowski, 2006). La Porta et al. (2000) provide a cross-country comparison and show that in the stakeholder-oriented governance regimes of Continental Europe where ownership structures are more likely to be concentrated, dividend payouts are generally lower and more flexible than in the market-oriented Anglo-American world.

Secondly, controlling shareholders may be efficient monitors, but like management, they may also keep payout levels low to expropriate minority shareholders. Expropriation by insider shareholders is more relevant an issue in Continental European countries where the legal protection of minority shareholders is low and firms often adopt anti-shareholder devices that violate the one-share-one-vote rule (La Porta et al., 2000). Faccio, Lang and Young (2001) argue that rational investors may anticipate expropriation and demand higher dividends from firms that are more likely to expropriate them. Still, minority shareholders may only be able to force higher payouts if they are sufficiently powerful or if firms have reputational needs to access capital markets (Bulow and Rogoff, 1989). Accordingly, Faccio, Lang and Young (2001) find that in Continental Europe, payouts are higher when multiple large shareholders are present. For Germany, Gugler and Yurtoglu (2003) also report that payout levels decrease in the power of the largest shareholder but increase in the power of the second largest shareholder. For the UK where the protection of minority shareholders is reasonably strong, Renneboog and Trojanowski (2006) do not report such patterns.

And thirdly, payout levels are not invariant to the identity of the controlling shareholder because (i) some shareholder classes may be better monitors than others; and (ii) the payout policies they enforce can reflect their specific payout preferences. Financial institutions are often credited with having a comparative advantage in monitoring efficiency (Grossman and

Hart, 1980; Shleifer and Vishny, 1986). This translates into more flexible payout policies in institutionally controlled firms both in the UK (Renneboog and Trojanowski, 2006) and in Germany (Goergen, Renneboog and Correia da Silva, 2005)¹. Still, institutional investors tend to expect at least some level of payout, either because they enjoy a preferential tax treatment or due to tax asset-liability management considerations (Allen, Bernardo and Welch, 2000)². Accordingly, they prefer firms to pay dividends but without actually demanding higher payouts (Grinstein and Michaely, 2005; Renneboog and Trojanowski, 2005 and 2006).

Renneboog and Trojanowski (2006) find that in the UK, payout levels are in fact lowest in firms controlled by individual investors. Gugler (2003) reports similar results for Austria, and argues that individuals are better able and incentivized to monitor firms directly³. Gugler (2003) finds that payout levels are highest and smoothed the most in government-controlled firms. He attributes this to a double principal-agent problem, whereby steady dividend flows reflect greater managerial discretion to defend incumbency rents, and the efforts of ill-monitored politicians, to whom the managers are accountable, to keep their electorate happy. Both Gugler (2003) and Renneboog and Trojanowski (2006) characterize the dividend behavior of firms controlled by other non-financial firms as relatively normal. Gugler (2003) argues that these results are consistent with the expected ‘ranking’ of shareholder types in how efficiently they mitigate informational asymmetries and managerial agency costs. It is then surprising that managerial ownership, which Jensen, Solberg and Zorn (1992) regard as an alternative control device, does not have a meaningful impact on dividend policy either, as shown by Fenn and Liang (2001) for the US and Renneboog and Trojanowski (2006) for the UK.

¹ For Germany, Amihud and Murgia (1997) argue that if banks are also creditors to the firms they control, they may also favor lower and more flexible payouts to mitigate bankruptcy risks.

² Elton and Gruber (1970) and Litzenger and Ramaswamy (1982) report that investors in low tax brackets prefer high and those in high tax brackets prefer low dividends. Perez-Gonzalez (2002) later reports that tax reforms are followed by payout changes consistent with the tax-induced preferences of the largest shareholders. The tax position of major shareholders is shown to have an economically important effect in the UK and Canada by Bond, Chennels and Devereux (1996) and Eckbo and Verma (1994), respectively.

³ The preference of retail investors for dividends, as documented by Baker and Wurgler (2004) and Graham and Kumar (2006), is unlikely to apply to wealthy individuals with concentrated shareholdings.

2.2. Payout policy in the Netherlands: background and conjectures

The Dutch model of corporate governance, known as the 'polder model', is a stakeholder-oriented insider system typical of Continental European countries. In stark contrast with the shareholder orientation of Anglo-American governance regimes, the essence of this model is consensus seeking among the firm's various stakeholders, particularly between employers and employees⁴. The Dutch model fully complies with Franks and Mayer's (2001) definition of insider systems: the number of listed firms is relatively small, share ownership is highly concentrated, and takeover activity is minimal (Cools and van Praag, 2003). Dutch firms are also allowed considerable reporting discretion; enforcement is weak and tax accounting is formally separate from financial accounting (Alford et al., 1993; Ali and Hwang, 2000).

Typically of stakeholder-oriented governance regimes, Dutch firms often restrict shareholder control by using anti-shareholder devices which explicitly violate the one-share-one-vote rule. The provisions of Euronext Amsterdam allow the use of a maximum two out of three security types:

- *Preference shares* are Dutch-style poison pills which carry full voting rights. These shares are issued under takeover threat to a friendly trust office or outside investor. The purchaser pays only 25% of the nominal capital upfront, and the issue size can be up to 50% or even 100% of the firm's outstanding capital.
- *Priority shares* are similar to French or British 'golden shares'. They carry special voting privileges over issues such as merger approval, public offerings, the appointment of board members, charter amendments, and liquidation. They are usually sold to a friendly foundation.
- Finally, *certificates* are tradable depository receipts which carry full cash flow rights but no voting rights. They are issued in exchange for ordinary voting shares, which are then deposited with the issuer, the administration office (*Stichtingskantoor*). The administration office, always friendly to management, takes over all voting rights on the withdrawn ordinary shares and usually takes a voting majority.

⁴ A polder is a low-lying tract of land enclosed by dikes and often reclaimed from the sea. The term 'polder model' has been used to describe the (slow) decision making process in Dutch politics, where all parties have to be heard. Governance in the Netherlands is characterized by the tri-partite co-operation of employers' organizations, labor unions and the government in the Social Economic Council. Despite criticism, this model has often helped to diffuse labor conflicts and avoid strikes.

An important peculiarity of the Dutch governance regime is that it can additionally impose institutionalized restrictions on shareholder control. Once Dutch firms reach a certain size, they must switch to an institutional form called the *structured* (or '*structuur*') regime. The adoption of the structured regime is compulsory for limited liability firms once (i) their subscribed capital exceeds €11.4 million, and (ii) they employ at least 100 employees and have a legally installed workers' council in place. The immediate objective of the structured regime is to give workers' councils a role on the supervisory boards of large companies. However, it simultaneously strips shareholders of most of their tasks and responsibilities to the benefit of the supervisory board. The powers of the supervisory board are almost exhaustive, and include the approval of the annual accounts, the election of management and the election of the supervisory board itself (by way of co-optation). Shareholders may still vote on dividend policy and takeovers, but ultimately retain little role in holding management accountable. Accordingly, firms under the structured regime have been shown to smooth earnings more actively, report more conservatively and be less likely to meet or beat analyst expectations (Cuijpers, Moers and Peek, 2005).

The current law establishes a number of exemptions from the full adoption of the structured regime. Firms which are majority-owned by foreign entities can adopt a mitigated form of the regime. This model maintains co-optation but allows shareholders to vote on the annual accounts and the appointment of management. Firms are exempted entirely if they have more than 50% of their employees abroad or if they are majority-owned by a Dutch multinational under the structured regime. Still, most exempt firms retain a weaker form of the regime voluntarily, because its full elimination requires a statute amendment which the supervisory board can easily block (De Jong et al., 2005).

De Jong et al. (2005) find that the shareholder control restrictions implemented by the majority of Dutch firms tend to have considerable valuation effects. The authors report that both the full and voluntary forms of the structured regime and each anti-shareholder device are associated with lower firm values as measured by the market-to-book ratio. In most cases, Dutch firms do in fact use these mechanisms cumulatively, thereby imposing very severe constraints on shareholder control. Accordingly, annual shareholder meetings are met with a

great deal of apathy in terms of attendance, and management-sponsored proposals, including recommendations on payout policy, are rarely contested⁵.

2.2.1. The impact of shareholder power restrictions on dividend behavior

How the payout patterns of Dutch firms are affected by the shareholder power restrictions available to them should naturally be subject to a great deal of variation. Of the anti-shareholder devices, preference shares should have by far the most severe impact on dividend behavior. An important attribute of these securities is that they simultaneously dilute the voting and cash flow rights of common shareholders, leaving them with little leverage to force optimal payouts. The holders of preference shares are also unlikely to demand high dividends, both because they are management-friendly and because preference shares are cheap to acquire with only 25% of the nominal value payable upfront. Therefore, we conjecture that *firms using preference shares are less likely to pay dividends, and the dividends they pay are relatively low and unsmoothed*. In comparison, priority shares should have a far less pronounced effect on dividend behavior. These securities may potentially relax pressure on management to reimburse shareholders, but they otherwise obstruct shareholder control over very specific issues unrelated to dividend policy. Therefore, we make a similar but considerably weaker conjecture that *firms using priority shares are less likely to pay dividends, and the dividends they pay are relatively low and unsmoothed*. Finally, firms which issue certificates should actually have very strong incentives to pay and smooth dividends. A peculiarity of these instruments is that they carry full cash flow rights but no voting rights. Effectively, dividends in this case may be considered as compensation to the certificate holders who have given up their voting rights. Therefore, we conjecture that *firms using certificates are more likely to pay dividends, and the dividends they pay are relatively high and smoothed*.

One must equally distinguish the various forms of the structured regime in how they affect dividend behavior in the firms they are imposed on. We have mentioned that the structured regime still allows shareholders to vote on dividend policy. However, management recommendations on dividend payouts are typically put to vote in conjunction with other management-sponsored proposals and are almost always passed. Overall, this dictates that

⁵ De Jong, Mertens and Roosenboom (2004) examine 245 annual meetings between 1998 and 2002. They find that only 30% of shareholders were present at each meeting on average. Shareholders did not sponsor a single proposal, and of 1,583 management-sponsored proposals only 9 were rejected or withdrawn.

under the structured regime, dividend payouts should be relatively low and unsmoothed. Still, only under the full and voluntary forms of the regime are agency problems expected to be severely amplified. Under the mitigated regime, managers remain tightly controlled because (i) shareholders maintain the right to vote on the appointment of managers and (ii) the foreign majority owner has powerful monitoring incentives. Then, dividend payouts may be low and unsmoothed, but this may simply reflect the controlling shareholder trading off free cash flow concerns against the risk of underinvestment. Overall, we conjecture that *firms under the structured regime are less likely to pay dividends, and the dividends they pay are relatively low and unsmoothed. The reduction in dividends and dividend payout probability is greatest under the full and voluntary forms of the regime, and relatively smaller under the mitigated regime.*

2.2.2. The impact of ownership structure on dividend behavior

A complementary prediction on dividend policy, already made for the mitigated structured regime, is that dividends are low and flexible in the presence of a strong incumbent shareholder with powerful monitoring incentives. This argument assumes that when alternative agency mechanisms are at work, dividends need not constitute an additional control device and may simply lead to unnecessary liquidity constraints and underinvestment risk. However, there is certainly a risk that the incumbent shareholder keeps dividend payouts low in order to expropriate minority shareholders to its private benefit. Then, strong minority shareholders may actually force higher payouts in order to mitigate expropriation risk. Therefore, we conjecture that *the probability of dividend payouts and the level and smoothing of dividend payments (i) decreases in the equity stake of the largest shareholder and (ii) increases in the equity stake of the second largest shareholder.*

How the identity of the major shareholders affects dividend behavior is typically motivated in the existing literature by (i) clientele arguments and (ii) the monitoring skills and effectiveness of the various shareholder classes. In the case of the Netherlands, it is difficult to make predictions on the tax-based dividend preferences of shareholders, because most legal entities enjoy a preferential tax treatment on dividend income. It is especially notable that the dividends received by Dutch holding companies and non-financial firms are tax-free provided that they comply with the “participation exemption rules”⁶. The dividend tax rules applicable

⁶ To come within the “participation exemption rules”, Dutch companies must satisfy the following criteria:

- they must hold at least 5% of the subsidiary’s shares;

to large individual investors are also favourable, because once their equity interest reaches 5%, they pay a flat tax of 25% rather than the marginal income tax rate on dividend income⁷. In general, the Dutch tax rules also tend not to discriminate between dividends and realized capital gains.

As the tax-based dividend preferences of the various shareholder classes virtually coincide, the link between dividend behavior and the identity of the large shareholders should be based on each shareholder class's monitoring skills and individual cash flow needs. To the extent that dividends and shareholder control are indeed substitute mechanisms in mitigating agency concerns, we expect the following. Firstly, we conjecture that *firms controlled by financial institutions smooth dividends less, but are more likely to be dividend payers and the dividends they pay are relatively high*. As has been discussed, institutional investors are typically credited with having a comparative advantage in monitoring efficiency, but they otherwise expect consistent cash flow streams in the form of dividend income.

Secondly, we conjecture that *firms controlled by corporate insiders, individual investors, holding companies and non-financial firms are less likely to pay dividends, and the dividends they pay are relatively low and unsmoothed over time*. It is well-documented in the prior literature that insider ownership reduces the agency problem arising from the separation of ownership and control. Previous studies also show that agency concerns are mitigated very efficiently by wealthy private individuals due to their powerful incentives to monitor firms directly. Finally, holding companies and non-financial firms tend to hold their subsidiaries fairly closely, often in pyramidal structures, and be actively involved in their management.

And thirdly, we conjecture that *firms controlled by the government and foundations are more likely to be dividend payers, and the dividends they pay are relatively high and smoothed over time*. The dividend behavior of government-controlled firms should be driven by the double principal-agent problem identified earlier, whereby steady dividend flows reflect managerial discretion to defend incumbency rents and the efforts of ill-monitored politicians to keep their electorate happy. The relationship between dividends and foundations

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- they must hold the shares since beginning of fiscal year in which the exemption benefits are claimed;
 - the subsidiary must pay corporate tax on its profits; and
 - the parent company must be actively involved in the subsidiary's management.

⁷ Since the introduction of the Income Tax Act of 2001, individual investors with a less than 5% equity interest are assumed to have a taxable return of 4% on their shares and are not separately liable for income tax on the actual dividends they receive. This has reduced the marginal tax rate payable on dividends by most small investors, but is irrelevant in the context of the discussion presented here.

is not examined by previous studies, but these investors are typically assumed to have only fairly weak monitoring skills and incentives.

3. Data and methodology

3.1. Descriptive statistics

Our sample covers Dutch firms listed on Euronext Amsterdam and the new market NMAX over the period between 1996 and 2004. We exclude banks, insurance companies and other financial firms (SIC codes 6000-6900), because their financial reporting standards are different from those of the rest of the sample. We also exclude utilities (SIC codes 4900-4949), because their payout policies and access to external financing are regulated. Finally, we retain only those firms that are present for at least three years of the sample period in the Worldscope Disclosure dataset and the yearly stock exchange guide *Handboek Nederlandse Beursfondsen*. The final sample contains 150 firms with a total of 962 firm years, representing more than two thirds of Dutch listed non-financial firms and around 90% of the market capitalization of the Amsterdam Exchanges. Accounting data on each firm is gathered from the Worldscope database. To determine whether the firms operate under a particular type of the structured regime and whether they use anti-shareholder devices, we consult the Kluwer book *Monitoring Corporate Governance in Nederland 1998*. For those firms not included in this volume, we consult the annual reports.

Table 1 summarizes the financial characteristics of the sample firms in constant 2004 prices. The results show that the market value of the median firm is relatively high at €269.8 million. There is also considerable skewness in firm size; the mean market value is much higher still at €2.8 billion, driven by multinationals such as Royal Dutch Shell, Philips Electronics and Akzo Nobel. The mean and median book values of total assets are €2.0 billion and €274.1 million, respectively. It is notable that while the average market-to-book ratio is 3.64, the median is considerably lower at 1.89. The typical firm is reasonably profitable with a net income of €10.9 million and a return on assets (ROA) of 5.19%. The median level of operating cash flow is also relatively high at €21.6 million. The sample firms tend to be moderately levered, with the median debt-to-assets ratio at 0.23. Dividends are paid in 758 of the 962 firm years, and typically amount to €5.4 million.

(Insert Table 1 about here)

Table 2 examines the dividend behavior of the sample firms in greater detail. The results show that the proportion of dividend payers has been on the decline since the mid-1990s, falling from 88.0% in 1996 to 74.4% in 2004. The payout ratios of the dividend payers have followed a cyclical pattern. During the stock market rally between 1996 and 2000, dividends as a percentage of net income declined continually from an average 34.0% to 19.5%. Thereafter, they picked up again notwithstanding a temporary fall in 2002, and reached 41.1% in 2004. These patterns are not unlike those reported for the US, where dividend payouts were on the decline during the 1990s (Fama and French, 2001) but rebounded after the stock market decline during the early 2000s (Julio and Ikenberry, 2004)⁸. Dividend payouts as a percentage of operating cash flows exhibit similar trends but are more stable. Over the whole sample period, dividend payers paid out an average 28.7% of their net income and 15.2% of their operating cash flows. For the aggregate sample of payers and non-payers, the same figures are 17.5% and 11.4%, respectively. In their cross-country study, La Porta et al. (2000) report similar numbers for 1994, and conclude that Dutch firms generally pay lower dividends than do firms in the market-oriented governance regimes of the Anglo-American world.

(Insert Table 2 about here)

Table 3 illustrates the occurrence of shareholder power restrictions among the sample firms. The figures suggest that shareholder control tends to be severely limited in the Netherlands. Of the 150 firms, only 14 impose no limitations on shareholder rights, by neither operating under the structured regime nor using anti-shareholder devices. Nearly two thirds of the sample firms operate under the structured regime; the full and mitigated forms of the regime are legally imposed in 65 and 8 cases, respectively, while 24 firms retain the regime voluntarily. A staggering 126 firms employ anti-shareholder devices, and 70 use more than one. The use of preference shares (107) is by far the most common, followed by certificates

⁸ Fama and French (2001) and DeAngelo, DeAngelo and Skinner (2004) find that in the US, the proportion of dividend paying publicly listed firms declined to around 20% by 1999. Compared to the Netherlands, this figure appears to be extremely low and may at first glance suggest that Dutch firms are more likely to pay dividends *ceteris paribus*. However, it is important to recall that in stakeholder-oriented governance regimes such as the Netherlands, only relatively few firms go public, and these are much larger on average than their counterparts in the US. Indeed, the aforementioned US studies include more than 5,000 NYSE, AMEX and NASDAQ firms.

(46) and priority shares (43)⁹. Firms under each form of the structured regime are more likely to use and combine these securities, imposing cumulative restrictions on shareholder control.

(Insert Table 3 about here)

3.2. Share ownership

We hand-collect data on the ownership of the sample firms from the various editions of *Handboek Nederlandse Beursfondsen*. As these handbooks were published bi-yearly prior to 1999, we assign ownership changes to the correct year using information from the annual reports. Equity block ownerships exceeding 5% are classified into eight mutually exclusive categories: (i) corporate insiders (management and supervisory board members and their families); (ii) financial institutions (banks, insurance firms, investment and pension funds, venture capitalists); (iii) independent individuals; (iv) non-financial firms; (v) the government; (vi) foundations; (vii) holding companies; and (viii) administration offices. Individual and institutional investors are classified into the various categories based on *Handboek Nederlandse Beursfondsen*, the Amadeus database and the annual reports.

To approximate the influence of the various shareholder classes on corporate decision making, we follow Crespi and Renneboog's (2003) approach and construct a two-stage voting game. In the first stage, all shareholders of a particular type (e.g. all financial institutions) form a coalition. In the second stage, such coalitions participate in a voting game where the payout policy is decided upon. The two-stage approach advocated here is relevant due to similarities in the payout preferences and monitoring efficiency of investors of the same type. For instance, we have mentioned that institutional investors are generally regarded as having a greater relative preference for dividends over capital gains than do other investor types.

We use two alternative measures of shareholder influence: ownership concentration and Banzhaf power indices (Banzhaf, 1965). Banzhaf indices are voting power measures obtained by modeling voting games with policy-seeking motives (I-power). In effect, they capture the ability of shareholders to win voting games on dividend policy either by themselves or by forming voting coalitions. Recent empirical research has often used Shapley values instead to measure shareholder power (Shapley and Shubik, 1954; Milnor and Shapley, 1978). However, Leech (2002) argues that Shapley values are inappropriate in the context of shareholder

⁹ The use of the three anti-takeover devices is not correlated significantly, except a very mild negative correlation between priority shares and certificates.

voting, because they model voting games with the prize being the power itself (P-power).¹⁰ As the shareholder voting games can be regarded as oceanic, we employ a generalization of the Banzhaf value proposed by Dubey and Shapley (1979). Under some regularity conditions, such oceanic Banzhaf indices are calculated by taking the values for a modified, finite game consisting only of the major players, and making an appropriate adjustment for the required majority threshold (Felsenthal and Machover, 1998). Throughout the later analysis, both the ownership variables and Banzhaf indices are lagged by one period. We deem this necessary to eliminate any simultaneity bias, because specific payout policies may inherently attract investor clienteles and thus lead to endogeneity problems.

The distribution of the sample firms' ownership and the corresponding Banzhaf power indices of the sample firms are summarized in Table 4. The data show that ownership concentration is very high among Dutch listed firms, corresponding to similar figures reported for Germany by Correira da Silva, Goergen and Renneboog (2004). The largest blockholder holds the majority of ordinary shares in 35.9% of the 962 observations, and controls at least 25% of the shares in 54.6% of observations. Other shareholders tend to be comparatively weak. A second largest blockholder is present in 65.4% of observations, but only in 6.0% of all cases does it hold a blocking minority of at least 25%, a regulatory threshold in the Netherlands. A third largest blockholder is present in 46.4% of all observations. The mean value of the Banzhaf power indices is 98.6% for the largest blockholder, and only 1.4% for both the second and third largest blockholders.

(Insert Table 4 about here)

The results show that the widespread use of certificates lends a great deal of voting power to administration offices. Certificates are issued by less than a third of the sample firms, but those that do tend to withdraw the majority of their ordinary voting shares. Accordingly, administration offices appear as blockholders in only 22.3% of all observations, but they hold effective voting control in 21.9% and absolute voting majority in as many as 17.2% of these cases. Corporate insiders including executives and supervisory board members additionally hold equity blocks in 13.1% of observations, and have a mean Banzhaf index of 8.9%. Financial institutions constitute the most powerful class of outside shareholders. Institutional investors hold equity blocks in 57.8% of observations, and their coalitions have a mean

¹⁰ A detailed discussion about the differences in I- and P-power and the most appropriate voting games can be found in Felsenthal and Machover (1998).

Banzhaf index of 40.5% despite holding only 14.8% of ordinary shares on average. The other powerful classes are non-financial firms and holding companies, which hold equity blocks in 27.7% and 18.3% of all observations, and have mean Banzhaf indices of 12.6% and 7.6%, respectively. It is notable that similar to administration offices, holding companies hold absolute majority in nearly half of the firms they hold equity in. Independent individuals tend to be minority investors; they hold equity blocks in 11.5% of observations, but have a mean equity share of just 2.0% and a mean Banzhaf index of 4.3%. The Dutch government and foundations have relatively few equity interests but often tend to have a blocking minority in the firms they holds equity in.

3.3. Methodology

We conduct a two-stage multivariate analysis to investigate how dividend behavior is affected by shareholder power restrictions, ownership structures and other firm characteristics. First, we explain the likelihood that a firm pays dividends using *random-effects panel probit regressions*. In these models, the dependent variable equals 1 if a firm paid dividends in a particular year and 0 otherwise. The basic model includes a fixed set of regressors to control for firm-specific characteristics that include the current and lagged level of ROA, firm value, leverage, and investment opportunities as measured by the market-to-book ratio. In addition, we employ indicator variables corresponding to each shareholder power restriction and their interactions with ROA, and later include the ownership variables defined above. We also control for industry-specific and year-specific effects.

In the second stage, the actual dynamics of dividends are analyzed using an extension of Lintner's (1956) partial adjustment model. Lintner assumes that firms maintain a target payout ratio, and adjust ('smooth') payout only gradually to earnings shocks over several years. For any year t the dividend payout of firm i is assumed to be related to earnings Π_{it} by a desired payout ratio τ_i :

$$(1) \quad D_{it}^* = \tau_i \cdot \Pi_{it}.$$

In year t , firm i adjusts to the target dividend payout only partially, such that:

$$(2) \quad D_{it} - D_{i,t-1} = \alpha_i + \delta_i \cdot (D_{it}^* - D_{i,t-1}) + \varepsilon_{it},$$

where α_i is a constant, $D_{it} - D_{i,t-1}$ is the actual change in dividends, $D_{it}^* - D_{i,t-1}$ is the desired change in dividends, δ_i is the speed of adjustment and ε_{it} is the error term. Rearranging (2) and substituting (1) into (2) then yields

$$(3) \quad D_{it} = \alpha_i + (1 - \delta_i) \cdot D_{i,t-1} + \delta_i \cdot \tau_i \cdot \Pi_{it} + \varepsilon_{it}.$$

Our empirically testable model is formulated using (3) such that

$$(4) \quad D_{it} = \alpha_i + \beta_1 \cdot D_{i,t-1} + \beta_2 \cdot \Pi_{it} + \varepsilon_{it},$$

where α_i is the firm-specific effect, β_1 , and β_2 are model parameters, and ε_{it} is the error term.

Here, the implicit target payout ratio is given by $\tau_i = \frac{\beta_2}{1 - \beta_1}$, while the speed of adjustment is

$\delta_i = 1 - \beta_1$, or correspondingly the extent of dividend smoothing is β_1 . It is useful to point out that

the target payout ratio increases in both the 'smoothing' coefficient β_1 and the 'impact' coefficient β_2 . As before, we add to the basic model a fixed set of regressors to control for firm-specific characteristics i.e. firm size, leverage and the market-to-book ratio, and also control for industry and year effects. In order to test our conjectures pertaining to the impact of shareholder power restrictions and ownership structures, we later include as regressors interactions of the governance dummies and ownership variables with both $D_{i,t-1}$ and Π_{it} . Then, the sums of the smoothing and impact coefficients on $D_{i,t-1}$ and Π_{it} , respectively, define the target payout ratios and smoothing levels associated with each restriction and ownership characteristic.

The above partial adjustment specification constitutes a set of dynamic panel data models with the lagged dependent variable included as a regressor. Baltagi (2001) finds that in such a framework, traditional estimators such as the fixed-effects within-estimator may lead to severe biases in those specifications in particular where the time dimension of the panel is fairly small. Several GMM-type estimators have been proposed as more suitable alternatives. Arellano and Bond (1991) suggest a simple estimator based on a first-differenced equation where the differences are instrumented by lagged levels of the regressors. Blundell and Bond (1998) later improve on this estimation technique by including lagged differences of the dependent variable as instruments for equations in levels (in addition to using levels as instruments for the differences). We estimate the models applying this so-called GMM-in-systems estimator, using Stata's *xtabond2* module.

4. Empirical results

4.1. General patterns in dividend behavior

We begin the empirical analysis by observing some general patterns in Dutch dividend behavior. The probit and partial adjustment models in their basic form are depicted in Table 5 as Model (1a) in Panel A and Model (1b) in Panel B, respectively. The probit regression in Model (1a) shows that Fama and French's (2001) predictions on the drivers of dividend payout likelihood also hold for Dutch firms. We find that dividend payers, relative to non-payers, tend to be larger, more profitable, less levered, and have fewer growth opportunities. This suggests that the probability of a dividend payout increases in the severity of agency problems.

(Insert Table 5 about here)

However, the partial adjustment model in Model (1b) shows some striking peculiarities in the actual dynamics of dividend payout. We had to specify the model using operating cash flows rather than net income, because the latter shows no statistical relationship with dividends. This is a remarkable finding which contradicts Lintner's (1956) hypothesis that firms determine their desired payout ratios as a function of their after-tax earnings. Goergen, Renneboog and Correira da Silva (2004) find that operating cash flows better predict dividends in Germany as well¹¹. The authors propose two possible explanations for this result. On one hand, firms may shield their income from dividend commitments, and instead formulate their dividend decisions based on cash flows. On the other, it is possible that dividends are set as a function of earnings, but the published earnings figures are conservative and smoothed over time. For the Netherlands, the latter argument is weakened somewhat by the high earnings volatility reported in Table 1.

Secondly, it is notable that payout levels show no statistical relationship with firm size, leverage, and investment opportunities as measured by the market-to-book ratio. These results cast considerable doubt on the role of dividends in mitigating agency concerns in the Netherlands. In principle, this may support the argument that dividends need not constitute an additional control device when ownership structures are highly concentrated. However, it may

¹¹ Goergen, Renneboog, and Correira da Silva (2004) find that the relationship between net income and dividends only holds when the regression simultaneously controls for cash flow. Our results are invariant to such alternative specifications.

equally indicate that shareholders are simply too weak to enforce payout policies that optimize shareholder value (La Porta et al., 2000). Table 3 has shown that this is not an unreasonable assumption; over 90% of our sample firms limit shareholder rights in some way and more than two thirds impose cumulative restrictions on shareholder power.

And thirdly, it is noteworthy that the implied target payout ratio predicted by the partial adjustment model is considerably higher than those observed empirically. In Model (1b) of Panel B, the implied target payout is 38.5% of operating cash flow ($\tau_i = \frac{0.10}{1-0.74}$), which is a substantial departure from the average 11.4% reported in Table 2. The dividend smoothing practices of Dutch firms are insufficient to explain this discrepancy. In the model, the level of dividend smoothing is relatively high at $\beta_1=0.74$ (the speed of adjustment is correspondingly low at $1-0.74=0.26$), which is comparable to that reported for Germany by Goergen, Renneboog and Correia da Silva (2004). Still, it is likely that dividend policy in the Netherlands is largely driven by other determinants that Model (1b) does not control for. This further justifies extending our analysis by investigating the impact of shareholder power restrictions and ownership structures on dividend behavior.

4.2. The impact of shareholder power restrictions on dividend behavior

The remainder of Table 5 illustrates how the various shareholder power restrictions affect the dividend behavior of Dutch firms. The economic effects and how they correspond to the conjectures formulated in Section 2.2.1 are summarized in Table 6.

(Insert Table 6 about here)

4.2.1. The likelihood of dividend payout

In Panel A of Table 5, Models (2a) and (4a) show how the likelihood of a dividend payout is affected by the use of preference shares, priority shares, and certificates. Interestingly, none of these anti-shareholder devices reduce the propensity of firms to pay dividends, showing that the need for capital market access deters firms from stopping dividend payments completely. Still, the various securities do affect the extent to which payout likelihood is linked to profitability. To that end, each of our prior conjectures is confirmed. Firstly, the payout propensity of firms using preference shares declines rather than increases in ROA, which seems to be symptomatic of agency problems. Secondly, there is some indication that firms

using certificates are more likely to pay dividends at higher levels of profitability. And thirdly, priority shares have no discernible impact on payout likelihood.

Models (3a) and (4a) show the impact of each form of the structured regime on payout likelihood. Contrary to our prior conjecture, there is no evidence that imposition of the full structured regime would affect the propensity of firms to pay dividends. Furthermore, the large, internationally diversified firms that voluntarily retain the regime are actually more likely to opt for a dividend payout. These results suggest that firms under the full and voluntary forms of the structured regime avoid expropriating shareholders entirely. This corresponds to Bulow and Rogoff's (1989) argument that firms moderate expropriation if there is sufficient uncertainty about their future cash flows such that the option to access capital markets is always valuable. It is likely that this option is more valuable for the multinationals under the voluntary regime, because they tend to be more exposed to international capital markets. Also, these firms have relatively more dispersed ownership structures, which implies, in the spirit of Goergen, Renneboog and Correia da Silva (2005), that they should be more inclined to uphold dividend payments.

The payout propensity of firms under the mitigated structured regime exhibits different patterns that are consistent with tight control by the foreign majority owner. We confirm that these firms are less likely to pay dividends, but their payout likelihood is actually tied very strongly to their profitability (the interaction term is significant at the 1% level). This suggests that the controlling shareholder remains sufficiently strong to enforce payout policies that optimally balance free cash flow problems and underinvestment risk.

4.2.2. The dynamics of dividend payout

How the actual dynamics of dividend payout are affected by the shareholder power restrictions is shown in Panel B of Tables 5 and 6. Models (2b) and (4b) first illustrate the impact of the three anti-shareholder devices. Remarkably, the use of preference shares reduces the smoothing coefficient by a substantial 0.62 and the target payout ratio by 19.7%. This goes a long way in explaining why the dividend payouts of Dutch firms are typically low and flexible; Table 3 has shown that 107 out of the 150 sample firms use preference shares to restrict shareholder control.

Certificates and priority shares do not induce statistically significant changes in dividend behavior, as indicated by the Wald tests, but the change in the target payout ratio appears to be negative for certificates and positive for priority shares. That firms using certificates do not

pay higher dividends, or indeed smooth dividends more, shows that the holders of these securities are paid additional compensation for their lack of voting rights. In the case of priority shares, the insignificant positive change in the target payout is driven by a significant increase in the impact coefficient. This result coincides with our prior conjecture that these devices are the least likely to induce agency concerns.

Model (3b) shows how each form of the structured regime affects dividend behavior, without controlling for the three anti-shareholder devices. For the full and voluntary forms of the regime, our prior conjectures are fully confirmed. Firstly, these firms smooth their dividend payouts to a lesser extent. When the structured regime is not imposed, the smoothing coefficient on $D_{i,t-1}$ is $\beta_1=0.80$. Under the full and voluntary forms of the regime, however, this smoothing coefficient is reduced by 0.43 and 0.48, respectively. Secondly, the full and voluntary forms of the regime decrease the target payout ratio, at $\tau_i=45.0\%$ in firms not under the regime, by 37.1% and 36.2%, respectively. When the full regime is imposed, this decrease is driven by a reduction in both the smoothing coefficient β_1 and the impact coefficient β_2 ; under the voluntary regime, the change in the two coefficients is similarly negative, although the reduction in the impact coefficient is statistically insignificant. That dividend policy is overall different under the full and voluntary regimes, is confirmed by the Wald tests on the joint significance of the changes in the smoothing and impact coefficients.

That the structured regime instigates a reduction in dividend smoothing and the target payout ratio is not confirmed statistically for the mitigated form. Model (2b) shows that when the mitigated regime is imposed, the smoothing coefficient is lower by 0.59 and the target payout ratio by 23.5%, but these changes are statistically insignificant. This suggests that the tight control exerted by the foreign majority owner indeed mitigates the exacerbation of agency problems otherwise induced by the imposition of the regime.

The final Model (4b) shows that the relaxed dividend behavior of firms under the full and voluntary structured regimes is actually driven by their habitual use of anti-shareholder devices. We have shown earlier that of the firms under each regime, preference shares are used by 83% and 75%, respectively, and the same firms are also more likely to issue certificates. Once these devices are controlled for, the results still suggest that dividend behavior is changed by the imposition of the full and voluntary regimes, but the reduction in the target payout ratio declines to just 0.8% and 3.0%, respectively.¹² Also, we now find that

¹² The correlations between each form of the structured regime and the use of the anti-shareholder devices are low (in each case, they do not exceed 0.2) such that they do not induce multicollinearity in the model.

the source of the change in dividend behavior is different in the two regimes. Under the full regime, the impact coefficient is reduced, moving the target payout ratio downwards. However, the smoothing coefficient is actually higher, thus all else equal, these firms smooth dividends relatively more. For firms which retain the regime voluntarily, we find the opposite results: the impact coefficient is now higher but the smoothing coefficient remains reduced. It is not easy to fully explain these findings; one would expect that the Dutch multinationals under the voluntary regime would smooth dividends relatively more because of their greater reliance on global capital markets. Still, from the perspective of minority shareholders it is irrelevant whether the full and voluntary regimes change dividend behavior by their mere imposition, or by increasing the propensity of firms to use anti-shareholder devices.

4.3. Payout policy and the allocation of shareholder control

Having illustrated the impact of shareholder power restrictions on dividend behavior, we now explore the relationship between the payout patterns and firm ownership. Previous studies observe the similarly relaxed dividend behavior and highly concentrated ownership structures of German firms, and propose two key hypotheses for the relationship between the two. On one hand, Goergen, Renneboog and Correira da Silva (2005) infer that in the presence of a strong main shareholder, dividends are reduced because they need not function as an alternative agency control device. On the other, Gugler and Yurtoglu (2003) find that the payout levels of German firms actually increase in the presence of a strong second largest shareholder, and instead attribute low dividends payouts to the incumbent shareholders' expropriation of minority investors.

A key contribution of this paper is that it simultaneously examines the impact of ownership and shareholder power restrictions on dividend behavior. The previous results show that dividend payout is strongly related to the severity of the management-shareholder conflict, and that this relationship is actually negative rather than positive. In other words, firms relax their dividend behavior *unless* shareholders are strong enough to enforce optimal payout outcomes. This assertion is certainly more intuitive than that made by Goergen, Renneboog and Correira da Silva (2005) – after all, the level of free cash flow is unlikely to be affected by the mere concentration of control in the hands of a main shareholder. An important illustration of this issue is the payout patterns we have observed for the sample firms under the mitigated structured regime. We have found that even though these firms have powerful

foreign majority owners, they do not relax their dividend payout relative to other firms, and their payout probability is in fact linked very strongly to their profitability.

In the spirit of these results and the conjectures formulated in Section 2.2.2, we now investigate two important aspects of shareholder control: (i) the concentration of control in the hands of the two largest shareholders, and (ii) the concentration of control in the hands of specific shareholder classes. In the first case, control is measured by the percentage of share ownership. In the second, we additionally introduce the Banzhaf power indices described in Section 3.2. The comparison of the two measures is important, because they distinguish between the ability and incentives of shareholders to influence dividend decisions. The Banzhaf indices show whether a particular coalition of shareholders would be able to win a shareholder vote on the amount of dividends to be paid. However, they do not show whether the same shareholder coalitions would actually be prepared to bear the considerable costs of doing so. In comparison, the percentage of ownership is a reliable measure of shareholder incentives, assuming that the greater the equity blocks held by the shareholders, the greater their incentives to monitor management and enforce the optimal payout outcomes.

The results on how shareholder control affects dividend behavior are shown in Table 7 and summarized in Table 8. As before, Panels A and B analyze the likelihood of a dividend payout and the actual dividend dynamics, respectively.

(Insert Tables 7 and 8 about here)

4.3.1. The impact of ownership concentration

In Panel A of Tables 7 and 8, Models (1a) and (2a) show how the payout likelihood is affected by the concentration of control in the hands of the two largest shareholders. The results show only insignificant statistical evidence that payout propensity would decrease in the equity share of the largest shareholder. However, we do find that the likelihood of a payout increases in the equity share of the second largest shareholder. This result is consistent with the argument of Gugler and Yurtoglu (2003) that strong minority shareholders demand dividends to avoid being expropriated by the main incumbent shareholder.

In Panel B on the actual dividend dynamics, Model (1b) produces quite different results. We find that both the smoothing and impact coefficients decrease in the equity share of the largest shareholder, and the coefficient changes are also jointly significant. This suggests that both the target payout ratio and the extent of dividend smoothing are reduced substantially when a strong main shareholder is present, much in the same way that has been reported by

Gugler and Yurtoglu (2003) and Goergen, Renneboog and Correira da Silva (2005). However, we find no evidence that the dividend dynamics would be positively related to the equity share of the second largest shareholder. In fact, the results show an insignificant reduction in both dividend smoothing and the target payout ratio, which corresponds more to the results of Trojanowski and Renneboog (2006) for the UK and is inconsistent with Gugler and Yurtoglu's (2003) expropriation hypothesis.

Remarkably, the inclusion of the shareholder power restrictions in Model (2b) completely transforms the relationship between control concentration and the payout patterns. Once these devices are accounted for, we find that the target payout ratio and the extent of dividend smoothing are both related *positively* rather than *negatively* to the equity share of the largest shareholder. Moreover, the equity share of the second largest shareholder shows a similar but statistically insignificant relationship with the dividend dynamics. These results provide additional evidence that the dividend behavior of Dutch firms is ultimately driven by the severity of the management-shareholder conflict, and that the relationship between the two is actually negative rather than positive. In other words, firms relax their dividend behavior because of their habitual use of preference shares and other restrictions on shareholder power, and the presence of a strong main shareholder actually forces them to increase their payouts to more optimal levels. Overall, these findings challenge much of the evidence presented in the prior literature, and suggest that dividends and shareholder control act as *complementary* rather than *substitute* devices in mitigating agency concerns¹³.

4.3.2. The impact of the identity of large shareholders

The remainder of Tables 7 and 8 demonstrates how the identity of the large shareholders affects dividend behavior when the shareholder power restrictions are accounted for. The results are shown by the third and fourth models in both Panels A and B. It is useful to recall our prior conjectures based on Gugler (2003), Goergen, Renneboog and Correira da Silva (2005) and Renneboog and Trojanowski (2006). Each of these studies finds that the flexibility afforded firms in their dividend behavior increases in the expected 'ranking' of their shareholders in terms of their ability to mitigate agency problems. Accordingly, we expect the

¹³ A possible explanation to the differences between our results and those presented by prior studies is that the large shareholders influence dividend behavior indirectly, by controlling the firm's use of anti-shareholder devices. However, we find no evidence that this would be the case – the correlation between the use of the anti-takeover devices and control concentration is typically negative but never exceeds -0.20.

dividends payouts to be (i) smoothed relatively less when the controlling shareholders are financial institutions, the insiders of the firm, individual investors, holding companies, or non-financial firms; and (ii) smoothed relatively more when the controlling shareholders are the government or foundations. The same ranking should broadly apply to the probability of a dividend payout as well as the target payout ratios. However, we actually expect firms controlled by financial institutions to be more likely to pay dividends and have higher target payouts, due to the cash flow clientele considerations discussed in Section 2.2.2.

How the probability of a dividend payout relates to shareholder identity is shown in Models (3a) and (4a) of Panel A. The results confirm that firms controlled by institutional investors are considerably more likely to pay dividends in any given year. This finding is fully robust across the two models which measure shareholder control using the Banzhaf indices and the percentage of ownership, respectively. Otherwise, there is no indication that payout propensity would decrease in the monitoring ability of the various shareholder classes. On the contrary, Model (3a) shows marginal evidence that firms are *more* rather than *less* likely to pay dividends when corporate insiders or holding companies hold effective voting control. In Model (4a), the results are similar but statistically insignificant. This suggests that while these investors would win a possible shareholder vote on dividends, their incentives to exert control over dividend behavior is not strictly tied to the size of their equity interests. This is unsurprising in both cases. On one hand, corporate insiders are individual investors whose personal wealth is highly sensitive to their dividend income even when their equity blocks are relatively small. On the other, Table 4 showed that holding companies hold absolute majority in nearly half the firms they invest in. Therefore, an increase in their equity share may actually have little marginal impact on their incentives to force higher payouts.

Panel B shows how the identity of the large shareholders affects the actual dividend dynamics. Model (4b) confirms that firms with concentrated institutional owners smooth dividends to a lesser extent but otherwise have higher target payout ratios. The same results are insignificant in Model (3b), however. This suggests that financial institutions do not commit to the costly enforcement of their desired payout outcomes unless the size of their equity interests motivates them to do so. The remainder of Model (3b) provides additional evidence that the target payout ratio *increases* rather than *decreases* in the monitoring effectiveness of the large shareholders. The results confirm that corporate insiders actually force higher rather than lower payouts when they hold effective voting control. At the same time, the dividend behavior of firms controlled by foundations is relatively more rather than less relaxed, both in terms of the target payout ratio and the extent of dividend smoothing.

As before, none of the results presented here suggest that dividends and shareholder control are *substitute* devices in mitigating agency problems. On the contrary, we find some evidence that Dutch firms show more rather than less discipline in their dividend behavior when strong shareholders with superior monitoring skills are present. This suggests that a firm's dividend policy is in fact *complementary* to shareholder control, such that firms relax their dividend payouts unless strong shareholders with the appropriate incentives are present to force them otherwise.

4.4. Extensions and robustness checks

As an important extension of our analysis, we examine whether the dividend payouts of Dutch firms with outstanding American Depository Receipts (ADRs) are different from the rest of the sample. A related finding we have previously discussed is that the Dutch multinationals under the voluntary structured regime are more likely to pay dividends. If this is due to their greater reliance on international capital markets, it is possible that the cross-listing of Dutch firms in foreign markets, and especially the very stringent US market, exerts discipline on their dividend behavior. We compile the list of Dutch firms with outstanding ADRs using the Citigroup Universal Issuance Guide and the Citigroup Capital Raising database. We also consult the Amadeus database for cross-listings on other exchanges, and find that all Dutch firms with foreign listings have ADRs traded in the US market as well. Based on Litvak (2007), we distinguish between Level I and IV ADRs which require only minimal or no review by the US Securities and Exchange Commission (SEC), and Level II and III ADRs which require extensive compliance with the SEC's stringent reporting requirements and the Sarbanes-Oxley Act of 2002.

The results show that during the sample period, a total of 9% of the sample firms had Level II or III ADRs, and an additional 10% had Level I or IV ADRs outstanding. Surprisingly, we find that only about a quarter of the firms under the voluntary structured regime have issued ADRs. Overall, there is no evidence that the dividend behavior of the ADR issuers would be any less relaxed, whether or not they have to comply with the SEC requirements and the Sarbanes-Oxley Act. The partial adjustment models show that the ADR issuers neither pay higher dividends nor smooth dividends to a greater extent. Moreover, the panel probit models suggest that they are actually less rather than more likely to pay dividends.

In order to corroborate the results shown in Tables 5 to 8, we perform a variety of robustness checks. An important finding previously discussed is that the actual dividend

dynamics of Dutch firms show no statistical relationship with Fama and French's (2001) proxies for the severity of agency problems, including firm size, leverage, and investment opportunities. Additional analysis reveals that this result is fully robust to alternative measures of our original control variables. For example, the regression results are unchanged when we proxy firm size using the book value of assets, the market value of equity, or total net sales rather than the market value of assets. Similarly, the results are invariant to the use of alternatives to the debt-to-assets ratio, such as debt-to-equity, the book or market value of leverage, as well as the book or market value of long leverage. DeAngelo, DeAngelo and Stulz (2006) propose several alternatives to the market-to-book ratio to measure investment opportunities, including Tobin's Q, sales growth, asset growth, and past profitability. Again, none of these variables show a robust relationship with the dividend dynamics.

To check for the robustness of the partial adjustment and panel probit models, we try several alternative model specifications. Renneboog and Trojanowski (2006) propose closely investigate full adjustment models (Short, Zhang and Keasey, 2002) and Waud models (1966), as well as allow the adjustment of dividends to earnings changes to be asymmetric (Gugler and Yurtoglu, 2003). In all these papers as well as in our analysis, none of these specifications yield materially different results. As alternatives to the panel probit models, we run pooled probit and heteroscedasticity probit models with firm dummies included as regressors, and find that the results are comparable.

We also try alternative specifications of shareholder control in the regressions shown in Table 7. The only interesting results are obtained when we replace the ownership percentages in Model (4b) with dummy variables that equal 1 if a shareholder has a blocking minority of at least 25%, and 0 otherwise. By using these dummies, we make the implicit assumption that shareholders with a blocking minority already have sufficient incentives to enter into active policy seeking. The new results confirm our previous observations on how institutional and insider ownership affects dividend behavior.

We finally examine whether our results on payout behavior persist when we also account for share repurchases in addition to dividends. It is possible that Dutch firms trying to avoid permanent cash flow commitments simply prefer to reimburse shareholders by repurchasing shares. However, La Porta et al. (2000) find that share repurchases are least common precisely in the stakeholder-oriented governance regimes where firms already pay low dividends. Indeed, we find no evidence that Dutch firms would compensate shareholders by stepping up repurchases. We gather data on share repurchases from the SDC and Amadeus databases, the Dutch financial dailies, and published annual reports. Of the 962 firm years, only in 54 were

shares repurchased, for an average €185.4 million. Once combining these transactions with dividends in our payout models, our original results remain. It is particularly interesting that the dynamics of total payout continue to show no robust relationship with net income, firm size, leverage and the market-to-book ratio. There is also little indication that Dutch firms would switch smoothly between dividends and share repurchases depending on their capacity to make cash flow commitments. Random-effects tobit models¹⁴ reveal that relative to dividend payers, repurchasers are less profitable. However, there is no evidence that they would have greater non-operating or more volatile operating cash flows (Jagannathan, Stephens and Weisbach, 2000), or that they would be smaller, less levered or have a higher the market-to-book ratio (Fama and French, 2001).

5. Conclusion

The substitutability of dividends and shareholder control in mitigating agency problems is often cited to explain why firms pay lower dividends in Continental Europe than in the Anglo-American world. This paper has challenged this argument, by showing that the dividend behavior of Dutch firms is relaxed because of their habitual use of restrictions on shareholder control, and not because they have highly concentrated ownership structures or large controlling shareholders.

The stakeholder-oriented governance system of the Netherlands has been a natural choice for exploring the relationship between dividends, ownership, and anti-shareholder devices. Much like firms in similar regimes such as Germany, Dutch firms are well-documented to pay low dividends, have highly concentrated ownership structures, and impose strong restrictions on shareholder control. The occurrence of such restrictions, which include preference shares, priority shares, certificates, and an institutional form called the structured regime, is extremely common – more than 90% of firms restrict shareholder control one way or another, and over two thirds have at least two of these restrictions in place.

The empirical analysis presented in this paper shows that the dividend behavior of Dutch firms is most adversely affected by the use of preference shares, and the adoption of the full and voluntary forms of the structured regime. Once these restrictions on shareholder control

¹⁴ We use double-censored random-effects tobit models to examine the relative popularity of dividends and share repurchases. In these models, the dependent variable is the ratio of share repurchases to total payout, but their configuration is otherwise identical to that of the random-effects probit models. The results of the tobit models are available on request.

are accounted for, we find that firms' target payout ratios and the extent they smooth dividends increase rather than decrease in the equity interest of the largest shareholder. In other words, firms relax their dividend behavior because of their habitual use of anti-shareholder mechanisms, and the presence of a strong main shareholder actually forces them to increase their payouts to more optimal levels. The relationship between the dividend dynamics and the identity of the large shareholders lends further support to this argument: we find that firms pay more dividends when controlled by either institutional investors or corporate insiders.

Overall, these findings challenge much of the evidence presented in the prior literature, and suggest that dividends are *complements* rather than *substitutes* to shareholder control in mitigating agency problems. This finding is unlikely to be specific to the Netherlands, and could thus be extended to other stakeholder-oriented governance regimes.

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Table 1. Descriptive characteristics.

Variables	N	Mean	Median	St. dev.
Firm size (€ millions)	962	2,846.8	269.8	13,380.7
Book value of assets (€ millions)	962	2,041.8	274.1	7,928.6
Debt-to-assets ratio	962	0.25	0.23	0.19
Market-to-book ratio	962	3.64	1.89	9.14
Operating cash flow (€ millions)	962	209.0	21.6	1,012.0
Net income (€ millions)	962	63.9	10.9	765.2
Return on assets (ROA)	962	3.36%	5.19%	14.54%
Dividend payout (€ millions)	962	45.4	2.5	317.4

Note to Table 1. Statistics are computed for the pooled sample of 962 firm years, measured at year-end and expressed in constant 2004 prices. Firm size is the sum of the market value of equity and the book value of debt. The debt-to-assets ratio is the book value of debt divided by the book value of assets. The market-to-book ratio is the ratio of the market value of equity to the book market of equity.

Table 2. Dividend payout ratios.

Year	<i>All firms</i>			<i>Dividend payers only</i>			<i>Dividend payers (of all firms)</i>
	N	% of net income	% of operating cash flow	N	% of net income	% of operating cash flow	
1996	100	30.7%	16.5%	88	34.0%	17.4%	88.0%
1997	118	22.0%	12.3%	103	27.4%	14.4%	87.3%
1998	124	18.0%	11.8%	102	23.1%	14.9%	82.3%
1999	119	15.2%	10.9%	93	20.3%	14.6%	78.2%
2000	112	11.4%	8.6%	85	19.5%	11.7%	75.9%
2001	106	19.8%	13.4%	80	38.4%	20.0%	75.5%
2002	98	14.2%	9.6%	73	31.8%	15.3%	74.5%
2003	95	13.8%	9.8%	67	36.1%	12.9%	70.5%
2004	90	21.5%	13.4%	67	41.1%	16.0%	74.4%
All	962	17.5%	11.4%	758	28.7%	15.2%	78.8%

Table 3. Shareholder power restrictions.

	Total	No	Structured regime			
			Yes	Full	Voluntary	Mitigated
No anti-takeover devices	24	14	10	2	4	4
One device is used	58	23	35	26	8	1
<i>Preference shares</i>	42	16	26	20	6	0
<i>Priority shares</i>	8	5	3	1	1	1
<i>Certificates</i>	8	2	6	5	1	0
Two devices are used	68	16	50	35	12	3
<i>Preference/Priority</i>	32	6	24	16	6	2
<i>Preference/Certificate</i>	33	10	23	16	6	1
<i>Priority/Certificate</i>	3	0	3	3	0	0
Three devices are used	2	0	2	2	0	0
Preference shares – total	107	28	75	54	18	3
Priority shares – total	43	10	32	22	7	3
Certificates – total	46	12	34	26	7	1
Total	150	53	97	65	24	8

Table 4. Distribution of voting rights and voting power.

	N	Block- holdings	% of share ownership			Banzhaf power index		
			Mean	>50%	>25%	Mean	>50%	>25%
Largest shareholder	962	100%	38.7%	35.9%	54.6%	98.6%	73.2%	94.6%
2nd largest shareholder	962	65.4%	7.3%	0	6.0%	1.4%	0	7.5%
3rd largest shareholder	962	46.4%	3.1%	0	0	1.4%	0	5.8%
Administration offices	962	22.3%	17.2%	18.2%	21.4%	22.1%	21.9%	22.3%
Insiders	962	13.1%	5.2%	5.3%	8.4%	8.9%	8.6%	9.4%
Financial institutions	962	57.8%	14.8%	6.0%	24.2%	40.5%	39.2%	42.4%
Individuals	962	11.5%	2.0%	0.7%	2.0%	4.3%	3.7%	4.8%
Holding companies	962	18.3%	5.1%	9.1%	7.7%	7.6%	9.1%	8.6%
Non-financial firms	962	27.7%	7.4%	4.9%	9.8%	12.6%	11.7%	13.7%
Government	962	3.0%	1.4%	1.1%	2.8%	3.0%	3.0%	3.0%
Foundations	962	2.2%	0.5%	0.0%	1.0%	0.9%	0.6%	1.4%

Note to Table 4. Statistics are computed for the pooled sample of 962 firm years. All blockholdings of 5% or more are gathered. The construction of the Banzhaf power index is explained in Section 3.2.

Table 5. The impact of shareholder power restrictions on dividend policy.**Panel A: Likelihood of dividend payout**

Variables	(1a)		(2a)		(3a)		(4a)	
	Coeff.	Z-stat	Coeff.	Z-stat	Coeff.	Z-stat	Coeff.	Z-stat
Return on assets (ROA _{it})	5.79	4.45 ^{***}	5.56	3.23 ^{***}	7.55	3.22 ^{***}	7.74	3.04 ^{***}
Lagged return on assets (ROA _{it-1})	7.65	5.39 ^{***}	7.76	5.51 ^{***}	7.80	5.43 ^{***}	7.93	5.50 ^{***}
Full structured regime			-0.31	-0.79			-0.14	-0.34
Voluntary structured regime			1.14	1.85 [*]			1.32	2.14 ^{**}
Mitigated structured regime			-2.77	-2.59 ^{**}			-2.73	-2.55 ^{**}
ROA _{it} *Full structured regime			1.15	0.48			-1.14	-0.44
ROA _{it} *Voluntary structured regime			-1.53	-0.44			-4.89	-1.22
ROA _{it} *Mitigated structured regime			40.06	3.23 ^{***}			37.61	2.92 ^{***}
Preference shares					-0.19	-0.45	-0.20	-0.49
Priority shares					-0.37	-0.86	-0.26	-0.63
Certificates					-0.17	-0.41	-0.32	-0.85
ROA _{it} *Preference shares					-5.76	-2.35 ^{**}	-5.62	-2.19 ^{**}
ROA _{it} *Priority shares					3.39	1.33	3.60	1.32
ROA _{it} *Certificates					4.85	1.92 [*]	6.96	2.20 ^{**}
Firm size	0.54	4.88 ^{***}	0.47	4.70 ^{***}	0.55	4.97 ^{***}	0.48	4.54 ^{***}
Debt-to-assets	-1.31	-1.82 [*]	-1.24	-1.72 [*]	-1.24	-1.72 [*]	-1.18	-1.61
Market-to-book	-0.82	-6.40 ^{***}	-0.96	-6.61 ^{***}	-0.84	-6.59 ^{***}	-0.95	-6.49 ^{***}
Intercept	-3.17	-2.10 ^{**}	-2.48	-1.80 [*]	-3.01	-2.04 ^{**}	-2.33	-1.70 [*]
Industry dummies	Yes		Yes		Yes		Yes	
Year dummies	Yes		Yes		Yes		Yes	
No. of observations	962		962		962		962	
No. of firms	150		150		150		150	
Wald test (χ^2)	91.03 ^{***}		93.19 ^{***}		102.42 ^{***}		101.00 ^{***}	
Log likelihood	-249.81		-237.70		-245.29		-232.80	
Sigma u	1.65		1.44		1.59		1.40	
Rho	0.73		0.67		0.72		0.66	
LR test of rho=0	160.23 ^{***}		115.04 ^{***}		140.77 ^{***}		100.49 ^{***}	

Table 5 (continued). The impact of shareholder power restrictions on dividend policy.**Panel B: Dividend dynamics**

Variables	(1b)		(2b)		(3b)		(4b)	
	Coeff.	Z-stat	Coeff.	Z-stat	Coeff.	Z-stat	Coeff.	Z-stat
Lagged dividend ($D_{i,t-1}$)	0.74	8.81***	0.80	10.30***	0.83	4.09***	1.33	4.87***
Operating cash flow (CF_{it})	0.10	6.86***	0.09	6.36***	0.04	1.73*	-0.04	-1.45
$D_{i,t-1}$ *Full structured regime			-0.43	-4.01***			0.20	3.87***
$D_{i,t-1}$ *Voluntary structured regime			-0.48	-1.74*			-0.66	-2.52*
$D_{i,t-1}$ *Mitigated structured regime			-0.59	-0.59			-0.61	-0.87
CF_{it} *Full structured regime			-0.04	-1.74*			-0.02	-2.29**
CF_{it} *Voluntary structured regime			-0.03	-1.18			0.07	2.43**
CF_{it} *Mitigated structured regime			0.08	0.25			-0.04	-0.16
$D_{i,t-1}$ *Preference shares					-0.62	-7.52***	-0.64	-25.55***
$D_{i,t-1}$ *Priority shares					0.05	0.23	-0.45	-1.74*
$D_{i,t-1}$ *Certificates					0.20	0.64	-0.23	-0.73
CF_{it} *Preference shares					-0.01	-0.80	0.00	0.22
CF_{it} *Priority shares					0.04	1.70*	0.11	3.91***
CF_{it} *Certificates					-0.01	-0.21	0.06	1.30
Firm size*1000	-23.80	-1.06	-3.74	-0.81	12.46	1.05	8.12	1.01
Debt-to-assets*1000	-65.70	-0.52	-24.38	-0.59	-75.88	-0.93	-56.40	-1.38
Market-to-book*1000	-44.72	-0.76	6.99	1.15	-8.41	-1.30	-1.99	-0.46
Intercept	385795	1.00	64904	1.08	-140385	-0.89	-93029	-0.87
Industry dummies	Yes		Yes		Yes		Yes	
Year dummies	Yes		Yes		Yes		Yes	
No. of observations	962		962		962		962	
No. of firms	150		150		150		150	
p-value of F-test (χ^2)	>0.001		>0.001		>0.001		>0.001	
Hansen test	36.89		93.69		129.69		1.5e+06***	
AR(1) test z-statistic	-1.28		-1.17		-1.34		-1.21	
AR(2) test z-statistic	1.07		1.10		1.33		1.16	

Note to Table 5. Panel A shows random-effects panel probit models where the dependent variable is 1 if a firm pays dividends and 0 otherwise. ROA is net income to the average of total assets at the beginning and end of the year. Firm size is market value of equity plus book value of debt. Debt-to-assets is book value of debt to book value of assets. Market-to-book is market to book value of equity. Panel B shows partial adjustment models where the dependent variable is the dividend amount. The models are estimated using GMM-in-systems with up to two lagged levels of the regressors used as instruments in the first-differenced equation. The Hansen test of overidentifying restrictions verifies the appropriateness of moment conditions imposed. The Z-statistics use heteroscedasticity and autocorrelation-consistent standard errors. The autocorrelation tests have an asymptotic standard normal distribution. *, ** and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 6. Summary of the impact of shareholder power restrictions on dividend policy.

Panel A: Likelihood of dividend payout								
	Dividend likelihood				Sensitivity of dividend likelihood to ROA			
	<i>Exp. sign</i>	(2a)	(3a)	(4a)	<i>Exp. sign</i>	(2a)	(3a)	(4a)
Preference shares	--	nss		nss	--	-5.76**		-5.62**
Priority shares	-	nss		nss	-	nss		nss
Certificates	+	nss		nss	+	4.85*		6.96**
Full structured regime	--		nss	nss	--		nss	nss
Voluntary structured regime	--		1.14*	1.32**	--		nss	nss
Mitigated structured regime	-		-2.77***	-2.73**	-		40.06**	37.61***

Panel B: Dividend dynamics								
	Dividend smoothing: β_1				Target payout ratio: $\beta_2/(1-\beta_1)$			
	<i>Exp. sign</i>	(2b)	(3b)	(4b)	<i>Exp. sign</i>	(2b)	(3b)	(4b)
Preference shares	--	-0.62***		-0.64***	--	-19.7%***		-25.0%***
Priority shares	-	nss		-0.45*	-	nss		nss
Certificates	+	nss		nss	+	nss		nss
Full structured regime	--		-0.43***	0.20***	--		-37.1%***	-0.8%***
Voluntary structured regime	--		-0.48*	-0.66*	--		-36.2%*	-3.0%***
Mitigated structured regime	-		nss	nss	-		nss	nss

Note to Table 6. This table presents a summary of dividend payout policy using the estimates of Table 5. For each of the statistically significant parameter estimates, we show the estimated size of the deviations from the reference values. In Panel B, the significance of the change in the target payout ratio is obtained using Wald tests which determine whether the deviations from β_1 and β_2 are jointly significant. *, ** and *** denote significance at 10%, 5%, and 1% level, respectively. *nss* stands for ‘not statistically significant’.

Table 7. The impact of shareholder power allocation on dividend policy.

Panel A: Likelihood of dividend payout								
Voting power measure Variables	(1a)		(2a)		(3a)		(4a)	
	% of Shares		% of Shares		Banzhaf index		% of Shares	
	Coeff.	Z-stat	Coeff.	Z-stat	Coeff.	Z-stat	Coeff.	Z-stat
Return on assets (ROA _{it})	5.68	4.39 ^{***}	8.10	3.14 ^{***}	7.99	3.14 ^{***}	8.09	3.31 ^{***}
Lagged return on assets (ROA _{it-1})	7.67	5.41 ^{***}	7.99	5.50 ^{***}	7.75	5.47 ^{***}	7.80	5.41 ^{***}
Largest shareholder	-0.40	-0.62	-0.46	-0.68				
2nd largest shareholder	4.76	2.23 ^{**}	3.61	1.65 [*]				
Insiders					0.95	1.62	1.01	1.14
Financial institutions					0.97	1.96 ^{**}	2.21	2.79 ^{***}
Individuals					0.24	0.38	-1.43	-1.16
Holding companies					1.14	1.89 [*]	1.31	1.40
Non-financial firms					0.38	0.71	-0.35	-0.44
Government					0.22	0.25	-0.49	-0.28
Foundations					1.07	0.61	10.19	1.22
Preference shares			-0.13	-0.33	-0.22	-0.57	-0.30	-0.77
Priority shares			-0.13	-0.30	-0.24	-0.61	-0.30	-0.78
Certificates			-0.32	-0.83	-0.42	-1.13	-0.49	-1.32
ROA _{it} *Preference shares			-5.85	-2.27 ^{**}	-5.45	-2.11 ^{**}	-5.54	-2.22 ^{**}
ROA _{it} *Priority shares			3.28	1.21	3.40	1.24	3.23	1.20
ROA _{it} *Certificates			6.80	2.14 ^{**}	7.01	2.19 ^{**}	6.81	2.17 ^{**}
Full structured regime			-0.23	-0.55	-0.27	-0.68	-0.29	-0.77
Voluntary structured regime			1.18	1.91 [*]	1.12	1.86 [*]	1.02	1.78 [*]
Mitigated structured regime			-2.55	-2.40 ^{**}	-2.75	-2.65 ^{***}	-2.46	-2.46 ^{**}
ROA _{it} *Full structured regime			-1.44	-0.56	-1.83	-0.69	-2.02	-0.78
ROA _{it} *Voluntary structured regime			-4.84	-1.21	-5.58	-1.40	-4.66	-1.24
ROA _{it} *Mitigated structured regime			36.80	2.81 ^{***}	34.87	2.74 ^{***}	30.39	2.37 ^{**}
Firm size	0.57	5.20 ^{***}	0.51	4.69 ^{***}	0.51	4.74 ^{***}	0.54	4.95 ^{***}
Debt-to-assets	-1.35	-1.90 [*]	-1.19	-1.63	-1.24	-1.73 [*]	-1.27	-1.80 [*]
Market-to-book	-0.80	-6.46 ^{***}	-0.95	-6.49 ^{***}	-0.92	-6.15 ^{***}	-0.91	-6.24 ^{***}
Intercept	-3.86	-2.50 ^{***}	-2.82	-1.93 [*]	-3.34	-2.27 ^{***}	-3.24	-2.23 ^{**}
Industry dummies	Yes		Yes		Yes		Yes	
Year dummies	Yes		Yes		Yes		Yes	
No. of observations	962		962		962		962	
No. of firms	150		150		150		150	
Wald test (χ^2)	96.01 ^{***}		101.85 ^{***}		105.83 ^{***}		107.61 ^{***}	
Log likelihood	-247.38		-231.35		-229.54		-225.35	
Sigma u	1.57		1.37		1.31		1.24	
Rho	0.71		0.65		0.63		0.61	
LR test of rho=0	150.36 ^{***}		96.74 ^{***}		77.56 ^{***}		64.79 ^{***}	

Table 7 (continued). The impact of shareholder power allocation on dividend policy.

Panel B: Dividend dynamics									
Voting power measure Variables	(1b)		(2b)		(3b)		(4b)		
	% of Shares		% of Shares		Banzhaf		% of Shares		
	Coeff.	Z-stat	Coeff.	Z-stat	Coeff.	Z-stat	Coeff.	Z-stat	
Lagged dividend ($D_{i,t-1}$)	0.82	14.31***	1.15	5.79***	0.77	2.15**	1.53	6.38***	
Operating cash flow (CF_{it})	0.09	11.24***	-0.02	-0.87	0.02	0.62	-0.04	-1.64	
$D_{i,t-1}$ * Largest shareholder	-1.27	-1.72*	0.50	1.97*					
$D_{i,t-1}$ * 2 nd largest shareholder	-4.07	-1.20	1.50	1.14					
CF_{it} * Largest shareholder	-0.07	-1.79*	-0.08	-2.86***					
CF_{it} * 2 nd largest shareholder	-0.72	-1.83*	-0.25	-1.16					
$D_{i,t-1}$ *Insiders					0.65	2.08**	0.64	1.42	
$D_{i,t-1}$ *Financial institutions					0.08	0.31	-1.36	-3.59***	
$D_{i,t-1}$ *Individuals					0.51	0.68	-0.12	-0.14	
$D_{i,t-1}$ *Holding companies					0.41	1.16	-0.88	-1.00	
$D_{i,t-1}$ *Non-financial firms					-0.86	-1.60	0.25	0.17	
$D_{i,t-1}$ *Government					-0.38	-0.90	0.32	0.85	
$D_{i,t-1}$ *Foundations					-1.69	-2.22**	2.62	0.75	
CF_{it} *Insiders					-0.13	-2.10**	-0.26	-2.32**	
CF_{it} *Financial institutions					0.04	2.27**	0.23	2.94***	
CF_{it} *Individuals					-0.12	-1.04	-0.14	-1.10	
CF_{it} *Holding companies					-0.09	-1.76*	-0.04	-0.43	
CF_{it} *Non-financial firms					0.04	0.96	-0.28	-1.30	
CF_{it} *Government					0.12	2.20**	0.03	0.34	
CF_{it} *Foundations					0.09	0.52	-0.71	-1.53	
$D_{i,t-1}$ *Preference shares			-0.67	-28.21***	-0.64	-39.88***	-0.64	-36.67***	
$D_{i,t-1}$ *Priority shares			-0.27	-1.46	0.01	0.06	-0.57	-2.48**	
$D_{i,t-1}$ *Certificates			-0.46	-1.37	-0.08	-0.30	-0.15	-0.56	
CF_{it} *Preference shares			0.01	0.66	0.01	0.71	0.01	0.78	
CF_{it} *Priority shares			0.09	4.87***	0.01	0.32	0.10	4.09***	
CF_{it} *Certificates			0.10	2.50**	0.00	0.03	0.03	0.93	
$D_{i,t-1}$ *Full structured regime			0.04	0.35	0.70	1.93*	0.01	0.05	
$D_{i,t-1}$ *Voluntary str. regime			-0.50	-2.70***	-0.21	-0.97	-0.56	-2.44**	
$D_{i,t-1}$ *Mitigated str. regime			-0.94	-1.78	-0.51	-1.43	-0.22	-0.46	
CF_{it} *Full structured regime			0.01	0.74	-0.11	-1.97*	-0.03	-0.88	
CF_{it} *Voluntary str. regime			0.05	2.41**	-0.04	-1.12	0.01	0.16	
CF_{it} *Mitigated str. regime			0.22	1.41	0.07	0.63	0.05	0.32	
Firm size*1000	-13.12	-0.92	10.16	1.01	10.59	1.34	8.93	1.21	
Debt-to-assets*1000	9.75	0.18	-57.90	-1.57	-44.76	-1.36	-40.23	-1.39	
Market-to-book*1000	-0.43	-0.05	-3.07	-0.78	-1.87	-0.70	-1.93	-0.80	
Intercept	132113	1.18	-141823	-1.07	-118666	-1.21	-101701	-1.09	
Industry dummies	Yes		Yes		Yes		Yes		
Year dummies	Yes		Yes		Yes		Yes		
No. of observations	962		962		962		962		
No. of firms	150		150		150		150		
F-test (χ^2)	>0.001		>0.001		>0.001		>0.001		
Hansen test	115.78		7.1e+06***		8.7e+10***		2.0e+08***		
AR(1) test z-statistic	-1.20		-1.19		-1.15		-1.15		
AR(2) test z-statistic	1.08		1.13		1.10		1.07		

Note to Table 7. Panel A shows random-effects panel probit models where the dependent variable is 1 if a firm pays dividends and 0 otherwise. ROA is net income to the average of total assets at the beginning and end of the year. Firm size is market value of equity plus book value of debt. Debt-to-assets is book value of debt to book value of assets. Market-to-book is market to book value of equity. Panel B shows partial adjustment models where the dependent variable is the dividend amount. The models are estimated using GMM-in-systems with up to two lagged levels of the regressors used as instruments in the first-differenced equation. The Hansen test of overidentifying restrictions verifies the appropriateness of moment conditions imposed. The Z-statistics use heteroscedasticity and autocorrelation-consistent standard errors. The autocorrelation tests have an asymptotic standard normal distribution. *, ** and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 8. Summary of the impact of shareholder power allocation on dividend policy.**Panel A: Likelihood of dividend payout**

Voting power measure	<i>Exp. sign</i>	(1a) % shares	(2a) % shares	(3a) Banzhaf	(4a) % shares
<i>Shareholder power restrictions controlled for</i>		<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Largest shareholder	-	nss	nss		
2 nd largest shareholder	+	4.76**	3.61*		
Insiders	-			nss	nss
Financial institutions	+			0.97**	2.21***
Individuals	-			nss	nss
Holding companies	-			0.73*	nss
Non-financial firms	-			nss	nss
Government	+			nss	nss
Foundations	+			nss	nss

Panel B: Dividend dynamicsDividend smoothing: β_1

Voting power measure	<i>Exp. sign</i>	(1b) % shares	(2b) % shares	(3b) Banzhaf	(4b) % shares
<i>Shareholder power restrictions controlled for</i>		<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Largest shareholder	-	-1.27*	0.50**		
2 nd largest shareholder	+	nss	nss		
Insiders	-			0.65**	nss
Financial institutions	-			nss	-1.36***
Individuals	-			nss	nss
Holding companies	-			nss	nss
Non-financial firms	-			nss	nss
Government	+			nss	nss
Foundations	+			-1.69**	nss

Target payout ratio: $\beta_2/(1-\beta_1)$

Voting power measure	<i>Exp. sign</i>	(1b) % shares	(2b) % shares	(3b) Banzhaf	(4b) % shares
<i>Shareholder power restrictions controlled for</i>		<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Largest shareholder	-	-46.7%*	3.60%*		
2 nd largest shareholder	+	nss	nss		
Insiders	-			15.6%*	nss
Financial institutions	+			nss	14.4%***
Individuals	-			nss	nss
Holding companies	-			nss	nss
Non-financial firms	-			nss	nss
Government	+			nss	nss
Foundations	+			-4.1%**	nss

Note to Table 8. This table presents a summary of dividend payout policy using the estimates of Table 7. For each of the statistically significant parameter estimates, we show the estimated size of the deviations from the reference values. In Panel B, the significance of the change in the target payout ratio is obtained using Wald tests which determine whether the deviations from β_1 and β_2 are jointly significant. *, ** and *** denote significance at 10%, 5%, and 1% level, respectively. *nss* stands for ‘not statistically significant’.