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# Patterns in Payout Policy and Payout Channel Choice of UK Firms

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## ABSTRACT

The paper examines the payout policy of UK firms listed on the London Stock Exchange during the period 1992-2004. We complement the existing payout literature studies by analyzing jointly the trends in dividends and share repurchases. We find that the US case with a decreasing propensity to distribute funds to shareholders over the 1990s and reappearing dividends since the stock market decline of 2000 cannot be transposed to the UK. The importance of share repurchases in the UK is increasing, and dividends still constitute a vast proportion of the total payout. Usually, firms repurchasing shares pay dividends as well. We also document that there is a relationship between the presence of blockholders and the choice of the payout channel: firms with concentrated ownership held by individuals tend to opt for dividends rather than share repurchases. We argue that the presence of stringent insider trading regulation affects the attractiveness of repurchases (as opposed to dividends) for large shareholders (and directors, in particular). Interestingly, the opposite relation holds for the voting power of industrial firms: the presence of powerful blockholders of this type reduces the probability that earnings are paid out. This suggests that in firms with strong blockholders of this type, there is less need for a pay-out policy as a precommitment device. The management does not need to signal their commitment to corporate value creation when large corporate shareholders are monitoring the firm closely. Finally, there is some evidence (albeit not very strong) that the control power of financial institutions translates into a higher probability of dividend payments (as opposed to no payout at all).

**JEL classification:** G35, G32, G30.

**Keywords:** Payout policy, dividends, share repurchases, taxes, power indices, Banzhaf index, ownership structure, corporate governance

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## 1. Introduction

Fama and French (2001) argue that over the last quarter of a century, US firms have become considerably less prone to distribute (excess) funds to shareholders. This decreasing propensity to pay goes hand in hand with the increasing role of repurchase plans as US firms tend to substitute dividends by share buybacks (Grullon and Michaely, 2002). Consequently, Boudoukh et al. (2006) show that in models predicting equity returns the total payout yield has stronger explanatory power than a simple dividend yield over the 1990s. The disappearing dividend went hand in hand with the stock market surge in the second half of the 1990s, but dividends reappeared in the US when the stock market declined severely commencing in March 2000 (Julio and Ikenberry, 2004).

Since both the US and the UK belong to the same market-based corporate governance system (with a large number of listed companies, an active market of corporate control, diffuse ownership, a common law system and strong shareholder protection; La Porta et al., 2000), we investigate whether the phenomena of ‘decreasing/reappearing propensity to pay’ and ‘dividend substitution’ are confined to the US.<sup>1</sup> Hence, we analyze the payout evolution for a large panel of UK companies (over the period 1992-2004) and focus on two key aspects of their payout policies. First, we examine the firms’ decision to distribute funds. This propensity to pay is studied by analyzing the time-series and cross-sectional patterns of payout. Second, we investigate the choice of the payout channel (i.e. dividends, repurchases, or both) which enables us to verify whether UK firms substitute dividends for share repurchases.

This paper complements the literature with an extensive description of payout policies followed by UK firms. Although a few empirical studies of the UK firms’ payout behaviour exist, they usually focus on one particular payout mechanism in isolation.<sup>2</sup> To our best knowledge, this paper is the first to address the earnings distribution channel choice. This paper provides a methodological contribution as well. We advocate the use of Banzhaf indices as a relevant measure of voting power in the analysis of corporate policy choices. This paper is the first to employ those voting control measures in the context of corporate payout policies.

An overwhelming majority of UK firms pay dividends. The proportion of firms that pay out funds to their shareholders decreases only slightly in the recent years, but even in 2004 (i.e. the last year in the sample) more than three quarters of firms adhere to some type of payout policy. Hence, contrary to the recent evidence for the US (Fama and French, 2001), the decreasing propensity to distribute funds to shareholders is not observed in the UK. We acknowledge that this discrepancy could be partly

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<sup>1</sup> Needless to say, we acknowledge the existence of many institutional differences between the two countries. For the taxation of the payout in the US and the UK, we refer to Bell and Jenkinson (2002), Rau and Vermaelen (2002), Lasfer and Zenonos (2003) and Bank (2004).

<sup>2</sup> Bond et al. (1996), Lasfer (1995, 1996), Bell and Jenkinson (2002), Short et al. (2002), Farinha (2003), Lasfer and Zenonos (2003), Correia da Silva et al. (2004), and Khan (2006) analyze dividend policy only, while Rau and Vermaelen (2002) and Oswald and Young (2004) focus exclusively on factors determining repurchase decisions.

attributed to the differences in tax systems between the two countries. However, the existence of tax clienteles cannot fully explain the difference in patterns. We also show that companies paying out funds to shareholders are usually larger, more profitable, less levered, and are growing more slowly. In addition, they have fewer investment opportunities than their counterparts who do not distribute (excess) funds.

Whereas the role of share repurchases is gradually increasing, dividends still constitute a vast proportion of the total payout. Moreover, the repurchasing firms usually pay dividends as well. Our results document the relationship between the presence of blockholders and the choice of the payout channel: firms with concentrated ownership held by individuals tend to opt for dividends rather than share repurchases. We argue that the presence of stringent insider trading regulation affects the attractiveness of repurchases (as opposed to dividends) for large shareholders (and directors, in particular). Interestingly, the opposite relation holds for the voting power of industrial firms: the presence of powerful blockholders of this type reduces the probability that earnings are paid out. This suggests that in firms with strong blockholders of this type, there is less need for a pay-out policy as a precommitment device. The management does not need to signal their commitment to corporate value creation when large corporate shareholders are monitoring the firm closely. Finally, there is some evidence (albeit not very strong) that the control power of financial institutions translates into a higher probability of dividend payments (as opposed to no payout at all).

The remainder of the paper is organized as follows. Section 2 surveys the background literature. The subsequent section describes the institutional background. Section 4 develops the research questions, while the data and methodology are discussed in Section 5. Section 6 details the results of the analysis of the payout policy in the UK. Section 7 summarizes additional analyses and robustness checks, while Section 8 concludes.

## **2. Review of literature**

### ***2.1. Background literature: The determinants of payout***

Miller and Modigliani (1961) were the first to challenge the popular belief that a higher dividend payout translates into higher firm value. Under the restrictive conditions of perfect capital markets, any mix of retained earnings and payout will not affect firm value (Allen and Michaely, 2003). In the light of this theory, it may seem surprising that firms do actually care about their payout policy (the dividend puzzle; Black, 1976). The existing literature advances several explanations for this puzzle. Various theories stipulate that factors such as taxes, information asymmetries, and contract incompleteness determine a firm's payout decision.

First, various types of investors are taxed differently and, consequently, can constitute tax clienteles. In equilibrium, firms supply stocks that minimize taxes for each of those clienteles (Miller and Modigliani, 1961). The empirical support for such a static tax clientele model is mixed.

Surprisingly, high tax-bracket individuals in the US hold a large percentage of dividend-paying stocks in their portfolios (Allen and Michaely, 2003). Moreover, Richardson et al. (1986) and Michaely et al. (1995) report that the changes in payout policies do not necessarily lead to adjustments in ownership concentration and structures. They find that a firm that initiates or omits a dividend experiences only a minor increase in the trading volume, which cannot be attributed to a clientele shift. Brav and Heaton (1998) and Dhaliwal et al. (1999) challenge this conclusion by documenting that significant changes in institutional and corporate ownership arise after dividend initiations and omissions. Finally, Perez-Gonzalez (2002) documents that tax reforms in the US are followed by the changes of firms' payout policy that are consistent with tax-induced preferences of the largest shareholders. Thus, it seems that firms do adjust their payout policy as a result of changes in the tax law while shareholders do not seem to rebalance their portfolios significantly by changing the proportions invested in paying and in non-paying firms.

Miller and Scholes (1978) pioneer the second generation of clientele models explaining payout policy and argue that investors can trade dynamically to reduce the tax burden associated with dividends. Kalay (1980) and Stiglitz (1983) suggest some additional dynamic tax-avoidance strategies and, consequently, claim that the possibility of dividend 'laundering' leads firms to the situation analyzed by Miller and Modigliani (1961), in which dividend policy is irrelevant. The empirical tests of dynamic clientele models usually follow Kalay's (1982) approach and focus on trading around ex-dividend days. The support for the dynamic clientele theories appears stronger than for the static ones (Allen and Michaely, 2003). The abnormal trading activity around the around ex-dividend day is documented for countries such as the US (Lakonishok and Vermaelen, 1986; Michaely and Vila, 1995), Italy (Michaely and Murgia, 1995), Japan (Kato and Lowenstein, 1995), Sweden (Green and Rydqvist, 1999), and Germany (McDonald, 2001).<sup>3</sup>

Second, information asymmetries and contract incompleteness inspire another stream of the payout literature. Insiders possessing superior information about the company's prospects may want to employ the payout policy to convey this information to shareholders (Miller and Modigliani, 1961). Bhattacharya (1979), Miller and Rock (1985), John and Williams (1985) develop models that formalize the signaling theory of payout. While in the former two models, dividends and share repurchases are perfect substitutes (i.e. a given amount of payout conveys the same information to shareholders, irrespectively of the payout channel choice), the model by John and Williams (1985) predicts that only dividends can convey information on a firm's prospects to shareholders. The reason is that a signal – to be credible – needs to be costly; the signaling cost stems from the taxes paid on dividends (which are

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<sup>3</sup> Usually, this trading volume is positively related to the size of the dividend and negatively related to the level of transaction costs and risk.

higher than those paid on capital gains). Zeckhauser and Pound (1990) develop a model where payout policy and ownership concentration constitute alternative signaling devices.

Consistent with the signaling theories, changes in dividend policy (in particular, extreme changes, such as dividends omissions or (re)initiations) are accompanied by stock price announcement effects: a negative one for omissions and a positive one for (re)initiations.<sup>4</sup> Likewise, the announcements effects for share repurchase initiations are positive (Ikenberry et al., 1995). Despite this indirect support for signaling explanations of payout, Benartzi et al. (1997) argue that dividend changes are related to past rather than future earnings.<sup>5</sup> Nissim and Ziv (2001) do not agree and demonstrate that dividend changes are positively related to earnings changes over a two-year period subsequent to the dividend change.

Third, agency models stipulate that payout policy can mitigate potential agency conflicts between managers and shareholders (Rozeff, 1982).<sup>6</sup> Regular distributions of funds to shareholders force firms with value-enhancing investment projects to raise capital externally (Easterbrook, 1984). Consequently, firms are regularly forced to undergo the scrutiny of the market (the providers of external funds). The commitment to pay out excess funds to shareholders reduces the amount of free cash flows that managers could otherwise spend on value-reducing projects (Jensen, 1986). However, the credibility of such a commitment may be questioned, as it is relatively easy for management to renege on payout promises. Some agency models are criticized as they assume that managers can be forced to pay out funds, while they cannot be prevented from pursuing a suboptimal investment policy (Allen and Michaely, 2003).<sup>7</sup> Fluck (1999) addresses this issue and develops a model, in which the dividend payments depend on the shareholders' effectiveness in disciplining the management. Allen et al. (2000) also highlight the role of monitoring by large shareholders. Their model stipulates that the firms pay high dividends in order to attract lower-taxed investors (i.e. financial institutions) who have superior skills in detecting firm quality. Empirically, Lang and Litzenberger (1989) document that the firms that are likely to be overinvesting (i.e. the firms with Tobin's Q lower than one) experience larger appreciation/depreciation on the announcement of substantial dividend increases/decreases (as compared

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<sup>4</sup> See e.g. Aharony and Swary (1980), Asquith and Mullins (1983), Healy and Palepu (1988), Michaely et al. (1995), Grullon et al. (2002).

<sup>5</sup> Moreover, Grullon and Michaely (2004) document that the announcements of open-market share repurchase are not followed by an increase in operating performance.

<sup>6</sup> A high payout may alleviate agency problems emerging between managers and shareholders, but could induce agency problems between debt and equity holders (Jensen and Meckling, 1976; Myers, 1977). By enforcing excessive payout, shareholders may expropriate debt holders.

<sup>7</sup> Another point of criticism is that those models are not able to distinguish between share repurchases and dividends.

with other companies).<sup>8</sup> Likewise, Grullon and Michaely (2004) document that the market reaction to share repurchase announcements is more positive for firms that are believed to be more likely to overinvest. Both these studies support the agency explanation of payout. Lie (2000) illustrates that firms announcing increases of regular dividends, special dividends, or self-tender offers generally have excess funds (compared to their industry peers). Moreover, the reaction to the announcement is positively correlated to the firm's excess cash and negatively related to the firm's investment opportunities, which is again consistent with the free cash flow theory. Finally, La Porta et al. (2000) argue that only an effective legal system provides shareholders with the opportunity to reduce agency costs by forcing management to pay out excess funds. They document that dividend payout is indeed higher in countries with stronger investment protection.

## ***2.2. Background literature: The choice of payout channel***

The theoretical literature attempts to answer not only the question whether or not firms should pay out funds and – if answered affirmatively – how much should be reimbursed, but also which channel (dividends, repurchases, or both) should be used to distribute earnings to shareholders. The theories relying on differential taxation of dividends and repurchases (e.g. John and Williams, 1985; Bernheim, 1991; Allen et al., 2000) imply that those two modes of payout are distinctly different and, consequently, cannot be considered as perfect substitutes.

Many signaling models acknowledge the differences between dividends and share repurchases, and, consequently, model the choice of the optimal payout channel (Ambarish et al., 1987; Ofer and Thakor, 1987; Williams, 1988; Bernheim, 1991). For instance, in Ofer and Thakor (1987), firms use both dividends and repurchases to signal their quality as neither dominates the other in any circumstance. While both dividends and repurchases force firms to incur some signaling cost (i.e. the depletion of internal capital), share repurchases constitute a stronger signal because they involve an additional cost for managers. This cost stems from the increase in risk of their portfolios, as managers usually do not tender their shares during repurchase programs.

Barclay and Smith (1988) and Brennan and Thakor (1990) use adverse selection arguments to explain firms' reliance on dividends rather than on share repurchases. When a company repurchases shares, the insiders (legally defined in the US as managers, directors, and large blockholders) can exploit their informational advantage and expropriate uninformed shareholders.<sup>9</sup> Consequently, shareholders with low stakes prefer dividends, while those with large stakes opt for repurchases. Moreover, the optimal choice of the payout channel is a function of the amount that is to be distributed: small payouts

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<sup>8</sup> However, Yoon and Starks (1995) challenge this result. Controlling for dividend yield and firm size, they find that the reactions to dividend changes do not differ between high-Q and low-Q firms.

<sup>9</sup> Brennan and Thakor (1990) assume a fixed cost of collecting information. Consequently, large shareholders have a greater incentive to become informed than small investors.

should be made through dividends, intermediate payouts through open-market repurchases, and large payouts through self-tender offers (Brennan and Thakor, 1990).<sup>10</sup> Chowdhry and Nanda (1994) consider a model with a tax disadvantage to dividends and an adverse selection cost of repurchases. The model demonstrates that the optimal payout policy involves distributing some funds in the form of dividends and retaining the rest until later. However, if the management believes that the firm is sufficiently undervalued, all the accumulated cash should be disbursed through a stock repurchase.

The existence of institutional constraints (such as the so-called 'prudent man' regulations) leads to situations where portfolios of particular investors (e.g. pension funds) are tilted towards a particular group of securities, for instance dividend-paying stocks, equity index constituencies, A-rated stocks, etc. (Del Guercio, 1996). Brav and Heaton (1998) illustrate that after the introduction of the prudent man laws in 1974, US institutional investors tend to sell the stock following a dividend omission. Some UK financial institutions demand that the companies they invest in maintain the dividends even in the wake of shrinking profits (Correia da Silva et al., 2004).

Shefrin and Statman (1984) propose a behavioral explanation of (individual) investors' preference for dividend-paying stocks. Their model is based on the psychological theory of self-control (rather than on neoclassical assumptions of value-maximizing behavior of the agents) and stipulates that by receiving money in form of dividends (rather than capital gains), people avoid having to make decisions about how much to consume. This benefit could be large enough to offset disadvantages of dividends such as e.g. unfavorable taxation. Graham and Kumar (2005) document that the preference for dividends is strongest amongst older and less wealthy individuals. This is confirmed by the survey by Brav et al. (2003) who illustrate the managers' belief that the policy of paying out funds in the US attracts both institutional and individual investors. Baker and Wurgler (2004a, 2004b) argue that if investors' demand for shares is affected by sentiment, the possibility of a nontrivial dividend premium exists, and thus dividend policy can be a relevant for the firm value. The authors claim that companies cater to the investors' preferences and pay dividends in periods when the valuation of dividend-paying firms exceeds that of non-paying ones.

The existing literature also advances some additional explanations for the presence of share repurchases. Managers may have incentives to switch from dividends to share repurchases if their stock option plans are not 'dividend protected' (Lambert et al., 1989).<sup>11</sup> Jagannathan et al. (2000) claim that dividends are paid by companies with higher 'permanent' operating cash flows, while repurchases are

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<sup>10</sup> In a similar vein, the adverse selection model proposed by Lucas and McDonald (1998) shows that small payouts are made via dividends, while large payouts are divided between dividends and repurchases. The percentage of shares repurchased increases with the size of the payout.

<sup>11</sup> In the UK this argument may not be very relevant, since the repurchased shares have to be cancelled and (unlike in the US) they cannot be held as treasury stock and reissued to executives later (Rau and Vermaelen, 2002).

used by firms with higher ‘temporary’, non-operating cash flows. Since repurchases offer more financial flexibility, they are used by firms with more volatile cash flows.

### **3. Regulation, taxes, and payout in the UK**

#### **3.1. Dividends and taxes**

Some aspects of the tax code affect the choice of the payout channel (dividends vs. repurchases) and, consequently, may account at least partly for the discrepancies in the observed patterns of payout between UK and US firms (Bank, 2004). In the context of the payout policy, the most important difference between these countries pertains to the tax treatment of various sources of income. The US has a classical company tax system whereby companies are taxed separately from their shareholders (Short et al., 2002). In that system, dividends are essentially taxed twice: a first time on the level of the corporation (via corporate tax on a firm’s profits) and a second time on the level of the shareholder (via income tax on shareholders’ dividend income). Consequently, both basic and high rate income tax payers would prefer profits to be retained by the firm rather than to be paid out in dividends. Tax-exempt individuals are expected to be indifferent between dividends and retained earnings.

In contrast, the UK has used a partial imputation system since 1973.<sup>12</sup> In that system, part of the firm’s payment of corporation tax is taken into account when calculating a shareholder’s liability to income tax on dividends. Hence, the tax treatment of dividends is more favorable than in a classical tax system (Bond et al., 1996; Bank, 2004). Consequently, tax-exempt shareholders prefer dividends to retained earnings; corporations and basic rate taxpayers are neutral with respect to dividends and retentions, whilst only the highest tax-bracket investors prefer retentions to dividends (Bell and Jenkinson, 2002; Short et al., 2002).<sup>13</sup>

Under the UK’s imputation tax system, the company pays a shareholder a cash dividend net of the imputed amount. When the dividend is paid out, the company also pays the Advance Corporation Tax (ACT) to the Inland Revenue Service. The amount of ACT paid is equal to the gross dividend times the imputation rate.<sup>14</sup> It represents an advance payment against the firm’s total corporation tax for a given year. The shareholder receiving the net cash dividend also receives a tax credit (equivalent to the basic rate of income tax on dividends), which can be used to offset his or her income tax liability (Short et al., 2002). A particular feature of the UK imputation system was that until July 1997, tax-exempt

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<sup>12</sup> Bank et al. (2004) give a clear overview of the different tax systems in the UK since 1949.

<sup>13</sup> Bell and Jenkinson (2002) argue that the effective capital gains tax rates are much lower than the statutory ones (because of deferral, general allowances, and inflation indexation). This implies that most categories of investors were actually indifferent between different sources of income (dividends vs. capital gains) both before and after the 1997 tax reform.

<sup>14</sup> Prior to March 1993, the imputation rate was equal to the basic rate of income tax. From March 1993, the rate of imputation has been 20% (Short et al., 2002).

investors (mainly pension funds, but also charities) could claim a full cash refund of tax credits from the tax authorities.<sup>15</sup> This created a strong preference for earnings to be paid as dividends rather than to be retained in the company (Bond et al., 1996). The 1997 tax reform, while preserving the general imputation principle, withdrew the ability of tax-exempt investors to reclaim dividend tax credits. Consequently, the value of the dividend income for tax-exempt investors is sharply reduced (by 20%), leaving them in fact indifferent between dividends and retained earnings (Bell and Jenkinson, 2002).

### **3.2. Tax treatment of share repurchases**

In the UK, the imputation principle does not only have consequences for dividends, but it also affects some repurchase plans. The distinction between an off-market repurchase (such as a repurchase tender offer or a private repurchase) and an open-market repurchase has a substantial bearing on the tax treatment of buyback programs (Rau and Vermaelen, 2002; Oswald and Young, 2004). In the first case, a shareholder selling shares is aware that she is selling to the corporation, while in the second case she is not. In an open-market repurchase, no tax credit can be claimed and the profit made on the share sale is taxed as capital gains. Consequently, the relative attractiveness of dividends (as opposed to open-market repurchases) depends on the investor's capital gains tax liability. It can be shown that all the investors but the highest tax-bracket individuals would prefer dividends to open-market repurchases.

The tax treatment of off-market share repurchases is particularly attractive for individual investors. In case of this type of repurchases, the imputation rule applies and shareholders receive a tax credit on the 'distribution element' of share buybacks. The distribution element is defined as the difference between the market value of the repurchased shares and the book value of the corresponding paid-in-capital. Moreover, the difference between the original subscription price and the investor cost base (i.e. the price at which he purchased the share plus an inflation allowance) is considered a capital loss (Rau and Vermaelen, 2002).<sup>16</sup> Such a loss is subject to the ordinary income tax and can only be offset against capital gains. As a result, in the analyzed period, individuals would prefer off-market share buybacks to dividend payments as long as they are not liable for capital gains taxes. This preference is the strongest for the low tax-bracket individual shareholders.

The tax treatment of repurchases in the UK changed several times in the 1990s, affecting the relative attractiveness of off-market share repurchases for tax-exempt shareholders (Oswald and Young,

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<sup>15</sup> However, the tax code limited the possibilities of tax-exempt investors' engagement in dividend capture strategies (such as those prescribed by dynamic clientele models of payout). Tax-exempt investors could claim the full amount of the tax credit associated with dividends only if they held the shares for at least 30 days before dividend was paid.

<sup>16</sup> In a typical case, the paid-in-capital (i.e. the original subscription price) is lower than the investors cost base. Consequently, the difference between the original subscription price and the investor cost base is likely to be negative.

2002). While until July 1, 1997, tax-exempt investors preferred dividend payments to any form of share repurchases,<sup>17</sup> the elimination of the right to reclaim dividend tax credits after this date has made those investors indifferent between dividends and share repurchases, as it is the case in the US (Rau and Vermaelen, 2002).

### **3.3. Other legal aspects of share repurchases**

Regulatory aspects other than taxation can also influence the choice of the payout channel. In order to prevent companies from manipulating their stock prices, the Listing Rules of the London Stock Exchange stipulate that larger buybacks (i.e. those where 15% or more of the equity capital is to be repurchased within 12 months) must be made via a tender offer to all shareholders. Such a tender offer should have a fixed or a maximum price and should be publicly announced. Smaller repurchases can be made through the stock market, provided that the price is not more than 5% above the average market price of the shares for the 10 business days preceding the repurchase (Goergen and Renneboog, 2001).<sup>18</sup>

Some other restrictions apply to repurchases, which further constrains the choice of payout channel. Only 'distributable profits' or proceeds of a fresh issue of shares (made for the purpose of the repurchase) can be used to finance a buyback. Moreover, companies are not allowed to repurchase shares during periods when officers and directors are not allowed to trade in their company's shares. As a result, repurchases are not allowed in the 2-month period preceding the publication of annual earnings or semi-annual earnings and in the month before the publication of quarterly results. Moreover, the company cannot purchase shares when the directors are in possession of unpublished, price-sensitive information (Fidrmuc et al., 2006). This restriction substantially reduces the role that repurchases may have in signalling firm prospects (Rau and Vermaelen, 2002).

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<sup>17</sup> Until October 7, 1996, tax-exempt investors who sold the shares in an off-market repurchase could recover tax credits from the Inland Revenue. However, after the Reuters large-scale repurchase of 1993, such credits were no longer guaranteed and became subject to tax anti-avoidance rules. As a response, in September 1994, investment bankers invented an agency buyback, in which investors were selling their shares to a broker acting as an agent for the company. Agency buybacks resemble off-market repurchases, since the agents usually contacted key investors (e.g. pension funds) in advance and gave them priority over other shareholders groups. The off-market nature of the agency buyback provided the tax-exempt investors with the opportunity to claim a tax credit on distribution. Since all the investors appeared able to participate in an agency buyback, it was easier to convince the Inland Revenue that the anti-avoidance rules should not apply. This explains the relative attractiveness of agency buybacks (as opposed to off-market tender repurchases). However, the agency buyback tax loophole was eliminated on October 8, 1996. Additionally, following this change in the tax code, tax-exempt investors could no longer recover tax credits associated with the distribution element of the off-market repurchase. Consequently, on- and off- market repurchases became equally unattractive (as compared with dividends) for those investors.

<sup>18</sup> Still, despite those restrictions and less favorable tax treatment of on-market repurchases (as opposed to off-market buybacks), most of the repurchases effectuated in 1990s were made via the on-market channel (Rau and Vermaelen, 2002).

#### 4. Research questions

Fama and French (2001) conclude that in the late 1990s in the US, there were fewer dividend-paying firms than in the 1970s. They acknowledge that although changing characteristics of the population of listed firms explain part of the decline in the number of dividend-paying firms, this explanation cannot account for the overall magnitude of the effect. Moreover, the increasing popularity of share repurchases is unlikely to compensate the decline in dividend payout, as buybacks are more prevalent among dividend-paying firms. Baker and Wurgler (2004a) argue that the decrease in the firms' propensity to pay can be explained by the catering theory of dividends. For several reasons (e.g. clientele effects, transaction costs, sentiment) investors prefer dividend-paying stocks in some periods, and are ready to pay a premium for these stocks.<sup>19</sup> De Angelo et al. (2004) point out that the firms ceasing to pay dividends are usually those which used to pay very small dividends anyway, while the real payout from the top payers increases considerably. As the latter effect is shown to be sufficiently strong to offset the former one, the aggregate real dividends paid by US industrial firms increased over the period 1978-2000. Julio and Ikenberry (2004) document a trend reversal: they show that dividends 'reappear' in the early years of this decade. Due to the strong stock market decline in 2000, dividend yields are no longer ignored by investors

It is worthwhile to examine whether UK firms exhibit similar trends as in the US. While both the US and the UK belong to the same market-based corporate governance system (with a large number of listed companies, an active market of corporate control, diffuse ownership, a common law system and strong shareholder protection; La Porta et al., 2000), many institutional differences exist between these two countries (see Section 3). This may affect investors' preferences and, consequently, account for some cross-country discrepancies in companies' payout behavior.

As share repurchases may be substitutes for dividends (Grullon and Michaely, 2002), we attempt to disentangle the effects of the changing propensity to pay dividends and the changing propensity to pay out funds at all (either via dividends or share repurchases).

**Question 1a (Changing propensity to pay dividends):** *Does the proportion of dividend-paying firms decrease over time?*

**Question 1b (Changing propensity to distribute funds):** *Does the proportion of firms reimbursing funds (either via dividends or via repurchases) decrease over time?*

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<sup>19</sup> Baker and Wurgler (2004a) show that, as of 1978, the dividend premium (as measured by the difference in the average market-to-book ratios between dividend-paying and non-paying firms) is negative in all years but one. Thus, in order to cater to this shareholders' preference for non-paying stocks, firms tend to abandon dividend payments.

Bearing in mind that the trends in the number of paying firms and the changes in the amounts paid out may diverge (as pointed out by De Angelo et al. 2004), we also examine how the amounts distributed to the shareholders change over time.

**Question 2a (Changing amount of dividends):** *How does the amount of dividends paid out change over time?*

**Question 2b (Changing amount of total payout):** *How does the total amount distributed to shareholders change over time?*

We also investigate the choice of the payout channel (dividends, repurchases, or a combination). Grullon and Michaely (2002) document a gradual tendency of US firms to substitute dividends with share repurchase plans. Recently, the popularity of share repurchases in the US has increased considerably (Fama and French, 2001). In the late 1990s, the amount spent by American companies on repurchasing their shares had risen to nearly half of the total payout (Dittmar and Dittmar, 2002). We explore whether UK firms also tend to switch from dividend payout to share repurchases.

**Question 3a (Substitution – frequencies):** *Is the proportion of repurchasing firms to dividend-paying ones increasing?*

**Question 3b (Substitution – amounts paid):** *Do share repurchases constitute a growing proportion of the total payout?*

Theoretically, one of the main determinants of the payout channel choice is ownership structure. A first reason why ownership may be important is that some features of the UK tax code may influence investors' preferences for dividends over share repurchases (and capital gains) and vice versa. In this paper, we focus on static tax clienteles, as a model with dynamic tax clienteles is unlikely to be relevant in the UK context.<sup>20</sup> Bell and Jenkinson (2002) argue that the class of the tax-exempt investors (mainly pension funds) is the largest category of shareholders in the UK, which basically precludes them from pursuing dividend capture strategies. Moreover, the tax code limits the possibilities to engage in such activities (see Section 3.1).

Second, clientele effects may also result from factors other than tax regulations. Asset-liability management considerations and the existence of 'prudent man' rules may lead to situations where institutional investors strongly prefer a particular form of payout (Del Guercio, 1996). For instance, Michael McLintock, the CEO of M&G (which is part of Prudential, one of the most important institutional investors in the UK) wrote a letter to the major UK companies in 2002 arguing that '*the investment case for dividends in the majority of circumstances is a strong and well supported one, has*

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<sup>20</sup> Lasfer and Zenonos (2003) support this claim and provide evidence of little short-term trading activity around the ex-dividend day in the UK.

*stood the test of time, and is likely to be increasingly appreciated in the economic and stock market conditions which we seem likely to face for the foreseeable future'* (Correia da Silva et al., 2004). Additionally, various behavioral arguments can also be invoked to explain individual investors' preferences for dividend-paying stocks (Shefrin and Statman, 1984; Graham and Kumar, 2005). For instance, such shares allow investors to adopt a simple heuristic "*consume from dividend and keep principal intact*" – the rule that is consistent with regret avoidance.

If the type of shareholder matters, we expect that financial institutions prefer dividends for reasons of asset and liability management of their portfolios. Of the institutions, we expect that pension funds exhibit an even stronger preference for dividends for tax reasons (see Section 3). Directors prefer share repurchases for tax reasons.<sup>21</sup> Moreover, dividend payments bring about additional costs for directors whose compensation packages include equity-based components such as stock options, restricted stock grants, and long-term incentive plans (LTIPs). The value of all these instruments decreases with the size of dividend payments. Nevertheless, if wealth diversification is important to them, they may prefer dividends as share repurchases may trigger an unwanted negative signal to the market as a result of the disclosure regulation of directors' dealings.<sup>22</sup> Moreover, directors may be reluctant to liquidate (part of) their equity stake during a repurchase because such liquidation would involve giving up some voting rights (corresponding to the number of shares tendered). It may weaken directors' voting power vis-à-vis other shareholders of the company.

We expect outside blockholders like industrial companies, individuals, and families to prefer share repurchases for tax reasons. In contrast, if blockholders wish to avoid the negative market signal of selling through a share repurchase plan, they may prefer dividends to share buybacks.<sup>23</sup>

***Question 4a (Shareholder identity effect): Does the identity of the largest shareholders affect the firm's choice of the payout channel?***

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<sup>21</sup> Directors are assumed to be in the highest bracket of income tax.

<sup>22</sup> In order to actively participate in an open-market share repurchase program, managers would have to liquidate part of their equity stake. In the UK, such a transaction, like all the directors' dealings (irrespective of their size), is subject to a mandatory disclosure (Goergen and Renneboog, 2001). The equity sale by managers may be interpreted by the market as an adverse signal about the firm's prospects (Gregory et al., 1997; Fidrmuc et al., 2006), and could negatively affect the value of the remaining managerial holdings. Obviously, a pro-rata dividend does not suffer from such a disadvantage.

<sup>23</sup> If dispersed shareholders believe that a large blockholder has superior information about the firm's value, they may consider an equity sale by such a blockholder as bad news about the firm's value (Brennan and Thakor, 1990). If such a sale is large enough, it has to be disclosed: in the UK, a shareholder who is not a director and whose stake exceeds 3% of the equity outstanding has to disclose increases or decreases of his stake, if the change exceeds 1%. Moreover, when the investor's stake drops below the 3% threshold, he must notify the company. Subsequent decreases do not require a notification (Goergen and Renneboog, 2001).

If blockholders have a major impact on the firm's payout policy, the question arises whether it is the largest blockholder or a coalition of blockholders (with similar preferences) who influence the choice of the payout channel.

**Question 4b (Shareholder power effect):** *Does the voting power of the leading shareholders affect the firm's choice of the payout channel?*

Finally, Fama and French (2001) document systematic differences between the samples of paying and non-paying companies with respect to characteristics such as firm size, growth, investment opportunities, leverage and profitability. As those variables are likely to influence both the firms' propensity to pay and the choice of the payout channel, we incorporate them in our models.

## 5. Data and methodology

### 5.1. Sample selection

Our sample covers British firms listed on the London Stock Exchange. 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 the access to external financing are regulated. Finally, we only retain the firms included in the Worldscope dataset for at least three years within the period 1992-2004. As a result, our sample of 985 firms covers more than two thirds of the UK listed non-financial firms and represents a broad range of industries.<sup>24</sup> We use the Worldscope database to gather accounting data, while we collect ownership and control data from the Worldscope and PricewaterhouseCoopers databases.

[ Insert Table 1 about here ]

Table 1 summarizes the key characteristics of the sample firms. As shown in Panel A, the average (median) market value of the sample firm equals £ 634m (£ 80m),<sup>25</sup> while the average (median) book value of the total assets amounts to £ 384m (£ 52m). The return on assets (ROA) in the average (median) firm equals 6.11% (8.89%). As illustrated by Panels B and C, profitability improves slightly towards the end of the 1990s, then declines sharply until 2002, and starts to rise again afterwards. The average (median) value of the Tobin's Q proxy equals 1.830 (1.343). Finally, the average leverage in

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<sup>24</sup> The sample includes 206 agricultural, mining, forestry, fishing and construction firms (SIC codes 1-1999), 407 manufacturing firms (SIC codes 2000-3999), 204 retail and wholesale firms (SIC codes 5000-5999) and 168 service firms (SIC codes 7000-8999).

<sup>25</sup> All the values are expressed in constant 1992-prices. Inflation-adjustment is based on Datastream CPI data.

book-value terms equals 59.9%, amounts to 41.1% in market-value terms, and remains fairly stable over the sample period.

We classify shareholders controlling the equity blocks into 6 mutually exclusive categories: (i) executive directors and their families, (ii) non-executive directors and their families, (iii) individuals and families not related to directors, (iv) the public sector,<sup>26</sup> (v) financial institutions (i.e. banks, insurance companies, unit trusts, investment and pension funds), and (vi) other industrial and commercial companies. To distinguish between the more than 10,000 insider and outsider individual shareholders, we consult the London Stock Exchange Monitor, the Who's Who-guides, companies' annual reports, BoardEx.com database, and the Internet. To identify institutional shareholders, we consult Datastream, Institutional Investors Annual Guides, the Company Register, and the Internet.

Table 2 reports that domestic financial institutions own over a half of the equity issued by UK firms. In particular, tax-exempt domestic pension funds are the largest category of shareholders in the UK throughout the 1990s. Moreover, in addition to the direct contributions to pension funds, more than half of the premium income of insurance companies represents contributions to pension schemes (Bell and Jenkinson, 2002). Finally, albeit a minor class of shareholders in terms of ownership concentration, charities also enjoy tax exemption. Consequently, tax-driven preferences of investors can be expected to have a non-trivial impact on the choice of payout policy in the UK.

[ Insert Tables 2 and 3 about here ]

As only the large shareholders are expected to be able to influence the payout decision, we focus on blockholdings of 5% or more (3% or more after 1999) to examine the relationship between ownership structure and payout variables.<sup>27</sup> Table 3 illustrates that the concentration and structure of blockholdings is relatively stable over time. The data on blockholdings closely follow the patterns illustrated for all the share holdings (see Table 2). Financial institutions are by far the most important category of blockholders. In a median company, institutional blockholders control about one fifth of the equity outstanding. Different groups of individuals (directors and outside individuals) own a substantial proportion of share blocks, while the size of blockholdings controlled by industrial firms is considerably smaller.

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<sup>26</sup> Public sector ownership includes State ownership as well as stakes controlled by county and city councils. It is negligible in the analyzed sample. Across all the sample firm-years, we encountered only 58 observations (i.e. about 0.5% of the sample) with a public entity as blockholder. The largest stake held by such a blockholder was 13.1% of equity only. Given the marginal nature of governmental ownership, we do not report this category of shareholders in subsequent sections.

<sup>27</sup> The Worldscope archives (our source of ownership data for 1992-1998) only include stakes of 5% and more. For 1999-2004, our dataset contains all the blocks, which are subject to mandatory disclosure, i.e. all the blocks of 3% or more of the equity outstanding and all the directors' equity holdings (irrespective of their size).

## 5.2. Measurement of voting power

The analysis of the relation between payout policies and ownership structures necessitates the construction of variables measuring voting power for different types of shareholders. We follow the Crespi and Renneboog (2003) approach and analyze a two-stage voting game. We assume that in the first stage, all the shareholders of a particular type (e.g. all financial institutions) form a coalition. Only in the second stage, such coalitions participate in a voting game with the intention to influence (or even to determine) the payout policy. The two-stage approach advocated here is relevant in the context of payout decisions due to the existence of different clienteles. For instance, financial institutions may prefer a particular pattern of payouts (e.g. regular dividends every year due to tax or asset-liability management considerations), while other groups of owners may care less about it. The same argument can be invoked to motivate the two-stage approach which we employ to explain the firms' choice between the two distribution channels: dividends and share repurchases. Some groups of investors may strongly prefer one method of payout to the other because of the tax considerations, insider trading regulations, etc.

The measurement of voting power is a topic of an ongoing methodological debate in game theory and corporate finance (Felsenthal and Machover, 1998; Leech, 2002). Examples of measures used in the literature include Banzhaf indices (Banzhaf, 1965; Dubey and Shapley, 1979) and different versions of Shapley values (Shapley and Shubik, 1954; Milnor and Shapley, 1978). Despite the recent popularity of Shapley values in empirical corporate finance research (e.g. Eckbo and Verma, 1994; Crespi and Renneboog, 2003), Leech (2002) argues that the underlying notion of power (i.e. P-power, or power as the prize in a voting game) appears inappropriate in the analysis of shareholder voting behavior. Instead, he argues that shareholder voting games can be better described by policy-seeking motives (rather than the office-seeking motive implicit in Shapley values) such that I-power<sup>28</sup> measures are more relevant in such a context. This is particularly important in an analysis of payout choices which by their very nature have the character of a policy decision.

The most frequently used measures of voting power for such games are Banzhaf (1965) values. Following Felsenthal and Machover (1998), we compute two types of measures – absolute and relative Banzhaf indices.<sup>29</sup> The analyzed game can be considered as oceanic<sup>30</sup> and, therefore, we employ the

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<sup>28</sup> According to this notion, power is defined as the ability to influence the decision (i.e. the outcome of the vote), but it is not interpreted as the prize in a voting game (Felsenthal and Machover, 1998).

<sup>29</sup> Relative indices are obtained by normalizing the absolute ones. As a result of this normalization, relative Banzhaf indices for a game sum up to 1.

<sup>30</sup> In game theory, oceanic games involve a few relatively large players and a continuum of infinitesimal players (Milnor and Shapley, 1978). As documented above, most of the UK companies have a few blockholders, while the

generalization of the Banzhaf value proposed by Dubey and Shapley (1979). Under some regularity conditions, Banzhaf indices in an oceanic game can be obtained as the Banzhaf indices for a modified, finite game consisting only of the major players with an appropriate adjustment of the required majority threshold.

### **5.3. Multinomial probit regressions**

Our models explain the likelihood that a firm pays out funds to shareholders and the likelihood that a firm opts for a particular earnings distribution channel. We estimate multinomial probit regressions (Greene, 2003) which include four possible values of the dependent variable corresponding to four mutually exclusive choices that the firm can make in a particular year. These possible outcomes are: not paying out anything, paying out only dividends, only repurchasing shares, and using both payout channels (dividends and repurchases). Without loss of generality, we code these outcomes as 0, 1, 2, and 3, respectively.<sup>31</sup> We find that various firm characteristics are able to predict the payout policy in our multinomial probit models. Our set of independent variables contains firm size, profitability, investment opportunities, leverage as well as the ownership variables defined above. We also control for industry-specific and year-specific effects. Many payout theories predict that a particular payout policy may attract a specific shareholder clientele. Therefore, the ownership variables in our models explaining payout decisions could be endogenous. In order to eliminate a potential simultaneity bias, we employ lagged ownership variables.

## **6. Results**

### **6.1. The propensity to pay in the UK**

In this section, we exhibit the general patterns and trends in dividend payments and share repurchases pursued by UK firms. The overwhelming majority of UK firms (over 82%) pays dividends over the analyzed period (see Table 4). Moreover, the proportion of dividend payers in the UK increases modestly over 1992-1998, and then decreases slowly towards the end of the sample period. In any of the sample years, at least three out of every four firms pay cash dividends. This result contrasts with the existing US evidence for the same period: only about 24% of the American firms paid dividends (Fama and French, 2001); although an increase in dividend payers is observed since 2000.

Relatively few UK firms carry out an active buyback policy. This is consistent with the tax explanation of the payout channel choice, at least for earlier years covered by our sample, because the

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remaining shareholdings are widely dispersed. Hence, we consider an oceanic representation to approximate the actual distribution of votes reasonably well.

<sup>31</sup> An alternative approach would be to estimate a multinomial logit model. However, this method hinges on the assumption of the independence of irrelevant alternatives (IIA), which is violated in the analyzed case. Employing multinomial probit models allows us to relax the IIA assumption (Greene, 2003).

largest class of shareholders (i.e. tax-exempt investors) at least weakly prefer dividends to any form of repurchases (Rau and Vermaelen, 2002). Companies appear to cater to these shareholders and to distribute funds using the dividend channel. On average, slightly more than 9% of the analyzed firms repurchase shares. This stands in marked contrast with the US: Grullon and Michaely (2002) report that the proportion of repurchasing US firms increases from about 70% to over 90% over the 1990s. Table 4 illustrates that the number of UK repurchasing firms tends to increase towards the end of the sample period and the proportion of repurchasing firms still only approaches 16% in 2004. Since the preference of tax-exempt investors for dividends (as compared with share repurchases) weakens over the 1990s (see Section 3),<sup>32</sup> this increase is not surprising. Finally, approximately 83% of firms disburse funds to shareholders either as dividends or repurchases.

[ Insert Tables 4 and 5 about here ]

Table 5 presents the average amounts paid out via dividends and share repurchases, as well as the total payout to shareholders. While the number of firms that distribute earnings to their shareholder decreases over time (see Table 4), the typical size of the payouts tends to increase towards the end of the sample (see Table 5). For instance, both the median size of a dividend payment and the median size of a repurchase program in 2004 are more than twice as large as the respective amounts in 1992. Due to this trend, the aggregate amount paid out tends to increase rather than decrease over time. This finding is consistent with the US evidence documented by De Angelo et al. (2004) but not with Fama and French (2001).

Not only are repurchase plans in the UK less popular than dividends, apparently they are also smaller as far as the amounts transferred to shareholders are concerned. The median amount spent on repurchasing shares equals approximately £ 1.2 million, which is much lower than the median dividend (£ 1.7 million) distributed by dividend-paying firms. This result is at odds with the implications of the adverse selection models that predict that larger distributions should be made via the repurchase channel (Brennan and Thakor, 1990; Lucas and McDonald, 1998). However, while in the respective subsamples, the *median* dividend is larger than the *median* value of the repurchased equity in every single sample year, the opposite usually holds for the *average* amounts of dividends (measured over the dividend-paying firms) and repurchases (measured over the repurchasing firms). This shows that relatively few larger-scale buy-back plans seem to account for most of the funds distributed to shareholders by means of repurchasing equity.

[ Insert Table 6 about here ]

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<sup>32</sup> Tax-driven preferences of other types of shareholders remain unchanged over the sample period.

The middle column of Table 6 indicates that, until 1996, dividends constituted more than 92% of the aggregate payout to shareholders in every single year. In subsequent years, the numbers were usually lower (with the exception of 1999), but the ratio of the aggregate amount of dividends to the aggregate amount spent on share repurchases still exceeds 2:1 in every year of the 1997-2004 period. This confirms the relatively smaller role of share repurchase plans in the UK.

The last column of Table 6 illustrates the relative frequency of repurchases (as opposed to dividends) from a different perspective. In the first half of the 1990s, the number of firms repurchasing equity remained fairly stable and equaled approximately 5% of the number of the dividend-paying firms. Commencing in the second half of the 1990s, a steady upward trend in the relative popularity of repurchases can be observed. Still, even in the last sample year, the number of dividend-paying firms is almost five times larger than the number of firms repurchasing shares. Share buybacks have become increasingly popular, but only recently have they started to be a substitute for dividend payments.

Table 7 investigates the relation between the likelihood of dividend payments and share repurchases. If these two channels are (possibly imperfect) substitutes (Jagannathan et al., 2000; Grullon and Michaely, 2002), the probabilities of their usage should be negatively correlated. Consequently, the proportion of repurchasing firms among dividend-payers should be lower than among firms that do not pay dividends. Our results indicate the opposite. In every single year, repurchasing firms are more prevalent among dividend-paying firms (the differences are statistically significant in every year as of 1997). In the pooled sample, 10.14% of dividend-paying companies and only 4.08% of non-paying firms repurchase shares (the difference is significant at 0.1% level).<sup>33</sup>

[ Insert Table 7 about here ]

## ***6.2. Firm characteristics, ownership structure, and the choice of the payout policy***

So far, we have documented that the vast majority of the companies reimburse funds to shareholders either via dividends or by repurchasing shares. Below, we investigate (i) which firms are more likely to pay dividends and/or reimburse funds and (ii) what determines the choice of payout channel.

[ Insert Tables 8-11 about here ]

Tables 8-11 present the models explaining the type of payout policy followed by UK firms. The estimation results (see Panels A of the tables) indicate that shareholders are more likely to receive a payout from larger firms (see also Grullon et al., 2002). In line with our expectations, we find that high

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<sup>33</sup> Fama and French (2001) report a similar finding for the US: the proportion of repurchasing firms among dividend-payers is higher than among firms that do not pay dividends.

leverage decreases the likelihood of payout. There are several explanations of this significant relation. First, in the spirit of Easterbrook (1984), debt holders in highly levered firms may perform a monitoring task such that there is not much need for a disciplining role of the payout policy. Second, the payout constraints embedded in the debt covenants may become binding. Expectedly, there is a strong positive relationship between the firm's return on assets and the likelihood of payout, as the generation of a sufficient stream of earnings is a necessary condition to reimburse funds to shareholders. Finally, consistent with Fama and French (2001), we find that strong investment opportunities discourage firms from distributing funds to shareholders. In particular, higher Tobin's Q values significantly decrease the likelihood that a firm pays out dividends.

Ownership concentration appears to be an important determinant of payout decisions as well. The models reported in Tables 9-11 indicate that the likelihood that a firm pays dividends increases with the voting power of executive directors (see Panels A of the tables). This result appears inconsistent with the agency theory of payout (Easterbrook, 1984; Jensen, 1986), predicting that in a firm where managers enjoy high degree of discretion, they may pursue wasteful 'empire-building' activities rather than distribute funds to the shareholders. Our findings suggest that, given that the directors' equity stakes constitute a large fraction of their personal wealth, they seem to prefer a positive payout allowing them to diversify their personal portfolio or helping them to meet personal liquidity needs.

Panels A of Tables 9-11 reveal a similar positive relationship between the voting power of outside individuals and the likelihood of dividend payments. Interestingly, the opposite holds for the voting power of industrial firms: the presence of powerful blockholders of this type reduces the probability that earnings are paid out. This suggests that in firms with strong blockholders of this type, there is less need for a pay-out policy as a precommitment device. The management does not need to signal their commitment to corporate value creation when large corporate shareholders are monitoring the firm closely. Finally, the results tend to suggest that the control power of financial institutions translates into a higher probability of dividend payments (as opposed to no payout at all). Still, in the light of the tax considerations discussed in Section 4, this effect is rather weak (it is only marginally significant in one specification, Table 11).<sup>34</sup>

Tables 8-11 also provide some interesting insights concerning the choice of the payout channel. Panels B and C of these tables document that firm size is negatively related to the likelihood that funds are distributed via the repurchase channel (rather than via dividends). On the other hand, size is positively related to the probability that a mixed channel (i.e. both dividends and repurchases) is used instead of dividends or repurchases in isolation. Firm profitability significantly reduces the likelihood of paying out all the funds via share repurchases rather than via dividends. In contrast, the profitability

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<sup>34</sup> The robustness checks discussed in Section 7 further examine the impact of 1997 tax code changes on the preferences of financial institutions with respect to payout policies.

criterion does not discriminate between firms opting for dividends only and those employing both payout channels (the corresponding coefficient is insignificant in any of the specifications reported). Higher values of Tobin's Q significantly increase the probability of a repurchase-only policy (as opposed to policies including dividends). At the same time, firms with better investment opportunities are more likely to pay out funds via dividends only (as opposed to using both dividends and share buybacks simultaneously). Finally, leverage does not lead to specific payout channel preferences.

Panels B of Tables 9-11 illustrate that powerful managers prefer the payout to be distributed as dividends rather than in the form of share repurchases. The results also suggest that such executive directors prefer the dividend-only policy to the scenario where both payout channels are used (the corresponding coefficient is negative in all model specifications and is statistically significant in the model reported in Table 10). Interestingly, when the non-executive directors' voting power is substantial, the firm is significantly less likely to follow the policy of employing both payout channels (as opposed to dividends only). The preference for the dividend-only policy (rather than the repurchase-only policy or the use of both channels simultaneously) seems to be shared by other types of blockholders (financial institutions, industrial firms, and outside individuals) as well – all but two corresponding coefficient estimates in the bottom half of Panels B in Tables 9-11 are negative (yet, most of them fail to reach conventional levels of statistical significance).

There are two possible explanations for the blockholders' preference for a dividend-only policy. First, due to the partial imputation of the UK tax system, most shareholders are (weakly) better off if the payments are made in the form of dividends rather than by means of share repurchases. Second, the preference of dividends over share buybacks can also be attributed to the existence of stringent insider trading rules (see Section 4). This argument seems the most plausible for company directors, but is also likely to hold for large blockholders, who may be subject to detailed transaction disclosure requirements and whose actions are likely to be followed by the financial press, analysts, and investors (Fidrmuc et al., 2006). Therefore, directors (or other blockholders) may prefer obtaining a dividend payment to liquidating part of their share stake (which would be the case, if they were to obtain the funds via a share repurchase plan).<sup>35</sup> Furthermore, a partial liquidation of the stake by a director (or a leading shareholder) may negatively affect the stock price, and, consequently, reduce the value of the remaining equity holdings of such shareholders.

## **7. Additional analyses and robustness checks**

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<sup>35</sup> Dividend payments may have an adverse effect on directors' compensation packages when these include equity-based components. The value of all such components decreases with the size of dividend payments (see Section 4).

We performed a number of additional analyses to verify the robustness of our results.<sup>36</sup> First, we tested for the impact of the 1997 change of the tax code, which has affected the way dividends are taxed and may consequently have altered investors' preferences for dividends vis-à-vis share repurchases. In order to investigate the effect of this structural change, we allowed the coefficients corresponding to the ownership variables to differ in the periods before and after the change (i.e. until 1996 and as of 1997, respectively).<sup>37</sup> The 1997 change mostly affected the class of financial institutions. Therefore, we estimate two types of models. In the first one, we only allow the coefficients for financial institutions' voting power to differ in pre-1997 and post-1997 periods. In the second one, we allow all the coefficients corresponding to the ownership variables to differ across the two periods. In none of the model specification, the coefficients were significantly different across the two periods, which corroborates that tax considerations do not explain the payout policies adopted by the UK firms. All conclusions derived from the models reported in Section 6.2 remain unchallenged.

Second, we analyzed the choice of the mode of payment from a different point of view. Instead of investigating the determinants of the likelihood of choosing a particular payout policy (e.g. dividends only, repurchases only, etc.) we estimated double-censored random-effect tobit models, in which the ratio of dividends to the total amount paid (i.e. the sum of dividends and share repurchases) is the dependent variable. The results are largely similar to the findings reported in Section 6: smaller, less profitable companies with better investment opportunities tend to distribute a larger proportion of their earnings via the repurchase channel. Leverage is not a significant determinant of the payout channel choice. Finally, firms with higher ownership concentration tend to distribute larger proportion of their earnings as dividends rather than via share repurchases.

Third, it may be the case that the Tobin's Q proxy employed in the earlier analyses does not capture the growth potential of the analyzed firms well. Moreover, Baker and Wurgler (2004a, 2004b) argue that the difference in Tobin's Q between dividend payers and non-payers can be interpreted as the premium the investors are willing to pay for firms catering to investors' preferences. Consequently, the catering theory of dividends would render the Tobin's Q proxy endogenous. In order to mitigate both problems, we re-estimated our models with the rate of asset growth replacing the Tobin's Q proxy. The results are virtually identical to those reported in Section 6.

We also attempted to address the (potential) endogeneity issue in another way. Rather than employing the Tobin's Q proxy of the year in which the analyzed payout decision is taken, we employ a value lagged by one year. Again, the results are in line with those reported in Sections 6.2 and 7. Notably, our analyses provide some additional evidence against the catering theory of dividends (Baker

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<sup>36</sup> The results of the models discussed in this section are not reported. All the estimates are available upon request.

<sup>37</sup> Since the change in the tax code took place in July 1997, we also estimate models where the cut-off point is set at the end rather than the beginning of 1997. The corresponding results are virtually identical to those discussed in the text.

and Wurgler, 2004a and 2004b). It is puzzling why so many companies actually do pay dividends (see Table 4), since the proxy for the stock market dividend premium (i.e. difference in Tobin's Q between dividend payers and non-payers) is negative in most of the sample years.

Finally, all the results are robust to different definitions of firm size (the log of the market capitalization or log of total assets) and of leverage (expressed in book or market value).

## **8. Conclusions**

We use a large panel of UK companies over the period 1992-2004 to study two key aspects of firms' payout policies: (i) the decision whether or not to distribute funds and (ii) the choice of the payout channel (i.e. dividends, repurchases, or both). The analysis of time-series and cross-sectional patterns in the payout behavior unveils several interesting results. In the analyzed period, more than 82% of the UK companies pay dividends. The proportion of firms that pay out funds to their shareholders decreases only slightly towards the end of the sample, but even in 2004 almost 78% of firms actively use some type of payout policy. Hence, we conclude that, contrary to recent evidence for the US where dividends disappeared towards the end of the 1990s (Fama and French, 2001) and reappeared with the stock market declined in 2000 (Julio and Ikenberry, 2004), a decreasing propensity to distribute funds to shareholders is observed in the UK. We acknowledge that this discrepancy could be partly attributed to the differences in tax systems between the two countries. Still, the existence of tax clienteles cannot fully explain all documented patterns. Moreover, we show that the companies distributing funds to shareholders are usually larger, more profitable, and less levered. In addition, they grow more slowly, and have fewer investment opportunities than their counterparts who do not distribute (excess) funds to shareholders.

Whereas the importance of share repurchases is increasing, dividends still constitute a vast fraction of the total payout. Moreover, repurchasing firms usually pay dividends as well. Therefore, we find only weak support for the claim that UK firms substitute dividends with share repurchases (as their US peers increasingly do). Our results also document a relationship between the presence of blockholders and the choice of the payout channel: firms with concentrated ownership held by individuals tend to opt for dividends rather than share repurchases. We argue that the presence of stringent insider trading regulation affects the attractiveness of repurchases (as opposed to dividends) for large shareholders (and directors, in particular). Interestingly, the opposite relation holds for the voting power of industrial firms: the presence of powerful blockholders of this type reduces the probability that earnings are paid out. This suggests that in firms with strong blockholders of this type, there is less need for a pay-out policy as a precommitment device. The management does not need to signal their commitment to corporate value creation when large corporate shareholders are monitoring the firm closely. There is also some evidence (albeit not very strong) that the control power of financial institutions translates into a higher probability of dividend payments (as opposed to no payout at all).

Finally, our paper contributes to the ongoing debate on the method of measuring voting power. We advocate the use of Banzhaf indices as a relevant measure of voting power in the analysis of corporate policy choices.

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**Table 1.** Sample characteristics.

<i>Panel A: Summary statistics for pooled sample (9423 firm-years)</i>													
	Mean			Median			St. dev.						
Market value of the firm	634,425			79,919			4,190,475						
Book value of the total assets	384,493			51,662			2,327,521						
Profitability	6.11%			8.89%			23.03%						
Tobin's Q proxy	1.830			1.343			4.713						
Leverage (book-value)	59.91%			54.52%			239.45%						
Leverage (market-value)	41.12%			39.37%			21.14%						
<i>Panel B: Year-by-year averages</i>													
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Market value of the firm	475,656	496,099	468,219	529,338	528,477	546,605	648,861	732,046	797,706	846,771	833,513	875,826	978,114
Book value of the total assets	319,035	311,141	301,825	319,527	294,670	292,552	334,973	382,315	500,448	538,082	559,949	606,132	628,069
Profitability	NA	7.37%	8.60%	7.81%	8.18%	8.99%	6.90%	6.19%	4.44%	1.56%	0.89%	1.72%	2.75%
Tobin's Q proxy	1.503	1.790	1.771	1.954	2.108	1.967	1.922	2.548	1.893	1.434	1.365	1.412	1.613
Leverage (book-value)	59.35%	57.05%	57.39%	59.52%	60.57%	60.34%	56.48%	87.78%	54.00%	52.72%	55.31%	56.39%	59.47%
Leverage (market-value)	45.73%	38.79%	38.88%	39.44%	37.84%	39.16%	40.62%	40.55%	41.70%	44.81%	46.84%	45.84%	41.04%
<i>Panel C: Year-by-year medians</i>													
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Market value of the firm	49,492	61,306	68,991	74,827	87,843	91,084	88,972	87,471	109,654	97,891	90,394	93,114	118,620
Book value of the total assets	36,180	36,550	40,783	45,230	46,824	51,280	54,360	61,935	67,003	77,061	76,037	75,263	82,174
Profitability	NA	8.60%	9.79%	10.06%	10.23%	10.75%	10.15%	9.37%	7.88%	6.34%	5.08%	5.94%	6.19%
Tobin's Q proxy	1.268	1.485	1.455	1.477	1.551	1.457	1.325	1.269	1.233	1.137	1.099	1.142	1.281
Leverage (book-value)	54.99%	53.59%	54.54%	55.99%	56.82%	56.16%	53.92%	53.36%	52.99%	52.42%	53.99%	53.68%	52.86%
Leverage (market-value)	43.42%	35.53%	36.96%	37.23%	35.99%	37.48%	39.31%	40.62%	41.87%	45.19%	46.37%	46.03%	40.28%

**Note to Table 1:** All the values are expressed in constant 1992 prices. Market value of the firm and book value of the assets are measured in £ thousands. Profitability is defined as return on assets (i.e. the ratio of EBIT to the average of the total assets at the beginning and the end of the year). Tobin's Q proxy is defined as the market-to-book ratio. Leverage (book-value) is defined as the ratio of total debt to the book value of the total assets and is measured at the end of the year. Leverage (market-value) is defined as the ratio of total debt to the market value of the firm and is measured at the end of the year.

**Table 2.** Ownership of the UK listed companies (% of equity held by different categories of shareholders).

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Individuals	20.37%	17.67%	20.29%	NA	NA	16.47%	16.68%	15.26%	16.01%	14.79%	14.33%	14.90%	14.08%
Charities, churches, etc.	1.82%	1.57%	1.30%	NA	NA	1.92%	1.36%	1.33%	1.37%	1.04%	1.13%	1.16%	1.09%
Insurance companies	19.46%	20.01%	21.95%	NA	NA	23.57%	21.65%	21.56%	21.04%	19.99%	19.93%	17.32%	17.17%
Pension funds	32.40%	31.49%	27.80%	NA	NA	22.07%	21.67%	19.58%	17.74%	16.09%	15.60%	15.99%	15.71%
Investment trusts	2.08%	2.48%	1.97%	NA	NA	1.91%	1.94%	1.93%	2.15%	2.25%	1.78%	2.28%	3.28%
Unit trusts	6.17%	6.60%	6.80%	NA	NA	6.72%	3.03%	2.65%	1.71%	1.78%	1.64%	1.99%	1.86%
Banks	0.49%	0.59%	0.39%	NA	NA	0.06%	0.56%	1.00%	1.44%	1.27%	2.10%	2.20%	2.68%
Other financial institutions	0.44%	0.56%	1.29%	NA	NA	2.04%	4.06%	5.06%	4.59%	9.86%	10.51%	11.06%	10.74%
Private non-financial institutions	1.84%	1.46%	1.14%	NA	NA	1.17%	1.39%	2.21%	1.49%	0.98%	0.79%	0.72%	0.65%
Public sector	1.84%	1.28%	0.76%	NA	NA	0.09%	0.09%	0.09%	0.03%	0.05%	0.11%	0.10%	0.09%
Foreign ownership	13.11%	16.30%	16.31%	NA	NA	23.99%	27.59%	29.34%	32.44%	31.92%	32.08%	32.29%	32.64%
Individuals	20.37%	17.67%	20.29%	NA	NA	16.47%	16.68%	15.26%	16.01%	14.79%	14.33%	14.90%	14.08%

**Note to Table 2:** The numbers are calculated on the basis of the results of surveys on the ownership of UK firms carried out by the Office for National Statistics. The surveys for 1995 and 1996 were not carried out.

**Table 3.** Fraction of equity held by different categories of blockholders.

<i>Panel A: Summary statistics for pooled sample (9559 firm-years)</i>													
	Mean			Median			St. dev.						
Executive directors	11.02%			0.69%			17.71%						
Financial institutions	21.54%			19.06%			17.42%						
Industrial firms	4.19%			0.00%			11.38%						
Non-executive directors	2.00%			0.00%			7.10%						
Outside individuals	2.68%			0.00%			6.76%						
Public sector	0.03%			0.00%			0.45%						

  

<i>Panel B: Year-by-year averages</i>													
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Executive directors	12.09%	11.27%	10.43%	9.58%	8.94%	8.30%	9.29%	13.69%	13.36%	13.03%	12.79%	11.21%	11.09%
Financial institutions	18.29%	17.39%	18.28%	19.05%	19.36%	20.96%	21.71%	27.69%	26.09%	24.30%	23.33%	24.04%	24.03%
Industrial firms	4.24%	4.23%	3.80%	4.05%	3.89%	4.27%	4.00%	4.11%	4.09%	4.34%	4.48%	4.65%	4.90%
Non-executive directors	1.67%	1.58%	1.76%	1.71%	1.65%	1.70%	1.92%	2.03%	2.20%	2.34%	2.63%	2.86%	3.03%
Outside individuals	2.53%	2.43%	2.12%	2.23%	2.24%	2.26%	2.77%	2.63%	2.76%	3.17%	3.28%	3.84%	4.00%
Public sector	0.03%	0.01%	0.01%	0.02%	0.03%	0.05%	0.02%	0.07%	0.03%	0.05%	0.03%	0.04%	0.03%

**Note to Table 3:** For 1992-1998, the data is based on blocks exceeding 5% of the equity outstanding. For 1999-2004, the threshold is 3% (while all the director's stakes are taken into account, even if they smaller than 3% of equity outstanding).

**Table 4.** Propensity to pay (proportion of payers).

Year	Dividends	Share repurchases	Share repurchases or dividends
1992	83.38%	4.68%	83.94%
1993	81.34%	4.68%	82.37%
1994	83.86%	4.54%	84.47%
1995	85.38%	4.09%	85.75%
1996	84.82%	6.36%	85.81%
1997	85.98%	9.12%	86.74%
1998	86.30%	12.53%	86.80%
1999	83.80%	12.10%	84.57%
2000	80.17%	14.80%	81.46%
2001	77.20%	12.48%	78.12%
2002	76.02%	13.56%	77.21%
2003	75.42%	15.57%	77.19%
2004	76.59%	15.98%	77.85%
<b>Total</b>	82.43%	9.08%	83.28%

**Note to Table 4:** The numbers show which proportion of the sample firms pursued a particular payout policy in a given year. The last row presents the statistics for the pooled sample (9391 observations).

**Table 5.** Propensity to pay (amounts paid).

Year	Amount spent on dividends by dividend-paying firms (in £ thousands)		Amount spent on share repurchases by repurchasing firms (in £ thousands)		Amount paid out by firms reimbursing the funds (in £ thousands)	
	Mean	Median	Mean	Median	Mean	Median
1992	10,348	1,232	10,342	615	10,892	1,266
1993	9,234	1,111	13,923	968	9,930	1,194
1994	9,644	1,201	13,677	1,153	10,353	1,287
1995	10,553	1,463	5,866	393	10,846	1,499
1996	11,543	1,535	8,623	817	12,257	1,609
1997	10,570	1,733	31,514	976	13,905	1,853
1998	11,318	1,911	15,175	852	13,654	2,046
1999	21,459	2,135	6,741	884	22,509	2,216
2000	15,848	2,280	34,757	1,537	22,119	2,452
2001	18,803	2,556	24,915	1,438	22,648	2,732
2002	20,129	2,534	13,513	1,764	22,332	2,985
2003	21,663	2,663	23,814	1,748	26,040	2,973
2004	22,378	2,897	53,021	1,627	32,979	3,044
<b>Total</b>	13,605	1,728	21,398	1,178	15,907	1,828

**Note to Table 5:** All the values are expressed in constant 1992 prices. The last row presents the statistics for the pooled sample (9391 observations).

**Table 6.** Relative frequency of different payout methods: dividends vs. stock repurchases.

	<u>Dividends in £ thousands</u> Total payout in £ thousands	<u>No. of repurchasing firms</u> No. of dividend paying firms
<b>1992</b>	94.72%	5.59%
<b>1993</b>	92.04%	5.74%
<b>1994</b>	92.91%	5.38%
<b>1995</b>	97.43%	4.76%
<b>1996</b>	94.87%	7.35%
<b>1997</b>	76.38%	10.46%
<b>1998</b>	84.14%	14.24%
<b>1999</b>	97.04%	14.06%
<b>2000</b>	72.55%	17.94%
<b>2001</b>	82.64%	16.05%
<b>2002</b>	89.45%	17.69%
<b>2003</b>	81.81%	20.51%
<b>2004</b>	67.06%	20.77%
<b>Total</b>	85.65%	10.89%

**Note to Table 6:** The numbers in the middle column of the table are the ratios of the aggregate data for the sample firms. Dividends and total payout are expressed in £ thousands (in constant 1992 prices). The last row presents the statistics for the pooled sample.

**Table 7.** Proportion of repurchasing firms of dividend-paying and non-dividend-paying firms.

<b>Year</b>	<b>Dividend-paying firms</b>	<b>Non-dividend-paying firms</b>	<b>t-statistic for significance of the differences</b>	<b>p-value for the t-test</b>
<b>1992</b>	5.14%	2.31%	1.400	0.162
<b>1993</b>	4.71%	4.55%	0.085	0.932
<b>1994</b>	4.99%	2.14%	1.483	0.138
<b>1995</b>	4.52%	1.53%	1.602	0.110
<b>1996</b>	6.60%	4.96%	0.734	0.463
<b>1997</b>	10.07%	3.10%	2.562	0.011
<b>1998</b>	14.07%	2.88%	3.218	0.001
<b>1999</b>	13.54%	4.67%	2.583	0.010
<b>2000</b>	16.95%	6.03%	2.984	0.003
<b>2001</b>	14.99%	3.97%	3.316	0.001
<b>2002</b>	16.28%	4.92%	3.223	0.001
<b>2003</b>	18.36%	6.96%	2.952	0.003
<b>2004</b>	19.10%	5.83%	3.248	0.001
<b>Total</b>	10.14%	4.08%	7.731	0.000

**Note to Table 7:** p-values are computed for two-tailed tests. The last row presents the statistics for the pooled sample (9282 observations).

**Table 8.** Multinomial probit models explaining the choice of payout policy (basic model).

	Panel A: Base-case outcome is non-paying						Panel B: Base-case outcome is dividend-paying				Panel C: Base-case outcome is repurchasing	
	Dividends		Repurchases		Divs & repurchases		Repurchases		Divs & repurchases		Divs & repurchases	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Intercept	-2.92	-6.17***	-4.03	-7.15***	-4.43	-8.30***	-1.11	-2.13*	-1.50	-4.32***	-0.39	-0.68
Firm size	0.41	9.65***	0.27	5.30***	0.47	10.05***	-0.14	-2.83**	0.06	2.22*	0.20	3.74***
Profitability	3.39	5.47***	1.09	1.94 <sup>†</sup>	3.59	4.56***	-2.30	-4.07***	0.20	0.66	2.50	3.65***
Tobin's Q proxy	-0.23	-6.58***	-0.05	-1.49	-0.31	-5.31***	0.19	4.72***	-0.08	-1.72 <sup>†</sup>	-0.27	-4.42***
Leverage	-0.84	-3.95***	-0.68	-2.29*	-0.91	-3.27***	0.15	0.49	-0.07	-0.37	-0.22	-0.64
Year dummies	Yes		Yes		Yes		Yes		Yes		Yes	
Industry dummies	Yes		Yes		Yes		Yes		Yes		Yes	

**Model summary:**

Log pseudolikelihood	No. of observations	No. of groups	Wald test statistic	Wald test p-value
-4997.81	8179	978	$\chi^2(63) = 685.70$	< 0.001

**Note to Table 8:** <sup>†</sup>, \*, \*\*, and \*\*\* denote significance at the 10, 5, 1, and 0.1% level, respectively. In order to control for the panel structure of the dataset; standard errors are adjusted for clustering of observations on each firm. The dependent variable takes a value of 0 for firms with no payout in a particular year, 1 for firms that pay dividends only in a particular year, 2 for firms that repurchase shares, but do not pay dividends in a particular year, and 3 for firms that repurchase shares and pay dividends in a particular year. All the values are expressed in constant 1992 prices. Firm size is defined as the natural logarithm of the market value of the firm (expressed in £ thousands). Profitability is defined as return on assets (i.e. the ratio of EBIT to the average of total assets at the beginning and the end of the year). Tobin's Q is defined as the market-to-book ratio. Leverage is defined as the ratio of total debt to the book value of the total assets and is measured at the end of the year.

**Table 9.** Multinomial probit model of the choice of payout policy (voting power by category of shareholder is the aggregate equity stake (%))

	Panel A: Base-case outcome is non-paying						Panel B: Base-case outcome is dividend-paying				Panel C: Base-case outcome is repurchasing	
	Dividends		Repurchases		Divs & repurchases		Repurchases		Divs & repurchases		Divs & repurchases	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Intercept	-3.96	-7.19***	-4.22	-5.99***	-5.04	-7.93***	-0.25	-0.36	-1.08	-2.54*	-0.82	-1.09
Firm size	0.50	10.82***	0.30	5.34***	0.53	10.20***	-0.20	-3.55***	0.04	1.20	0.23	3.90***
Profitability	3.23	5.28***	1.01	1.79 <sup>†</sup>	3.39	4.62***	-2.22	-3.94***	0.16	0.61	2.38	3.64***
Tobin's Q proxy	-0.25	-6.43***	-0.07	-1.98*	-0.34	-5.18***	0.18	4.05***	-0.09	-1.74 <sup>†</sup>	-0.27	-4.00***
Leverage	-0.88	-4.15***	-0.63	-2.13*	-0.92	-3.38***	0.25	0.79	-0.04	-0.21	-0.29	-0.82
VP of executive directors	1.21	3.65***	-0.26	-0.42	0.95	2.26*	-1.47	-2.41*	-0.26	-0.77	1.21	1.89 <sup>†</sup>
VP of financial institutions	0.09	0.28	-0.23	-0.43	-0.33	-0.90	-0.31	-0.54	-0.42	-1.55	-0.11	-0.18
VP of industrial firms	-1.02	-2.46*	-0.74	-1.49	-1.21	-2.26*	0.28	0.50	-0.19	-0.47	-0.47	-0.73
VP of non-exec. directors	0.58	0.91	1.57	1.28	-0.79	-0.96	0.99	0.80	-1.36	-2.00*	-2.36	-2.33*
VP of outside individuals	1.30	2.01*	0.01	0.01	0.44	0.58	-1.30	-0.90	-0.86	-1.46	0.44	0.29
Year dummies	Yes		Yes		Yes		Yes		Yes		Yes	
Industry dummies	Yes		Yes		Yes		Yes		Yes		Yes	
<b>Model summary:</b>	Log pseudolikelihood		No. of observations		No. of groups		Wald test statistic		Wald test p-value			
	-4619.20		7838		975		$\chi^2(78) = 736.92$		< 0.001			

**Note to Table 9:** <sup>†</sup>, \*, \*\*, and \*\*\* denote significance at the 10, 5, 1, and 0.1% level, respectively. Note: The voting power by category of shareholder is measured as the aggregate share stakes controlled by this category of owner (in %). In order to control for the panel structure of the dataset, standard errors are adjusted for clustering of observations on each firm. The dependent variable takes a value of 0 for firms with no payout in a particular year, 1 for firms that pay dividends only in a particular year, 2 for firms that repurchase shares, but do not pay dividends in a particular year, and 3 for firms that repurchase shares and pay dividends in a particular year. All the values are expressed in constant 1992 prices. Firm size is defined as the natural logarithm of the market value of the firm (expressed in £ thousands). Profitability is defined as return on assets (i.e. the ratio of EBIT to the average of total assets at the beginning and the end of the year). Tobin's Q is defined as the market-to-book ratio. Leverage is defined as the ratio of total debt to the book value of the total assets and is measured at the end of the year. All the ownership variables are based on the data summarized in Table 3 and are lagged by one year.

**Table 10.** Multinomial probit model of the choice of payout policy (voting power by category of shareholder is the absolute Banzhaf index).

	Panel A: Base-case outcome is non-paying						Panel B: Base-case outcome is dividend-paying				Panel C: Base-case outcome is repurchasing	
	Dividends		Repurchases		Divs & repurchases		Repurchases		Divs & repurchases		Divs & repurchases	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Intercept	-3.87	-6.83***	-4.07	-5.39***	-4.93	-7.69***	-0.20	-0.26	-1.06	-2.56**	-0.86	-1.08
Firm size	0.48	10.80***	0.31	5.60***	0.53	10.64***	-0.17	-3.10**	0.05	1.71 <sup>†</sup>	0.22	3.77***
Profitability	3.27	5.30***	1.02	1.79 <sup>†</sup>	3.43	4.58***	-2.25	-3.96***	0.16	0.57	2.40	3.62***
Tobin's Q proxy	-0.25	-6.38***	-0.07	-1.89 <sup>†</sup>	-0.34	-5.08***	0.18	4.03***	-0.09	-1.68 <sup>†</sup>	-0.27	-3.94***
Leverage	-0.90	-4.23***	-0.63	-2.10*	-0.96	-3.51***	0.27	0.86	-0.06	-0.31	-0.33	-0.95
VP of executive directors	0.67	2.90**	-0.19	-0.44	0.35	1.37	-0.86	-1.94 <sup>†</sup>	-0.31	-2.02*	0.54	1.25
VP of financial institutions	0.19	0.83	-0.32	-0.77	-0.10	-0.38	-0.51	-1.27	-0.28	-2.00*	0.22	0.50
VP of industrial firms	-0.28	-1.12	-0.40	-0.97	-0.51	-1.80 <sup>†</sup>	-0.13	-0.30	-0.24	-1.24	-0.11	-0.38
VP of non-exec. directors	0.12	0.43	0.07	0.12	-0.72	-2.05*	-0.06	-0.10	-0.84	-3.41***	-0.79	-1.61
VP of outside individuals	0.42	1.72 <sup>†</sup>	-0.15	-0.34	0.14	0.46	-0.57	-1.24	-0.28	-1.17	0.29	0.50
Year dummies	Yes		Yes		Yes		Yes		Yes		Yes	
Industry dummies	Yes		Yes		Yes		Yes		Yes		Yes	
<b>Model summary:</b>	Log pseudolikelihood		No. of observations		No. of groups		Wald test statistic		Wald test p-value			
	-4625.56		7837		975		$\chi^2(78) = 751.69$		< 0.001			

**Note to Table 10:** <sup>†</sup>, \*, \*\*, and \*\*\* denote significance at the 10, 5, 1, and 0.1% level, respectively. The voting power is measured by a Banzhaf absolute index corresponding to the stake controlled by the class of shareholders. In order to control for the panel structure of the dataset, standard errors are adjusted for clustering of observations on each firm. The dependent variable takes a value of 0 for firms with no payout in a particular year, 1 for firms that pay dividends only in a particular year, 2 for firms that repurchase shares, but do not pay dividends in a particular year, and 3 for firms that repurchase shares and pay dividends in a particular year. All the values are expressed in constant 1992 prices. Firm size is defined as the natural logarithm of the market value of the firm (expressed in £ thousands). Profitability is defined as return on assets (i.e. the ratio of EBIT to the average of total assets at the beginning and the end of the year). Tobin's Q is defined as the market-to-book ratio. Leverage is defined as the ratio of total debt to the book value of the total assets and is measured at the end of the year. The construction of the absolute Banzhaf indices is explained in Section 5.2. All the ownership variables are based on the data summarized in Table 3 and are lagged by one year.

**Table 11.** Multinomial probit model of the choice of payout policy (voting power by category of shareholder is the relative Banzhaf index).

	Panel A: Base-case outcome is non-paying						Panel B: Base-case outcome is dividend-paying				Panel C: Base-case outcome is repurchasing	
	Dividends		Repurchases		Divs & repurchases		Repurchases		Divs & repurchases		Divs & repurchases	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Intercept	-4.16	-6.91***	-4.30	-5.20***	-5.43	-8.07***	-0.14	-0.17	-1.27	-3.03**	-1.13	-1.30
Firm size	0.48	10.84***	0.31	5.62***	0.53	10.80***	-0.17	-3.06**	0.05	1.90 <sup>†</sup>	0.22	3.79***
Profitability	3.26	5.29***	1.02	1.80 <sup>†</sup>	3.42	4.58***	-2.24	-3.94***	0.16	0.58	2.40	3.61***
Tobin's Q proxy	-0.25	-6.38***	-0.07	-1.90 <sup>†</sup>	-0.34	-5.09***	0.18	3.98***	-0.09	-1.68 <sup>†</sup>	-0.27	-3.92***
Leverage	-0.90	-4.25***	-0.63	-2.12*	-0.96	-3.53***	0.27	0.87	-0.06	-0.32	-0.33	-0.95
VP of executive directors	0.98	3.41***	-0.02	-0.04	0.80	2.41*	-1.01	-1.90 <sup>†</sup>	-0.19	-0.91	0.82	1.50
VP of financial institutions	0.49	1.80 <sup>†</sup>	-0.11	-0.21	0.33	1.08	-0.60	-1.23	-0.15	-0.88	0.44	0.89
VP of industrial firms	0.05	0.16	-0.19	-0.35	-0.06	-0.17	-0.24	-0.46	-0.11	-0.47	0.13	0.24
VP of non-exec. directors	0.46	1.28	0.28	0.39	-0.30	-0.68	-0.17	-0.25	-0.75	-2.51*	-0.58	-0.83
VP of outside individuals	0.80	2.44*	0.07	0.10	0.61	1.51	-0.73	-1.14	-0.19	-0.65	0.54	0.80
Year dummies	Yes		Yes		Yes		Yes		Yes		Yes	
Industry dummies	Yes		Yes		Yes		Yes		Yes		Yes	

**Model summary:**

Log pseudolikelihood	No. of observations	No. of groups	Wald test statistic	Wald test p-value
-4625.98	7837	975	$\chi^2(78) = 759.36$	< 0.001

**Note to Table 11:** <sup>†</sup>, \*, \*\*, and \*\*\* denote significance at the 10, 5, 1, and 0.1% level, respectively. The voting power is measured as a Banzhaf relative index corresponding to the stake controlled by the class of shareholders. In order to control for the panel structure of the dataset, standard errors are adjusted for clustering of observations on each firm. The dependent variable takes a value of 0 for firms with no payout in a particular year, 1 for firms that pay dividends only in a particular year, 2 for firms that repurchase shares, but do not pay dividends in a particular year, and 3 for firms that repurchase shares and pay dividends in a particular year. All the values are expressed in constant 1992 prices. Firm size is defined as the natural logarithm of the market value of the firm (expressed in £ thousands). Profitability is defined as return on assets (i.e. the ratio of EBIT to the average of total assets at the beginning and the end of the year). Tobin's Q is defined as the market-to-book ratio. Leverage is defined as the ratio of total debt to the book value of the total assets and is measured at the end of the year. The construction of the relative Banzhaf indices is explained in Section 5.2. All the ownership variables are based on the data summarized in Table 3 and are lagged by one year.