Dividend Policies in an Unregulated Market: The London Stock Exchange 1895-1905*

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Abstract

In perfect and complete financial markets Miller and Modigliani (1961) show that a firm's value is unaffected by its dividend policy. Taxation, asymmetric information, incomplete contracts, institutional constraints, and transaction costs make dividend policy important. We examine the effects of dividend policies on 469 British firms between 1895 and 1905. These firms operated in an environment of very low taxation and an absence of institutional constraints. We find strong support for asymmetric information theories of dividend policy, and little support for agency models.

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The theorem of Miller and Modigliani (1961) states that, if capital markets are perfect, a firm's decision of if, when, and how much of its cash should be disbursed to shareholders is irrelevant for the firm's value. In practice, the assumption of capital market perfection does not hold and dividend policy is relevant.

Modern corporate finance has focused on tax, regulation, asymmetric information, and behavioral explanations to examine how and why dividend payments affect a firm's value. Although theory has produced clear channels by which dividend policy affects a firm's value, in practice it is difficult to disentangle the relative importance of each explanation. For instance, the stock price increase after an announcement of an increased dividend is consistent with multiple theories: that of dividend clienteles (some groups may value dividends over capital gains), investors' reaction to the provision of new information (asymmetric information), agency effects (dividends take cash out of the hands of managers), or confirmation of previous earnings changes (e.g. Koch and Sun (2004)). Dhaliwal et al. (1999), Graham and Kumar (2006), Dahlquist et al., (2007), Hotchkiss and Lawrence (2007), and Desai and Jin (2008) show that clienteles, especially clienteles related to different tax rates, influence the payout ratio of a firm and determine the share price reactions after announcements of dividend changes. The importance of tax effects has been documented by Fama and French (2001), Allen and Michaely (2003), and Kalay and Lemmon (2008)), who show that contemporary U.S. firms often use stock repurchases as a means of returning wealth to shareholders to avoid the higher effective tax rate on dividends.

The analysis of dividend policy would be greatly simplified if we could, *ex-ante*, rule out some explanations for dividend policy and focus on the remainder. In the pre-World War One London market, taxes were largely irrelevant and regulation was minimal, which allows us to discriminate between the remaining theories of why firms pay dividends - asymmetric information and incomplete contracts (agency models). We compile a data set of 469 British firms that existed between 1895 and 1905. We document the impact of dividend announcements on security prices, we calculate payout ratios of different industries, and we analyze which types of firms were more likely to pay dividends.

There are three elements of turn of the twentieth century U.K. financial markets that make them interesting for the study of payout policy. First, pre-1907, profits of incorporated U.K. firms were treated like personal (labor) income and taxed a rate of about 5%.[1] When dividends were paid, the firm would deduct the relevant tax from the dividend and send it to the government (see Arnold (1999)). Dividends and interest income were treated identically and, unlike modern times, each investor was subject to the same tax rate thus eliminating the existence of tax clienteles.[2] There was no tax levied on capital gains in this period.[3]

Second, U.K. legislation permitted dividends to be used as a flexible instrument to distribute cash to shareholders. The only binding legal constraint in place was a common law rule that prevented a company from harming creditors by paying dividends when it lacked the financial means (see Cheffins (2006)). Therefore, the data we examine are generated in a system very close to the textbook theoretical setting, in which firms set their payout policies free of legislative contraints (e.g. Bhattacharya (1979), Easterbrook (1984), and Miller and Rock (1985)). Dividends were by far the principal means of returning wealth. Stock repurchases had been forbidden by common law, following Trevor v. Whitworth (1887), and one-off returns of capital were very infrequent, and required the sanction of a court. As a result, our paper effectively studies total payout policy rather than a specific component (dividends only or share repurchases only).

The third element is the absence of regulations that constrain how investors allocate their funds. "Prudent man" rules have been suggested as an explanation for why firms pay dividends. In some jurisdictions laws constrain the behavior of certain types of investors (e.g. private trusts, bank trusts, and pension funds) to invest in "high quality" equities, such as those that pay dividends (see Del Guercio (1996)). In response to these laws some firms will pay dividends to cater to such investors.

Following the literature we focus our analysis on two explanations for payout policies: asymmetric information and agency theories. Asymmetric information theories state that

[1] http://www.hmrc.gov.uk/history/taxhis4.htm. The tax rate was $3\frac{1}{3}\%$ (8 pence in the pound) in the late years of the 19th century. It was raised to 5% at the start of the Boer War (1899), to 5.833% in 1900 and to 6.25% in 1901. The rate was cut to 4.583% in 1902, but raised again to 5% in 1904 (see Sabine (1966) pp. 129-30).

[2] It is possible that other types of clienteles, for instance related to behavioral factors, may have existed.

[3] See Daunton (2001), *Trusting Leviathan*, for a discussion of the U.K. capital gains tax in this period.

dividends are a costly signal available to managers to convey information about a firm's future prospects. Agency theories suggest that managers could allocate resources to activities that benefit themselves, at the expense of shareholders. From this perspective, dividends are an effective tool to return any excess cash to the shareholders especially in mature companies with less investment opportunities and less need of retaining cash. Despite a large amount of empirical research on the subject the dispute is still unresolved. Some empirical studies find that signaling is the best explanation for payout policies (e.g. Yoon and Starks (1995), Bernhein and Wantz (1995), Nissim and Ziv (2001), and Chemmanur et al. (2008)) whereas others maintain that agency effects dominate (e.g. Lang and Litzenberger (1984), Grullon and Michaely (2004), De Angelo, De Angelo and Stultz (2006), and Michaely and Roberts (2007)).

We find that dividends effectively signalled private information from firm insiders to the market. An announcement of a dividend cut or a dividend omission was bad news for firms - it tended to generate a negative abnormal return of around 2.0% in the week of the announcement. The effects of cuts or omissions do not markedly differ between firms ranked by either age, Tobin's Q, or retained equity - all measures of maturity of a company. Announcements of dividend increases or commencements generate positive abnormal returns of around 1.4%. These results suggest that dividend announcements conveyed private information held by firm insiders to shareholders, and support the asymmetric information theory of payout policy. Consistent with Bhattacharya (1979), whose model states that the informativeness of a dividend change is given by a firm's cost of external finance, the effects of dividend changes on returns are stronger in smaller firms that in principle should have had a harder time to access external sources of finance. Moreover, we find that a firm's dividend policy conveyed information about a firm's future profitability and that dividend increases (decreases) were associated with increases (decreases) in earnings in the next financial year. Changes in dividends were stronger predictors of future earnings in companies officially listed on the London Stock Exchange. In these companies the asymmetric information problem between managers and shareholders was more severe (compared to unlisted/narrowly held firms) and thus a dividend payment was a more valuable tool to discern future performance.

We find little support for agency theories. Contrary to the predictions of agency theory, we find that various measure of the maturity of a company such as age, Tobin's Q, and the ratio of retained earnings to total common equity did not increase the likelihood of paying a dividend. It is unlikely that our results are driven by poor investor protection. We find that firms cared about agency problems, however they resolved them in other ways, for instance by constraining managers' abilities to incur external debt. A further concern could be that, due to poor quality (and perhaps malleable) accounting statements in the early twentieth century, dividends are a useful signalling device only because they are paid with cash. While poor quality accounts may have increased investors' reliance on dividends as a signal, the theoretical effect of dubious accounting standards is unclear. Poor quality accounts could just as easily exacerbate agency problems, since insiders could more easily divert funds for personal uses. We also investigate other explanations for payout policy, such as transaction costs, but we find no supporting evidence.

A natural concern when investigating an historical market is how the results can be related to today's financial markets. We find that the payout policy of turn of the twentieth century British firms is in many respects remarkably similar to contemporary firms. Firms in our sample had similar payout ratios to contemporary U.K. firms: about 52% of earnings was disbursed to shareholders. Moreover, British directors used dividend policies as a flexible tool, much like managers use share repurchases in the modern era. We find that firms were not averse to frequent changes of their dividend levels, and in particular were more than willing to cut dividends. In fact, 42% of all dividend *changes* in our sample were made up of dividend cuts. Skinner (2008) documents that U.S. companies prefer to cut the amount of cash disbursed to shareholders via share repurchases (not via dividends). He finds that around 46% of all changes to share repurchase programs are cuts: a figure very similar to our results. Moreover, we also find that speed of adjustment of dividends with respect to transitory earnings shocks in our data is very close to the speed of adjustment of total payouts to earnings found by Leary and Michaely (2008) for the 2000s. Our results suggest that the evolution of modern payout policy is towards the situation as it was in the U.K. a century ago. We believe that these similarities between payout policy today (dividends

+ share repurchases) and a hundred years ago (dividends only) make our data particularly relevant to understand what factors drive companies' payout policies.

In addition to providing new evidence on the dynamics of dividend payments, this paper contributes to a growing literature that looks at past historical periods as useful enviroments to gain a better understanding of financial issues (e.g. Benmelech (2009), Chambers and Dimson (2009), Franks, Mayer, and Rossi (2009), Frydman and Saks, (2008), Moore and Juh (2006), and Rajan and Zingales (2003)).

In Section I we review the main theories of dividend policies. In Section II we describe the main institutional features of the London financial markets at the turn of the twentieth century. In Section III we describe the data we collect on the London Stock Exchange. We present our main results in Section IV. We examine robustness issues in Section V and Section VI, and conclude in Section VII. and conclude in Section VI.

I Theories of Dividend Payouts

Lintner (1956) was the first to systematically assess the dividend policies of corporations. His interviews with senior managers at 28 firms document that most managers believe stockholders prefer a stable rate of dividends, and will place a premium on firms that can deliver stable dividends. He finds behavior of dividend-smoothing by managers (Lintner (1956, p. 99)): "most managements sought to avoid making changes in their dividend rates that might have to be reversed within a year or so."

The information signaling models of Bhattacharya (1979), Miller and Rock (1985), and John and Williams (1985) suggest that firms will use dividend changes to signal the future prospects of the firm. Managers have more information about their firm's future cash flows than outsiders, and managers may have an incentive to signal this information to the market. An unanticipated rise in dividends is good news for the shareholders, and should be accompanied by a rise in the share price, whereas a fall in the dividend conveys bad news to shareholders. For these signalling models to hold in equilibrium, dividend changes need to be followed by earnings changes in the same direction.

Agency models recognize that a firm is comprised of at least three different stakeholders: management, shareholders, and bondholders, and the three groups' interests may diverge. Shareholders in a struggling company may like to pay themselves such large dividends that bondholders will miss out on their scheduled payments. Management may be tempted to use the firm's resources in a way that is not in the best interests of the shareholders. Solutions to the conflict of interest problem that management face have been suggested by Grossman and Hart (1980), Easterbrook (1984), and Jensen (1986). Management should be constrained in how much readily accessible cash they have access to. The less cash available to management, the harder it is for them to spend it in wasteful pursuits. By paying out cash as dividends it reduces the cash at the disposal of management, and can increase the value of the firm. One version of the agency model, by Lang and Litzenberger (1989), is that wasteful uses of cash are likely to be more pronounced in stable, cash-rich firms in mature industries without many growth opportunities. Therefore, an increase in dividends should have a greater (positive) price impact for firms that have few investment opportunities than for firms that have many investment opportunities. Taken to the extreme, if a firm has many positive net present value projects, then increasing the cash distributed to shareholders as dividends could even decrease the value of the firm.

The institutional environment of the London Stock Exchange at the turn of the twentieth century rules out the existence of dividend clienteles related to taxes. The idea of a clientele effects is directly related to Miller and Modigliani (1961) who argue that firms have an incentive to supply stocks that minimize the taxes of each group of investors (or clientele). As a result, investors who pay low taxes on the dividends they receive buy stocks of companies paying high dividends and conversely investors with high dividend taxes buy stocks of companies paying low dividends.[4]

Tax clienteles may generate two confounding elements when testing signaling and agency theories. First, a share prices reaction to a dividend change could be related to both signaling/agency model and to a reshuffling of tax-clienteles. By increasing its dividend payments,

[4] Clientele effects could also arise from non-tax considerations such as informational advantages, distinct investment styles, or monitoring abilities. For instance, institutions may be better informed than retail investors and this informational advantage could manifest itself in differing attitudes towards payout policy.

a company may attract a larger number of lightly taxed investors which will increase its share price. Second, a dividend change may be instituted solely to please a certain influential clientele. As a result, the relationship between dividend changes and future cash flows (as predicted by the signaling theory) would be weakened. While the role and the importance of dividend (tax) clienteles is still the object of investigation (see Allen and Michaely (2003)) several works suggest that clienteles are empirically important. Dhaliwal et al. (1999) provide evidence that after a dividend initiation, the firms' institutional investor clientele changes based on their tax preferences, with a surge of ownership by tax-exempt/tax-deferred and corporate investors. Graham and Kumar (2006) and Dahlquist et al. (2007) provide evidence consistent with the idea that investors' tax characteristics are associated with their portfolio holdings. Hotchkiss and Lawrence (2007) find that institutions persistently hold stocks with high dividends. When a firm announces a change in dividend policy, dividend increases (decreases) are associated with increased (decreased) holdings by institutions that appear to prefer dividends, based on their portfolio. They also provide evidence that such dividend clienteles are partly related to tax considerations. Desai and Jin (2008) also find a strong association between the composition of institutional shareholders and dividend payment behavior. They provide evidence that after a change in a firm's dividend policy, the concentration of dividend-averse institutions in the next year changes in response, suggesting that pre-determined changes in payout policies leads to future changes in dividend clienteles. In our data set the tax rate on dividend payments was very low, at about 5%, and even more importantly, all investors on the London Stock Exchange were subject to the same tax rate, hence eliminating the existence of tax related clienteles.

Aside from tax issues, the remaining Miller and Modigliani (1961) assumptions, complete contracting, no transaction costs, and complete markets were not satisfied in U.K. securities markets in the early twentieth century. However, it is arguable that violations of these assumptions were no worse than they are today. Managers were forced to hold stock in their own firms, and their salary was voted on at the AGM. Although managers could be voted out of office, complete contracts could not be written that would have prevented the scandals that did occur from time to time. Markets were incomplete, due to the lack of complete state-contingent contracts, but nor can such contracts be written now (although the recent development of markets for derivatives has helped). The London Stock Exchange had low brokerage fees, due to the desire to maintain world preeminence as a financial market, with thousands of competing brokers, yet transaction costs were positive, as they are today. The "recognized" brokerage fees for equities were $\frac{1}{4}\%$ per transaction under £50, $\frac{1}{2}\%$ per transaction over £50 but this could be negotiated downwards for large dealings (see The Investor's Monthly Manual for details).

II Historical Background

Pre-1907, profits of incorporated U.K. firms were taxed at the same rate as the personal (labour) tax rate. When dividends were paid, the firm would deduct the relevant tax from the dividend and send it to the government, known as taxation at the source (see Arnold (1999)). Dividends and interest income were treated identically. The relevant tax rate in the U.K. was around 5% during the period of our study, therefore there was little incentive for firms to be creative in how they returned wealth to shareholders.[5] Dividends were by far the principal means of returning wealth. Stock repurchases had been forbidden by common law, following Trevor v. Whitworth (1887), and one-off returns of capital were very infrequent, and required the sanction of a court. There was no tax levied on capital gains in this period. Although charities were tax exempt we do not believe they were major investors in British firms. The almost total irrelevance of tax complications allows us to focus on alternative explanations of dividend policy.

In contrast to the present day, early twentieth century U.K. legislation permitted dividends to be used flexibly. The only binding legal constraints in place were common law rules that restrained a company from prejudicing creditors by paying dividends when it lacked the financial resources to distribute the cash (see Cheffins (2006)). Although the Joint Stock Companies Registration and Regulation Act (1844) and subsequent Companies Acts required

[5]The tax rate was $3\frac{1}{3}\%$ (8 pence in the pound) in the late years of the 19th century. It was raised to 5% at the start of the Boer War (1899), to 5.833% in 1900 and to 6.25% in 1901. The rate was cut to 4.583% in 1902, but raised again to 5% in 1904 (see Sabine (1966) pp. 129-30).

that firms only paid dividends out of current or retained profits: "it was not until the Companies Act (1980) that a definition of distributable profits was incorporated into legislation. This absence appears to have significantly constrained the British judiciary" (Ardern and Aiken (2005) p. 24). Therefore, dividends a hundred years ago display the flexibility that characterizes share repurchases today.

Another feature of our data set is the absence of regulations that constrain how investors allocate their funds. "Prudent man" rules have been suggested as an explanation for why firms pay dividends. In some jurisdictions laws constrain the behavior of certain types of investors (e.g. private trusts, bank trusts, and pension funds) to invest in "high quality" equities, such as those that pay dividends (see Del Guercio (1996)). In response to these laws some firms will pay dividends to cater to such investors.

The Friendly Societies Act, 1875, Section 16, as originally proposed, forbade the investment of society funds into any security: "which has not paid (a) dividend for the last two successive years prior to such purchase ... and the purchase of shares in any company ..., the liability of whose members is unlimited." However, the amended Act allowed investment of society funds into: "any ... security expressly directed by the rules of the society."[6] Investment trusts (mutual funds) first appeared in the U.K. in 1868 and by January 1895 there were 51 trust companies listed in *The Investor's Monthly Manual*. We do not believe that trusts can be considered to be dividend clienteles since the trusts were not actively managed: "most of the early trusts were 'fixed' in the sense that the composition of the portfolio could be changed only in exceptional circumstances" (see Hutson (2005) p. 449). Although towards the end of the 19th century there was more discretion shown by managers: "investment trusts in the 19th century largely comprised foreign securities" (see Hutson p. 450). There appear to be few regulatory reasons to suspect the formation of dividend clienteles.

Our analysis exploits a distinction between companies quoted in the London official list and companies not quoted in the London official list. U.K. companies that were officially quoted on the London stock exchange during this period were widely held with a clear

[6] The Friendly Societies Act covered Friendly Societies, Working Men's Clubs, Benevolent Societies, Building Societies, Trade Unions, Savings Banks, and Scientific and Literary Societies.

distinction between ownership and control. Exchange regulations required that at least 2/3 of all issues of stock were offered to the public (see Hannah (2007a)). This rule was intended to provide a liquid marketplace for equities, and to restrict the formation of controlling blocks of ownership. Franks, Mayer, and Rossi (2009) show that despite low levels of investor protection in the U.K. in 1900, ownership was reasonably dispersed, and rapidly becoming more so. The average number of directors necessary to control 25% of a firm's cash flow rights was 1.77 in 1900, and 2.80 in 1910, the first figure is little different from the figure of 1.67 in 2000 (see their Table 3). Although small shareholders were not explicitly protected by law, during takeovers: "offers were made without discrimination at equal prices to all shareholders" (p. 4). Not officially listed firms were all public, limited companies. These firms were more closely held, had a smaller shareholder base, and little separation between ownership and control (Michie, 1999 p. 95).

Most of the data we use in this analysis come from the annual reports and balance sheets of public companies. The quality of information present in published accounts, and public statements of company officials during this time in the U.K. is arguably limited when compared to present day standards. Arnold (1998) claims that: "during the first quarter of the twentieth century, financial accounting practice was only lightly regulated, published accounting statements contained relatively limited amounts of information and informational asymmetry between senior managers and the suppliers of long-term corporate finance was material." However, other authors argue that financial statements were generally a reliable source. Sylla and Smith (1995) claim that Britain had the best quality accounting information in the Western world. Similarly, Hannah (2007(b)) reports that "the great majority of companies published more and better information that was legally required and, in the absence of evidence to the contrary, this was treated by contemporary investors as broadly accurate" (Hannah 2007(b) p. 658). Audited accounts were required by banks from 1879 onwards and by all firms from 1900 onwards (see Hein (1963)). All the firms' accounting statements we examine have been certified by auditors. Auditors were elected at the AGM (a legal requirement from 1900 onwards). The Companies Act, 1900 required auditors to certify that the accounts reflected a "true and correct view of the state of the Company's affairs", before this auditors would usually sign off on the accounts with something similar to the auditors of Henry Briggs, Son and Company, Ltd. (1899): "examined and found correct." Annual balance sheets were required to be furnished by firms, and although usually provided, annual profit and loss statements were not required by law until 1928 (see Hein (1963)).

III Data

We obtain balance sheets and, where available, profit and loss statements for the firms in our sample from the Guildhall Library in London. Accounting data for electrical, telegraph, and telephone firms comes from Garcke's Manual of Electricity Undertakings. We collect weekly data on security prices from the Stock Exchange Daily Official List (SEDOL), also available at the Guildhall Library, between 1893 and 1907. The SEDOL contains bid and ask quotes, transaction prices (if any), issued capital, last two dividend amounts, and the ex-dividend day for all securities officially listed on the London Stock Exchange.[7] We calculate the price of a security as the midpoint of the bid and ask quotes.

We find dates of annual general meetings (AGMs) from the annual reports in the Guildhall Library. The protocol for dividend paying British firms at this time was that the company's management would propose a dividend about 2 weeks before the AGM, and the proposed dividend would usually appear in the London daily newspaper, *The Times* (available electronically from *The Times Digital Archive 1785-1985*). The proposed dividend would then be subject to approval at the AGM. Although management "proposed" the dividend, in practice it was invariably approved by the vote at the AGM. *The Times* usually reported a company's end of year dividend amount alongside a brief summary of a company's earnings for the year. We understand that firms would mail out the financial reports to shareholders before the AGM at the same time as the dividend "proposal" was made, even if only the dividend amount was reported in *The Times*. We therefore have a potentially confounding effect of dividend and earnings announcements that we address econometrically in Section V.

[7] Although we would like to collect data on the ownership structure of the firms in our sample, most early 20th century U.K. ownership data no longer exists (see Franks, Mayer, and Rossi (2009)).

The Times reported on the affairs of many British companies that were listed on the London Stock Exchange. We search each day's financial pages between 1895 and 1905 to find dividend announcements. The column "Railway and Other Companies" (changed to "Public Companies" in 1905) contains dividend announcements and reports on the proceedings of AGMs. We can not find all proposed dividends in *The Times.* Some firms would never be reported on by *The Times*, usually the smaller, infrequently traded companies, and some companies would only sporadically report their dividends. The only exception to this protocol was by British banks. Although most banks were easily large enough to justify the attention of *The Times*, we can only find seven dividend announcements by banks during this 11 year period. We therefore exclude banks from our analysis.

We find the dividend amounts, quoted as a percentage of paid up capital, from the original annual reports. We cross-check these with the SEDOL, the *Investors' Monthly Manual*, and (if announced) *The Times.* Almost all firms paid semi-annual dividends, the major exception was that many telegraph firms paid quarterly dividends. We find that announcements of dividend increases were most likely to appear in *The Times* (82% of our firms' increases were reported), followed by dividend decreases (68% of our firms' decreases were reported), and the least likely announcements to appear were dividends maintained at the same level (60%).

We construct a value-weighted market index for London that contains 163 securities. The market index is composed of seven banks, 33 railways, 7 breweries, 63 commercial and industrial firms, 19 coal and iron firms, 12 telegraph firms, 20 gas and electric firms, and two mines. By value the banks comprise around 7% of the index, railways 58%, breweries 7%, commercial and industrial firms 8%, coal and iron firms 4%, telegraph firms 3%, gas and electric firms 5%, and mines 4%. The average value of the equities included in our market index (where the average is calculated from 1895 through 1905 is £548 million. By value this is a little over 60% of the London market, so we are confident our market index is representative.[8]

Our sample consists of 469 firms that were in existence part, or all, of the time between

[8] The value of the entire London equity market is given as £887 (see Dimson, Marsh, and Staunton (2002)).

1895 and 1905. Of these 469 firms, 134 were officially listed on the London Stock Exchange whereas 335 companies were traded informally on a 'supplementary list' (see Franks, Mayer, and Rossi (2009)).[9] We hereafter refer to these companies as 'unlisted'. Most of our analysis concerns the subsample of listed companies, unlisted companies will provide a useful control group.

Descriptive statistics for the companies in our data set are provided in Table I. While the profitability of the two types of companies, measured as the return on equity (ROE) is similar, companies quoted in the official list were far larger and about twice as old (measured from a company's date of incorporation) as the unlisted companies. We follow De Angelo et al. (2006) and compute the earned equity to ordinary equity ratio, measured as any earnings not previously distributed to shareholders divided by nominal ordinary equity. We use this measure as a proxy of the maturity of the company, with the idea that companies at a more advanced stage of their life cycle should have accumulated a larger amount of reserves. We find that officially listed companies had a substantially higher earned to contributed capital ratio than unlisted companies.

IV Results

A Payout Ratio and Dividend Smoothing

This section describes the main characteristics of dividend policy in our sample of 134 officially listed firms: we focus on payout ratios and dividend smoothing. We leave the discussion of not officially listed firms to Section VI. We reconstruct the dividend history of each firm for each year that the firm was in existence between 1895 and 1905 and when the balance sheet was found in the Guildhall Library. We compute the payout ratio for each company, i, as $\frac{1}{T}\sum \frac{Ord.\ Dividends_t}{Earnings_t}$, for each year, t, that the company had positive earnings. We then take an unweighted average of all firms in the same industry. The results are presented in

[9] In contrast to most modern financial data sets we include public utilities such as electricity suppliers as no regulations determined the amount of their dividend payments.

Table II where we display payout ratios for the ordinary or residual equity.[10] Engineering, telegraphs, and electricity had the highest payout ratios of about 60%. Railways had the lowest payout ratios, of 33%. The equally weighted figure across all industries is 55%, higher than contemporary U.S. payout figures of around 27% (see Allen and Michaely (2003)) but similar to the 52% reported by von Eije and Meggison (2008) for contemporary U.K. firms. The multiple classes of equity that companies (particularly railways) used is one explanation for the low payout ratios that we obtain. For example, most railway companies were financed with a mix of ordinary, preferred, and guaranteed stock as well as debt. The payout to all classes of equity (i.e. including 'preferred' and 'guaranteed' stock) boosts the payout ratio of railway to 90%.

If we calculate the ordinary payout ratio across all industries as $\frac{\sum_t \sum_i Dividends_{i,t}}{\sum_t \sum_i Earnings_{i,t}}$, which includes firms with negative earnings and gives greater weight to the larger firms, then the payout ratio declines slightly to 49.7%. This is a lower payout ratio than for U.S. corporations in the 1990s which was 85%, made up of 58% as dividends and 27% as repurchases (Allen & Michaely (2003)). If we were to calculate the payout ratio on all classes of equity, not just ordinary equity, our payout ratio would rise to 91.5%.

The 134 officially listed firms in our sample made a total of 1512 dividend announcements. We find announcements of 26 dividend omissions, 290 dividend cuts (together 20.9% of all announcements), 766 unchanged dividends (50.7% of all announcements), 396 dividend increases, and 34 dividend initiations (together 28.4%) (see Table III). Dividend cuts and omissions correspond to about 46% of the total dividend changes in our sample. This is a much higher figure than the 18% reported by Grullon et al. (2002) for the U.S. between 1967 and 1993 and the 23% documented by Michaely and Roberts (2007) for the U.K. between 1993 and 2002. Companies were far more willing to cut dividends a hundred years ago than they are today.

The average size of a dividend increase is about 40%, the average size of cuts is 33%. These results stand in contrast to what is reported in more recent data. Michaely and

[10] The residual claimant on a company's cash flow was usually denoted as 'ordinary' equity. However, for some companies it was denoted 'deferred', 'deferred ordinary', and once 'preferred'.

Roberts (2007) find that public companies in the U.K. make larger dividend cuts of about 51%, whereas dividend increases are of a more modest size of about 29%. Grullon et al. (2002) find that U.S. increases are about 30%, whereas cuts are about 44.8%. Overall our results show that at the turn of the twentieth century firms were willing to cut their dividends frequently by a smaller amount than what firms do today. Firms in Victorian-era Britain were willing to adjust dividends upwards and downwards frequently; they did not slowly ratchet dividends upwards (and then cut them only in times of distress).

Despite the differences in dividend policies today and a century ago, we find interesting similarities between dividend policies at the turn of the twentieth century and total payout policies (ordinary dividends plus share repurchases) in the 1990s and 2000s. Skinner (2008) analyses share repurchases of U.S. companies between 1980 and 2005 and he finds that about 46% of changes in the amount of companies' share repurchases are cuts: a figure very similar to our figure for dividend cuts, 42%. Our evidence is also consistent with the evidence reported by Brav et al. (2005) about share repurchases: managers consider it a flexible instrument that does not need to be smoothed. To further explore this result, we run a Lintner smoothing model of dividends (Lintner (1965), Fama and Babiak (1968)). We find that firms in our sample have a dividend adjustment speed of 0.82 that is substantially higher than the adjustment speed estimates found with contemporary data for dividends only, e.g. 0.21 in the U.S. between 1984 and 2002 (see Brav et al. (2005)) and 0.41 in the U.K. between 1993 and 2002 (see Michaely and Roberts (2007)). However, the mean speed of adjustment we find is very close to the mean speed of adjustment of total payout (ordinary dividends plus share repurchases) that Leary and Michaely (2008) document for U.S. companies between 1985 and 2005, 0.78. We interpret the results presented in this section to mean that payout policies today are increasingly similar to the payout policies at the beginning of the twentieth century: payout ratios are similar to contemporary U.K. firms and dividends were a flexible instrument to distribute cash, as repurchases are today. The similarity of total payout policy today and dividend policy (only) a century ago suggests that managers value flexibility. Managers have developed the use of share repurchases as a means to circumvent the taxation and 'prudent man' rules that constrained their behavior for much of the 20th century.

B Announcement Effect

We use an event study method to assess the impact of dividend announcements on returns. For each dividend announcement we calculate the abnormal return on ordinary/residual equity as:

$$r_{j,ann} = R_{j,ann} - \widehat{a}_{j,ann} + \widehat{b}_{j,ann} R_{m,ann} \tag{1}$$

where $R_{j,ann}$ is the actual return of security j and $R_{m,ann}$ is the actual return on the market. We estimate $a_{j,ann}$ and $b_{j,ann}$ with the market model using weekly data from 18 months before to 6 months after the dividend announcement, excluding the week preceding and following the announcement:[11]

$$R_{j,ann} = a_{j,ann} + b_{j,ann} R_{m,ann} + e_{j,ann}. \tag{2}$$

We use our weekly London index to calculate the market return around each announcement date, $R_{m,ann}$.

We average the abnormal returns over all N securities (that fit certain criteria and) and that are t weeks from a dividend announcement date, ann:

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} r_{i,ann+t}. \tag{3}$$

We cumulate the average abnormal returns (AAR) from one week before to one week after the dividend announcement to calculate the cumulative average abnormal return ($CAAR$).

We are forced to restrict our sample to the 134 companies that were officially listed on the London Stock Exchange (and therefore appear in the SEDOL) and between January 1895 and December 1905 had at least one dividend announcement that we can identify as an increase, commencement, reduction, omission or continuation at the same rate. We observe the prices and dividends of these companies from January 1893 through December 1907.

[11] We try both shorter and longer estimation windows. Our results are not affected by the choice of the estimation window.

Companies almost always paid two dividends per year, an interim dividend paid partway through the company's bookkeeping year, and a final dividend paid after the bookkeeping year was complete. A handful of firms paid annual dividends or quarterly dividends. The interim dividend was usually kept constant from year to year, when a company decided to cut or increase the dividend it would usually change the final dividend. We classify a dividend announcement as an increase (decrease) if the announced dividend less the dividend paid 12 months prior to the announcement is positive (negative).

We present the CAAR results in Table III. Announcements of dividend increases or commencements are associated with positive CAARs of 1.4% (the average size of a dividend increase is 40%), significant at the 1% level. Announcements of commencements or increases of more than 10% are associated with positive CAARs of 1.7%, significant at the 1% level. The reaction to dividend increases we find is similar to what is observed with modern data. Grullon et al (2002) find an average +1.3% abnormal return for an average dividend increase of 30%.

Announcements of dividend decreases or omissions are associated with negative CAARs of 2.0% (the average size of a dividend decrease is -33%), whereas omissions or decreases of more than 10% are associated with CAARs of 2.4%, both of which are significant at the 1% level. The market did not have an excessively negative reaction to dividend cuts. The -2.0% we obtain is substantially smaller than the -3.7% found by Grullon et al. (2002) for an average dividend decrease of 45%. These results we obtain for share price reactions to dividend announcements are consistent with an asymmetric information story, whereby dividend announcements are conveying information about future earnings to shareholders. Announcement of dividend increases are followed by positive abnormal returns, announcements of dividend cuts are followed by negative abnormal returns.

According to Lang and Litzenberger (1989), if agency considerations are important, dividend announcements will differentially affect different types of firms. We split firms along three dimensions: Tobin's Q, earned to total equity, and age. We calculate the CAAR for each subset of firms in Table IV. Firms with a value of Tobin's Q less than one (those with fewer profitable uses for retained earnings) experience a greater drop in share prices (more negative CAAR) when announcements of dividend cuts are made than firms with Tobin's Q greater than or equal to one, although the difference in effects is not statistically significant. We interpret this as weak evidence of agency effects. There is almost no difference in effects for announcements of dividend increases. Firms with a lower earned to ordinary equity ratio are affected more by announcements of dividend increases or decreases, but again the effect is not statistically significant. Younger firms are affected more by announcements of dividend increases or decreases, again not statistically significant (except for dividend increases at the 10% level). If agency effects were important we would expect older firms to be punished more in the stock market for cutting dividends, and rewarded more for increasing them - we find the reverse. We do not find any serious support for agency theories from examining the effect of dividend announcements on security returns.

We next regress individual cumulative abnormal returns (CARs) for each firm-announcement on firm characteristics:

$$\begin{aligned} CAR_{i,t} &= \gamma_0 + \gamma_1 \Delta \frac{ROE_{i,t}}{P_{i,t-1}} + \gamma_2 \Delta \frac{DIV_{i,t}}{P_{i,t-1}} + \gamma_3 SPREAD_{i,t-1} + \gamma_4 SIZE_{i,t} \\ &\quad + \gamma_5 DividendYield_{i,t} + \gamma_6 Controls_i + e_{i,t}. \end{aligned} \tag{4}$$

ROE is a firm's total earnings before depreciation divided by total equity; DIV is a firm's dividend paid, P_{t-1} is the market price of ordinary equity the day before the dividend announcement $SPREAD$ is the average bid ask spread in the year before the announcement, and $SIZE$ is the natural logarithm of a firm's assets.[12] We use age, the earned to total equity ratio, Tobin's Q, and following Yoon and Starks (1995), the dividend yield and firm size as controls. The dividend yield gives us an extra check on the existence of dividend clienteles. We report the results of the regression in Table V. To control for contemporaneous earnings announcements we include changes in profitability, scaled by price, in addition to current

[12] Following Lasfer (1995) we compute the bid ask spread for firm i as:

$$\frac{Ask_i - Bid_i}{\left(\frac{Ask_i + Bid_i}{2}\right)}$$

where Ask and Bid are respectively the ask and bid price of company i's ordinary shares. We calculate the average bid-ask spread in the calendar year before the announcement. The results are not sensitive to the time frame over which we calculate the average spread.

dividends changes, scaled by price.

We find that announcements of increased dividends and increased earnings have separate and positive effects on a firm's cumulative abnormal return. The magnitude of the effect of dividend changes on abnormal returns is important: a one standard deviation increase in $\Delta\frac{DIV_{i,t}}{P_{i,t-1}}$ leads to a 1 percentage point CAR increase (Table V, columns 1-7). The positive and independent effect of dividend changes on abnormal returns is consistent with the dividend signaling hypothesis. Moreover, we find that the share price response to dividend changes is stronger for smaller companies. The variable size has a negative and statistically significant coefficient in 3 out of 4 specifications. In addition, its economic impact is important: a one standard deviation increase in a firm's size leads to a reduction of 0.7 percentage points in the CAR (Table V, columns 4-6). To the extent that smaller companies face higher costs of external finance, this result is consistent with Bhattacharya's (1979) dividend signaling model where the degree of informativeness of the dividend signal depends positively on the firm's cost of external finance.

We do not find that any of the controls are statistically significant. The variable $SPREAD$, a proxy for transaction costs, has a negative coefficient and it is never statistically significant. This evidence does not support a transaction costs explanation for dividend payments. Moreover, contrary to the predictions of the agency hypothesis, measures of maturity of the company are not statistically significant. The results show that dividend changes produce a sizable reaction in stock prices, beyond the effects of the information contained in earnings changes. This test also supports the notion that taxes are not of first order importance to determine the information content of dividends.

C Dividend Changes and Future Profitability

Following the methods of Bernartzi et al. (1997), Nissim and Ziv (2001), Grullon et al. (2005) and Michaely and Roberts (2007), we assess whether investors reacted rationally to announcements of dividend increases (decreases) by driving share prices higher (lower). In particular we test whether future earnings changes could have been predicted from changes in dividends, which would lend additional support to the dividend signaling hypothesis. We run the following partial adjustment model:

$$
\begin{aligned}
(ROE_{i,t+n} - ROE_{i,t}) \quad = \quad & \gamma_0 + \gamma_1 (DNC_{i,t} * \left| \frac{DIV_{i,t} - DIV_{i,t-1}}{DIV_{i,t-1}} \right|) \\
& + \gamma_2 (DPC_{i,t} * \left| \frac{DIV_{i,t} - DIV_{i,t-1}}{DIV_{i,t-1}} \right|) + Controls_{i,t} + e_{i,t}.
\end{aligned} \tag{5}
$$

both in its linear (e.g. Nissim and Ziv (2001)) and non-linear version (e.g. Grullon et al. (2005)). DNC is a dummy variable that takes on the value 1 if the firm has cut the dividend from period $t-1$ to period t, and 0 otherwise. DPC is a dummy variable that takes on the value 1 if the firm has increased the dividend from period $t-1$ to period t, and 0 otherwise. We include controls for past levels and changes of ROE. In particular, ROE could be a mean reverting process in which case high (low) past levels of ROE should be associated with decreases (increases) in current and future earnings (see Nissim and Ziv (2001)). In the non-linear version we also include squared adjustment terms for earnings, to capture the non-linearities of earnings reversions that Grullon et al. (2005) and Fama and French (2000) emphasize as crucial. We test if contemporaneous dividend changes can predict earnings changes one year ($n = 1$) or two years ($n = 2$) in the future. We follow the approach described in Petersen (2009) and cluster the standard errors by firm. We report the results in Table VI.

We find that we can achieve predictive power by using negative and positive dividend announcements to forecast earnings one year ahead. Dividend cuts are associated with decreases in earnings in the following year, statistically significant at the 10% level. Dividend increases are associated with increases in earnings the following year, statistically significant at the 5% level.[13] Past ROE has a negative coefficient, which gives support to the notion that earnings were mean reverting. The coefficients on the change in earnings is also negative, which provides further support for mean reversion - firms that experienced an increase (decrease) in earnings in one year are more likely to experience a decrease (increase) in earnings in the current year. We find little evidence that dividends or earnings can predict changes in

[13] The results are similar, albeit slightly weaker, if we exclude outlying observations using Cook's D criterion and the method of Hadi.

earnings two years or more (unreported) in the future. These results strengthen our conclusion that asymmetric information is playing the major role in explaining the dividend policy of firms. Firms that announce a dividend increase (decrease) experience positive (negative) cumulative abnormal returns, and the increases (decreases) of dividends are associated with higher (lower) earnings one year in the future.

We also investigate Nissim and Ziv's (2001) idea that dividend changes can predict earnings levels (rather than changes in earnings) using the procedure of Grullon et al (2005). We find that dividend decreases are associated with a lower ROE one year ahead, statistically significant at the 5% level in both a linear and non-linear model. We do not find a robust correlation between dividend increases and the level of earnings one year in the future. In addition we do not find any evidence that earnings levels two or more years in the future can be predicted by dividend changes.[14]

Overall, the evidence we present suggests that dividend changes are correlated with future earnings changes. These results stand in contrast to the literature on contemporary U.S. firms that documents that dividend changes are correlated with past earnings rather than future prospects (see Bernantzi et al. (1997) and Koch and Sun (2004)). In our data the correlation between present dividend changes and past earnings changes is close to zero. Moreover, we find no evidence indicating that changes in dividend policies alter investors' assessment on the permanence of past earnings changes as in Koch and Sun (2004).[15]

[14] We also assess whether our inclusion of dividends in (5) increases the model's predictive power. As in Grullon et al. (2005) (pages 1675-76) we follow the technique of Giacomini and White (2006). The technique consists of forecasting ROE one or two years ahead using only the the information available at that time (ie. no 'look ahead' bias). ROE is forecast using (5) both with, and without, the dividend variables. The forecast error of each earnings level n years ahead, f_n, is calculated as $ROE_{t+n} - \widehat{ROE_{t+n}}$. Differences in squared and absolute errors are calculated as:

$$\begin{aligned} d_{SE} &= f_{DIV}^2 - f_{NODIV}^2 \\ d_{AD} &= |f_{DIV}| - |f_{NODIV}|. \end{aligned}$$

We construct mean squared errors (MSE) and mean absolute deviations and we bootstrap their associated standard errors. In contrast to Grullon et al. we find that forecasting models that include dividends outperform models that exclude dividends one and two years ahead. Dividends were useful information for turn of the century investors to forecast a company's future earnings.

[15] Following the method proposed by Koch and Sun (2004) we check if the share price reaction surrounding dividend changes positively depends on past earnings changes. If managers are reluctant to increase dividends unless earnings increases are persistent, an observed increase in dividend payments should reassure investors that past earnings increases are permanent. As a result, abnormal returns around an announcement day

The absence of taxes and tax clienteles could provide an explanation for this result. Contemporary companies may change their dividends to please their tax clienteles, rather than signalling future earnings to investors. Dividends changes undertaken to satisfy a certain clientele are not necessarily related to firms' future economic prospects (see Hotchkiss and Lawrence (2007) and Desai and Jin (2008)). The existence of clienteles today may have weakened the relationship between present dividend changes and a firm's future earnings.

These findings are also related to managerial inhibition to change the dividend rate, both up and down, in response to economic shocks that we documented in a previous section. Theory suggests that smoothing is a tool in the hands of managers to conceal a firm's information from shareholders (see Kumar (1988) and Guttman el al. (2007)). In other words, managers who are more willing to adjust dividend payments up and down are also more willing to signal to their shareholders valuable information about the future prospects of the firm. The results we present are consistent with this picture: managers in our sample smooth dividends far less than contemporary managers smooth dividend payments, therefore dividends served as a signaling device to investors.

D To pay or not to pay

We next investigate the characteristics of companies that paid dividends. If agency explanations of dividends are relevant, shareholders of mature companies should exert pressure on management to pay dividends (to keep the cash from potentially being wasted). In particular, older companies, companies with higher earned to total equity, and companies with a lower Tobin's Q should have been more likely to pay a dividend and should have had higher payout ratios. Fama and French (2001) document that in the U.S. during the period 1963-98 the firms that paid dividends were, on average, more profitable, had fewer investment opportunities (a lower market to book value, ie. Tobin's Q), and were larger than non-dividend payers. DeAngelo et al. (2006) find that, in addition to the variables identified by Fama and French, life cycle considerations are important. Firms that have a high ratio of earned

should depend on the firms' past earnings changes. We find no evidence that abnormal returns around announcements of dividend changes are related to past earnings changes. Results are available upon request.

equity to total equity are likely to be those in the mature stage of their life cycle, and are much more likely to distribute earnings as dividends.

We run a logit regression with a dummy variable equal to one if the company paid a dividend that year and equal to zero otherwise as the dependent variable:

$$\begin{aligned} Pay_{i,t} &= \lambda_1 ROE_{i,t} + \lambda_2 ROE_{i,t-1} + \lambda_3 SIZE_{i,t} + \lambda_4 AGE_{i,t} + \lambda_5 ETOT_{i,t} + \lambda_6 OTOT_{i,t} \\ &\quad + \lambda_7 CASH_{i,t} + \lambda_8 Q_{i,t} + \lambda_9 EASS_{i,t} + \lambda_7 PREV_{i,t} + Controls + e_{i,t} \end{aligned} \tag{6}$$

ROE is the return on equity, $SIZE$ is the natural logarithm of a company's total assets, AGE is the number of years since incorporation, $ETOT$ is any earnings not previously distributed as dividends to shareholders divided by nominal ordinary equity, $CASH$ is cash divided by assets, $OTOT$ is nominal ordinary equity divided by total assets, Q is the book value of debt plus the book value of preferred equity plus the market value of common equity divided by the book value of total assets, $EASS$ is any earnings not previously distributed to shareholders divided by total assets, and $PREV$ is a dummy variable that equals one if the company did not pay an ordinary dividend in the previous year, and zero otherwise. We also include year and industry dummies. We present our results in Table VII.

We find that the most important determinants of the propensity to pay a dividend are contemporaneous profitability and immediate past profitability. The coefficient on ROE is positive and statistically significant at the 5% level in specifications 1 through 5. The economic significance is large: a textile company of average size that increases its ROE from the first to the third quantile would increase its probability of paying a dividend from 76% to 93% (Table VII, column 4), consistent with the idea that dividends are tightly related to earnings. We do not find a clear relation between either age or size and the probability a firm pays a dividend.

Consistent with DeAngelo et al. (2006), we find that a higher ratio of earned to total equity is associated with a higher probability of paying dividends (although this is not statistically significant). The result holds if we substitute earned equity to total assets in place of earned to contributed capital (column 3). There does not appear to be an effect of cash to assets on the likelihood to pay a dividend.

We find that a firm with a higher Tobin's Q is associated with a higher probability of being a dividend payer, similar to what Denis and Osobov (2008) find for France and Germany in the 1990s and 2000s. Firms that paid a dividend last year are more likely to be profitable firms (ie. higher ROE). When we add a dummy variable for a previous dividend payer (columns 6 and 7 of Table VII) the estimated coefficient and t-stats of ROE move towards zero.

We then run Tobit models of a company's payout ratio on various explanatory variables. We present our results in Table VIII. Profitability, in particular the previous year's ROE is a major determinant of companies' ordinary payout levels. An increase of one standard deviation in the previous year's ROE leads to an 11 percentage point increase in the ordinary equity payout ratio (Table VIII, columns 2-5). Tobin's Q has a positive and statistically significant effect. However, its economic significance is not large: a one standard deviation increase of Tobin's Q leads to an increase in the ordinary payout ratio of 2 percentage point (Table VIII, column 7). The coefficients associated with the other measures of maturity, AGE and $ETOT$, are positive and often statistically significant. The economic significance of these measures is moderate. A one standard deviation increase in $ETOT$ is associated with an increase of about 6 percentage points in the ordinary payout ratio (Table VIII, column 2). Similarly, a one standard deviation increase in AGE (17 years) is associated with an increase in the ordinary payout ratio of about 4 percentage points (Table VIII, columns 4-7). Although we find some evidence that measures of a company's maturity are relevant, profitability has a larger impact on the payout ratio. Agency explanations do not seem to have been an important driver of dividend policies.

Although we do not formally treat the maturity hypothesis as put forward by Grullon et al. (2002), we find no support for it. Under their theory, dividend increases generate a positive price reaction because they tell investors that a firm is becoming mature and it will have lower risk in the future. The evidence we present in this paper is not consistent with the maturity hypothesis. An implication of the maturity hypothesis is that positive dividend changes are predictors of negative future earnings changes: we find the opposite (see Table VI). Moreover, in this section we show that more mature companies did not pay larger dividends: evidence inconsistent with the idea that companies use dividends to signal their maturity.

V Resolving the Agency Problem

Although we do not find evidence that more mature companies paid higher dividends, one potential method to alleviate agency problems, we find evidence of alternative strategies. More mature companies restricted their manager's borrowing powers, and dealt with more banks (potential monitors) than did less mature companies.

We collect information from the *Stock Exchange Official Intelligence* in 1896, 1897, 1901, and 1902 on the companies in our sample. We find that a one standard deviation increase in $ETOT$ reduces managers' discretionary borrowing power, measured as loans permitted by the articles of association without a vote at the AGM divided by nominal ordinary equity, by about 20%. We find this variable is statistically significant at the 5% level in a simple regression.

We also examine the existence of multiple bank relationships for our firms. A firm that has an association with more than one bank is more likely to be monitored closely, and has at least partially solved its agency problems. We run a logit model with the dependent variable equal to one if a firm a more than one bank relationship and zero otherwise. If we consider a firm that moves from the first to the third quintile of $ETOT$ we find the probability of having multiple bank relationships increases from 27% to 37%.[16]

We believe that shareholders alleviated the inherent agency problem they faced by curtailing managers' borrowing powers and using multiple banks to monitor their managers

[16] We think it is unlikely that this result is driven by firms' desires to resolve a hold up problem as in Sharpe (1990). The Sharpe model predicts that asymmetric information problems between borrowers and a single lender are resolved over time in a relationship that creates an informational advantage for the lender. Such an informational advantage can be exploited to extract rents. As a result, young and less well-known firms may engage multiple banks to avoid later hold-ups. Our results suggest that more mature and better known companies, in principle firms that should suffer fewer hold up problems, were more likely to display multiple bank relationships.

rather than by paying out higher dividends.

VI Officially Listed and Unlisted Companies

We examine the behavior of the 335 unlisted firms. These are all firms for which we observe accounting data, but not market values of equity (since they do not appear in the SEDOL). These firms were all public, limited companies; our data set does not contain any private, family-held firms. Unlisted firms were more closely held, they displayed a smaller shareholder base, and little separation between ownership and control (Michie, 1999 p. 95). Therefore unlisted firms were similar to the wholly owned private companies analyzed by Michaely and Roberts (2007). In these companies asymmetric and agency issues should be a less serious problem, compared to public companies, as managers usually held large amounts of equity mitigating a divergence of interests between insiders and outsiders. As a result, if agency issues are the main driver of dividend policies, we should expect the payout ratios of unlisted companies to be lower than those of the listed firms (there being less need to pay large amount of cash to shareholders) and mature companies should not have a stronger need to pay out cash to reassure their investors. If asymmetric information issues were important, we should expect dividend changes made by unlisted companies to be less related to future earnings changes, since insiders (management) and outsiders (shareholders) overlapped to a greater extent. In effect the market would have impounded the effect of 'private' information held by managers before the official announcement.

In Table IX we present the results on dividend payout ratios for not officially listed companies. 52% of earnings were paid off as ordinary dividends when we equally weight each company; 56% we sum all dividends and divided them by all earnings (considering also companies that are running losses). The payout ratios are similar to those of the officially listed companies. This evidence does not support an agency explanation of dividends, which would predict that officially listed companies (ie. companies where the agency problem between shareholders and management is more severe), should pay out a larger proportion of their earnings to reassure their investors. We also do not find much difference in the dividend smoothing behavior of unlisted firms when compared to listed companies. We run the Lintner model to estimate the speed of adjustment parameter of dividends and we find an estimated of 0.82 very close to the number found for officially listed companies (0.81) and close to Michaely and Roberts' (2007) estimate of 0.89 for wholly owned private firms.

Consistent with asymmetric information theories we find that dividend payments in unlisted firms were a less powerful predictor of future cash flows compared to public companies, perhaps due to a blurring of the distinction between management and shareholders in these closely held companies. Table X examines the effect of dividend changes on future earnings changes. We find that announcements of dividend decreases are useful to predict negative changes in earnings in the following year (columns 1 and 2).[17] Announcements of dividend increases are not robustly associated with increased earnings in the following year. We find that dividend announcements have little information content for earnings two (columns 3 and 4) or more (unreported) years in the future. The control variables indicate that earnings of unlisted firms are mean reverting, as they are for listed firms. We find little evidence of differences between listed and unlisted firms, asymmetric information problems appear to have existed in both classes of firms. Dividend announcements were a way of conveying private information from managers to shareholders.

We study the determinants of the payout ratios of unlisted firms in Table XI. We find that unlisted firms with higher profits, higher earned equity, more cash, were more likely to pay out more of their profits as dividends in a year. In addition, firms that did not pay a dividend in the previous year were likely to have had a lower payout ratio, all else equal. We test if there are statistically significant differences between the coefficient estimates of listed and unlisted companies. The coefficients on past ROE are bigger for listed firms and the difference with unlisted firms is statistically significant. However, the economic importance of this difference is small: a one standard deviation increase in past ROE for listed companies leads to an 11 percentage point increase in the ordinary payout ratio (Table XI, columns 2-5). Cash appears to be a more important determinant of the payout level for unlisted firms than for listed firms (Table XI, columns 2-5). The coefficient on $ETOT$

[17] The results are weaker if we exclude outliers.

is not statistically different from the coefficient found for listed firms. This evidence works again agency theories of dividends: managers of listed companies should have been more careful than managers of unlisted companies to disburse any excess cash to shareholders if they wished to show investors that resources were not being wasted.

In conclusion, we find few differences in the payout policy between firms officially listed on the London Stock Exchange and those firms not officially listed there. Information asymmetry issues were important for both types of firms, albeit less important for unlisted firms, and agency issues appear to be of minor importance.

VII Conclusion

We examine the dividend policy of firms in the unregulated, very low tax regime of turn of the 20th century Britain. In this environment we examine the importance of taxes for signaling and agency based models of dividend policy. We find strong support for signaling (asymmetric information) theories of dividend policy, and little support for agency models.

Dividend cuts appear to convey bad news to shareholders, and firms that announced dividend cuts or omissions suffered an abnormal return of around -2.0%. Firms that announced dividend raises or commencements achieved an abnormal return of around 1.4% around the time of the announcement. There do not appear to have been differences between classes of firms (grouped by age, earned to total equity, or Tobin's Q) in their responses to dividend announcements. In addition we find that changes in dividends were associated with changes in earnings in the same direction one year out. Changes in dividends did not appear to signal earnings changes two or more years in the future.

In addition we find that firms paid out around 50% of current earnings as ordinary dividends, a similar figure to contemporary U.K. firms. An important difference is that younger U.K. firms were almost as likely to pay dividends as older firms. More profitable firms were more likely to pay a dividend and firms smoothed their dividends, although by less than modern firms smooth their dividends.

We find that dividends a century ago are similar to share repurchases today. Neither are smoothed heavily, and both convey information from management to shareholders. Share repurchases appear to provide the necessary flexibility to today's managers to allow them to vary their payout policy as much as company directors varied dividends in turn of the 20th century Britain.

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Table I

Descriptive Statistics (1895-1905)

Return on Equity is total earnings before depreciation divided by total nominal equity. Total Assets is measured in thousands of pounds. Age is the number of years since a company was incorporated. Earned to Ordinary is any earnings that the company had not previously distributed as dividends divided by nominal ordinary equity. Ordinary Equity to Total Assets is nominal ordinary equity divided by Total Assets. Cash to Assets is total cash balances (including financial investments) divided by Total Assets. Tobin's Q is (book value of debt + book value of preference equity + market value of common equity) / (book value of total assets).

	Officially Listed on London Stock Exchange				Not Officially Listed on London Stock Exchange			
	# Obs.	Mean	Median	Std. Deviation	# Obs.	Mean	Median	Std. Deviation
Return on Equity	134	0.089	0.078	0.06	335	0.084	0.076	0.072
Total Assets	134	7533.3	916.4	19867	335	424.9	193.3	1025.7
Age	134	20.3	13	17.4	335	11.0	6.4	10.4
Earned to Ordinary	134	0.131	0.039	0.226	335	0.082	0.007	0.171
Ordinary Equity to Total Assets	134	0.486	0.445	0.203	335	0.480	0.450	0.208
Cash to Assets	134	0.094	0.056	0.118	335	0.073	0.043	0.094
Tobin's Q	134	1.21	1.022	0.921		n.a	n.a	n.a

Table II

Average Dividend Payout Ratio by Industry (1895-1905)
Officially Listed Firms

We calculate the average ratio of ordinary dividends to earnings over time for each company that reports positive earnings. We report the number of observations (company-years) in an industry and the unweighted average payout ratio across all companies in an industry.

Sector	# Obs.	Payout Ratio
Breweries	46	n.a.
Cycles	52	0.475
Electricity	199	0.618
Iron and Steel	71	0.671
Railways	234	0.333
Telegraph, Telephones	100	0.620
Mines	79	0.589
Textiles	88	0.601
Paper Manufacturing	31	0.502
Engineering	57	0.680
Chemicals	121	0.585
Tobacco	27	0.622
Firms		0.551
(Equally Weighted, only firms with Positive Earnings)		(# obs. = 1007)
Firms		0.497
(Sum of all Dividends / Sum of all Earnings)		(# obs. = 1051)
All Firms (Listed & not Listed)		0.527
(Equally Weighted, only firms with Positive Earnings)		(# obs. = 3232)
All Firms (Listed & not Listed)		0.500
(Sum of all Dividends / Sum of all Earnings)		(# obs. = 3523)

Table III

Dividend Announcement Cumulative Average Abnormal Returns (CAAR)

We calculate cumulative abnormal returns (CAR) as a security's return from one week before a dividend announcement to one week after the announcement less the security's return given by the market model over the same period. We then average the cumulative abnormal returns across securities. We split the sample along two dimensions. The first dimension is whether the dividend announcement marked an increase (or commencement), decrease (or omission), or a dividend at the same rate. The second dimension is by the size of the dividend change. The first column includes all increases and commencements (decreases and omissions), the second column only includes increases of more than 10% (and all commencements) and decreases of more than 10% (and all omissions). Standard errors are clustered by firm and appear in parentheses.

	All announcements	Omissions, Commencements, and Changes > 10%
Increases and Commencements	0.014***	0.017***
	(0.002)	(0.003)
Observations	430	357
Average Size of Increases	+ 40%	+ 48%
Decreases and Omissions	-0.020***	-0.024***
	(0.004)	(0.005)
Observations	316	259
Average Size of Decreases	-33%	-39%

Table IV

Dividend Announcement CAARs by Firm Characteristics

We calculate cumulative abnormal returns (CAR) as a security's return from one week before a dividend announcement to one week after the announcement less the security's return given by the market model over the same period. We then average the cumulative abnormal returns across securities. We split securities by three characteristics - Tobin's Q, Earned to Ordinary, and Age. Tobin's Q is (book value of debt + book value of preference equity + market value of common equity) / (book value of total assets). Earned to Ordinary is any earnings that the company had not previously distributed as dividends divided by nominal ordinary equity. Age is the number of years since the firm was incorporated. t-stats of differences in mean dividend announcement effects are calculated between the groups of high and low firms as sorted by Tobin's Q, Earned to Ordinary, and Age respectively. Standard errors are clustered by firm and appear in parentheses.

	Dividend Decrease	Dividend Increase
Tobin's Q >= 1	-0.014***	0.013***
	(0.004)	(0.003)
Observations	150	225
Tobin's Q < 1	-0.027***	0.014***
	(0.007)	(0.003)
Observations	116	231
t-stat of difference in means	1.30	-0.29
Earned to Ordinary >= Median	-0.013**	0.009*
	(0.005)	(0.005)
Observations	129	124
Earned to Ordinary < Median	-0.022***	0.017***
	(0.007)	(0.003)
Observations	138	247
t-stat of difference in means	1.36	-1.23
Age >= Median	-0.013***	0.010***
	(0.004)	(0.003)
Observations	169	199
Age < Median	-0.025***	0.018***
	(0.009)	(0.004)
Observations	134	216
t-stat of difference in means	1.32	-1.67

Table V

The Influence of Firm Characteristics on announcement CARs

The dependent variable is a company's cumulative abnormal return (CAR) from one week before to one week after an announcement of a year-end dividend increase, decrease, commencement, or omission. ΔEarnings/Price is the difference in earnings between the current and the previous earnings announcement divided by the share price one week before the current dividend announcement. ΔDiv/Price is the difference between the current and the previous dividend divided by the share price one week before the current announcement. Dividend Yield is the ordinary dividend payment divided by the ordinary share price at the end of the previous year. Size is the natural logarithm of a company's total assets. Age is the number of years since a company was incorporated. Earned to Ordinary is any earnings that the company had not previously distributed as dividends divided by nominal ordinary equity. Tobin's Q is (book value of debt + book value of preference equity + market value of common equity) / (book value of total assets). Standard errors are clustered by firm and appear in parentheses.

	1	2	3	4	5	6	7
ΔEarnings/Price$_{t-1}$	0.0004***	0.0003***	0.0003***	0.0003***	0.0003***	0.0003***	0.0003***
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ΔDiv/Price$_{t-1}$	0.6321***	0.6137**	0.6197**	0.5218***	0.5023***	0.5137***	0.5214***
	(0.2306)	(0.2522)	(0.2461)	(0.1520)	(0.1386)	(0.1482)	(0.1518)
Dividend Yield		-0.0002	-0.0002	-0.0001	0	-0.0001	-0.0001
		(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Bid-Ask Spread			-0.0241	-0.0545	-0.0649	-0.0556	-0.0554
			(0.0694)	(0.0940)	(0.1018)	(0.0943)	(0.0940)
Size				-0.0035*	-0.0038*	-0.0036*	-0.0032
				(0.0020)	(0.0022)	(0.0021)	(0.0022)
Age							0.000
							(0.0001)
Earned to Ordinary						-0.0019	
						(0.0136)	
Tobin's Q					-0.0022		
					(0.0085)		
Observations	506	444	442	425	406	408	425
R-squared	0.11	0.13	0.13	0.13	0.13	0.13	0.13

Table VI
Can Dividend Changes predict Earnings Changes?
Listed Companies

The dependent variable is the change in a firm's return on equity (ROE) from year t to t+1 or t+2. Return on Equity is total earnings before depreciation divided by total nominal equity. We control for year fixed effects. NEGINT is defined as (DNC * % ΔOrdDivs) where DNC is a dummy variable equal to 1 if the firm has cut the ordinary dividend between year t-1 and year t. % ΔOrdDivs is the percentage change in the ordinary dividend rate between year t-1 and year t. POSINT is defined as (DPC * % ΔOrdDivs) where DPC is a dummy variable equal to 1 if the firm has increased the ordinary dividend between year t-1 and year t. We only consider dividend changes of more than 10%. ΔEarnings is defined as ROE_t less ROE_{t-1}. E(ROE) is the expected return on equity defined as the predicted value from a regression of ROE on the lagged value of the natural logarithm of Tobin's Q, the natural logarithm of total assets, and the lagged value of ROE. [x+] and [x-] denote the max (min) of zero and x. Standard errors are clustered by firm and appear in parentheses.

	Earnings Changes 1 year in the future		Earnings Changes 2 years in the future	
Linear Model	Yes	No	Yes	No
NEGINT	-0.018*	-0.016*	0.015	-0.002
	(0.010)	(0.008)	(0.013)	(0.007)
POSINT	0.008**	0.008**	-0.001	0.002
	(0.003)	(0.003)	(0.003)	(0.003)
Return on Equity (lagged)	-0.077*		-0.056	
	(0.042)		(0.040)	
Δ Earnings	-0.305***		-0.022	
	(0.113)		(0.100)	
[Δ $Earnings^+$]		0.364		0.314
		(0.247)		(0.260)
[Δ $Earnings^-$]		0.567**		0.356
		(0.286)		(0.301)
([Δ $Earnings^+$])^2		-2.226**		-3.143*
		(0.924)		(1.888)
([Δ $Earnings^-$])^2		4.548		0.355
		(3.585)		(1.045)
[ROE_{t-1}-E(ROE)$^+$]		-0.332		-0.176
		(0.205)		(0.270)
[ROE_{t-1}-E(ROE)$^-$]		-0.901***		-0.454
		(0.270)		(0.318)
([ROE_{t-1}-E(ROEt-1)$^+$])^2		0.296		0.210
		(0.250)		(0.332)
([ROE_{t-1}-E(ROEt-1)$^-$])^2		-1.901***		-0.942
		(0.539)		(0.673)
Observations	588	470	474	372
R^2	0.09	0.19	0.04	0.10

Table VII

Whether or not to pay a dividend

The dependent variable equals one if the company paid any dividend on its ordinary equity in the year, and zero otherwise. The estimates are obtained from a logit regression. Return on Equity is total earnings before depreciation divided by total nominal equity. Size is the natural logarithm of a company's total assets. Age is the number of years since incorporation. Earned to Ordinary is any earnings not previously distributed as dividends divided by nominal ordinary equity. Ordinary Equity to Total Assets is nominal ordinary equity divided by total assets. Cash to assets is total cash balances (including financial investments) divided by total assets. Tobin's Q is (book value of debt + book value of preference equity + market value of common equity) / (book value of total assets). Earned equity to total assets is any earnings not previously distributed to shareholders divided by total assets. Previous non payer is a dummy variable that equals one if the company did not pay an ordinary dividend in the previous year, and equal to zero otherwise. Standard errors are clustered by firm and appear in parentheses.

	1	2	3	4	5	6	7
Industry Fixed Effects	No	No	No	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	No	No	Yes	Yes	Yes
Return on Equity	52.347***	32.130**	31.881**	35.457**	35.471**	29.129	22.715
	(13.397)	(15.414)	(15.570)	(16.270)	(17.794)	(20.600)	(21.845)
Return on Equity$_{t-1}$		27.513***	27.043***	26.312***	30.275***	15.518	16.716
		(9.625)	(9.606)	(9.087)	(10.096)	(10.117)	(11.867)
Size	0.015	0.035	0.072	0.116	0.129	0.105	0.066
	(0.140)	(0.142)	(0.144)	(0.166)	(0.169)	(0.132)	(0.174)
Age	0.022*	0.021	0.018	0.01	0.016	0.015	0.02
	(0.013)	(0.014)	(0.014)	(0.016)	(0.016)	(0.013)	(0.014)
Earned to Ordinary	3.346*	2.251		2.029	2.21	1.102	0.755
	(2.006)	(1.493)		(1.906)	(2.048)	(1.262)	(1.709)
Ordinary Equity to Total Assets	0.899	1.475	1.211	2.838**	2.648**	2.812**	3.327**
	(1.119)	(1.227)	(1.235)	(1.271)	(1.273)	(1.116)	(1.511)
Cash over Assets	1.802	0.253	0.313	-0.01	0.327	-2.274	-0.094
	(1.496)	(1.889)	(1.890)	(2.499)	(2.428)	(2.433)	(2.974)
Tobin's Q							2.253*
							(1.320)
Earned Eq to Total Assets			7.529				
			(5.611)				
Previous non Payer						-3.487***	-3.056***
						(0.583)	(0.630)
Wald Chi^2	32.18	35.96	34.80	94.87	144.38	161.33	199.68
Observations	1022	845	847	789	789	770	711

Table VIII

Determinants of the Dividend Payout Ratio

The dependent variable is the ratio of ordinary dividends to earnings. The estimates are obtained from a tobit model. Return on equity is total earnings before depreciation divided by total nominal equity. Size is the natural logarithm of a company's total assets. Age is the number of years since a company was incorporated. Earned to Ordinary is any earnings not previously distributed to shareholders divided by nominal ordinary equity. Ordinary Equity to Total Assets is nominal ordinary equity divided by total assets. Cash to assets is total cash balances (including financial investments) divided by total assets. Tobin's Q is (book value of debt + book value of preference equity + market value of common equity) / (book value of total assets). Earned Equity to Total Assets is any earnings not previously distributed as dividends to shareholders divided by total assets. Previous non payer is a dummy variable equal to one if the company did not pay an ordinary dividend in the previous year, and equal to zero otherwise. Standard errors are clustered by firm and appear in parentheses.

	1	2	3	4	5	6	7
Industry Fixed Effects	No	No	No	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	No	No	Yes	Yes	Yes
Return on Equity	0.721***	-0.026	-0.105	-0.003	-0.037	-0.218	-0.203
	(0.140)	(0.176)	(0.176)	(0.174)	(0.173)	(0.160)	(0.151)
Return on Equity $_{t-1}$		1.572***	1.580***	1.583***	1.570***	0.934***	1.040***
		(0.200)	(0.195)	(0.198)	(0.198)	(0.186)	(0.175)
Size	-0.012	-0.002	-0.002	0.012	0.011	0.008	0.003
	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.009)
Age	0.001	0.001	0.000	0.003**	0.003***	0.002*	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Earned to Ordinary	0.355***	0.242***		0.196***	0.209***	0.104*	0.078
	(0.053)	(0.058)		(0.061)	(0.061)	(0.057)	(0.054)
Ordinary Equity to Total Assets	0.645***	0.698***	0.591***	0.777***	0.749***	0.626***	0.560***
	(0.076)	(0.083)	(0.079)	(0.087)	(0.087)	(0.082)	(0.080)
Cash over Assets	0.135	0.002	-0.12	-0.022	-0.003	-0.07	-0.022
	(0.110)	(0.124)	(0.128)	(0.133)	(0.134)	(0.122)	(0.115)
Tobin's Q							0.029***
							(0.011)
Earned Eq to Total Assets			0.909***				
			(0.166)				
Previous non Payer						-0.564***	-0.508***
						(0.039)	(0.038)
Likelihood Ratio Test Chi^2	201.29	228.85	246.05	289.54	300.57	508.70	510.20
Observations	1018	841	843	841	841	821	755

Table IX

Average Dividend Payout Ratio by Industry (1895-1905)
Not Officially Listed Firms

We calculate the average ratio of ordinary dividends to earnings over time for each company that reports positive earnings. We report the number of observations (company-years) in an industry and the unweighted average payout ratio across all companies in an industry.

Sector	# Obs.	Payout Ratio (ordinary equity)
Breweries	82	0.552
Cycles	213	0.432
Electricity	241	0.596
Iron and Steel	183	0.438
Railways	62	0.354
Telegraph, Telephones	4	0.170
Mines	258	0.573
Textiles	404	0.554
Paper Manufacturing	210	0.573
Engineering	237	0.536
Chemicals	306	0.443
Tobacco	44	0.656
Firms (Equally Weighted, only firms with Positive Earnings)		0.520 (# obs. = 2225)
Firms (Sum of all Dividends / Sum of all Earnings)		0.568 (# obs. = 2472)

Table X

Can Dividend Changes predict Earnings Changes?
Unlisted Companies

The dependent variable is the change in a firm's return on equity (ROE) from year t to t+1 or t+2. Return on equity is total earnings before depreciation divided by total nominal equity. We control for year fixed effects. NEGINT is defined as (DNC * % ΔOrdDivs) where DNC is a dummy variable equal to 1 if the firm has cut the ordinary dividend between year t-1 and year t. % ΔOrdDivs is the percentage change in the ordinary dividend rate between year t-1 and year t. POSINT is defined as (DPC * % ΔOrdDivs) where DPC is a dummy variable equal to 1 if the firm has increased the ordinary dividend between year t-1 and year t. We only consider dividend changes of more than 10%. ΔEarnings is defined as ROE_t less ROE_{t-1}. E(ROE) is the expected return on equity defined as the predicted value from a regression of ROE on the lagged value of the natural logarithm of Tobin's Q, the natural logarithm of total assets, and the lagged value of ROE. [x+] and [x-] denote the max (min) of zero and x. Standard errors are clustered by firm and appear in parentheses.

	Earnings changes 1 year in the future		Earnings changes 2 years in the future	
Linear Model	Yes	No	Yes	No
NEGINT	-0.028**	-0.012*	0.016	-0.005
	(0.012)	(0.007)	(0.015)	(0.012)
POSINT	-0.002	0.00	0.00	0.003
	(0.002)	(0.001)	(0.003)	(0.003)
Return on Equity (lagged)	-0.277**		-0.138**	
	(0.115)		(0.069)	
Δ Earnings	-0.486***		-0.104**	
	(0.115)		(0.051)	
[Δ $Earnings^+$]		0.134		-0.190
		(0.165)		(0.290)
[Δ $Earnings^-$]		0.087		0.597
		(0.091)		(0.563)
([Δ $Earnings^+$])^2		-0.462		-0.142
		(0.375)		(0.597)
([Δ $Earnings^-$])^2		-0.013		0.390
		(0.123)		(0.417)
[ROE_{t-1}-E(ROE)$^+$]		-0.311**		-0.165
		(0.130)		(0.268)
[ROE_{t-1}-E(ROE)$^-$]		-0.536***		-1.229
		(0.198)		(1.221)
([ROE_{t-1}-E(ROEt-1)$^+$])^2		-0.199		0.360
		(0.387)		(0.599)
([ROE_{t-1}-E(ROEt-1)$^-$])^2		-0.422		-1.650
		(0.592)		(1.761)
Observations	1184	1176	934	929
R^2	0.30	0.48	0.01	0.01

Table XI

Determinants of the Dividend Payout Ratio
Unlisted Companies

The dependent variable is the ratio of ordinary dividends to earnings. The estimates are obtained from a tobit model. Return on Equity is total earnings before depreciation divided by total nominal equity. Size is the natural logarithm of a company's total assets. Age is the number of years since a company was incorporated. Earned to Ordinary is any earnings not previously distributed as dividends divided by nominal ordinary equity. Ordinary Equity to Total Assets is nominal ordinary equity divided by total assets. Cash to Assets is total cash balances (including financial investments) divided by total assets. Tobin's Q is (book value of debt + book value of preference equity + market value of common equity) / (book value of total assets). Earned Equity to Total Assets is any earnings that the company has not previously distributed as dividends divided by total assets. Previous non-payer is a dummy variable equal to one if the company did not pay an ordinary dividend in the previous year, and equal to zero otherwise. Standard errors are clustered by firm and appear in parentheses.

	1	2	3	4	5	6
Industry Fixed Effects	No	No	No	Yes	Yes	Yes
Year Fixed Effects	No	No	No	No	Yes	Yes
Return on Equity	1.177***	0.837***	0.832***	0.805***	0.766***	0.321
	(0.150)	(0.207)	(0.208)	(0.207)	(0.208)	(0.217)
Return on Equity (lagged)		1.069***	1.070***	1.058***	0.998***	0.174
		(0.190)	(0.190)	(0.189)	(0.190)	(0.192)
Log Size	0.047***	0.061***	0.064***	0.048**	0.046**	0.022
	(0.015)	(0.018)	(0.018)	(0.019)	(0.019)	(0.018)
Age	0.002	0.002	0.002	0.002	0.003	0.006***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Earned to Ordinary	0.493***	0.399***		0.392***	0.408***	0.204**
	(0.077)	(0.093)		(0.093)	(0.093)	(0.091)
Ordinary Equity to Total Assets	0.822***	0.902***	0.806***	0.964***	0.931***	0.750***
	(0.090)	(0.111)	(0.106)	(0.115)	(0.116)	(0.115)
Cash to Assets	0.493***	0.378*	0.360*	0.519**	0.570***	0.299
	(0.172)	(0.206)	(0.208)	(0.206)	(0.207)	(0.200)
Earned Equity to Total Assets			1.043***			
			(0.266)			
Previous non-payer						-0.873***
						(0.054)
Likelihood Ratio Test Chi^2	235.12	212.35	209.48	287	299.39	584.94
Observations	2333	1863	1863	1863	1863	1828