

# 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 cause their theorem to fail in practice. We examine the effects of dividend policies on 323 securities that were listed on the London Stock Exchange between 1895 and 1905. The London Stock Exchange operated in an environment of very low taxation and an absence of institutional constraints. This allows us to investigate the worthiness of signalling and agency theories of dividend policy in a setting where many of the imperfections of modern markets do not exist.

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# 1 Introduction

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 illustrate why and how dividend payments affect a firm's value. Whereas theory has produced clear channels by which dividend policy affect 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 both the theory of dividend clienteles, which comes from regulation theories, and with investors' reaction to the provision of new information, which comes from asymmetric information theories. In contemporary U.S. markets dividends have been rapidly overtaken by stock repurchases as a means of returning wealth to shareholders (see Fama and French (2001) and Allen and Michaely (2002)). The reason is that dividends are taxed at a higher rate than stock repurchases (which are taxed at the capital gains rate), and many companies choose to use repurchases to minimize taxes for their shareholders.

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: for instance, an examination of a market where taxes were largely irrelevant and regulation was minimal would provide a good check on the remaining dividend policy theories. In this paper we use a dataset of 323 British securities between 1895 and 1905. We can abstract from explanations based on taxes and regulations, focusing instead on explanations based solely on asymmetric information. We document the payout ratios of different industries, we analyze which types of companies were more likely to increase or decrease dividends, and we evaluate the importance of asymmetric information theories for dividends.

Pre-1907, profits of incorporated U.K. businesses were taxed at the same rate as the per-

sonal (labour) tax rate.<sup>1</sup> When dividends were paid, the company would deduct the relevant tax from the dividend and send it to the government, known as taxation at the source (see Arnold (1999)). As the relevant tax rate in the U.K. was around 5% during the period of our study there was little incentive for companies to be creative in how they returned wealth to shareholders.<sup>2</sup> 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.<sup>3</sup> The almost total irrelevance of tax complications allows us to focus on alternative explanations of dividend policy. Although the Joint Stock Companies Registration and Regulation Act, 1844 and subsequent Companies Acts required that companies only paid dividends out of 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). The one clear exception was that: “dividend payments could not be made to shareholders where there are no ‘profits’ reported” (Ardern and Aiken (2005) p. 44).

A further advantage 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 behaviour 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. A potential group that may have constituted a dividend clientele was charities. However, charities had been tax exempt since the introduction of the income tax in 1799. In 1863 the prime minister attempted to introduce legislation that would withdraw the tax exemption granted to charities, although “the bill was withdrawn after criticism” (see McGregor-Lowndes (2002)). There appear to

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<sup>1</sup><http://www.hmrc.gov.uk/history/taxhis4.htm>

<sup>2</sup>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).

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

be few tax reasons to suspect the formation of dividend clienteles. 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.”<sup>4</sup>

We find that an announcement of a dividend cut or a dividend omission was very bad news for mature companies - it tended to generate a negative abnormal return of about 3.5%. In contrast, younger companies were little affected by dividend cuts, which theories of asymmetric information can not explain. These results lend support to the agency theory of dividends. In companies with few investment projects, shareholders would like to constrain the cash available to managers for fear that the company’s resources would be used in wasteful activities. As a result, shareholders associate reductions or omissions of dividend payments with a rise of managers’ wasteful activities which leads to a negative abnormal return. In other respects, the dividend policy of turn of the 20th century British companies is similar to contemporary firms. We find that British companies had similar payout ratios to contemporary companies: about 90% of their earnings was disbursed to shareholders. Old and more established companies (such as railways) paid out a higher proportion of their profits. More profitable, older, and companies with relatively few investment opportunities were more likely to pay a dividend.

In Section II we review the main theories of dividend policies. In Section III we outline our method of examining dividend policies for a firm. In Section IV we describe the data we collect on the London Stock Exchange. We present our results in Section V and conclude in Section VI.

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<sup>4</sup>The Friendly Societies Act covered Friendly Societies, Working Men’s Clubs, Benevolent Societies, Building Societies, Trade Unions, Savings Banks, and Scientific and Literary Societies.

## 2 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 companies that can deliver stable dividends. He finds behaviour 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.”

In contrast to the theories that have been developed in an academic setting, there are various “rules of thumb” developed in the popular financial press. Graham (1985) in *The Intelligent Investor* advises: “stockholders should demand of their managements a normal payout of earnings – on the order, say, of two-thirds – or else a clear-cut demonstration that the reinvested profits have produced a satisfactory increase in per-share earnings.” Wayman (2003) believes that a firm’s dividend policy is most definitely not neutral: “there is a dividend hierarchy. A company that has a history of paying a consistently growing dividend is better than one that pays a consistent, but steady dividend. And the consistent but flat dividend is better than a company who has had to cut its dividend.”

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. 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 should be followed by earnings changes in the same direction. 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.” The debate on early twentieth century

British accounting standards is still open. 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 than 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.20). Audited accounts were required by banks from 1879 onwards and by all companies from 1900 onwards (see Hein (1963)). All the companies’ accounting statements we examine have been certified by auditors. Auditors were elected at the AGM (a legal requirement from 1900 onwards). In practice: “the directors would select the auditors and the shareholders in general meeting would ratify, or, perhaps more truly, ‘rubber stamp,’ this selection” (Hein (1963)). Similarly, the remuneration of auditors was proposed by directors and ratified at the AGM. 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 companies, and although very often provided, annual profit and loss statements were not required by law until 1928 (see Hein (1963)).

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. In the words of Allen and Michaely (2001 p. 62): “these activities can range from lavish expenses on corporate jets to unjustifiable acquisitions and expansions.” 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. An extension

of the agency model by Lang and Litzenberger (1989) is that wasteful uses of cash is likely to be more pronounced in stable, cash-rich companies 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 may decrease the value of the firm. We measure Tobin's Q as the market value of the firm's debt plus the market value of the firm's equity divided by the book value of the firm's assets (see Perfect and Wiles (1994)). We will define firms that have Tobin's Q less than one as firms with relatively few investments opportunities and firms with Tobin's Q greater than one as firms with relatively many investment opportunities. A firm with Tobin's Q less than one should experience a higher increase in price if it raises dividends (since it is taking cash away from the potentially wasteful managers) than a firm with a low Tobin's Q, all else equal.

Recent theories suggest another reason that firms may choose to pay dividends. Barberis and Shleifer (2003) advance the idea that investors may have a desire to hold equities with a certain "style", such as the payment of dividends. The grouping of equities into groups allows investors to simplify the choices they make and to more easily assess the investment performance of groups. Baker and Wurgler (2004) develop a catering theory to explain the payment of dividends. Investors may have an uninformed, perhaps time-varying, demand for dividend paying equities. Risk aversion by arbitrageurs prevents the prices of dividend-paying and non-paying stocks from converging, therefore managers cater to the demand for dividend-paying equities. A test of catering theories of dividends is not possible with our data set, due to the relatively short time series. Graham and Kumar (2006) empirically demonstrate that dividend clientele theories exist. They find that older investors and lower-income investors prefer equities with a high dividend yield.

Aside from tax issues, the remaining Miller and Modigliani (1961) assumptions, complete contracting, no transaction costs, and complete markets were clearly 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 companies, 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 “recognised” 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).

Although we examine dividend policies primarily from a corporate finance perspective, the dividend yield (or in recent times the payout yield which includes stock repurchases) has been useful to explain the cross-section of stock returns (see e.g. Boudoukh, Michaely, Richardson, and Roberts (2007)).

### 3 Method

Our method is based on an event study analysis around dividend announcement dates. For each security in our sample we compute the abnormal returns in a window around the dividend announcement dates. We denote by  $r_{j,ann}$  the abnormal return of security  $j$  around an announcement and calculate the abnormal return as:

$$r_{j,ann} = R_{j,ann} - E(R_{j,ann}|X_{ann})$$

where  $R_{j,ann}$  is the actual return of security  $j$  at announcement  $ann$  and  $E(R_{j,ann}|X)$  is the expected return of security  $j$  at announcement  $ann$ , conditional on the information  $X$  available at the time of that announcement. The abnormal return is thus the actual ex-post return of a security minus the expected return that comes from the market model:

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

We construct a weekly frequency London Stock Exchange market index from 1900 to 1905 that we use to calculate the market return around each announcement date,  $R_{m,ann}$ .<sup>5</sup> We estimate  $a_{j,ann}$  and  $b_{j,ann}$  in the market model using data from 18 months before to 6 months after the dividend announcement, excluding the week preceding and following the announcement.<sup>6</sup>

We average the abnormal returns over all  $N$  securities that are  $t$  weeks from a dividend announcement date,  $ann$ :

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

We define  $T_1$  and  $T_2$  as the first and the last date in the event window and cumulate the average abnormal returns from dates  $T_1$  through  $T_2$  to obtain the cumulative average abnormal return:

$$CAAR = \sum_{t=T_1}^{T_2} AAR_t.$$

## 4 Data

We obtain annual reports on the companies in our sample from the Guildhall Library in London. The data on security prices come from the ‘‘Stocks and Shares’’ column of *The Times*, a daily London newspaper. Electronic issues of every issue are available from The Times Digital Archive 1785-1985. The largest and most frequently traded securities had their bid and ask prices reported in the newspaper. Less important securities only appeared in the newspaper if a sale of that security had taken place on that day. If that were the case, the sale price of the security was recorded. If we observe bid and ask quotes for a security, we average them and use that as the observed price, otherwise we use the sale price of the security.

We construct a market index that contains 58 securities, although not all at the same

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<sup>5</sup>We use the market return,  $R_{m,ann}$ , as our proxy for  $X_{ann}$ .

<sup>6</sup>We try both shorter and longer estimation windows. Our results are not affected by the choice of the estimation window.

time. Although most securities are included in the market index for the duration of our study, there are exceptions. For example, the Midland Railway initially had a single class of equity, but was later split into preferred and deferred classes of equity. The market index is composed of seven bank, 27 British railway, eight foreign railway, eight telegraph, one brewery, two iron and steel, two mining, and three gas securities. By market capitalization the banks comprise around 17% of the index, British railways 58%, foreign railways 9%, telegraph and telephone companies 3%, breweries 2%, iron and steel 1%, mines 5%, and gas securities 5%. We weight individual security returns by market capitalization to calculate the return on the market index. The average value of the equities included in our market index (where the average is calculated from 1897 through 1905 is £583 million, of which £544 million is made up of domestic equities. By value this is a little over 70% of the London market, so we are confident our market index is representative.<sup>7</sup>

We find dates of annual general meetings (AGMs) from the annual reports in the Guildhall Library, and crosscheck with the AGM dates reported in *The Times*' column "Today's Arrangements." The protocol for dividend paying British companies 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 Times*. The proposed dividend would then be subject to approval at the AGM. Although management "proposed" the dividend, in practice it was invariably approved by a vote at the AGM. *The Times* reports on the affairs of most British companies that were listed on the London Stock Exchange. We could not find proposed dividends of some companies in *The Times*, usually the smaller, infrequently traded companies. We have no reason to suspect the dividend announcement protocol of these companies was different to the other companies. 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 only find seven banks' dividend announcements from 245 possible bank-years.

A newspaper column titled "Railway and Other Companies" (changed to "Public Com-

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<sup>7</sup>The value of the entire London equity market is given as £887 million by Hannah (2007a). He uses the figures of Dimson, Marsh, and Staunton (2002).

panies” in 1905) contains information on the proceedings of many companies’ AGMs, as well as a brief summary of the companies’ financials, and would typically appear in *The Times* the day after the relevant AGM.

## 5 Results

We reconstruct the dividend histories of 323 companies each year for 10 years by using the information available in the annual reports. We compute the average dividend payout ratios by industry. The payout ratio is calculated as  $\sum_t \sum_i \frac{Dividend_{i,t}}{Earnings_{i,t}} / (I * T)$  for each company,  $i$ , in each year,  $t$ , that has positive earnings. The results are presented in Table 1 where we display payout ratios for all classes of shares and payout ratios for only the ordinary shares. Railways have the highest dividend payout ratios, paying out close to 90% of all profits. Other old, established British industries such as breweries and textiles paid out over 80% of all profits. Emergent industries such as electricity and engineering retained a greater share of earnings. We interpret this as tentative support for the idea that old, established companies (such as railroads) distributed far more of their earnings than new, growing industries. This may indicate that emergent industries had a need to increase their capital stock through retained earnings. The equally weighted figure across all industries is 73%, much higher than contemporary U.S. payout figures of around 25% (see Allen and Michaely (2002)). If we calculate the 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 rises to 92%. This is a slightly higher payout ratio than for U.S. corporations in the 1990s which was 85%, made up of 58% as dividends and 27% as repurchases. Contemporary small U.S. firms tend not to make any distributions of earnings, whereas even small early 20th century British companies tended to distribute much of their earnings to shareholders.

**Table 1 - Average Dividend Payout Ratio by Industry**

1895-1905 - Equally Weighted

Sector	# Obs.	Payout Ratio (All share classes)	Payout Ratio (Ordinary shares)
Breweries	140	0.85	0.55
Cycles	266	0.65	0.43
Electricity	441	0.75	0.60
Iron and Steel	259	0.77	0.50
Railways	241	0.88	0.33
Telegraph & Telephones	104	0.71	0.62
Coal Mines	344	0.72	0.56
Textiles	492	0.83	0.55
Paper Manufacturing	237	0.81	0.55
Engineering	296	0.68	0.52
Chemicals	430	0.79	0.48
All Industries - $\sum_t \sum_i \frac{Dividend_{i,t}}{Earnings_{i,t}} / (I * T)$	3375	0.73	0.49
All Industries - $\frac{\sum_t \sum_i Dividends_{i,t}}{\sum_t \sum_i Earnings_{i,t}}$	3652	0.92	0.48

Sources:

Earnings: Electricity Supply &amp; Engineering, and Telegraph and Telephone - Garcke's Manual of Electricity Undertakings

All others - Original Annual Reports

Dividends: Investors' Monthly Manual, and The Times

A natural question to ask is, which companies were paying dividends. Fama and French (2001) document that in the U.S. during the period 1963-98 the firms that were paying dividends were, on average, more profitable, had fewer investment opportunities (a lower book to market value, which we denote as Tobin's Q), and were larger than non-dividend payers. DeAngelo, DeAngelo, and Stulz (2006) find that, in addition to the variables identified by Fama and French, life cycle considerations are important. Firms that have a high proportion of retained earnings to total equity (retained earnings plus contributed capital) are likely to be those in the mature stage of their life cycle, and are much more likely to distribute earn-

ings as dividends. We perform a similar analysis by looking at the companies that paid dividends in 1901 in relation to some of their characteristics such as contemporaneous and lagged profitability, size, age, growth and liability structure. The results are presented in Table 2. Variable definitions appear in the Appendix.

We find that the most important determinant of the propensity to pay dividends is contemporaneous profitability: the coefficient on  $ROA_{1901}$  is positive and statistically significant at the 5% level in every specification (columns 1 to 5). In term of economic significance the effect is quite important: a company of average size that increases its profitability from the first to the third quantile of  $ROA_{1901}$  would increase its probability of paying dividends from 60% to 80%. The propensity to pay dividends is also positively associated with the age of the company (columns 1 to 4) and the capital structure of the company (columns 2 to 4). Consistent with DeAngelo, DeAngelo and Stultz (2006), we find that a higher ratio of earned to contributed capital is associated to a higher probability of paying dividends (column 2). The rationale for this is that a higher earned to contributed ratio tends to indicate a more mature company. The result holds if we substitute the earned to contributed capital ratio with earned capital to total assets (column 4). The economic effect of this variable however is not big. A firm of average size and average profitability that moves from an earned to contributed ratio of 0.1 to 0.4 increases the propensity to pay a dividend by about 5%. Columns 3 and 4 indicate that being a non-payer in 1900 increases the probability of being a non payer in 1901, all else equal. In other words, firms are reluctant to change their dividend policy (they like to smooth dividends).

When we introduce Tobin's Q in the Logit specification (column 5), the number of observations falls because for about half of the sample we do not have information on asset prices. Current profitability and age of the company are still associated with a higher probability of paying a dividend. On the other hand, the ratio of earned to contributed capital is no longer statistically significant and it displays a negative sign. A higher Tobin's Q is associated with a higher probability of being a dividend payer.

**Table 2: Propensity to Pay Dividends. Logit Model**

Dep. Var.: 1 if the company paid a dividend on ordinary shares in 1901, 0 if not

	(1)	(2)	(3)	(4)	(5)
ROA <sub>1901</sub>	57.51*** (3.86)	58.76*** (3.66)	56.61*** (3.73)	55.06*** (3.71)	162.90** (2.51)
ROA <sub>1900</sub>	3.39 (0.32)	-4.62 (-0.40)	-11.69 (-1.26)	-10.78 (-1.21)	-11.66 (-0.23)
log (Size)	0.040 (0.24)	-0.057 (-0.34)	-0.01 (-0.06)	-0.012 (-0.07)	-0.51 (-1.33)
Age	0.034* (1.61)	0.037* (1.74)	0.033* (1.60)	0.033* (1.65)	0.082* (1.81)
Growth	0.564 (0.29)	0.26 (0.15)	0.341 (0.20)	0.371 (0.20)	5.23 (0.89)
$\frac{\text{Earned Equity}}{\text{Total Common Equity}}$		9.20* (1.90)	8.15* (1.75)		-0.80 (-0.19)
$\frac{\text{Earned Equity}}{\text{Total Assets}}$				13.84** (1.96)	
$\frac{\text{Total Common Equity}}{\text{Total Assets}}$		-1.39 (-1.29)	-0.809 (-0.59)	-0.99 (-0.74)	3.19 (1.42)
$\frac{\text{Cash Balances}}{\text{Total Assets}}$		-2.74 (-0.48)	-3.19 (-0.58)	-3.14 (-0.61)	-5.50 (-0.46)
Previous non-Payer			-2.13*** (-3.11)	-2.17*** (-3.11)	
Tobin's Q					6.20* (1.80)
Pseudo $R^2$	0.31	0.35	0.41	0.40	0.69
Obs	279	279	279	279	110

To discriminate between different theories of dividend policy, we examine the effect of dividend increases (or commencements), and decreases (or omissions), on stock returns.

Due to restrictions on asset price availability, we are forced to reduce our sample to 63 companies for which we observe enough prices to perform an event study analysis. We observe the prices and dividend histories of 63 companies over the period January 1901 through December 1905. Companies usually 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 companies paid annual dividends or quarterly dividends.

Our aim is to determine the effect of changes in dividend *policy* on security returns. A change in dividend policy may not be the same thing as a change in the amount of the dividend. Companies often kept interim dividends constant from year to year, but varied the amount of the final dividend. We define changes in dividend policy in two ways: first, a change in the dividend from the previous dividend paid; second, a change in the dividend from that paid at the same time in the previous year. For a particularly clear-cut example, consider the Oriental Telephone and Electric Company. It paid dividends of 3.5% in May 1901, 2.5% in November 1901, 3.5% in May 1902, 2.5% in November 1902, 3.5% in May 1903, and 3% in November 1903. Method one would characterize the dividend policy as: decrease (November 1901), increase, decrease, increase, and decrease (November 1903). Method two would characterize that same policy as: no change (November 1901), no change, no change, no change, and an increase (November 1903). For other companies the distinction between a change in the dividend and a change in the policy is much less clear cut. To provide robust results, we calculate the effect of the dividend policy on security returns using method one and method two.

These 63 companies made a total of 390 dividend announcements. Out of 390 dividend-company announcements we observe 44 dividend omissions (methods one and two), 13 dividend commencements (or recommencements) using both methods, 115 dividend increases using method one and 86 increases using method two, 141 decreases (method one) and 77 decreases (method two), and 87 instances of no change (method one) versus 161 (method two).

**Table 3 - Cumulative Average Abnormal Returns**

One week before dividend announcement to one week after

<b>Increases/Commencement</b>		<b>Decreases/Omissions</b>	
Method 1	Method 2	Method 1	Method 2
All companies			
-0.09%	0.10%	-1.4%**	-2.4%***
(0.02)	(0.23)	(-2.85)	(-3.75)
$n = 128$	$n = 99$	$n = 185$	$n = 121$
Companies with $Q < 1$			
-0.30%	-1.8%	-3.8%***	-5.2%***
(-0.31)	(-1.36)	(-4.38)	(-5.26)
$n = 98$	$n = 27$	$n = 71$	$n = 56$
Companies with $Q > 1$			
-0.4%	0.8%	0.05%	-0.1%
(-0.39)	(1.38)	(0.11)	(-0.16)
$n = 30$	$n = 72$	$n = 114$	$n = 65$

t-stats in parentheses

The cumulative average abnormal returns (CAAR) from one week before the announcement of the dividend increase to one week after the dividend increase is -0.09% (method one), whereas for the 185 dividend decreases the CAAR over the same window is -1.4%. The effects of an announcement of a dividend increase is close to zero, whereas announcements of a dividend decrease cause moderately negative abnormal return (see Table 3).

We can also calculate the effect of dividend announcements by low and high Q companies. We split our sample by the value of each security's Q in December of the year before the dividend announcement. We find that, contrary to theory, low Q companies (firms with relatively few investment opportunities) experience a negative CAAR following the announcement of a dividend increase, and high Q companies experience a positive CAAR, even though more earnings are being paid out, rather than being invested in the firm's projects. However, for both sets of companies the magnitudes are small, and statistically insignificant. News of

a dividend decrease or omission is very bad news for low Q companies, with a CAAR of -3.5% which is economically large and statistically significant, around the announcement date whereas a dividend decrease is mildly positive news. Our findings support the agency theory model of dividend policy. A dividend decrease for a firm with few investment opportunities is bad news, possibly because the firm's managers have more access to free cash.

## 6 Conclusion

We find evidence in favour of the agency models of dividend policy. Mature (low Q) companies with relatively few investment possibilities experience a large negative return if they reduce their dividends, whereas (high Q) companies with relatively many investment projects are little affected by a decrease in the dividend rate.

Extensions to this work may consist of looking at stock price responses to dividend announcements over a longer period. The finance literature has found positive (negative) excess returns after dividend increases (decreases) even in the long run. This result is considered puzzling: in the long run any information conveyed by dividend payments should be fully absorbed by markets and excess returns should be zero. Possible explanations rely on the existence of dividend clienteles and capital market imperfections. Since dividend clienteles should be a minor consideration in our environment this will allow us to centre our attention on market imperfections.

This research agenda also contains value from a financial history perspective. Late nineteenth century British capital markets have been under close scrutiny by scholars, yet our knowledge of dividend policies at the turn of the twentieth century is still scant. This issue is particularly important because scholars have studied whether a key institution, capital markets, contributed to Britain's economic decline.

Although Britain had developed the most advanced economic and social institutions of the nineteenth century, at the end of the century it experienced a prolonged decline of productivity growth and a delay in the adoption of new technologies, such as electricity and heavy chemicals. Some economic historians (e.g. Harrison (1982) and Kennedy (1987))

claim that investors failed to provide close and supportive relationships with their industrial clients, as was the case in Germany. While studying dividend policies, we can understand how investors perceived investments made by new technology companies and whether they supported managerial decisions. One of our goals is to see if there are systematic differences between old and new technology companies' dividend payouts.

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## Appendix 1: Variables Definitions

**Age:** Year since date of incorporation of the company.

**Total Assets:** Total Assets of the company as displayed in the balance sheet.

**Growth:** (Total Assets in 1901 minus Total Assets in 1900 plus Dividend payments in 1900)/Total Assets in 1900.

**Returns on Assets (ROA):** Earnings divided by total assets.

**Earnings:** Earnings after interest, depreciation, and taxes.

**Earned Equity=Retained Earnings:** any earnings that the company did not distribute as dividends to shareholders (e.g. amounts transferred to Reserve Fund, Reserve for Bad Debts, Reserve Depreciation Fund, Equalisation of Dividends Account etc.)

**Total Common Equity:** The sum of retained earnings and total nominal value of ordinary shares.

**Cash:** Cash in hand plus cash in bank plus bills receivable plus saleable assets such as financial securities.

**Tobin's Q:** {Market Value of Equity + Market Value of Debt}/Book Value of Assets. Where the market value of the firm's debt is unavailable (for instance it may not be traded on an exchange) we replace the market value of the firm's debt with the book value of the firm's debt.