Corporate Payout Policy During the 21st Century

JOHANNES ARONSSON

OSKAR NATT OCH DAG

Bachelor Thesis

Stockholm School of Economics

2020

Corporate Payout Policy During the 21st Century

Abstract:

As we analyze how payout policies have changed during the 20th and 21st century we find that the 21st century is characterized by a rapid increase in the average total payout ratio. We show that the most common payout policy for publicly traded U.S. firms is the combination of both dividends and share repurchase while only paying dividends has been the predominant choice of payout through most of the 20th century. While we show that dividend expenditures maintain a more steady level compared share repurchases, we also provide evidence that firms that distribute cash to their equityholders through share repurchase have higher volatility in earnings compared to firms with different payout policies. We associate different firm characteristics for firms with different payout policies and prove that a firm's size and profitability have a significant impact on both the dividend payout ratio and share repurchase ratio of a firm.

Keywords:

Payout policy, dividends, share repurchase, firm characteristics

Authors:

Johannes Aronsson (24122)
Oskar Natt och Dag (24123)

Tutors:

Marcus Opp, Associate Professor, Department of Finance

Examiner:

Adrien d'Avernas , Assistant Professor, Department of Finance

Bachelor Thesis
Bachelor Program in Business and Economics
Stockholm School of Economics

1. Introduction

Companies can compensate their shareholders in two ways. Either by paying dividends or by buying back shares of stock. The main difference between dividends and share repurchase is that a dividend payment represents a definite return in the current timeframe, whereas a stock repurchase represents an ambiguous future return in form of increased share price on which tax is deferred until the shares are sold. U.S. corporations have for decades overwhelmingly preferred to pay out cash to shareholders in the form of dividends rather than share repurchases. However, during the last years of the 20th century, there is well-established evidence that firms spend less on dividends and more on share repurchases. In 1999 and 2000, industrial firms had more expenditures on share repurchases than on dividends. For the first time in history, share repurchases had become more popular than dividends (see e.g., Fama and French, 2001; Grullon et al., 2002). The evidence of diminishing dividends is not only a trend in the U.S. markets. Denis et al. (2008) find evidence that dividends are shrinking in comparison to share repurchase in the United Kingdom, Japan, Germany, Canada, and France as well.

Our paper works as an extension to previous research as we present updated data on payout policy for U.S. firms during the 21st century. We collect data on U.S. industrial firms over the period 1972-2018. We begin by illustrating the payout policy environment in different contexts, starting with descriptive statistics on aggregated expenditures on dividends and share repurchase for U.S. industrial firms over the years 1972-2018. The results are presented in Table 2. Including years from the 20th century helps us with two things - first making sure that we have similar results on the payout policy environment as previous studies (see Grullon et al., 2002). Second, it gives us an insight into how the trends have developed previous to our focus time-period which creates a more profound illustration of the history of payout policies.

Next, we continue by showing how firms over the years 1972-2018 have been distributing their cash to equityholders by observing the cash expenditures of the firms over a period of a year. These results are presented in Figure 1. In Figure 2, we determine 3 different types of payer groups: firms that only pay dividends, only repurchase shares, and finally firms that both pay dividends and repurchase shares. We illustrate how the fractions of these groups have evolved from 1972 to 2018.

As we present our last illustration of the payout policy environment with data from the year 1999-2018, we add one more payer group - non-payers, in addition to the three previous established payer-groups. We then generate their particular firm characteristics. The results are presented in Table 3. Finally, we run regressions to test if certain firm characteristics, that have previously been shown to affect a company's payout policy, have any explanatory value on a firm's payout ratio in the 21st century. These results are presented in Table 4.

After having collected and illustrated our data, we find that the 21st century is characterized by a rapid increase in the average total payout ratio, as the ratio goes from an estimated average

of 24% during the previous century, climbing up to a ratio of 36% in 2017. In addition, we show that dividend expenditures maintain a more steady level compared to share repurchases, which is especially apparent during the events of the financial crisis in 2008. We also show that firms that only repurchase shares have higher volatility in earnings compared to firms with different payout policies. We find that the combination of dividends and share repurchase has become the preferred method of payout for many firms, compared to the previous century where dividend payouts were most common. After running regressions on firm characteristics and different payout methods we confirm that a firm's size and profitability have a significant impact on both the dividend payout ratio and share repurchase ratio of a firm. Further, we discover that cash level only is significant for the dividend payout ratio and that a firm's market-to-book ratio only has a significant impact on share repurchases.

By following the approach of Grullon et al. (2002) we describe the payout policy environment between the years 1972-2018. We aggregate data on U.S. firms, starting with earnings and expenditures on both dividends and share repurchases. As our main focus lies on the 21st century, we find that during the year of 2004, share repurchase expenditures caught up to dividends expenditures. While looking at previous studies such as Grullon et al. (2002), one might assume that the trend of declining dividends will be maintained. We prove that this assumption is correct when looking at total expenditures on both dividends and share repurchase. However, when looking at average payout ratios (dividends/share repurchase over earnings) we see that the average dividend payout ratio for U.S. firms is still larger than the average share repurchase ratio. Even during the financial crisis in 2008, dividends kept a stable level in relation to earnings, while repurchase activity declines. This is in line with Lintner (1956) that more stable companies prefer to pay out dividends. In addition, we show that during the 21st century the dividend payout ratio, and to some extent also the share repurchase payout ratio, are increasing rapidly by historical standards, thus increasing the total payout ratio.

Furthermore, we illustrate how the three different payer-groups proportions (only dividend payers, only share repurchase payers, and both dividend and share repurchase payers) have evolved during the 21st century, using the same approach as Grullon et al. (2002). The proportion of firms in each group have since the beginning of our data set begun to approximate each other. However, after the year 2011, the three groups seem to be separating. The method of both paying dividends and repurchasing shares becomes the most popular method of distributing cash to shareholders as it is used by more than 50% of the firms in our sample.

We continue by adding another group, the non-payer group, which consists of firms that neither pay dividends or repurchase shares. To investigate if there are specific characteristics for firms with different payout policy, we detail certain firm characteristics for each of the four payer groups. We conclude that the main similarities between our timeframe (1999-2018) and the one conducted by Grullon et al. (2002) with a timeframe of the year 1972-1999, are the sizes of firms in the different payer groups. Another important comparison is the findings of both Grullon et al. (2000) and Jagannathan et al. (2000) that firms that only repurchase shares have higher volatility in their earnings than firms that only pay dividends. From our results, we also argue that when conditioning on firms paying dividends, their earnings volatility is lower

compared to firms that do not pay dividends, similar to the findings of Lintner (1956). In contradiction to Grullon et al. (2002), we find that firms that only repurchase shares are not younger than firms that only pay dividends.

Lastly, to investigate if certain firm characteristics that previously have been associated with payout policies we perform three multivariable regressions: total payout ratio, dividend payout ratio, and share repurchase ratio. For our regression on total payout ratio, we obtain significant estimates on four of our five independent variables while our regressions on dividend payout ratio and share repurchase ratio obtain significant estimates on three independent variables each. We discover that a company's size and profitability have a significant impact on both dividends payout ratio as well as share repurchase ratio, while cash level only has a significant impact on dividends ratio and investment opportunity (expressed as the market-to-book ratio) only had a significant effect on the share repurchase ratio. What did not seem to have an effect on a company's payout policy whatsoever was the amount of leverage (expressed as debt-to-equity ratio), as we did not obtain a significant estimate for it in any of our regressions.

Literature

Our paper relates to the earlier work of Grullon et al. (2002) and serves as an extension of some of their methods to provide us with descriptive statistics on the payout policy environment during the 21st century. In their paper, Grullon et al. (2002) find that young firms have a higher propensity to pay cash through repurchases than they did in the past and that repurchases have become the preferred form of initiating a cash payout. In addition, they find that although large, established firms have generally not cut their dividends, they also show a higher propensity to pay out cash through repurchases. Grullon et al. (2002) conclude that well-established firms distribute more of their cash flows through repurchases and less through dividends. Our findings described in Figure 2 suggests that in the 21st century, paying both dividends and share repurchase has continued to be increasingly common, and has since 2011 become the most popular payout method. We argue that only paying through dividends did not decline as rapidly during the 21st century compared to the 20th. We also show that payout through share repurchases had a substantial increase during the 20th century, similar to the findings of Grullon et al. (2002), but we add that this method of payout has become less common during the 21st century.

Our paper also relates to earlier literature on payout policy and how different firm characteristics affect the decision between dividends and share repurchase. Jagannathan et al. (2000) find that stock repurchase and dividends are used by different kinds of firms. Dividends, according to Jagannathan et al. (2000), are paid by firms with higher permanent cash flow, and repurchases are paid by more temporary non-operating cash flow. A major contradiction to the literature by Jagannathan et al. (2000) is our findings that share repurchasing firms experience a lower non-operating cash flow compared to firms that pay dividends. However, concerning their findings of dividends, we present data in Table 3 that suggest that dividend paying firms are still characterized by higher permanent cash flow and that repurchasing firms experience significant volatile earnings.

When constructing our regression models we base our choice of independent variables on well-established theories regarding the relationship between firm characteristics and payout policy. Some of the most fundamental theories we use in our research are Life-Cycle Theory (DeAngelo, DeAngelo, and Stultz, 2006), Agency theory (Jensen and Meckling, 1976; Jensen, 1986), and Signaling Theory (Akerlof, 1970; Bhattacharya, 1979) since these theories explain why some firm characteristics affect corporate payout policy.

The Life-Cycle Theory (DeAngelo, DeAngelo, and Stultz, 2006) claims that the dividend policy of a firm highly depends on what phase of the business life cycle it is. Younger companies with high growth and more investment opportunity tend to pay less dividends compared to larger and mature firms that have had a more stable cash flows, which allows for larger payouts and influenced our decision to choose size (SIZE) as an independent variable in our regression. Further, Life-cycle Theory also relates to our choice of using market-to-book ratio (MB) as an independent variable since it argues that a company that is valued highly above its book value of assets (generally younger firms) is expected to experience significant growth, which would indicate that it is using its excess cash for investments instead of paying it out to shareholders. This argument is also supported by Smith and Watts (1992) who suggest that companies with more assets in place and fewer growth opportunities would have higher dividends. Thus, a company with a higher market-to-book ratio should have more investment opportunities at hand and therefore not pay as much to its shareholders. Agency theory (Jensen and Meckling, 1976; Jensen, 1986) argues that larger companies choose to pay higher dividends as a positive signal to the company's stakeholders (e.g. that they will be able to afford a larger dividend due to stable results in the future). It also states that managers are risk-averse and are more likely to use excess cash to pay off the company's debt, instead of paying it out to shareholders, which relates to our choice of using leverage (D/E) as one of our independent variables. Signaling Theory (Akerlof, 1970; Bhattacharya, 1979) relates to our choice of using cash level (CASH) and profitability (ROA) as independent variables, since it claims that a company with a higher cash level or profitability should pay out more to send positive signals to its investors, otherwise it would use excess cash for investments.

The most fundamental literature regarding payout policy is Miller & Modigliani's irrelevance theorem (Miller & Modigliani, 1961). Miller & Modigliani describe that in perfect capital market assumptions, dividends are irrelevant. A capital market is perfect when there is an absence of taxes, transaction costs, and asymmetric information. Under these circumstances, it would not matter if a company chose to not pay any dividends since a shareholder could create his or her dividends by selling shares. This theory also explains why, in perfect capital markets, the choice between paying out dividends or repurchasing shares would be irrelevant. The reason for this is that if there were no taxes, or if there were the same level of taxes on dividends and capital gains, a dividend payout would affect a shareholder in the same way that a share repurchase of the same amount would. However, perfect capital markets do not prevail and therefore the irrelevance theorem does not hold. Different tax levels are according to many, including Grullon et al. (2002), one of the most important factors influencing payout policy. Despite the importance of taxes, we have chosen to not account for different tax levels in our

research since it would require data from geographic areas with different tax levels which we assessed to be too extensive and would likely be required to be researched in a separate paper.

There is also extensive research on the market reaction to dividends and share repurchase that relates to our research topic. The arguments for dividends include the idea that dividends provide certainty about a company's well-being (Lintner, 1956). Dividends are also attractive for investors with a goal to generate income. However, a decrease or increase in dividend distributions can affect the price of a security. The stock prices of companies that have a long-standing history of dividend payouts would be negatively affected if they reduced their dividend distributions, e.g. Denis et al. (1994) report an average stock price decline of 6% on the three days after the announcement of a dividend cut. Conversely, companies that increased their dividend payouts or companies that instituted a new dividend policy would likely see appreciation in their stocks. Repurchases, on the other hand, involve no such risk. Sometimes companies announce programs but fail to repurchase any shares. Even if a firm completes a program, it is under no explicit or even implicit obligation to begin another new repurchase program (Jagannathan et al., 2000).

2. Data Sample Selection and Definitions

In our paper, we use Standard & Poor's Compustat North America which is a database of U.S. fundamental and market information on both inactive and active publicly held firms. It provides more than 100 quarterly and 300 annual Income Statement, Balance Sheet, Statement of Cash Flows, and supplemental data. For most companies, annual history is available back to 1950. The advantages of using Compustat is that it has been widely popular among researchers and served as the primary source of data in many of the relevant articles previously stated, e.g. Grullon et al. (2002) and Jagannathan et al. (2000). We construct an opening sample of all the U.S. publicly traded companies (excluding financial and insurance companies) that appear on the files for a minimum of one year over the chosen period 1972-2018, resulting in a total number of 473,243 observations. In our closing sample we generate the following variables from Compustat:

1. Dividends (DIV). This is defined as total dollar amount of dividends declared on the common stock of the firm during the year (Compustat item DVC).

2. Repurchases (REPO). This item represents any use of funds which decreases common and/or preferred stock. This is defined as total expenditure on the purchase of common and preferred stocks (Compustat item PRSTKC).

3. Market value (MV). This is defined as the market value of common stock at the end of the year, which is created through Compustat item CSHO (Common shares outstanding) times Compustat item PRCC_C (Price close - annual - calendar)

4. Earnings (EARN). Defined as earnings before extraordinary items (Compustat item IB), this represents the income of a company after all expenses, including special items, income taxes, and minority interest, but before provisions for common and/or preferred dividends.

In our closing sample, we construct 11 more variables using data from Compustat IQ.

1. BV is defined as the book value of equity (Compustat items AT - DT)

2. CASH is defined as the book value of short-term investments and cash (Compustat item CHE) scaled by the book value of total assets (Compustat item AT).

3. ROA is the operating income before depreciation (Compustat item OIBDP) scaled by the book value of total assets (Compustat item AT).

4. $\boldsymbol{\sigma}$(ROA) is the standard deviation of ROA

5. NOPER, defined as non-operating income before depreciation (Compustat item NOPI) scaled by the book value of total assets (Compustat item AT).

6. DEBT/EQUITY is the ratio between book value of total debt and book value of total equity (Compustat item DT / Compustat items AT - DT).

7. MB is the market-to-book ratio, defined similarly to Grullon et al. (2002). MB is equal to the book value of the total assets (Compustat item AT) plus the market value of equity (MV) minus the book value of equity (BV), scaled by the book value of the total assets (Compustat item AT).

8. SIZE is the natural logarithm of a company's total assets (ln(Compustat item AT), defined similarly by Gul (1999).

The variables ROA, SIZE, D/E, CASH, and MB are used as independent variables in a multivariable regression to determine which firm characteristics explain a company's payout policy. In addition to those variables we need to construct dependent variables:

9. PayRatio is the sum of dividends on common/ordinary stocks (Compustat DVC) and the purchase of common and preferred stock (Compustat item PRSTKC) of a firm scaled by its income before extraordinary items (Compustat item IB).

10. DIVRatio is the dividends on common/ordinary stocks (Compustat DVC) of a firm scaled by its income before extraordinary items (Compustat item IB).

11. REPORatio is the purchase of common and preferred stock (Compustat item PRSTKC) of a firm over its income before extraordinary items (Compustat item IB).

When constructing our regressions we want to capture the effect firm characteristics have on the entire payout policy of a firm, not only its dividend payout policy. Hence, we run three different regressions with the same independent variables but on three different dependent variables. Furthermore, we base our choice of independent variables on previous articles that have studied this topic earlier.

We consider profitability to be one of the most important factors dictating a firm's ability to pay out cash to its shareholders. If a company cannot make a profit in the long-term it will not be able to sustain an active payout policy. We have chosen ROA as an appropriate independent variable to account for profitability in our regression model (Grullon et al., 2002). Our second and third independent variables SIZE and D/E are as previously stated primarily based on the Life-Cycle Theory (DeAngelo, DeAngelo, and Stultz, 2006) and Agency theory (Jensen and Meckling, 1976; Jensen, 1986). Our fourth independent variable CASH is backed by Signaling Theory (Akerlof, 1970; Bhattacharya, 1979) and our final independent variable is MB (market-

to-book ratio), which is supported by the argument in Life-Cycle Theory as well as Smith & Watts (1992).

Regression model

Since our dataset consists of company-specific data over a period of time, it meets the criteria for panel data. When performing regressions on panel data the most common method to use is the fixed effects model with company fixed effects and time fixed effects, which is the method we have chosen use in our regressions. Our closing sample contains 11,260 firms, and a total of 68,489 firm-year observations during the years 1999-2018. The regression models used in our research are defined below.

Total payout ratio:

$$Total\ Pay\ Ratio_{i,t+1} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 D/E_{i,t} + \beta_4 CASH_{i,t} + \beta_5 MB_{i,t} + \varepsilon_{i,t}$$

Dividend payout ratio.

$$DIVRatio_{i,t+1} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 D/E_{i,t} + \beta_4 CASH_{i,t} + \beta_5 MB_{i,t} + \varepsilon_{i,t}$$

Share repurchase ratio.

$$REPORatio_{i,t+1} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 D/E_{i,t} + \beta_4 CASH_{i,t} + \beta_5 MB_{i,t} + \varepsilon_{i,t}$$

Where:

$Total\ Pay\ Ratio_{i,t+1}$= Total payout ratio for firm i at time t+1

$DIVRatio_{i,t+1}$ =Dividend Payout Ratio for firm i at time t+1

$REPORatio_{i,t+1}$ =Share repurchase Ratio for firm i at time t+1

$ROA_{i,t}$ =Return on assets for firm i at time t+1.

$SIZE_{i,t}$ =Natural logarithm of total assets for firm i at time t.

$D/E_{i,t}$ =Debt to equity ratio for firm i at time t.

$CASH_{i,t}$ = Cash for firm i at time t.

$MB_{i,t}$ = Market-to-book value for firm i at time t.

β = Beta = Constant

ε = Error variable

Table 1

Summary statistics.

The table shows descriptive statistics for all of the variables used in our three regressions. At the beginning of the table, we find our three dependent variables, *Total payout ratio*, *Dividend payout ratio*, and *Share repurchase ratio*. The dependent variables are followed by each of our independent variables, *SIZE*, *D/E-Ratio*, *ROA*, *MB*, and *CASH*. *Total payout ratio* is defined as the total amount of dividends on common and/or ordinary stocks plus the total amount of purchase of common or preferred stock (Compustat item DVC and PRSTKC), scaled by income before extraordinary items (Compustat item IB). *Dividend payout ratio* is defined as common and/or ordinary stocks scaled by income before extraordinary items. *Share repurchase ratio* is defined as purchase of common or preferred stock scaled by income before extraordinary items. SIZE is the natural logarithm of a firm's total assets (ln(Compustat item AT)). D/E is the ratio between total debt and total equity (Compustat item DT / Compustat items AT - DT). ROA is the operating income before depreciation (Compustat item OIBDP) scaled by the book value of total assets. MB is the market-to-book ratio [(market value of equity + book value of total assets - book value of equity)/book value of total assets]. CASH is the book value of short-term investments and cash (Compustat item CHE), scaled by the book value of total assets.

Variable		Mean	Std. Dev.	Min	Max	Observations
Total payout ratio	Overall	0.1614	.2724	0	1	N = 87,264
	Between		.2165	0	.9981	n = 13,706
	Within		.1644	-0.6240	1.0963	T-bar = 6.367
Dividend payout ratio	Overall	0.0974	.2059	0	1	N = 87,264
	Between		.172	0	.9981	n = 13,706
	Within		.1061	-0.6168	1.0264	T-bar = 6.367
Share repurchase ratio	Overall	0.0641	.1670	-0.0657	1	N = 87,270
	Between		.1128	-0.0004	.9952	n = 13,706
	Within		.1283	-0.6096	.9989	T-bar = 6.367
SIZE	Overall	5.0768	2.999	-6.9078	15.0447	N = 87,270
	Between		2.940	-6.7345	14.5525	n = 13,706
	Within		.7651	-4.7972	12.0663	T-bar = 6.367
D/E-Ratio	Overall	0.4655	23.0357	-1607	2511.5	N = 76,120
	Between		15.1603	-796.6	704.8	n = 12,232
	Within		20.3294	-996.8	2093.3	T-bar = 6.223
ROA	Overall	-0.2763	1.3936	-16.3077	.4541	N = 87,270
	Between		1.4131	-16	.4510	n = 13,706
	Within		.8903	-14.7877	7.8196	T-bar = 6.367
MB	Overall	40.2856	2275.5	-1.49e-08	359375	N = 68,499
	Between		2046.6	.0	89864.1	n = 11,262
	Within		1841.4	-89819.6	269551.2	T-bar = 6.082
CASH	Overall	0.1988	.2518	-1.1797	1	N = 87,261
	Between		.2434	-0.5532	1	n = 13,705
	Within		.1249	-0.6442	1.1269	T-bar = 6.367

3. Empirical analysis

3.1 Trends in Corporate Payout Policy

Table 2

Aggregate Cash Distributions to Equity holders

Table 2 reports annual information of firms from 1972 to 2018 on aggregate cash distributions to their equity holders. Each firm-year observation has data on the variables EARN, DIV, REPO, and MV. Dividends (DIV) is defined as the total dollar amount of dividends declared on the common stock of the firm during the year (Compustat item DVC). REPO represents any use of funds which decreases common and/or preferred stock. This is defined as total expenditure on the purchase of common and preferred stocks (Compustat item PRSTKC). MV is defined as the market value of common stock at the end of the year, which is created through Compustat item CSHO (Common shares outstanding) times Compustat item PRCC_C (Price close - annual - calendar). EARN is defined as earnings before extraordinary items (Compustat item IB). The data sample contains 270,619 firm-year observations and excludes banks, utilities, and insurance companies. ΣEARN, ΣDIV, and ΣREPO are expressed in millions of dollars. DIV/MV and REPO/MV are expressions for the dividend yield and buyback yield, respectively.

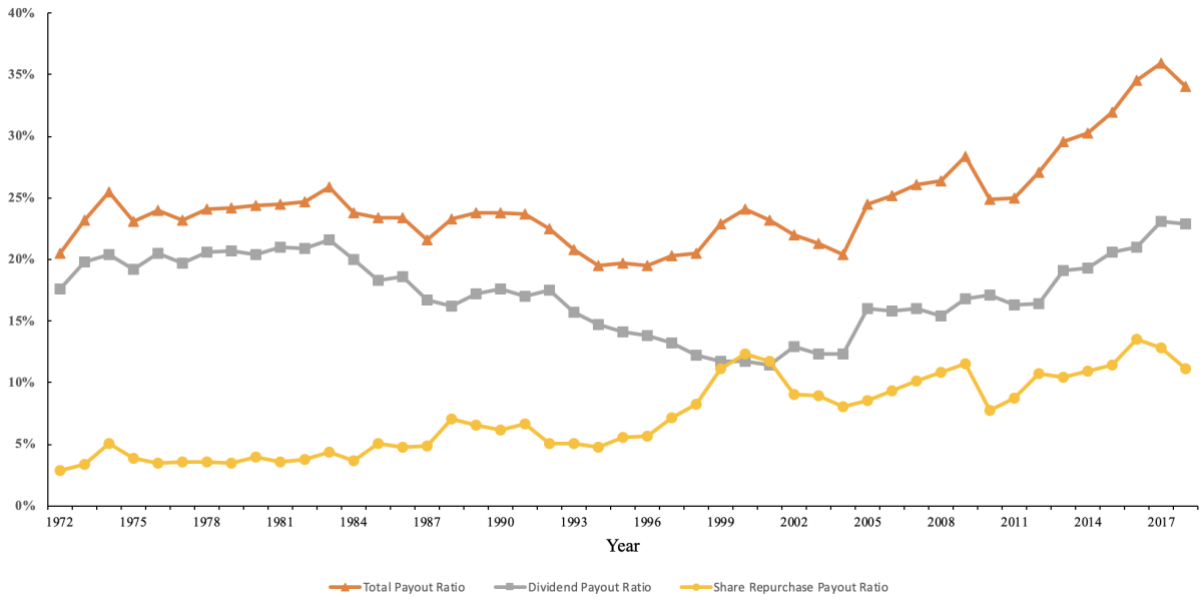
Year	Σ EARN	Σ DIV	Σ REPO	Σ DIV/ Σ EARN	Σ REPO/ Σ EARN	Σ DIV/ Σ MV	Σ REPO/ Σ MV	Σ REPO/ Σ DIV
1972	$ 58 431	$ 24 859	$ 1 969	42,54%	3,37%	2,58%	0,20%	7,92%
1973	$ 73 135	$ 27 815	$ 3 535	38,03%	4,83%	3,58%	0,46%	12,71%
1974	$ 84 082	$ 31 480	$ 2 080	37,44%	2,47%	5,79%	0,38%	6,61%
1975	$ 83 931	$ 34 595	$ 1 365	41,22%	1,63%	4,72%	0,19%	3,94%
1976	$ 102 666	$ 40 192	$ 2 384	39,15%	2,32%	4,40%	0,26%	5,93%
1977	$ 116 276	$ 47 757	$ 4 701	41,07%	4,04%	5,63%	0,55%	9,84%
1978	$ 133 733	$ 53 557	$ 4 921	40,05%	3,68%	6,15%	0,57%	9,19%
1979	$ 161 305	$ 60 593	$ 6 633	37,56%	4,11%	5,94%	0,65%	10,95%
1980	$ 173 411	$ 66 988	$ 7 908	38,63%	4,56%	5,20%	0,61%	11,81%
1981	$ 184 717	$ 77 413	$ 7 231	41,91%	3,91%	6,38%	0,60%	9,34%
1982	$ 169 191	$ 82 117	$ 11 271	48,53%	6,66%	5,93%	0,81%	13,73%
1983	$ 189 936	$ 88 940	$ 10 923	46,83%	5,75%	5,24%	0,64%	12,28%
1984	$ 221 009	$ 98 952	$ 33 551	44,77%	15,18%	5,83%	1,98%	33,91%
1985	$ 204 157	$ 96 141	$ 47 565	47,09%	23,30%	4,82%	2,38%	49,47%
1986	$ 208 357	$ 105 158	$ 47 834	50,47%	22,96%	4,61%	2,10%	45,49%
1987	$ 233 425	$ 109 522	$ 60 758	46,92%	26,03%	4,85%	2,69%	55,48%
1988	$ 274 237	$ 124 193	$ 54 081	45,29%	19,72%	4,99%	2,17%	43,55%
1989	$ 268 807	$ 125 165	$ 57 750	46,56%	21,48%	4,20%	1,94%	46,14%
1990	$ 255 239	$ 125 217	$ 47 961	49,06%	18,79%	4,61%	1,76%	38,30%
1991	$ 229 374	$ 120 729	$ 26 371	52,63%	11,50%	3,48%	0,76%	21,84%
1992	$ 265 299	$ 125 621	$ 38 621	47,35%	14,56%	3,21%	0,99%	30,74%
1993	$ 299 730	$ 138 349	$ 42 883	46,16%	14,31%	3,08%	0,95%	31,00%
1994	$ 372 644	$ 151 039	$ 52 437	40,53%	14,07%	3,24%	1,12%	34,72%
1995	$ 419 226	$ 173 374	$ 80 866	41,36%	19,29%	2,83%	1,32%	46,64%
1996	$ 481 199	$ 182 662	$ 104 821	37,96%	21,78%	2,44%	1,40%	57,39%
1997	$ 518 444	$ 190 560	$ 149 584	36,76%	28,85%	1,98%	1,55%	78,50%
1998	$ 541 623	$ 196 932	$ 179 193	36,36%	33,08%	1,71%	1,56%	90,99%
1999	$ 633 677	$ 212 261	$ 205 479	33,50%	32,43%	1,48%	1,43%	96,80%
2000	$ 673 018	$ 208 544	$ 192 618	30,99%	28,62%	1,58%	1,46%	92,36%
2001	$ 533 888	$ 197 309	$ 153 098	36,96%	28,68%	1,52%	1,18%	77,59%
2002	$ 607 741	$ 210 002	$ 149 121	34,55%	24,54%	2,23%	1,58%	71,01%
2003	$ 755 137	$ 238 180	$ 163 014	31,54%	21,59%	1,90%	1,30%	68,44%
2004	$ 857 667	$ 272 840	$ 278 961	31,81%	32,53%	1,90%	1,94%	102,24%
2005	$ 952 750	$ 351 629	$ 412 346	36,91%	43,28%	2,34%	2,75%	117,27%
2006	$ 1 124 758	$ 359 706	$ 589 798	31,98%	52,44%	2,11%	3,45%	163,97%
2007	$ 1 019 653	$ 365 948	$ 676 242	35,89%	66,32%	2,16%	3,99%	184,79%
2008	$ 853 166	$ 297 434	$ 389 487	34,86%	45,65%	2,99%	3,91%	130,95%
2009	$ 919 687	$ 275 205	$ 306 978	29,92%	33,38%	2,16%	2,41%	111,55%
2010	$ 1 058 900	$ 319 443	$ 349 829	30,17%	33,04%	2,06%	2,26%	109,51%
2011	$ 1 150 178	$ 364 693	$ 532 798	31,71%	46,32%	2,36%	3,45%	146,10%
2012	$ 1 192 711	$ 429 315	$ 451 777	35,99%	37,88%	2,48%	2,61%	105,23%
2013	$ 1 409 577	$ 451 381	$ 547 296	32,02%	38,83%	1,99%	2,41%	121,25%
2014	$ 1 313 034	$ 496 335	$ 610 813	37,80%	46,52%	2,00%	2,46%	123,06%
2015	$ 1 270 200	$ 517 457	$ 638 002	40,74%	50,23%	2,20%	2,71%	123,30%
2016	$ 1 289 098	$ 531 559	$ 585 376	41,23%	45,41%	2,08%	2,29%	110,12%
2017	$ 1 445 310	$ 571 665	$ 576 340	39,55%	39,88%	1,86%	1,87%	100,82%
2018	$ 1 583 942	$ 595 489	$ 873 885	37,60%	55,17%	2,09%	3,06%	146,75%

Corporate Payout Policy During the 21st Century

In order to gain an understanding of how the payout policy has developed through the 21st century, we begin by generating aggregate data by calendar year on dividend expenditure, share repurchase expenditure, earnings, and market value of equity. See Table 2 for a detailed description of data. Similar to Grullon and Michaely (2002), Table 2 shows that during the 20th century, expenditures on share repurchase is becoming increasingly more popular for US firms, both in absolute and relative terms. Table 2 also shows that throughout most of the 20th century, the predominant form of payout for most U.S. corporations has been the payment of dividends rather than the repurchase of stocks, see e.g. Bagwell et al. (1989). Share repurchase only stood for a very small portion of payout method to equityholders until 1984 when the amount of share repurchase relative to income had a big increase. As we enter the 21st century, a period with less established research concerning payout policy, we see that the trend of increasing popularity amongst share repurchases is maintained. During 2004, share repurchase expenditure exceeds dividend expenditures for US firms. Since then, expenditures on share repurchase has been greater than expenditures on dividends which is detailed in the ΣREPO/ΣDIV column. While expenditures on dividends have maintained a stable relative ratio to income, share repurchase has kept increasing. Even during the financial crisis in 2008, dividends kept a stable level in relation to earnings, while repurchase activity declined.

Figure 1: Cash distribution to equity holders

Figure 1 illustrates the average total payout ratio, dividend payout ratio, and repurchase payout ratio for a sample of U.S. firms over the period 1972-2018. The data sample consists of all firm-year observations from Compustat and the payout policy of a firm is determined by observing the cash expenditures of the firms over a period of a year. Each firm-year observation has data on the variables EARN, DIV, REPO, and MV. Dividends (DIV) is defined as total dollar amount of dividends declared on the common stock of the firm during the year (Compustat item DVC). REPO represents any use of funds which decreases common and/or preferred stock. This is defined as total expenditure on the purchase of common and preferred stocks (Compustat item PRSTKC). MV is defined as the market value of common stock at the end of the year, which is created through Compustat item CSHO (Common shares outstanding) times Compustat item PRCC_C (Price close - annual - calendar). EARN is defined as total earnings before extraordinary items (Compustat item IB). By construction, only firm-years with positive earnings are included in this calculation. Total Payout Ratio is the sum of dividends on common/ordinary stocks (Compustat DVC) and the purchase of common and preferred stock (Compustat item PRSTKC) of a firm scaled by its income before extraordinary items (Compustat item IB). Dividend Payout Ratio is the dividends on common/ordinary stocks (Compustat DVC) of a firm scaled by its income before extraordinary items (Compustat item IB). Share Repurchase Payout Ratio the purchase of common and preferred stock (Compustat item PRSTKC) of a firm over its income before extraordinary items (Compustat item IB).



We present in Figure 1 the averages of payout activities throughout the sample period (1972-2018). We first find the payout ratio for each firm and then calculate the average for each year in the sample. Figure 1 shows that, similar to the result of Fama and French (2001) that the average dividend payout ratio has declined during the 20th century, from 18% in 1972 to 12% in 2000. The figure also shows that the average share repurchase ratio has during the 20th century increased from 3% in 1972 to 12% in 2000. For the first time, in the year of 2000, the dividend and share repurchase ratios are on the same level. What is more interesting is what happens during the 21st century. It appears that the dividend and share repurchase ratio are both increasing rather rapidly by historical standards, thus increasing the total payout ratio. This phenomenon has not been experienced previously during the years 1972-2000. During

these years, the total payout ratio kept a stable level as dividends decreased when share repurchase increased, and vice versa. At its peak, the total payout ratio reaches a staggering 36% during the year 2017. Similar to Floyd et al. (2015) we find that before the financial crisis, increases in share repurchases push payouts to historic levels. The average repurchase payout ratio is lower than the average dividend payout ratio, even though the aggregate share repurchase expenditure is substantially higher than dividends after 2004 (Table 2). This could suggests that it is more common for larger firms to spend cash on share repurchases.

Figure 2. Distribution of firms by payout method. Figure 2 illustrates the distribution of firms by payout method for U.S. firms over the period 1972-2018. The data sample consists of all firm-year observations from Compustat and the payout policy of a firm is determined by observing the cash expenditures of the firms over a period of a year. Each firm-year observation has data on the variables EARN, DIV, REPO, and MV. Dividends (DIV) is defined as total dollar amount of dividends declared on the common stock of the firm during the year (Compustat item DVC). REPO represents any use of funds which decreases common and/or preferred stock. This is defined as total expenditure on the purchase of common and preferred stocks (Compustat item PRSTKC). MV is defined as the market value of common stock at the end of the year, which is created through Compustat item CSHO (Common shares outstanding) times Compustat item PRCC_C (Price close - annual - calendar). EARN is defined as total earnings before extraordinary items (Compustat item IB).

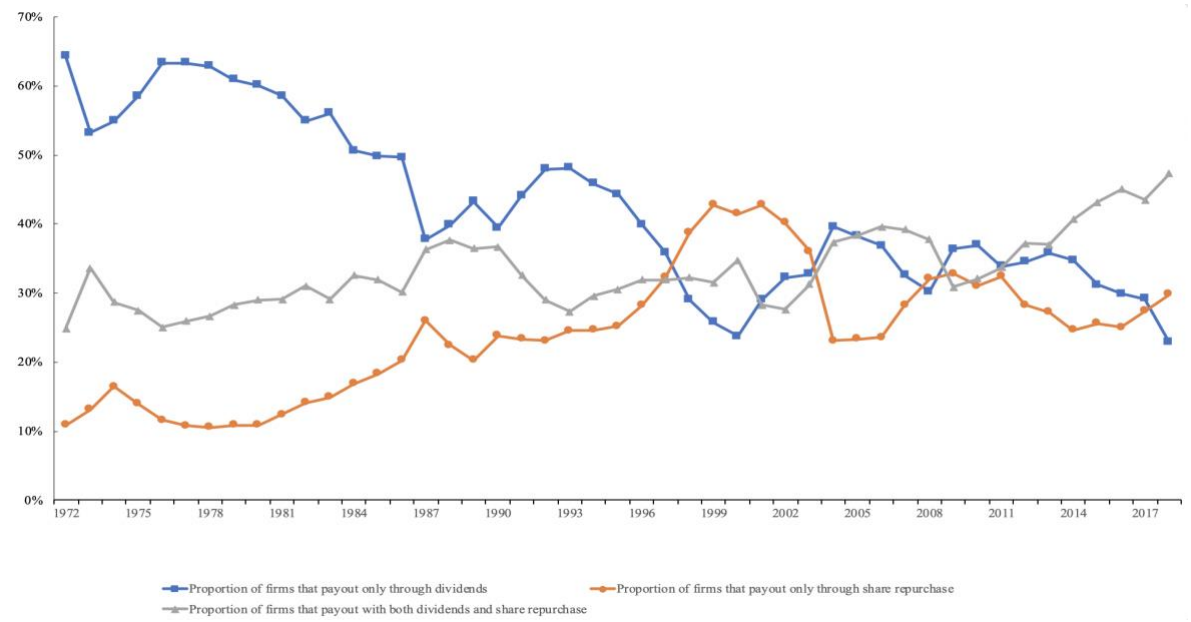


Figure 2 illustrates the distribution of firms by payout method over the period 1972 to 2018. The payout policy of a firm is determined by observing the cash disbursements of the firms over a period of a year. We find that during the 20th century, the most striking result from the figure is the declining trend in the proportion of firms that payout only through dividends, which is in line with the results of Grullon et al. (2002). Until the early 1980s, the proportion of firms that payout only through dividends represented more than half of the total number of firms that distributed cash to their shareholders. After this, firms started to rely more on share repurchase programs.

When looking at the figure as a whole, from the year 1972 to 2018, the proportion of firms in each group has since the beginning of our data set begun to approximate each other. However, after the year 2011, the three groups seem to be separating. A fundamental outcome from Figure 2 is that during the last few years, there is a larger proportion than ever of firms that pay both dividends and share repurchase. Worth mentioning is that the proportion of firms that only repurchase their shares have kept a rather stable proportion compared to the proportion of firms that only pay dividends, which now stand for the lowest proportion in modern times. This evidence is also consistent with the findings of Fama and French (2001) that the proportion of only dividend-paying firms has declined over time. Our new evidence, however, shows that dividends grew as we enter the 21st century, similar to the findings of Floyd et al. (2015)**.** We also show that the proportion of firms only paying dividends declines as of after the year 2012.

3.2 Firm Characteristics

Table 3
Firm characteristics by Payout Policy

Table 3 shows descriptive statistics on payout policy for U.S. firms in four different payer-group categories. DIV = 0, REPO = 0 are firms that pay neither dividends or repurchase shares. DIV > 0, REPO = 0 are firms that only pay dividends. DIV = 0, REPO > 0 are firms that only repurchases shares. DIV > 0, REPO > 0 are firms that both pay dividends and repurchase shares. Each firm-year observation has data on the variables EARN, DIV, REPO, and MV. Dividends (DIV) is defined as total dollar amount of dividends declared on the common stock of the firm during the year (Compustat item DVC). REPO represents any use of funds which decreases common and/or preferred stock. This is defined as total expenditure on the purchase of common and preferred stocks (Compustat item PRSTKC). MV is defined as the market value of common stock at the end of the year, which is created through Compustat item CSHO (Common shares outstanding) times Compustat item PRCC_C (Price close - annual - calendar). EARN is defined as total earnings before extraordinary items (Compustat item IB). ASSETS is the book value of assets (Compustat item AT). MB is the market-to-book ratio [(market value of equity + book value of total assets - book value of equity)/book value of total assets]. CASH is the book value of short-term investments and cash (Compustat item CHE), scaled by the book value of total assets. DEBT/EQUITY is the ratio between total debt and total equity (Compustat item DT / Compustat items AT - DT). MB, CASH, and DEBT/EQUITY have been truncated at the 99th percentile. ROA is the operating income before depreciation (Compustat item OIBDP) scaled by the book value of total assets. σ(ROA) is the standard deviation of ROA. NOPER is the non operating income before depreciation (Compustat item NOPI), scaled by the book value of total assets. AGE > 8 is the proportion of firms that have been active on a major exchange for more than eight years. DIV/TOTAL is the total expenditure on dividends for each payer group scaled by the total expenditure on dividends for all groups. REPO/TOTAL is the total expenditure on share repurchases for each payer group scaled by the total expenditure on share repurchases for all groups. MV and ASSETS are expressed in millions of dollars.

	DIV = 0, REPO = 0			DIV > 0, REPO = 0			DIV = 0, REPO > 0			DIV > 0, REPO > 0		
	Mean	Median	Observations	Mean	Median	Observations	Mean	Median	Observations	Mean	Median	Observations
MV	$ 633	$ 38	49554	$ 2 938	$ 472	13621	$ 1 924	$ 214	29450	$ 4 557	$ 291	55385
ASSETS	$ 2 301	$ 47	56920	$ 7 695	$ 1 126	18751	$ 1 775	$ 230	31604	$ 16 907	$ 1 639	29010
MB*	3,91	1,29	43288	1,38	1,03	8554	1,93	1,25	26079	1,52	1,21	15618
CASH*	24,94%	13,33%	42856	11,75%	5,89%	8468	26,01%	17,69%	25816	11,88%	7,31%	15462
DEBT /EQUITY*	32,03%	5,81%	49687	54,73%	27,00%	11270	35,44%	9,81%	27839	36,64%	23,07%	16297
NOPER**	4,23%	0,18%	53194	1,7%	0,1%	17180	1,20%	0,25%	30321	0,21%	0,01%	25683
ROA	6,64% ***	0,88%	53735	11,14%	8,96%	17390	13,36%	6,69%	30630	14,06%	9,17%	25963
σ(ROA)	38,04%***	12,14%	51973	3,77%	2,18%	16082	7,77%	6,07%	28482	3,93%	1,97%	25136
AGE > 8	60%			74%			76%			82%		
DIV/TOTAL	0%			29%			0%			71%		
REPO/TOTAL	0%			0%			19%			81%		

* truncated at the 99th percentile

** truncated at the 1st percentile

*** weighted mean

Table 3 points out several interesting facts about the differences in firm characteristics between payer groups. While extending the methodology of Grullon et al. (2002), we added another firm characteristic, DEBT/EQUITY, also used by Jagannathan et al. (2000) to see whether or not this key ratio is different between the payer groups. There are both similarities and differences between our studies of firm characteristics for different payer groups between the year 1999-2018, compared to the same research of the years 1972-1999 by Grullon et al. (2002). The main similarities are the sizes of firms in the different payer groups. We find that the non-payer group (DIV = 0, REPO = 0) is the smallest in terms of mean assets ($2,301) and second smallest and market value ($633), followed by the group of firms that only repurchase shares (DIV = 0, REPO > 0), assets ($1,775) and market value ($1,924). Firms that pay both dividends and repurchase shares remain the largest. Another difference that appears when we extend the data years to 1999-2018 is that firms that only repurchase shares (DIV = 0, REPO > 0), appears to have become a lot more profitable, with an average ROA of 13.36%. Unlike previous studies by Grullon et al. (2002) and Jagannathan et al. (2000), if we condition on a firm paying dividends, there is a difference between firms that do or do not repurchase shares. The volatility on earning, on average is the same, however, firms that both repurchase shares and pay out dividends have higher earnings.

Table 3 reveals several interesting facts about the relation between firms' payout policy and characteristics. The first payer group, firms that pay out neither dividends or repurchase shares (DIV = 0, REPO = 0), have, in addition to their small size in terms of market value and assets, lower profitability (6.64%) compared to the other payer groups. Furthermore, this payer-group also appears to have the lowest amount of debt in relation to equity. This payer-group has the highest market-to-book ratio compared to the other groups. The firms in this payer group are also the youngest ones, as 40% of the firms have been traded for less than 8 years. In this payer-group, ROA has been calculated through weighted mean because our initial results were meaningless due to extremely high losses scaled by very small book values of assets. Thus we cannot compare this group's ROA with other payer groups.

The second payer group, firms that only pay dividends (DIV > 0, REPO = 0), we find are the second largest in terms of market value and assets, compared to other payer groups. Another interesting fact about this payer group is their low volatile earnings, which is in line with the assumptions that it is typical for stable firms to pay out dividends (Litner, 1956). What also stands out in this payer group is that the firms have an average of 54.73% in debt-to-equity ratio, higher than any other group.

When shifting focus to firms that only repurchase shares as payout policy (DIV = 0, REPO > 0), we find that these firms are generally small, both in terms of assets and market value of equity. The firms in this group also appear to have a large proportion of cash and short term investments. An important comparison is the findings of both Grullon et al. (2002) and Jagannathan et al. (2000) that firms that repurchase shares and do not pay dividends have higher volatility in their earnings than firms that only pay dividends. Table 3 also reveals that, compared to the study conducted by Grullon et al. (2002), we see that firms that only repurchase shares are generally younger compared to firms that only pay dividends. We also find that when

conditioning on firms paying dividends, they have a lower non-operating income compared to firms that pay dividends.

Lastly, when looking at our final payer-group consisting of firms that both pay dividends and repurchase shares (DIV > 0, REPO > 0), we see that these firms are by far the largest, as they have an average market value of $4,557 and average assets of $16,907. These firms also experience very high profitability with an average ROA of 14.06% while still maintaining low volatility of average 3.93%. This group also represents the majority of dividend and share repurchase expenditures, with 71% and 81% respectively on aggregate expenditures. Both Grullon et al. (2002) and Jagannathan et al. (2000) do not find that firms that pay both dividends and repurchase shares have higher volatility in earnings than firms that only pay dividends. We are unable to draw the same conclusion as the volatility in earnings for these groups is average 3.93% and 3.77% respectively.

3.3 Regressions on Firm Characteristics

Table 4

Regression on firm characteristics and payout policy

The table reports a fixed effects model with total payout ratio, dividend payout ratio, and share repurchase ratio as dependant variables based on a sample of 11,260 firms during the period of 1999 to 2018 for a total of 68,489 firm-year observations. For total payout ratio, we use the total amount of dividends on common and/or ordinary stocks plus the total amount of purchase of common or preferred stock (Compustat item DVC and PRSTKC), scaled by income before extraordinary items (Compustat item IB). We use a similar definition for dividend payout ratio with dividends on common and/or ordinary stocks scaled by income before extraordinary items. For the share repurchase ratio, we use purchase of common or preferred stock scaled by income before extraordinary items. SIZE is defined as the natural logarithm of a firm's total assets (ln(Compustat item AT)). D/E is the ratio between total debt and total equity (Compustat item DT / Compustat items AT - DT). ROA is the operating income before depreciation (Compustat item OIBDP) scaled by the book value of total assets. MB is the market-to-book ratio [(market value of equity + book value of total assets - book value of equity)/book value of total assets]. CASH is the book value of short-term investments and cash (Compustat item CHE), scaled by the book value of total assets. To mitigate the effect of outliers, ROA has been winsorized at the 1st and 99th percentile. Robust standard errors are in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)
VARIABLES	Total payout ratio	Dividend payout ratio	Share repurchase ratio
SIZE	0.027***	0.012***	0.014***
	(0.001)	(0.001)	(0.001)
D/E	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)
ROA	-0.007***	-0.004***	-0.003***
	(0.000)	(0.000)	(0.000)
MB	0.000***	0.000	0.000***
	(0.000)	(0.000)	(0.000)
CASH	0.016***	0.011***	0.005
	(0.005)	(0.003)	(0.004)
Constant	0.004	0.003	0.001
	(0.007)	(0.004)	(0.005)
Observations	68,489	68,489	68,489
R-squared	0.250	0.124	0.167
Number of firms	11,260	11,260	11,260

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4 provides us with a better understanding of how different firm characteristics affect the payout policy of a firm, not only the total payout ratio but also how they affect the dividend payout and share repurchase ratio respectively. We regress our three different payout ratio variables with independent variables matching different firm characteristics of a company: size, leverage ratio, profitability, cash level, and finally the market-to-book ratio. In the first column, we regress the total payout ratio which is a company's fraction of earnings that it pays out in

total, that is the amount paid out in dividends and amount used for repurchasing shares. For total payout ratio, we receive significant estimates on four of our five independent variables: SIZE with a coefficient of 2.7%, ROA with a coefficient of -0.7%, MB with a coefficient of 0.0%, and CASH with a coefficient of 1.6%. In our second column, we regress dividend payout ratio, which is a company's fraction of earnings that pays out in dividends. For dividend payout ratio, we receive significant estimates on three of our independent variables: SIZE with a coefficient of 1.2%, ROA with a coefficient of -0.4%, and CASH with a coefficient of 1.1%. In our third column, we regress share repurchase ratio, our final dependent variable. In this regression, we obtain significant estimates on three independent variables: SIZE with a coefficient of 1.4%, ROA with a coefficient of -0.3% and MB with a coefficient of 0.0%.

We receive positive estimates on SIZE and CASH on all regressions, which is in line with the arguments of Agency Theory (Jensen and Meckling, 1976; Jensen, 1986), Life-Cycle Theory (DeAngelo, DeAngelo, and Stultz, 2006), and Signaling Theory (Akerlof, 1970; Bhattacharya, 1979) previously stated. What contradicts the literature is that we receive significant negative coefficients on profitability (ROA), which is not in line with Bhattacharya's (1979) argument that a company with higher profitability should have a higher payout ratio to send positive signals to its stakeholders. Another contradiction to previous theories is that we receive a significant positive estimate on investment opportunity (MB), which contradicts DeAngelo, DeAngelo and Stultz's (2006) argument that a small company that is valued highly above its book value should have a lower payout ratio since it should use its excess cash for investments rather than rewarding its shareholders. The same argument could also be the explanation to our negative estimate on profitability; a highly profitable company is likely to be operating in a non-saturated market and should, therefore, use its profits for investments and not increase its payout ratio. The only independent variable that did not achieve a significant estimate in any regression was leverage (D/E). Apart from that, we receive significant value on all other variables in at least one of our regressions, indicating that they have explanatory value on a firm's payout policy.

Two interesting differences in the results of the regressions on dividend payout ratio and share repurchase ratio is that the share repurchase ratio obtained a significant estimate on investment opportunity (MB) but not on cash level (CASH), while the regression on dividend payout ratio obtains a significant estimate on cash level but not on investment opportunity. This implicates that the share repurchase ratio is affected by a company's market-to-book value while the dividend payout ratio is not. A possible explanation to this could be derived in part from Life-Cycle Theory (DeAngelo, DeAngelo, and Stultz, 2006) and our previous results (see Table 3) that firms engaging in share repurchase generally are smaller companies with larger market-to-book ratio and therefore prefer to repurchase shares rather than committing to dividends, which we find is still the preferred way of distributing cash to shareholders for larger and more mature firms. The same argument could be made for why the cash level is not significant for the share repurchase ratio while it is for the dividend payout ratio; a company with higher permanent cash level would usually be a more mature company that would prefer to pay dividends rather than use it for repurchasing shares, which also finds support in Signaling Theory (Akerlof, 1970; Bhattacharya, 1979).

4. Conclusion

The main contribution of our thesis is the presentation of major trends in corporate payout policies for listed U.S. firms during the 21st century. Our paper gives us valuable insights into how the relationship between paying dividends and repurchasing shares has changed over the two decades. We learn that during our time-frame (i.e. 1999-2018), firms have shifted from preferring dividends to prefer using a combination of share repurchase and dividends. Consistent with Lintner (1956) we present evidence that it still is the case that large and stable firms rely on dividends as their main way of distributing cash to equityholders. We also show that firms that pay out through both dividends and share repurchase are typically very large and stable compared to other payer groups. In addition, this group also represents 71% and 81% of the total expenditures on dividends and share repurchase, respectively. Furthermore, we learn from our regressions that firm characteristics that have previously been claimed to affect payout policies still have an impact in the 21st century.

We suggest that there is great potential in future research on this topic. One interesting point is to compare the timeline of payout ratios and policies to business cycles or new legislation (e.g. the legislation of qualified dividends in 2003). Given the relatively low R-squared values in our regressions (25%, 12.4%, and 16.7%), and some contradictory results in comparison to previous studies, a more thorough analysis on firm characteristics could be conducted with potential interesting results. While we focus on U.S. firms, one could illustrate a more global perspective to see if there are any dominant trends on a global scale rather than a national one. This could potentially open up discussions on cultures' impact of payout policy.

References

Akerlof, G. A. (1979). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. The Quarterly Journal of Economics, Vol. 84, 488-500.

Bagwell, L.S., Shoven, J.B., 1989, Cash Distributions to Shareholders, Journal of Economic Perspectives 3, 129-140.

Bhattacharya, S., 1979, Imperfect Information, Dividend Policy, and "The Bird in the Hand" Fallacy, The Bell Journal of Economics 10, 259-270

DeAngelo, H., DeAngelo, L., Stulz, R.M., 2006, Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory, Journal of Financial Economics 81, 227-254.

Denis, D., Denis, D., Sarin, A., 1994. The Information Content of Dividend Changes: Cash Flow Signaling, Overinvestment, and Dividend Clienteles, Journal of Financial and Quantitative Analysis 29, 567-587.

Denis, D., Osobov, I., 2008, Why do firms pay dividends? International evidence on the determinants of dividend policy, Journal of Financial Economics 89, 62-82.

Fama, E., French, K., 2001, Disappearing dividends: Changing firm characteristics or lower propensity to pay?, Journal of Financial Economics 60, 3-43.

Floyd, E., Li, N., Skinner, D.J., 2015, Payout policy through the financial crisis: The growth of repurchases and the resilience of dividends, Journal of Financial Economics 118, 299-316.

Gul, F.A., (1999). Growth Opportunities, capital structure and dividend policy in Japan. Journal of Corporate Finance. Vol. 5, issue 2, p 141-168.

Grullon, G., Michaely, R., 2002, Dividends, Share Repurchases, and the Substitution Hypothesis, The Journal of Finance 57, 1649-1684.

Jagannathan, M., Clifford, P.S., Weisbach, M.S., 2000, Financial flexibility and the choice between dividends and stock repurchases, Journal of Financial Economics 57, 355-384.

Jensen, M.C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure. Journal of Financial Economics, Vol. 3, No. 4, 305-360.

Jensen, M. C. (1986). Agency Cost of Free Cash Flow, Corporate Finance and Takeovers. The American Economic Review, Vol. 76, No. 2, pp. 326-329.

Lintner, J., 1956, Distribution of incomes of corporations among dividends, retained earnings, and taxes, American Economic Review 46, 97-113.

Miller, M.H., Modigliani, F, 1961, Dividend policy, Growth, and the Valuation of Shares. The Journal of Business, Vol. 34, No.4, 411-433

Smith, C.W., Watts, R.L., 1992, The investment opportunity set and corporate financing, dividend, and compensation policies, Journal of Financial Economics 32, 263-292