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Master in Corporate Finance

COMPARATIVE ANALYSIS OF DIVIDEND POLICIES OF BRITISH AND AMERICAN COMPANIES

Master's Thesis by the 2nd year student
Concentration - Master in Corporate Finance

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**ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ
ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ**

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Ключевые слова	Дивидендная политика, детерминанты, американские компании, британские компании, Дивидендные аристократы

ABSTRACT

Master Student's Name	Alina A. Nizamieva
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Description of the goal, tasks, and main results	<p>The goal of the master thesis is to analyze factors influencing dividend policies and to explain reasons for the difference in American and British company’s dividend policies. The first chapter focuses on the literature review and investigates different types of dividend policies and possible factors influencing them. The second part provides empirical study of American and British companies with the largest market capitalization included in S&P 500 or FTSE 100 and FTSE 250 and the set of companies called Dividend Aristocrats. The paper presents dynamics of the dividend policies by country and industry. The main findings are that current earnings and preceding dividend payout ratio determine dividend policies in both countries. However, dividend policies of British companies are influenced by tax rates and firm’s size, while American companies take into account research and development expenses. The difference is partially explained by the industry breakdown of the companies and institutional peculiarities. Companies from the list of Dividend Aristocrats currently seem to consider only the common factors regardless of external environment and other financial indicators.</p>
Keywords	Dividend policy, determinants, American companies, British companies, Dividend Aristocrats

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Introduction

Dividend policy is an essential part of company's strategy, because it defines not only how much return will the investors get, but also what part of earnings is reinvested into the company to ensure its stability of operations and growth. While deciding on how much to redistribute among shareholders as dividends and how much to leave in the company, managers pursue different strategies. Although extensive research was done on dividend policy determinants in general (Lintner, (1956) Marsh and Merton (1987), Fama and French (2001) Baker et al. (2001) to name a few), the difference between American and British companies was not thoroughly analyzed to the best knowledge of the author. Also, little research was conducted on Dividend Aristocrats, and mainly from the perspective of investment portfolio (Dash, 2005). Therefore, there exists a research gap on the dividend policy determinants of these three categories of companies.

The goal of the master thesis is to analyze factors influencing dividend policies and to explain reasons for the difference in American and British company's dividend policies.

The research questions are the following:

1. What are the types of a dividend policy?
2. What are the factors influencing a dividend policy?
3. Are dividend policies different across the countries and industries?
4. Which factors explain the difference in the U.S. and U.K. companies' dividends?
5. Which factors influence dividend policies of Dividend Aristocrats?

To determine what factors influence dividend policies of American and British companies, the list of hypotheses is compiled:

H_{1a}: past dividends are significant and have a positive effect on dividend payout ratio.

H_{1b}: past dividend payout ratio is significant and has a positive effect on dividend payout ratio.

H₂: Net income is significant and has a negative effect on dividend payout.

H₃: Research and development expenses have a negative effect on dividend payout ratio.

H₅: Cash flow has a positive effect on dividend payout.

H₄: Working capital is negatively related to dividend payout ratio.

H₆: Debt-to equity ratio negatively influences dividend payout ratio.

H₇: Dividend payout is positively affected by the size of the company.

H₈: Tax rates on dividends have a significant negative effect on dividend payout.

H₉: Cash has a positive effect on dividend payout.

H₁₀: the age of the company positively affects the dividend payout.

H₁₁: dividend payout ratio differs across the industries.

H₁₂: growth negatively affects dividend payout ratio.

The paper is divided in two chapters. The first chapter focuses on the literature review and investigates different types of dividend policies and possible factors influencing them. The second part provides empirical study of American and British companies with the largest market capitalization and the set of companies called Dividend Aristocrats. The paper presents dynamics of the dividend policies by country and industry. The main findings are that current earnings and preceding dividend payout ratio determine dividend policies in both countries. However, dividend policies of British companies are influenced by tax rates and firm's size, while American companies take into account research and development expenses. The difference is partially explained by the industry breakdown of the companies and institutional peculiarities. Companies from the list of Dividend Aristocrats currently seem to consider only the common factors regardless of external environment and other financial indicators.

CHAPTER I. LITERATURE REVIEW

1.1. Types of dividend policies

Dividend policy is a very important part of company's strategy, because it defines not only how much return will the investors get, but also what part of earnings is reinvested into the company to ensure its stability of operations and growth. While deciding on how much to redistribute among shareholders as dividends and how much to leave in the company, managers pursue different strategies. There are different classifications, for example described in Brealey et al., (2003), pp. 437-438. The paper focuses on cash dividends and investigates the main determinants of dividend policies. The following classification is used in this paper, based on terminology of Dhanani, (2005):

1. Constant dividend policy

A company chooses a fixed percentage of earnings to be paid as dividends. This policy is beneficial for investors and provides steady cash flows if the earnings of the company are stable. In volatile environment it is detrimental to shareholders due to high uncertainty and absence of dividends in case of company's losses.

2. Stable dividend policy

The dividends are determined at a certain level regardless the earnings and the firm decides to either maintain or increase the dividends. This strategy is good for investors because of smooth and predictable dividend stream, but at the same time shareholders do not enjoy additional payments in the good years.

3. Residual dividend policy

In this case the first priority is company's needs in terms of capitals expenditures and working capital, and the dividends are paid from what is rest. This type of policy is volatile, but is aimed at long-term growth because it puts first the business operations. Nevertheless, not all of the investors would agree to unpredictable cash flows.

4. No dividend

This type of policy is usually followed by newly listed companies that seek capital to expand and invest in different projects. Also, this strategy might be pursued when a company experiences crisis, but rarely a company would do that in the fear of losing investors.

In this sense it is interesting to distinguish a certain type of companies called Dividend Aristocrats (S&P Dow Jones 2017). These are the companies included in S&P500 who have increased their dividends for the consecutive 25 years. Currently, this list includes 52 companies from different sectors and it is changing over time. This paper tries to investigate whether this policy is based on companies' financial success or it has other determinant factors.

1.2 .Theoretical approaches: behavioral, signaling, agency cost models

There are several classical approaches to dividend policies. The fundamental approaches, for example, are described in Lintner (1956) and Marsh and Merton (1987), it is classified as Dividend Behavioral Models.

Lintner in his model had shown that current dividends depend on past dividend payments, and that firms tend to pay stable dividends and set target payments based on that. He proposed an idea of dividend smoothing and the concept of speed of adjustment. His proposition was that the current dividends depend on last year's payout, current earnings, speed of adjustment, and current dividend payout ratio (target). He reveals that in general managers perceive dividend payout as an optimization problem: they rather use the existing as an anchor and adjust it according to their beliefs of how much should be paid out. The managers take into account needs of a company and interests of shareholders. The author also suggests that the managers are rather conservative and afraid to make changes that could be reversed in a year or so. That is why he talks about "partial adaptation". The model was successful in predicting dividends for American companies in the 50s, but later it was criticized, as it was built on the basis of aggregated data of the US companies and only 28 companies were closely analyzed, also the critique was that more factors that influence dividend policies are at play.

There are new models build on Lintner, for example, Garret and Priestley, (2000). This research again concerns dividend behavior and develops the idea proposed by classical papers that dividends are determined and adjusted according to stock price and permanent earnings, but here the focus is on target dividends, in other words, how managers set target rate based on available information. The article presents a new way of measuring unobserved permanent earnings with the help of Kalman filter. This research takes aggregated data rather than firm-specific one. The model is based on Lintner, (1956), but they find that the classical model penalizes any growth in dividends not equal to normal rate, even if the change actually brings

dividends to the target, and make adjustments to that. The authors reformulate dividends adjustments as a cost-minimization problem for managers. Another contribution of the paper is that it provides evidence that dividends already include the information about positive changes to current permanent earnings, as they already include expected changes in future. Therefore, these changes in dividends do not reflect future permanent earnings. Although the article provides methods for building a model on an aggregated data and results in interesting outcomes, it has not been tested on firm-specific data, as authors of the paper note themselves.

The classical Marsh-Merton Model (1987) connects dividends to an intrinsic value of a firm, which is expressed in fair-value share price. The model shows how short-term dividends are based on current and past share price, past dividends and how they move to long-run steady payout ratio (the model uses adjustment factors for this purpose).

The model was further developed, for example, by Kao and Wu, (1994). The research is built on Marsh-Merton Model and seeks to prove dividend signaling theory. First of all, the authors notice that previous attempts to find relationship between dividends and earnings with the help of time-series sometimes were statistically flawed, because dividends do not change quarterly as earnings do. That is why the results are biased to reveal little correlation between dividends and earnings. The new model integrates findings of Marsh and Merton in terms of dividend adjustment but also integrates signaling. They assume that the information that managers dispose is embedded in future earnings through managerial decisions. The new model allows accounting for abnormal dividends that are assumed to signal changes in permanent earnings of the company in the future. They authors also note that Marsh-Merton model is built on constantly changing stock prices and relatively stable dividend payments, which causes a problem in choosing appropriate time intervals. The solution is to use quarterly data. The main findings of the article prove that dividends reflect both expected and unexpected changes in earnings. Secondly, they show that changes in dividends reflect managerial view on future developments of the company. Thirdly, they provide evidence that signaling effectiveness depends on the firm-specific characteristics. Overall, authors suggest using the model to analyze informational content of dividends. The research also shows that dividend adjustment and signaling do not contradict each other.

Another approach to dividend policies is Dividend Signaling Models. The examples include Ross (1977), Bhattacharya (1979), Miller and Rock (1985), Bhushan (1989), Mozes and Rapaccioli (1995), and Grullon and Michaely (2002). These models state that the dividends act

as signals to investors. The idea behind the models is that managers' decision about dividend policy conveys information to the market about company's future cash flows. That is why it was believed that the companies prefer to have stable or growing dividends, because decreasing dividends would send a signal to the market that firm is experiencing problems. Another observation suggested by the models is that if a firm has another means of conveying information and more exposed to the market, it has fewer incentives to manipulate the dividends. Variables that are used in these theories are current and future earnings, company's size in terms of total assets or total sales.

The next group of theories is Agency Cost Models, also based on assumption of information asymmetry. These models were developed in Rozeff (1982), Mohd et al. (1995) and La Porta et al. (2000). It is assumed that by getting higher dividends the shareholders have more control over the company, as managers are left with fewer resources to spend on unprofitable projects or personal use, and thus the agency cost is reduced. This approach explains why external shareholders might prefer dividends over retained earnings. These theories also tie dividend and investment policies, stating that paying dividends actually increases the marginal efficiency of investments in company's projects. The explanation is that due to the limited resources available managers will only choose highly profitable projects, and instead of developing bad projects that would eventually diminish the value of the company, the earnings will be distributed as dividends.

1.3. Factors influencing dividend policies

In this section previous research on dividend determinants is described in pursue of the following goals:

- To create a list of factors that could be included in the model;
- To investigate how the factors are interlinked;
- To set hypotheses about significance and influence of the indicators on dividend payout.

According to Lintner (1956), there are three main groups of factors influencing dividend policies. The first group includes country-specific factors (cultural differences in managers' attitudes, investors' preferences and macroeconomic conditions). The second group includes institutional factors (tax rates, corporate governance systems, industry). Lastly there are firm-

specific factors (i.e. firm size, age, growth rate, financial indicators, SOA, etc.). Nevertheless, in his analysis only company's income and previous dividend payments appear to be significant.

Fama and French (2001) find that the most important factors that influence decisions on dividend payouts are size of the company, profitability and investment opportunities. Among factors they study asset growth rate, research and development expenses adjusted to assets and market value of the company adjusted to assets as a measure of investment opportunities. They also study share repurchases as one of the determinants, but they appear to be unimportant.

Dhanani (2005) particularly studies managerial views on dividend policies of British companies. He analyzes several characteristics of the companies, size (logarithm of market value is taken as proxy), debt-to-equity ratio, industry, share price, growth in total assets, profitability and stock exchange status. The research is qualitative, because Dhanani conducted interviews with the managers and collects the data for only one year, and finds that size and industry influence managerial decisions.

Buchanan et al. (2017) investigate how personal dividend tax in the U.S. affects dividend payouts and how the companies adjust their long-term policies to uncertainty, especially when tax increases are expected. They find that firms pay extra dividends in the year prior to tax increase instead of cutting them when change in legislation comes to power. Therefore, taxes also influence dividend policies.

Ho (2003) compares dividend policies of Australian and Japanese companies and concludes that lower taxes on dividends in comparison to taxes on capital gains favor the former option of shareholder remuneration, and dividend payout is significantly higher than in Japan. The size of the company positively influences payout ratio in Australian companies, while liquidity is the major factor in Japan. The author also finds differences in dividends depending on the industry.

Shao et al. (2010) investigate how dividend policy is affected by leverage, growth of sales, profitability expressed by ROA, size measured by total assets and cash holdings. The authors take industries into account by adjusting the data to industry-year average. They find that return on assets and growth are the most influential factors among the companies studied.

Kaźmierska-Jóźwiak (2015) studies Polish companies from the perspective of dividend policy determinants. The hypotheses of the paper is that leverage, liquidity, return on equity, size

of the company and P/E ratio define the dividend payout. As a result, only return on equity and leverage have a significant negative effect on dividend payouts.

Jabbouri (2016) conducted an analysis of the companies on emerging markets. The research considers size, financial leverage, growth opportunities, profitability, past dividends, liquidity and free cash flow. The author concludes that all of the factors except past dividends are significant. However, this might happen because financial factors are linked and collinearity might take place (for example, both indicators size and growth opportunities are built on total assets; the former is constructed by taking a logarithm and the latter is the change of total assets over time).

The previous studies have not included a few factors that are crucial in opinion of the author: research and development expenditures and need for working capital. The hypothesis is that in short-term these factors restrict the earnings available for paying out dividends, but in the long-term assure stable growth and higher returns.

1.4. Selected dividend payout determinants

The variable that determines the dividend policy is dividend payout ratio. It is usually used in the research because it is a comprehensive measure of company's decisions on which part of the profit can be distributed as an immediate gain to shareholders and what should be left for further development and growth of the company. . The dividend payout is calculated by the following formula:

$$\text{Dividend payout ratio} = \frac{\text{Common Dividends (Cash)}}{(\text{Net Income} - \text{Bottom Line} - \text{Preferred Dividend Requirement})} * 100 \quad (1)$$

Based on the literature the list of factors in question is formed.

1. Dividends for the previous year

There is an assumption that managers take into consideration dividend payments of the previous years and tend to maintain or increase them. For example, that is what Dividend Aristocrats are demonstrating, or other companies that establish stable or constant dividend policies. In this analysis two related factors are regarded. The first is the dividend payout ratio of the previous year, because it could be seen as a target for the current ratio. The second is the

monetary amount of dividends. Here they are represented by total common dividends paid in cash during the fiscal year, including special and extra dividends. It is assumed that there will be a strong positive relation between the payout and dividends for the previous year due to low speed of adjustment, therefore, the following hypothesis is proposed:

H_{1a}: past dividends are significant and have a positive effect on dividend payout ratio.

H_{1b}: past dividend payout ratio is significant and has a positive effect on dividend payout ratio.

2. *Current earnings*

There is uniformity in research that current earnings are a major factor influencing dividends, since that is the main source of cash for the payments. This is especially true if a firm follows the constant dividend policy. In particular, Pruitt and Gitman (1991) show the significance of current earnings for the American firms.

In this paper, current earnings are represented by a Thomson Reuters Datastream indicator Net Income available to common, in other words, an income net of expenses and obligations, like payment of preferred dividends, which a company uses to calculate dividends per share. Because dividend payout is calculated on the base of net income, a strong influence is also assumed. The factor is in the denominator of the formula, that explains why it is expected that the higher is the net income, the lower is the dividend payout ratio.

H₂: Net income is significant and has a negative effect on dividend payout.

3. *Research and development expenses*

Research and development expenses represent all costs, direct and indirect, that were incurred by a company to create and develop new techniques, processes, products with commercial possibilities and their applications. Research and development costs are an estimate of new projects a company has, and because dividends and research and development expenses could be seen as competitors for cash, a negative relation is expected.

H₃: Research and development expenses have a negative effect on dividend payout ratio.

4. *Working capital*

Working capital serves as a measure of liquidity in accounting terms and it is calculated as difference between current assets and current liabilities. The company will not be able to pay

dividends if it is short of cash, even if the company is profitable. Several studies (see DeAngelo (2004) and Deshmukh (2003) for American companies) show that it is even more important, than earnings. Depending on how much a company needs for its operations, it allocates a certain amount of cash needed for further functioning and can spend the rest on dividends, if a company follows a residual dividend policy. Therefore, a negative influence on dividend payout is anticipated.

H₄: Working capital is negatively related to dividend payout ratio.

5. *Cash Flow adjusted to earnings*

Cash flow shows how much funds a company generates and as a consequence how much it can distribute to shareholders. In this paper, cash flows are adjusted to net sales or revenues, depending on the business model of a company. It is assumed that the greater is a cash flow, the higher is a dividend payout ratio.

H₅: Cash flow has a positive effect on dividend payout.

6. *Debt-to-equity ratio*

As was mentioned in previous research, debt to equity ratio is a measure of liquidity. This ratio is important to be included for several reasons. Firstly, it shows what sources of financing a company has as well as the amount of equity in company's capital structure on which dividends are paid. Secondly, an indebted company is less likely to pay dividends, because interest is prior to payments to shareholders. The company might do so voluntarily or because of the covenants and pressure from the debt holders. High leverage implies higher risk and therefore larger amount of interest payments. Another reason why a company with high leverage might want to cut dividends is because otherwise they will be recorded as retained earnings and added to equity, improving the debt-to-equity ratio. Therefore, a negative relation is expected (Papadopoulos and Charalambidis, 2007).

H₆: Debt-to equity ratio negatively influences dividend payout ratio.

7. *Total Assets*

Total Assets serve as a proxy for the size of the company. It is still debated whether the size of a firm determines the dividend policy positively or negatively. On the one hand, there is evidence supporting that statement, for example Jakob and Johannes (2008) find a positive

influence of firm's size on dividend payout. Rozeff (1982) explains that larger firms have more complex structure and in order to avoid agency problems they have to pay higher dividends. On the other hand, Jin (2000) argues that as firms grow in size, more information about them becomes publicly available. The information asymmetry between external and internal agents diminishes, and the signaling power of dividends decreases. Also the research shows that dividend announcements impact small companies stocks in a greater way, than in the big companies. Summarizing, depending on the theoretical approach to dividend distribution the size of the company can have diverse effects on its dividend policy. For clarity, we will formulate the hypothesis based on the more common view, and if the hypothesis is rejected, test the alternative. So, it is expected that higher total assets lead to higher dividends.

H7: Dividend payout is positively affected by the size of the company.

8. *Dividend tax rates*

Dividend tax rates are usually analyzed in the context of choice how a company will remunerate the shareholders, via dividends or share repurchases (Grullon and Michaely, 2002). If tax rates are high in general or higher than the tax on capital gains, a company may prefer to exercise share repurchases or not to pay dividends at all. There are different dividend tax rates in both the U.S. and the U.K. (see Appendix 1), they depend on shareholder's income.

The author is aware that shareholders of British and American companies might not be necessarily tax residents of the U.K. and the U.S. respectively. However, the studies show that investors tend to choose shares of their domestic companies, this phenomenon is known as a home bias (French et al., 1991), (Gorman et al., 2015), (Lin et al., 2015). That is why it is assumed that the company primarily takes into account its domestic tax rates.

There are two main types of shareholders, individual and institutional, therefore there are different types of dividend taxes, individual and corporate respectively. This part of paper takes a glance of these indicators in the U.S. and the U.K.

U.S. personal dividend tax

Historically in the U.S. dividends were not taxed on individual level, from 1913 to 1953, except for the period from 1936 to 1939, when dividends were taxed as individual income as

high as 79%. After Internal Revenue Code was passed in 1954, dividends became fully taxable with the exempt of \$50-100 in different time periods. In certain periods the maximum tax rate stood at 90%. In 1986 Tax Reform Act was passed, and the maximum tax rate was decreased and varied between 28% and 39.6% in the period 1986 – 2003. In 2003, the Jobs and Growth Tax Relief Reconciliation Act came into power significantly lowering dividend taxes. Qualified dividends were taxed at the rate of long-term capital gains, i.e. 15%, while ordinary dividends were taxed at individual income rate, with the maximum of 35%. In 2005 further tax cuts at lower levels were introduced by Tax Increase Prevention and Reconciliation Act. However, in 2012 the tax cuts were not prolonged, which resulted in additional band of 20% tax for qualified and 39.6% tax for ordinary dividends. On top of the federal tax rate there are different state dividend taxes, ranging from 13.3% in California to 0% in Florida, Texas, Alaska and 4 other states. On average, personal tax rate on dividends constituted 28.6%.

U.S. corporate dividend tax

First corporate tax in the United States was introduced in 1861, but soon expired. After another unsuccessful attempt in 1894, an excise tax on corporations was enacted in 1909. The Tax Reform Act of 1986 established the corporate tax rate that is effective till present moment. When a company receives dividends it reports them as investment income in Profit and Loss Statement (or Income Statement). Depending on the type of the company (S or C corporation), dividends will be taxed at a certain level of corporate tax. Currently the minimum rate is equal to 15% and the maximum is 35%.

U.K. personal dividend tax

In the U.K., the dividends were always perceived as a part of personal income and are taxed at income tax rates in the last order (after non-savings income and savings income, at a higher band). So now, the dividend tax rate depends on the total income a person makes, as well as the age, types of shares (included in Individual Savings account or not), and several other factors. Since 1965 and until 2015 (with the exception of 1997-1999 when dividends were exempted from tax) to avoid double taxation there existed such a phenomenon as tax credits, which could be deducted from personal income taxes, making for example, base rate tax payers in fact exempt from tax on dividends. A new dividend taxation system introduced in 2016 has an exemption allowance of £5,000, but higher maximum tax rates.

U.K. corporate dividend tax

The corporate tax in the United Kingdom was introduced by Finance Act of 1965, before that the companies were taxed at the same level as individuals. The initial corporate tax rate was 40%, and has changed several times according to the budget needs (the highest rate of 52% in 1973 and the lowest of 25% in 1983-1988). In 1999 the single rate was replaced by several bands, and companies making profits under £10,000 did not have to pay income tax. The main rate has decreased from 28% in 2008 to 19% in 2017. There is a scheduler system in the U.K. which means that the source of income matters. For example, dividends received from other British companies have a schedule F (after the income from the U.K. land and other taxable income). Interestingly enough, in practice most of the companies are exempted from Schedule F.

To take into account both types of stakeholders and different tax bands the author uses OECD effective dividend tax rate, that is calculated based on both personal and institutional taxes paid on dividends. The author is aware that shareholders of British and American companies might not be necessarily tax residents of the U.K. and the U.S. respectively. However, the studies show that investors tend to choose shares of their domestic companies, this phenomenon is known as a home bias (French et al., 1991), (Gorman et al., 2015), (Lin et al., 2015). That is why it is assumed that the company primarily takes into account its domestic tax rates.

H₈: Tax rates on dividends have a significant negative effect on dividend payout.

9. Cash

Even if a company records high profits, it would not be able to pay dividends without cash on hand. This variable represents cash held by a company as current assets. Of course, a company can borrow sources to finance the dividends, but this involves additional costs. The assumption is that the more cash is available for the company, the higher are the dividends.

H₉: Cash has a positive effect on dividend payout.

10. Years of operation

This parameter is linked to several other factors and can diversely affect the dividends. Usually the older the company is, the larger it is. As was discussed earlier, a company can pay lower dividends because of lower information asymmetry. Or, oppositely, it has to overcome larger agency cost and maintain its status if it has paid high dividends in the past. In addition, years of operation imply the stage of a company's life cycle. A young company is less likely to

pay high dividends, because it has to develop and invest in growth and new projects. Established companies can afford to pay higher dividends, since the processes are aligned, different sources of financing for new projects are available, profits in general are higher. For the old companies, the impact of age on dividend payout is not straightforward. From signaling perspective a company might continue to pay high dividends if it did so in the past. At the same time, as time goes by new companies enter the market, older firms face competition from them. Because big and old companies are less flexible and harder to transform and renovate, they need more resources to compete.

In previous studies it is suggested to classify companies according to their age (Evans, 1987), (Loderer, 2009) and use categorical variables. The age of the company is supposed to positively affect dividends, but the year it was incorporated, on the contrary, has a negative effect (the larger is the number, the less are the dividends). The same applies to the number of the category.

In addition to that, the author presents an alternative method of presenting the age. Since it is assumed that age affects dividends positively for young and middle aged firms and the relation for old firms is not obvious, two additional variables were introduced. First is the age of the company and the second is age squared. If there is only positive effect, then the second variable will be insignificant. If there is a downward trend in dividend payout as firms get older, then age squared will be significant. The author formulates main hypothesis:

H₁₀: the age of the company positively affects the dividend payout.

11. Industry

Many researchers suggest that the industry a company operates in has an impact on its dividend policy (Dhanani, 2005), (Baker et al., 2001). Here the ICB code industry classification is used because it is applicable to both American and British firms. The main groups are presented below, a full table with industry descriptions can be found in Appendix 2. The first number indicates the classification in this paper, while the number in parenthesis is a full industry code.

0: Oil and Gas (0001)

1: Basic Materials (1000)

- 2: Industrials (2000)
- 3: Consumer goods (3000)
- 4: Health Care (4000)
- 5: Consumer Services (5000)
- 6: Telecommunications (6000)
- 7: Utilities (7000)
- 8: Financials (8000)
- 9: Technology (9000)

Financial and Utility companies (codes 7 and 8) were excluded from the sample. The assumption is that there is a difference across the industries in dividend payouts.

H₁₁: dividend payout ratio differs across the industries.

12. Growth

This indicator is also linked to the company's lifecycle, and dividends depend on growth and investment potential of a company. Fast growing companies have a tendency to retain earnings inside the firm instead of resorting to other sources of financing. Slow growth firms can afford to pay larger dividends. There is an assumption that legal system may affect preferences of the shareholders, i.e. they might prefer current earnings to future growth if they are unsure of protection of the future cash flows. Since both the U.K. and U.S. have established legal systems with shareholder protection, it is unlikely that shareholders will demand for immediate gain only for this reason. Therefore, it is expected that growth is negatively related to the dividend payout.

H₁₂: growth negatively affects dividend payout ratio.

CHAPTER II. EMPIRICAL STUDY

2.1. Dividend comparison

This section presents an overview of dividend payments from the country and industry perspective. The paper also examines Dividend Aristocrats, who are listed on S&P and therefore included in the sample of American companies. The overview will allow detecting general trends and how the macro factors described in the previous section have affected dividend policies of the companies.

2.1.1. Dividend payments in the U.K. and the U.S.

The chart below summarizes cash dividend payments of American and British firms and Dividend Aristocrats for the period from 1990 to 2016. The indicator was calculated based on the data for the companies who decided to pay dividends for the year (if a company was included in the sample but decided not to distribute dividends in particular year, it was excluded from the calculations). Dividends of the British firms were converted into dollar equivalent based on the average USD/GBP exchange rate for the corresponding year, the figures are presented in Appendix 3.

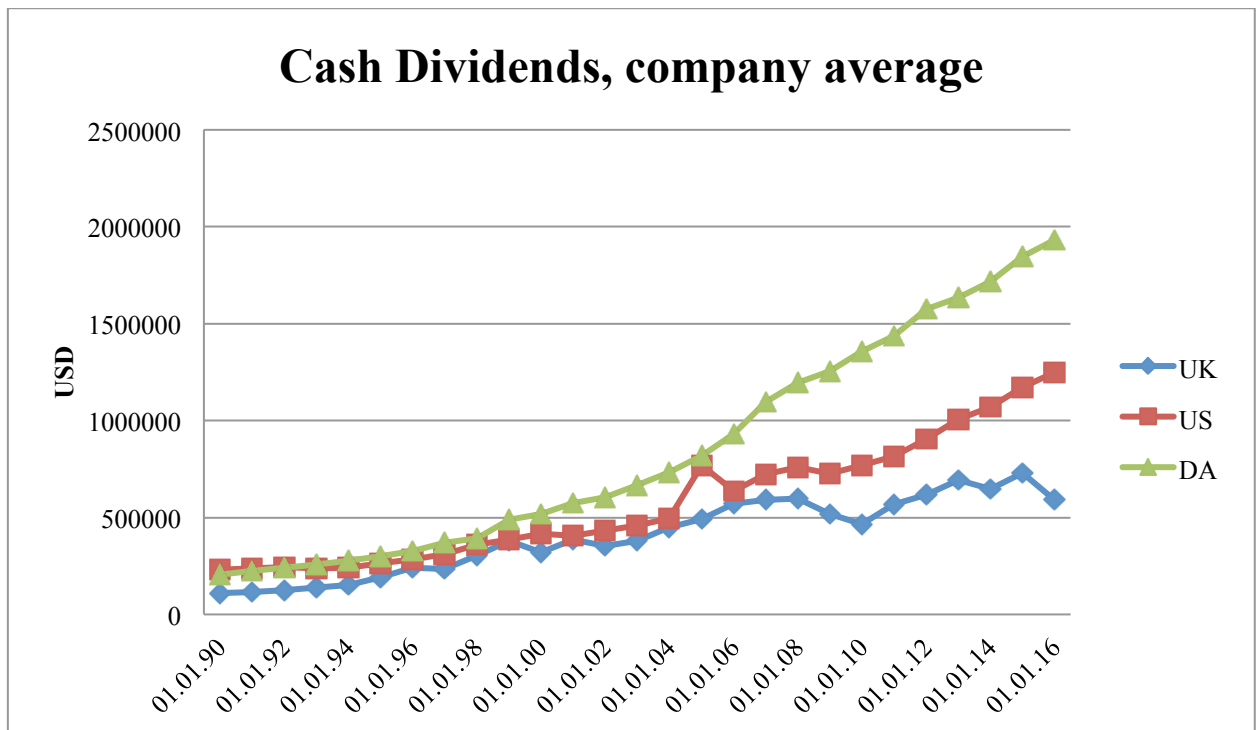


Figure 1. Average cash dividends
source: Thomson Reuters

American companies have on average paid higher dividends in the given period than the U.K. firms. There is a peak in 2005, one of the reasons that could explain it is the new dividend tax regulation passed in 2003. Interestingly enough, the tax change did not seem to affect Dividend Aristocrats' policies. Dividends of the U.S. companies show steady linear growth over the period with an exception of the year 2005-2006. DA dividends show exponential growth, around 10% annually, as could be derived from the Chart 2. At the same time, dividends of the British companies increase slowly and with year-to-year fluctuations. The difference in the dollar amount of cash dividends between the countries could be explained, among other, by the size of the firms. American entities in the sample are larger in general, receive higher revenues and that leads to higher cash dividends.

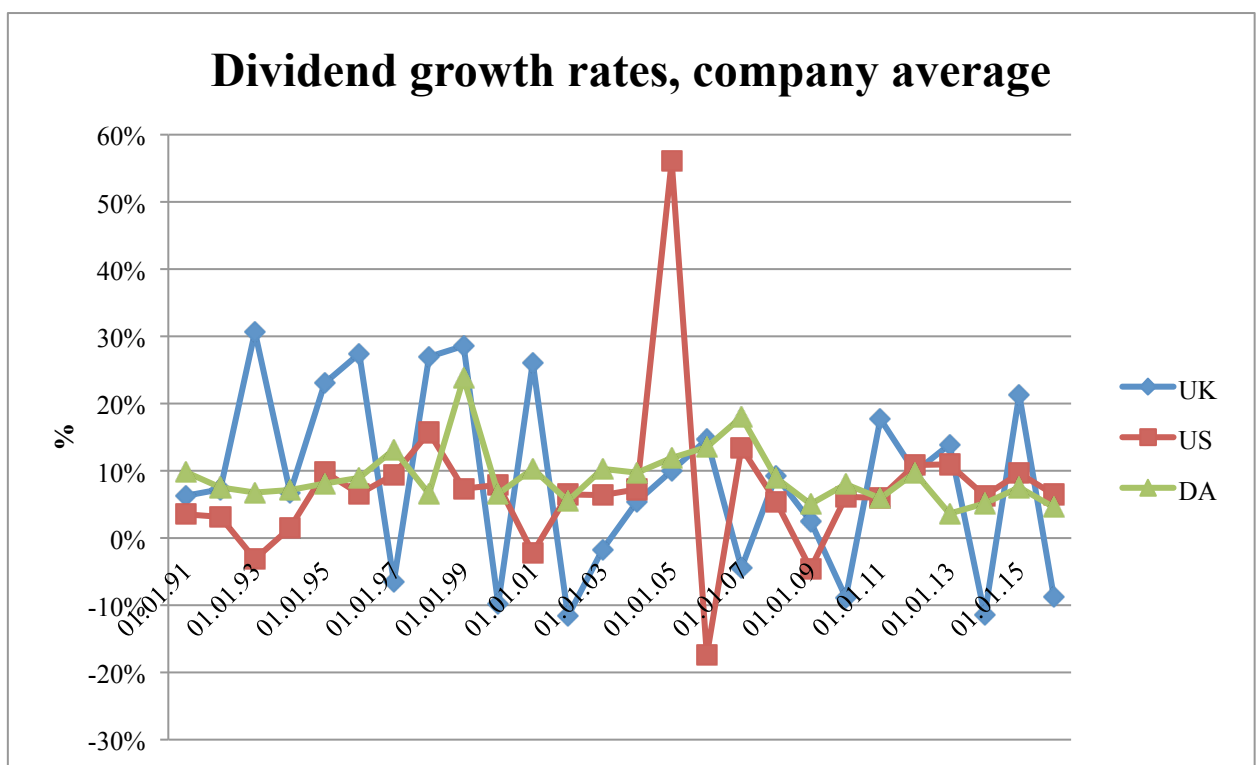


Figure 2. Average dividend growth rates
source: Thomson Reuters

On the contrary, in comparison to American companies British firms pay larger portion of their earnings as dividends during the given period. The difference is the highest in 1998 – 2006. In 1997-1999 individuals were exempted from tax on dividends, which was followed by a rise in the payout ratio. In 2002 there is a downward trend that could be partially explained by Capital Allowances Act of 2001 and Income Tax Act of 2003. The influence of the last financial

crisis could be traced on the graph. Since 2010, companies of the both countries have increased their dividend payout ratios.

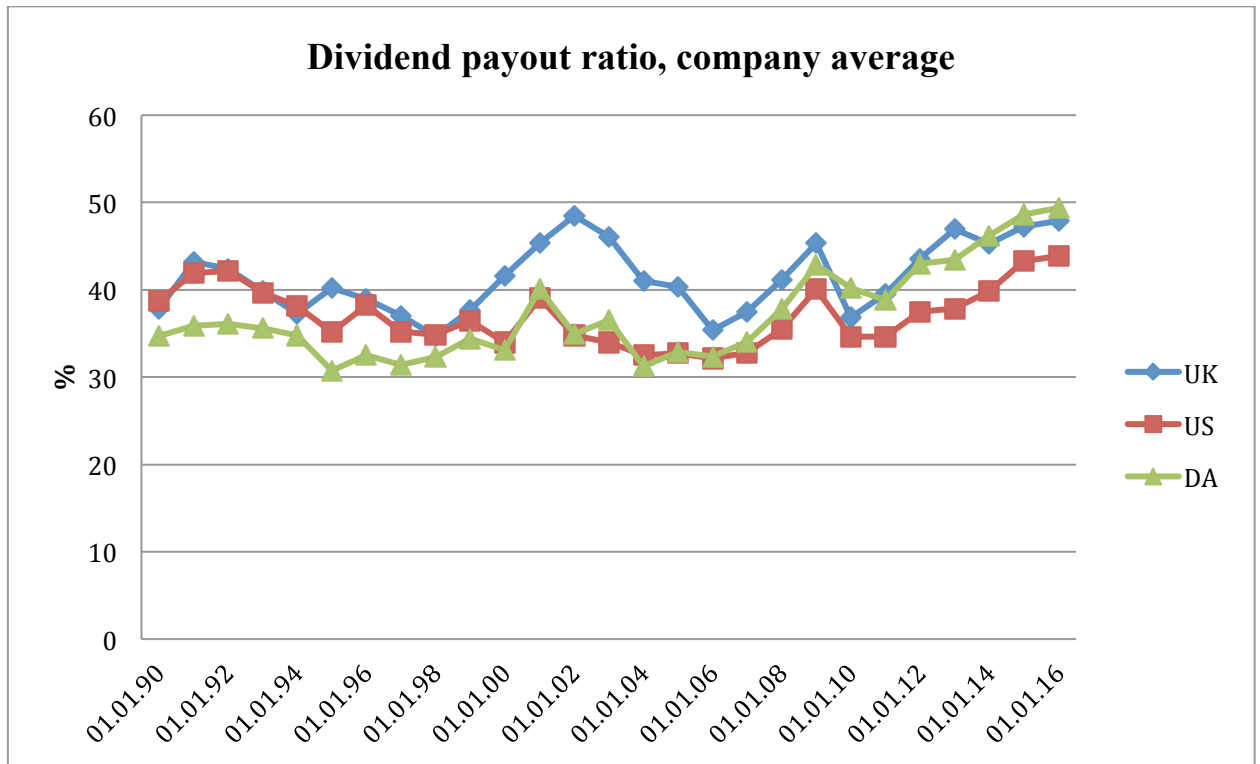


Figure 3. Dividend payout ratios
source: Thomson Reuters

This paper investigates influence of several factors on dividend payout ratio using panel regression models. As recommended in Wooldridge (2010), due to panel data specifics it is not recommended to use more than 10 years of consecutive observations. Because of that and also for the sake of comparativeness further research is performed on the data from 2010 to 2016, excluding the years of crisis.

2.1.2. Dividend payments by Industry

Common dividends

In the samples analyzed, both in the U.K. and the U.S. oil and gas companies (code 0) pay the highest cash dividends in comparison to other industries, exceeding multiple times.¹

¹ Note: utility firms (code 7) and financial firms (code 8) were excluded from the analysis. For the U.S. due to the missing data companies from telecommunications industry (code 6) were excluded from the analysis

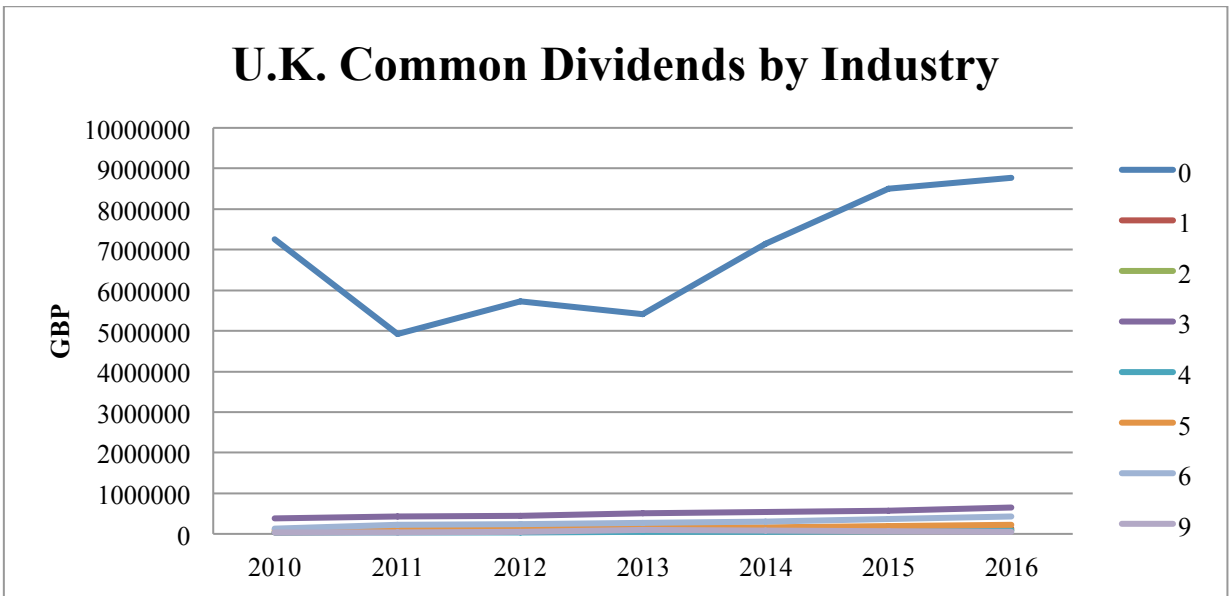


Figure 4. U.K. common dividends by industry
source: Thomson Reuters

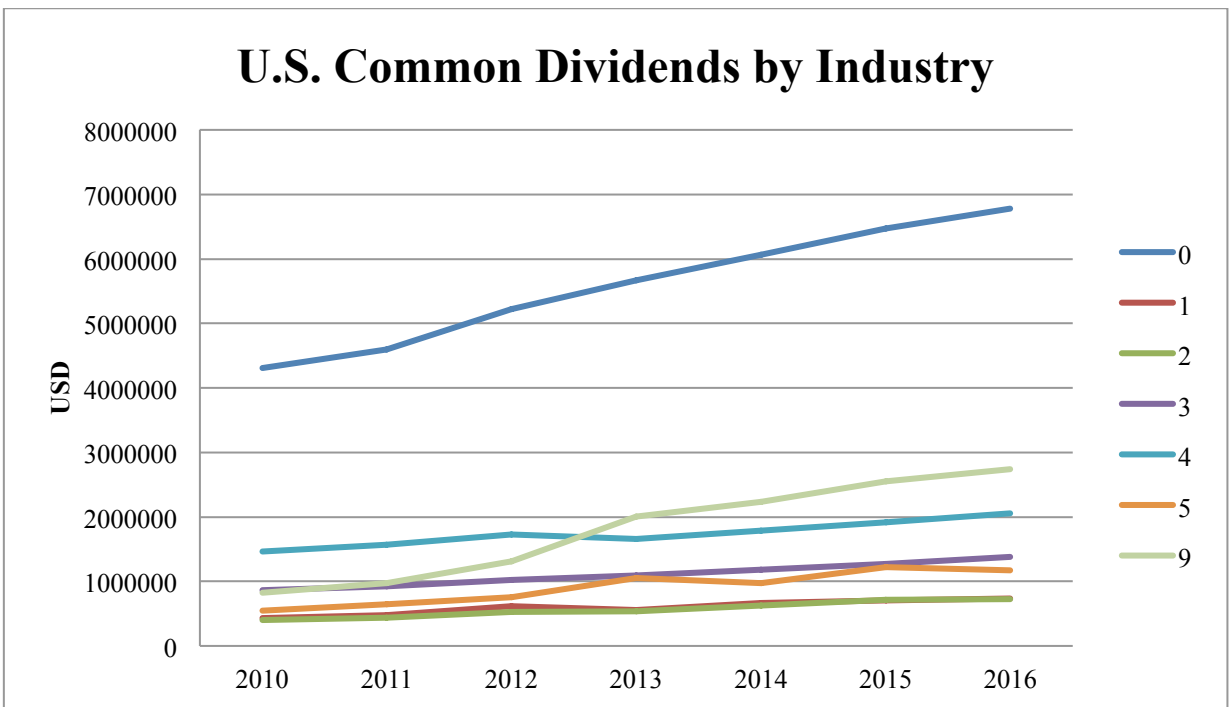


Figure 5. U.S. common dividends by industry
source: Thomson Reuters

It could be also seen from the charts 6 and 7 that on average there is a difference between dividend payments by industry. Apart from oil and gas companies, in the U.K. the next three highest paying in absolute value types of companies are from consumer goods, telecommunications and consumer services. In comparison, in the U.S. those are technology, health care and consumer goods, although differentiation is not as vivid.

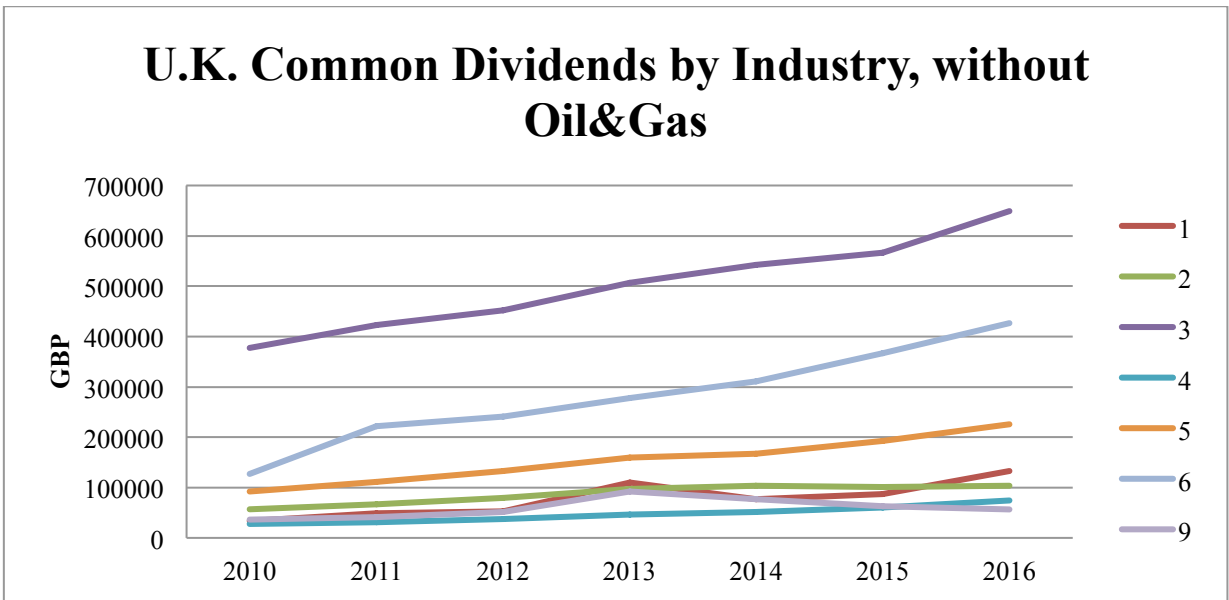


Figure 6. U.K. common dividends by industry without oil and gas companies
source: Thomson Reuters

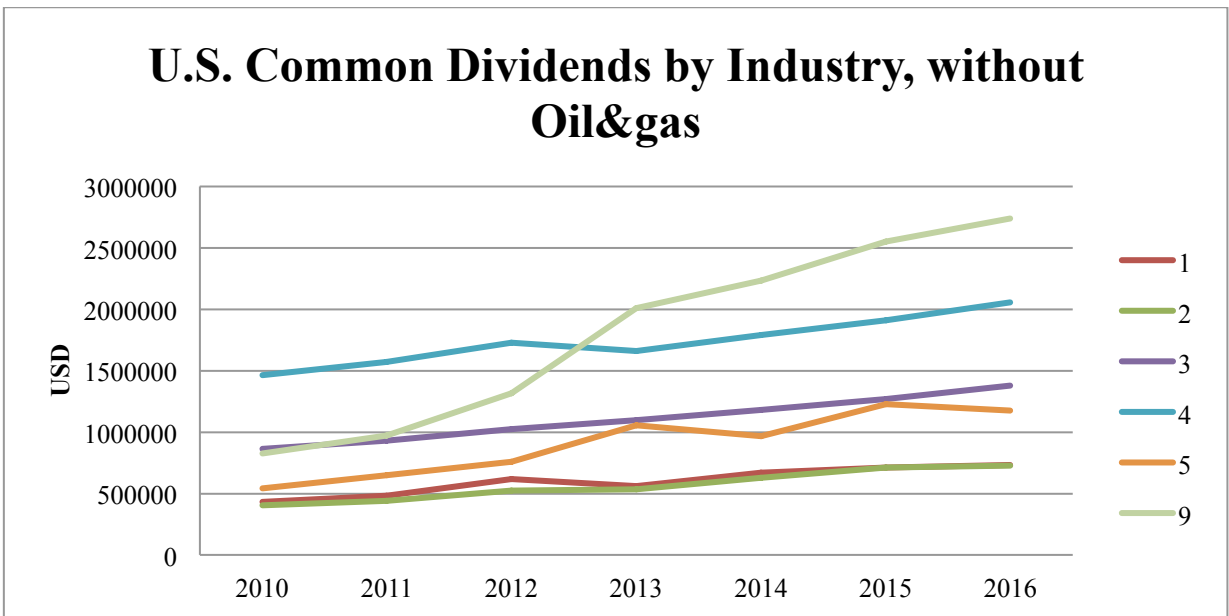


Figure 7. U.S. common dividends by industry without oil and gas companies
source: Thomson Reuters

Dividend payout ratios

Payout ratios of British companies do not seem to follow certain trends. Telecommunication companies on average have higher payout, although in the last year they are being challenged by technological companies. Consumer goods and consumer services companies tend to increase their payout ratios during the given period. The lowest dividend payout ratio is, on average, in the health care sector.

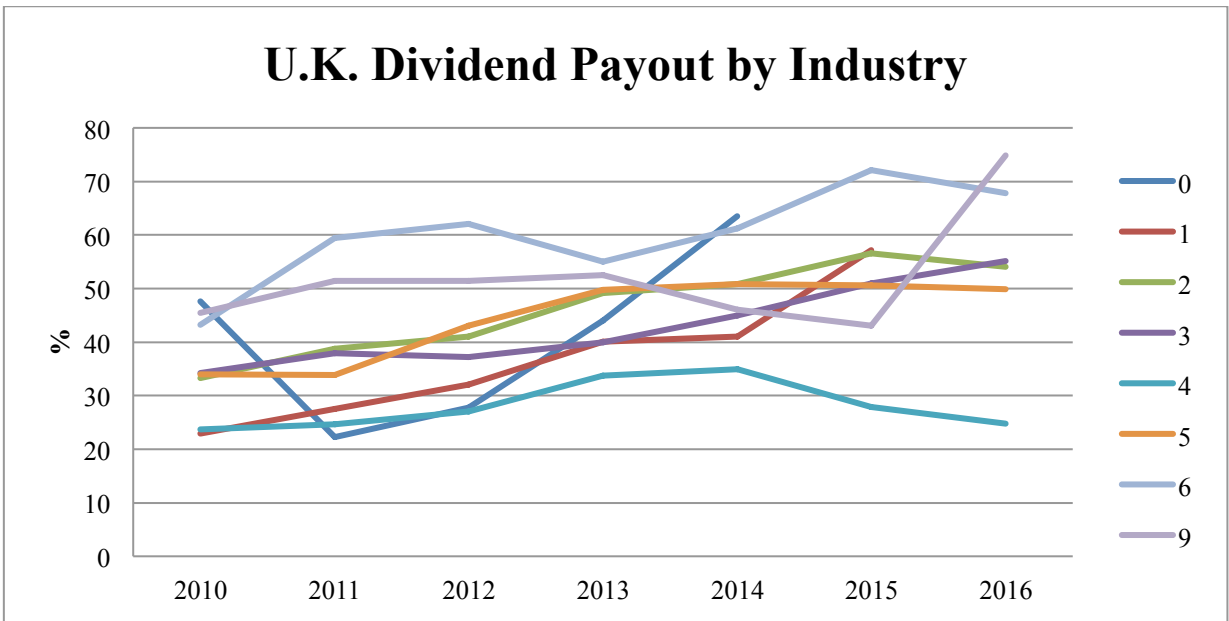


Figure 8. U.K. common dividends by industry
source: Thomson Reuters

American companies are more homogenous in terms of dividend payout ratios, because they show less variation and general positive trend. In the sample studied consumer good companies have the highest payout ratio, although in 2015-2016 technological and oil and gas firms have not significantly different payouts.

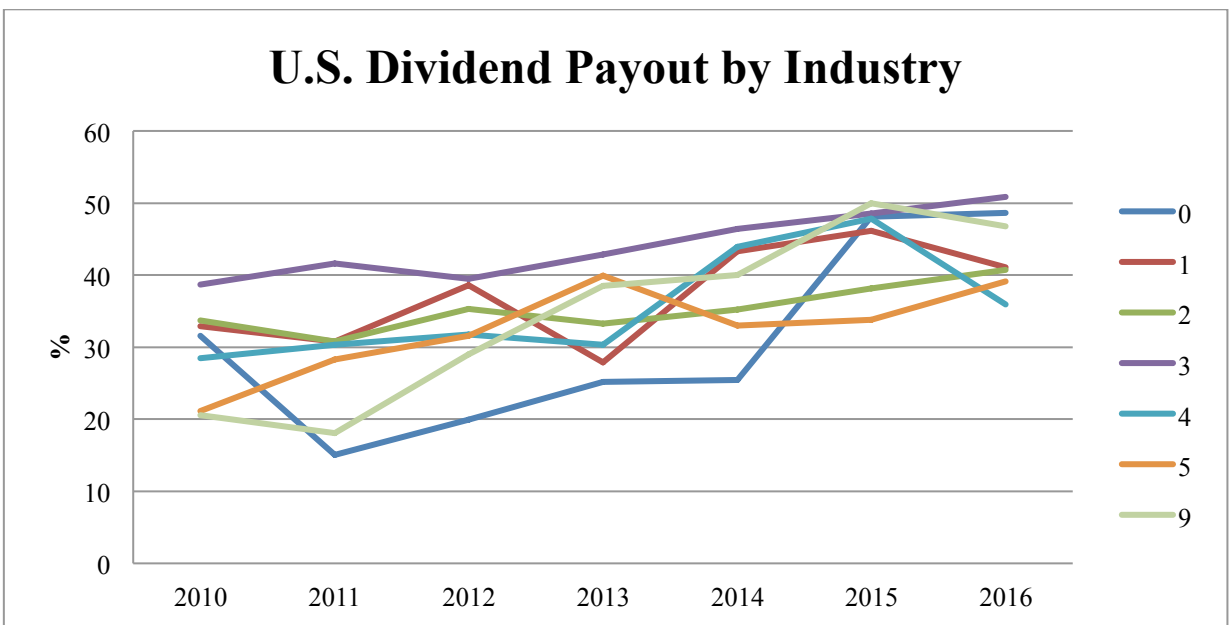


Figure 9. U.S. common dividends by industry
source: Thomson Reuters

2.2. Data description

2.2.1. Sample selection

The initial sample of the American companies was based on the companies included in S&P500. The British companies were selected from FTSE 100 and FTSE 250, the Dividend Aristocrats were taken from The S&P 500 Dividend Aristocrats index. After that, all the financial and utility companies were removed from the sample, as suggested by many research papers on dividends (Baker et al., 1985), (Dhanani, 2005), (Fama and French 2001). The final list includes 200 British companies, 238 American companies and 48 Dividend Aristocrats. The criteria provided below were applied for sample selection:

- The company has paid dividends during the period observed;
- The company has a positive net income and positive debt-to-equity ratio (the equity is valued positively on the market);
- For each company-year observation, maximum of one value for independent variable is missing.

Several sources were used to collect the data. The company-specific data is found in Thomson Reuters DataStream databases and financial statements of the companies as well as information provided by S&P 500 and FTFE. Tax rates are found on governmental official websites ([ww.gov.uk](http://www.gov.uk) and www.irs.com) and OECD database.

Taking into consideration historical data analysis like overview of tax reforms and influence of the crisis of 2007-2009 as well as technical requirements for panel regressions, the data for 2010-2016 was analyzed to make the samples comparable.

In addition, for the sake of homogeneity and comparativeness absolute values of several variables were normalized (net income, total assets, cash dividends, cash, working capital, research and development expenses). The author follows the process described in DeAngelo (1990). By normalizing the author means assigning the value of 1 to the maximum number among one company and one factor (i.e. among 7 observations of 1 parameter, for example, net income of company A for years 2010-2016) and scaling the rest of 6 observations against it. Another reason for normalization is because the dependent variable and other variables (tax, growth, debt-to-equity ratio) are presented on a scale from 0 to 1 or as per cents. If determinants were not normalized, regression coefficients would differ more than 1000 times. Yet another

reason for normalization is that it partially solves the problems of heteroskedasticity and multicollinearity.

The figures below present the breakdown of the samples by industries. The U.K. sample is presented by Industrials – 30%, Consumer Services – 25%, Consumer Goods – 18%, Basic materials – 8%, Technology – 7%. In the U.S. sample Industrials constitute 28% of the sample, Consumer Goods – 20%, Technology – 18%, Consumer Services – 15%, Health Care – 10%.

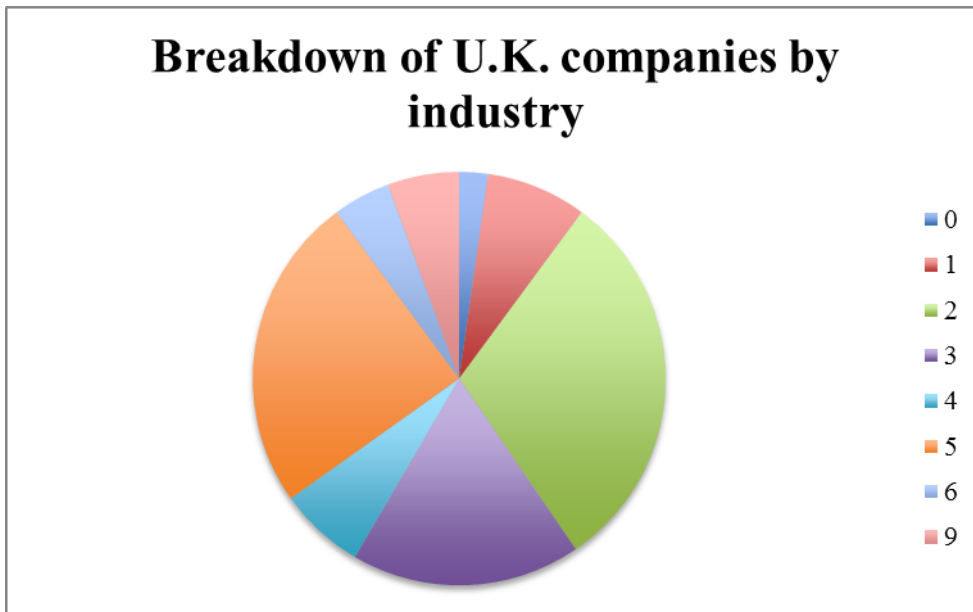


Figure 10. U.K. companies breakdown by industry
source: author's calculations

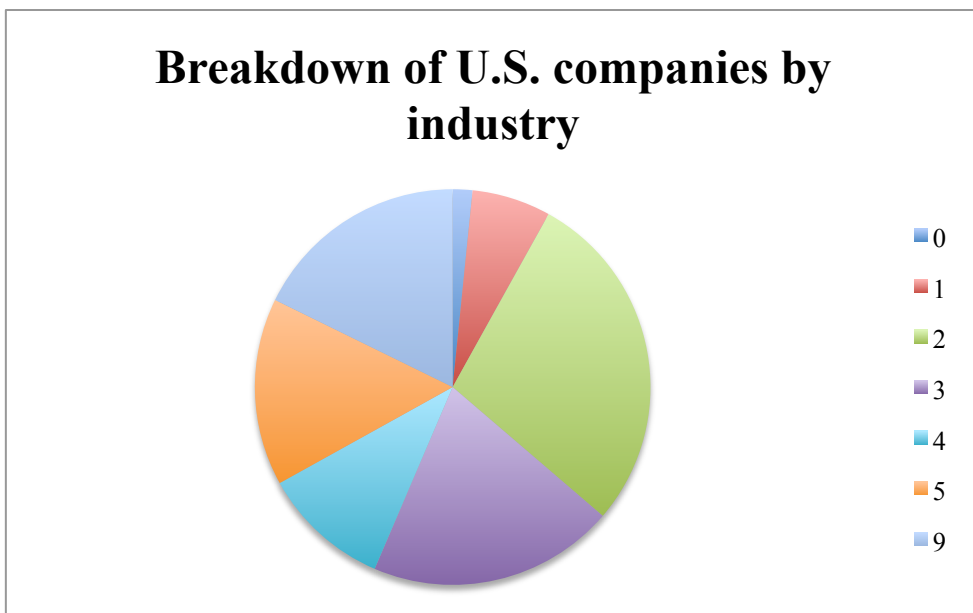


Figure 10. U.S. companies breakdown by industry
source: author's calculations

2.2.2. Variables Description

The model contains eleven variables in total and analyzes the influence of ten factors on dividend payout. A table below summarizes the list of variables, brief description and expected influence on the dependent variable, an extended description could be found below the table:

Table 1. Variable description

Nº	Variable	Description	Method of calculation or source	Expected effect on dependent variable
<i>Dependent variable</i>				
1.	payout	Dividend payout ratio	Common Dividends (Cash) / (Net Income – Bottom Line – Preferred Dividend Requirement) * 100	
<i>Independent variables</i>				
2.	CDnorm	Common dividends paid in cash	Balance sheet	positive
	lpayout	Payout in the previous year (lagged)	as payout	positive
3.	NInorm	Net income available to common	Income statement	negative
4.	RDnorm	Research & development expenses	Income statement	negative
5.	WCnorm	Working capital	Current Assets – Current Liabilities	negative
6.	CFtoSales	Cash flow adjusted to net sales or revenues	Cash Flow/Net Sales*100	positive
7.	DE	Debt-to-equity ratio	Debt/Book Equity*100	negative
8.	TAnorm	Total assets	Balance sheet	positive
9.	Tax	Overall effective dividend tax rate	OECD database	negative
10.	Cashnorm	Cash	Balance sheet	positive
11.	age	Age of the company	Year of Observation – Year of Incorporation	positive/negative
	g	Growth rate	(Total Assets – Total Assets _{t-1})/	negative

			Total Assets _{t-1}	
12.	ind _i , i=0-9	Dummy variables for industries	ICB codes	-

2.3. Methodology

2.3.1. Model Specification and data testing

In general, initial model specification is the following:

$$\begin{aligned}
 payout_{it} = & \alpha + \beta_1 * payout_{it-1} + \beta_2 * NInorm_{it} + \beta_3 * RDnorm_{it} + \beta_4 * TAnorm_{it} + \\
 & \beta_5 * g_{it} + \beta_6 * tax_{it} + \beta_7 * WCnorm_{it} + \beta_8 * CFtoSales_{it} + \beta_9 * DE_{it} + \beta_{10} * \\
 & Cashnorm_{it} + \beta_{11} * age_{it} + \beta_{12-21} * Industry_{it} + e_{it} \quad (2)
 \end{aligned}$$

Where:

- i represents a company;
- $t = \{2010, 2011, 2012, 2013, 2014, 2015, 2016\}$;
- Variables are as described in previous section, Industry represents a set of dummy variables for industries;
- e is an error term.

Before the general regression is tested, presence of mediators and moderators has to be studied. For example, one of the assumptions is that net income and cash can have an influence on research and development expenses (a company is less likely to invest in R&D if it does not have sufficient resources). This statement could be considered as true, because the net income of last year (variable NI_{t-1}) and cash of last year (variable $cash_{t-1}$) do influence research and development expenses of the current year. Full results of regressions are presented in the Appendix 5.

Table 2. Influence of previous year net income and cash on R&D expenses

Variable	Beta coefficient	Standard error
Net Income _{t-1}	0.0074**	0.00311
Cash _{t-1}	-0.039***	0.0147
Model significance		
R-squared overall	0.2528	(within = 0.1084, between = 0.5616)
P-value	0.0034	

Here and later in the paper asterisks represent the level of significance:

- β_i^{***} - significant at 1% level;
- β_i^{**} - significant at 5% level;
- β_i^* - significant at 10% level;
- β_i - not significant.

However, current net income and cash do not have a significant effect on research and development expenses of the current year:

Table 3. Influence of current year net income and cash on R&D expenses

Variable	Beta coefficient	Standard error
Net Income	0.0047	0.0051
Cash	0.0159	0.0245
Model significance		
R-squared overall	0.3905	
P-value	0.4414	-not significant

Therefore, because the regression and the coefficients are not significant and are not correlated, as shown in the Table 4, these variables can be included in the regression.

Table 4. Correlation matrix for U.K. data

	NI _{norm}	RD _{norm}	WC _{norm}	Cash _{norm}	TA _{norm}
NI _{norm}	1.0000				
RD _{norm}	0.1514	1.0000			
WC _{norm}	0.0047	0.2547	1.0000		
Cash _{norm}	0.1383	0.1138	0.2056	1.0000	
TA _{norm}	0.3354	0.3582	-0.0538	0.2345	1.0000

The level of correlation between the variables is acceptable for the U.K. data. Nevertheless, inclusion of total assets is under consideration in the U.S. sample for two reasons. First of all, they have the highest levels of correlation with other variables, so there is a chance that the results of the regression might be biased. Secondly, the effects of total assets on dividend payout are captured by other variables. For example, net income, cash and working capital are related to total assets from the accounting point of view. Furthermore, total assets serve as a proxy for company's size, which is related to the maturity and stage of a life cycle of a company. This can be covered by such indicators as age and growth rate, the latter is calculated on the base of total assets.

For the same reason cash dividends were excluded. They are correlated with net income and cash and also payout for the previous year is a more suitable measure for the purpose of the research.

2.3.2. Regression Specification

Several papers were studied to determine a suitable method of data analysis. Researchers like Lintner (1956), Holder et al. (1998), Ho (2003), Loderer et al. (2009), Kaźmierska-Jóźwiak (2015), Jabbouri (2016) use panel regressions and treat determinant factors equally, while Erkan et al. (2016) and Ozkaya et al. (2013) use hierarchical linear modeling, that controls for within-group homogeneity (Short et al., 2007), in other words, they analyze dividend policies at three different levels: company, industry and country. Despite all of the advantages of HLM, in this paper panel regressions will be used for several reasons. Firstly, there are firms from only two countries that are analyzed separately. Also, this research does not study cultural impact on firms' decision-making, nevertheless, previous studies show that the U.K. and the U.S.A. have

similar values, cultural heritage and legal systems for the purpose of our research (Shao et. al., 2010, Aguilera et. al., 2006). The only institutional factor analyzed is the taxation level.

For each sample (British companies, American Companies and Dividend Aristocrats) fixed effects regressions and random effects regressions were built and compared using Hausman test. The results for each sample are discussed below.

The U.K. Companies

For the sample of British companies Hausman test indicated that random effects regression better describes the results. The coefficients and their significance are presented in the Table 5, full results of the regression are presented I the Appendix 5. The significant indicators are:

- Net income (on 1% level), negative effect;
- Total assets (on 1% level), positive effect;
- Previous year payout ratio (on 1% level), positive effect;
- Tax (on 5% level), negative effect.

Table 5. Regression results for the British Companies

Variable	Beta coefficient	Standard error
Payout _{t-1}	0.47***	0.06
Net Income	-23.94***	5.25
Total Assets	17.71***	6.77
Tax	-0.72**	0.34
R&D	-6.30	4.63
Cash	4.72	4.35
Debt-to-equity ratio	0.04	0.03
Growth rate	0.62	3.49
Age	-0.06	0.14
Industry	0.74	0.64
constant	52.90***	17.9

Model significance		
R-squared overall	0.3939	(within = 0.2096, between = 0.7274)
P-value	0.0000	

Model takes the following form:

$$payout_{it} = 52.9 + 0.47 * payout_{it-1} - 23.9 * NInorm_{it} + 17.7 * TAnorm_{it} - 0.7 * tax_{it} \quad (3)$$

The U.S. companies

The Hausman test results suggest random effects specification for the sample. Table 6 summarizes the results, more information could be found in Appendix 5. Dividend payout determinants for the U.S. companies are:

- Net income (on 1% level), negative effect;
- Research and development expenses (on 1% level), positive effect;
- Previous year payout ratio (on 1% level), positive effect;

Model takes the following form:

$$payout_{it} = 0.67 * lpayout_{it-1} - 30.31 * NInorm_{it} + 6.30 * RDnorm_{it} \quad (4)$$

Table 6. Regression results for American companies

Variable	Beta coefficient	Standard error
Payout _{t-1}	0.67***	0.03
Net Income	-30.21***	3.00
R&D	6.30***	2.35
Tax	43.81	29.72
Cash	-3.83	1.45
Debt-to-equity ratio	0.02	0.01
Growth rate	-2.68	4.14
Age	0.05	0.06

constant	4.55	15.6
Model significance		
R-squared overall	0.5835	(within = 0.2838, between = 0.7925)
P-value	0.0000	

Interestingly, the sign for the research and development expenses is the opposite of what was expected. Possible explanation of why R&D expenses positively affect payout is that if a company grows its profits in general, it can increase both payout and R&D expenses. Besides, it depends on the cost structure of the company. If the company does not need have relatively high SGA expenses (Selling, General and Administrative expenses), or capital expenditures like property, plant and equipment, and this allows the company to invest more in R&D. Also, the pace of growth should be compared between payout and R&D expenses.

Dividend aristocrats

Here random effects regression is used again, as suggested by Hausman test. Significance of regressors and coefficients are presented in the Table 7.

The significant indicators are:

- Net income (on 5% level), negative effect;
- Previous year payout ratio (on 1% level), positive effect.

Table 7. Regression results for Dividend Aristocrats

Variable	Beta coefficient	Standard error
Payout _{t-1}	0.53***	0.12
Net Income	-7.48**	3.14
R&D	1.90	1.80
Tax	107.6	58.2
Cash	2.91	1.64
Debt-to-equity ratio	0.03	0.04

Growth rate	3.37	3.23
Working Capital	-2.38	2.11
constant	32.9	43.5
Model significance		
R-squared overall	0.4484	(within = 0.3978, between = 0.6521)
P-value	0.0000	

Model takes the following form:

$$payout_{it} = 0.53 * payout_{it-1} - 7.5 * logNI_{it} \quad (5)$$

For Dividend Aristocrats only net income and previous payout are important. As was seen on the charts, Dividend Aristocrats are less prone to changes in taxes and other turbulences. Since their dividend policy is built on maintaining and increasing the dividends, the results are rather expected.

2.4. Results and Research Limitations

The goal of this paper was to compare dividend policies of the American and British companies and to investigate their determinants. As a result, it was found that the dividend policies of the countries studied are influenced by different factors. The common determinants are current earnings and dividend payout ratio for the previous year. This result was expected and described many than 60 years ago by Lintner (1956) and many followers. It is evident that dividends depend on current earnings, since without the source of income a company is unable to pay the dividends. The dividend payout ratio serves as a proxy to determine the indicator of the current year. Usually the changes in company's performance are rarely drastic, that is why only small adjustments are made from year to year.

Nevertheless, there are differences in the factors influencing dividend payouts. In the U.K., another two significant determinants are total assets, which are a proxy for the size of the company, and tax rates. Total assets are related to many other indicators like the company's stage of the life cycle, growth, need for capital investments and liquidity and so on. The results show

that the bigger the company is, the higher dividends it is willing to pay. This is especially true for the industry breakdown of the country. Industrials, Consumer Goods (including Automobiles, Food and Beverage producers, construction materials and etc.), Basic Materials and Technology constitute 63% of the sample. These companies tend to possess large amount of property, plant and equipment, and Consumer Goods companies also have large stocks of produce. The highest payout is seen in Telecommunications and the highest dividends in Oil & Gas, both industries require a lot of capital investments and possession of assets. Another factor the dividend payout is sensitive to is tax rates. The effective tax rates have fluctuated during 2010-2016, and payout was adjusted accordingly.

American companies differ from the British ones because the determinants of their dividend policies are research and development expenses. This is supported by the industry breakdown. Technology, Industrials and Health Care companies account for 56% of the sample. Also, it is logical in terms of the highest dividend-paying industries, Technology and Oil & Gas. Both industries invest a lot in R&D to find new methods and technologies to extract and refine crude oil, for example. The United States are also known as one of the leading countries in technology with its Silicon Valley and booming «unicorn» companies. Nevertheless, the author wants to highlight the fact that the results are specifically describe the sample, but not necessarily describe the situation on the whole American market. Total Assets were excluded from the model because of the technical issues (high collinearity with another important factor – net income). The reason why taxes did not have a significant effect on the payout ratio may also lie in technical aspects of data analysis. Because there was only one change in tax rates during the period, the regression specification was not sensible enough to capture this change. The diagram below presents the difference of the tax rates in the U.K. and U.S. in the given period.

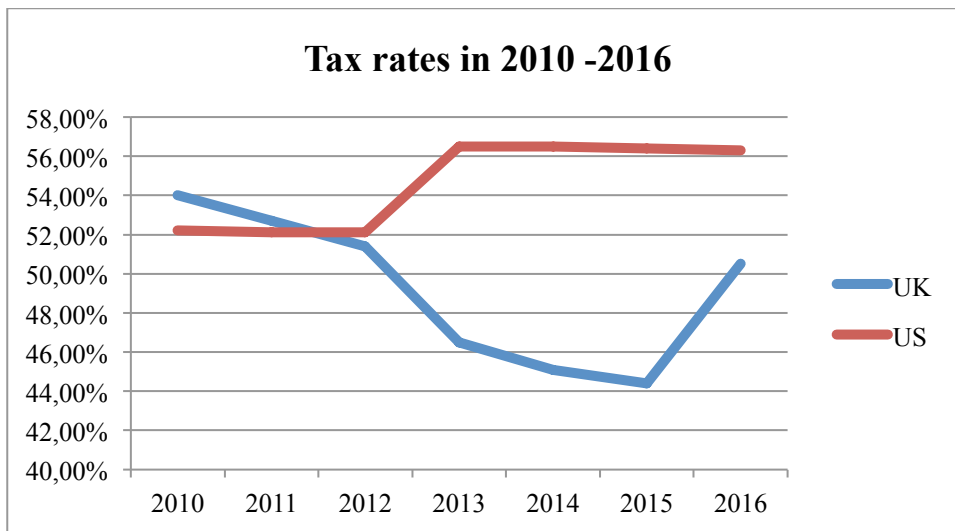


Figure 11. Tax rates in the U.S. and U.K.
source: OECD database

Another interesting phenomenon investigated in this paper is the set of American companies called Dividend Aristocrats. These companies have shown steady growth in their dividends for the past 25 consecutive years. The analysis shows that the growth is stable and fluctuates around 10% annually, regardless the macro effects. The research did not show major influence of any other financial factors on dividend policies. If the dividend policy is a coherent element of a company's sustainable development and it is aligned with investment policy and overall strategy, there is no problem with gradually increasing dividends. Nevertheless, these companies have to be aware of the external environment and be prepared to react to challenges.

The results of the work show that companies are still quite reluctant to dramatically change their dividend policies and revise it annually. One of the suggestions for further research would be to analyze the speed of adjustment of the dividend policies and their determinants. Also, this research was dedicated to a limited number of factors, which could be extended, for example, by analysis of cultural environment and managers and investors' behavior and expectations. Yet another limitation of the research is that it was conducted on a limited set of data, so the samples could be broadened. Lastly, the results of this research might not be applicable for other markets.

2.5. Managerial Implications

Dividend policy is a very important aspect of every company's strategy. The question of an optimal dividend strategy that would both satisfy the shareholders and allow a company to

develop and prosper has been studied for decades but is yet unresolved. This paper made an attempt to determine the factors that influence dividend policies of the most successful companies whose stocks are traded on the largest exchange platforms and who have the highest market capitalization and are included in S&P 500 or FTSE 100 and FTSE 250.

From the managerial perspective the findings are useful for the boards of directors of the companies analyzed. Depending on a country and industry different factors will come at play. Currently the companies are quite conservative and make their decisions mainly based on firm's earnings and previous dividend payout ratio as a target. Nevertheless, there are other important determinants to consider like taxes, size of a company or need for investment into research and development. It is especially important for the top management of Dividend Aristocrats, whose dividend policies do not take any of these factors into consideration in the meantime.

Shareholders of these companies can also benefit from this research. Knowing the dividend policy determinants reduces information asymmetry and agency costs. When the reasoning behind a particular dividend policy can be traced a shareholder can be reassured that the managers act in the interests of the company. A shareholder can also better understand the tradeoff between immediate gains in the form of dividends and long-term sustainable growth of the company.

The results could be also interesting for American or British companies who decide to go public (do an IPO) and have to set their dividend policy, although the company does not have to pay dividends in the first years (that could be also viewed as no dividend policy). The experience of the leading companies can be passed down to the newcomers with the adjustments to industry and country specifics. Although the determinants may differ, this analysis gives a base and methodology for further research.

Lastly, the results can give an insight for investors who decide to build their portfolio based on American and British companies' stocks. The investors can conduct fundamental analysis of the companies and pay special attention to the factors indicated by the research to receive higher dividends.

Conclusion

Dividend policy is a crucial part of company's strategy, and it has to be aligned with investment and financial policies to assure sustainable growth and development of a company. The companies may decide to set a fixed amount of dividend payments regardless other factors, base them as a percentage of earnings, pay what's rest after the company's needs for investment were covered or prefer not to pay dividends at all. This research investigates most common practices and determines factors that influence dividend decisions of British and American companies.

The common determinants for both countries are current earnings and dividend payout ratio for the previous year. It is evident that dividends depend on current earnings, since without the source of income a company is unable to pay the dividends. The dividend payout ratio serves as a proxy to determine the indicator of the current year. Usually the changes in company's performance are rarely drastic, that is why only small adjustments are made from year to year. Additional dividend determinants are different for the American and British companies.

Total Assets

British companies also take into account total assets, which are a proxy for the size of the company. Total assets are related to many other indicators like the company's stage of the life cycle, growth, need for capital investments and liquidity and so on. The results show that the bigger the company is, the higher dividends it is willing to pay. This is especially true for the industry breakdown of the country. Industrials, Consumer Goods (including Automobiles, Food and Beverage producers, construction materials and etc.), Basic Materials and Technology constitute 63% of the sample. These companies tend to possess large amount of property, plant and equipment, and Consumer Goods companies also have large stocks of produce. The highest payout is seen in Telecommunications and the highest dividends in Oil & Gas, both industries require a lot of capital investments and possession of assets.

For the sample of American companies this factor had to be excluded from the regression due to high collinearity with Net Income. Because Net Income has a higher impact on dividend payout and is a direct determinant, total assets were omitted.

Dividend tax rates

Another factor that the dividend payout ratio is sensitive to is tax rate. The effective tax rates in the U.K. have fluctuated during 2010-2016, and payout was adjusted accordingly. The reason why tax rates in the U.S. did not have a significant effect on the payout ratio may also lie in technical aspects of data analysis. Because there was only one change in tax rates during the period, the regression specification was not sensible enough to capture this change. More extensive research is needed on different time periods to investigate the significance of tax rates.

Research and Development expenses

The U.S. companies seem to put their investment needs first, because the determinants of their dividend policies are research and development expenses. This is supported by the industry breakdown. Technology, Industrials and Health Care companies account for 56% of the sample. Also, it is logical in terms of the highest dividend-paying industries, Technology and Oil & Gas. Both industries invest a lot in R&D to find new methods and technologies to extract and refine crude oil, for example. The United States are also known as one of the leading countries in technology with its Silicon Valley and booming «unicorn» companies. Nevertheless, the author wants to highlight the fact that the results are specifically describe the sample, but not necessarily describe the situation on the whole American market. The sample of the U.K. companies is characterized by more traditional industries, that is why the model did not show the significance of research and development expenses.

Dividend Aristocrats have shown steady growth in their dividends for the past 25 consecutive years. The analysis shows that the growth is stable and fluctuates around 10% annually, regardless the macro effects. The research did not show major influence of any other financial factors on dividend policies. If the dividend policy is a coherent element of a company's sustainable development and it is aligned with investment policy and overall strategy, there is no problem with gradually increasing dividends. Nevertheless, these companies have to be aware of the external environment and be prepared to react to challenges.

To summarize, companies are rather conservative when it comes to dividend decisions, as main determinants are the target payout ratio and current earnings. The samples of the companies put restrictions on the research results. Because only the companies with the highest

market capitalization were analyzed, they do not reflect the results of the American and British markets in general.

Suggestions for further research include the analysis the speed of adjustment of the dividend policies and their determinants to prove the finding that the companies are indeed conservative and base the dividend policy on current earnings and past dividend payouts. Also, this research was dedicated to a limited number of factors, which could be extended, for example, by analysis of cultural environment and managers and investor's behavior and expectations. Also, the research could be extended to a broadened number of companies and time periods. Lastly, the model of this research might be applied to other markets.

The findings can be of a great use to the board of directors and shareholders of the companies' analyzed as well as outsiders. Board of directors may consider including other factors, like firm's size, research and development expenses and taxes while deciding on dividend policy. Shareholders will benefit from reduction of information asymmetry and agency costs because of better understanding of underlying factors. American and British companies who decide to go public and establish dividend policy can look at the experience of the leading companies with the adjustments to industry and country specifics. Lastly, the results can give an insight for investors who decide to build their portfolio based on American and British companies' stocks.

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Internet resources

Information on U.S. taxes

1. <http://www.dividend.com/taxes/a-brief-history-of-dividend-tax-rates/>
2. <https://taxfoundation.org/united-states-high-tax-burden-personal-dividend-income/>

Information on U.K. taxes

1. <http://www.hl.co.uk/tools/tax-facts>
2. https://www.sbs.ox.ac.uk/sites/default/files/Business_Taxation/Events/conferences/summer_conference/2015/harris-slides.pdf
3. <http://www.theaic.co.uk/sites/default/files/AICTaxationofDividendsConsumerguide.pdf>
4. <http://www.ukbudget.com/files/tax-rates-2011-12.pdf>
5. <https://www.gov.uk/tax-on-dividends/how-dividends-are-taxed>

Appendices

Appendix 1. Taxes

Table 1.1
Personal dividend tax rates in the U.S.

2003 – 2007		2008 – 2012		2013 – 2016	
Ordinary Dividend Tax Rate	Qualified Dividend Tax Rate	Ordinary Dividend Tax Rate	Qualified Dividend Tax Rate	Ordinary Dividend Tax Rate	Qualified Dividend Tax Rate
10%	5%	10%	0%	10%	0%
15%	5%	15%	0%	15%	0%
25%	15%	25%	15%	25%	15%
28%	15%	28%	15%	28%	15%
33%	15%	33%	15%	33%	15%
35%	15%	35%	15%	35%	15%
				39.6%	20%

Table 1.2
Personal dividend tax rates in the U.K.

Band/year	2003-2009	2010-2012	2013-2016
Basic rate (and non-taxpayers)	10%	10%	10%
Higher rate	10%	32.5%	32.5%
Additional rate	32.5%	42.5%	37.5%

Table 1.3
OECD overall dividend tax rate (PIT+CIT rate)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
U.K.	47,5%	47,5%	47,5%	47,5%	47,5%	46,0%	46,0%	54,0%	52,7%	51,4%
	2013	2014	20015	2016						
	46,5%	45,1%	44,4%	50,5%						
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
U.S.	51,9%	52,0%	52,0%	52,1%	52,0%	52,0%	52,0%	52,2%	52,1%	52,1%
	2013	2014	20015	2016						
	56,5%	56,5%	56,4%	56,3%						

Appendix 2. Industry classifications

Table 2.1. ICB Code industry classification according to Industrial Classification Benchmark.

Industry	Supersector	Sector	Subsector	
0001 Oil & Gas	0500 Oil & Gas	0530 Oil & Gas Producers	0533 Exploration & Production	
			0537 Integrated Oil & Gas	
		0570 Oil Equipment, Services & Distribution	0573 Oil Equipment & Services	
			0577 Pipelines	
		0580 Alternative Energy	0583 Renewable Energy Equipment	
			0587 Alternative Fuels	
1000 Basic Materials	1300 Chemicals	1350 Chemicals	1353 Commodity Chemicals	
			1357 Specialty Chemicals	
	1700 Basic Resources	1730 Forestry & Paper	1733 Forestry	
			1737 Paper	
		1750 Industrial Metals & Mining	1753 Aluminum	
			1755 Nonferrous Metals	
			1757 Iron & Steel	
		1770 Mining	1771 Coal	
			1773 Diamonds & Gemstones	
	1775 General Mining			
	1777 Gold Mining			
				1779 Platinum & Precious Metals

2000 Industrials	2300 Construction & Materials	2350 Construction & Materials	2353 Building Materials & Fixtures	
			2357 Heavy Construction	
	2700 Industrial Goods & Services	2710 Aerospace & Defense	2713 Aerospace	2717 Defense
				2720 General Industrials
		2730 Electronic & Electrical Equipment	2727 Diversified Industrials	
			2733 Electrical Components & Equipment	2737 Electronic Equipment
		2750 Industrial Engineering		
			2770 Industrial Transportation	2771 Delivery Services
		2773 Marine Transportation		
		2775 Railroads		
		2777 Transportation Services		
		2779 Trucking		
		2790 Support Services	2791 Business Support Services	
			2793 Business Training & Employment Agencies	
			2795 Financial Administration	
			2797 Industrial Suppliers	
			2799 Waste & Disposal Services	

3000 Consumer Goods	3300 Automobiles & Parts	3350 Automobiles & Parts	3353 Automobiles
			3355 Auto Parts
			3357 Tires
	3700 Personal & Household Goods	3530 Beverages	3533 Brewers
			3535 Distillers & Vintners
			3537 Soft Drinks
		3570 Food Producers	3573 Farming & Fishing
			3577 Food Products
		3700 Personal & Household Goods	3720 Household Goods & Home Construction
	3724 Nondurable Household Products		
	3726 Furnishings		
	3728 Home Construction		
	3740 Leisure Goods		3743 Consumer Electronics
			3745 Recreational Products
			3747 Toys
	3760 Personal Goods		3763 Clothing & Accessories
			3765 Footwear
			3767 Personal Products
	3780 Tobacco		3785 Tobacco

4000 Health Care	4500 Health Care	4530 Health Care Equipment & Services	4533 Health Care Providers	
			4535 Medical Equipment	
			4537 Medical Supplies	
		4570 Pharmaceuticals & Biotechnology	4573 Biotechnology	
			4577 Pharmaceuticals	
5000 Consumer Services	5300 Retail	5330 Food & Drug Retailers	5333 Drug Retailers	
			5337 Food Retailers & Wholesalers	
		5370 General Retailers	5371 Apparel Retailers	
			5373 Broadline Retailers	
			5375 Home Improvement Retailers	
			5377 Specialized Consumer Services	
			5379 Specialty Retailers	
			5500 Media	5550 Media
		5555 Media Agencies		
	5557 Publishing			
	5700 Travel & Leisure	5750 Travel & Leisure	5751 Airlines	
			5752 Gambling	
			5753 Hotels	
			5755 Recreational Services	
			5757 Restaurants & Bars	
			5759 Travel & Tourism	

6000 Telecommunications	6500 Telecommunications	6530 Fixed Line Telecommunications	6535 Fixed Line Telecommunications
		6570 Mobile Telecommunications	6575 Mobile Telecommunications
7000 Utilities	7500 Utilities	7530 Electricity	7535 Conventional Electricity
			7537 Alternative Electricity
		7570 Gas, Water & Multiutilities	7573 Gas Distribution
			7575 Multiutilities
			7577 Water
8000 Financials	8300 Banks	8350 Banks	8355 Banks
	8500 Insurance	8530 Nonlife Insurance	8532 Full Line Insurance
			8534 Insurance Brokers
			8536 Property & Casualty Insurance
			8538 Reinsurance
		8570 Life Insurance	8575 Life Insurance
	8600 Real Estate	8630 Real Estate Investment & Services	8633 Real Estate Holding & Development
			8637 Real Estate Services
		8670 Real Estate Investment Trusts	8671 Industrial & Office REITs
			8672 Retail REITs
			8673 Residential REITs
			8674 Diversified REITs
	8675 Specialty REITs		

			8676 Mortgage REITs
			8677 Hotel & Lodging REITs
	8700 Financial Services	8770 Financial Services	8771 Asset Managers
			8773 Consumer Finance
			8775 Specialty Finance
			8777 Investment Services
			8779 Mortgage Finance
			8980 Equity Investment Instruments
		8990 Nonequity Investment Instruments	8995 Nonequity Investment Instruments
	9000 Technology	9500 Technology	9530 Software & Computer Services
9535 Internet			
9537 Software			
		9570 Technology Hardware & Equipment	9572 Computer Hardware
			9574 Electronic Office Equipment
			9576 Semiconductors
			9578 Telecommunications Equipment

Appendix 3. USD/GBP annual exchange rates

USD / GBP	1990	1991	1992	1993	1994	1995	1996	1997	1998
	1,784	1,767	1,766	1,501	1,531	1,578	1,560	1,637	1,657
	1999	2000	2001	2002	2003	2004	2005	2006	2007
	1,617	1,514	1,440	1,499	1,635	1,832	1,820	1,842	2,001
	2008	2009	2010	2011	2012	2013	2014	2015	2016
	1,855	1,565	1,545	1,604	1,584	1,564	1,647	1,528	1,355

Source: www.xe.com

Appendix 4. List of companies included into Dividend Aristocrats

1. 3M Company
2. AFLAC Inc.
3. AbbVie Inc.
4. Abbott Laboratories
5. Air Products & Chemicals Inc
6. Archer-Daniels-Midland Co
7. AT&T
8. Automatic Data Processing
9. C. R. Bard
10. Becton Dickinson
11. Bemis Company
12. Brown-Forman
13. Cardinal Health Inc.
14. Chevron Corp.
15. Cincinnati Financial Corp
16. Cintas Corp
17. The Clorox Company
18. Coca-Cola Company
19. Colgate-Palmolive
20. Consolidated Edison Inc
21. Dover Corp
22. Ecolab Inc
23. Emerson Electric
24. Exxon Mobil Corp
25. Federal Realty Investment Trust
26. Franklin Resources
27. General Dynamics
28. Genuine Parts Company
29. W. W. Grainger
30. Hormel Foods Corp
31. Illinois Tool Works
32. Johnson & Johnson
33. Kimberly-Clark
34. Leggett & Platt
35. Lowe's Companies, Inc.
36. McCormick & Company
37. McDonald's
38. Medtronic
39. Nucor
40. PPG Industries
41. PepsiCo
42. Pentair
43. Procter & Gamble
44. S&P Global (formerly McGraw Hill Financial, Inc.
45. Sherwin-Williams
46. Stanley Black & Decker Inc.
47. Sysco

48. T. Rowe Price
49. Target Corporation
50. VF Corporation
51. Walmart
52. Walgreen Boots Alliance

