Dividend Versus Investment – Cash Flow Allocation

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Received: 5 May 2022 / Revised: 26 October 2022 / Accepted: 4 November 2022 / Published online: 21 December 2022

ABSTRACT

The aim of the article is to find out about the pattern in which operating cash flows are allocated between dividends and investment. We analyzed 419 companies from the Warsaw Stock Exchange and covered the period of 2007–2020 with 4,760 firm-year observations. We prepared regression models for the dividend and investment ratio depending on the company specificity. We found a positive relation between dividends and investment. Additionally, we found that with the increase of operating cash flow, both dividends and investment increase. We think that the best explanation of our findings lies in the free cash flow hypothesis and signaling theory of dividends. Dividends and investment might be a tool to mitigate managerial decisions and at the same time a tool to send a positive signal to the investor about the present and future good financial situation. The results contribute to the literature on firms' investment- and dividend-cash flow sensitivity and the order of decisions: in a residual dividend policy, investment decisions are made first and the remaining profit is paid out as dividends while another theoretical approach implies that firms decide first on their dividend level, and then make investment decisions as they are reluctant to cut dividends.

JEL Classification: D25; G32; G33

Keywords: cash flow, dividend, investment, corporate investment, dividend payouts

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DOI: 10.7172/2353-6845.jbfe.2022.2.7

1. INTRODUCTION

Dividend and investment decisions are the most important issues in corporate finance. Dividends especially draw the attention of many researchers. Up till now, dividend decisions are well reflected in many theories, some dividend policies have been identified and many factors affecting dividend payment have been noted. There are two approaches to dividend payment: the first assumes that companies try to adjust their investment decisions in order to maintain a stable value of dividends (especially not to decrease the dividends, the dividend decisions are the priority) and the second assumes that companies try to adjust dividend decisions in order to maintain sufficient investment funding (residual dividend policy; the investment decisions are the priority). Both of the approaches assume a negative relation between dividends and investment. The theory indicates that there is substitution between dividend payment and investment expenses. However, recently, a decreasing trend and propensity to pay dividends (DeAngelo & DeAngelo, 2006), but also a reduction in the investment rate (Döttling et al., 2017) have been identified. Still, some research finds positive relations between investment and cash flow (e.g. Fazzari et al., 1988) and some see positive relations between dividend and cash flow (e.g. Franc-Dąbrowska et al., 2019). Thus, our analysis is further motivated by inconclusive research on the relation between cash flow, dividend payouts and investment expenditure.

The aim of the article is to find out about the pattern in which operating cash flows are allocated between dividends and investment. We hypothesized a negative relation between dividends and investment. We also hypothesized that with an increase of the operating cash flow, the dividend ratio decreases and the investment ratio increases.

We collected the data of companies listed on the Warsaw Stock Exchange (WSE). The target sample, excluding banks and other financial institutions, included 419 companies in the period 2007–2020 (14 years) with 4,760 firm-year observations. We prepared several regression models for the dividend ratio and investment ratio depending on the company specificity (investing companies, dividend paying companies, companies having positive operating cash flow). We found a positive relation between dividends and investment. Additionally, we find that with the increase of operating cash flow, both dividends and investment increase. We believe we uncovered support for the signaling hypothesis, free cash flow hypothesis and life cycle theory of dividends. However, our findings contradicted our hypotheses and some of the previous research.

In our study, we seek to contribute to the literature on dividends by adding investment decision and cash flow allocation between dividends and investment. Since the existing research on dividend payment and investment expenditure refers mostly to the U.S. and developed markets, researchers have recently started looking at the corporate dividend policy of firms in emerging markets and increasingly recognize that the dividend policy may be affected by the international context in which it occurs (see, e.g., Aivazian et al., 2003; La Porta et al., 2000; Naceuret al., 2006). This paper adds to these studies by examining the dividend-investment relation of Polish listed companies over the period 2007–2020 in an attempt to provide additional insight into dividend payouts and capital expenditures in the emerging Polish market. In particular, this paper tests how cash flows are distributed between dividends and corporate investment by Polish firms.

The remainder of the article consists of several parts. Initially, a detailed review of the available literature and research was performed. Based on the review, the necessary research hypotheses were formulated. The sample and research methods were then defined. The variables used in the study were also described in detail. Subsequently, the most important findings and conclusions of the study are described and compared with previous research.

DOI: 10.7172/2353-6845.jbfe.2022.2.7

2. LITERATURE REVIEW

2.1. Theory and practice of dividend payouts

Making a decision to pay a dividend is one of the most important decisions in the course of a company's operation. There is much research on dividend payments, and a thorough review of the existing research is provided by Bhattacharyya (2007). On the basis of the findings about dividend payouts, some theories were developed. One is the theory of dividends irrelevance developed by Miller and Modigliani (1961). Another theory – the 'bird in the hand' theory developed by Gordon (1956) and Litner (1962) – assumes that investors prefer to receive short-term income rather than wait long for uncertain future returns.

In turn, the signaling theory developed by Bhattacharya (1979) and John and Williams (1985) supports the significance of the dividend. According to this theory, people from inside the company have more information about the company's situation than outside investors. Hence, there is information asymmetry between managers and potential investors. Therefore, the announcement of dividend payment is treated as a signal and reduces the level of information asymmetry. According to the theory, the announcement of an increase in dividend payouts sends a positive signal to the investor about future profits, and a reduction in dividend payouts signals the worsening of the company's situation.

Signaling is connected with agency problems. According to the agency theory and free cash flow hypothesis, the payment of dividends might serve to align the interests and mitigate the agency problems between managers and shareholders by reducing the discretionary funds available to managers for their own self-interest (Easterbrook, 1984; Jensen, 1986). Another theory, the firm life cycle theory of dividends, is based on the notion that as a firm becomes mature, its ability to generate cash overtakes its ability to find profitable investment opportunities. Eventually, it becomes optimal for the firm to distribute its free cash flow to shareholders in the form of dividends (Grullon et al., 2002; DeAngelo et al., 2006).

There are also other dividend theories: clientele theory (Pettit, 1977) and catering theory (Baker & Wurgler, 2004). The considerations about the dividend policy do not end with the theories and policies discussed above. There are dividend theories stemming from corporate behavioral finance (Hirshleifer, 2015). After numerous studies over many years, it can be said that there are no clear results why companies decide to pay dividends. As a result, the subject of dividends requires further research (Lotto, 2020).

Apart from dividend theories, there are some dividend policies identified: residual dividend policy (assuming that a dividend is paid after all investment financing needs are met), regular dividend policy (assuming that a dividend is paid annually in the same value per share), increasing dividend policy, extra dividend or constant ratio dividend policy (assuming that a constant part of net profit is paid out as a dividend) (Profilet, 2013).

All these theories provide explanations that contradict each other but this results from a different approach and different factors included. Beyond the factors included in dividend theories (such as, e.g., tax, asymmetry of information, agency problems), existing research reveals several other factors that affect dividend payout. Among others, these are profitability, liquidity, leverage, company size and investment opportunities. It is worth mentioning that some researchers also document the influence of factors such as the independence of the board, the size of the board, the quality of the audit or the shareholding structure (e.g., Ye et al., 2019).

One important factor affecting dividend payment is corporate investment opportunities and capital expenses. A reference to the relation between investment and dividend is included in the free cash flow hypothesis, life cycle theory of dividend, pecking order theory of capital structure and residual dividend policy. All of the aforementioned assume that a relation between dividends and corporate investment exists. However, there is little research on the relation between dividends and investment.

DOI: 10.7172/2353-6845.jbfe.2022.2.7

2.2. The relations between dividends and corporate investment

Modigliani and Miller (1961) show that in a perfect capital market, period-by-period investment decisions by a firm are separable from its dividend decisions. In contrast, Dhrymes and Kurz (1967) provide early evidence that dividends and investment are interdependent. Accordingly, firms with a residual dividend policy make investment decisions first and the remaining profit is paid out as dividends (Dhrymes & Kurz, 1967). Dhrymes and Kurz state that internal funds are a cheaper source of financing for the firm than new security issues, and dividends and investment are competing uses for limited internal funds.

The residual dividend policy stems from the pecking order theory (Myers & Majluf, 1984). According to this theory, profitable firms prefer to use their own funds first, then debt, and finally seek and raise equity capital. Companies that finance their investment from profit are not willing to pay dividends. The free cash flow hypothesis assumes that owners use different tools to mitigate managerial practices. Here, generous dividend payouts are used to discourage managers from over-investment. The firm life cycle theory of dividends assumes that as a firm becomes mature, its ability to generate cash overtakes its ability to find profitable investment opportunities. Eventually, it becomes optimal for the firm to distribute its free cash flow to shareholders in the form of dividends (Grullon et al., 2002; DeAngelo et al., 2006).

On the other hand, there is some research on dividend policy showing that companies are reluctant to cut dividend payments, which leads to giving up much profitable investment (Brav et al., 2005). Lintner's (1956) survey evidence implies that firms decide first on their dividend level, and then make investment decisions. He finds that firms are willing to cut their capital budget to maintain (or even increase) their current dividend levels. Similarly, in a more recent survey of CFOs, Brav et al. (2005) report that dividend choices are made simultaneously with (or perhaps a bit sooner than) investment decisions. What is more, maintaining the level of dividends per share is the most important element of the dividend policy, but increases in dividends are considered only after investment and liquidity needs are met. Indeed, the surveyed managers state that they are willing to pass up on some positive-NPV projects before cutting dividends.

Grullon et al.'s (2002) findings on declining return on assets, cash levels, and capital expenditures in the years after large dividend increases suggest that firms that anticipate a declining investment opportunity set are the ones that are likely to increase dividends. Moreover, Grullon et al. (2002) saw that dividend-increasing firms do not increase their capital expenditures in the years after dividend increases. However, Auerbach and Hassett (2003) suggest that many firms in the U.S. nonfinancial corporate sector do vary their dividends in response to cash flow, investment and debt, and the relation between dividend and investment is negative with statistical significance in all their models. Bulan and Hull (2013) also recognized that managers remain reluctant to cut dividends, as Lintner originally described. Mathur et al. (2016), following Auerbach and Hassett (2003), replicated the statistically significant negative relationship.

All that research provides findings that contradict each other: some show that companies prioritize investment and dividends are adjusted accordingly (residual dividend policy) and some show that companies are reluctant to cut dividends and investment is adjusted accordingly. On the basis of the available literature, we formulate hypothesis 1:

H1: There is a negative relation between dividend payouts and corporate investment expenditure.

DOI: 10.7172/2353-6845.jbfe.2022.2.7

2.3. Cash flow allocation between dividends and investment

Dividends, investment expenditure and cash flow altogether were initially taken into account when the investment-cash flow sensitivity was investigated. According to Fazzari et al. (1988), all manufacturing firms can be divided into three classes based on the dividend payout policy. Their class 1 firms have a dividend payout ratio of less than 10 percent in at least ten of fifteen years, class 2 firms have a dividend payout ratio between 10 percent and 20 percent, and class 3 firms have a dividend payout ratio higher than 20 percent. The average investment-capital ratio is, respectively, in class 1: 0.26, class 2: 0.18, and class 3: 0.12. Moreover, the average cash flow-capital ratio is, respectively, 0.30, 0.26 and 0.21, and average correlations of cash flow with investment is, respectively, 0.92, 0.82 and 0.20. Their data prove a negative relation between dividends and investment, a negative relation between cash flow and dividends and a positive relation between cash flow and investment. After 1988, there were more studies on the relation between investment and cash flow, and all researchers agree that for a typical firm, the investment-cash flow sensitivity is statistically positive (e.g. Bond et al., 2003; Mizen & Vermeulen, 2005). However, there are some differences in the level of the investment-cash flow sensitivity identified. In addition, some studies link the differences in the investment-cash flow sensitivity with the degree of financial constraints (e.g. Kaplan & Zingales, 1997). In the KZ formula of financial constraints, the dividend payment is included with a negative sign. This means that the lower the dividend payment, the higher the KZ index and the tighter financial constraints. As with Fazzariet al.'s work (1988), Kaplan and Zingales find that investment is positively related to cash flow.

Apart from some investment-cash flow sensitivity and financial constraints research, including altogether cash flow, investment and dividends, there are few studies that bring together all the variables. Daniel et al. (2007) find that when companies are faced with cash flows that fall short of the sum of expected dividend and investment levels, firms must do one of the following: cut dividends, cut investment or raise funds through security sales, asset sales or reductions in cash reserves. Our analysis indicates that while very few firms (6%) cut dividends, the majority (68%) make significant cuts in investment relative to expected levels. Investment cuts make up for approximately half of the shortfall, with the other half being covered primarily by debt financing, while net equity issues, reductions in cash balances and asset sales account for a trivial percentage of the shortfall. However, the work by DeFusco et al. (2007) shows that shocks to dividends do have long-run consequences for investment and vice versa, implying a bi-directional interdependence. Hence, they provide evidence against the separation principle. They find, rather, that companies increase their dividends in response to an increase in earnings, while as for investment, the reaction to an increase in earnings might be both positive and negative; dividends increase with an increase in investment, and investment increases with an increase in dividends. Yeo (2018) researched the effect of cash flow on investment levels and dividend payment in the shipping industry. The study confirms a significant positive impact of free cash flow on investment and a negative impact on the payment of dividends.

There are also some studies on the relation between cash flow and dividend payments that show a positive relation between cash flow and dividends. Bar-Yosef and Venezia (1991), for example, set up a rational equilibrium expectation model. Accordingly, Bayesian investors expect that dividends will be proportional to cash flows. What is more, Mirza and Azfa's (2010) study on the dividend policy of 100 companies listed on the Pakistani stock exchange on the basis of data for the years 2005–2007 found a positive relationship between operating cash flow, profitability and cash dividends. Here, high cash flow from operating activities has a positive impact on the potential of enterprises to pay out high dividends. The positive impact of cash flows on dividend payments is also confirmed by Pappadopoulos and Dimitrios (2007). The sample analyzed included 72 companies listed on the Athens Stock Exchange in 1995–2002. Beyond the aforementioned, Franc-Dąbrowska et al. (2019) estimated a random probit panel model

DOI: 10.7172/2353-6845.jbfe.2022.2.7

confirming a statistically significant impact of free cash flow, profitability, liquidity, company growth and size on dividend payment decisions. In this model, an increase in the values of the indicated variables is associated with a greater probability of dividend payment. The results indicate that highly profitable companies with more stable incomes have greater free cash flow, which has a positive effect on dividend payments. The pecking order theory (Myers & Majluf, 1984) explains the influence of the profitability on dividend payments. According to this theory, the relationship between profitability and dividend payment should remain negative (Rohov et al., 2020). On the other hand, in a survey undertaken by Lintner (1956), the key factor affecting the dividend decision of a firm was seen to be the net earnings. In yet one more study, Fama and French (2001) found that the larger and more profitable firms pay more dividends as compared to smaller and less profitable firms. However, the aforementioned research on the relation between cash flow and dividend left out the investment opportunities factor.

The existing research presented above refers indirectly to the relation between investment and dividend when taking decisions on cash flow allocation. Additionally, it only partially tackles the problem included in our research with different variables and their definition. This makes our approach unique and distinct from the existing ones.

Although there is research done on the Polish market (Franc-Dąbrowska et al., 2019), it tries to find the determinants of dividend payout decisions (with free cash flow, profitability, liquidity, company growth and size taken into account). Our approach focuses directly on cash flow allocation between dividends and investment and in this way it differs quite significantly. Again, this makes our approach unique and distinct from the existing ones.

Due to inconclusive research on cash flow, investment and dividends, following Fazzari et al.'s (1988) and Yeo's (2018) research and assuming a negative relation between dividends and investment, we formulate hypothesis 2:

H2a: There is a negative relation between dividend payouts and cash flow;
H2b: There is a positive relation between investment expenditure and cash flow.

3. METHODOLOGY

3.1. Cash flow allocation between dividends and investment

To conduct our analysis, we collected data of companies listed on Poland's Warsaw Stock Exchange (WSE). As of July 2021, there were 435 companies listed, but after excluding banks and other financial institutions, we were left with 419 companies. The financial data covers the period of 2007–2020 (14 years). The sample constitutes an unbalanced panel, with some companies entering and leaving the WSE. Ultimately, we obtained 4,760 firm-year observations. All data were 'winsorized' at 98% upper and 2% lower percentile.

Firstly, we prepared descriptive statistics describing the sample (4,760 firm-year observations), but also subsamples. We grouped our sample companies into several subsamples depending on different criteria:

1) companies with zero-dividend (DIVno = 2,709 firm-year observations, 57% of the sample) and companies paying out dividends (DIVyes = 2,051 firm-year observations, 43% of the sample);
2) companies with zero-investment (CAPno = 235 firm-year observations, 5% of the sample) and companies with investment expenditure (CAPyes = 4,525 firm-year observations, 95% of the sample);
3) companies with positive operating cash flow (OCFposit = 3,621 firm-year observations, 76% of the sample) and negative operating cash flow (OCFnegat = 1,139 firm-year observations, 24% of the sample).

DOI: 10.7172/2353-6845.jbfe.2022.2.7

3.2. Models

In our research, we constructed several hypotheses, and, thus, we adopted different statistical methods to verify each of them.

Firstly, we presented descriptive statistics results just to depict the sample. Secondly, we applied the Mann-Whitney U test to evaluate the differences in the variables. We compared the subsamples of the companies: paying and non-paying dividends, with zero and positive CAPEX, having negative and positive operating cash flow. The Mann-Whitney U test does not require that the distribution of the sample need be assumed to be normally distributed. By comparing the level of variables during normal times and crisis times and testing this level via the Mann-Whitney U test, we were able to ascertain whether these variables differ significantly.

To show the relation between variables, we also prepared a correlation matrix. Additionally, we used the pooled OLS analysis as we have unbalanced panel data. We then prepared several regression models separately for the subsamples. The general formula of the regression model is the following:

$$DV = \beta_0 + \beta_1 IV + \beta_2 CV + \varepsilon_i \tag{1}$$

where:

DV – dependent variables vector, reflecting proxies for dividend payment and investment expenditure;

IV – independent variables vector, reflecting proxies for operating cash flow;

CV – control variables vector, reflecting proxies for cash holdings, leverage and size;

β – coefficient estimate for the independent and control variables;

ε_i – random error term/residual variable.

3.3. Variables

To find out how operating cash flow is allocated, we included several variables. The dependent variables reflect dividend payment and investment expenditure. To describe investment expenditure, we calculated the I-CFRatio – the relation between CAPEX and operating cash flow. This ratio reveals what part of operating cash flow is spent on investment (CAPEX). To describe investment expenditure, we also used CapRatio. This is calculated as the relation between investment expenditure (CAPEX) and total assets. To describe dividend payment, we calculated the D-CFRatio – the relationship between dividends and operating cash flow. This ratio shows what part of operating cash flow is spent on dividends. To describe dividend payment, we also used DivRatio. It is calculated as the relation between dividends and total assets.

The independent variable is linked to operating cash flow. We calculated OCFRatio as the relation between operating cash flow and total assets. OCFRatio is a substitute for profitability. In our research, we found a strong and positive correlation between profit and operating cash flow.

We included in our research some control variables: cash holdings, leverage and size of the companies.

Cash holdings are calculated as the relation between cash (and its equivalents) and total assets. Previous research noted that there is negative relation between cash holdings and investment, as companies that invest more save less cash (Riddick & Whited, 2009; Bates et al., 2009). Former research also indicated that there are no conclusive results on the relation between cash holdings and dividends. For example, a negative association between dividend payment and cash holdings was discerned by, e.g., Opler et al. (1999). Accordingly, the payment of dividends will reduce the level of kept funds. On the other hand, a positive association is also expected between dividend payment and cash holdings, as documented by, e.g., Ozkanand Ozkan (2004). The company

DOI: 10.7172/2353-6845.jbfe.2022.2.7

will also be able to pay dividends depending on its financial liquidity (amount of cash holdings and cash-flow position). Therefore, companies with more liquidity should pay more dividends (Cristea & Cristea, 2017; Kumar & Sujit, 2018).

Leverage is calculated as the relation between total liabilities and total assets. Previous research discovered that leverage is negatively related to investment (Aivazian et al., 2005) and negatively related to dividends (Lang & Young, 2001). Moreover, Rozeff (1982) argues that firms with a high leverage ratio have high fixed payments for using external financing; therefore, the higher the leverage ratio, the lower the chance for a dividend.

Size is calculated as the natural logarithm of total assets. Research holds that size is negatively related to investment (Borensztein & Ye, 2018) and positively to dividends (Aivazian et al., 2003). Indeed, some studies, based on the signaling theory, state that large companies no longer need to signal their position by paying dividends. Thus, the relationship between the size measured by the size of assets or revenues and dividends is negative (Lestari, 2018). On the other hand, based on the agency theory, it was noticed that larger companies should pay more dividends to attract more investors in order to monitor the company's activities, as the bigger the company is, the more difficult it is to monitor its activity (Jaara et al., 2018).

All financial data are calculated for the year the dividend decision and payout is made. Dividend decisions are taken in a current year but are related to net profit from the previous year. But dividend decisions are related to financial categories (total assets, operating cash flow) from the current year. We believe that our attitude reflects real business decisions: dividend decisions and dividend payouts.

4. FINDINGS

Table 1 presents descriptive statistics of the total sample (N = 4,760 firm-year observations).

Table 1
Descriptive statistics of the total sample

		mean	median	min	max	SD
OCFRatio	Operating cash flow to total assets	5.9	6.1	-28.0	36.1	11.6
I-CFRatio	CAPEX to operating cash flow	42.0	23.3	-335.9	499.8	122.5
CapRatio	CAPEX to total assets	4.6	2.7	0.0	23.1	5.2
D-CFRatio	Dividends to operating cash flow	12.4	0.0	-41.2	124.4	28.7
DivRatio	Dividends to total assets	1.6	0,0	0.0	16.4	3.3
CashRatio	Cash holdings to total assets	9.3	5.7	0.0	47.3	10.5
DebtRatio	Total liabilities to total assets	50.5	49.2	0.0	133.7	24.8

Source: Authors' own calculations.

The average level of operating cash flow is positive and stands for app. 6% of total assets. On average, 40% of operating cash flow is spent on CAPEX and 12% on dividends. It is worth noting that more than half of the companies do not pay dividends (D-CFRatio and DivRatio medians are zero). On average, cash amounts to 9% and total liabilities to 50% of total assets.

Table 2 presents the results of comparing the subsamples with the Mann-Whitney U test.

DOI: 10.7172/2353-6845.jbfe.2022.2.7

Table 2
Mann-Whitney U test results

	DIVyes (N = 2,051)	DIVno (N = 2,709)	Mann-Whitney U test	CAPyes (N = 4,525)	CAPno (N = 235)	Mann-Whitney U test	OCFposit (N = 3,621)	OCFnegat (N = 1,139)	Mann-Whitney U test
OCFRatio	9.3 8.9	3.3 3.8	-19.423**	6.3 6.5	-1.2 -0.2	-10.390**	10.5 8.7	-8.6 -5.4	-50.979**
I-CFRatio	48.7 33.7	37.0 11.6	-11.264**	44.2 26.2	0.0 0.0	-14.274**	76.6 41.3	-68.4 -16.0	-50.812**
CapRatio	4.9 3.6	4.3 2.1	-11.536**	4.8 3.0	0.0 0.0	-25.887 0.000	5.1 3.3	3.0 1.0	-17.403**
D-CFRatio	28.8 21.3	0.0 0.0	-48.714**	13.0 0.0	1.3 0.0	-8.425**	18.0 0.0	-5.3 0.0	-34.470**
DivRatio	3.7 2.1	0.0 0.0	-65.516**	1.6 0.0	0.2 0.0	-10.785**	1.9 0.0	0.5 0.0	-16.564**
CashRatio	10.1 6.6	8.7 4.9	-9.275**	9.5 5.8	6.8 2.6	-7.887**	9.4 5.6	9.1 5.0	-3.428**
DebtRatio	48.7 48.4	51.9 50.1	-2.125*	50.1 49.0	58.9 54.5	-1.859*	49.9 49.0	52.5 49.8	-0.783

Statistical significance: (*) for results that are significant on a 5% basis and (**) for results that are significant on a 1% basis

Source: Authors' own calculations.

We found that companies paying dividend (when comparing to non-payers) have higher operating cash flow, invest more, have higher cash holdings and lower leverage. Similarly, we saw that investing companies (when comparing to non-investing) have higher operating cash flow, pay higher dividends, have higher cash holdings and lower leverage. We also discovered that companies with positive operating cash flow (when comparing to the companies with negative operating cash flow) invest more, pay higher dividends, have higher cash holdings and lower leverage (but this last variable has no statistical significance).

We were thus able to uncover a specific co-relative profile of the surveyed companies paying out dividends: investing, having higher operating cash flow, higher cash holdings and lower leverage.

For the sake of further investigation, we developed a correlation matrix – Table 3.

Table 3
Correlation matrix

	DivRatio	CapRatio	OCFRatio	CashRatio	DebtRatio	size
DivRatio	1					
CapRatio	0.085**	1				
OCFRatio	0.374**	0.229**	1			
CashRatio	0.196**	-0.006	0.168**	1		
DebtRatio	-0.151**	-0.098**	-0.131**	-0.229**	1	
size	-0.019	0.018	0.116**	-0.183**	0.117**	1

Statistical significance: (*) for results that are significant on a 5% basis and (**) for results that are significant on a 1% basis

Source: Authors' own calculations.

DOI: 10.7172/2353-6845.jbfe.2022.2.7

We noted a positive relation between dividend payment and investment expenditure, on the one hand, and operating cash flow, on the other hand. This means that companies with higher operating cash flow decide both on higher investment expenditure and higher dividend payment. This implies that companies do not treat investment and dividends as alternative ways of distributing cash flows; rather, they try to sustain a balance between the interests of the company (investment) and owners (dividends). But this evidence allows for stating that we cannot find support for our H1 hypothesis assuming to find a negative relation between dividends and investment and H2a hypothesis assuming to find a negative relation between dividend payouts and cash flow. However, we find evidence to confirm our H2b hypothesis assuming to find a positive relation between investment expenditure and cash flow.

Additionally, we observed a positive relation between cash holdings and dividend payment and between cash holdings and leverage. We also saw a negative relation between leverage and dividend payment and between leverage and investment expenditure. Apart from that, we discerned a negative relation between the leverage and operating cash flow ratio and between leverage and cash holdings.

Due to the perceived relation between independent and control variables, we included a VIF factor to check the multicollinearity. The results of regression analysis are listed in Table 4 for the total sample and for subsamples with positive and negative operating cash flows and in Table 5 for the subsample of dividend payers and non-payers and the subsample of investing and zero-investing companies.

Table 4
OLS regression analysis results for the total sample and for subsamples with positive and negative operating cash flows (with VIF in parenthesis)

Sample	total	total	OCFposit	OCFposit	OCFnegat	OCFnegat
Observations	N = 4,760	N = 4,760	N = 3,621	N = 3,621	N = 1,139	N = 1,139
Dependent variable	DivRatio	CapRatio	DivRatio	CapRatio	DivRatio	CapRatio
OCFRatio	0.099** (1.066)	0.104** (1.066)	0.172** (1.193)	0.181** (1.193)	-0.003 (1.178)	-0.009 (1.178)
DebtRatio	-0.010** (1.075)	-0.017** (1.075)	-0.017** (1.072)	-0.026** (1.072)	-0.002 (1.102)	-0.001 (1.102)
CashRatio	0.036** (1.115)	-0.032** (1.115)	0.021** (1.054)	-0.090** (1.228)	0.007 (1.144)	0.051** (1.144)
Size	-0.001* (1.069)	0.000 (1.069)	0.000 (1.054)	0.001 (1.054)	0.001** (1.160)	-0.002* (1.160)
R-squared	0.165	0.061	0.199	0.085	0.011	0.023
F statistics	234.840**	77.328**	224.251**	83.871**	3.082*	6.597**

Statistical significance: (*) for results that are significant on a 5% basis and (**) for results that are significant on a 1% basis

Source: Authors' own calculations.

DOI: 10.7172/2353-6845.jbfe.2022.2.7

Table 5
OLS regression analysis results for the subsample of dividend payers and non-payers and the subsample of investing and zero-investing companies (with VIF in parenthesis)

Sample	DIVyes	DIVyes	DIVno	CAPyes	CAPyes	CAPno
Observations	N = 2,051	N = 2,051	N = 2,709	N = 4,525	N = 4,525	N = 235
Dependent variable	DivRatio	CapRatio	CapRatio	DivRatio	CapRatio	DivRatio
OCF Ratio	0.168** (1.106)	0.134** (1.106)	0.097** (1.043)	0.104** (1.055)	0.102** (1.055)	0.005 (1.088)
DebtRatio	-0.026** (1.106)	-0.031** (1.106)	-0.010** (1.066)	-0.012** (1.086)	-0.017** (1.086)	-0.001 (1.026)
CashRatio	0.043** (1.162)	-0.098** (1.162)	0.009 (1.098)	0.037** (1.123)	-0.040** (1.075)	0.001 (1.033)
Size	-0.005** (1.080)	0.002** (1.080)	-0.002** (1.080)	-0.001* (1.075)	-0.001* (1.075)	0.000 (1.088)
R-squared	0.332	0.120	0.051	0.168	0.056	0.015
F statistics	254.385**	69.546**	36.023**	229.856**	67.484**	0.871

Statistical significance: (*) for results that are significant on a 5% basis and (**) for results that are significant on a 1% basis

Source: Authors' own calculations.

In general, we observed that there is a positive impact of operating cash flow on investment expenditure and dividend payment. This positive impact is present in all subsamples, and in almost all subsamples, this relation is statistically significant.

Regression analysis results confirmed our previous findings on a positive impact of operating cash flow both on investment expenditure and dividend payment: the higher the operating cash flow, the higher both the investment expenditure and dividend payment. Thus, we cannot find support for our H2a hypothesis assuming to find a negative relation between dividend payouts and cash flow. But, we find evidence to confirm our H2b hypothesis assuming to find a positive relation between investment expenditure and cash flow.

Additionally, in all models, we saw a negative impact of leverage on investment expenditure and dividend payment. However, cash holdings are perceived to be positively related to dividends, but negatively to investment. In addition, size showed both negative and positive impacts depending on the subsample.

5. CONCLUSIONS AND DISCUSSION

The aim of the paper was to find out about the pattern in which operating cash flows are allocated between dividends and investment. We found a positive relation between dividends and investment. We also saw that companies having better financial standing (higher operating cash flow) are more prone both to invest in fixed assets and to pay out dividends. This is against the mainstream of research showing that dividends and investment are competing uses of cash flows (e.g., Dhrymes & Kurz, 1967; Auerbach & Hassett, 2003). Our results support the findings on a positive relation between investment and dividends (e.g., Defusco et al., 2007).

We think that the best explanation of the positive relation between cash flow, dividend payment and investment expenditure lies in the free cash flow hypothesis, signaling theory of dividends and life cycle theory of dividends. The free cash flow hypothesis assumes that owners use different tools to mitigate managerial decisions. Accordingly, generous dividend payments

DOI: 10.7172/2353-6845.jbfe.2022.2.7

are used to discourage managers from over-investment when internal funds (operating cash flow) increase (Grullon et al., 2002; DeAngelo et al., 2006).

The signaling theory assumes that dividend payment sends a positive signal to the investor about the present and future good financial situation (when internal funds increase) (Bhattacharya, 1979; John & Williams, 1985). The firm life cycle theory of dividends assumes that younger companies have more investment opportunities and pay less frequent and lower dividends (DeAngelo et al., 2006). The last theory might be in line with the specificity of the companies in the sample. The sample comes from Poland – a country with an emerging economy with a relatively young stock market and relatively young and growing companies. The distribution of the sample supports this notion, as there are more companies investing than paying out dividends. This also supports a residual dividend policy that sets the priority on investment – and if internal funds are higher, a dividend is paid out. This is done to mitigate over-investment and to send positive signals to owners.

Additionally, we find a negative impact of leverage on investment expenditure and dividend payment. This is in line with previous research both regarding investment (Aivazian et al., 2005) and dividends (Lang & Young, 2001). This might be explained with Rozeff's (1982) argumentation that firms with a high leverage ratio have high fixed payments for using external financing; therefore, the higher the leverage ratio, the lower the chance for dividends and investment.

However, cash holdings are perceived to be positively related to dividends, but negatively to investment. A positive association is also expected between dividend payment and cash holdings, as documented by, e.g., Ozkan and Ozkan (2004). The company is able to pay dividends depending on its financial liquidity (amount of cash holdings and cash-flow position). Therefore, companies with more liquidity pay more dividends (Cristea & Cristea, 2017; Kumar & Sujit, 2018). Some previous research noted that there is a negative relation between cash holdings and investment, as companies that invest more save less cash (Riddick & Whited, 2009; Bates et al., 2009).

In this study, we encountered some limitations. Our analysis takes into account an unbalanced panel of data for a specific country. We also used a specific set of companies in our sample – companies listed on the Warsaw Stock Exchange (WSE). Such companies are subjected to specific corporate governance regulations that private (unlisted) companies are not compelled to follow. The limitations show the direction for future research. This might include companies from other (mature) stock markets as well as other company life cycle variables.

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