

## IMPACT OF A COMPANY'S DIVIDEND POLICY ON THE LIQUIDITY OF SHARES LISTED ON THE WARSAW STOCK EXCHANGE

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### Abstract

This study investigates the informational effect of stock liquidity on dividend payouts. Using a sample of Polish listed companies during 2000 - 2012, I do not find a relation between stock liquidity and dividend payouts. This result is robust to the use of alternative measures of liquidity, and holds after we control for endogeneity concerns. In accord with my hypothesis that stock liquidity provides information and increases insiders' incentive to pay out dividends, I do not find that the relation between stock liquidity and dividend payouts is more pronounced when the information environment is opaque, and when conflict between controlling shareholders and minority investors is severe.

The aim of this study is to show the dependencies occurring between dividend policy and the liquidity of shares of a company. The basic thesis of this study is that decisions on dividend payments positively affect the liquidity of the shares of a company.

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## INTRODUCTION

In their seminal work, Miller and Modigliani (1961) formally developed the dividend irrelevance hypothesis. In perfect capital markets populated by rational investors, a firm's value is solely a function of the firm's investment opportunities and is independent of the firm's payout policy (Griffin, 2010). A large body of theoretical work has tried to evaluate the importance that managers and investors attach to dividend policy in light of the irrelevance proposition (see: Brunarski, Harman & Kehr, 2004, pp. 44-60; Fama & Babiak, 1968, pp. 1132-1161; Allen, Bernardo & Welch, 2000, pp. 2499-2536).

Since the days of Miller and Modigliani (1961), academics have been studying dividend policy (see: Gajdka, 2013, pp. 153-165; Jensen, 1986, pp. 323-329; Baker & Wurgler, 2004, pp. 1125-1165). There have been many theories as to why companies declare dividends, under what circumstances investors may prefer dividends to other forms of compensation, and factors that cause dividends to rise.

Dividend policy is closely related to the problem of conflict between owners and managers regarding the distribution of profits made by a company. This may be due to the fact that the company bears the costs of the agency (La Porta, Lopez-de-Silanes, Shleifer & Vishny, 2000, pp. 1-33). Problems can occur when there is a separation of management from ownership. This is especially evident in large corporations, where managers have large powers, while shareholders are very fragmented and lack control over management. It will encourage managers to maximize the benefits in kind and show that managers' interests are contrary to the interests of shareholders. The decisions may be based on the comfort and satisfaction of managers, achieved at the expense of the company (Afsari, 2014, pp. 1891-1899).

The costs of the agency are especially visible in companies where an institutional investor has a majority stake (Allen, Bernardo & Welch, 2000, pp. 2499-2536), e.g. an investment fund, bank, or the Treasury. In this type of company, shareholders want to pay part of the profit in the form of dividends. The opposite situation occurs in companies where the shareholding is dispersed among private investors. In companies where most of the shares are in the hands of private shareholders, agency costs are lower, because individuals often sit on the Supervisory Board of the company or hold positions in the Board

(Fama & Babiak, 1968, pp. 1132-1161). In companies with majority private shareholders a greater portion of the profits should be retained and the disbursement of dividends should not be a common occurrence and desirable, because those shareholders forming part of the inspection bodies or management of a particular company can get higher wages depending on the development of the company than the amount possible to pay as dividends (Gonzalez, Molina, Pablo & Rosso, 2017, pp. 301-18).

The phenomenon of paying regular dividends is most common in companies whose majority stake was or currently is the State Treasury, but even they sometimes do not have a properly determined dividend policy for future years.

Companies usually try to maintain a stable dividend policy. Managers, by their actions, thus seek to maintain a constant rate of dividend payments, which is well perceived by the market. The objective of a stable dividend policy is to maintain the continuity of payments (Mitton, 2004, pp. 409-426). Even when companies are having temporary or transitional troubles they nevertheless seek to maintain dividends at the same level. A reduction or cessation of dividend payments can be interpreted by the market as a signal that the company is undergoing financial difficulties or is threatened with bankruptcy (Lajili & Zeghal, 2010, pp. 3-26).

Pursuing a policy of stable dividends is, however, dependent on the capital structure of a given company. Large debt may cause the company to be unable to maintain dividends at a constant level. Therefore creditors, trying to secure their interests in the loan agreements, often stipulate that throughout the entire loan period the company will pay dividends at a constant level, or even stipulate a maximum level of dividend payments (Bhattacharya, 1979, pp. 159-270). If a company has a policy of stable dividends and the market prefers this sort of policy, then the market value of such a company will grow. However, the potential increase in value must be contrasted with the loss of tax benefits with no debt incurred. Goodwill and stock prices will rise when the benefits of such a dividend policy are greater than unrealized tax benefits associated with the use of foreign sources of financing (Gugler, 2003, pp. 1297-1321).

In addition, creditors can also impose in the credit agreement certain restrictions on the payment of dividends. The idea is to keep shareholders from selling the company's assets and thus obtaining revenue by

paying themselves dividends. Such an action could cause the debt to be improperly secured, and in the case of bankruptcy the company's lenders might be unable to obtain their due because they would have no legal security to enforce the repayment of the debt. Limitations of this type are relatively easy to monitor and can include, for example, permission to increase the amount of dividend payments only when (see: Adjaoud & Ben-Amar, 2010, pp. 648-667; La Porta, Lopez-de-Silanes, Shleifer & Vishny, 2000, pp. 3-27; Gajdka & Walińska, 1998, pp. 218-219):

- 1) the company generates a profit;
- 2) the company's profit increases;
- 3) the company acquires new equity.

The aim of this study is to show the dependencies occurring between a dividend policy and the liquidity of shares of a company. The basic thesis of this study is that decisions on dividend payments positively affect the liquidity of the shares of a company.

## THE STUDY SAMPLE

The study was conducted on a group of companies listed on the Warsaw Stock Exchange between the period 31.01.2000 - 31.12.2012. The study selected companies that met all the following conditions:

- 1) were listed on the Warsaw Stock Exchange in the period considered;
- 2) belonged to WIG;
- 3) listing of the shares of these companies took place on a continuous basis (through January 2013);
- 4) the database Reuters contained share price at the end of the analyzed companies of all 156 analyzed months.<sup>1</sup>

In this way, I was able to select 100 companies meeting the above-mentioned criteria. Data on spreads came from the official website of the Warsaw Stock Exchange, while price data came from the Reuters platform. Prices have been adjusted for capital changes of types such as changes in subscription rights, dividends and splits. The study was carried out first based on monthly data calculated based on the prices of the last day of each month, and then quarterly data calculated based on the prices of the last day of each quarter, and then annual data calculated based on the prices of the last day of each year. As the rate of return on risk-free assets

<sup>1</sup> Only eight companies were eliminated as a result of the last criterion.

I selected Wibor.

## METHODOLOGY

The aim of the study was to determine whether the liquidity of shares increases with a decision taken by the managers to pay dividends in a given year, or not. The research methodology used is similar to that described by Banerjee, Gatchev and Spindt (2007) in their work 'Stock market liquidity and firm dividend policy.' However, in my research, the search is looking for a reversal of the relation that was described by Banerjee, Gatchev and Spindt (2007). In my case, the dependent variable will describe the dividend policy and one of the independent variables will be stock liquidity. The study was conducted in a broader context, taking into account such factors as profitability, size of the company and the opportunities for growth that may have affected the decision concerning the dividend payment. The size of a company is measured in the study as the average capitalization, profitability and growth opportunities present in the price to earnings ratios (P/E), price to book value ratios (P/BV) and change in assets (dA/A). The inclusion in the analysis of the above-mentioned was important because their use as indicators of the dividend policy is consistent with the role in controlling the dividend agency costs associated with cash flow (see: Easterbrook, 1984, pp. 650-659; Jensen, 1986, pp. 323-329). Problems relating to agency costs associated with cash flow are connected with the situation of the company which generates high cash flows. However, due to the specifics of their activities or the environment in which the company operates, it does not have investment projects that are very attractive. As a result, the funds are invested in projects with a low rate of return, and the goodwill calculated using the ratio Q - Tobin is underestimated (Jensen, 1986, pp. 323-329). Managers may strive to build empires, as their level of remuneration often depend on the size of resources and the size of the companies which they manage. Building large companies is also associated with the prestige of managers, the possibility of increasing the budget for representation and risk diversification. In addition, managers who have held large deposits of free cash flow are not always able to manage it well. Their myopia in company may cause the company to risk takeover or bankruptcy (see: Booth, 1991, p. 1055; Kesten, 2010, pp. 1609-1659). This shows that the possibility of takeover causes one side of a conflict

between owners and managers, but it can also be an idea to solve this problem. Such action is also not consistent with the interests of owners as the manager subjects the company to great risk. On the other hand, when investment projects have a low rate of return that does not cause an increase in the market value of the company. In the event of such costs calculation capabilities are very limited. Generally, these result in a decline in stock prices (see: Wachowska, 2011, pp. 166-179; Burneo-Valarezo, Delgado & Vérez, 2016, pp. 305-312; Hartman, 2000, p. 158).

The empirical significance of these variables on a company's decisions on the payment of dividends was presented in the work of Fama and French (2001). In the remainder of this paper I will refer to these variables as “strong features” and their collective explanatory power over the company's dividend policy as the “capability” of a company's dividend. In addition, the liquidity of shares of a company may also be related to the size, profitability and the possibility of growth of the company. It is therefore important to examine the relationship between the company's dividend policy and liquidity after taking into consideration the possibility of such a relationship (see: Lee & Joon, 2017, pp. 71-740; Jiang, Ma & Shi, 2017, pp. 295-314).

As a measure of liquidity will be used the model 1 turnover ratio, which was also used in the study by Daters, Naik, and Radcliffe (1998). This rate is given by the number of shares traded as a fraction of the number of shares outstanding. Ultimately however the test will be repeated using the illiquidity measure (ILLIQ) presented by Amihud (2002). Amihud measure is determined from daily data, usually on a monthly basis, but the design model allows the calculation of this measure also at other than monthly intervals.

The lack of liquidity is defined as:

$$ILLIQ_{it} = \frac{1}{D_{it}} \frac{\sum_{t=1}^{D_{it}} |R_{itd}|}{DVOL_{itd}}$$

where:  $D_{it}$  - is the number of days on which trading took place in a given week or month;

$R_{itd}$  - the absolute value of daily returns audited transaction;

$DVOL_{itd}$  - is the daily volume of transactions in zloty.

This indicator shows the daily influence of the size of orders on prices (Amihud, 2002, pp. 31-56). The measure is

not specified for the days of zero turnover. The factor lack of liquidity takes the high (low) values for assets with low (high) liquidity. Unlike other measurements it is expressed as an average daily rate of return per unit of monetary measure of trading (on the Polish market - at 1 thousand zloty trading) (Olbryś, 2013, pp. 65-77). Liquidity in its true essence describes the possibility of selling large quantities of an asset immediately after purchase without changing the price. Thus, an appealing measure of illiquidity is a measure of the sensitivity of prices to the traded volume.

## THE RESULTS OF THE STUDY

As demonstrated in many studies (see: Fama & Blahnik, 1968, pp. 1132-1161; Miller & Modigliani, 1961, pp. 411 – 433), the decision to pay dividends substantially affects the return on the investment. Hence, using the methodology described by Banerjee, Gatchev and Spindt (2007) in their work ‘Stock market liquidity and firm dividend policy’ I first checked the relationship between dividend yield and the systematic risk, measured as beta ratio, company size measured as capitalization, profitability and the possibility of growth presented by the factors price to earnings (P/E), price to book value (P/BV), the change in assets (dA/A), and the turnover ratio of the collected data for obtaining the results, as described in Table 1.

As can be seen from the data presented in Table 1, calculations made on quarterly and annual data to estimate a parameter relating to the turnover ratio is positive and statistically significant at the 0.05 level. The calculations allow the conclusion that there is no correlation between dividend yield and the turnover ratio calculated on annual and quarterly data. In contrast, the parameters set out in Parts A and B of Table 1, the estimate for the beta ratio is also statistically significant, that is, the beta ratio affects the formation of the rate of dividends on the shares quarterly and annual data. In addition, the variables defining company size, measured as capitalization, profitability and growth opportunity presented by the factors price to earnings (P/E), price to book value (P/BV), the change in assets (dA/A) are statistically insignificant with respect to the annual and quarterly data, meaning they have no impact on the development of dividend yields. The fit of the model estimated on quarterly data to the actual data, as measured by the coefficient  $R^2$ , is 0.024; while the average regression error (standard error

**Table 1: Estimate model 1 parameters and corresponding values of p-value and statistics t-student**

	Estimators	Statistics t-student	p-value
<b>ANNUAL DATA</b>			
<b>A</b>			
free term	0,029021	4,98558	0,000001
P/BV	-0,001408	-1,3939	0,163696
capitalization	-0,000001	-0,77181	0,44043
beta	-0,01109	-2,41233	0,016052
dA/A	-0,000001	-0,13537	0,892347
P/E	-0,000001	-0,41846	0,675711
turnover ratio	0,000002	2,88111	0,004058
<b>QUARTERLY DATA</b>			
<b>B</b>			
free term	0,021308	9,89374	0
turnover ratio	0,000006	4,65727	0,000003
P/BV	-0,000023	-0,56442	0,572505
capitalization	0	0,10143	0,919214
beta	-0,008293	-4,5198	0,000006
P/E	-0,000002	-0,64202	0,520903
dA/A	0	0,11875	0,905477
<b>MONTHLY DATA</b>			
<b>C</b>			
free term	0,040966	0,029696	0,167761
P/BV	-0,000943	0,002318	0,684117
capitalization	-0,000001	0,000004	0,771939
beta	-0,00513	0,02492	0,836901
P/E	0,000004	0,000043	0,925417
dA/A	0,000003	0,000721	0,996241
turnover ratio	0,000018	0,000047	0,700189

Source: Author's own calculations

of estimation) is 0.0587. The fit of the model estimated using annual data to the actual data, as measured by the coefficient R2, is 0.025; while the average regression error (standard error of estimation) is 0.07333.

As can be seen in Table 1, part C, the data to estimate a parameter relating to the turnover ratio is positive and statistically insignificant at the 0.5 level. Thus, I rejected the hypothesis that as between dividend yield and liquidity measured by the turnover ratio, there is a relationship expressed by a growth in dividend yield with an increase in turnover ratio. Other variables in the study, which are the beta ratio, the company's size measured by capitalization, profitability and growth opportunities

presented by the factors: price to earnings (P/E), price to book value (P/BV) and change in assets (dA/A), did not affect the development of dividend yields.

In the next analyzed model, I tested the relationship between dividend yield, the systematic risk measured as beta ratio, company size measured as capitalization, profitability and the possibility of growth presented as the factors price to earnings (P/E), price to book value (P/BV), change assets (dA/A), and the illiquidity measure presented by Amihud (2002) (ILLIQ) for the data collected, which gave the results contained in Table 2.

**Table 2: Estimate model 2 parameters and corresponding values of p-value and statistics t-student**

	Estimators	Statistics t-student	p-value
<b>ANNUAL DATA</b>			
<b>A</b>			
free term	0.03	4.85623	0.000001
P/BV	0.00	-1.51515	0.130089
capitalization	0.00	2.80988	0.005064
beta	-0.01	-2.30686	0.021290
dA/A	0.00	-0.14535	0.884466
P/E	0.00	-0.40864	0.682904
ILLIQ	-1264.23	-0.51465	0.606928
<b>QUARTERLY DATA</b>			
<b>B</b>			
free term	0.021	5.91085	0.000000
P/BV	0.000	-0.44823	0.654014
capitalization	0.000	6.82903	0.000000
beta	-0.008	-4.25882	0.000021
P/E	0.000	-0.70955	0.478028
dA/A	0.000	-0.10340	0.917651
ILLIQ	-288.582	-0.83587	0.403282
<b>MONTHLY DATA</b>			
<b>C</b>			
free term	0.040292	0.02965	0.174153
P/BV	-0.000944	0.00232	0.683851
capitalization	0.000000	0.00000	0.965485
beta	-0.004598	0.02488	0.853380
P/E	0.000004	0.00004	0.928702
dA/A	0.000004	0.00072	0.995339
ILLIQ	-0.547510	55.68794	0.992156

Source: Author's own calculations

As can be seen from the data presented in Table 2, calculations made on quarterly and annual data to estimate a parameter relating to the illiquidity measure (ILLIQ) is negative and statistically insignificant at the 0.05 level. In contrast, the parameters set out in Parts A and B of Table 2, estimated for the beta ratio and size of company as measured by market capitalization are statistically significant. In addition, the variables determining profitability and growth opportunity presented by the factors price to earnings (P/E), price to book value (P/BV), the change in assets (dA/A) in the case of annual and quarterly data are statistically insignificant, so they have no impact on the development dividend yields. The fit of

the model estimated on quarterly data to the actual data, as measured by the coefficient R<sup>2</sup>, is 0.026, while the average regression error (standard error of estimation) is 0.058. The fit of the model estimated using annual data to the actual data, as measured by the coefficient R<sup>2</sup>, is 0.016, while the average regression error (standard error of estimation) is 0.073.

As can be seen from the data shown in Table 2 part C of the chart, the data to estimate a parameter relating to the illiquidity measure (ILLIQ) is negative and statistically insignificant at the 0.5 level. Thus, I rejected the hypothesis that there is a relationship between dividend yield and the illiquidity ratio measured by the illiquidity measure (ILLIQ)

expressed by an increase in the dividend rate with an increase in the illiquidity measure (ILLIQ). Other variables in the study, which were the beta ratio, the company's size as measured by capitalization, profitability and growth opportunities presented as ratios price to earnings (P/E), price to book value (P/BV), the change in assets (dA/A), also did not affect the development of dividend yields.

In addition, an estimation was made for Model 1 and Model 2 only on a group of companies that in the last five years of the test period (i.e. 2008-2012) made regular dividend payments. These calculations were made on annual data and there were only eleven companies paying regular dividends in the whole group. The results are shown in Table 3.

In both models presented in Table 3 a relationship was confirmed that liquidity has a significant influence on dividend yields, regardless of whether liquidity is expressed as the amount of the turnover or the illiquidity measure (ILLIQ). As can be easily observed, the hypothesis was confirmed that the relationship between dividend yield and liquidity was quite strong in the group of companies which in the last five years of the test period (i.e. 2008-2012) made regular dividend payments.

## CONCLUSIONS

Stocks that pay dividends satisfy investors' need for liquidity. This is more important for stocks that are thinly traded, for which investors may either have to wait a long time for a buyer or take a potentially lower price. In the event that a stock is illiquid, a dividend provides an income stream that otherwise may be out of reach. For a liquid stock, on the other hand, an investor can create artificial dividends by selling a portion of the stock quickly, with fewer transaction costs and possibly a higher price.

A study described by Banerjee, Gatchev and Spindt (2007) in their work 'Stock market liquidity and firm dividend policy' was carried out to verify the relationship between dividend yield, systematic risk measured as beta ratio, company size measured as capitalization, profitability and the possibility of growth presented as the factors price to earnings (P/E), price to book value (P/BV), the change in assets (dA/A), and the turnover ratio/illiquidity measure (ILLIQ) based on individual stocks, and not on portfolios of shares.

From the above observations we cannot say that there exists an exact relationship between how decisions made by the General Meeting of Shareholders staff regarding the payment of dividends and the liquidity

**Table 3: Estimation of model parameters 1 and 2 and the corresponding values of p-value and statistics t-student for a group of companies that in the last five years of the test period (i.e. 2008-2012) made regular dividend payments**

	estimators	Statistics t-student	p-value
<b>A (model 1)</b>			
free term	0.099725	4.41247	0.000015
turnover ratio	0.000002	1.56736	0.118225
P/BV	-0.013851	-2.70327	0.007310
capitalization	-0.000002	-1.09384	0.275018
beta	-0.026327	-1.37473	0.170376
P/E	0.000550	1.07618	0.282824
dA/A	0.000243	0.45034	0.652836
<b>B (model 2)</b>			
free term	0.1	4.59628	0.000007
P/BV	0.0	-2.77931	0.005837
capitalization	0.0	0.05616	0.955259
beta	0.0	-1.44738	0.148973
P/E	0.0	1.09575	0.274181
dA/A	0.0	0.41355	0.679539
ILLIQ	-11219.2	-1.37337	0.170797

Source: Author's own calculations

of shares of a company, regardless of which parameter is denominated liquidity. These studies do not show all the interrelationships between the decisions on dividend payments and what happens to the shares of a company on the stock exchange. Dividend policy behavior of corporations operating in emerging markets is significantly different from the widely accepted dividend policy behavior of corporations operating in developed markets. As is evident the calculations failed to prove the thesis at the beginning of the study that there is a relationship between liquidity, expressed either by turnover or by the illiquidity measure (ILLIQ), and the decision to make a dividend payment. However, these calculations do show that there is no clear relationship between the liquidity and the amount paid as dividends. Unlike the empirical

results supporting the stable dividend policy behavior of corporations operating in developed markets, the empirical results show that the WSE corporations follow unstable cash dividend policies and the main factor that determines the amount of cash dividends is the earnings of the corporation in that year. More research will need to be done to determine if indeed this is the case. A policy implication for managers could include being aware of the particular company's size and profitability when setting dividend policy. If it is lower, it is perhaps wise to begin or continue to pay dividends. This perhaps would bolster investors' confidence in the company and create a tangible economic incentive for the investor to not abandon the stock.

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