



Market Power and Dividend Policy: Evidence from Firms Listed in Tehran Stock Exchange

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Received: 25.07.2015

Revised: 28.09.2015

Accepted: 30.10.2015

Abstract

Dividend policy informs shareholders and investors how the financial situation of the firm is. Therefore, in situations where risk is always the determining factor for dividend policy, the company with the market power, can affect major changes in social, economic, and political events or have more successful responds toward them, and thus, is less exposed to systematic risk. Therefore, market power helps the firm to preserve firm-specific shocks from its product market or to reduce the information uncertainty that the investors of the firm face it. Hence, this study attempts to investigate the impact of product market pricing power on the firm's dividend policy. For this purpose, the data from 122 firms listed in Tehran Stock Exchange during 2009 to 2013 and Panel data model were used. The results showed that there is a reverse significant relationship between firm's market power and the amount of dividend policy of listed firms in Tehran Stock Exchange.

Keywords: earnings per share, dividend policy, firm's market power, product market, Tehran Stock Exchange

Introduction

Accounting performance and procedures have had significant changes over the centuries, and have evolved from relatively simple recordings in ancient times to the modern computerized and sophisticated accounting systems. But during these changes, the ultimate goal of accounting, that is providing accounting information for users, has remained unchanged. In fact, accounting is an information system that is responsible for collecting, classifying, summarizing, and reporting economic and financial events of an organization, as the most important subset of management information systems. Although most users of these information are shareholders and managers of an enterprise, but the management provides outsiders with various information as well, due to its tasks and responsibilities towards different groups of financial information users, and also due to legal requirements or requests of business partners or enterprise's funders. These reports are presented within a specific framework to external users of financial information, and the accuracy of these information and reports is confirmed by independent auditors. One of the

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items of financial statements which is considered as a criterion to evaluate the performance and profitability of the enterprise is "earnings reporting". As we know, the earnings per share is acquired by dividing firm's net profit by the number of its shares, and dividend policy is one of the most critical issues in the field of financing (Rashid et.al, 2014), which includes payment to shareholders in exchange for their investment return (Abdullah, 2014). Dividend policy and its effects are controversial issues that have attracted the attention of many researchers over the years. And also, a firm's market power can affect its dividend policy through affecting the firm's business risk (Booth and Zhou, 2015). This study investigates the impact of firm's product market pricing power on its dividend policy.

Theoretical principals

Numerous experimental and theoretical studies have investigated the effect of firm's market power on its risk. In the first study, Sullivan's experimental study (1978) showed a reverse relationship between the beta of capital assets valuation model and the market power. Sullivan (1978) argued that a firm with the market power can affect major changes in social, economic, and political events or have a more successful response towards them, and thus it will be less exposed to the



systematic risk. The idea was formulated by Subrahmanyam and Thomadakis (1980) and Booth (1980 and 1981). They examined the effect of price uncertainty on firm's capital costs in their study. Due to the limitation of demand price elasticity which firms with market power face, economic privileges resulting from the decision for optimal production allow firm to mitigate the impact of widespread economic shocks. However, Hou and Robinson (2006) concluded that firms in more focused industries gain lower capital market returns after controlling accepted risk factors. They argued that firms in focused industries face less bankruptcy risk or have fewer innovations, and thus will have a lower capital cost, which is in accordance with Sullivan's (1978) initial work.

Moreover, several studies have examined the potential impact of market power on idiosyncratic risk of the firm. For example, Gasper and Massa (2006) found out that firms with higher market power will have less idiosyncratic volatility as well. They explained that the firm's market power helps firm to preserve firm-specific shocks from its product market or to reduce information uncertainty which investors of the firm face it. However, risk has always been an important determinant for dividend policy. Graham and Dodd (1951), raised the first debate about the relationship between risk and dividend. Lintner (1956) also showed that conservative managers are usually reluctant to increase dividends. Baker et al (1985) realized that the most important determinant of dividend policy is the firm's forecasted level of future profitability. Brav et al (2005) concluded that more than two-thirds of financial managers of firms which distribute dividends have considered the sustainability of future profitability as an important factor for dividend policy. Numerous empirical studies have also examined the relationship between dividend policy and systematic and idiosyncratic risk. Dyl and Weigand (1998) found out that after the distribution of dividend, both total risk and systemic risk reduce. To explain this relationship, they argued that the distribution of dividend contains information about risk reduction because it indicates that management believes that the firm's future profitability will be more and more sustainable. Grullon et.al (2002) also found out that after increasing dividend, the risk is reduced (dividend contains information about firm's risk

reduction of future cash flows). Hoberg and Prabhala (2009) also found out that firms with systematic and idiosyncratic risk would pay less dividend. A review of the existing literature shows that there is a strong relationship between risk and firm's dividend policy, and considering the relationship between market power and its risk, the argument of the relationship between market power and dividend will also be acceptable.

Review of the literature

Domestic researches

Arab Mazar and Khorri (2014) investigated the impact of macroeconomic variables on dividend policy of firms listed in Tehran Stock Exchange. The results showed that there is a direct significant relationship between interest rate and dividend policy. Also, the results showed that there is a negative significant relationship between exchange rate and dividend policy. Meanwhile, the results indicated the lack of a significant relationship between inflation rate and dividend policy. This study is associated with the subject of the research.

Danesh Noshari (2014) conducted a study entitled "Investigating the Impact of Product Market Power and Industry Competition on the Earnings Management of Firms Listed in Tehran Stock Exchange". The results indicated a reverse significant relationship between industry competition and product market power with the earnings management of firms listed in Tehran Stock Exchange. This study is associated with the hypothesis of the research.

In a study entitled "Investigating the Relationship between Product Market Competition and Accruals Quality" examined the relationship between product market competition and accruals quality. The results of the study indicated a negative significant relationship between industry concentration and accruals. In this study, only accruals quality has been examined and actual earnings management has not been dealt with. This study is associated with the hypothesis of the research. Anvari et.al (2013) examined the impact of competitive structures of product market on dividend policies of firms listed in Tehran Stock Exchange. Their findings indicated that product substitutability and market's size have a positive significant relationship with dividend, and no



significant relationships were observed between other dimensions of competition and dividend. The general hypothesis of the research which was tested by using the competition score showed a positive but statistically non-significant relationship. Among control variables, only profitability showed a significant relationship between profitability and dividend policy. This study is associated with the hypothesis of the research. Namazi and Ebrahimi (2012) investigated the relationship between market's competitive structure and stock returns. To achieve this goal, Herfindahl-Hirschman index, Lerner index, and adjusted Lerner index were used as competition indices. They found a direct significant relationship between stock returns and market's competition structure in Tehran Stock Exchange. It means that in firms with more competition, stock returns is more. This study is associated with the hypothesis of the research.

Foreign researches

In a study entitled "Market Power and Dividend Policy", Booth and Zhou (2015) examined the impact of firm's product market power on its dividend policy. The results of their study showed that higher market power increases the possibility of paying dividends. Meanwhile, if the firm pays dividends, it will increase the amount of dividends. This study is associated with the hypothesis of the research. Laksmana and Yang (2014) examined the impact of industry competition on accruals-based earnings management and actual earnings management in a study entitled "Product Market Competition and Earnings Management: Evidence from Discretionary Accruals and Manipulation of Real Activities". The results of their study showed a reverse significant relationship between product market competition and types of earnings management. This study is associated with the hypothesis of the research. Datta et.al (2013) examined the relationship between products market power, industry structure, and earnings management. Their investigations showed a reverse relationship between products market power and earnings management, that is, the more the firm's power in pricing its products is, the less it will be involved in earnings management. They also concluded that there is a direct relationship between an increase in market competition and an increase in earnings management, and firms operating in more competitive industries deal more with

earnings management. This study is associated with the hypothesis of the research. Huang and Lee (2013) investigated the relationship between market structure and firm's credit risk in a study entitled "Product Market Competition and Credit Risk" and concluded that there is a direct positive relationship between the two. That is, the more the industry competition is (which may be due to the small size or large number of firms), the more the firm's credit risk will be. This study is associated with the subject of the research. Fosu (2013) examined the impact of capital structure and product market competition on firm's performance. The results of his studies showed a significant relationship between capital structure and firm's performance, but product market competition has not affected firm's performance. Of course, the variable of product market competition enhances the positive impact of capital structure on firm's performance. This study is associated with the subject of the research.

Methodology

This is an applied study in terms of objectives because its results can be used in managers and investors' decisions. Also, in terms of the way of inferring the research hypotheses, it is among correlation studies because it uses regression techniques to find the relations between the variables. In addition, since we will come to a conclusion through testing the existing data, our research is among positive theories.

Hypotheses

Given what has been presented, the questions which are raised in this study are whether firm's product market can influence dividend policy in firms listed in Tehran Stock Exchange? Whether firm's product market power is effective on division or non-division of earnings by the firm? And whether firm's product market power is effective on the amount of firm's dividend?

The following hypotheses are developed to find an answer to the questions and based on the established relationships:

1. Firm's product market power significantly affects division or non-division of earnings by the firm.
2. Firm's product market power significantly affects the amount of firm's dividend.



Population and sample

The population of the study includes all firms listed in Tehran stock Exchange during 2009 to 2013. The sample will be selected through systematic elimination of the population. The sample includes all existing firms in the population which have the following criteria:

1. Be present in the Exchange during the study.
2. Do not have changes in their financial period during the study.
3. Be not among firms operating in the field of financial activities, including investment firms, banks, insurance, and financial institutions. Since these institutions are different in terms of the nature of the activity, and their main income is earned from investment, thus, they are different from other firms by nature and are eliminated from sample.
4. The required data for the variables be available during 2009 to 2013.
5. Their financial period ends at the end of March each year, so that the data can be put together and used in panel forms.

Taking into account the above mentioned conditions led to selecting 122 firms as the sample of the study. It is worth mentioning that each firm has 5 sets of financial data which can be extracted from financial statements and other related information sources during 2009 to 2013.

Models and variables

To test the hypotheses, the following model which is adopted from a model proposed by Booth and Zhou (2015) is used:

$$\text{DividendPolicy}_{i,t} = \beta_0 + \beta_1 \text{MarketPower}_{i,t-1} + \beta_2 \text{FirmSize}_{i,t-1} + \beta_3 \text{Profitability}_{i,t-1} + \beta_4 \text{GrowthOpportunities}_{i,t-1} + \beta_5 \text{RetainedEarnings}_{i,t-1} + \beta_6 \text{StockReturn}_{i,t-1} + \varepsilon_{i,t}$$

Where:

Dependent variable:

DividendPolicy_{i,t} = dividend policy of firm i in year t, which is calculated from two aspects to test the first and second hypothesis. In order to test the first hypothesis: if the firm divides earnings, this variable will be one, and otherwise, it will be zero. In order to test the second hypothesis: it will be the ratio of the firm's total dividends to its total assets..

Independent variable

MarketPower_{i,t-1} = Market power of firm i in year t-1. Based on the existing literature, adjusted Lerner

index is used to calculate product market pricing power. The first step will be calculated as follows (cost margin- cost of sales):

$$\text{PCM} = \text{LI} = (\text{Sales} - \text{COGS} - \text{SG\&A}) / \text{Sales}$$

Where: **Sales**= sales revenue; **COGS**= cost of sales; and **SG&A**= general and administrative costs. Although cost margin- cost of sales is used to calculate product market power, but this criterion does not preserve firm-specific factors affecting product market pricing power from extensive industry factors. This criterion may fluctuate due to industry-specific signs that may be irrelevant to firm's market pricing power. Thus, this study uses Lerner's adjusted industry index to calculate firm's market pricing power, and it is calculated as follows (Datta et.al, 2013):

$$\text{Market power} = \text{LI}_i - \sum_{i=1}^N \omega_i \text{LI}_i$$

Where:

LI_i = Lerner index for firm i (it is presented above), ω_i = the ratio of sales of firm i to total industry sales. **N** indicates total number of firms in the industry. Adjusted Lerner index calculates the market power within a firm's industry slightly, and thus, clears the effects of extensive factors of a shared industry for all firms of a particular industry. In other words, it calculates the firm's product market power (to the extent possible) without the features of that specific industry.

Control variables

FirmSize_{i,t-1} = the size of firm i in year t-1, which is the natural logarithm of total assets.

Profitability_{i,t-1} = the profitability of firm i in year t-1, which is the ratio of net profit to total assets.

GrowthOpportunities_{i,t-1} = growth opportunities of firm i in year t-1, which is the ratio of market value to book value of the equity.

RetainedEarnings_{i,t-1} = retained earnings of firm i in year t-1, which is the ratio of retained earnings to total assets.

StockReturn_{i,t-1} = stock returns of firm i in year t-1, which is the difference of the stock price at the end of year t-1 and the stock price at the end of year t-2 plus the dividends of each share divided by the stock price at the end of year t-2.



Market Power and Dividend Policy

Findings The findings of the study will be presented in the form of (1) descriptive statistics, and (2) inferential statistics.

1.Descriptive statistics

In this part, mean, median (central criteria), standard deviation, maximum, and minimum (dispersion criteria) of the variables are calculated and presented in Table.1. It should be noted that after eliminating outlier data and sorting the data, the number of firm-years of variables is slightly reduced

2.Inferential statistics

Testing the first hypothesis

Using Logistic regression, the results of the first hypothesis are presented in table.2. Given the results of Table.1, since t statistics for the variable of firm's market power is smaller than ± 1.965

(+0.706), and its significance level is greater than 0.05, a significant relationship does not exist between firm's market power and division or non-division of earnings. Thus, the first hypothesis is rejected. It is noteworthy that among control variables, profitability and retained earnings have a direct significant relationship with firm's dividend, and stock returns has a reverse significant relationship with firm's dividend. Furthermore, about the power of the model it should be noted that the significance level of LR statistics is below 0.05, indicating that the model is valid. LR statistics is 169.438, which reflects the high power of the model. MC. Faden coefficient is 0.544, indicating that 54 percent of the changes of the independent variable can be explained by control and dependent variables.

Variables	Mean	Median	Maximum	Minimum	Standard deviation
Dividend policy (one)	0.873	1.000	1.000	0.000	0.332
Dividend policy (two)	0.096	0.068	0.623	0.000	0.102
Firm's market power	0.0007	0.01	0.35	-0.49	0.128
Firm's size	13.589	13.505	18.817	10.103	0.389
Profitability	0.128	0.109	0.56	-0.239	0.12
Growth opportunities	2.143	2.143	6.847	0.335	1.329
Retained earnings	0.161	0.147	0.619	-0.856	0.155
Stock returns	0.535	0.228	4.943	-0.655	0.944

Table.1. Descriptive indices of the variables

Variable	Coefficients	Standard deviation	Z statistics	Significance level
Fixed value	3.374	2.518	1.34	0.18
Firm's market power	1.528	2.162	0/706	0.479
Firm's size	-0.135	0.182	-0.743	0.456
profitability	12.898	5.844	2.206	0.027
Growth opportunities	0.539	0.282	1.907	0.056
Retained earnings	19.441	4.033	4.82	0.000
Stock returns	-1.008	0.384	-2.621	0.008
Mac Faden R-square				0.544
LR statistics				169.438
LR statistics significance level				0.000

Table.2. the results of estimating coefficients of testing the first hypothesis



Testing the second hypothesis

Chow test and F statistics are used to determine panel data method and to identify whether they are homogeneous or heterogeneous. The results are shown in tabel.3. According to table.3, the results of Chaw test indicate that the obtained possibility for F statistics is less than 0.05. Thus, the data is used in panel form to test the model. The necessity

of using random or fixed effects models is examined in table.4 by conducting Hauseman test. Given the results of table.4, significance level of Hauseman test is less than 0.05, thus, fixed effects model must be used to estimate the coefficients of the model. Using fixed effects model and Estimated Generalized Least Squares method, the results of testing the model are presented in table.5.

Null hypothesis	F statistics	Significance level	Chaw test results
Using panel data model	3.629	0.000	Null hypothesis is rejected

Table.3-The results of Chaw test

Null hypothesis	Chi square statistics	Significance level	Test results
Using random effects model	123.299	0.000	Null hypothesis is rejected

Table.4. Hauseman test results

Variable	Coefficients	Standard deviation	T statistics	Significance level
Fixed value	-0/039	0.048	-0.808	0.419
Firm's market power	-0/035	0.017	-2.024	0.043
Firm's size	0.011	0.003	3.414	0.000
profitability	0.004	0.017	0.276	0.782
Growth opportunities	0.003	0.001	2.181	0.03
Retained earnings	0.035	0.017	2.054	0.04
Stock returns	-0.001	0.001	-0.961	0.366
F statistics	43.873	R-square		0.844
F statistics significance level	0.000	Adjusted R-square		0.822
Eliminating the possible effect of heterogeneity of variance of using EGLS method		Dourbin-Watson value		2.101

Table.5. the results of estimating coefficients of testing the second hypothesis

Considering the results of table.5, since t statistics of firm's market power variable is greater than -1.965 (-2.024) and its significance level is smaller than 0.05, a reverse significant relationship exists between firm's market power and dividend of firms listed in Tehran Stock Exchange. Hence, the second hypothesis is confirmed. However, the control variables of firm's size, growth opportunities, and retained earnings have a direct significant relationship with the dependent variable. As is evident, Dourbin-Watson statistics is 2.101,

which is between 1.5 and 2.5. Meanwhile, the significance level of F statistics is 0.000, which is smaller than 0.05 indicating that the model is significant. Another significant point in table.5 is R-square of the model. The R-square value of the model is about %84, indicating that about %84 of the changes of the dependent variable can be explained by independent and control variables. The residuals distribution graph of the model is presented in Figure.1. Considering this graph,



although the result of Jarque-Bera test indicates non-normal distribution of residuals, values distribution is quasi-normal, and due to the high number of observations and that the rejection of residuals normal distribution is mild, this can be ignored

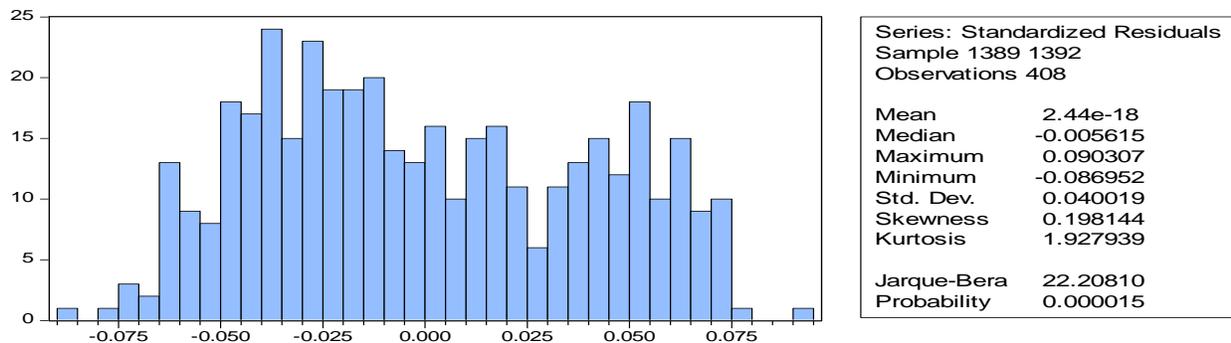


Figure.1. Residuals distribution of the model

Conclusion

The hypotheses of the study were tested based on the data collected from listed firms in Tehran Stock Exchange during 2009 to 2013 and by using combined regression analysis. First, descriptive statistics related to dependent and independent variables were presented. Then, the two main hypotheses were presented and tested. Coefficients significance test results based on fitted regression equations briefly stated that (1) there is not a significant relationship between market power and division or non-division of earnings; and (2) there is a significant relationship between market power and dividend of listed firms in Tehran Stock Exchange. To explain this result that product market competition cannot explain division or non-division of earnings of firms listed in Tehran Stock Exchange, it is noteworthy that if the results of firm's operations indicate profitability, the firm must divide earnings. However, some firms refuse to divide earnings among shareholders for some reasons. In these cases, firms add annual net profit to retained earnings. According to Namazi (2009), in the Commercial Code of most countries, some restrictions are set on the way of dividing earnings, and cases 90 and 140 can be referred to in Iran Commercial Code, but in some cases and with specific objectives they avoid to do so. Therefore, it seems that the decision for division or non-division of dividends in Iran is under the influence of particular executive issues that are independent of

financial and competitive variables. To explain the reverse impact of product market pricing power on firm's dividend it is noteworthy that if firm decides to divide earnings, this figure will be affected by firm's product market power to some extent. In other words, increasing firm's product market power will lead to less division of dividends between shareholders. However, as a result of testing the first hypothesis, it was found out that taking into account issues independent of firm's market power, management has decided not to divide dividends and thus, firm's market cannot affect management's decision for division or non-division of earnings. The results of this study can be considered in conformity with the results of Hou and Robinson (2006), Gasper and Masa (2006), Haung and Lee (2013), and Keil and Loon (2011).

Research suggestions

1. Applied suggestions

1. Given the results of testing the first hypothesis, indicating the lack of significant effect of firm's product market power on division or non-division of earnings by it, investors in listed firms in Tehran Stock Exchange are suggested to use other criteria to predict firm's division or non-division of earnings.
2. Given the results of testing the first hypothesis, managers of listed firms in Tehran Stock Exchange are recommended not to use the criterion of division or non-division of earnings



to assess market situation and competitors' strength and take the advantages of other criteria.

3. Considering the result of testing the second hypothesis, indicating the reverse and significant effect of firm's product market power on the amount of its dividend, investors in listed firms in Tehran Stock Exchange are suggested to consider the high power of firm's market power as a reverse criterion to explain the amount of its dividend if they are sure about dividing earnings by the firm.
4. Considering the result of testing the second hypothesis, managers of listed firms in Tehran Stock Exchange are suggested to use firm's dividend criterion as a reverse criterion for firm's relative power in the related industry when assessing market situation and competitors' power. Firm's decision to divide earnings or not is not related to its power in the industry, but in case of dividing earnings, its value (reversely) will be under the influence of firm's relative power in the product market.

2. Suggestions for further research

1. The independent variable of the present study is firm's product market power, and Lerner adjusted index is used to calculate it. Thus, researchers and students are recommended to use other indices measuring firm's product market power such as Lerner original index and the reverse number of industry firms and compare and summarize the results.
2. The regression model of this study has been estimated altogether for all industries. Thus, examining the models being used in this study in various industries (separately) can also have useful results.
3. This study used manufacturing firms listed in Tehran Stock Exchange as its population. Therefore, it is recommended that future studies use banks and other financial institutions listed in the Tehran Stock Exchange, and also firms listed in OTC as their population.

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