

The Effect of Product Market on Dividend Policy and Firms' Dividends

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Abstract

The present research is conducted to study the effect of product market power on dividend policy and firms' dividends. In this regard, 83 firms were selected from 2011-2016. Lerner adjusted index was used as a measure of market power; next, the effect on the dividend policy and dividend was examined once the effect of control variables (firm size, profitability, growth opportunities, and firm retained earnings) is observed. Research data were analyzed using data paneling and corresponding tests. Research hypotheses were tested using logistic regression for the first research model, and using multivariate linear regression statistical analyses including Chow test, Hausman test, for the second research model, through Eviews9. Research results show that there is a positive significant relationship between market power and firms dividend policy at the probability 95%. In addition, there is also seen a significant relationship between market power and dividend.

Keywords: Market power, market competition, dividend policy, dividends.

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Introduction

Dividend policy is known as a significant controversial financial issue. Earlier dividend policy theories mentioned to the various effects of dividend policy on stock price and firms' value; that is why dividend policy is referred as dividend puzzle still remained unresolved in spite of abundant studies have been conducted on (Asadi et al, 2013; 6). There are potentials for the relationship between firm competition power and dividend policy including agency theory and the relationship between competition and agency issues. Possible effect of firm competition power on agency issues may be a critical determinant of cash surplus distribution decision making among shareholders. Competition serves as an acting mechanism employing some pressures on managers for cash distribution among shareholders (Grullon et al, 2012). Given to the agency theory and conflict of interests between shareholders and managers and according to Jensen free cash flow theory (1986), if surplus cash exclusively remains by managers, it would lead to some projects, for managers' personal interests, with negative net present value, and consequently, increased risk and overinvestment cost. Hence, that is the rational of such pressure. More competitiveness may influence firm's payments like payment legal systems (through creating conditions where executives are enforced to pay the cash to shareholders rather than investing surplus cash on unprofitable projects).

Executives are also encouraged to distribute free cash flow through supporting dividend distribution among shareholders (La porta et al, 2000), firm control and regulations (Michaely and Robert, 2012), and or market competition (Grullon and Michaely, 2012). Executives must distribute larger cash flows in highly competitive markets as firm resource misuse may probably burden more losses by competition market obligations. The main cause is that competitive disciplinary pressures may rapidly extinguish inefficient executives from market. Therefore, executives, to prevent over liquidity, losing price- and stock performance-based rewards and or job losing, are more probable to distribute larger cash flows among shareholders (Grullon et al, 2012).

Business units enjoy pricing power position benefits; in other word, firms equipped with higher pricing power may be better effective in operational and strategic policies and keep the profit margin since the firms have their products unique or branded. Thus, financial analyses apply product market power as a critical factor for business unit horizon evaluation. Especially, it is stated that the only and most significant decision for a commercial activity assessment is the pricing power (Datta et al, 2013).

According to the specific aforementioned factors, it seems firms' financial policies, especially the dividend policy, in Iran, are considerably influenced by market concentration and power factors. Thus, it clearly explains the significance of studying the issue of dividend.

In fact, the research mainly tries to shed light on that how firms' dividend policies undergo market power in Iran capital market, which has been ignored in prior literature. Therefore, it is expected that there would be a positive relationship between market power and larger dividend to the shareholders. In case where the effect of market power on dividend policies is determined, executives may attain a dividend attitude of firm position;

hence, they may better adopt decisions. Wrong decision may lead to the loss of firm shareholders and decreased competitive power. The issue of dividend and dividend decision making policies is companies' critical annual discussions, especially companies listed in stock exchange, which is largely interested by shareholders so as the main issue of annual general meetings. It is critically significant to find the roots of firms' dividend policies, which may pave the road to important economic decisions for stakeholders.

Theoretical background

Product power market

The idea that competitive pressure is a critical factor in management decision-making is experimentally acknowledged. Some studies demonstrated that market context of a business unit product may affect investments, financing, cash distribution, corporate strategy, profitability prediction analyses, as well as management decisions (Akdogu and MacKay, 2012; Datta et al, 2011; and Grullon and Michaely, 2007).

Pricing power may bring some advantages to the business unit. Business units, for instance, are enabled to keep the profit margin with higher pricing power because of unique or branded products. Low product substitution may lead to a less sensitive demand curve for business units' products and influences business unit flexibility to pass cost shocks. It is necessary to notify that financial analyses use product market power as an important factor for evaluating business unit vision. Especially, pricing power is claimed the only and critical decision of an economic activity evaluation. If you own the power of price increasing without losing any economic activity against competitors; then, your enterprise has been done well. Therefore, profit manipulating motive may be dramatically decreased. On the other side, product market competition may cause some stresses on short-term performance resulting from a highly competitive environment, which motivates managers for profit manipulation to influence stock price (Datta et al, 2013).

The relationship between dividends and dividend policy

Financial management deals with dividend policy. Dividend reports and changes over the years are critically important to the shareholders. In this regard, many theories and views are introduced. According to one view, dividend adjustments embrace information notions. Firms, indeed, inform investors of what is happening through dividend increasing, decreasing or cessation. Therefore, changes in dividend yields is the effect of causes sought by market; further, the market responds to the changes respecting the perceived causes. Market reaction to the changes in dividend reveals investors' knowledge level as well as capital market expectations. Paying dividends by firms may require stable revenues and firm investment. Firm dividend policy is called is the gained yield allocation among investors or profit accumulation at firm. Accumulation or dividend are both acceptable goals; although, contrasting. The larger the firm distributes profit, the less reserve it would have; and as a result, a lower growth rate for the company. Thus, financial managers are critically obliged to properly distribute dividends among shareholders and savings such that firm value maximizes. Dividend policy as an effective

information in capital market is particularly significant to the investors since most decisions are adopted based on which (by investors) (Lechini, 2012).

Product market power and dividend policy

Market power measurement and determining various products market structures have always been critically and basically noticed in microeconomics. Since existence of different typical structures, whether competitive or non-competitive, may considerably influence production rate and product price. There are some arguments indicating a potential link between product market power and dividend policy. In-house pricing power (synonym for product market power) stems from firm's ability to achieve abnormal earnings (higher prices) from customers, which slightly influences demand.

Uniqueness, production lines dominance or a strong brand are regarded as indicators of strong pricing power and competitive advantage. While elasticity of demand at industry level is measured relying on aggregate demand curve for that industry, inter-industrial product differences (among an industry companies) may affect price elasticity of demand an enterprise dealt with, regardless of the industry structure in which it operates. Pricing power provides some advantages to the firm. For instance, companies with higher pricing power are more enabled to maintain profit margin once due to product uniqueness or strong brand naming exposed to exogenous profitability shocks (Datta et al, 2013).

A strong manufacturing positioning allows a business unit to be more stable; in other word, the business unit shows more flexibility in response to unexpected changes in consumer needs. Because of pricing capability, market power is mostly associated to more steady cash flows and lower fluctuations in stock returns (Peress, 2010). Business units enjoy deeper liquidity through products pricing power; thus, it protects the dominance. Increased privilege against cash deficit empower firms in facing worse economic conditions, which leads to less powerlessness against firms with poor pricing power. Schmidt (1997) asserts that increased competition may intensify firm liquidity risk; therefore, it largely encourages managers to work harder in order to keep their job safe. As a result, close intense competition can cause managers to more manipulate profit in order to overcome liquidity risk. In contrast, higher financial flexibility at firms in addition to a stronger position at the product market reveals that managers are less pressured for profit management (Heydarpour and Habibi, 2014).

Research experimental background

As so far no study directly investigated the relationship between the product market power with dividend policy and dividends of companies listed in Tehran stock exchange, the present research reviews the literature associated to the research variables.

Ghanbari et al (2014) studied dividend policy and ownership structure in industrial companies listed in Tehran stock exchange within 2006-2012. The relationship between research variables was examined through multivariate regression models. Research results demonstrated that there is a significant relationship between dividend policy with

firm size, financial leverage, and stock market value. Whereas, institutional ownership and assets return showed no significant relationship.

Mireki et al (2014) explored the relationship between product market pricing power and revenue concentration on industry using profit management at companies listed in Tehran stock exchange. In this regard, 111 companies listed in Tehran stock exchange were studied within 2002-2011. Research results indicated a significant inverse (negative) relationship between industry competition and profit management in companies listed in Tehran stock exchange.

Izadiniya and Alinaghiyan (2011), using Logit Model, identified dividends effective factors over an eight-year period from 2001 to 2008. The final model, estimated as Logit model using panel approach and by constant effect, exhibited that uncertain cash flows, firm life stage, investment opportunities, as well as profitability are of dividend pay out effective factors. Then, margin effect was appraised and showed that firm profitability is the most effective factors of the aforementioned.

Booth and Zhou (2015) carried out a study entitling “market power and dividend policy”. They focused on how and why firm’s product market power influences the dividend policy. The study used Lerner index to explore how an enterprise product market power influences the dividend policy. Research results declared that market power positive influences dividend decision in terms of dividend payout likelihood and value. Further, according to some evidences, business risk-based market power may affect dividends decision: less market power enterprises are risky; hence, it is less probably to pay out dividends. The results present that product market power may significantly contribute in reforming dividend policy of large American corporates.

Datta et al (2013) scrutinized the relationship between market power, industry structure, and corporate profit management from 1987 to 2009. In this research, i. the relationships between product market pricing power and dividend management level, and ii. The industry competitiveness and the dividend management level were hypothesized. According to the research findings, firm product market power shows an inverse relationship with discretionary accruals management. Moreover, the results are also consistent with the theory that low product market power increases the probability of yield management; while, it is unlikely in companies enjoying more powerful product market. In addition, intense competition makes executives limit information exposure to rivals. Revenues reported by companies enjoying less pricing power and higher competitiveness are more exposed to income manipulation than companies with higher pricing power and less competitiveness.

Kale and Loon (2011) surveyed the effect of product market power on stock market liquidity. They concluded that market power increases stock liquidity as it declines fluctuations in returns. It implies that high-powered product market firms have the benefit of more stable cash flows; further, the stability results in increased price and stock value; and finally, stock market higher liquidity. It is worth to notify that the finding is obtained for market power liquidity and stable fluctuations using various criteria.

Research hypotheses

According to the research theoretical foundations and background, the following hypotheses are stated:

Hypothesis 1: There is a significant relationship between product market power and firm dividend policy.

Hypothesis 2: There is a significant relationship between product market power and firms dividends.

Research methodology

The present research statistical population included all companies listed in Tehran stock exchange in eight industries (automotive and parts industry, pharmaceutical, chemicals, food industry excluding sugar, basic metals, sugar, tiles, and textiles). Inclusion criteria of research samples are as follows:

1. The firm has been listed in Tehran stock exchange during understudied period and has paid out the dividends over the last 6 years.
2. No activity or financial period change in understudied period.
3. Not of active financial enterprises including investment companies, banks, insurance, and financial institutions.
4. Data of understudied period (from 2011-2016) are available.
5. Fiscal years are ended by the year for panel data.

According to the aforementioned, 83 companies were selected as research sample within 2011-2016. Totally, 498 observations (year-firm) were tested.

Research variables

Independent variable

Market power

Market power is measured using Lerner index. It equals firm products prices minus production marginal costs. The index directly represents market power feature i.e. the firm ability to determine a price exceeding marginal cost (Namazi and Ibrahim, 2012; 15). Experimental studies using Lerner index have difficulty with invisible (unseen) marginal costs. Therefore, scholars estimate Lerner index through margin cost price (Booth and Zhou, 2009). According to the existing literature, product market pricing power is obtained using adjusted Lerner index as follows (marginal price):

$$(3.4) \quad \text{PCM} = \text{LI} = \frac{(\text{Sales} - \text{COGS} - \text{SG\&A})}{\text{Sales}}$$

Where, PCM or LI represents profit margin or Lerner index, Sales is the firm sale, COGS shows cost of goods sold, and SG&A is sales, general, and administrative costs.

However, Lerner index has been used to determine firm product market power; it may not distinguish firm particular characteristics like the effect of product market pricing power from industry level factors.

Thus, like Sharma (2010), Peress (2010), Gosper and Massa (2006), adjusted Lerner index is used in this study to obtain firm product market power as follows (Datta et al, 2013):

$$(3-5) \quad \text{Market Power} = LI_{IA} = LI_i - \frac{LI_i}{\sum_{i=1}^N \omega_i} LI_i$$

Where, LIIA represents industry-based adjusted Lerner index, LI is Lerner index for company i, ω_i shows firm i sales to the industry total sales ratio. N symbolizes total current firms in the industry.

Dependent variable

Dividend policy (DIV)

It is a dependent variable referring to dividend payout methods in cash or stock dividend. The present paper measures dividend policy using dividend per share ratio to market price per share.

$$(3) \quad \frac{\text{dividend per share}}{\text{Price per share}} = \text{DIC}$$

In order to test the hypotheses, if the company pays the dividend out, the variable equals one; otherwise zero. Therefore, since the dependent variable is zero-one nominal variable, the hypotheses are tested using logistic regression.

Dividend payout ratio (DPR)

It is obtained by dividend percentage index as follows.

DPS: dividend per share

EPS: Earnings per share

$$\text{DPR} = \frac{\text{DPS}}{\text{EPS}} * 100 \quad (4)$$

Dividend payout ratio i, t (DPR_{i, t}) equals total dividend ratio to total assets. The hypotheses are tested through multivariate regression.

Control variables

To control other variables, which influence research analysis, required control variables were determined respecting literature review. The research control variables include:

Firm SIZE

It is obtained by total assets natural logarithm.

$$(5) \quad \text{SIZE} = \text{LN} (\text{Assets})$$

Return on Asset

According to the majority of shareholders, profitability is the most significant factor of a firm dominance. Larger ROA indicates access to more resources to distribute firm cash; hence, it is expected that there is a positive relationship between profitability, dividend payout, and ROA.

The variable is estimated by dividing net earnings after tax on total asset.

$$*100 \quad (6) \quad \text{ROA} = \frac{\text{Net Earnings after Tax}}{\text{Total Asset}}$$

Growth opportunities (GO)

It shows a firm prospective growth potential in terms of investment efficiency by the firm. The variable is quantified here through market value ratio to book value of the equity (M/B).

$$MB_{i,t} = \frac{M_{i,t}}{B_{i,t}} \quad (7)$$

Where

$MB_{i,t}$ = growth opportunities for firm i at time t;

$M_{i,t}$ = common stock market capitalization for firm i at time t; common stock market capitalization is obtained by multiplying market stock price to the firm number of shares.

$B_{i,t}$ = book value of the equity for the firm i at time t.

Retained earnings (RE)

It is measured using dividing retained earnings on the total assets.

Research models

To test the research hypotheses, two models are fitted as follows:

$$(equation1) \quad DP_{i,t} = \beta_0 + \beta_1 MP_{i,t-1} + \beta_3 SIZ_{i,t-1} + \beta_4 PR_{i,t-1} + \beta_5 GO_{i,t-1} + \beta_6 RE_{i,t-1} + \varepsilon_{i,t}$$

$$(equation2) \quad DPR_{i,t} = \beta_0 + \beta_1 MP_{i,t-1} + \beta_3 SIZ_{i,t-1} + \beta_4 PR_{i,t-1} + \beta_5 GO_{i,t-1} + \beta_6 RE_{i,t-1} + \varepsilon_{i,t}$$

Where,

β_0 : regression constant

$DP_{i,t}$ = Firm i dividend policy at year t.

$DPR_{i,t}$ = Firm i dividend at year t.

$MP_{i,t-1}$ = Firm i market power at year t-1.

$SIZ_{i,t-1}$ = Firm i size at year t-1.

$PR_{i,t-1}$ = Firm i profitability (ROA) at year t-1.

$GO_{i,t-1}$ = Firm i growth opportunities at year t-1.

$RE_{i,t-1}$ = Firm i retained earnings at year t-1.

ε_i : Estimation error

Research findings

Descriptive results of research main and control variables are reported in Table 1.

Table 1: Research variables descriptive statistics

Research variables		Observations (number)	Mean	Standard deviation	Max	Min
Market power	MP	498	0.044	0.739	1.000	0.000
Dividend		498	0.090	0.797	1.680	0.000
Firm size	SIZ	498	1.500	13.934	18.455	10.227
Profitability	PR	498	0.103	2.236	6.407	0.557
Growth opportunities	GO	498	0.961	2.269	4.766	1.276
Retained earnings	RE	498	0.070	2.201	4.898	0.178

Research hypotheses test results

Research first model

As dividend policy as dependent variable is a binary variables at the research first model; thus, the model goodness of fit is obtained using Logit regression method.

According to the results seen in Table 2, variables positive (negative) coefficients uncover a direct (indirect/inverse) relationship with dividend policy. Given the likelihood (LR) ratio statistics (269/353) and regarding estimation error (0.000), it may be claimed that “the regression fitted with research model using Logit method is significant”. According to McFadden coefficient of determination (McFadden’s $R^2 = 0.587$), it is deduced that the fitted model can be highly explained. To explore Logit model goodness of fit, Hasmer-Lemshow and Andrews tests were utilized. Hasmer-Lemshow statistic and Andrews statistic values were obtained 45.868 and 2.444, respectively. According to corresponding significance of the two tests 0.485, it is declared that the first research model criterion can be highly explained. VIF related to each independent variable is less than 5; thus, it is excluded from co-linearity model. In addition, according Z statistic reported per independent variable and the corresponding significance level, the following results are achieved. As Z statistic of firm market power is 3.105 at significance 0.002, which is smaller than 0.05; hence, it may be expressed that “there is a significant relationship between firm market power and dividend policy” at confidence level 95%. Furthermore, as seen in Table 2, market power variable coefficient parameter is estimated 0.388 and positive, which is significant at 0.002 and less than the 0.05 prediction error; so, independent variable significance is maintained. On that account, there is seen a positive significant relationship between market power and dividend policy. Control variables results also demonstrate that there is a positive significant relationship between firm size, profitability, growth opportunity, and retained earnings with dividend policy.

Table 2: The first research model goodness of fit results

Dependent variable: Dividend policy									
Model fitness method: Logistic regression									
Variable		Parameter estimation	Standard deviation	Z statistic	P-value (Significance)	VIF Co-linearity index	LR statistic	P-value (significance)	
Regression constant	C	-1.541	1.597	-0.965	0.335	2.17	269.353	0.000	
Firm market power	MP	0.388	0.125	3.105	0.002	3.26			
Firm size	SIZ	0.107	0.112	0.958	0.338	2.88			
Profitability	PR	5.758	1.273	4.546	0.000	3.93			
Growth opportunity	GO	0.000	0.000	0.839	0.401	4.54			
Retained earnings	RE	34.853	8.538	4.082	0.000	3.36			
McFadden coefficient of determination (R^2)		0.587							

Prediction accuracy (%)	86.44	
Hasmer-Lemshow statistic	45.868	(significance) P-value
Andrews statistic	2.444	0.485

Research second model

F Limer test is used to use panel data against pool data method (normal regression) for proper model fitting. F Limer test results for the research model are represented in Table 3.

Table 3: F Limer test results for the second research mdoel

Result (fitted model)	P-value	df	F statistic
Panel data model	0.000	84.409	26.5999

To study the priority of constant and random effect models, Hausman test was used. The results of Hausman test are provided in Table 4.

Table 4: Hausman test results for the second research model

Result (fitted model)	P-value	df	R ² statistic
Model with random effects	0.970	6	1.335

As Hausman test p-value is larger than 5%; thus, the research model is estimated using random effect panel data method.

According to the results observed in Table 5, the variables positive (negative) coefficients imply a direct (inverse) relationship with dividend. Regarding F statistic (3.892) and error level (0.000), it can be claimed that “the fitted regression by random effects panel least squares regression method is significant”. Further, as R²= 0.473, it is inferred that the fitted model shows highly explanatory. Regarding the model adjusted R squares 43%, it can be asserted that research independent and control variables totally explain over 43% of changes in the dependent variable. Moreover, Durbin-Watson statistic 2.116 shows that the model lacks any residual autocorrelations. VIF of any independent variable is less than 5 indicating that there is no co-linearity in the model. In addition, regarding t-statistic reported per independent variable and the corresponding significance level, it is concluded that given market power t-student statistic is 3.554 at significance level 0.000, which is less than 0,05, “there is a significant relationship between market power and dividend) at confidence level 95%. Similarly, as seen in Table 5, market power coefficient parameter is estimated 0.043 and positive, which is significant at 0.000; as it is less than prediction error 0.05, hence, independent variable significance is maintained. As a result, there is a significant relationship between market

power and dividend. Control variables associated results also uncover a positive significant relationship between firm size, profitability, and retained earnings with dividend. Indeed, it can be asserted that firm market power significantly varies in firms with different dividend policies.

Table 5: The second research model goodness of fit results

Dependent variable: Dividend									
Model fitting method: random effects paneled least squares regression									
Variable		Parameter estimation	Standard deviation	Z statistic	P-value	VIF Co-linearity index	LR statistic	P-value	
Regression constant	C	0.160	0.604	0.265	0.791	1.37	3.892	0.000	
Firm market power	MP	0.043	0.001	3.554	0.000	2.14			
Firm size	SIZ	0.045	0.046	0.985	0.339	2.73			
Profitability	PR	0.002	0.004	0.590	0.556	3.12			
Growth opportunity	GO	0.000	0.000	-2.457	0.014	4.03			
Retained earnings	RE	0.008	0.005	1.512	0.131	3.48			
Coefficient of determination (R^2)		0.473							
Adjusted coefficient of determination (R^2_{adj})		0.430		Durbin-Watson statistic		2.116			

Discussion and conclusion

The present research studied the relationship between product power market and dividend policy among companies listed in Tehran stock exchange. The first hypothesis test showed that “there is a significant relationship between market power and dividend policy”. According to the findings, market power influences dividend policy in companies listed in Tehran stock exchange. Power refers to the enterprise economic potential (ability) to constantly maintain its shares at international markets or increase the market shares. It is often argued that the higher the market share is, the firm achieves more success. In case of increased business competitors, a company faces more rivals to achieve sales share and finance; hence, it has to compete with more companies to meet the requirements. As a result, the more the number of rivals is larger in an industry, the higher the competition would be. Thus, product market competition significantly influences dividend policy among companies listed in Tehran stock exchange. These findings are consistent with Booth and Zhou (2015), Movahed majd (2013), Meshki

miyavoghi and Deliriyan (2015); while, inconsistent with Khodadai, Nikkar, and Rashidi baghi (2014).

Accordingly, second hypothesis result also demonstrated that “there is a significant relationship between market power and dividends”. Therefore, it is deduced that the more the companies listed in Tehran stock exchange are strong competitor, the higher the dividends are. In other word, market dominant firms decide on whether distribute the profit or not. Therefore, product market competition significantly affects dividends in companies listed in Tehran stock exchange. Firms’ dividend is an effective factor of prospective investment, on one hand. It decreases national resources and increases the need to foreign financial resources. Most shareholders prefer cash dividends, on the other hand. Thus, executives should always balance shareholders’ various interests and profitable investment opportunities to maximize shareholders’ wealth. It is relevant with Booth and Zhou (2015), Sadraei javaheri and Hadizadegan (2014), and Amirgholipour (2014); while, it is inconsistent with Sheysiyan (2014).

Recommendations

1. According to the significant relationship between market power and dividend policy, shareholders, investors and analysts are suggested to consider product market power as a factor leading to improved financial report quality in analyzing firms’ financial reporting and evaluating the reports’ earnings management.
2. Regarding the significant relationship between market power and dividends, it is concluded that the more the market power increases, the higher the profit rate as well as firm share raise. Therefore, investors and market analysts are recommended to observe market power for fundamental analysis and firm stock pricing approaches.
3. Tehran stock exchange is suggested to oblige companies to provide relevant, comprehensive and timely reports. It may facilitate decision-making process for shareholders and investors.

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