

## Stock Market Liquidity, Firm Characteristics and Dividend Payout

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**Abstract:** Firms have two choices about earning: paying out as a dividend, or reinvestment as a retained earnings. In a market without any restrictions on trading, rational investors with liquidity needs can choose between dividend and selling stocks at no cost. In this article the relationship between turnover, considering free float as liquidity criterion, and the amount of dividend payout is investigated and the firm characteristics including size, profitability and growth opportunities are controlled. The result of the linear regression model shows that the investors in Tehran Stock Exchange (TSE) do not consider stock turnover rate as a variable which explains the amount of dividend. Also, the relationship between size and growth opportunities with dividend has not been confirmed; but profitability has a positive significant relationship with dividend. On the other hand, investors in TSE use the profitability as a criterion to determine the dividend.

[Seyedali Seyedkhhosroshahi, Amirmahdi Sabaei, Parisa Vatankhah. **Stock Market Liquidity, Firm Characteristics and Dividend Payout.** *Life Sci J* 2013;10(11s): 46-51] (ISSN:1097-8135). <http://www.lifesciencesite.com>. 8

**Keywords:** Dividend Payout, Trading Volume, Free Float Stock, Firm Characteristics

### 1. Introduction

Three fundamental concepts could be considered as the main layers of “Corporate Finance”: Investment, Financing and dividend; and the main objective in corporate finance theory is to maximize the firm value. “Investment” determines that how the firm could allocate its resources, “financing”, defines the combination of the required resources for investment and “Dividend”, answers to the question that how much should be paid to stockholders. If there is no investment opportunity for firm with a return rate higher than the required return, profit would be paid to the owners (Damodaran, 2010, p. 616).

Due to being objective and tangible, dividend is of vital importance to stockholders as one of the sources of liquidity. Managers attach great importance to the matter, thus part of their attention is focused on the issue of “Dividend policy”, though the primary problem, is to find the reasons of adoption a dividend policy by the firms.

If stock price rises, in the time of dividend increase, and falls, in the time of dividend cut, do market participants say that this price reaction is a proof of importance of dividend? It should be taken into account that firms have reluctance to cut their dividends. Thus dividend cut is mostly a symptom of existence of a problem in the firm. In addition, dividend cut is not usually a planned change in dividend policy, but mostly sends the signal that the firm management imagines the current dividend policy would not be continuous. As a result, the expectations of future dividends of firm should be downwardly adjusted. Present value of expected

dividends decreases and stock price falls (Ross, Weserfeld & Jordan, 2010, p.641).

There is no wonder that firms often match their dividend policy with the firm life cycle. For example firms with high growth and many investment opportunities, do not pay much dividend, while stable firms with high cash flows and less projects, are willing to pay more dividends (Damodaran, 2010, p. 619).

In a market with no trading friction, rational investors with the need of liquidity can choose between selling stocks or have a dividend; while in markets with trading limitations, dividend stocks provide stockholders with the option that if there is any need for cash, they avoid trading costs. Thus stockholders with need for liquidity may prefer dividend stocks. This performance has direct relationship with the level of trading limitations. The more (less) trading limitations, the more (less) need for dividend (Banerjee, Gatchev & Spindt, 2007).

### 2. Research Question and Hypothesis

The main question of the research is that if the turnover of a firm stock in market has any impact on dividend or not? In other words, is the impact on dividend policy significant? Thus the research hypothesis is considered as follow:

“There is significant relationship between turnover and the amount of dividend”.

Control variables which are referred as firm characteristics include size, profitability and growth opportunities.

### 3. Research Literature

Existing literature on dividend demonstrates that equity market liquidity has both cross-sectional and time-series impact on firm valuation. Firms with no dividend, have higher investment rate, more research & development plans and as a result, higher MV/BV (market value to book value) in comparison with dividend firms. In this research, the relationship between turnover, considering free float as liquidity criterion, and the amount of dividend, controlling firm characteristics including size, profitability and growth opportunities has been evaluated.

Stock return of firms which pay no dividend for a while and begin to pay dividend, is less sensitive to liquidity. In fact it could be said that investors in evaluating a firm, consider dividend and liquidity as alternatives of each other (pastor and Stambaugh, 2003).

Baker and Wurgler (2004) state that dividend payout is determined by investor's demand, and the percentage of firms which initiate to pay or omit dividend depends on dividend premium (the difference between current price of dividend payer and no-dividend firms). They tested their hypothesis by four criteria, based on stock price and showed that when the demand for dividend is high, no-dividend firms begin to pay dividend. Some criteria also showed that when the demand for dividend is low, dividend payer firms are willing to omit dividend.

Beiner (2001) conducted a research, titled "Theories and effective factors on dividend policy", on a sample of 135 Swiss firms. He evaluated four factors of financial leverage, size, investment opportunities and last year dividend, as independent variables. Based on results of analysis of multivariable regression he concluded that:

1. The amount of dividend in firms depends on the return of last year dividend;
2. When there are investment opportunities, firms pay few dividends;
3. Financial leverage of firms is another factor which is important in dividend policy;
4. Firm size has negative impact on dividend policy. In other words, larger firms have larger debts, because creditors have more confidence in larger firms. Thus larger firms pay fewer dividends in order to have less debt.

Cross sectional review of Banerjee, et.al (2007) showed that stockholders with less (more) liquidity, have more (less) willing to receive dividend. On the other hand, over the time, considerable liquidity increase in U.S equity market has led to firm willing to cut dividend. They found that market liquidity of last years, is a key factor in either pay dividend or not. also the validity of capability of forecasting of model which control market liquidity in comparison

with model that do not control liquidity, is higher for dividend firms. For no dividend firms, market liquidity has no economic power to justify lack of paying dividend.

They also entered firms' characteristics including profitability, size and growth opportunities in their model. profitability as earnings before extraordinary items to total assets, size as the percentage of total firms equal or less than the firm and finally, growth opportunities as current value of assets divided by book value of assets were defined. Recent definition of growth opportunities is stated as book value of assets minus book value of equity plus the product of stock price in number of issued stocks divided by book value of assets. Results of this section of research also showed that dividend percentage has reverse relationship with growth opportunities and direct relationship with profitability and size.

Fama & French (2001) showed that the percentage of dividend payer firms reduces from 66.5% in year 1978 to 20.8% in year 1999. They confirmed the effect of three characteristics on dividend by logit regression. These characteristics include size, profitability and growth opportunities. Profitability indicator is earning before interest and tax divided by total assets. The firm size is equal to the percentage of total firms with equal or less market value than the firm. Finally, growth opportunities are measured by two criteria of asset growth rate and the ratio of market value to book value of assets. To them, firms which invest with higher rate, pay more for research and development and have higher market value to book value of assets, pay less or no dividend in comparison with other firms. In fact, firms which have never paid dividend, have more growth opportunities than other firms and dividend payers are 10 times bigger than no dividend firms.

With respect to pastor and stambaugh (2003) research, stocks return of firms which initiate to pay dividend, have less sensitivity to liquidity. This suggests that investors pay attention to dividend and liquidity, when evaluating the firms.

Fama & French (2002) researches confirm that firms with high profitability and less growth opportunities have higher dividend ratio.

Brave, et.al (2005) research suggests that when managers make decision about dividend cut, pay attention to market liquidity.

Ghorbani (2009) in order to examine the relationship between stock liquidity and dividend policy used cross sectional regression for a period of six years. He considered liquidity as the ratio of trading days of stock to trading days of market and also trading stocks to issued stocks. Also dividend policy was defined as dividend to earning per share. The research suggests a positive and significant

relationship between stock liquidity and dividend policy.

Saeidi and Behnam (2010) studied 11 factors in order to examine dividend policy. the variables include firm leverage, previous year dividend, existence of investment opportunities, cash flow from firm operational activities, expected profit of next year, average dividend of rivals, inflation rate, free float, average profit growth rate of last five years and earnings per share among which the significant relationship of these factors was confirmed: firm size, previous year dividend, investment opportunities, next year expected profit and inflation rate and for other variables was not confirmed.

Mehrani (2005) designed a model in order to determine the relationship between dividend, earning per share and investment. His analysis was done in two levels: firms (time-series) and compound data (all firms). In firm level analysis, the relationship between dividend, earning per share and expected profit was confirmed and in compound data level, profit, dividend and investment were confirmed.

Jahankhani and Ghorbani (2006) gathered required data of 63 firms for a period of six years in order to identify and explain determining factors of dividend policy. Results demonstrate that firm's dividend policy follows a random walk pattern. With respect to massaging theory, it is expected that if a firm has a high (low) growth, its dividend return is also high (low). Size, investment opportunities, financial structure, risk and financial leverage are other factors which have role in dividend policy of stock market firms.

A research titled "The relationship between dividend policy and corporate governance" in Tehran Stock Exchange has been done by Fakhari and Yousefitabar (2006). They divided corporate governance indicator into eight category named disclosure, business ethics, education, Compliance with legal requirements, auditing, ownership, board of directors structure, asset management and liquidity. Findings suggest that stock market firms use dividend to obtain fame and validity and contrary to significant relationship between corporate governance and dividend, corporate governance has low impact on dividend.

#### 4. Research Methodology

##### 4.1. Sample Selection and Data Description

Spatial domain of research (statistical population) in the research is all Tehran Stock Exchange firms from 2005 to 2011. Delisted firms, firms transferred to informal panel and investment companies were eliminated from population. Also firms which were hold by other Tehran Stock Exchange firms were omitted. The reason is that major stockholders have

impact on turnover and dividend policy through sub firms, thus in order to control, these category of firms have been filtered. Also firms with no operational profit in a year have been omitted for that year. Finally the research sample includes 145 firms. In order to gather required quantitative data including market value, free float, profit, assets and others, Tehran Stock Exchange website, Tehran Stock Exchange data base and CODAL network were used.

#### 5. Variables in the Regression Model

Dividend percentage ( $DIVP_{it}$ ): Dividend percentage is calculated as paid dividend to net profit. According to law, firms with profit are required to pay at least 10% of profit; Of course if the firm has cumulative loss, till it is not compensated, should not pay any dividend. As a result, a firm which paid dividend is considered as dividend firm.

Turnover ( $TURN_{it}$ ): With respect to Banerjee, et.al (2007) a firm stock turnover, from theoretical and experimental point of view, is a good indicator to evaluate stock liquidity. This variable is considered as traded stocks to total issued stocks in year t. This method has been used by Dater, Nick and Radchif and Cordia, Sabraham and Anshuman. Regarding special features of Iran capital market, it seems that using free float is more suitable than total issued stocks. Thus the variable of turnover is calculated as traded stocks during a year to free float stock. If during different years Stock Exchange Organization has declared several free float for firms, average is used to calculate free float.

Size ( $TSEP_{it}$ ): For year t and firm i, firm size indicator is equal to the percentage of Tehran Stock Exchange firms with less value than market value of firm i. Market value of firm i, in year t, is stock price multiply number of stocks at the end of September in year t. This criterion in Fama & French research (Fama & French, 2001) and also in Banerjee, et.al research (Banerjee, Catcher & Spindt, 2001) is used which suggest better efficiency in comparison with previous criteria such as asset logarithm, market value and firm revenue.

Profitability ( $E_t/A_t$ ): Firms profitability criterion is defined as earning before interest and tax to total assets. using net profit could lead to two problems: first, non-operational profit would be included and second, in formula, dividend term, net profit has been used that could increase the probability of collinearity in model.

Growth opportunities ( $V_t/A_t$ ): Growth opportunities variable according to literature and fama & French and Banerjee, et.al researches is defined as current value of equity divided by book value of total assets. In other words:

$$\frac{\text{book value of assets} - \text{book value of equity capital} + (\text{stock price} \times \text{number of issued stocks})}{\text{book value of assets}}$$

This research is categorized in empirical researches and also is an ex-post facto research which has been done through observational data analysis. To obtain research results via referred variables in last section, multivariable linear model has been used. As is obvious in above model, data is panel and observations are firm-year. Dummy variable has been used to avoid the adverse effect of residuals with standard deviation more than 80 units, so that if residual is more than 80 units, dummy variable is equal to 1, otherwise 0. After it became clear that

"Panel regression model" is preferred to "Pooled regression model", efficiency of models of constant and random effect was compared. Then via "stepwise regression", sequence of the entrance of variables was determined and at the end, the final model was evaluated and analyzed.

*5.1. Empirical Evidences*

Regarding the model mentioned in previous section, the results are as table 1 and following equation:

$$DIVP = 73.825 - 0.003TURN - 0.135TSEP + 0.385PROFIT + 0.019GROWTH + 109.149DUM$$

<b>Least square regression model</b>				
<b>samples from 2005 to 2011 and include 145 firms</b>				
<b>Total observations in unbalanced panel:876</b>				
<b>elbairav</b>	<b>tneiciffeoc</b>	<b>Std. Error</b>	<b>t-statistics</b>	<b>Prob</b>
DIVP <sub>it</sub>	73.82	7.80	9.46	0.0000
TURN <sub>it</sub>	-0.003	0.30	-0.12	0.9048
TSEP <sub>it</sub>	-0.13	0.14	-0.97	0.3295
E <sub>it</sub> /A <sub>it</sub>	0.35	0.13	2.70	0.0071
V <sub>it</sub> /A <sub>it</sub>	0.02	0.01	1.23	0.2176
Dum <sub>it</sub>	109.14	8.92	12.23	0.0000
<b>constant cross-sectional effects with dummy variable</b>				
R-squared	0.466	Mean dependent	74.373	
Adjusted R-	0.357	S.D. dependent var	33.088	
S.E. of regression	26.532	Akaike info	9.550	
Sum squared resid	511055	Schwarz criterion	10.367	
Log likelihood	-4032	Hannan-Quinn	9.862	
F-statistic	4.261	Durbin-Watson stat	2.045	
Prob(F-statistic)	0.0000			

**Table 1 -Regression output with constant effects**

Table (1) shows that only profitability variable has positive significant relationship with dividend and other variables, regardless of their sign, the relationship with dependent variable is not significant. The coefficient of determination is more than 46% that demonstrates the explanatory power of the model. Also adjusted coefficient of determination of model is 37.5%. With respect to F statistic (Fisher) and p-value, significance of total model is confirmed. The average of percentage of dividend ratio for sample firms is 74.4% with 33% standard deviation. Durbin-Watson statistic for model is 2.045 which suggests that there is no evidence of autocorrelation.

With applying the property of "constant effects" in regression model, the test results are as follows:

<b>constant effects test</b>			
<b>effects test</b>	<b>Statistic</b>	<b>degree of freedom</b>	<b>prob</b>
Cross-section F	2.548	-144726	0.0000
Cross-section Chi-square	358.364	144	0.0000

**Table 2 -Constant effects test**

In order to review the performance of constant and random effect models, Hausman test was used. Table 3 shows the results of Hausman test.

<b>Husman test</b>			
<b>Test summary</b>	<b>Chi-square</b>	<b>degree of freedom</b>	<b>prob</b>
Cross-section F	14.157	5	0.0146

**Table 3 -Hausman test**

As p-value of Hausman test is less than 5%, random effect model could not be chosen and constant effects model is preferred. According to this conclusion, "panel regression model with constants effects" is suitable for research.

In this research using increasing stepwise regression, sequence of entrance of variables, with respect to p-value=0.05 is determined. It should be noted that the main variable of research (turnover) and control variables (size, profitability and growth opportunities), were considered as constant variables. Thus regression results have been shown in table 4. As it shows, profitability (PROFIT) and size (TSEP) variables have been entered in regression respectively, while other variables have not been entered. The coefficient of determination is nearly 0.18 and the significance of total regression is confirmed.

Number of always included regressors: 2

Number of search regressors: 4

Selection method: Stepwise forwards

Stopping criterion: p-value forwards/backwards = 0.05/0.05

<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.*</b>
C	54.06509	3.017908	17.91475	0.0000
DUM	111.4087	9.080272	12.26932	0.0000
PROFIT	0.599146	0.099694	6.009831	0.0000
TSEP	0.144852	0.045790	3.163414	0.0016
R-squared	0.181070	Mean dependent var		74.59517
Adjusted R-squared	0.178259	S.D. dependent var		34.25642
S.E. of regression	31.05341	Akaike info criterion		9.713840
Sum squared resid	842810.7	Schwarz criterion		9.735606
Log likelihood	-4260.376	Hannan-Quinn criter.		9.722164
F-statistic	64.41556	Durbin-Watson stat		1.482899
Prob(F-statistic)	0.000000			

#### **Selection Summary**

Added PROFIT

Added TSEP

**Table 4 -Stepwise regression model results with increasing method**

Also using corrective methods of white cross-section and White period separately and comparing with each other, it is concluded that the coefficients would not be changed, while p-value would reduce a little.

One of the main questions of the research is that if dividend could explain stock turnover rate? In other words what would be the results, if the position of main and dependent variables are exchanged? The result of this regression shows that there is no significant relationship and independent variable (dividend) has p-value of 0.96. Also Durbin-Watson statistic suggests that there is serial autocorrelation. Thus it could be concluded that dividend cannot explain stock turnover rate properly.

Dividend policy is one of the crucial subjects in finance; and for many firms dividend is an output cash flow. In other words, decision making on dividend, is a considerable matter in corporate finance; because in decision-making, it is determined that how much money should be paid to investors and how much should be reinvested. In this research the relationship between turnover, regarding free float as liquidity indicator, and paid dividend, controlling firm characteristics including size, profitability and growth opportunities were examined. Also the research hypothesis is defined as follows: "There is significant relationship between turnover and the amount of dividend". After running the model, these results were obtained:

## **6. Summary and Conclusion**



$$\text{DIVP} = 73.825 - 0.003\text{TURN} - 0.135\text{TSEP} + 0.385\text{PROFIT} + 0.019\text{GROWTH} + 109.149 \times \text{DUM}$$

(9.4596)    (-0.1196)    (-0.9758)    (2.6999)    (1.2340)    (12.2330)

With respect to coefficients and t-tests, contrary to existence of negative relationship between dividend and stock turnover rate (according to exist literature in this context), there is no evidence to confirm the significant relationship between these two variables. It demonstrates that investors in Tehran Stock Exchange do not take into account the stock turnover rate factor (the trading stock divided by free float during a year). In fact it is acknowledged that a market where profitable firms pay about 75% of their profit in average, in most cases, no one pay attention to board of directors suggestion about dividend. This caused a negative relationship between dividend and turnover, though the relationship is not significant. Firm characteristics including size, profitability and growth opportunities, have evaluated. Evidence

shows size has negative and insignificant; and growth opportunities have positive and significant relationship with dividend, while profitability has positive and significant relationship. In fact profitability is the only factor among firm characteristics which has impact on dividend and stockholders have no attention to firm size and growth opportunities. The maximum dividend policy in many TSE firms suggests that most investors pay little attention to firm performance and regardless of the effective and important parameters on dividend, decide to pay more dividends. Fama & French researches, and Banerjee, et.al who also used these variables, showed results which could be observed in table 5.

**Table 5 -comparing the research results with other researches**

	<i>This research</i>	<i>Fama &amp; French researches</i>	<i>Banerjee, et.al researches</i>
<i>Stock turnover rate</i>	<i>negative and insignificant</i>	<i>Not evaluated</i>	<i>negative and significant</i>
<i>Size</i>	<i>negative and insignificant</i>	<i>positive and significant</i>	<i>positive and significant</i>
<i>Profitability</i>	<i>positive and significant</i>	<i>positive and significant</i>	<i>positive and significant</i>
<i>Growth opportunities</i>	<i>positive and insignificant</i>	<i>negative and significant</i>	<i>negative and significant</i>

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10/5/2013