

The Relationship between Financial Flexibility and Dividend Policies in the Companies Listed in Tehran Stock Exchange between 2006 and 2009

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Abstract

This study is an attempt to assess the relationship between financial flexibility theory and dividend policies in the companies listed in Tehran Stock Exchange between 2006 and 2009. If management wants to provide the funds required for investment in companies' projects through enhancing financial flexibility, it must ensure the profitability of these projects for stockholders. In the present study, hypothesis testing is done in two sections. In the first section, mean difference between various groups is examined using sectional data, SPSS, T-test, Kruskal Wallis, and Wilcoxon test. In the second section, hypotheses were tested using panel data, Eviews, least squares regression, and fixed effects approach. In sum, results of the first section indicate that dividend is lower in the periods of stock market price. It was also determined that companies with less stock have further dividend payout regardless of the status of stock market. In addition, it was shown that companies with higher dividend have further return on stock at the time when market price is reduced. Results indicate a negative relationship between the sustainable growth rate of companies and the amount of dividend. However, no evidence was obtained regarding the relationship between non-systematic risk and dividend. Based on the results of the second section and using panel data, indirect relationship between systematic risk and sustainable growth rate and direct relationship between assets and dividend ratio were approved. No significant relationship was observed with corporate size. Results indicate that there will be a direct relationship between risk and ratio of dividend payout when return on assets is more than the rate of sustainable growth. In general, results of this study approve and correspond to the theory of financial flexibility and dividend policies.

Keywords: Dividend Policies, Financial Flexibility, Return on Assets, Stock Market Price Change Periods

Introduction:

Dividend policies are among the challenging issues of financial sciences drawn considerable attention. Perhaps, the significance of dividend policies can be attributed to the expansion of groups related to this phenomenon in one way or another. Generally, these involved groups include stockholders, investors, and managers. Stockholders can generally receive profit in two ways. These two are dividend and return on capital. If we ignore tax factor, the reception of dividend to return on capital will be more desirable for investors. This is because dividend does not include trade-off costs together with return in capital.

Dividend policies can also be important to stock brokers. This is because dividend is considered to be one of the main tenets affecting the evaluation of stock price. Cash dividend is the first evaluation factor in cash-flow-based discount models used by stock market brokers. Again, dividend can affect capital structure and companies' stock risk. Both will finally affect stock market value (Talanah & Shemirani, 2011).

On the other hand, dividend policies are also important to managers. Stockholders' pressure for further dividend and also market reactions to dividend policies which can be observed in stock price changes are among the managers' considerations in adopting dividend policies. In financial managers' surveys in Europe and America including issues like the costs of capital, budgeting, and capital structure, it was determined that the main criterion which managers tend to obtain and maintain is financial flexibility (Mito, 2004).

Using studies previously done by Di'Angelo and Di'Angelo (2006), Blaw and Fuller (2008) present financial flexibility theory. They state that policies adopted by managers regarding dividend are resulted from the balance between stock price considerations and tendency to financial flexibility. This is because in case of dividend reduction, further financial resources will be accessible for them. Then, they can provide their desirable investments. Again, in case of the lack of suitable investment projects in the company, stockholders will try to reduce resources accessible for managers.

Statement of the Problem:

Despite numerous studies and research regarding how to divide profit by companies and identifying factors affecting it, today, it has still remained as one of the challenging and unresolved issues in the field of financial sciences. In adopting appropriate dividend policies, management always encounters the issue that if cash exits the company due to cash dividend, it will definitely problematic for the provision of financial resources necessary for required investments.

Solutions provided for management can include the provision of required cash by means of increasing liabilities and/or increasing stockholders' capital again. If management wants to provide funds required for investment in company's projects by enhancing his flexibility, he must ensure the profitability of these projects for stockholders.

In the financial flexibility theory, it is supposed that stockholders are always pessimistic toward the projects presented by management. On the other hand, they are worried about cases where management considers investment opportunities to be profitable for his own personal good. In these cases, management tends to present projects to investors as he wants rather than as they really are. That is, he presents their expected interests as unreal (Blaw & Fuller, 2008).

Similarly, it seems that companies with higher sustainable growth also need further internal resources. They must do further investments to maintain their growth. Inspired by flexibility theory, Fu Li et al

(2010) have examined the relationship between dividend payout and growth rate. They state that companies with high growth need to reduce cash dividend. Then, they can maintain higher portion of income in the company and create conservative reserves. Yet, it is likely that companies with lower growth are those reached their growth perfection. At the time, they have created required conservative reserves.

Conditions with which management finally face will be as below: on one hand, if cash remains in the company, management will have appropriate flexibility so as to be able to invest in its desirable projects in future; even if stockholders are doubtful about the suitability of these projects.

Moreover, this company will not tolerate extra costs. Yet, not paying dividend will lead to the reduction of stock price. At the same time, if dividend is paid and management is inclined to enhance liabilities, he must prove the profitability of his desirable projects to stockholders; while they may not agree with management. A suitable dividend policy will be determined by management with respect to the above considerations.

Importance and Significance of the Study:

Generally, investors tend to invest in stock exchange due to the presence of advantages like permissible capital limit for investment, high ability to be cashed, higher return as compared to other similar markets. Return on these investments can be in terms of obtaining annual profit as cash dividend, obtaining return on stock, and/or a combination of both. But, cash dividend cost nothing, it is more desirable for investors. Again, some investors consider cash dividend as a measure for assessing and analyzing companies' financial status.

Numerous theories have been discussed regarding dividend so as to test the Miller and Modigliani theory of irrelevance. Yet, in general, there have been two dominant theories (free cash flows and signaling) before the presentation of financial flexibility theory. Although these two theories have contributed to the expansion of knowledge regarding how to divide profit, empirical tests have not been able to completely protect them. This is because some of the results obtained have provided evidence conflicting with the claims of respective hypotheses.

Signaling theory designed and developed by Miller and Rock (1985), Batachara (1979), and John and Williams (1985) states that since there are differences between managers and investors regarding information, managers are aware of company's future projects and investments and implicitly transmit the confidential information outside the company by paying cash dividend and/or, say, they send signal to the market. Although there have been findings approving this theory, its reversal has also been true.

Based on the results of Bonartzi (1997), dividend policies are further related to the past incomes rather than the future ones. Denis and Ozobov (2008) found out that cash dividend has been decreasing at global level. However, large and profitable companies still keep paying dividend. This focus on paying dividend among large companies questions signaling theory. This is because companies paid dividend have exactly need the signaling least.

Another dominant theory is free cash flow. Jonas (1986) and Easterbrook (1984) developed free cash flows theory using the concept of representative cost. Free cash flow includes the cash flow remained from projects done by positive net current value. Managers cannot definitely get committed to stockholders that these extra funds are invested in the projects with positive net current value. Hence, dividend policies can transmit information regarding how these funds are consumed in future.

Research Hypotheses based on Sectional Data:

- 1- In the periods of stock market price increase, dividend decreases.
- 2- In the periods of stock market price increase, companies with lower stock price have higher dividend.
- 3- In the periods of stock market price decrease, companies with lower stock price have higher dividend.
- 4- In the periods of stock market price decrease, companies with higher dividend will have higher return on stock.
- 5- In the periods of stock market price increase, companies with lower dividend will have higher return on stock.
- 6- Companies with higher non-systematic risk have lower dividend.
- 7- Companies with higher sustainable growth have lower dividend.

Research Hypotheses based on Panel Data

- 8- There is a significant relationship between systematic risk and the amount of dividend.
- 9- There is a significant relationship between sustainable growth and the amount of dividend.
- 10- There is a significant relationship between corporate size and the amount of dividend.
- 11- There is a significant relationship between return on assets and the amount of dividend.
- 12- There is a positive relationship between systematic risk and the amount of dividend in companies with a return on assets higher than sustainable growth.
- 13- There is a negative relationship between systematic risk and the amount of dividend in companies with a return on assets lower than sustainable growth.

Methodology:

The present study was an applied research. It examined the relationship between financial flexibility and dividend policies using historical data. It was done in two parts including sectional studies (H1 to H7) and panel studies (H8 to H13). The sectional studies were carried out using the analysis of the significant mean difference between various groups. In these studies, stratified data was applied. In this regard, the appropriate non-parametric tests were used. Panel data was analyzed using the least squares regression with fixed effects approach. The sectional data was examined using SPSS and panel data using Eviews.

The First Section of Hypothesis Testing using Sectional Data

Table 1: Descriptive data of variables used in hypothesis testing

variable	profit dividend	to ratio dividend payout	of sustainable growth rate	return on stock	non-systematic risk
Mean	0.1675	0.7878	0.1129	0.0061	0.0016

Median	0.1406	0.8125	0.0655	0	0.0005
SD	0.0989	0.2832	0.3139	0.0403	0.0036
Min	0.001	0.0556	-0.3098	-0.15	0.0001
Max	0.2345	3.125	5.7922	0.26	0.042

Kolmogorov-Smirnov test was used for each of independent variables.

Table 2: Kolmogorov-Smirnov test

	dividend payout ratio	dividend in stock price	return on stock
Kolmogorov-Smirnov Z	2.667	2.399	2.281
Sig. level (two ranges)	0.000	0.000	0.000

Judgment

As also mentioned earlier, H0 of this test indicated the normality of data distribution and H1 the non-normality of the data distribution. Z-statistic was obtained for each variable and the two-sided level of significance was determined <5% error limit. Hence, it can be concluded that H0 is rejected and the non-normality of data is approved for all three variables. Accordingly, hypotheses testing should also be done using non-parametric tests. Similarly, the sample size approves central limit proposition. Hence, it is also possible to compute parametric tests such as t-test. Based on Belao and Fuller model, the significance of at least two tests among the administered ones is required for approving and/or rejecting a hypothesis.

The First Section of Testing Sectional Data

H1

H1: Dividend is lower in the periods of stock market increase. The operational definition of H1 is as follow:

The operational definition of H1

$H_0: \mu_1 = \mu_2$ $H_1: \mu_1 > \mu_2$

μ_1 : Mean dividend in the periods of stock market price reduction.

μ_2 : Mean dividend in the periods of stock market price increase.

Table 3: H1 – examining the mean difference between dividend variables in the periods of stock price decrease and increase

variable	periods of stock market price reduction	periods of stock market price increase	mean difference
dividend to stock price	0.1856	0.1490	0.0362
dividend payout ratio	0.8114	0.7642	0.0472

Table 4: H1 – Kruskal Wallis test

variable	Chi-square test	FD	Sig. level
dividend to stock price	2.973	1	0.084
dividend payout ratio	7.834	1	0.005

Table 5: H1 – Wilcoxon test

variable	Z-statistic	Sig. level
dividend to stock price	-4.779	0.000
dividend payout ratio	-1.841	0.066

Table 6: H1 – Paired mean-comparison t-test

variable	t-test	FD	Sig. level
dividend to stock price	5.152	101	0.000
dividend payout ratio	1.781	101	0.078

Judgment

It can be claimed that H0 is rejected using dividend payout ratio and Wilcoxon test and t-test. H1 states that companies have different dividends in various periods in terms of the fluctuations of stock price. In the reduction and recession periods of stock market, companies have higher dividend as compared to the periods with increasing price trends due to the necessity of financial flexibility. Regarding the results, it was determined that mean dividend ratio and dividend to net profit ratio are higher in the decreasing periods of stock market as compared to the increasing periods. Using the statistical tests administered, this mean difference was significant for both variables at confidence level of %95.

Accordingly, H1 is approved using the variables dividend to net profit ratio and dividend to stock price ratio. Results of H1 correlate with the results reported by Belao and Fuller (2008).

H2

H2: in the periods of stock market price increase, companies with lower stock price have higher dividend. The operational definition of H2 is as below:

The operational definition of H2

H0: $\mu_1 = \mu_2$ H1: $\mu_1 > \mu_2$

μ_1 : Mean dividend of companies with low stock price in the periods of stock market price increase.

μ_2 : Mean dividend in companies with high stock price in the periods of stock market price increase.

Table 7: H2 – examining the mean difference between dividend variables in the periods of stock price increase

variable	low stock price	high stock price	mean difference
dividend to stock price	0.1681	0.1329	0.0352
dividend payout ratio	0.7336	0.8008	-0.0672

Table 8: H2 – Kruskal Wallis test

variable	Chi-square test	FD	Sig. level
dividend payout ratio	2.167	1	0.141
dividend to stock price	2.167	1	0.021

Table 9: H2 – Wilcoxon test

variable	Z-statistic	Sig. level
dividend to stock price	-2.785	0.005
dividend payout ratio	-1.443	0.149

Table 10: H2 – Paired mean-comparison t-test

variable	t-test	FD	Sig. level
dividend to stock price	3.325	20	1.003
dividend payout ratio	1.724	20	0.100

Judgment

Studying the mean difference between variables dividend to stock price and dividend payout ratio shows that mean dividend to stock price is higher yet mean dividend payout ratio is lower in the periods of stock price decrease as compared to the periods of stock price increase. Hence, the mean difference of the first variable correlates with the above hypothesis. Yet, the mean difference of the second variable does not correlate with it. Based on Kruskal Wallis, Wilcoxon, and t-test, the above mean differences were approved for variable dividend to stock price at the significance levels %1 and %5.

H3

H3: in the periods of stock market price decrease, companies with lower stock price have higher dividend. The operational definition of H3 is as below:

The operational definition of H3

H0: $\mu_1 = \mu_2$ H1: $\mu_1 > \mu_2$

μ_1 : Mean dividend of companies with low stock price in the periods of stock market price increase.

μ_2 : Mean dividend in companies with high stock price in the periods of stock market price increase.

Table 11: H3 – examining the mean difference between dividend variables in the periods of stock price increase

variable	low stock price	high stock price	mean difference
dividend to stock price	0.2208	0.1512	0.0696
dividend payout ratio	0.7909	0.8259	-0.035

Table 12: H3 – Kruskal Wallis test

variable	Chi-square test	FD	Sig. level
dividend payout ratio	0.729	1	0.393
dividend to stock price	13.670	1	0.000

Table 13: H3 – Wilcoxon test

variable	Z-statistic	Sig. level
dividend to stock price	-2.296	0.022

dividend payout ratio	-0.358	0.720
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Table 14: H3 – Paired mean-comparison t-test

variable	t-test	FD	Sig. level
dividend to stock price	2.649	9	0.027
dividend payout ratio	-0.385	9	0.710

Judgment

Studying the mean difference between variables dividend to stock price and dividend payout ratio shows that mean dividend to stock price is higher yet mean dividend payout ratio is lower in the periods of stock price decrease as compared to the periods of stock price increase. Hence, the mean difference of the first variable correlates with the above hypothesis. Yet, the mean difference of the second variable does not correlate with it. Based on Kruskal Wallis and t-test, the above mean differences were approved for variable dividend to stock price at the significance levels %1 and %5. Again, results of these tests approve H0 with respect to the variable dividend payout ratio. Hence, it can be claimed that H0 is rejected merely by variable dividend to stock price.

H4

H4: in the periods of stock market price decrease, return on stock is higher in companies with higher dividend. The operational definition of H4 is as below:

The operational definition of H4

H0: $\mu_1 = \mu_2$ H1: $\mu_1 > \mu_2$

μ_1 : Mean return on stock of companies with high dividend in the periods of stock market price decrease.

μ_2 : Mean return on stock of companies with low dividend in the periods of stock market price decrease.

Table 15: H4 – examining the mean difference between dividend variables in the periods of stock price increase

variable	low stock price	high stock price	mean difference
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return on stock	-0.0232	-0.0055	-0.0177
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Table 16: H4 – Kruskal Wallis test

variable	Chi-square test	FD	Sig. level
return on stock	3.042	1	0.081

Table 17: H4 – Wilcoxon test

variable	Z-statistic	Sig. level
return on stock	-2.013	0.044

Table 18: H4 – Paired mean-comparison t-test

variable	t-test	FD	Sig. level
return on stock	-2.150	62	0.035

Judgment

Examining the mean difference of the return on stock shows a higher mean for companies with lower dividend as compared to companies with higher dividend. Hence, the mean difference of this variable correlates with the above hypothesis. Although the level of significance for Kruskal Wallis test was at %10 error level, the above mean differences were approved for variable return on stock at %5 error level. Accordingly, in sum, it can be claimed that H0 is rejected by the variable return on stock. This hypothesis is designed based on this concept: when stock market index decreases, stockholders consider higher value for the stock of companies with higher dividends. It results in the exchange of the above companies' stock at higher prices. Hence, the return of the companies with higher dividend is further as compared to the companies with lower dividend.

H5

H5: in the periods of stock market price increase, return on stock is higher in companies with lower dividend. The operational definition of H5 is as below:

The operational definition of H5

H0: $\mu_1 = \mu_2$ H1: $\mu_1 > \mu_2$

μ_1 : Mean return on stock of companies with low dividend in the periods of stock market price increase.

μ_2 : Mean return on stock of companies with high dividend in the periods of stock market price increase.

Table 19: H5 – examining the mean difference between dividend variables in the periods of stock price increase

variable	low stock price	high stock price	mean difference
return on stock	0.0168	0.0192	-0.024

Table 20: H5 – Kruskal Wallis test

variable	Chi-square test	FD	Sig. level
return on stock	0.012	1	0.914

Table 21: H5 – Wilcoxon test

variable	Z-statistic	Sig. level
return on stock	-0.267	0.789

Table 22: H5 – Paired mean-comparison t-test

variable	t-test	FD	Sig. level
return on stock	-0.098	62	0.922

Judgment

H5 states that based on stockholders' idea in the markets with an increasing trend, companies paying dividend in fact lose their resources by dividing profit. Hence, investors prefer companies with lower dividend to those with higher dividend. Based on the above tests, no evidence was obtained to approve the above hypothesis. Accordingly, in this hypothesis, H0 was approved and H1 which pointed the mean difference between two groups of companies with low and high dividend was rejected. Hence, no evidence was obtained to show the difference at the times of prices increase and based on the companies' dividend. Results of H4 correlate with the results reported by Belao and Fuller. However, H5 results do not correlate with the results reported by Belao and Fuller.

H6

H6: companies with higher non-systematic quartiles have lower dividend. The operational definition of H6 is as below:

The operational definition of H6

H0: $\mu_1 = \mu_2$ H1: $\mu_1 > \mu_2$

μ_1 : Mean dividend of companies in lower non-systematic risk quartiles

μ_2 : Mean dividend of companies in higher non-systematic risk quartiles

Table 23: H6 – examining the mean difference between dividend variables in non-systematic risk quartiles

variable	1 st quartile	2 nd quartile	3 rd quartile	4 th quartile	Q2-1	Q3-2	Q4-3
dividend to stock price	0.1651	0.1803	0.1665	0.1403	0.0152	-0.0138	-0.0262
dividend payout ratio	0.7792	0.7615	0.8193	0.7970	-0.0177	0.0578	-0.0223

Table 24: H6 – Kruskal Wallis test

variable	dividend payout ratio			dividend to stock price		
	Q2-1	Q3-2	Q4-3	Q2-1	Q3-2	Q4-3
Chi-square test	0.001	0.170	1.380	0.469	1.490	0.029

FD	1	1	1	1	1	1
Sig. level	0.974	0.680	0.240	0.494	0.222	0.865

Table 25: H6 – Wilcoxon test

variable	dividend payout ratio			dividend to stock price		
	Q2-1	Q3-2	Q4-3	Q2-1	Q3-2	Q4-3
Z-statistic	-0.235	-0.921	-0.935	-1.352	-0.363	-0.370
Sig. level	0.814	0.357	0.350	0.176	0.717	0.712

Table 26: H6 – Paired mean-comparison t-test

variable	dividend payout ratio			dividend to stock price		
	Q2-1	Q3-2	Q4-3	Q2-1	Q3-2	Q4-3
Z-statistic	0.124	-0.993	1.551	0.911	0.707	1.167
FD	30	38	36	30	38	36
Sig. level	0.902	0.327	0.130	0.370	0.484	0.251

Judgment

Based on the results obtained from the comparison of various quartiles, the mean difference of variable dividend to net profit for Q1 to Q2 was negative, Q2 to Q3 positive, and Q3 to Q4 negative. Statistical analyses used in this study do not show a significant difference between various quartiles regarding mean variable dividend to net profit ratio.

Another variable examined is the ratio of dividend to stock price. Based on the results of the comparison of various quartiles, the mean difference of variable dividend to stock price for Q1 to Q2 was positive, Q2 to Q3 negative, and Q3 to Q4 negative. Although the mean difference of dividend to stock price was negative for Q2 to Q4 with a decreasing trend, this hypothesis is not approved due to a sig. level > %5 for each of the above cases.

H7

H7: companies with higher sustainable growth have lower dividend. The operational definition of H7 is as below:

The operational definition of H7

H0: $\mu_1 = \mu_2$ H1: $\mu_1 > \mu_2$

μ_1 : Mean dividend of companies in lower sustainable growth quartiles

μ_2 : Mean dividend of companies in higher sustainable growth quartiles

Table 27: H7 – examining the mean difference between dividend variables in sustainable growth quartiles

variable	1 st quartile	2 nd quartile	3 rd quartile	4 th quartile	Q2-1	Q3-2	Q4-3
dividend to stock price	0.2076	0.1731	0.1559	0.1308	-0.0345	-0.0172	-0.0251
dividend payout ratio	1.040	0.8182	0.6951	0.5863	-0.2218	-0.1231	-0.1088

Table 28: H7 – Kruskal Wallis test

variable	dividend payout ratio			dividend to stock price		
	Q2-1	Q3-2	Q4-3	Q2-1	Q3-2	Q4-3

Chi-square test	52.376	21.708	17.390	3.437	1.716	3.281
FD	1	1	1	1	1	1
Sig. level	0.000	0.000	0.000	0.064	0.190	0.070

Table 29: H7 – Wilcoxon test

variable	dividend payout ratio			dividend to stock price		
	Q2-1	Q3-2	Q4-3	Q2-1	Q3-2	Q4-3
Z-statistic	-4.459	-4.458	-3.293	-2.357	-2.477	-5.224
Sig. level	0.000	0.000	0.001	0.018	0.013	0.000

Table 30: H7 – Paired mean-comparison t-test

variable	dividend payout ratio			dividend to stock price		
	Q2-1	Q3-2	Q4-3	Q2-1	Q3-2	Q4-3
Z-statistic	4.558	4.223	3.243	2.317	2.607	5.307
FD	37	43	38	41	55	79

Sig. level	0.000	0.000	0.002	0.026	0.012	0.000
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Judgment

To examine this hypothesis, the sustainable growth of each company was computed using Hyjens (1977) formula. The computed sustainable growths were placed in a quartile in respective year. Respective indices for dividend were compared for various quartiles. Results from Wilcoxon and t-test showed that variable dividend to price stock ratio is a suitable index for describing the changes between various quartiles of sustainable growth. However, Kruskal Wallis tests used could not show the level of significance at %5 between the computed quartiles.

Based on the results, it can be said that – as sustainable growth increases – companies' dividend also decreases. This correlates with financial flexibility theory and dividend policies. On the other hand, the more the sustainable growth of a company increases, the lower the dividend will be paid. This is because – based on flexibility assumption – one of the inexpensive accessible financial resources includes non-divided profits and their accumulation in a company. If suitable investment opportunities are provided for the company, management will be more reluctant to pay these accessible resources. Hence, it can be said that results obtained from this hypothesis correlate with the results reported by Fuli et al (2010), Denis and Azbov (2008), and Lai (2005). In their studies, they have emphasized the relationship between dividend and companies' growth. Haghighat and Bashiri (2011) have also achieved similar results. They have evaluated companies in various life periods. They have found out that companies which are not in their maturity and growth periods have higher dividend. Results of this hypothesis are also in conflict with the results reported by Jahankhani and Ghorbani (2006) based on which there is no significant relationship between development and growth theory and dividend policies.

The Second Section of Hypothesis Testing using Panel Data

Table 31 : Descriptive statistics of variables used in hypothesis testing by means of panel data

	LNPR	G	SR	ROA	SIZE
mean	1.2150	0.1326	0.0427	0.1525	26.5127
median	1.2261	0.0801	0.0070	0.1332	26.3731
max	5.5214	5.7921	13.8560	0.6284	30.7907

min	-2.8332	0.0010	-4.1249	0.0014	23.1798
SD	1.4502	0.2957	0.7155	0.1025	1.4363

In the above table, LNPR indicates the logarithmic conversion of dividend payout ratio, G sustainable growth rate, SR systematic risk, ROA return on assets, and SIZE corporate size.

The amount of Jarco statistic for the dependent variable the logarithmic conversion of dividend payout ratio is 3.4047 with a probability of 0.1820. This test is used for examining the normality of data. H0 indicates the normality of data. Since the computed probability exceeds the permissible error limit, it can be concluded that the distribution of the dependent variable is normal.

Unit Root Test

If variables used in the model are non-stationary, it is likely that the regression used is false. Hence, before applying data in the model and interpreting the results, data must be examined in terms of being either stationary or not. To do so, Levin Lin Chu test must be used. H0 of this test states the non-stationaryness of the data. Based on results, the assumption of the test regarding the non-stationaryness of the data is rejected. Hence, all variables are stationary.

Table 32- Unit root test of Levin Lin Chu panel data

variable	Levin Lin Chu statistic	probability
KNPR	-12.7349	0.000
G	-71.9254	0.000
SYS	-288.754	0.000
D*SR	-24.1876	0.000
G*SR	-2447.53	0.000

ROA	-26.2490	0.000
SIZE	-20.5085	0.000

In the above table, LNPR indicates the logarithmic conversion of dividend payout ratio, G sustainable growth rate, SR systematic risk, ROA return on assets, and SIZE corporate size.

F-Limer Test

F-Limer test is used for determining panel and integrated data. H0 of this test indicates the necessity of using panel data. Its H1 emphasizes the integration of data. Based on results of F-Limer test and with respect to F-statistic probability, H0 is rejected and the use of panel data is approved for all models.

Table 33: F-Limer Test

model	F statistic	FD	probability
model 1	2.879728	-128.317	0.000
model 2	2.651797	-128.316	0.000
model 3	2.680466	-128.315	0.000

Hausmann Test

After determining the use of panel data method for data, a method must be selected among fixed and random effects methods to properly estimate the models. H0 of this test indicates random effects method and H1 points out fixed effects method. Regarding the value of Ch-square statistic, the use of fixed effects method at error level of %5 was approved for all models.

Table 34- Hausmann Test

model	F statistic	FD	probability
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model 1	13.2311	4	0.0102
model 2	14.2454	5	0.0141
model 3	13.6718	6	0.0335

Fixed effects Regression Results

Based on the results of F-Limer and Hausmann tests, the least squares regression was approved by fixed effects approach using panel data. To be able to trust the results obtained from regression, resulted F-statistic and D-W must be assessed. F-statistic and the value of its probability assess the significance of the whole model executed. To examine the independence of errors from each other, again, D-W test was used. The value of D-W statistic is in the interval between 0 and 4. If this statistic is in the interval between 1.5 and 2.5, H0 of the test regarding the lack of correlation between errors – is approved. Otherwise, it will be rejected and errors will be correlated (Mumeni, 1998). Accordingly, based on the results of F-Limer test, all three executed models are significant. Similarly, for models 1 to 3, D-W statistic was obtained 2.07, 2.2, and 2.16, respectively, all of which were in the above interval. Hence, the assumption regarding the presence of correlation between errors is rejected in all three models. Coefficient of determination also shows the extent of changes in the dependent variable explained by independent variables. It was respectively %64, 70, 71 for the three following models.

Three models were designed to respond H8 to H13. In the first model, first, four main variables will be included in the model. Then, in the second model, variables coefficient of growth and risk will be used for approving the results of the first model. In the third, a dummy variable is added to respond H12 and H13. Based on the results obtained for each of the three models, all variables (except, corporate size) are at the level of %1 error. As a result, H8, H9, and H11 indicating the relationship between systematic risk, sustainable growth, and ratio of return on assets to dividend are approved. H10 indicating the significance of the relationship between corporate size and dividend is rejected.

Studying all models, we can realize that there is a negative relationship between systematic risk and sustainable growth with the amount of dividend. Again, in the third model, it is seen that the relationship between systematic risk and dividend becomes positive with the entrance of the dummy variable. Accordingly, H12 shows a direct relationship between systematic risk and dividend of companies with a higher return on the assets as compared to sustainable growth. H13 approves the negative relationship between systematic risk and dividend of companies with a higher sustainable growth as compared to their return on the assets.

Table 35- Fixed effects Regression Results of model 1

$$\ln\left(\frac{pr}{1-(pr)}\right) = \alpha + \beta_1 Risk + \beta_2 Growth + \beta_3 ROA + \beta_4 \ln(size) + \varepsilon$$

variable	coefficient	SD	t-statistic	probability
α	0.8559	0.1618	5.2886	0.000
SR	-0.2164	0.0823	-2.6289	0.0090
G	-1.4869	0.2212	-6.7233	0.000
ROA	3.3075	1.1444	2.8901	0.0041
SIZE	0.0015	0.0020	07534	0.4518
R ²	Adjusted R ²	F statistic	F statistic probability	Durbin-Watson
0.6483	0.5019	4.4275	0.000	2.0709

In the above table, LNPR indicates the logarithmic conversion of dividend payout ratio, G sustainable growth rate, SR systematic risk, ROA return on assets, and SIZE corporate size.

Table 36- Fixed effects Regression Results of model 2

$$\ln\left(\frac{pr}{1-(pr)}\right) = \alpha + \beta_1 Risk + \beta_2 Growth + \beta_3 ROA + \beta_4 \ln(size) + \beta_5 Growth * Risk + \varepsilon$$

variable	coefficient	SD	t-statistic	probability
α	0.9103	0.1489	6.1130	0.000
SR	-1.8327	0.2232	-8.2120	0.000
G	-4.1830	0.4049	-10.3300	0.000
ROA	4.8745	1.0714	4.5498	0.000
SIZE	0.0023	0.0018	1.2804	0.2013
G*SR	9.2787	1.2053	7.6982	0.000
R ²	Adjusted R ²	F statistic	F statistic probability	Durbin-Watson
0.7038	0.5792	5.6474	0.000	2.1408

In the above table, LNPR indicates the logarithmic conversion of dividend payout ratio, G sustainable growth rate, SR systematic risk, ROA return on assets, and SIZE corporate size.

Table 37- Fixed effects Regression Results of model 3

$$\ln\left(\frac{pr}{1-(pr)}\right) = \alpha + \beta_1 Risk + \beta_2 Growth + \beta_3 ROA + \beta_4 \ln(size) + \beta_5 Growth * Risk + \beta_6 D * Risk + \varepsilon$$

variable	coefficient	SD	t-statistic	probability
α	0.9825	0.1502	6.5426	0.000
SR	-2.0619	0.2318	-8.6589	0.000
G	-4.4449	0.4138	-10.7422	0.000
ROA	4.4938	1.0718	4.1927	0.000
SIZE	0.0026	0.0018	1.4732	0.1417
G*SR	10.3942	1.2694	8.1885	0.000
D*SR	1.2254	0.4718	2.5973	0.0098
R ²	Adjusted R ²	F statistic	F statistic probability	Durbin-Watson
0.7100	0.5867	5.7575	0.000	2.1670

In the above table, LNPR indicates the logarithmic conversion of dividend payout ratio, G sustainable growth rate, SR systematic risk, ROA return on assets, and SIZE corporate size.

H8 Results

H8 to H13 were tested using three ordinary least squares regression models with a fixed effects approach. Based on results, variable systematic risk has negative coefficients 0.2164, 1.8327, and 2.0619 in models 1 to 3, respectively. Error level is $<1\%$. It indicates a negative significant relationship between systematic risk and dividend. Hence, the significant relationship between systematic risk and dividend is approved. Results of this hypothesis correlate with the results reported by Jahankhani and Ghorbani (2006), Fuli et al (2012), and Bunimi et al (2011).

H9 Results

Based on results, variable sustainable growth has negative coefficients 1.4869, 4.1830, and 4.4449 in models 1 to 3, respectively. Error level is $<1\%$. It indicates a negative significant relationship between sustainable growth and dividend. Hence, the significant relationship between sustainable growth and dividend is approved. Results of this hypothesis are similar to the results reported by Fuli et al (2012), Rezvani Raz et al (2009), Izadinia and Alinaghian (2011), and Saidi and Behnam (2009). Based on the studies by Izadinia and Alinaghian (2011), there is a negative relationship between investment opportunities and dividend. In a study done by Saidi and Behnam (2009), it is seen that the more the investment opportunities companies have, the further they will meet the contractive dividend policies.

H10 Results

Based on results, variable corporate size has positive coefficients 0.0015, 0.0023, and 0.0026 in models 1 to 3, respectively. Error level is $>5\%$. It indicates no significant relationship between corporate size and dividend. Hence, the significant relationship between corporate size and dividend is rejected. Results of this hypothesis are in conflict with the results reported by Fuli et al (2012), Saidi and Behnam (2009), and Jahankhani and Ghorbani (2006). However, in these studied, the criterion examined for corporate size was respectively sum of assets and logarithm of equity book value.

H11 Results

Based on results, variable return on assets has positive coefficients 3.3075, 4.8745, and 4.4938 in models 1 to 3, respectively. Error level is $<1\%$. It indicates a positive significant relationship between return on assets and dividend. Hence, the significant relationship between return on assets and dividend is approved. Results of this hypothesis correlate with the results reported by Fuli et al (2012) and Izadinia and Alinaghian (2011).

H12 Results

Based on results, dummy variable in risk in the third model has a positive coefficient 1.2254. Error level is $<1\%$. It indicates a positive significant relationship between risk and dividend. With respect to the dummy variable showing companies with higher growth rate as compared to return on the assets, the positive relationship between systematic risk and dividend is approved. Results of this hypothesis correlate with the results reported by Fuli et al (2012).

H13 Results

Based on results, variable systematic risk has negative coefficients 0.2164, 1.8327, and 2.0619 in models 1 to 3, respectively. Dummy variable in risk in the third model also has a positive coefficient 1.2254. It can be concluded that the negative coefficient of risk (regardless of dummy variable) is resulted from the effect of companies with higher growth as compared to their return on assets. Hence, the negative relationship between risk and dividend in companies with lower return on assets (versus sustainable growth) is approved.

Conclusion:

Generally, results of this study approve the relationship between financial flexibility and dividend policies. Based on the results, it was found out that managers try to increase dividend in the periods of market prices decrease. This is because when there is no suitable investment, persuading stockholders to execute these projects and ensuring their profitability will be difficult. On the other hand, managers can prove their commitment to investors by paying dividend and encourage the company to maintain their capitals. At the times of increasing stock index, managers try to retain required financial resources in company to use in the investments.

Financial flexibility theory predicts that managers do not merely consider stock market prices flow for paying dividend. Rather, they also take their companies' stock price in account. According to Belao and Fuller (2008), this theory can show the difference between financial flexibility theory and free cash flows. In the above theory, it is stated that when companies have cash, they try to distribute them to resolve free cash flows problem. Yet, financial flexibility theory describes that the companies whose stock increases and they may have cash maintain them to do investments. Accordingly, companies with lower stock price always pay further dividend regardless of market condition. This hypothesis was also approved with respect to the variable dividend.

Investors' decision regarding management possession of financial flexibility is affected by market condition. Hence, when stock market price decreases, stockholders will not have a positive opinion regarding investment and delegation of financial flexibility to the management. Thus, receiving higher dividend will be considerably significance. This will manifest in these companies' yield. On the other hand, by the increase of management flexibility and decrease of stock price, the margin of flexibility cost evaluated by investors will increase. As a result, dividend payout will be more valuable for investors in this situation. This will manifest in stock return. This assumption was also approved using the tests conducted.

Based on financial flexibility theory, companies doing new investments and take the risks of these investments actually increase their non-systematic risk. This is because doing these investments increases internal risk. It was also mentioned earlier that it is possible to do further investments by reducing dividend due to financial flexibility. Then, it can be said that dividend increase leads to non-systematic risk decrease. Based on results obtained from statistical tests, no evidence was obtained regarding the existence of this relationship. The non-approval of this hypothesis may be attributed to the difficulty of computation and determination of non-systematic risk. This is because this risk is related to companies' internal risks. If these risks are examined at a level of an industry, various results may be obtained.

Non-systematic risk is used as an alternative for company's investments. Since the lack of relationship between non-systematic risk and dividend may not necessarily mean the lack of relationship between company's investments and dividend. Hence, variable sustainable growth rate was taken as another alternative for the investments in the company. Rate of sustainable growth was computed based on Hyjins model. With respect to the results obtained from testing this hypothesis, a negative relationship between sustainable growth and dividend was approved.

As seen, Belao and Fuller (2008) model shows the relationship between financial flexibility and dividend policies well. Yet, this is considered to be a matter of time. Hence, using Fuli et al model who also applied panel data in their model, financial flexibility theory was evaluated more accurately. Using

regression with fixed effects approach, the relationship between dividend payout ratio and systematic risk, return on assets and sustainable growth rate was approved.

Based on the results of this study, there is a negative relationship between systematic risk and dividend. Risk or share beta shows how a share is related to the market trend. For instance, when the direction of a trend of market price index is positive, a positive share or beta moves in the same direction with the market and its price increases yet dividend payout decreases. A negative share or beta moves the opposite of the market direction and its price decreases yet dividend payout increases. Accordingly, results from panel data approve the results obtained from sectional data.

Similarly, considering dummy variable in regression model, it was determined that the relationship between risk and dividend is a function of the relationship between sustainable growth rate and return on assets. Based on the results, it was specified that if companies' sustainable growth rate is higher than return on assets, there will be a reverse relationship between risk and dividend. Otherwise, it will be direct. Sustainable growth rate of a company shows its ability to do new investments. Thus, it can be said that companies listed in Tehran Stock Exchange who seek for new investments rely on reserves obtained from not dividing stock earning. This may be resulted from the inexpensiveness of financing through retained earnings, accessibility, and also high costs of financing from capital markets.

Rate of return on assets in regression obtained indicates the positive relationship with dividend. Return on assets measures and evaluates how assets are used by management for earning income and selling. The higher this return is, the further the company's efficiency in applying these assets and resources. Accordingly, it was specified that if management can earn maximum yield from his current resources, this return will also manifest in dividends. In fact, this is also an approval of financial flexibility issue. It is because companies financing their investments are able to achieve appropriate profits by means of their existing assets.

On the other hand, it was approved that there is no relationship between corporate size and dividend payout. It states the fact that the presence of a huge capital does not warrant the efficiency of a company. Companies do not necessarily payout dividends correspondent to their market share and/or vice versa. Again, if we take look at the indices of large companies of bourse, we will realize that a considerable percentage of the above companies are possessed by government-affiliated organizations. They can influence the determination of dividend policies.

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