The Effect of Gross Domestic Product, Tehran Exchange Price Index and Political Relations on Stock Pricing in Initial Public Offerings (IPOs)

Mohsen Rahbar¹*, Mohammad Hossein Ranjbar²
¹MA in Accounting, Department of Accounting and Management, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran; ²Department of Accounting and Management, Faculty of Humanities, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran
*E-mail: mohsen.rahbar84@gmail.com

Abstract
The aim of the present study is to explore the effect of gross domestic product, Tehran Exchange Price Index and political relations on stock pricing in initial public offerings. For this purpose, a number of 105 company from the companies listed on Tehran Stock Exchange during the time span of 2008 - 2013 have been studied. Results obtained from research regression models fit with the use of panel data method indicate that gross domestic product does not have any significant effect on stock pricing in initial public offerings, while, Tehran Exchange Price Index and the level of political relations have a direct and significant relationship with stock pricing in these offerings.

Keywords: Gross domestic product, level of political relations, stock pricing, initial offering, Tehran Exchange Price Index

Introduction
Capital markets in economy have considerable importance in boost of economic activities, investments and optimized allocation of capital. Every year so many companies in the path of economic cycle or in the privatization process of public companies for the first time set foot in capital market and engage in initial public offerings of their stock in Stock Exchange (Emami, 2011). Offering securities to investors in a broad scale in initial offering and the first public issuance of securities by a company is known as initial public offering (Rahnamay-e Roudposhti et al., 2013).

The number of stock which is entered into a market through an initial public offering depends on the ownership structure prior to the initial public offering (Dinc & Gupta, 2011; Sharifirad, 2012), in a way that if before the initial public offering there has been a Concentration of stock ownership and the previous shareholders will feel that due to the initial public offering they will lose their controlling power in the company's affair, less share will be issued and these shares will be distributed in a way that no Large shareholders will be created (Alavi et al., 2006).

In Iran, there is no initial offering of securities with its common concept in other countries; because in other countries initial offering of securities refer to the offering of new stock which are being offered in primary market, however, in Iran, considering the Commercial Law Amendment Act of March of 1969, primary market of stock is established with the permit of issuing underwriting announcement. Hence, the new stock only refers to those stocks that have been offered for the first time to the market and before this, the stock of these companies haven't been present in Tehran Stock Exchange (Abdeh Tabrizi and Damouri, 2003).

According to Abdeh Tabrizi and Damouri (2003), considering the shortcoming of valuation of initial offering in Tehran Stock Exchange we are witnessing high return in short-term and low return in long-term. Ebrahimi Kordlor and Hassani Azar Dariani (2006), have considered inefficiency of capital market of Iran as the reason for underselling of stock and a decline in the performance of stock price in initial public offering. It is because access to information related to

Openly accessible at http://www.european-science.com
companies and their performance is difficult and hence, investors don't have enough knowledge and insight for analyzing the information; these researchers consider the presence of major shareholders including organizations and institutions affiliated with the government and banks in the market as the main reason of such problems in capital market of Iran.

In the present study its has been explore whether the created incentives as the result of imminent performance of financial politicians can expedite or speed up the course of stock initial public offering in some politicized environments. The present study explores all the companies in the time span of 2002 - 2012 who have publicly offered their stock, on the condition that they are not among investing and investment firms and financial intermediaries and that their fiscal year end on 20th march. Since, so far no study has explored the effect of macroeconomic variables in stock pricing in initial public offerings, hence, the main question of this study is that "whether macroeconomic variables have any effect on initial public offerings?" and to this end, in the following section, the research method, findings and conclusion are presented.

Methodology

Research method of this study is of a correlation type from the point of view of nature and content which with the use of secondary extracted data from financial statements of companies listed on Tehran Stock Exchange analyzes the correlation relationship. This study has been conducted in a deductive - inductive reasoning framework. The reason for using correlation method is to discover the correlation relationships between the research variables. Correlation study is one of the types of descriptive studies. In the present study, first correlation among research variables are studies and in case that a correlation is found among research variables, multivariate regression models will be estimated. On the other hand, the present study is an ex post facto research (semi-empirical) which means that it has been conducted on the basis of previous and historical data analysis (companies’ financial statements). Also, this study is a bibliographical and analytical-causative study and is based on panel data analysis as well. This study is an applied study from the point of view of goal and in terms of method is a descriptive - correlation study.

In this study, it is explored whether there is a relationship between political relations and macroeconomic variables with stock pricing in initial public offers with the use of correlation test. On this basis, this research is based on quantitative data analysis. In terms of goals, this study is an applied study. Applied studies are those studies which are conducted with the use of The results of fundamental studies for improving and perfecting behaviors, methods, tools, means, productions, structures and models being used in human societies. Also, applied studies are those studies which make use of theories, laws, principles and techniques which are established in basic studies for solving practical issues and problems.

Research model, variables and variables' calculation

In the present study for testing research hypotheses, the following regression model has been used on the basis of Piotroski & Zhang (2014):

\[
\text{Pricing}_{i,t} = \beta_0 + \beta_1 \text{GDP}_{i,t} + \beta_2 \text{MI}_{i,t} + \beta_3 \text{Firm Size}_{i,t} + \beta_4 \text{Return on Sales}_{i,t} + \beta_5 \text{Leverage}_{i,t} + \beta_6 \text{Sales Growth}_{i,t} + \beta_7 \text{Free Cash Flow}_{i,t} + \beta_8 \text{Loss dummy}_{i,t} + \beta_9 \text{Current Asset}_{i,t} + \varepsilon_{i,t}
\]

Dependent variable

Pricing = Stock pricing in initial public offering which is calculated from the average price of stock offering on the date of stock initial public offering.

Dependent variables

Political = Level of political relations. The level of political relations is assessed through calculating the percentage of the company share and stock which belongs to the government, banks,
insurance companies, financial institutions, holding companies, public organizations, institutions and companies.

GDP = Gross Domestic Product at the year of company's stock initial public offering to Stock Exchange which can be extracted from the website of Central Bank.

MI = The average of Tehran Exchange Price Index one month prior to the date of company's stock initial public offering to the stock exchange.

Control variables
- Firm size = Firm size which is calculated through natural logarithm of total sum of company's assets.
- Return on Sales = Return of sales which is calculated from company's Net income to net sales ratio.
- Age = Company age (difference between the data of establishment of the company and its initial public offering date).
- Leverage = The ratio of total debt to total assets of the company.
- Sales Growth = Growth of net sales of the company comparing to the previous year.
- Free Cash Flow = Free cash flow of the company. Free cash flow is a criterion for measuring a company's performance and shows the cash that a company has after making its necessary expenses for maintaining or developing its assets. Fitch Ratings institution defines free cash flow as the cash flow resulting from operation after the deduction of capital expenses and non-operating expenses. Based on this model, free cash flow has been defined as the Operating profit before depreciation and minus total taxes added to surplus interest cost and Dividend and it is standardized by dividing it to total sum of assets.
- Loss dummy = Dummy variable. It will have a value of 1 if the company has had loss in the fiscal year prior to initial public offering; otherwise, it will take a value of 0.
- Current Asset = Ratio of current assets to total assets of the company at the date of initial public offering.

The aim of the present study is to explore the effect of macroeconomic variables of stock pricing in initial public offering, hence, research variables can be named as per the following:
- Macroeconomic variables, gross domestic product, stock market index, political relations and stock valuation.

Research variables have been shown in the blow model:

**Figure 1. Research conceptual model (Piotroski & Zhang, 2014)**

Openly accessible at [http://www.european-science.com](http://www.european-science.com)
Data collection method and instruments
In the present study for collecting data the following methods have been used:
A. For collection the data and information regarding theoretical principles and related literature, bibliographical sources, articles and books and also professional websites have been used.
B. Organizational and reports published by companies listed on Tehran Stock Exchange have been obtained through financial statements of companies and ParsPortfolio software.

Research population and sample
The population of the present study includes all the companies listed in Tehran Stock Exchange that the actual needed data of this study have been collected and gathered from actual information of companies in Tehran Stock Exchange. In this study, with the use of Cochran's formula the sample volume has been determined according to the following criteria:
1. For increasing the comparability, all the companies' fiscal year end should be at 15 March of every year.
2. During the time span of the study (2008 - 2013) the companies' fiscal year should have been changed.
3. The companies' financial information should be available and accessible.
4. The companies' balance sheet should have cash assets at least for three back to back years.
5. They should not be one of the financial companies (such as banks and financial institutions) and investment companies or financial intermediaries.

The industries which have been studied here include: automotive and parts manufacturing industries, medicine, metal product manufacturing, other mineral products, non-metal products, cement lime gypsum, coke, petroleum products and nuclear fuel, base metals, sugar and sugar cube, tile and ceramic, rubber and plastics, machinery and equipment, chemicals, food products and beverages excepts sugar and sugar cube, textile, and so on. Finally, with application of the above conditions, a number of 105 companies have been selected and studied in the time span of 2008 - 2013 as research sample.

Findings of the study
In this section, measures of central tendency such as average and indices of dispersion such as standard deviation, skewness and kurtosis are presented for each of the variables of this research. A summary of the descriptive statistics related to model's variables has been presented in table 1.

Table 1. Descriptive statistics of research variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Symbol</th>
<th>Average</th>
<th>Standard deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price of Initial Public Offering</td>
<td>Pricing</td>
<td>3413.967</td>
<td>932.364</td>
<td>0.095</td>
<td>3.087</td>
</tr>
<tr>
<td>Gross Domestic Product</td>
<td>GDP</td>
<td>4.63x1011</td>
<td>8.51x1010</td>
<td>0.092</td>
<td>1.366</td>
</tr>
<tr>
<td>Tehran Exchange Price Index</td>
<td>MI</td>
<td>146.961</td>
<td>30.704</td>
<td>0.007</td>
<td>2.729</td>
</tr>
<tr>
<td>Political Relations</td>
<td>Political</td>
<td>24.759</td>
<td>4.740</td>
<td>-0.115</td>
<td>3.073</td>
</tr>
<tr>
<td>Return of Sales</td>
<td>Return on Sales</td>
<td>3.889</td>
<td>2.004</td>
<td>-0.058</td>
<td>2.751</td>
</tr>
<tr>
<td>Sales Growth</td>
<td>Sales Growth</td>
<td>4.058</td>
<td>1.028</td>
<td>-0.113</td>
<td>2.965</td>
</tr>
<tr>
<td>Company Size</td>
<td>Size</td>
<td>13.987</td>
<td>3.021</td>
<td>0.149</td>
<td>2.889</td>
</tr>
<tr>
<td>Financial Leverage</td>
<td>LEV</td>
<td>0.701</td>
<td>0.010</td>
<td>0.023</td>
<td>3.257</td>
</tr>
<tr>
<td>Current Assets</td>
<td>Current Asset</td>
<td>0.449</td>
<td>0.0155</td>
<td>-0.021</td>
<td>3.257</td>
</tr>
<tr>
<td>Free Cash Flow</td>
<td>Free Cash Flow</td>
<td>0.500</td>
<td>0.006</td>
<td>0.025</td>
<td>3.254</td>
</tr>
<tr>
<td>Age</td>
<td>Age</td>
<td>11.7</td>
<td>3.080</td>
<td>-0.040</td>
<td>2.316</td>
</tr>
<tr>
<td>Loss</td>
<td>Loss Dummy</td>
<td>0.520</td>
<td>0.499</td>
<td>-0.082</td>
<td>1.006</td>
</tr>
</tbody>
</table>
Considering the findings shown in table 1, it is seen that almost 52% of the companies in this study have had loss during the time span of this study that this information is related year-company. Stock price of initial public offering of companies on an average basis is equal to 3413.967 IRR and also Tehran Exchange Price Index also one month prior to stock public offering has an average of 146.961 IRR. almost, 24.759 percent of the stock of companies during the time span of this study has belonged to public institutions, banks and holding companies. Sales return of companies during these years is equal to 3.889% on an average basis and their sales growth comparing to the previous year is equal to 4.058%.

In the following, first, the necessary model for estimating the model is specified and then research model is estimated and results obtained are interpreted. As the result of the model fit, results of research hypotheses are presented. Also, hypotheses test related to the model including testing normality of residuals and independence of residuals will be presented. Before regression model fit, for determining whether the model is a pooled or panel mode, Chow test or F bound is used. H0 hyypothesis in Chow test indicate that the pooled model is appropriate and H1 hypothesis indicate that panel model is appropriate. Results obtained from this test are presented in table 2.

**Table 2. Results of Chow test for research regression model**

<table>
<thead>
<tr>
<th>Test</th>
<th>Test value</th>
<th>Freedom degree</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chow (F)</td>
<td>1.168</td>
<td>(567.50)</td>
<td>0.2060</td>
</tr>
</tbody>
</table>

Considering the significance level of Chow test (P-Value = 0.2060) H0 hypothesis of the test is accepted at 95% confidence level and indicates that pooled data method is a more appropriate method for research model fit. Therefore, research regression model is fitted with the use of pooled data method. Results of model estimation are presented in table 3.

**Table 3. Results of reset hypotheses with the use of pooled data method**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-value</th>
<th>P-Value</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(GDP)</td>
<td>-1012X2.17</td>
<td>-0.161</td>
<td>0.8718</td>
<td>Not significant</td>
</tr>
<tr>
<td>MI</td>
<td>14.946</td>
<td>384.223</td>
<td>0.0001</td>
<td>Significant</td>
</tr>
<tr>
<td>POLITICAL</td>
<td>29.899</td>
<td>129.011</td>
<td>0.0001</td>
<td>Significant</td>
</tr>
<tr>
<td>RETURN ON SALES</td>
<td>25.050</td>
<td>41.109</td>
<td>0.0001</td>
<td>Significant</td>
</tr>
<tr>
<td>SALES GROWTH</td>
<td>29.745</td>
<td>26.780</td>
<td>0.0001</td>
<td>Significant</td>
</tr>
<tr>
<td>SIZE</td>
<td>16.727</td>
<td>43.408</td>
<td>0.0001</td>
<td>Significant</td>
</tr>
<tr>
<td>LEV</td>
<td>1329.071</td>
<td>-0.099</td>
<td>0.921</td>
<td>Not significant</td>
</tr>
<tr>
<td>CURRENT ASSET</td>
<td>44980.39</td>
<td>4.486</td>
<td>0.0001</td>
<td>Significant</td>
</tr>
<tr>
<td>FREE_CASH FLOW</td>
<td>-12864.64</td>
<td>-0.823</td>
<td>0.410</td>
<td>Not significant</td>
</tr>
<tr>
<td>AGE</td>
<td>0.361</td>
<td>0.868</td>
<td>0.385</td>
<td>Not significant</td>
</tr>
<tr>
<td>LOSS_DUMMY</td>
<td>-78.965</td>
<td>-33.135</td>
<td>0.0001</td>
<td>Significant</td>
</tr>
<tr>
<td>C</td>
<td>-12743.32</td>
<td>-0.816</td>
<td>0.414</td>
<td>-</td>
</tr>
</tbody>
</table>

f-value of variance analysis: 56342.31**
model's significance level: 0.0001

Coefficient of determination of the model: 0.9989

In studying whether the whole model is significant, considering the fact that the probability value of f-value is smaller than 0.05 (p-value<0.0001), with confidence level of 95% it is confirmed that the whole model is significant. Model's coefficient of determination also indicate that 99.89% of the existing changes in companies stock price in initial public offering is explained by the entered variables in the model.
Considering the presented results in table 3 and according to the obtained significance levels, t-student test is used for determining whether the effects of independent variables are significant or not and the results of research hypotheses test are as per the following:

• Considering the significance level of t-student test, for determining whether the effect of Gross Domestic Product variable is significant or not, which is estimated to be larger than the 1st type error of 0.05 (p-value = 0.871), it can be accepted that this variable doesn't have a significant effect on stock pricing (pricing) in initial public offering. Therefore, 1st research hypothesis is rejected at the 1st type error level of 0.05.

• Considering the significance level of t-student test, for determining whether the effect of stock market index (MI) variable is significant or not, which is estimated to be smaller than the 1st type error of 0.05 (p-value = 0.0001), it can be accepted that this variable has a significant effect on stock pricing (pricing) in initial public offering. Therefore, 2nd research hypothesis is confirmed at 1st type error level of 0.05.

• Considering the significance level of t-student test, for determining whether the effect of level of political relations variable is significant or not, which is estimated to be smaller than 1st type error of 0.05 (p-value = 0.0001), it can be accepted that this variable has a significant effect on stock pricing (pricing) in initial public offering. Therefore, 3rd research hypothesis is rejected at the 1st type error level of 0.05.

Conclusion

Conducted studies in the past have shown that involved politicians do not show much interest in privatization of national assets when they are struggling with intense political competitions and when the predicted loss from Supervision of private sector which causes some restrictions (Dinc and Gupta, 2011). In spite of this, strong motivations and incentives such as reward for market development activities or struggles for representation can reverse the relationship between the performance of politicians and privatization decisions (Chen & Yuan, 2004).

In addition, conducted studies in the past show that IPO decisions in companies under non-government ownership (private ownership) reflect a king of balance between External financing needs, market conditions and other costs or interests resulting from private or public ownership of companies. Off course, in so many environments such as China, access to external capital depends on strong political relations (Raee et al., 2011; Fazli, 2011). Since, political performance can cause disruption in existing political relations, companies who are affected by this have increased incentives for turning into public company. Economic outcomes resulting from this is predicted to be a wave of stock offering with low quality before occurrence of any political performance event. Therefore, a study which would explore the effect of macroeconomic variables on stock pricing in initial public offering seems to be necessary that in the present study also the effect of gross domestic product, Tehran Exchange Price Index and political relations on stock pricing in initial public offerings have been explored. Results indicate that Gross Domestic Product doesn't have a significant effect on stock pricing in initial public offerings, while, Tehran Exchange Price Index and the level of political relations have a direct and significant relationship (p<0.05) with stock pricing in these offerings that to this end in the following some practical recommendations are presented:

1. Stock Exchange should adopt a mechanism which leads to further efficient of information in it, so that investors can have high security for making investment and that volatility of Tehran Exchange Price Index due to uninformed investments and emotional investment would be reduced.

2. Increasing methods of initial public offering for overlap of advantages and disadvantages of the existing methods in a way that initial offerings are made in the best possible way.

Openly accessible at http://www.european-science.com
3. Active presence of investment banks and Financing institutions should be increased for supporting and stabilizing the price after initial offering. In a way that stock price deviation should be minimized and the time for accessing the stabilized price in secondary market also reduces.

4. Stabilization and reporting system of Stock Exchange should be improved for further transparency of capital market, in a way that the effects rustling from information asymmetry will be minimized as much as possible and investors' decisions will be taken based on transparent information in capital market.

5. Users of capital market in purchasing initial offering stocks considering the price should also considering liquidity in secondary market and should not only purchase the stock due to its low price in initial offering and should avoid emotional behaviors in market and disrupting the equation of stock pricing.

6. Economic decision makers and policy makers at the time of making Monetary and fiscal policies at macro-level should consider the effects resulting from these decisions on stock market indices and other financial markets.

7. Investors are recommended to consider the number of offered stock in addition to traditional factors of risk and return as an effective factor on market liquidity and Tehran Exchange Price Index of their capital portfolios at the times of making decision for investment.

8. Those in charge of share offering are recommended to place their main emphasis on offering stock on gradual offerings rather than block offerings.

9. Those in charge of stock offering are recommended to increase the number of companies and the number of offered stock in each turn of offering in order to maintain the market liquidity at a more desirable and better level.

References

Openly accessible at http://www.european-science.com