What Determines Post-IPO Market Performance: Evidence From Turkish IPOs

Fatih Macit
Suleyman Sah Universit, Department of Economics
Email: fmacit@ssu.edu.tr
Ahmet Sekreter
Suleyman Sah University, Department of International Trade and Finance
Email: asekreter@ssu.edu.tr
Selver Seda Ada
Suleyman Sah University, Department of Business Administration
Email: sada@ssu.edu.tr
Esra Simsek
Suleyman Sah University, Department of International Trade and Finance
Email: esimsek@ssu.edu.tr

Abstract
In this paper we investigate the determinants of the short-run post-IPO market performance of IPO stocks for Turkish markets. We looked at various firm specific accounting and IPO related variables namely the ratio of operating profit to total sales, the ratio of total debt to total assets, IPO size, public float, the ratio of shares that are purchased by foreign investors, and the market value to book value ratio. We find that IPO size appears to be the most important variable in determining the post-IPO market performance of IPO stocks. Large IPO's tend to have a better post-IPO market performance. Besides that firms with a larger debt ratio are expected to show a better performance in the short-run. It is seen that as public float increases IPOs tend to show a poorer performance.

Keywords: Post-IPO performance, Turkish stock market
JEL CODE: G02, G44, L11

Macit, F. Sekreter, A. Ada, S. and Simsek, E. (2015). What Determines Post-IPO Market Performance: Evidence From Turkish IPOs. *Bulletin of Business and Economics*, 4(2), 73-79.

I. Introduction

Turkish economy has experienced a rapid economic growth over the last ten years. Despite the sharp contraction that was seen during the global financial crisis in 2009, the average GDP growth during the period 2002-2013 has been 5.1%. This boom in economic activity which was mainly supported by domestic demand has also reflected itself in equity markets. As the economy grows the profits of the firms that are already listed in the stock exchange market have significantly increased and therefore their market value has risen as well. In addition to this, the need for financing in a growing economy has revitalized the interest in equity markets for the firms that are not open to public.

Figure 1: Number of Companies That are Open to Public (TheGlobalEconomy.com)
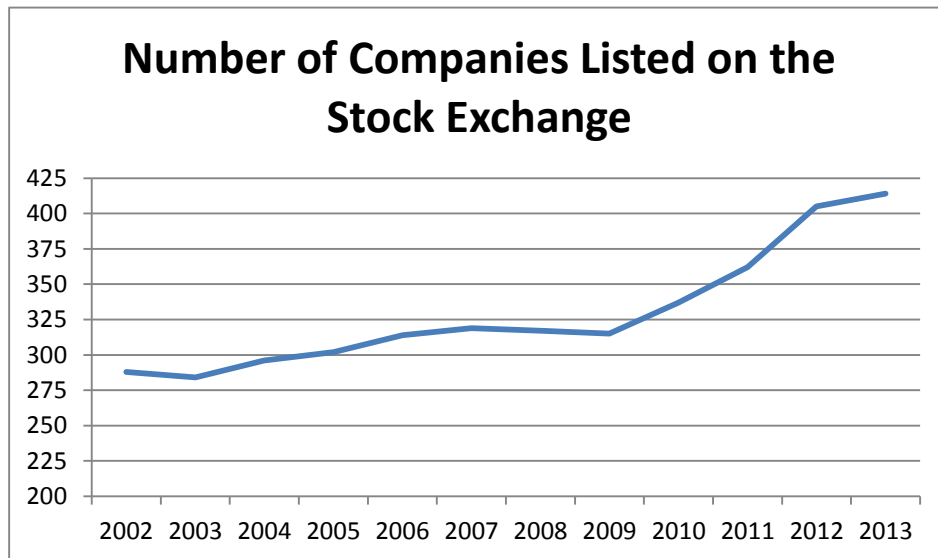
As a result of these two developments, stock market capitalization has increased from 34 billion dollars to over 300 billion dollars during the period 2002-2013 and the number of companies that are open to public has reached to 414 by the end of 2013. IPOs have particularly increased after 2010 as policy makers have put a significant emphasis on increasing the number of companies that are listed on the stock exchange markets. These efforts paid off and the number of IPOs during that period has reached to more than 60.

Figure 2: Stock Market Capitalization (TheGlobalEconomy.com)
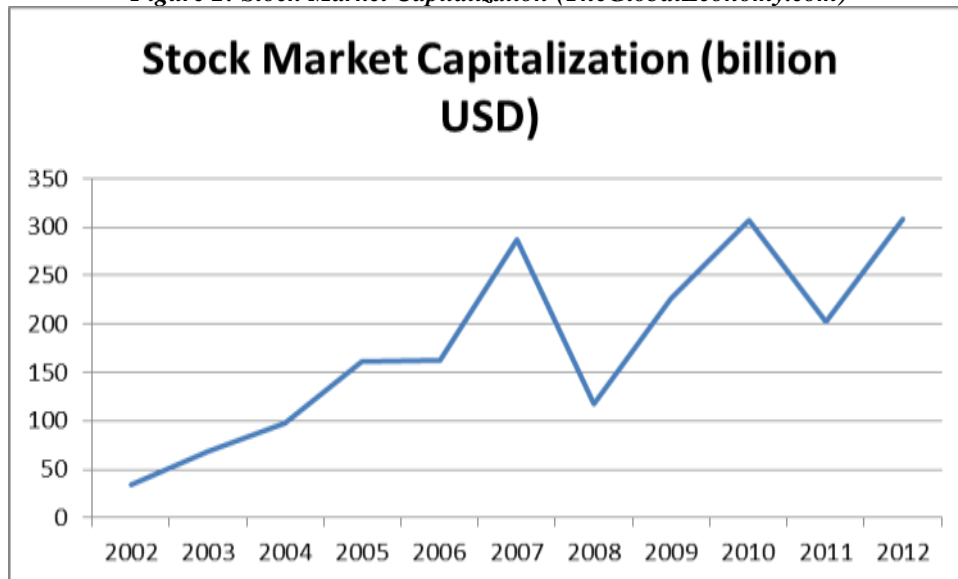
Despite these significant developments in IPOs in Turkish equity markets, very little academic research has been carried out in this area. Altan and Hotamis (2008) analyzed the short-term return for IPOs for Turkish markets

Macit, F. Sekreter, A. Ada, S. and Simsek, E. (2015). What Determines Post-IPO Market Performance: Evidence From Turkish IPOs. *Bulletin of Business and Economics*, 4(2), 73-79.

for the period 2000-2006 and they compared these returns with other countries. They found that there is no underpricing or overpricing in for Turkish IPOs when compared with other country examples. Unlu, Yildiz, and Yalama (2009) estimated the long-run IPO returns for Turkish markets using the artificial neural network and compared it with the results obtained from linear regression. They found that artificial neural network is better than linear regression in estimating the long-run IPO returns. Kucukkocaoglu (2008) compared different IPO methods that are used in Istanbul Stock Exchange in terms of the amount and the volatility of underpricing. He looked at book building mechanism, fixed price offer, and sale through the stock exchange methods and found that the third method generates the largest amount of first day underpricing. Unlu and Ersoy (2008) analyzed the determinants of first day underpricing for Turkish IPOs for the period 1995-2008. They found that firms that have an operation life of more than 20 years are more likely to face underpricing. Besides this it has been observed that underpricing is more common for the fixed price offer IPO method.

Although there is very little study about Turkish IPO market, IPOs have been one of the most popular topics in corporate finance. Short-run underpricing, poor long-run performance, and cycles in the number of IPOs have been some of the most common themes that are studied in the literature. Ritter (1984), Ibbotson and Ritter (1995), Ritter and Welch (2002), and Bradley and Jordan (2002) are some early examples that explore these empirical themes about IPO performance. Lowry (2003) investigates the relationship between long-run returns and IPO size and finds that large IPOs tend to show a poor performance in the long-run. Ljungqvist and Wilhelm (2003) and Brau et al. (2007) analyze the impact of the issuance of secondary shares in the IPO on underpricing and long-run returns. The former study finds a negative relationship between underpricing and the ratio of secondary shares sold whereas the latter study shows that the issuance of secondary shares has no impact on underpricing or long-run returns.

The aim of our study is to investigate the determinants of short-run IPO performance for Turkish equity markets. Our paper has three novel aspects and in this regard it fills an important gap in the related literature for Turkish IPO market. First of all, our study uses the most recent data in terms of IPOs in Turkish equity market. The authorities have started an important campaign in 2010 in order to increase the number of companies that are publicly traded and these significantly paid off. During the period 2010-2013, 71 IPOs are introduced in the equity markets. Second novel aspect of our analysis is that we looked at various firm-level balance sheet and income statement variables in terms of understanding the short-run determinants of post-IPO performance. As mentioned before, in the previous literature about Turkish IPO market firm fundamentals were not considered extensively in terms of the determinant of short-run IPO performance. Lastly, we looked at the impact of two important variables, namely public float and foreign ratio that are largely used in the IPO literature in terms of determining the post-IPO performance. The relationship between public float and corporate valuation has especially been analyzed in the IPO literature. Kahn and Winton (1998), Noe (2002), Oded and Wang (2010), and Michel, Oded, and Shaked (2014) are some examples that investigate the relationship between ownership structure and post-IPO performance.

The rest of the paper is organized as follows. Section 2 gives a brief description of the data used. Section 3 reports the econometric model used and estimation results. Section 4 concludes.

II. Data
The IPO sample that is used in our study is obtained from Borsa Istanbul database for the period between 2010 and 2013 and it includes 42 IPOs that have been introduced during this period. The database gives us information about a wide range of IPO characteristics including public float, the ratio of shares issued that are purchased by foreign investors, IPO size, and the price per share. In terms of measuring the short-run IPO performance, we again use the database provided by Borsa Istanbul and calculate the three month return following the IPO.

As mentioned before an important contribution of this study to the existing literature for Turkish IPOs, is the use of firm level fundamentals in explaining the short-run IPO performance. The financial statements of the related companies are obtained from Public Disclosure Platform where the companies report their balance sheets and income statements for the last three years before the IPO. We take the financial statements for the most recent year before the IPO and analyze these statements from three perspectives namely liquidity, profitability, and indebtedness. In order to measure liquidity we calculate the current ratio which is measured as current assets divided by current liabilities. In terms of profitability we calculate two different indicators namely net income margin and operating profit margin. The former one is calculated as net income divided by net sales and the latter one is calculated as operating income divided by net sales. To measure indebtedness we calculate the debt

Macit, F. Sekreter, A. Ada, S. and Simsek, E. (2015). What Determines Post-IPO Market Performance: Evidence From Turkish IPOs. *Bulletin of Business and Economics*, 4(2), 73-79.

ratio which is defined as total debt divided by total assets. Besides these fundamentals we also calculate market value to book value ratio which is considered as an important indicator of whether a stock is cheap or expensive. In the calculation of the book value we also take into account the capital inflow to the company due to the shares sold. Foreign ratio is calculated as the number of shares that are purchased by foreign investors divided by the total number of shares sold. IPO size is found by multiplying the share price that appeared in the IPO by the number of shares issued.

Table I gives a brief summary of descriptive statistics of the variables that are used in the model. *3MR* represents the 3-month market return of the firm's stock following the IPO. A negative mean for this variable represents a poor short-run performance for the IPO market. However, it also seen that there are firms whose return for the first three months following the IPO is more than 50% and there are firms whose short-run post-IPO market performance is very poor.

Table I: Descriptive Statistics for the Variables Used in the Model

Variables	Mean	Minimum	Maximum	Standard Deviation
3MR	-0.05	-0.33	0.52	0.19
FR	0.14	0.00	0.80	0.22
IPO Size	91790783.00	7987500.00	1050000000.00	192000000,00
NI_NS	0.12	-0.13	0.46	0.15
OP_NS	0.16	-0.09	0.60	0.18
MV_BV	2.42	0.17	12.17	2.15
PF	0.26	0.05	0.41	0.10
TD_TA	0.46	0.00	0.95	0.38
CR	27.35	0.83	492.27	102.25

In terms of firm level fundamentals, a high level of variation can be seen among the firms that are included in the data. *NI_NS* denotes the net profit margin and the mean value is 12% for the IPOs. *OP_NS* is another indicator of profitability and denotes the ratio of operating income to net sales. The mean value for this variable is 16% and there is a high degree of variation among the firms. *PF* represents the public float that is the ratio of shares that are offered to public. The range for this variable is also very high for public float. *MV_BV* denotes the ratio of market value to book value and *TD_TA* represents the ratio of total debt to total assets. It is interesting that there are some firms that are valued at more than 12 times of their book value. *CR* denotes the current ratio and it measures the liquidity position of the company. The highest degree of variation is observed in this variable and due to its very high standard deviation this variable is excluded from the regression analysis. Lastly, *FR* variable stands for foreign ratio that is the ratio of shares that are sold to foreign investors. It is seen that some IPOs do not see any interest from foreign investors but there are also some IPOs which are very attractive for foreign investors and a significant part of shares are sold to them. In the estimation process we generate a dummy variable for the foreign ratio variable. The dummy variable takes a value equal to 1 if some shares are purchased by foreign investors and the dummy is equal to 0 otherwise.

III. Model and Estimation Results
In order to analyze the determinants of post-IPO market performance, the following equation is estimated using the ordinary least squares estimation:

$$3MR_i = \beta_1 FR_i + \beta_2 ln(SIZE)i + \beta_3 NI\_NS_i + \beta_4 OP\_NS_i + \beta_5 MV\_BV_i + \beta_6 PF_i + \beta_7 TD\_TA_i + \varepsilon_i$$

Macit, F. Sekreter, A. Ada, S. and Simsek, E. (2015). What Determines Post-IPO Market Performance: Evidence From Turkish IPOs. *Bulletin of Business and Economics*, 4(2), 73-79.

As mentioned before, current ratio is included in the regression model due to the high number of outliers and large standard deviation. *SIZE* refers to the magnitude of IPO and to scale this variable the natural log of IPO size is included in the regression model.

Table II shows the regression results. In terms of firm level fundamentals, it is seen only indebtedness of the firms affect the post-IPO market return. With a p-value that is equal to 0.07, *TD_TA* is significant at 10% level and it has a positive impact on short-run post-IPO market performance. That is firms with a higher debt ratio tend do show a better market performance after the IPO. The regression results reveal that profitability which is measured by the ratio of net income to net sales and the ratio of operating income to net sales, do not have a significant impact on short-run post-IPO market return.

The estimation results show that IPO size is another significant variable in explaining the short-run post-IPO market return. The p-value for *ln(SIZE)* is 0.065 and it is expected to have positive effect on short-run post-IPO market performance. Public float, which shows the percentage of shares issued to the public, has a negative impact on post-IPO market performance but this variable is only significant at 15% level. Lastly, the dummy variable that shows whether the shares are purchased by foreign investors or not, has also a statistically significant effect in market performance of IPOs. It is seen that the IPOs for which there is an interest by foreign investors, tend to show a better performance.

Table II: Regression Results

Variables	
FR	-0.1227*** (0.0621)
ln(SIZE)	0.0004*** (0.0002)
NI_NS	0.2708 (0.3813)
OP_NS	-0.2318 (0.3299)
MV_BV	0.0002 (0.0162)
PF	-0.2705 (0.1813)
TD_TA	0.1299*** (0.0696)
R-squared	0.2079
#Observations	42

Note: This table presents the regression results. The numbers in parenthesis are the respective standard errors. *** denotes significance at 10% level.

As can be calculated from the estimation results in Table II, *OP_NS, MV_BV,* and *NI_NS* variables have a very low t-statistics. Therefore, we apply redundant variables test for the variables *OP_NS, MV_BV,* and *NI_NS* and the results are shown in Table III. The results give us an F-statistics of 0.1825, in comparison with the F-critical value of 5.4095. As F-statistics less than F-critical, we cannot reject the null hypothesis. Thus, we conclude that coefficient of the variables *OP_NS, MV_BV,* and *NI_TS* are zero, and therefore *OP_NS, MV_BV,* and *NI_NS* are redundant variables-that is they do not have significant effect in determining the 3-month IPO performance. Likelihood ratio is found as 0.652 and critical value for degrees of freedom 3 and with 5% significance level is 7.815. This result also gives no evidence to reject the null hypothesis.

Table III: Redundant Variables Test

	Value	df	Probability
F-Statistics	0.1825	(3, 35)	0.9075
Likelihood Ratio	0.6521	3	0.8844

Macit, F. Sekreter, A. Ada, S. and Simsek, E. (2015). What Determines Post-IPO Market Performance: Evidence From Turkish IPOs. *Bulletin of Business and Economics*, 4(2), 73-79.

Based on the results of the redundant variables test, the variables *OP_NS, MV_BV,* and *NI_NS* are excluded from the model and the final regression model is estimated. Table IV shows the regression results.

Table IV: Regression Results for the Final Model

Variables	
FR	-0.1100*** (0.0575)
PF	-0.2834** (0.1375)
TD_TA	0.1217*** (0.0641)
ln(SIZE)	0.0004** (0.0002)
R-squared	0.1955

Note: This table presents the regression results. The numbers in parenthesis are the respective standard errors. *** denotes significance at 10% level and ** denotes significance at 5% level.

The regression results for the final model confirm the results that are obtained in the previous model. A higher debt ratio and a larger IPO size are expected to generate a better short-run post-IPO market return. On the other hand, as the percentage of shares that are issued to the public goes up, that IPO is expected to show a poorer performance in the short-run.

The results have important implications for policy-makers, investors, and firms. In terms of firm level fundamentals, it is seen that firms with a bigger leverage tend to show a better short-term performance after IPO. This result makes sense as it may be argued that a higher leverage implies improved profitability for the firm and these IPOs tend to show a better performance in the short-run. Therefore, investors who always search for better returns after the IPO should focus on IPOs that have a bigger size and higher leverage ratio.

In terms of IPO related variables a negative number for public float has important implications both for investors and firms. It is seen that as the percentage of shares issued goes up IPOs are more likely to show a poorer performance in the short-term. This result makes sense as a larger number for public float implies greater supply of shares in the secondary market and this creates a downward pressure for the share price. For investors this means that they should avoid participating in IPOs with higher public float. In terms of firms this implies that a higher public float may reduce the attractiveness of the IPO to the investors and may lead to a decline in the share price that appears in the IPO.

IPO size has also a significant impact on short-term post-IPO market performance. It is seen that large IPOs tend to show a better short-term performance after IPO. The result makes sense as large IPOs are inclined to offer higher discounts in share price in order to attract investors. Therefore, after the IPO, these shares are expected to show a better performance in the short-run. This implies that investors who always search for better returns after the IPO should focus on IPOs that have a bigger size

IV. Conclusion
IPOs have been one of the widely studied topics in corporate finance. Short-run underpricing, poor long-run performance, and cycles in the number of IPOs have been some of the most popular themes that are studied in the literature. Despite this large interest for IPOs in the academic literature, very few studies have been done for Turkish IPO market. Taking into account the rapid development that Turkish financial markets have experienced over the last decade, there is an obvious need for studying different aspects of the IPO market in Turkey. This study fills an important gap in the literature in terms of taking into account diverse aspects of firm level fundamentals and determining the impact of these variables on post-IPO market performance. Our study is also novel in that it also looks at the significance of some IPO related variables on short-term performance.

Macit, F. Sekreter, A. Ada, S. and Simsek, E. (2015). What Determines Post-IPO Market Performance: Evidence From Turkish IPOs. *Bulletin of Business and Economics*, 4(2), 73-79.

In this study we study the determinants of short-run post-IPO market return by using various firm-level accounting and IPO related variables. We find that firm level fundamentals play a minor role in explaining the post-IPO market performance in the short-run. Only the indebtedness of the firm is statistically significant and a higher debt ratio is expected to generate a better post-IPO return in the short-run. Surprisingly the regression results show that profitability does not emerge as a significant determinant of short-run post-IPO return.

It is seen in the estimation results that IPO related variables play a much significant role in explaining the short-run post-IPO return. The estimation results reveal that as the percentage of shares that are issued to the public goes up, that IPO tend to show a poorer performance in the short-run. IPO size is another important variable that affects the short-run post-IPO return and it is seen that large IPOs are more likely to show a better performance in the short-run.

These results have some important and useful implications for investors, firms, and policy-makers. For investors it is seen that in order to get a higher short-term return after the IPO, they should focus on companies that have a greater leverage and should participate in IPOs that have larger size and lower public float. For firms the results reveal that a higher public float is expected to generate a poorer short-term market performance and may mitigate investor interest for the shares that offered for sale.

References
Altan, M., & Hotamis, T. (2008). Türkiye'de Halka İlk Arzı Yapılan Hisse Senetlerinin Kısa Dönem Fiyat Performans Analizi (2000-2006). *KMU IIBF Dergisi* 14.
Bradley, D., & Jordan, B., (2002). Partial adjustment to public information and IPO underpricing. *Journal of Financial and Quantitative Analysis,* 37, 595-615.
Brau, J., Mingsheng, L., & Jing, S., (2007). Do secondary shares in the IPO process have a negative effect on aftermarket performance. *Journal of Banking and Finance,* 31, 2612-2631.
Ibbotson, R., & Ritter, J., (1995). Initial public offerings. In: Jarrow, R.A., Maksimovic, V., Ziemba, W.T. (Eds.), *Handbooks in Operations Research and Management Science*, Vol. 9, North Holland, Amsterdam.
Kahn, C., & Winton, A., (1998). Ownership structure, speculation, and shareholder intervention. *Journal of Finance,* 53, 99-129.
Kucukkocaoglu, G. (2008). Underpricing in Turkey: A Comparison of the IPO Methods. *International Research Journal of Finance and Economics,* 13, 162-182.
Ljungqvist, A., & Wilhelm, W., (2003). IPO pricing in the dot-com bubble. *Journal of Finance,* 58, 723-752.
Lowry, M. (2003). Why does IPO volume fluctuate so much? *Journal of Financial Economics* 67, 3-40.
Michel, A., Oded, J., & Shaked, I. (2014). Ownership structure and performance: Evidence from the public float in IPOs. *Journal of Banking and Finance,* 40, 54-61.
Noe, T. (2002). Investor activism and financial market structure. *Review of Financial Studies,* 15, 289-317.
Oded, J., & Wang, Y., (2010). On the different styles of large shareholders' activism. *Economics of Governance,* 11, 229-267.
Ritter, J. (1984), The "hot" issue market of 1980. *Journal of Business,* 57, 215-240.
Ritter, J., & Welch, L., (2002). A review of IPO activity, pricing, and allocations. *Journal of Finance,* 57, 1795-1828.
Unlu, U., Ersoy, E., (2008). Ilk Halka Arzlarda Dusuk Fiyatlama ve Kisa Dönemin Performansin Belirleyicileri: 1995-2008 IMKB Örnegi. *Dokuz Eylul Universitesi Iktisadi ve Idari Bilimler Fakultesi Dergisi* 23(2), 243-258.
Unlu, U., Yildiz, B., Yalama, A., (2009). Ilk Halka Arzlarda Uzun Dönem Getirilerinin Tahmini: Yapay Sinir Aglari ile IMKB için Ampirik bir Calisma. *Ekonometri ve Istatistik* 10, 29-47.