

# **BANK REPUTATION AND IPO UNDERPRICING: EVIDENCE FROM THE ISTANBUL STOCK EXCHANGE**

## **Abstract**

This study examines the effect of underwriter reputation on the initial-day and long-term IPO returns in an emerging market. It uses both traditional and extended models given the characteristics of the IPO market under analysis. The results from the traditional model indicate that underwriter reputation has a significant and positive affect on the initial day IPO returns. After controlling for factors that are important in determining the price of an IPO in an emerging market, a complex relationship between underwriter reputation measures and IPO returns is documented. Results in this paper indicate that it is not appropriate to extend the findings in developed markets to emerging markets without taking into account the unique characteristics of the latter.

**JEL Classification: G14**

## I. Introduction

THE SHORT-RUN PERFORMANCE OF Initial Public Offerings (IPOs) has long been an issue of interest in the finance literature. Previous studies show that the IPOs of common stock yield positive short-run raw returns and negative long-run market-adjusted returns (Rock, 1986; Jog and Riding, 1987; Tinic, 1988, Finn and Higham, 1988; Ritter, 1991; Keasey and Short, 1992; Levis, 1993; Kunz and Aggarwal, 1994; Lee, Taylor and Walter, 1996a; Chen et al., 2000; Chan et al., 2004; Loughran and Ritter, 2004). The positive short-run returns documented in the literature are interpreted as evidence of underpricing in the offer price. Carter and Manaster (1990) develop an equilibrium model that explains the relationship between this underpricing and the prestige of the underwriter who brings the issue to the market. According to their model, prestigious underwriters (those with high reputation) are associated with lower amounts of IPO underpricing. Since the early 1970s, several studies have tested this argument by using different measures of underwriter reputation (McDonald and Fisher, 1972; Block and Stanley, 1980; Neuberger and LaChapelle, 1983; Beatty and Ritter, 1986; Johnson and Miller, 1988; Carter and Manaster, 1990; Booth and Chua, 1996; Nanda and Yun, 1997; Carter, Dark and Singh, 1998; Beatty and Welch, 1996; Logue et al., 2002). Earlier of these studies conclude that, on average, short-run returns are less positive for those IPOs that are brought to the market by more prestigious underwriters. Studies from the 2000s point to a possible disappearance of this phenomenon since they either find a positive or no relationship between reputation and underpricing.

The relationship between underwriter reputation and IPO underpricing has its roots in the asymmetric information that exists between the issuing firms and investors. In his classic paper, Akerlof (1970) shows that, as a result of such asymmetries, when an issuer brings financial instruments to the market, the only way to clear the market is for these instruments to sell at a large discount. Since such a large discount is not preferred by a security issuer, financial markets may cease to exist altogether at the extreme. One solution to such a market failure is for the financial institutions to act as a go-between in the issuance process by reducing the informational asymmetries and making it possible for the issuers to obtain a reasonable price for their securities. The financial institutions are able to reduce the informational asymmetries because they need to build reputation in order to survive and increase their income in the long-run. Since the quality of an issuing firm is unknown to

the potential investors, investors are willing to pay a higher price if a financial institution is able to offer quality assurance (Campbell and Kracaw, 1980; Allen, 2001). By having access to private information about the issuing firms, financial institutions are able to provide a better assessment of quality. It is this certification function that forms the building blocks of a financial institution's reputation.

The literature is rich with studies that address the issues of reputation building by financial intermediaries. In the classical paper of Chemmanur and Fulghieri (1994), investment banks are shown to build market reputation by using strict evaluation standards. As a result, these underwriters bring less risky issues to the market and are able to obtain higher prices for the securities they sell and larger fees for the services they provide to the issuing firms (Kroszner and Rajan, 1994).

In the IPO literature, the fact that some underwriters are banks raises an interesting question about whether the underwriter reputation may have a different effect on the amount of underpricing for this subset of underwriters. Banks may have an advantage over nonbank underwriters in that if the bank underwriter has an already existing banking relationship (such as lending) with the issuing firm, it may have access to private information about the firm that usually is not available to the nonbank underwriter (Kanas and Qi, 1998; Puri, 1999; Beneda, 2002). As a result, information production costs may be lower for commercial banks when they are underwriting an equity issue since the bank would be utilizing the same information set for different activities. Therefore, if investors believe that they are receiving more accurate information about the firm going public when the underwriter is a bank, they may be willing to pay a higher price for the security. On the other hand, the bank could try to misrepresent the quality of the securities in favor of its customer because equity issues may help protect the bank's own interest in the issuing firm. If investors believe that such conflicts of interest are present, then, one would expect lower prices (more underpricing) relative to issue quality when the underwriter is a commercial bank.

Empirical studies that analyze the degree of underpricing when the underwriter is a bank generally conclude that the average underpricing of equity IPOs decrease when a larger proportion of these IPOs are underwritten by banks (Beneda, 2002; Beneda and Kwon, 2004; Fields, Fraser and Bhargava, 2003; Hebb, 2002; Puri, 1996; Schenone, 2004). There is also limited evidence that there is no difference in the mispricing of bank- and

nonbank-underwritten IPOs (Fields and Fraser, 2004). Finally, debt issues underwritten by banks also are shown to be less underpriced (Gande, Puri, Saunders, Walter, 1997; Gande, Puri, Saunders, 1999; McKenzie and Takaoka, 2005; Takaoka and McKenzie, 2006).

Banks play an important role in the economic development of a country by bringing together the firms in need of funds with investors searching for investment opportunities. Banks perform this function not only by providing direct credit to the firms but by also acting as underwriters when the firms wish to go public by issuing shares. The literature on IPO pricing and bank underwriters suggests that issues underwritten by bank versus nonbank underwriters may produce different results for the issuing firm. More specifically, when banks serve as the underwriter for an IPO, it is very likely that money left on the table as a result of the underpricing of shares decreases significantly. In this study, the objective is to examine the relationship between underwriter reputation and IPO performance in an emerging market where the IPO market is served by both bank and nonbank underwriters. Similar to results from developed markets, several studies document positive abnormal initial day IPO returns in emerging markets (Dawson, 1987; Aggarwal, Leal and Hernandez, 1993; Lee, Taylor and Walter, 1996b, Durukan, 2002); however, very few of these studies analyze the relationship between underwriter reputation and IPO underpricing.

Several characteristics of emerging markets might cause the relationship between underwriter reputation and IPO performance to be different from the same relationship in a developed market (Harvey, 1995). It is usually argued that, in an emerging market, the information asymmetry is severe and the informational efficiency is low (Muradoglu and Unal, 1994; Balaban and Kunter, 1996; Aydogan and Muradoglu, 1998). As a result, in an emerging market it takes a long time for any information to be fully reflected in asset prices and it is more costly for investors to collect and process information. Hence, on the one hand, underwriter reputation can be very helpful for investors in solving their asymmetric information problems in such a market. On the other hand, the information asymmetry might be so severe that, unlike the case in an informationally efficient market, underwriter reputation may not be sufficient to reduce this asymmetry between the firm going public and investors in an inefficient market. Furthermore, it might be difficult for investors to assess the reputation of the underwriter itself as a result of the severe information asymmetries. Therefore, even though prior research

documents the significant negative impact of underwriter reputation on IPO performance in developed markets, it may not be plausible to expect such a relationship to exist for IPOs in an emerging market. Furthermore, in such a market, the differences between the reputation-building ability of bank versus nonbank underwriters may be even more significant. As a result, it is difficult to determine a priori the impact of underwriter reputation on IPO performance in such a market. This is an issue that needs to be examined empirically.

This paper analyzes the relationship between underwriter reputation and IPO underpricing in the Istanbul Stock Exchange (ISE). Domestic and foreign investors alike who are investing in emerging markets with characteristics similar to the ISE can benefit from the results of this paper. The sample consists of xxx IPOs that took place during the period from January, 1993 to December, 2012. The underwriter reputation is proxied by different measures developed using the number and the dollar magnitude of the offerings an underwriter conducts. A traditional model (used in studies for the US) and its modified version for an emerging market are estimated to test the relationship between underwriter reputation and IPO underpricing. Contrary to previous findings in the literature, the preliminary results from the estimated traditional model provide evidence that there is a positive relationship between underwriter reputation and initial day IPO returns. When the model is extended by controlling for factors that are hypothesized to be important in pricing IPOs in an emerging market, a complex relationship between traditional reputation measures and IPO underpricing is documented in preliminary analysis.

The remainder of this article is organized as follows. In the next section, the underwriting procedure in the ISE is presented. The third section explains the data and the model used in the analyses. The fourth section presents and discusses empirical results. The last section reports main findings and conclusions.

## **II. The IPO Market in Turkey**

As a first step in the IPO process, the company whose shares are going to be offered for sale to the public for the first time needs to register its shares with the Capital Markets Board (CMB) of Turkey. This registration is mandatory whether the company's existing shareholders are selling part of their shares to the public or the company is issuing new shares and offering the shares as part of a capital increase program.

Prior to regulation changes in 2010, firms trading on the ISE had to have at least 15% of their total equity publicly traded (public float). However, the firm going public did not have to offer this entire amount to public at the time of the IPO and could gradually increase its public float to 15% of its total equity. There were also minimum public float requirements based on the total equity of the IPO firm at the time of the issue. If the total equity of the firm was less than 10 million TL, then the nominal value of the issue had to be at least 25% of total equity. If the total equity was between 10 million TL and 50 million TL, then the nominal value of the issue had to be at least 15% of total equity. If the total equity was more than 50 million TL, then the nominal value of the issue had to be at least 5% of total equity. If the offer size was less than 15% of the total equity of the firm at the time of the IPO, then the original issuer needed to increase this ratio to at least 15% within three years immediately following the initial public offering.

The company who is going to sell shares to the public for the first time signs an agreement with an investment bank. The investment bank has to be licensed by the CMB to act as an intermediary in IPOs. In the agreement signed between the issuer and the underwriter, the investment bank specifies the type of underwriting that it is going to assume: best-efforts, partial standby or standby (firm-commitment). If the existing shareholders are selling their shares to the public, a firm commitment agreement is mandatory. In the best-efforts agreement, the part of the issue that cannot be sold within the agreed upon period is returned to the original issuer or sold to a third party who has previously committed to purchase the unsold portion of the issue. In the partial standby agreement, the underwriter commits to purchasing a certain percentage of the unsold portion of the issue. In the firm-commitment agreement, the underwriter first purchases the whole issue from the original issuer and then it becomes the responsibility of the underwriter to sell the issue to the public. In best effort agreements, the underwriter does not bear any risk since there is no promise to purchase the unsold portion of the issue. In the firm-commitment and partial standby agreements, the underwriter is exposed to the risk associated with not being able to find enough investors to purchase the issue.

Again, prior to 2010, in order for an underwriter to make either a firm-commitment agreement with the issuer, the nominal value of the issue being underwritten needed to be within the capital adequacy limits determined for the investment bankers by the CMB. In addition, there were restrictions on the amount of

financial responsibility that would be assumed by the underwriter in a firm-commitment agreement. For example, if the underwriter was not affiliated with a bank, then it could commit to a nominal offer size up to 10 times its total equity. However, if the underwriter was a subsidiary of a bank, then the underwriter could commit only to a nominal issue size that is less than or equal to 2 times the amount of its paid-in-capital plus its reserves minus its losses.

In most cases, a syndicate of underwriters will underwrite the IPOs in Turkey. In this case, one of the syndicate members will act as the leader of the syndicate. The leader represents the syndicate to the CMB, the government agencies, the original issuer and the third parties.

The underwriter can sell the issue to the public by using one of the three sales methods: subscription, no subscription and sale on the ISE. In the “subscription method,” the underwriter first takes subscriptions from the investors and then sells the shares only to those investors who have subscribed. There are two ways the investors can subscribe for an IPO. In “fixed price subscriptions,” the underwriter determines a price and the investors determine the number of shares they would like to purchase at this fixed price. This mechanism is similar to market orders. In “book-building subscriptions,” the underwriter determines a minimum offer price and the investors determine the number of shares they would like to purchase at any price that is greater than or equal to this price. This mechanism is very similar to limit orders.

In the “no subscription method,” the underwriter determines a fixed price for the offer and the shares are sold to investors on a first-come-first-served basis, without requiring the investors to first subscribe for the issue.

Finally, in the “sale on the exchange method,” the shares are directly sold on the Istanbul Stock Exchange upon approval by the CMB. The sales transactions take place on the primary market between the hours of 09:15 a.m. and 09:45 a.m. before the secondary market transactions start at 10:00 a.m.

### **III. The Models**

Studies that examine the relationship between underwriter reputation and initial IPO returns control for several factors that might affect the underpricing of IPOs (Carter and Manaster, 1990; Megginson and Weiss,

1991; Carter, Dark and Singh, 1998). In this paper, the first set of analyses closely follows the models in the literature in order to provide comparable results. Additionally, this traditional model is modified in order to account for some of the unique characteristics of IPOs in an emerging market.

#### A. *The Traditional Model*

The initial model analyzed in this paper is the following:

$$IPO\ Return = f(Reputation, Age\ of\ Issuing\ Firm, Insider\ Shares, Offer\ Size, Risk, Market\ Performance) \quad (1)$$

The dependent variable, *IPO Return*, is the simple one-day return calculated from the offer price and the closing price on the first trading day of the IPO shares.<sup>1</sup>

The first independent variable, *Reputation*, represents one of the several underwriter reputation measures used in this study. Based on the information asymmetry argument and following the previous findings in the literature, the relationship between underwriter reputation and initial IPO returns is expected to be negative. Hence, as the reputation of an IPO's underwriter gets higher, the underpricing for that issue is expected to be lower.

The second independent variable, *Age of the Issuing Firm*, is the age of the firm going public and is measured as the natural logarithm of the number of years from the date of incorporation to the offer date. In earlier studies that test the relationship between IPO underpricing and underwriter reputation, *Age of the Issuing Firm* is assumed to measure the level of asymmetric information and its impact on the difficulty of valuing a firm (Carter and Manaster, 1990; Megginson and Weiss, 1991). Ritter (1984) also suggests that this variable measures the difficulty of valuing a firm and it can be used as a proxy for risk. It is argued that it is more difficult to value a younger firm than an older firm. As a result, younger firms are more risky and represent a higher degree of information asymmetry. Hence, the relationship between this variable and the initial IPO

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<sup>1</sup> The relationship between underwriter reputation and market-adjusted returns is also analyzed. Since the results with market-adjusted returns are qualitatively the same, only the results with raw returns are reported. The results with market-adjusted returns are available upon request from authors.

returns is expected to be negative. On the other hand, in an informationally inefficient market where the information asymmetry is severe, it can be more difficult to value an older firm than a younger firm. When the complexity of the ownership structure for corporations in Turkey is added to this equation (Onder, 1999; Yurtoglu, 1998)<sup>2</sup>, the age of the firm may not be sufficient to resolve the information asymmetry problem faced by investors and may even make it worse. Therefore, the relationship between initial day IPO returns and the age of the firm going public may become positive in such a market.

The third independent variable, *Insider Shares*, is the ratio of shares offered by insiders to the total number of shares offered. This variable measures the degree of asymmetric information between the firm going public and the investors. It is also expected to signal to the market the insiders' confidence in the future performance of the firm. If insiders are confident that the future of the company is going to be better, to signal their positive expectations to the market, they hold a greater proportion of company shares (Leland and Pyle, 1977). Hence, if the insiders decide to sell a greater proportion of their shares, this will signal negative news to the public and this will make the IPO issue more risky in general. In such a case, the investors will ask to be compensated more in order to participate in a riskier IPO. As a result, the degree of underpricing is expected to be higher as the proportion of insider shares offered for sale gets larger since higher underpricing will provide the investors with higher initial returns. In literature, it is documented that as the proportion of shares offered by insiders for sale gets larger, the initial IPO returns get higher (Grinblatt and Hwang, 1989; Michaely and Shaw, 1994).

The fourth independent variable, *Offer Size*, is the natural logarithm of the offer size, i.e., the number of shares offered to the public times the offer price (in millions of TL). Since the inflation rate was very high in Turkey<sup>3</sup> for the first half of the sample period, offer size is deflated by the Consumer Price Index. It is argued that it would be more difficult to sell a larger issue in the market. Hence, as the offer size gets larger, the IPO is

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<sup>2</sup> For example, let's assume that the two major shareholders of Company A are Company B and Mr. X. Let's further assume that Company B is owned by Company C. In addition, Company C is wholly owned by Mr. X. In this case, Company A is owned by Mr. X only but it is not that straightforward to determine this. There can be several layers of ownership before you can reach the actual shareholders of Company A. This makes the ownership structure of companies in Turkey very opaque. If the ownership structure gets less and less transparent as the company gets older, then it would be harder to value older firms in Turkey. Hence, older company IPOs are expected to be underpriced to a higher degree. Therefore, a positive relationship between initial IPO returns and the age of the company is expected.

<sup>3</sup> According to the numbers that are provided by the Central Bank of Turkey, the average monthly inflation rate in Turkey has been 5.04 percent during the sample period, with a maximum of 22 percent in April 1994.

expected to be underpriced to a higher degree to make the issue more attractive to the investors. Therefore, the expected relationship between IPO returns and offer size is positive.

The fifth independent variable, *Risk*, is included in the model to represent the riskiness of the IPO issue. The risk is measured by the standard deviation of daily returns for the IPO shares over a 15-day period starting from the second day of trading. As the IPO issue gets more risky, the initial IPO returns are expected to be higher since investors will require to be compensated for bearing this increased risk (Beatty and Ritter, 1986).

The sixth independent variable in the model, *Market Performance*, is the 15-day return on the market index prior to the first trading day of the IPO shares. This variable measures the institutional lag. There is approximately 15 days between the IPO date and the first trading day on the Stock Exchange, and this variable accounts for the general movements in the market between these two dates. The expected relationship between IPO returns and this variable is positive.

#### *B. The Extended Model*

The second model employed in this study takes into consideration several variables that are expected to affect the IPO returns given the characteristics of the Turkish capital markets. These variables may not represent important factors for the developed market IPOs but they are expected to be commonly important in many emerging markets. The second model is specified as follows:

$$IPO\ Return = f(Reputation, Insider\ Shares, Market\ Performance, Related, Sales\ Method, IPO\ Market\ Activity, Institutional\ Investors, Financial\ IPO, Portion\ Underwritten, Requirement, Bank\ Affiliation) \quad (2)$$

The first additional independent variable, *Related*, is a dummy variable that takes a value of 1 if the issuing firm and the underwriter are owned by the same individuals or by the same parent company. In 22xxx out of 158 sample IPOs, the issuing firms are offered to the public by an underwriter that is owned by the same individuals or the same company. It can be argued that if the issuing firm and its underwriter are owned by the same individual, there will be less uncertainty in valuing the firm for the underwriter, and, therefore, less underpricing is expected. On the other hand, since the issuing firm and its underwriter are related, in the eyes of the investors, the credibility of the underwriter as an outsider in evaluating the IPO firm is low. As a result, the

asymmetric information between the outside investors and the underwriter (and the issuing firm) will be high (Beckman, Garner, Marshall and Okamura, 2001; Sullivan and Unite, 2001). The investors will require higher rates of return in order to invest in these shares. If the effect of higher asymmetric information between investors and the IPO firm outweighs the benefits of low asymmetric information between the underwriter and the IPO firm, the return on IPOs offered by related underwriters is expected to be higher than the return on IPOs that are offered by non-related underwriters. However, if the benefit of low asymmetric information between the IPO firm and the underwriter is higher than the negative effect of asymmetric information between investors and the IPO firm, then the return on IPOs offered by related underwriters is expected to be lower than the return on IPOs that are offered by non-related underwriters. The latter effect is documented for the US market. However, in an emerging market where there are severe information asymmetries, a positive relationship between IPO returns and the *Related* dummy variable is more likely to exist.

The second additional independent variable, *Sales Method*, is a dummy variable that takes a value of 1 if the sales method in underwriting is a fixed price offer and 0 if the shares are either sold directly on the Istanbul Stock Exchange or the book-building method is used. In the fixed price offer, the underwriter bears a higher risk, and, therefore, is expected to underprice the issue more in order to reduce or eliminate this risk. Hence, a positive relationship between the *Sales Method* variable and initial IPO returns is expected.

The third additional independent variable, *IPO Market Activity*, represents the number of firms that went public from the same industry as the IPO firm during the last 365 days preceding the IPO issue. This variable is included in the model to evaluate the IPO environment in the market. Booth and Chua (1996) argue that during a “hot IPO” period, information spillover from one IPO to the next will lower information costs for investors. Kunz and Aggarwal (1994) also argue that as the cumulative number of IPOs increases in a market over time, the amount of underpricing decreases as the market becomes more experienced in IPOs and competition increases. Both of these arguments suggest that if the IPO in question is being brought to the market during or following a “hot IPO” period, underpricing may not be as necessary as a result of the accumulated experience of the market regarding IPOs. Therefore, as the number of industry IPOs increases during the period preceding the IPO, the initial day returns are expected decrease as a result of decreased underpricing.

The fourth additional independent variable, *Institutional Investors*, is the proportion of shares allocated to institutional investors during the IPO process. The logic behind including this variable in the model is to account for the potential advantage of institutional investors in evaluating the IPO firm. Jain and Kini (1999) argue that institutional owners usually possess the ability, resources, access, and, incentives to closely monitor the actions of managers of firms in which they take positions. Hence, if institutional investors participate in the IPO, this will reduce the need for certification by the lead underwriter. This will, in turn, reduce the need to underprice the IPO. Therefore, the returns to the IPO issue are expected to decline when institutional investors are involved in the process as “monitoring” agents.

The next independent variable, *Financial IPO*, is a dummy variable that takes the value of 1 if the IPO firm is a financial institution. This variable represents the degree of ease and accuracy with which the underwriter will value the IPO firm and set a price for the issue. Due to the nature of their business, financial institutions carry a small percentage of fixed assets on their balance sheets. In addition, the asset and liability portfolios are made up of financial assets. The market value of such assets and liabilities is usually easier to determine compared to the market value of items such as accounts receivables, inventories or fixed assets that are typically found on non-financial firm balance sheets. This relative ease in determining the market value of a financial institution prior to the IPO is a factor that reduces the informational asymmetry between the underwriter and the firm. When investors perceive this informational advantage associated with financial firm IPOs, the returns they require potentially decrease. Therefore, a negative relationship is expected between IPO returns and the *Financial IPO* dummy.

Another variable included in the extended model is *Portion Underwritten*, which is the portion of the IPO offer that is guaranteed by the lead underwriter. As the portion of the issue to which the underwriter commits increases, the underwriter has an increased motivation to underprice the issue in order to guarantee sales in the market. Accordingly, a positive relationship is expected between the *Portion Underwritten* and the IPO returns as a result of potentially increased underpricing.

*Requirement* is another variable that is added to the extended model and indicates whether the issuing firm achieves the requirement of the Capital Market Board for public float based on a firm's total equity capital.<sup>4</sup> This is a dummy variable that takes a value of -1 if the issuing firm floats less than the minimum required percentage, a value of 0 if the firm floats exactly the required percentage, and a value of 1 if the firm floats more than the minimum required percentage of its total equity. The argument for this variable is similar to that of *Portion Underwritten*. As the size of the issue gets larger, there will be increased motivation for the underwriter to underprice the issue in order to guarantee sales. Therefore, a positive relationship is also expected between the *Requirement* variable and IPO returns.

The last variable included in the extended model, *Bank Affiliation*, is a dummy variable that takes a value of 1 for banks as underwriters or bank-affiliated underwriters. This variable is considered to be another reputation measure for the underwriters. The ISE is a relatively young market. When it was first established, there were very few underwriters and banks were allowed to perform underwriting activities in initial public offerings. In the early years of the ISE, banks were almost single-handedly underwriting all the IPOs. For example, all IPOs in 1993 were underwritten by banks. In 1994, there were 51 commercial banks and 35 intermediaries with a license from the CMB to underwrite; however, only 3 intermediaries participated in the underwriting of IPOs. In total, about 65 percent of all IPOs during this study's sample period are underwritten by either a bank or an investment-banking subsidiary of a bank. In January 1997, banks were required by the CMB to purchase an existing intermediary or to establish an affiliated investment banking company to be able to participate in IPOs and to undertake other stock market related operations. As a result of this change in the regulations, there was a surge in the number of underwriters. By the end of 1997, there were 42 bank-affiliated and 46 non-bank-affiliated underwriters and by the end of 1998, 45 out of 88 underwriters were bank-affiliated. Since there is a close-knit relationship between these bank-affiliated underwriters and their parent company banks that were quite active in the IPO market before 1997, these bank-affiliated underwriters are believed to have higher

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<sup>4</sup> The requirements of the Capital Markets Board for the firms that make initial public offerings are presented in **The IPO Market in Turkey** section.

recognition in the market. Therefore, they are considered to be more prestigious and to have more experience compared to other non-affiliated underwriters. Hence, this variable is a measure of the reputation as well as the experience of underwriters in the IPO market.<sup>5</sup> In line with the other reputation measures, a negative relationship is expected between the dummy variable *Bank Affiliation* and initial IPO returns.

## IV. Data and Sample

### A. IPO Sample

This study analyzes the relationship between underwriter reputation and IPO underpricing for the ISE. The ISE started its operations in 1986 and since its inception a large number of IPOs has been brought to the market. For the period between 1986 and 1989, there is no publicly available information about the IPOs. For the period between 1990 and 1992, the publicly available information about the IPOs does not include the type of underwriting agreement that is signed between the underwriter and the IPO firm. Due to data requirements, the sample is constrained to 288 IPOs that took place between 1993 and 2011. The full set of data is available for these IPOs.

In the sample, 54 out of the 288 IPOs are carried out under best effort agreements, and these IPOs are excluded from the sample since the relationship between underwriter reputation and IPO underpricing is expected to exist for only firm-commitment and partial standby agreements. Hence, the sample is reduced to 234 IPOs.<sup>6</sup> Over time, the ISE operated as a combination of four separate markets. These are the National Market, the Regional Market, the Watch Market, and the Newly Established Firms Market. The National Market differs from the other three markets in terms of its operating characteristics and the characteristics of the firms listed on these markets. Hence, the sample is constrained to only the firms that are listed on the National Market after the IPO. Table I presents the summary statistics on the sample IPOs.

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<sup>5</sup> As explained in **The IPO Market in Turkey** section of this paper, bank affiliated underwriters and non-bank affiliated underwriters are subject to different capital requirements by the CMB as well.

<sup>6</sup> Ritter (1987) shows that the initial return on best effort IPOs is higher than the return on firm-commitment IPOs. In addition to this evidence, considering the difference in the amounts of risk assumed by the underwriter, firm-commitment and standby agreements cannot be considered to be the same as best-efforts agreements.

The data on IPOs are hand-collected and obtained from three sources. For the earlier period (1993-1995), the data are obtained from the “*Companies Going Public: 1998*” publication of the ISE. This book provides information about the name of company going public, the IPO date, the underwriting agreement type (firm-commitment, partial standby or best effort), the sales method (fixed price offer, book-building or sale on the ISE), the name of underwriters, the leaders and the co-leaders in the underwriting syndicate, the offer price, the first trading date, the type of offering (capital increase, sale by insiders), the total offer size, the number of shares offered by insiders, the total number of shares sold and the actual price realized if it was sold on the ISE. Data for the period 1995-2000 are obtained from the ISE Weekly Bulletins and data for the 2000 – 2011 are obtained from the prospectuses issued by the firms going public. All these sources provide information on the share of each underwriter in the syndicate.

The market return variable is measured as the return on the ISE-100 index. Information on the level of this index is obtained from the Istanbul Stock Exchange. The Consumer Price Index is collected from the web site of the Central Bank of Turkey. The total number of shares outstanding for each firm after the IPO is obtained from the ISE Weekly Bulletins. This information is used to calculate the public float for each firm at the time of the IPO so that it can be determined for each firm whether it satisfies the public float requirements of the CMB. The year of incorporation for each IPO firm is obtained from another ISE publication titled “*Companies.*” The ownership structure of the underwriters is obtained from the book titled “*Intermediaries,*” published jointly by the CMB and the ISE and this information is used to determine the relatedness of the IPO firm and the underwriter. Finally, the information on whether an underwriter is affiliated with a bank is obtained from the monthly bulletins of the CMB.

#### *B. Measures of Underwriter Reputation*

There are three reputation measures used in the literature. The first and the most comprehensive measure is the one suggested by Carter and Manaster (1990). They develop a ten-level prestige measure using tombstone announcements assuming that the investment banking industry is subject to a rigid hierarchy of reputation and this hierarchy is reflected in these announcements. An underwriter’s reputation is reflected by the location of

the underwriter's name in the tombstone announcement.<sup>7</sup> The most prestigious bankers are assumed to be those that are not dominated by any other underwriter in the tombstone announcements for all IPOs. The second set of reputation measures is developed by Johnson and Miller (1988). First, they modify Carter and Manaster's 9-level classification and create a 4-scale reputation measure.<sup>8</sup> Second, they classify the underwriters in the first three brackets (bulge, major and sub-major) as prestigious and all others as non-prestigious. The third measure in the literature is developed by Megginson and Weiss (1991). In their study, Megginson and Weiss measure reputation by looking at the ratio of the total dollar amount of IPOs brought to the market by the lead underwriter of a given IPO to the total dollar amount of all IPOs in the sample.<sup>9</sup>

In this study, three different reputation measures are calculated taking into consideration the data availability in Turkey. The first one is the *Megginson-Weiss Reputation* in which reputation is measured as the ratio of the total dollar amount of IPOs brought to the market by the lead underwriter of a given IPO to the total dollar amount of all IPOs in the sample. As a result of high inflation in Turkey during the first half of the sample period, offer sizes are deflated by the Consumer Price Index in calculating this measure. When an IPO has more than one lead underwriter, the offer size is equally divided among the co-leaders for calculating each underwriter's market share, since the information on proportions underwritten by each underwriter is not available for all IPOs in the sample. The average reputation of all co-leaders underwriting that IPO is taken as the reputation of that IPO.

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<sup>7</sup> In the tombstone announcements, the investment bankers in the underwriting syndicate are listed. The leader and the co-leader, if any, of the syndicate are placed first in the list. Those underwriters that are the most prestigious are listed below the leader and the co-leader. The least prestigious underwriters are listed at the bottom of the list. In a series of IPOs, by examining the first tombstone announcement, ignoring the leader and co-leader, those at the first level are assigned to the most prestigious group (the rank of 9). Those in the next level are assigned the rank of 8, etc. The second announcement in the series is examined using the first announcement rankings as a point of reference. If any underwriter is listed in the second announcement above those that were in the most prestigious group in the first announcement, then this underwriter is assigned the rank of 9 and the previous rank 9 underwriters are listed with a rank of eight. This procedure is continued until all of the announcements are exhausted. Neuberger and LaChapelle (1983) also use the tombstone announcements in placing underwriters into three prestige groups. However, their groups do not require relative ranking.

<sup>8</sup> Using the tombstone announcements, the underwriters in the bulge bracket are assigned a rank of 3, those in the major bracket are assigned a rank of 2, those in the sub-major bracket are assigned a rank of 1, and all others are assigned a rank of 0.

<sup>9</sup> Carter, Dark and Singh (1998) compare all three measures of underwriter reputation using a sample of 2,292 IPOs brought to the US market during the period between 1979 and 1991. They find that all three reputation measures are significantly positively correlated. The correlation coefficient between the Megginson-Weiss and the Johnson-Miller measures is 0.68, the correlation coefficient between the Megginson-Weiss and the Carter-Manaster measures is 0.57, and, the correlation coefficient between the Johnson-Miller and the Carter-Manaster measures is 0.65.

The second reputation measure, *Number of Total Lead*, is a modified version of MW and is developed based on the evidence provided in McDonald and Fisher (1972). This measure is calculated as the total number of times an underwriter is a leader or a co-leader in an IPO issue during the entire sample period. Since this measure ignores the offer size but takes into account only the number of IPOs, a one million-dollar IPO and a 100 million-dollar IPO are assumed to bring the same reputation to the underwriter. It is believed that this reputation measure is a good proxy for the visibility of an underwriter in the IPO market. For IPOs that are co-lead by two or more underwriters, the average reputation of co-leaders is assigned to the IPO as its relevant reputation. This measure is used on a whole sample period basis in the regressions.

The third reputation measure, *Best Two*, is a categorical measure. This measure takes a value of 1 if an underwriter is one of the top two underwriters ranked on the basis of the Megginson-Weiss measure discussed above.

## **V. Findings**

### *A. Traditional Regressions – Preliminary Results*

Table IV presents the preliminary estimation results for the traditional model. The only two variables that exhibit a statistically significant effect on the initial one-day return are the reputation and the return on the market portfolio during the 15-day holding period preceding the IPO date. In the traditional model, reputation is measured in the Megginson-Weiss manner and is calculated as the ratio of the total dollar amount of all IPOs brought to the market by the lead underwriter to the total dollar amount of all IPOs in the sample. The fact that this variable has a statistically significant and positive coefficient is unexpected. Previous studies in the literature document a consistently negative relationship between underwriter reputation and the amount of underpricing. The results for the Turkish market, however, indicate that IPOs that are brought to the market by reputable lead underwriters realize a statistically significantly higher return on the first trading day. This finding implies an extensive degree of interest in the market for IPO firms that are being offered to public by highly reputable underwriters. It seems that the reputation of the underwriter does play a major certification role in the IPO process in an emerging market. This certification effect does not show itself in a reduced amount of

underpricing as is suggested by the previous studies. Instead, the reputation advantage of the lead underwriter manifests itself in strong demand and higher returns for the IPO stock on the first trading day.

The second statistically significant variable is the Market Performance. The coefficient for the market return is approximately 0.2571 which means that whenever there is a 1 percent increase (decrease) in the average 15-day holding period market returns preceding the IPO, there is going to be a 0.2571 percent increase (decrease) in the initial IPO returns. This result suggests that no matter what the reputation of the underwriter is or what the characteristics of the issuing firm are, the initial one-day returns are going to be in line with the average performance of the market right before the IPO takes place. In other words, the initial returns are going to be positive if the market happens to be rising during the period preceding the IPO date and the returns are going to be negative if the market happens to be declining during that period after controlling for reputation of the underwriter and the other characteristics of the issue.

#### *B. Extended Regressions – Preliminary Results*

As a second step, the basic model is extended into two different regressions with different additional variables that account for several characteristics of the issuing firm, the underwriter and the IPO issue itself. Table V presents the preliminary estimation results of these extended models.

First, in both models, the reputation measure Best Two is statistically significant and carries a positive coefficient. This result is in line with the result from the traditional model. The positive impact of reputation on initial IPO returns does not change when reputation is measured on the basis of a lead underwriter's Megginson-Weiss ranking.

The Market Performance is also significant and has a positive coefficient in both models. This result is similar to the result from the traditional model and indicates that the IPO returns move in tandem with the general market trends.

Another variable with a significant and positive coefficient is the Related dummy. When the issuing firm and the underwriter are owned by the same individuals or the same parent company, this is expected to increase the informational asymmetry between the outside investors and the underwriter. In such a case, the reputation of the underwriter itself is not sufficient to reduce or eliminate the informational asymmetry between the issuers and

the investors since the underwriter is expected to act in the interest of the issuer more than it would for the investors. Therefore, in order to compensate the investors for the information asymmetry risk, the underwriter is motivated to underprice the issue more and the investors require a higher return from such an IPO issue. The positive coefficient confirms this theoretical prediction. When the underwriter and the IPO firm are related, investors require 6 percent higher returns on average.

The next variable with a significant coefficient is IPO Market Activity. This variable measures the experience of the market in the IPOs of a particular industry and the expectation is that as the market becomes more familiar with the IPO process and the IPOs in a given industry, this will reduce the need for the underwriters to underprice the IPO issues. The negative coefficient of the variable confirms this expectation. If an IPO is being brought to the market during or following a “hot IPO” market, this lowers the amount of initial day returns generated from this IPO.

The variable Financial IPO has a significant and negative coefficient. When the IPO firm is a financial institution, the informational asymmetry between the underwriter and the firm is expected to decrease and this in turn is expected to decrease the required return by the investors. The negative coefficient is in line with this expectation. On average, IPO returns for financial institutions are 4 percent lower than the returns from non-financial IPOs.

Finally, the variable dummy variable that controls for the underwriter’s bank affiliation does not have a significant coefficient. There does not seem to be a difference between the reputation effects of the two types of underwriters.

## **VI. Conclusions**

In this paper, the relationship between underwriter reputation and initial day IPO returns are analyzed for the Istanbul Stock Exchange. This is the first paper that aims to examine the impact of underwriter reputation on IPO underpricing in this market. Prior research on IPOs in developed markets indicates that more prestigious underwriters underprice IPOs to a lesser degree. However, this result may not be expected to hold in a young emerging market. Therefore, it has to be examined empirically.

Given the available data on underwriters in Turkey, it is not possible to estimate all of the underwriter reputation measures used in the US. Therefore, the Megginson and Weiss measure and two new reputation measures are calculated given the characteristics of the IPO market in Turkey. In summary, three different reputation measures are used in the analyses.

When the traditional model is estimated for the IPOs in Turkey, a positive relationship between initial day IPO returns and underwriter reputation is documented. This implies the extensive interest in the market for IPOs that are being brought by highly reputable underwriters. The only other variable that explains the initial day IPO returns is the 15-day return on the market index before the first day of trading (institutional lag variable). The relationship between initial day IPO returns and this institutional lag variable is positive. This result implies that if the market increases between the IPO date and the first day of trading, the initial day IPO returns will be positive as well.

The traditional model is extended to account for the unique characteristics of the IPO market in Turkey. Two reputation measures that account for different aspects of underwriter reputation are included and eight more control variables are added to the models. When reputation is measured on the basis of a lead underwriter's Megginson-Weiss ranking, the positive impact of this reputation on the first trading day returns does not change. In addition to reputation, when the underwriter and the IPO firm are owned by the same individuals or parent company, the informational asymmetry between the underwriter and the outside investors results in higher initial day returns for the IPOs. When an IPO is brought to the market during or following a "hot IPO" period, the experience built in the market decreases the need for underpricing and thus the initial day returns are relatively lower for these IPOs. Finally, as a result of the relative informational advantage underwriters have in valuing financial institutions, the need for underpricing is decreased and a relatively lower return is observed for financial institution IPOs.

The findings of this paper indicate that evidence on underwriter reputation and initial day IPO returns documented in the developed markets cannot be extended to emerging markets without any modification. The results here can be extended to other emerging markets with similar characteristics as the ISE. Since the

participation of international investors in the IPOs of emerging markets is quite common, the findings of this paper have implications for international investors as well.

**Table I**  
**Descriptive Statistics on the Sample Period IPOs**

This table presents the summary statistics on the sample IPOs. <sup>a</sup> The classification does not include the Netas IPO since no information could be found about its underwriting agreement. <sup>b</sup> The classification does not include (1) the Borova Yapi IPO since it started to be traded on the regional market and (2) the Adana Cimento IPO since its stock split on the first day of trading. <sup>c</sup> The classification does not include the Ihlas Finans, the Intermedya and the Ihlas Ev Aletleri IPOs since they all started to trade on the regional market. <sup>d</sup> The classification does not include the Mazhar Zorlu Holding IPO since it started to trade on the regional market.

	1993 <sup>a</sup>	1994	1995 <sup>b</sup>	1996 <sup>c</sup>	1997 <sup>d</sup>	1998	1999	2000	2001	
Total Number of IPOs	17	24	29	27	29	20	10	35	1	
<b>Underwriting Agreement</b>										
Best Effort	3	8	6	4	0	1	0	1	0	
Partial Standby	0	0	0	0	0	0	0	0	0	
Firm Commitment	14	16	23	23	28	19	10	34	1	
<b>Total</b>										
Capital Increase	5	8	13	13	18	13	5	22	0	
Sale by Existing Shareholders	12	16	13	11	5	1	4	5	1	
Both	0	0	3	3	5	6	1	8	0	
<b>Sales Method</b>										
Fixed Price Offer	2	5	15	24	28	19	8	34	1	
Book-building	1	17	8	0	0	0	0	0	0	
Sale on the Exchange	14	2	6	3	0	1	2	1	0	
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total Number of IPOs	4	1	12	8	15	9	2	1	20	25
<b>Underwriting Agreement</b>										
Best Effort	0	0	1	1	0	3	1	0	7	18
Partial Standby	0	0	0	1	3	5	1	0	6	4
Firm Commitment	4	1	11	6	12	1	0	1	7	3
<b>Total</b>										
Capital Increase	2	1	3	2	3	2	0	1	5	11
Sale by Existing Shareholders	2	0	3	4	7	3	2	0	5	2
Both	0	0	6	2	5	4	0	0	10	12
<b>Sales Method</b>										
Fixed Price Offer	3	1	10	3	8	7	1	1	6	9
Book-building	0	0	0	2	0	1	0	0	9	12
Sale on the Exchange	1	0	2	3	7	1	1	0	5	4

**Table II**  
**Descriptive Statistics on the Dependent and Independent Variables**

This table presents summary statistics on the dependent and independent variables.

	Mean	Standard Deviation	Minimum	Maximum	N
Initial Day Return	7.944	11.545	-21.998	53.125	158
Market-Index-Adjusted Initial Day Return	6.748	11.777	-22.841	43.385	158
Industry-Index-Adjusted Initial Day Return	6.815	12.063	-28.614	42.971	158
Market Index Return over IPO Date – 15 Days	3.743	15.015	-27.692	77.796	158
Yearly Modified Megginson-Weiss Reputation	4.332	3.464	0.062	13.169	158
Yearly Megginson-Weiss Reputation	7.780	5.787	0.071	19.187	158
Yearly # of Total Lead by Lead Underwriter	7.253	4.465	0.633	13.291	158
Best Two Underwriters by Modified MW Dummy	0.190	0.393	0.000	1.000	158
Best Two Underwriters by MW Dummy	0.165	0.372	0.000	1.000	158
Best Two by # of Total Lead Dummy	0.386	0.488	0.000	1.000	158
Ln(Age of Issuing Firm)	2.424	1.033	0.056	4.300	158
Ln(Offer Size)	17.509	1.215	14.238	20.754	158
% Sold by Existing Shareholders	41.720	45.798	0.000	100.000	158
Standard Deviation over IPO Date + 15 Days	5.191	4.043	1.219	48.277	158
Related Underwriter and Issuing Firm Dummy	0.209	0.408	0.000	1.000	158
Sales Method Dummy	0.778	0.417	0.000	1.000	158
# of IPOs over IPO Date – 12 Months	1.544	1.907	0.000	8.000	158
% Allocated to Institutional Investors	5.397	9.257	0.000	84.397	158
Financial Firm IPO Dummy	0.304	0.461	0.000	1.000	158
% Ownership Retained by Existing Shareholders	75.834	15.594	6.000	95.000	158

**Table III**  
**Test of Equality of IPO Returns with Different Underwriter Reputation Measures**

This table presents the mean returns measured across categories that are based on three different underwriter reputation measures. The numbers in parentheses are standard deviations. Bold typeface indicates that the mean returns calculated for the two categories of a reputation measure are statistically significantly different from each other at the 10 and/or 5 percent level.

	Best Two Underwriters by MW		Best Two Underwriters by Modified MW		Best Two Underwriters by # of Total Lead	
	0	1	0	1	0	1
Initial Day Return	<b>4.687</b> (18.031)	<b>11.325</b> (14.065)	5.392 (18.616)	7.430 (12.291)	5.387 (19.040)	6.403 (15.084)
Market-Index-Adjusted Initial Day Return	<b>6.131</b> (12.559)	<b>10.287</b> (8.504)	6.640 (11.841)	7.564 (13.153)	6.763 (12.461)	6.898 (11.501)
Industry-Index-Adjusted Initial Day Return	<b>6.055</b> (12.154)	<b>10.266</b> (9.037)	6.521 (11.545)	7.717 (12.886)	6.653 (12.081)	6.900 (11.374)
N (Initial Day)	132	26	128	30	97	61

**Table IV**  
**Preliminary Regressions – Traditional Model**

This table reports the regression estimates of initial IPO returns on a reputation measure and five control variables. The regression model is a linear specification of the following equation:  $IPO\ Return = f(\text{Reputation, Age of Issuing Firm, Insider Shares, Offer Size, Risk, Market Performance})$ . *IPO Return* is the simple one-day return calculated from the offer price and the closing price on the first trading day of the IPO shares. *Reputation* is one of the several reputation measures used in the study. *Meggins and Weiss* measure is the ratio of the total dollar amount of IPOs brought to the market by the lead underwriter of a given IPO to the total dollar amount of all IPOs in the sample. *Age of the Issuing Firm* is the number of years the issuing firm has been in operation between its inception and December 31, 2000. *Insider Shares* is the percentage of the IPO issue that is offered from the holdings of the shareholders. *Offer Size* is the logarithm of the size of the IPO issue in millions of dollars. *Risk* is the standard deviation of IPO returns over a 15-day period starting from the second day of trading. *Market Performance* is the 15-day return on the market index prior to the first trading day of the IPO shares.

Intercept	12.8445 (0.87)	13.9141 (0.92)	9.9104 (0.69)	9.8246 (0.69)	9.9334 (0.69)	9.7252 (0.69)	10.9053 (0.74)	15.0604 (1.02)	10.4136 (0.72)
<b>Reputation Variable</b>									
Modified Megginson-Weiss Reputation	0.3843 (1.52)								
Meggins-Weiss Reputation		<b>0.2891</b> (2.06)							
# of Total Lead by Lead Underwriter			0.0012 (0.01)						
Cumulative Modified MW Reputation				-0.0404 (-0.18)					
Cumulative MW Reputation					0.0117 (0.08)				
Cumulative # of Total Lead by Lead Underwriter						-0.1293 (-0.69)			
Best Two Underwriters by Modified MW Dummy							1.9266 (0.87)		
Best Two Underwriters by MW Dummy								<b>6.0338</b> (3.22)	
Best Two by # of Total Lead Dummy									1.0909 (0.60)

**Table IV – Continued**

<b>Control Variables</b>									
Market Index Return over IPO Date – 15 Days	<b>0.2582</b> (5.20)	<b>0.2562</b> (5.27)	<b>0.2566</b> (5.22)	<b>0.2546</b> (4.95)	<b>0.2574</b> (5.06)	<b>0.2517</b> (4.92)	<b>0.2573</b> (5.14)	<b>0.2610</b> (5.43)	<b>0.2556</b> (5.24)
Ln(Age of Issuing Firm)	0.6260 (0.73)	0.5862 (0.69)	0.7885 (0.91)	0.8160 (0.94)	0.7808 (0.90)	0.8217 (0.94)	0.7136 (0.80)	0.4899 (0.58)	0.7237 (0.82)
Ln(Offer Size)	-0.5668 (-0.64)	-0.6524 (-0.72)	-0.3278 (-0.38)	-0.3160 (-0.37)	-0.3328 (-0.38)	-0.2740 (-0.32)	-0.3998 (-0.46)	-0.6415 (-0.73)	-0.3738 (-0.44)
% Sold by Existing Shareholders	0.0080 (0.41)	0.0060 (0.31)	0.0094 (0.48)	0.0089 (0.46)	0.0096 (0.50)	0.0068 (0.35)	0.0114 (0.58)	0.0060 (0.32)	0.0097 (0.50)
Standard Deviation over IPO Date + 15 Days	0.1043 (0.62)	0.1104 (0.63)	0.0964 (0.58)	0.0975 (0.59)	0.0957 (0.57)	0.1012 (0.62)	0.0972 (0.59)	0.1359 (0.77)	0.1037 (0.62)
Adj R <sup>2</sup>	0.0976	0.1047	0.0850	0.0852	0.0850	0.0885	0.0892	0.1212	0.0871
N	158	158	158	158	158	158	158	158	158

**Table V**  
**Preliminary Regressions – Extended Model**

This table reports the regression estimates of initial IPO returns on two different reputation measures and ten control variables. The regression model is a linear specification of the following equation:

$$IPO\ Return = f(\text{Reputation, Insider Shares, Market Performance, Related, Sales Method, IPO Market Activity, Institutional Investors, Financial IPO, Portion Underwritten, Requirement, Bank Affiliation})$$

*IPO return* is the simple one-day return calculated from the offer price and the closing price on the first trading day of the IPO shares. *Reputation* is one of the several reputation measures used in the study. *# of Total Lead* is the total number of times an underwriter is a leader or a co-leader in an IPO issue during the sample period. *Best Two* is a dummy variable that takes the value of 1 if an underwriter is one of the top two underwriters ranked on the basis of the Megginson and Weiss measure (where reputation is measured as the ratio of the total dollar amount of IPOs brought to the market by the lead underwriter of a given IPO to the total dollar amount of all IPOs in the sample). *Insider Shares* is the percentage of the IPO issue that is offered from the holdings of the shareholders. *Market Performance* is the 15-day return on the market index prior to the first trading day of the IPO shares. *Related* is a dummy variable that takes a value of 1 if the issuing firm and the underwriter are owned by the same individuals or by the same parent company. *Sales Method* is a dummy variable that takes a value of 1 if the sales method in underwriting is a fixed price offer and zero if the shares are either sold directly on the Istanbul Stock Exchange or the book-building method is used. *IPO Market Activity* is the number of firms that went public from the same industry as the IPO firm during the last 365 days. *Institutional Investors* is the proportion of shares allocated to institutional investors during the IPO process. *Financial IPO* is a dummy variable that takes the value of 1 if the IPO firm is a financial institution. *Portion Underwritten* is the portion of the IPO offer that is guaranteed by the lead underwriter. *Requirement* is a dummy variable that takes a value of -1 if the issuing firm floats less than the minimum required percentage, a value of 0 if the firm floats exactly the required percentage and a value of 1 if the firm floats more than the minimum required percentage. *Bank Affiliation* is a dummy variable that takes a value of 1 for banks as underwriters or bank-affiliated underwriters.

Intercept	<b>25.2490</b> (1.79)	<b>26.9477</b> (1.96)
<b>Reputation Variables</b>		
Megginson-Weiss Reputation	<b>0.3221</b> (1.88)	
Best Two by # of Total Lead Dummy	-1.3016 (-0.57)	
# of Total Lead by Lead Underwriter		-0.1879 (-0.99)
Best Two Underwriters by MW Dummy		<b>6.7666</b> (3.75)
<b>Traditional Model</b>		
Market Index Return over IPO Date – 15 Days	<b>0.2711</b> (6.23)	<b>0.2781</b> (6.17)
Ln(Age of Issuing Firm)	0.4572 (0.57)	0.1466 (0.19)
Ln(Offer Size)	-1.2976 (-1.64)	-1.2040 (-1.58)
% Sold by Existing Shareholders	-0.0003 (-0.01)	-0.0002 (-0.01)
Standard Deviation over IPO Date + 15 Days	0.0872 (0.50)	0.1074 (0.64)

Table V – Continued

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<b>Extended Model</b>		
Related Underwriter and Issuing Firm Dummy	<b>8.0655</b>	<b>7.6067</b>
	(4.26)	(3.97)
Sales Method Dummy	<b>4.3959</b>	<b>4.7071</b>
	(1.71)	(1.86)
# of IPOs over IPO Date – 12 Months	<b>-1.1765</b>	<b>-1.2442</b>
	(-2.45)	(-2.68)
% Allocated to Institutional Investors	<b>-0.2076</b>	<b>-0.2600</b>
	(-2.06)	(-2.61)
Financial Firm IPO Dummy	<b>-4.3564</b>	<b>-5.0981</b>
	(-1.96)	(-2.29)
Bank Affiliation Dummy	-2.2082	-3.1120
	(-0.90)	(-1.25)
Adj. R <sup>2</sup>	0.1855	0.2111
N	158	158

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