SHARE ISSUANCE AND EQUITY RETURNS IN THE ISTANBUL STOCK EXCHANGE

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ABSTRACT

This paper investigates the predictive power of share issuance on equity returns in the Istanbul Stock Exchange (ISE). The share issuance measure is estimated as the annual logarithmic change in shares outstanding adjusted for distribution events. This measure is not significantly related to expected equity returns in a univariate setting; however, this is due to the prevalence of rights offerings in the ISE and the consequent mechanical relation between the issuance measure and the book-to-market effect. After controlling for book-to-market, size and momentum factors, there is a significantly negative relation between share issuance and expected returns, especially for longer return horizons. The results from the portfolio analysis confirm this finding and show that the portion of share issuance that cannot be explained by the book-to-market effect has a strong negative cross-sectional relation with expected equity returns in the ISE between 1992 and 2011.

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1. INTRODUCTION

The cross-sectional determinants of equity returns have been a popular topic among financial economists. A milestone in this literature is the mean-variance portfolio analysis of Markowitz (1952) and the subsequent introduction of the Capital Asset Pricing Model (CAPM) by Sharpe (1964) and Lintner (1965) among others. Fama and Macbeth (1973) test the standard CAPM using two parameter portfolio models for NYSE stocks and find that the CAPM betas and expected equity returns have a linear cross-sectional relationship. Since then, a considerable portion of the asset pricing literature has been devoted to uncovering additional variables that explain stock returns. Some of the most well-known variables that have been shown to have a significant relation with expected returns are market value of equity for the size effect (Banz (1981)), market-to-book ratio for the value effect (Fama and French (1992, 1993)) and past intermediate-term stock returns for the momentum effect (Jegadeesh and Titman (1993)).[1]

Another important cross-sectional determinant of equity returns is share issuance activity. Loughran and Ritter (1995) and Ikenberry, Lakonishok and Vermaelen (1995) investigate equity issues and open market share repurchases, respectively, and find that higher stock issuance activity is related to lower long-run abnormal returns and vice versa. Similarly, Loughran and Vijh (1997) argue that acquirers that complete stock mergers experience negative long-run excess returns. Subsequent studies attempt to explain the negative relation between net stock issuance and expected equity returns by theories such as risk reduction due to equity issuance, managerial market timing, pseudo-timing and investment sensitivity[2]. More recent studies such as Daniel and Titman (2006), Pontiff and Woodgate (2008) and Fama and French (2008) reiterate the negative effect of net share issuance on equity returns and show that this effect is robust to size, value and momentum factors. McLean, Pontiff and Watanabe (2009) extend this line of research to a pooled sample of international stocks and Bali, Demirtas and Hovakimian (2010) argue that the share issuance effect is even more pronounced when the extreme case of value purchasers versus growth issuers is considered.

Our aim in this study is to investigate the relation between net stock issuance and expected equity returns in the Turkish stock market. We believe that this is an essential topic of interest because the strengthening of the Turkish economy and the development of capital markets especially after

[1] The cross-sectional relation between these variables and equity returns in the ISE has been investigated by Akdeniz, Altay-Salih, Aydogan (2000), Doganay (2006) and Unlu (2012).
[2] See Eckbo, Masulis and Norli (2000), Baker and Wurgler (2000), Schultz (2003) and Bulter, Grullon and Weston (2005), Lyandres, Sun and Zhang (2008).

the 2001 crisis led to a higher number of share issuance events. Also, Turkish regulatory bodies are taking initiatives to incentivize more companies to go public. Moreover, the legal framework is being restructured to make it more convenient for public firms to issue and repurchase equity. Share issuance is at the crossroads of asset pricing and corporate finance and it is worth to investigate the impact of this corporate financing activity on equity valuations, especially in these transformative stages in the Turkish financial markets.

The annual logarithmic change in shares outstanding adjusted for distribution events is used to measure share issuance activity. First, we run univariate regressions of one-period ahead stock returns on the share issuance measure for five different return horizons but find no significant relationship. We attribute this lack of significance to the fact that most stock issues in Turkey occur in the form of rights offerings. The money raised in rights offerings must necessarily be added to the book value of capital and this induces a mechanical positive correlation between the book-to-market ratio and the share issuance measure. The positive relation between the book-to-market ratio and expected equity returns[3] could mask the negative relation between share issuance and expected equity returns. This offsetting effect could cause the coefficients on the share issuance measure to be insignificant in univariate regressions. Consistent with this conjecture, we find that there is a significant and negative relation between share issuance and expected returns after controlling for size, book-to-market ratio and momentum, especially when the expected returns are measured for horizons of 6 months and longer. We also find that book-to-market ratio is positively related to expected equity returns whereas firm size and past returns are negatively related to expected equity returns.

We also conduct portfolio analysis to check the robustness of the regression results. Every month, we sort stocks into quintiles based on the share issuance measure. Next, we look at the return differences between the extreme quintiles by calculating returns for horizons ranging from 1 month to 24 months after portfolio formation. Consistent with the univariate regressions, there is no significant return difference between the extreme portfolios due to the confounding impact of the book-to-market effect. Thus, we run monthly contemporaneous regressions of the share issuance measure on the book-to-market ratio and calculate a residual share issuance measure for each stock every month. When we form the quintiles based on this residual issuance measure, we find that that the quintile with the lowest residual issuance significantly outperforms the quintile with the highest residual issuance for return horizons of 6 months and longer.

[3] The cause of this positive relation could be higher risk embedded in value stocks as argued in Fama and French (1992) or suboptimal behavior of the typical investor and resulting misvaluation as argued in Lakonishok, Shleifer and Vishny (1994).

The rest of the paper is organized as follows. Section 2 summarizes the legal framework related to right offerings, seasoned equity offerings and share repurchases in the Turkish market. Section 3 explains the data and the methodology and provides descriptive statistics. Section 4 presents the empirical results from the regression and portfolio analysis. Section 5 concludes.

2. REGULATIONS FOR RIGHT OFFERINGS, SEO'S AND REPURCHASES

A review of the regulatory framework of the capital markets is an important part of our research, because as in the case for many other emerging nations, share issuances and repurchases in Turkish markets were either costly or illegal until recent years. For the Turkish case, there are very few SEO's and rights offerings are utilized as the primary issuance method. Hence, we start by analyzing regulatory and corporate governance frameworks of Turkish markets.

2.1 Rights Offerings and Seasoned Equity Offerings

In Turkish markets, capital structure changes occur mostly via rights offerings. A rights offering is a type of issuance of additional shares by a company to raise capital. A rights issue is a special form of shelf offering or shelf registration. With the issued rights, existing shareholders have the privilege to buy a specified number of new shares from the firm at a specified price within a specified time. In rights issues, new cash enters the firm in contrast to a stock split. The Capital Markets Board of Turkey (CMBOT) regulates the registration and issue of shares in Turkish markets through Communiqué Serial I No: 40 dated 03/04/2010 and amendments done under Communiqué Serial I No: 43 on 23/10/2010. In a rights offering, new shares can be issued at any price; however, if the firm intends to issue the shares at a price different from the market price or nominal price, CMBOT should be consulted and the valuation report on the sale price in question should be published at least two days before the beginning of the sale. Article 7 of Communiqué Serial I No: 40 regulates the rules regarding how the board of directors should pass the resolution establishing the amount of and principles governing the capital contributions in a rights offering and the measures that should be taken when the board opts to restrict the entitlement of the new shares. Article 8 of Communiqué Serial I No: 40 regulates the conversion of shares offered in SEO's to tradable shares, the calculation of the registration fees and sales restrictions.

In rights offerings, the pre-emptive rights of the existing shareholders can be restricted and it is possible that the new shares will only be issued to new investors. However, rights issues are still

different from seasoned equity offerings because the money raised in rights issues has to be added to the book value of capital. In SEO's, the current shareholders of a company can register their unregistered shares with CMBOT, sell these newly registered shares in the market through financial intermediaries and take away a portion or all of the money raised for their personal accounts. Under such a situation, the shares outstanding will change but this change may not be accompanied by an increase in the book value of capital. The free float of the company will increase in SEO's while it may stay the same in a rights issue if the pre-emptive rights are not restricted. For the Turkish markets, SEO's are very rare and they are only used by state-owned enterprises because in right offerings these public companies are also obliged to allocate new capital.

Bonus issues are the type of issues that companies raise equity capital without any payment to be made by existing shareholders. Shares issued in these transactions are free shares. Bonus issues are typically financed by using internal resources and stock dividends in Turkey. The method of internal resources refers the capital gain from selling a firm's assets, buildings, equipment or other real estates. On the other hand, a stock dividend, perceived by investors as "splits", is an offer of additional shares of stocks to shareholders in proportion to their existing stocks rather than cash.

CMBOT issued new measures for IPO's and SEO's with Communiqué Serial VIII No: 66 dated 03/04/2010 and the prerequisites for entering the capital markets have been relaxed for both equity and fixed income markets. While most of the articles remained the same, CMBOT amended the requirement of having 3 consecutive years of net profit to 1 year. CMBOT also introduced new incentives in collaboration with the Istanbul Stock Exchange, TSPAKB (Association of Capital Market Intermediary Institutions of Turkey) and KOSGEB (Small and Medium Enterprises Development Organization) on 04/02/2011 for small and medium sized firms to enter to the equity market for developing firms. With this incentive, up to 100,000 TL which covers almost all the costs of IPO's are granted by KOSGEB to the member firms. In order to be qualified as a "small and medium sized firm" the total sales in one accounting year must be below 25 million TL.[4]

2.2 Share Repurchases

For a long time Turkish markets were ruled by a complicated legal system. The capital structure decisions were regulated by the old Turkish Trade Law no. 6762 which was put into effect in

[4] Refer to http://www.ipoturkeysummit.com for further information.

1956 and temporary changes have been made since then by communiqués and bylaws of the Capital Markets Board of Turkey and the Istanbul Stock Exchange (ISE). According to Article 329 of the old Turkish Trade Law, companies could not buy their shares back but the law had some exceptions. For example, if the company decided to diminish its equity capital to increase its leverage, aimed to hedge corporate debt with company receivables other than equity participation contracts or inherited shares through the acquisition of another firm, then the company was allowed to engage in stock buybacks. Additionally, in the events that the ordinary scope of activity of the company is engaging in buyback transactions, the board members, directors or officers pledge their shares as security for their obligations or the buyback is made free and not in exchange for any consideration, share repurchasing activity was possible. There were other complications such as the exemption of foreign owned firms from the aforementioned law and special arrangements that could be made by public companies.

Even with these exceptions, there were very few firms that employed buyback programs until recently when the CMBOT and ISE issued new principles concerning share repurchases in parallel with the new Turkish Trade Law no. 6102 under which the new share repurchase principles are regulated by Article 379. First, with the CMBOT's Communiqué 27/748 dated 01/09/2009, exchange traded investment trusts and brokerage houses were given the right to buy back their own shares. Then with a new Communiqué 26/767 dated 11/08/2011, CMBOT expanded the buyback concessions to all the publicly traded firms declaring that share repurchase would protect the shareholders from volatility in the stock markets both in Turkey and abroad and improve the transparency in the markets.

According to the new CMBOT decision, all ISE-listed companies can employ share repurchase programs but a board decision and subsequent approval from the general shareholder's meeting is required. The buyback transactions should be performed in a maximum period of 18 months. Only previously traded shares can be repurchased through the ISE and no block trades or special arrangements between buyer and seller parties are allowed. The amount of repurchased shares is limited by 10% of the company's paid-in-capital and any additional repurchased shares must be resold in the market in 6 months. Aside from these rules, there are limits on how the company can apply the repurchase program to avoid affecting the share price in a manipulative manner which can harm the investors. These restrictions are generally in the form of order bans at the beginning and ending of trading sessions or price and volume limitations.

In short, with the development of Turkish markets especially after the crisis period of 2008, Turkish legislators have taken new initiatives to ease both share offerings and repurchases. Aside from the regulatory changes that are stated above, CMBOT and ISE also took a liberal approach to simplify the bureaucratic procedures and speed up the application processes. We can observe that these improvements have been proven successful as more firms have applied for IPO's and SEO's until the renewed crisis situation in 2011.

3. DATA AND METHODOLOGY

The data for monthly stock returns, book value of equity, market equity and shares outstanding are obtained for stocks quoted in the ISE between October 1991 and July 2011 from the StockGround and Matriks databases[5]. The raw number of shares outstanding obtained from StockGround is adjusted for distribution events such as stock splits. In order to be conservative and ensure that shares outstanding data is available to investors, we only use six-month old data to explain equity returns following Pontiff and Woodgate (2008). Thus, the adjusted shares outstanding metric used to measure annual share issuance at time t is:

$$ISSUE_{t-6,t-18} = \text{Ln}(\text{Adjusted Shares Outstanding}_{t-6}) - \text{Ln}(\text{Adjusted Shares Outstanding}_{t-18}) \quad (1)$$

In the same vein as Fama and Macbeth (1973), for each month, we estimate separate univariate regressions using one-period ahead returns as our dependent variable:

$$\begin{aligned}
R_{i,t+n} &= \alpha_{i,t} + \beta^{ME}{}_i \times ME_t + \varepsilon_{i,t+n} \\
R_{i,t+n} &= \alpha_{i,t} + \beta^{BM}{}_i \times BM_t + \varepsilon_{i,t+n} \\
R_{i,t+n} &= \alpha_{i,t} + \beta^{MOM}{}_i \times MOM_t + \varepsilon_{i,t+n} \\
R_{i,t+n} &= \alpha_{i,t} + \beta^{ISSUE}{}_i \times ISSUE_{t-6,t-18} + \varepsilon_{i,t+n} \quad \text{for } n = 1, 3, 6, 12 \text{ and } 24 \text{ months} \quad (2)
\end{aligned}$$

Then, we also estimate multivariate regressions to test the statistical power of share issuance after controlling for size, book-to-market and momentum:

$$R_{i,t+n} = \alpha_{i,t} + \beta^{ME}{}_i \times ME_t + \beta^{BM}{}_i \times BM_t + \beta^{MOM}{}_i \times MOM_t + \beta^{ISSUE}{}_i \times ISSUE_{t-6,t-18} + \varepsilon_{i,t+n} \quad (3)$$

for n= 1, 3, 6, 12 and 24 months

[5] StockGround is a financial analysis software with advanced fundamental and technical analysis capabilities designed by Rasyonet Inc. which is a software solution provider to brokerage houses, commercial banks and portfolio management firms. Matriks Bilgi Dağıtım Hizmetleri A.Ş. ("Matriks") has been serving as a "Licensed Data Dissemination Company" since January 2004, upon receiving a buyer's license from the ISE. Matriks extracts information on Turkish and global capital markets and conveys it to individual and institutional clients.

In regression equations (2) and (3), $R_{i,t+n}$ is the return on stock *i* for holding periods of *n* months after year *t*; *ME* is the natural logarithm of market equity measured at the end of previous June; *BM* is the natural logarithm of the ratio of book value of equity to market value of equity measured at the end of the previous calendar year; *MOM* is the equity returns for the past 6 months and $ISSUE_{t-6,t-18}$ is estimated as in equation (1). To account for nonlinearities in the relation between past returns and expected returns, an ordinal ranking is used for the momentum factor following Chan, Jegadeesh and Lakonishok (2006).[6]

We report the average slope coefficients, intercepts, and adjusted R^2s. The dependent variables in our regressions are the future stock returns for holding periods of 1, 3, 6, 12 and 24 months. Using the same procedure as in Pontiff (1996), t-statistics for the slope coefficients are calculated with autocorrelation-consistent standard errors that consider the holding period overlap. This procedure estimates a regression using each month's slope estimate where the residuals follow an n^{th}-order autoregressive process with n equal to one minus the length of the holding period in months. This technique is general in that it does not rely on the assumption of no monthly return autocorrelation. The time-series of the slope coefficients are also analyzed to see the effects of the crisis periods and business cycles on the relation between share issuance and expected equity returns.

Table 1 presents descriptive statistics and correlation structures for the variables used in study. In Panel A, we compute descriptive statistics for the pooled panel data. We are particularly interested in share issuance. The share issuance measure that we use reflects annual logarithmic changes in adjusted shares outstanding and we find that the mean and median values for *ISSUE* are positive implying that the average firm in our sample had a tendency to issue shares in a given month. However, Panel A also shows that there are some monthly observations for which some firms reduced their number of shares outstanding substantially. The standard deviation of *ISSUE* is higher than its mean and the distribution of *ISSUE* is highly left-skewed and leptokurtic.

The returns for the five distinct time horizons exhibit similar patterns and we will focus on the descriptive statistics for the one-month window in our discussion. The monthly average return for the stocks in the sample is 4% and the median return is 1%. This difference between the mean and

[6] The momentum measure is lagged by 1 month to avoid losing predictive ability due to the positive autocorrelation attributable to the bid-ask bounce. The results are robust when the unlagged momentum measure is used in the regressions instead. The results are also qualitatively the same if raw returns rather than an ordinal ranking are used for the momentum factor.

the median statistics is due to the existence of some firm-months with very high returns. The maximum statistic is 887% implying that there was a particular company whose stock price increased by almost tenfold in a given month. Consequently, the standard deviation for the monthly return distribution is about 6 times the mean and the distribution is highly right-skewed and leptokurtic. As the return horizon is extended; the mean and median statistics increase, the extreme returns get more pronounced and the distribution becomes more skewed and leptokurtic. The mean and median statistics for the raw book-to-market values are 0.64 and 0.73, respectively and the *BM* distribution has fat tails as evidenced by the extreme observations. The average size of the sample firms is about 28 million TL. The momentum variable is measured by returns over six month windows, thus its distributional properties follow those of the return measures.

Panel B of Table 1 describes the correlation structure between the variables. The negative correlation between issuance and expected returns is a precursor for the significantly negative relation between these two variables that we find in subsequent analysis. While the correlations between most of the variables are small, there is an exceptionally large correlation of 0.74 between *BM* and *ISSUE*. This finding is not witnessed in the U.S. markets and is particular to Turkey. The reason is that, contrary to U.S. markets, SEO's are rare in the ISE and the share issuance measure is mainly driven by rights offerings. Rights issues are different from seasoned equity offerings because the money raised has to be added to the book value of capital in rights issues. However, in SEO's, the shareholders that register their shares for the first time and sell them in the market have the option to add the proceeds to the firm's capital or take them for their personal accounts. Hence, the book-to-market ratio increases mechanically for rights offerings but this need not be the case for SEO's. Since our issuance measure is driven by rights issues, there is a strong positive correlation between *BM* and *ISSUE*. One final point worth to note is that the correlations between returns up to a horizon of 12 months tends to be positive but there seems to be some reversal when the return horizon is extended to two years.

4. EMPIRICAL RESULTS

4.1 Regression Analysis

The regressions results of expected equity returns on share issuance, book-to-market ratio, size and momentum are presented in Table 2. Five holding periods ranging from 1 month to 24 months are considered to measure expected returns. Panel A gives the estimation results for the 1-month return horizon. The first four rows present a "horse race" between book-to-market (*BM*), size

(*ME*) and momentum (*MOM*) by considering three separate univariate regressions. The fourth row presents results for a multivariate regression on *BM, ME* and *MOM*. In univariate regressions, *BM* has a positive relation with one-month ahead returns whereas *ME* has a negative relation with one-month ahead returns. These results are consistent with prior literature; however, the significantly negative coefficient of *MOM* is at odds with results from U.S. studies. Other studies focusing on Turkish markets such as Bildik and Gulay (2007) and Kandir and Inan (2011) also find that the momentum effect does not hold for the ISE. In this respect, it may be more accurate to treat the momentum effect as a reversal effect in the context of Turkish markets. The univariate regression results for one-month returns extend to other return horizons with the exception of *BM* which loses its significance at the two-year horizon. The multivariate regressions that include *BM*, *ME* and *MOM* show that size and momentum are still significantly negatively related to expected returns for all horizons whereas the coefficient on *BM* becomes generally insignificant.

The main variable of interest is *ISSUE*. In univariate regressions, for all return horizons, we find that there is no significant relation between share issuance and expected returns. This result can be explained by observing that *ISSUE* captures both the issuance effect which implies a negative relation with expected equity returns and the book-to-market effect which implies a positive relation with expected equity returns. This is due to the fact that, in Turkish markets, most issuance occurs in the form of rights offerings under which the money raised necessarily becomes a part of the book capital. As a result, the book-to-market ratio of the issuing firm mechanically increases along with the number of shares outstanding. The negative effect of increased shares outstanding and the positive effect of a higher book-to-market ratio on expected equity returns are potentially offsetting. This conjecture can explain the insignificant slope coefficient of *ISSUE* in the univariate setting. Hence, it becomes essential to control for *BM* to see the relation between share issuance activity and expected equity returns in isolation.

In the last row of each panel, multivariate regressions that include *ISSUE* along with the other three control variables are presented. Although *ISSUE* still has no cross-sectional relation with one-month ahead returns, we find that the coefficient of *ISSUE* becomes significant at the three-month horizon with a value of -0.04 and a t-statistic of -2.01. As we extend the return measurement window, the slope coefficient of *ISSUE* increases in absolute magnitude and becomes more significant. For example, for the two-year return horizon, the coefficient of *ISSUE* is -0.34 with a t-statistic of -4.01. In these multivariate regressions, *ME* and *MOM* lose their significance after the 6-month return horizon. In other words, as the return window is extended, the issuance effect subsumes the size and the momentum effects. Moreover, the book-to-market

effect generally gets more pronounced for longer return horizons and the coefficient of *BM* is significantly positive in all panels. This shows that including the issuance measure in the specification also makes it possible to tease out the positive relation between the book-to-market ratio and expected returns which was missing from the univariate regressions. Overall, we interpret these results as evidence that logarithmic annual changes in share issuance is significantly related to expected equity returns, especially for longer horizons.[7]

Figure 1 investigates the time series of slope coefficients on share issuance. First, we run multivariate regressions of annual returns on *ISSUE* and the three control variables every month. Then, we compute the average slope coefficient for *ISSUE* over the past 12 months and construct the confidence intervals based on the standard error of these 12 coefficient estimates. This procedure is repeated every month, giving us a rolling estimate for the slope coefficient of *ISSUE* and its standard error. The period for which the trailing average slope coefficient for share issuance is negative is shaded. As Figure 1 shows, after the early years of the ISE, the average relation between share issuance and expected equity returns exhibits a remarkable tendency to be negative and the shaded areas dominate most of the timeline. In the early years of the ISE, particularly the pre-1994 data tend to produce positive slope coefficients but the standard deviation of these coefficients is large. After that, the average slope coefficient becomes positive only briefly towards the end of the 90's and during 2010 when the economy experienced a strong recovery after the 2008 crisis. Even during these periods, although the average slope coefficients for share issuance tend to be positive, their magnitude is small and their variability is large. The main message from Figure 1 is that the negative relation between share issuance and expected equity returns documented in Table 2 is a phenomenon that applies to the majority of the sample period.

Since SEO's or share repurchases are rare in the ISE, the share issuance measure used in Table 2 is driven mainly by rights offerings. Hence next, we repeat our analysis by considering only rights offerings as the event that changes shares outstanding. The results are presented in Table 3. Overall, Table 3 shows that the removal of SEO's and share repurchases has a minor impact on the relation between share issuance and expected returns. The major difference is that, in the multivariate analysis, the slope coefficients and t-statistics for *ISSUE* decrease. However, the significantly negative relation between *ISSUE* and expected equity returns is still visible for return horizons starting with 6 months. As one moves from the six-month horizon to the two-year horizon, the coefficient of *ISSUE* increases in absolute magnitude from -0.11 to -0.31 and the

[7] All of these results are robust to winsorizing all the right-hand variables at the 0.5% level.

corresponding t-statistic changes from -1.88 to -3.08. In other words, the main result of this study stays intact after considering rights offerings as the only event that affects issuance activity. Moreover, the slight reduction in the strength of the relation between share issuance and equity returns is expected due to the fact that the offsetting impact of the book-to-market effect on the issuance effect should become more pronounced when only rights offerings are taken into account.

4.2 Portfolio Analysis

To further test the cross-sectional relation between share issuance and expected equity returns, we use a sorted portfolio approach. First, every month, we construct five quintile portfolios based on *ISSUE*. Next, we calculate the return difference between the quintile with the highest net share issuance and the quintile with the lowest net share issuance. The return differences are calculated for five different holding periods that extend from 1 month to 24 months. The results are presented in Table 4.

Table 4 shows that, for all return horizons, there is no significant performance difference between the extreme share issuance quintiles. For the return windows up to 12 months, the returns of all quintile portfolios are essentially flat. For the two-year horizon, although the quintile with the lowest net share issuance outperforms the quintile with the highest net share issuance by 10%, this difference is not statistically significant. These findings are consistent with the univariate regression results from Tables 2 and 3. We again attribute the lack of a significant performance difference between the quintiles formed based on *ISSUE* to the mechanical relation between this measure and the book-to-market ratio. This mechanical relation is evident from the second panel in Table 4 which shows that the book-to-market ratio increases uniformly as one moves from the lowest net share issuance quintile to the highest net share issuance quintile. As a result, the issuance effect and the book-to-market effect offset each other.

To separate the issuance and book-to-market effects from each other, we regress *ISSUE* on book-to-market ratio every month and calculate a residual share issuance measure for every stock as the error term from the regression. This residual share issuance measure is orthogonal to the book-to-market ratio by construction and helps us isolate the stand-alone relation between issuance activity and expected equity returns. We construct five quintile portfolios based on the residual issuance measure every month and calculate the return difference between the quintiles with the highest and lowest residual share issuance. The results are presented in Table 5.

Although the profile for the quintile returns seems to be flat for the 1-month and 3-month expected return windows, there is a significant return difference between the quintiles with the highest and lowest residual share issuance starting with the 6-month horizon. For the 6-month window, the quintile with the lowest residual share issuance has an average return of 34% whereas the quintile with the highest residual share issuance has an average return of 26%. The return difference is 8% with a Newey-West (1997) adjusted t-statistic of 2.03. The results get more dramatic as the expected return horizon is extended to 12 and 24 months. For the 24-month horizon, the lowest and highest residual share issuance quintiles have average returns of 81% and 50%, respectively. The difference is 31% with a highly significant t-statistic of 3.71. In other words, the negative relation between share issuance activity and expected equity returns becomes apparent after controlling for the book-to-market ratio in the portfolio analysis as well. These results confirm that share issuance exhibits a strong cross-sectional relation with expected equity returns in the ISE between 1992 and 2011.

5. CONCLUSION

In this study, we investigate the cross-sectional relation between share issuance and expected equity returns in the Istanbul Stock Exchange. Especially in the post-2000 period, numerous international studies argue that post-issuance long-run returns are abnormally low and the post-share repurchase long-run returns are abnormally high. This debate motivates us to examine whether net share issuance can be used to explain expected stock returns in the ISE, especially given that Turkish regulators are taking important steps to make capital structure changing events such as IPO's, SEO's and share repurchases less costly.

We measure share issuance as the annual logarithmic change in shares outstanding adjusted for distribution events such as stock splits. First, we estimate univariate regressions to test the stand-alone predictive power of book-to-market, size, momentum and share issuance. The dependent variable in our regressions is the one-period ahead stock return for five distinct horizons ranging from 1 month to 24 months. Our variable of interest, *ISSUE,* is not statistically significant in a univariate setting. This is due to the fact that *ISSUE* is highly correlated with the book-to-market ratio and captures both the issuance effect and the book-to-market effect. In Turkish markets, most capital structure changes occur in the form of rights offerings. Rights offering are different from seasoned equity offerings because the money raised in rights offers has to be added to the capital whereas in SEO’s they can be taken away by the shareholders that register their shares for

the first time and offer them in the market. Hence, in a rights offer, the book-to-market ratio necessarily increases along with the number of shares outstanding. Hence, the positive relation between the book-to-market ratio and expected returns offsets the negative relation between share issuance and expected returns resulting in an insignificant coefficient for *ISSUE* in the univariate setting. However, when multivariate regressions are estimated to test the significance of share issuance along with the size, value and momentum factors, we find that there is a significantly negative relation between share issuance and expected stock returns. This relation gets stronger and subsumes the size and momentum effects for longer return horizons. When we investigate the time series of slope coefficients on share issuance, we find that the average slope exhibits a remarkable tendency to be negative over the sample period.

A sorted portfolio approach is also employed to test the validity of our regression results. Every month, five quintile portfolios are constructed based on the share issuance measure and the return differences between extreme quintiles are computed for different return horizons after portfolio formation. There is no significant return difference between the quintiles with the highest and lowest net share issuance in any holding period, confirming the results of the univariate regressions. However, when we sort stocks into portfolios according to the residuals from a monthly regression of share issuance on the book-to-market ratio to abstract from the book-to-market effect, the return difference between the extreme residual issuance quintiles become significantly negative for return windows of 6 months and longer. These results confirm that share issuance has a significantly negative relation with expected equity returns in the ISE between 1992 and 2011.

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Table 1. Descriptive Statistics

This table presents summary statistics and correlation measures. Panel A reports the minimum, 25th percentile, median, 75th percentile, maximum, mean, standard deviation, skewness and kurtosis statistics for the pooled data between 1992 and 2011. Panel B reports the correlation structure between the variables. R_1 to R_{24} are the equity returns for time horizons that vary from 1 month to 24 months. BM is the natural logarithm of the ratio of the book value of equity to the market value of equity measured at the end of previous December. ME is the natural logarithm of market equity measured at the end of previous June. MOM is the equity returns for the past six months. ISSUE is the annual logarithmic change in the number of shares outstanding adjusted for distribution events.

PANEL A: Panel data statistics

Variable	Minimum	25th Percentile	Median	75th Percentile	Maximum	Mean	Standard dev.	Skewness	Kurtosis
R_1	-0.75	-0.07	0.01	0.12	8.87	0.04	0.23	3.87	71.64
R_3	-0.87	-0.11	0.05	0.28	24.99	0.15	0.50	5.99	149.59
R_6	-0.91	-0.13	0.12	0.49	41.61	0.31	0.89	8.15	212.53
R_{12}	-0.94	-0.12	0.28	0.96	80.99	0.72	1.79	9.81	256.35
R_{24}	-0.94	-0.12	0.27	0.94	80.99	0.70	1.76	10.25	275.57
BM	-9.21	-0.92	-0.31	0.19	1.75	-0.44	1.14	-3.43	26.03
ME	10.05	15.66	17.15	18.77	23.36	17.16	2.47	-0.17	3.16
MOM	-0.91	-0.13	0.12	0.49	41.61	0.31	0.89	8.15	212.53
ISSUE	-4.39	0.02	0.12	0.32	1.50	0.15	0.55	-4.93	39.84

PANEL B: Correlation matrix

Variable	R_1	R_3	R_6	R_{12}	R_{24}	BM	ME	MOM	ISSUE
R_1	1.00								
R_3	0.54	1.00							
R_6	0.34	0.64	1.00						
R_{12}	0.22	0.40	0.58	1.00					
R_{24}	-0.03	-0.03	-0.03	-0.07	1.00				
BM	0.01	0.02	0.02	-0.01	-0.03	1.00			
ME	-0.10	-0.17	-0.19	-0.24	-0.22	-0.02	1.00		
MOM	-0.02	-0.03	-0.01	-0.07	0.05	0.06	-0.16	1.00	
ISSUE	0.00	-0.02	-0.03	-0.05	0.00	0.74	-0.03	-0.01	1.00

Table 2. Cross-Sectional Regressions

This table presents the Fama-Macbeth regression results of expected stock returns for different holding periods ranging from 1 month to 24 months on various combinations of BM, ME, MOM and ISSUE. BM is the natural logarithm of the ratio of the book value of equity to the market value of equity measured at the end of the previous December. ME is the natural logarithm of market equity measured at the end of the previous June. MOM is the equity returns for the past six months. ISSUE is the annual logarithmic change in the number of shares outstanding adjusted for distribution events. The number of holding periods in months minus one is used as the lag in Newey-West (1987) t-statistics as specified in Pontiff (1996). Coefficients with significant t-statistics at the %95 and %90 levels are marked by (**) and (*), respectively.

PANEL A: Dependent variable is the 1-month expected stock return

Intercept	BM	ME	MOM	ISSUE	Avg. R^2
0.05	0.02				
(5.45)**	(1.90)*				0.84
0.11		0.00			
(4.68)**		(-2.86)**			2.10
0.06			0.00		
(5.74)**			(-3.01)**		1.01
0.12	0.00	0.00	0.00		
(5.03)**	(1.20)	(-2.85)**	(-2.72)**		3.71
0.05				0.00	
(4.90)**				(0.28)	1.23
0.08	0.01	0.00	-0.01	-0.01	
(2.76)**	(1.80)*	(-0.67)	(-2.91)**	(-1.20)	6.57

PANEL B: Dependent variable is the 3-month expected stock return

Intercept	BM	ME	MOM	ISSUE	Avg. R^2
0.18	0.01				
(5.29)**	(2.02)**				1.45
0.41		-0.02			
(4.54)**		(-3.31)**			2.09
0.22			-0.01		
(5.42)**			(-3.27)**		1.14
0.44	0.01	-0.02	-0.01		
(4.95)**	(1.49)	(-3.52)**	(-2.83)**		4.30
0.16				0.01	
(4.78)**				(0.47)	1.86
0.36	0.01	-0.01	-0.01	-0.04	
(3.60)**	(1.93)*	(-2.17)**	(-2.78)**	(-2.01)**	7.77

PANEL C: Dependent variable is the 6-month expected stock return					
Intercept	BM	ME	MOM	ISSUE	Avg. R^2
0.40	0.02				
(5.49)**	(2.31)**				1.65
0.89		-0.03			
(4.66)**		(-3.47)**			1.95
0.47			-0.03		
(4.82)**			(-2.69)**		1.24
0.93	0.02	-0.03	-0.02		
(4.37)**	(1.82)*	(-3.18)**	(-2.57)**		4.44
0.32				0.01	
(4.64)**				(0.44)	1.20
0.77	0.04	-0.02	-0.03	-0.12	
(3.33)**	(2.01)**	(-2.00)**	(-2.79)**	(-2.55)**	7.51

PANEL D: Dependent variable is the 12-month expected stock return					
Intercept	BM	ME	MOM	ISSUE	Avg. R^2
0.93	0.05				
(4.83)**	(1.66)*				2.06
2.05		-0.08			
(4.27)**		(-3.14)**			1.81
1.15			-0.07		
(4.08)**			(-2.66)**		0.99
2.08	0.03	-0.07	-0.06		
(3.62)**	(1.14)	(-2.60)**	(-2.71)**		4.24
0.68				0.08	
(4.39)**				(0.82)	0.55
1.44	0.08	-0.04	-0.04	-0.20	
(2.70)**	(2.21)**	(-1.50)	(-1.51)	(-2.16)**	6.02

PANEL E: Dependent variable is the 24-month expected stock return					
Intercept	BM	ME	MOM	ISSUE	Avg. R^2
0.81	0.03				
(4.97)**	(1.02)				1.78
1.66		-0.05			
(3.91)**		(-2.44)**			1.24
0.87			-0.02		
(4.35)**			(-2.07)**		0.27
1.46	0.01	-0.04	-0.02		
(3.18)**	(0.39)	(-1.69)*	(-1.75)*		3.05
0.72				-0.03	
(4.16)**				(-0.20)	0.56
1.05	0.10	-0.01	-0.03	-0.34	
(1.88)*	(2.00)**	(-0.49)	(-1.51)	(-4.01)**	4.46

Table 3. Cross-Sectional Regressions with only Rights Offerings

This table presents the Fama-Macbeth regression results of expected stock returns for different holding periods ranging from 1 month to 24 months on various combinations of BM, ME, MOM and ISSUE. BM is the natural logarithm of the ratio of the book value of equity to the market value of equity measured at the end of the previous December. ME is the natural logarithm of market equity measured at the end of the previous June. MOM is the equity returns for the past six months. ISSUE is the annual logarithmic change in the number of shares outstanding adjusted for distribution events when only rights offerings are taken into account as events that change the number of shares outstanding. The number of holding periods in months minus one is used as the lag in Newey-West (1987) t-statistics as specified in Pontiff (1996). Coefficients with significant t-statistics at the %95 and %90 levels are marked by (**) and (*), respectively.

PANEL A: Dependent variable is the 1-month expected stock return

Intercept	BM	ME	MOM	ISSUE	Avg. R^2
0.05	0.02				
(5.45)**	(1.90)*				0.84
0.11		0.00			
(4.68)**		(-2.86)**			2.10
0.06			0.00		
(5.74)**			(-3.01)**		1.01
0.12	0.00	0.00	0.00		
(5.03)**	(1.20)	(-2.85)**	(-2.72)**		3.71
0.05				0.01	
(4.72)**				(0.76)	1.80
0.08	0.00	0.00	0.00	-0.01	
(2.68)**	(1.29)	(-0.87)	(-2.56)**	(-0.70)	7.52

PANEL B: Dependent variable is the 3-month expected stock return

Intercept	BM	ME	MOM	ISSUE	Avg. R^2
0.18	0.01				
(5.29)**	(2.02)**				1.45
0.41		-0.02			
(4.54)**		(-3.31)**			2.09
0.22			-0.01		
(5.42)**			(-3.27)**		1.14
0.44	0.01	-0.02	-0.01		
(4.95)**	(1.49)	(-3.52)**	(-2.83)**		4.30
0.15				0.02	
(4.58)**				(0.83)	2.16
0.33	0.01	-0.01	-0.01	-0.04	
(3.36)**	(1.87)*	(-1.96)**	(-1.99)**	(-1.59)	9.09

PANEL C: Dependent variable is the 6-month expected stock return					
Intercept	BM	ME	MOM	ISSUE	Avg. R^2
0.40	0.02				
(5.49)**	(2.31)**				1.65
0.89		-0.03			
(4.66)**		(-3.47)**			1.95
0.47			-0.03		
(4.82)**			(-2.69)**		1.24
0.93	0.02	-0.03	-0.02		
(4.37)**	(1.82)*	(-3.18)**	(-2.57)**		4.44
0.31				0.04	
(4.48)**				(0.73)	1.59
0.68	0.04	-0.02	-0.02	-0.11	
(3.09)**	(2.14)**	(-1.70)*	(-2.05)**	(-1.88)*	8.59

PANEL D: Dependent variable is the 12-month expected stock return					
Intercept	BM	ME	MOM	ISSUE	Avg. R^2
0.93	0.05				
(4.83)**	(1.66)*				2.06
2.05		-0.08			
(4.27)**		(-3.14)**			1.81
1.15			-0.07		
(4.08)**			(-2.66)**		0.99
2.08	0.03	-0.07	-0.06		
(3.62)**	(1.14)	(-2.60)**	(-2.71)**		4.24
0.66				0.14	
(4.28)**				(0.99)	0.36
1.31	0.08	-0.03	-0.03	-0.17	
(2.51)**	(2.33)**	(-1.33)	(-1.09)	(-2.82)**	6.19

PANEL E: Dependent variable is the 24-month expected stock return					
Intercept	BM	ME	MOM	ISSUE	Avg. R^2
0.81	0.03				
(4.97)**	(1.02)				1.78
1.66		-0.05			
(3.91)**		(-2.44)**			1.24
0.87			-0.02		
(4.35)**			(-2.07)**		0.27
1.46	0.01	-0.04	-0.02		
(3.18)**	(0.39)	(-1.69)*	(-1.75)*		3.05
0.70				-0.03	
(4.09)**				(-0.23)	0.70
0.95	0.10	-0.01	-0.03	-0.31	
(1.75)*	(2.16)**	(-0.35)	(-1.43)	(-3.08)**	4.51

Table 4. Portfolios Sorted on *ISSUE*

This table presents the average returns of quintiles formed based on net share issuance. Every month, five quintile portfolios are constructed based on ISSUE. Ties are broken randomly during portfolio construction. The returns for these five quintiles are calculated for five different holding periods that extend from 1 month to 24 months. The first panel presents the returns for the five quintiles along with the difference between the quintile with the highest net share issuance and the quintile with the lowest net share issuance. The t-statistics are adjusted following Newey-West (1997) and the number of holding periods in months minus one is used as the lag as specified in Pontiff (1996). The second panel presents other characteristics associated with the quintile portfolios. BM is the natural logarithm of the ratio of the book value of equity to the market value of equity measured at the end of previous December. ME is the natural logarithm of market equity measured at the end of previous June. MOM is the equity returns for the past six months. ISSUE is the annual logarithmic change in the number of shares outstanding adjusted for distribution events. The return differences with significant t-statistics at the %95 and %90 levels are marked by (**) and (*), respectively.

	Portfolio					Difference
	1	2	3	4	5	5-1
R_1	0.04	0.04	0.04	0.05	0.04	0.00
	(4.36)	(4.32)	(3.89)	(3.95)	(3.62)	(0.31)
R_3	0.14	0.15	0.14	0.14	0.16	0.02
	(4.20)	(4.69)	(3.97)	(3.89)	(3.73)	(0.94)
R_6	0.29	0.31	0.30	0.30	0.31	0.02
	(4.17)	(4.73)	(4.08)	(3.90)	(3.81)	(0.57)
R_{12}	0.65	0.70	0.63	0.61	0.71	0.05
	(3.75)	(4.81)	(4.14)	(3.52)	(3.34)	(0.57)
R_{24}	0.71	0.68	0.62	0.66	0.61	-0.10
	(3.34)	(3.89)	(4.19)	(3.26)	(3.06)	(-0.77)

	Portfolio				
	1	2	3	4	5
ME	17.38	17.37	17.01	16.44	16.22
	(62.20)	(56.77)	(57.41)	(60.20)	(56.78)
MOM	0.31	0.30	0.30	0.31	0.35
	(4.68)	(4.26)	(4.50)	(3.52)	(3.58)
BM	-1.92	-0.72	-0.53	-0.36	-0.22
	(-11.43)	(-8.15)	(-7.02)	(-5.95)	(-3.25)
ISSUE	-0.39	0.10	0.19	0.33	0.67
	(-5.78)	(7.87)	(10.33)	(14.94)	(29.54)

Table 5. Portfolios sorted on Residual *ISSUE*

This table presents the average returns of quintiles formed based on residual share issuance. Residual issuance is calculated as the error term from monthly regressions of ISSUE on BM. Every month, five quintile portfolios are constructed based on residual ISSUE. Ties are broken randomly during portfolio construction. The returns for these five quintiles are calculated for five different holding periods that extend from 1 month to 24 months. The first panel presents the returns for the five quintiles along with the difference between the quintile with the highest residual share issuance and the quintile with the lowest residual share issuance. The t-statistics are adjusted following Newey-West (1997) and the number of holding periods in months minus one is used as the lag as specified in Pontiff (1996). The second panel presents other characteristics associated with the quintile portfolios. BM is the natural logarithm of the ratio of the book value of equity to the market value of equity measured at the end of previous December. ME is the natural logarithm of market equity measured at the end of previous June. MOM is the equity returns for the past six months. ISSUE is the annual logarithmic change in the number of shares outstanding adjusted for distribution events. The return differences with significant t-statistics at the %95 and %90 levels are marked by (**) and (*), respectively.

	Residual Portfolio					Difference
	1	2	3	4	5	5-1
R_1	0.05	0.04	0.04	0.04	0.04	-0.01
	(4.44)	(3.97)	(4.15)	(3.69)	(3.84)	(-1.03)
R_3	0.16	0.13	0.14	0.14	0.14	-0.03
	(4.37)	(4.14)	(4.22)	(3.84)	(3.86)	(-1.58)
R_6	0.34	0.29	0.30	0.32	0.26	-0.08
	(4.29)	(4.13)	(4.18)	(4.17)	(3.79)	(-2.03)**
R_{12}	0.76	0.66	0.65	0.69	0.52	-0.25
	(4.18)	(4.06)	(3.81)	(3.75)	(3.56)	(-3.26)**
R_{24}	0.81	0.65	0.63	0.67	0.50	-0.31
	(4.06)	(3.83)	(3.67)	(3.05)	(3.04)	(-3.71)**

	Portfolio				
	1	2	3	4	5
ME	16.54	16.82	17.09	17.22	16.82
	(51.80)	(56.63)	(56.83)	(59.55)	(67.50)
MOM	0.40	0.34	0.27	0.28	0.28
	(4.84)	(4.07)	(3.76)	(3.77)	(3.64)
BM	-0.56	-0.36	-0.58	-0.86	-1.56
	(-4.63)	(-4.46)	(-8.08)	(-9.48)	(-14.82)
ISSUE	-0.46	-0.16	-0.02	0.14	0.50
	(-11.88)	(-9.50)	(-1.23)	(7.49)	(17.72)

Figure 1. Average Slope Coefficient for *ISSUE*

Figure 1 presents the time series of average slope coefficients on share issuance and the confidence interval of these coefficients. First, we run multivariate regressions of annual expected returns on ISSUE, BM, ME and MOM every month. Then, we compute the average slope coefficient for ISSUE over the past 12 months and construct the confidence intervals based on the standard error of these 12 coefficient estimates. This procedure is repeated every month, giving us a rolling estimate for the slope coefficient of ISSUE and its standard error. The period for which the trailing average slope coefficient for share issuance is negative is shaded. BM is the natural logarithm of the ratio of the book value of equity to the market value of equity measured at the end of the previous December. ME is the natural logarithm of market equity measured at the end of the previous June. MOM is the equity returns for the past six months. ISSUE is the annual logarithmic change in the number of shares outstanding adjusted for distribution events.