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Does Market Timing Drive Capital Structure? Empirical Evidence from an Emerging Market

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ABSTRACT: The purpose of this study is to test how equity market timing affects capital structure from the perspective of IPO (Initial Public Offering) event in ISE for the period between 1999-2008. Our dataset comprises of all firms (75 firms) that went public from the period of January 1999 to December 2008 in Turkey that are available in ISE database. We analyse the market timing theory by applying cross sectional regression method. For this purpose, first, we test the impact of market timing on the amount of equity issued by IPO firms. Second we examine the impact of market timing on capital structure. We conclude that market timing theory is not valid for Turkey.

Keywords: Capital Structure; Market Timing; IPO; Turkey
JEL Classifications: G30; G32

1. Introduction

The decisions which reduce the cost of capital have great importance to maximize market value of firms. Irrelevance theory of Modigliani and Miller (1958) propose the factors which reduce the cost of capital and debt and explain how companies reach optimum capital structure. According to Modigliani and Miller (1958), borrower firms can reduce cost of capital by subtracting interest payments from taxes payable; however cost of capital will increase after a certain point due to facing financial risk. According to irrelevance theory, companies can not change the cost of capital by changing debt/equity ratio on the assumption of no taxes, agency costs, bankruptcy costs and asymmetric information. In other words, financing policy of firms is independent from the market value of firms. This unrealistic assumptions of irrelevance theory reveal theories like tradeoff theory, pecking order theory, market timing theory and agency theory which explain capital structure decisions in firms.

Trade off theory introduced by Bradley et al. (1984) is based on maximizing the firm value by catching optimal debt ratio. While the deduction of interest payments from taxes payable is an advantage, bankruptcy risk arising from over indebtness will be disadvantage for firms. Firms which consider trade off theory can maximize their firm value by determining target debt ratio that harden taxes advantage and bankruptcy costs of debt.

In contrast with trade off theory, there is no target debt/equity ratio for pecking order theory which suggests internal financing for firms. According to pecking order theory, resource usage should have an order where internal funds are at the top of financial hierarchy, riskless borrowing is at the second rank and stocks are at the lowest rank. Pecking order theory caused by asymmetric information explains why high (low) profit firms borrow less (more).

In inefficient and segmented markets, firms can form different debt/equity structures by following money and capital market conditions. Market timing theory developed by Baker and Wurgler (2002) depends on the thought that firms can reach optimal capital structure in the wake of

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timing activities in money and capital markets. Firms should borrow or issue stock only if market conditions are favorable. According to theory, corporate executives issue securities depending on the time-varying relative costs of equity and debt. Firms time their equity issues in the sense that they issue new stock when the stock price is perceived to be overvalued, and buy back own shares when there is undervaluation. According to theory, if the stocks are undervalued in initial public offerings (IPO), it is better to borrowing of firms, otherwise, firms should issue stocks. Firms which have tradable stocks is expected to borrow when the market value of stock decrease and issue new stocks when the market value of stock increase. In this respect, if market value is greater than book value, it is better to issue new stock than borrowing for firms; however in the long run stock performance will decrease.

Firms can get timing advantage and so abnormal returns by doing initial public offerings when their market value of stock or the number of initial public offerings has increased. The purpose of this study is to test how equity market timing affects capital structure from the perspective of IPO event in ISE. For this purpose, first we test the impact of market timing on the amount of equity issued by IPO firms. Second, we examine the impact of market timing on capital structure. We conclude that market timing theory is not valid in Turkey.

The remainder of the paper is organized as follows. Section 2 reviews the literature on equity market timing. Section 3 provides a description of the data used in the empirical analysis and methodology. Section 4 explains empirical findings and section 5 concludes the paper.

2. Literature Review

Baker and Wurgler (2002) is the first who investigate persistent timing effects on leverage that extend beyond ten years in US firms and find that current capital structure is strongly related to past market values and firms can time their equity issues according to their market valuations. When firms' market values are high relative to book and past market value, firms can decrase their leverage through issuing equity. Vice versa, when market values are low relative to book and past market values, firms increase their leverage ratio. They conclude that low leverage firms raise capital when valuations of market-to-book ratios are high and high leverage firms raise capital when valuations are low. Kayhan and Titman (2007) use a model which is a mix of market timing, pecking order and trade-off theory and seperate Baker and Wurgler's (2002) market timing measure into two components, one short-term and one long-term timing measure. They confirm that leverage changes are driven by market-timing in short term but they do not confirm the long term persistency of market timing effects. De Bie and De Haan (2004) examine the effects of market timing on capital structures of Dutch firms using Kayhan and Titman's (2007) methodology during 1983-1997 and find only weak evidence for market timing effects on capital structures of Dutch companies. Firms issue relatively more equity after periods of a stock price increase.

Stultz (1990) finds that book-to-market ratio is a measure for growth options and firms will fund these growth options through equity issuances rather than debt in order to avoid debt hold up problems. Low book-to-market is interpreted as a proxy for growth options or adverse selection costs, and firms issue equity when book-to-market is low. Hovakimian (2006) finds that the importance of historical average market-to-book in leverage regressions is not due to past equity market timing. He finds that only equity issues may be timed to conditions in equity market, but they do not have significant long-lasting effects on capital structure. They don't confirm market timing theory in the long term. However, equity repurchases, debt issues and debt reductions exhibit timing patterns that are unlikely to induce a negative relation between market-to-book and leverage. Elliot et al. (2008) investigate the market timing theory of capital structure in a framework that avoids the dual interpretation problem of book-to-market, in which book-to-market measures growth options, asymmetric information or irrational equity mispricing. They find that equity market mispricing plays a significant role in security choice decision and firms whose equity is overvalued are significantly more likely to issue equity. Bougatef and Chichti (2010) investigate the persistence of the equity market timing attempts on capital structures of Tunisian and French firms and find that high market-to-book ratios are associated with high equity issues. Tunisian and French firms take advantages from market timing theory to raise capital. They issue equity when their market valuations are higher than their book values, and after an improvement of the market performance and take advantage from temporary overvaluation by issuing equity. This findings are consistent with the market timing theory.

Bruinshoofd and Haan (2007) investigate a transatlantic comparison of the connection between market timing and corporate capital structure for US, UK, and continental European firms. They find that leverage and historical market-to-book ratios connect negatively in US samples. This findings corroborate with the 'enhanced' pecking order hypothesis and a few market timing effects on European firms. Alti and Sulaeman (2012) further show that firms only exhibit timing behaviour during periods of high stock returns if there are high levels of demands from institutional investors

Ritter (1984) finds that hot IPO markets have higher IPO volume and more favorable market conditions than cold IPO markets. So firms can go public with higher price-earning and market to book ratio in hot markets and so these firms issue higher volume of equity issue. Ibbotson, et al. (1994) where stock prices of firms that went public in hot markets underperformed for five years following the offerings. They also show that the earnings per share grows rapidly in years preceding the IPO but surprisingly declines during IPO period and for the subsequent years. Alti (2006) has used hot-cold market classification as the equity timing measure and finds that hot-market IPO firms considered as market timers issue significantly more equity than cold-market firms and hot market IPO firms' leverage ratios lower than cold firms. However, and effect of market timing on leverage has very low persistence. Alti's empirical evidence shows that the negative impact of market timing on leverage reverses completely two years after IPO issuance, suggesting that capital structure policies, in the long run, seem to be more consistent with the pursuit of optimal leverage targets. Guney and Hussian (2010) find that pre-issue leverage levels for IPO firms in UK are similar for hot and cold firms. Hot market IPO firms raise more equity than cold market firms. Hot market IPO firms increase their leverage levels in the immediate two periods after going public. Li and Feng (2011), investigate the impact of IPO market timing of of real estate companies' capital structure for1992 to 2009 period in Hong Kong. They use market-to-book ratio and non-debt tax shields as market timing measures and company growth, company size and the liquidity of asset as control variables. They find that market timing does not have a short run impact on the capital structure, but there is a weak negative correlation between the historical evaluation and the capital structure.

Doukas et al. (2010) examine the impact of determinants of debt issuance in hot-debt market periods and the impact of hot-debt issuance on capital structure. They find that hot-debt market firms larger increase in leverage ratios in the debt-issue year, despite the fact that they do not have smaller debt ratios than cold-debt market firms in the pre-debt-issue year. This conclusion is inconsistent with the trade-off theory of capital structure. Dong et al. (2010) investigate market timing theory using a sample of debt and equity issues and share repurchases of Canadian firms during 1998-2007. They find that only firms which are not financially constrained issue (repurchase) equity when their stocks were overvalued (undervalued). These findings are more consistent with the market timing theory.

Welch (2004) concludes that capital structure (in market values) are strongly determined by past stock prices and changes in leverage are not caused by market timing and equity price shocks also have a persistent effect on capital structure. De Jong and Veld (2001) observe negative excess returns after seasoned equity issues which could be indirect evidence for market timing. Huang and Ritter (2005) find that equity issues are strongly negatively related to the equity risk premium, and that debt issues are strongly related to the real interest rate. Under the market timing theory, equity issues are not necessarily more expensive than debt issues when the equity risk premium is negative. Cai and Zhang (2006) findings are not consistent with market timing hypothesis which predicts that a firm will lower debt financing and increase equity financing if its equity is overvalued in U.S. public firms during 1975-2002. As a result, leverage increase signals overvaluation of equity and has a positive effect on stock price.

3.Data and Methodology

3.1. Data

In this study, we examined the market timing theory from the perspective of IPO event. The dataset comprises of all firms that went public from the period of January 1999 to December 2008 in Turkey that are available in ISE database.

We defined variables of the study based on the existing literature as follows. Book debt, (D) is defined as total liabilities minus deferred taxes. Book equity (B) is defined as total assets minus book debt. Book leverage (D/A) is book debt divided by total assets. Market to book ratio (M/B) is book debt plus market equity (common shares outstanding) times share price divided by total assets.

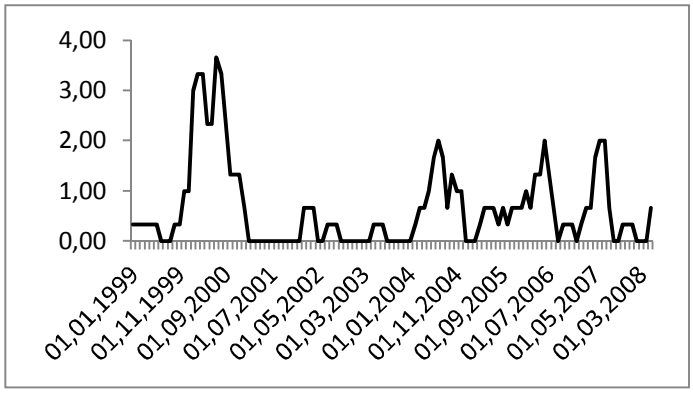
Profitability (EBITDA/A) is defined as the earnings before interest, taxes and depreciation over total assets. SIZE is the logarithm of net sales. Tangibility of assets, (PPE/A) is net plant, property and equipment over total assets. INV/A is the capital expenditure divided by total assets. DIV/E is the common dividends divided by the book equity (B). The net debt issues, (d/A) are the changes in book debt over total assets. The net equity issues (e/A) are the changes in book equity minus the change in retained earnings divided over total assets. The newly retained earnings (ΔRE/A) is the change in retained earnings divided by total assets. CASH is defined as cash and short term investments. Based on the literature, firm-year observations where D/A, d/A, e/A, ΔRE/A, EBITDA/A, INV/A, DIV/E exceeds 100%, M/B exceeds 10.0, are dropped. The firm characteristics and financing decisions are summarized in Table 1.

We defined the IPO year as the fiscal year in which the IPO takes place, t. IPO+n is then the n'th fiscal year after the IPO. We can see from the Table.1 that book leverage declines substantially in the IPO year and increases after IPO year, supporting earlier studies in the literature (Alti, 2006). As reported by**,** Jain and Kini (1994), Alti (2006) and Guney and Hussain, (2010) profitability decreases substantially around IPO year. Although, there is an increase in CASH in the IPO year with the infusion of new capital, it starts to decrease after IPO event. M/B ratio increases after IPO event different from some findings in the literature (Alti, 2006, Guney and Hussain, (2010)). Investment levels decreases after IPO year.

3.2.Definition of Hot and Cold Markets

This study follows Alti (2006) to define hot and cold markets. Hot and cold markets are defined based on the montly IPO volume. The period used for IPO firms is 1999-2008.The number of IPO volume is smoothened by using a three-month moving average. Then hot (cold) markets are defined as those that the IPO volume is above (below) the median in the distribution of the monthly average IPO volume across all the months in the sample. Therefore, we create a dummy variable, HOT, which takes the value of one if the firms go public in hot months and zero if the firms go public in cold months. Figure 1 shows smoothened IPO volumes with the median of 0.33.

Figure.1 :Monthly Moving Average of IPO Volume



4. Emprical Findings

4.1 The Effect of Market Timing on Equity Issuance

In the literature, market timing is considered from two different perspectives. First, firms are more likely to go public when the market conditions are favorable. Second, firms that go public when the market conditions are favorable, are likely to sell more equity (Alti, 2006). We construct the dummy variable, HOT, based on the first implication. In this section, we present empirical findings regarding the impact of market timing on the amount of equity issued. We define the amount of equity issued at the IPO time as IPO proceeds from the sale of primary shares divided by IPO year-end total assets (Proceeds/A_t) and IPO proceeds from the sale of primary shares divided by total assets at the begining of IPO year (Proceeds/A_{t-1}) Table.2 shows the market timing effects on IPO firms. The Panel A of Table 2 shows the mean values of amounts of equity isseued at the IPO by hot market and cold market firms.

Table 1. Summary Statistics of Firm Characteristics and Financing Decisions

	N	D/A	M/B	d/A	e/A	ΔRE/A	EBITDA	SIZE	PPE	INV	DIV	CASH
t-1	75	0.4927	-	-	-	-	0.1212	6.7773	4.7666	0.3564	0.1203	0.2397
		(0.4249)	-	-	-	-	(0.1599)	(1.9323)	(27.4719)	(0.3306)	(0.1771)	(0.3273)
t	75	0.3815	0.9701	0.0490	0.0009	0.0481	0.1010	7.1028	3.2417	0.3281	0.1135	0.2991
		(0.3344)	(0.9319)	(0.1639)	(0.1977)	(0.1279)	(0.1570)	(1.8157)	(19.5354)	(0.3034)	(0.3756)	(0.3549)
t+1	73	0.4340	1.2327	0.0458	0.0570	-0.0112	0.0599	7.4257	3.2450	0.3297	-0.0045	0.2531
		(0.3415)	(2.1287)	(1.0887)	(0.9626)	(0.2312)	(0.2051)	(1.3526)	(18.2482)	(0.2944)	(1.1682)	(0.3312)
t+2	64	0.4224	1.0366	0.0234	0.0191	0.0043	0.0974	7.6207	3.1907	0.3673	0.0222	0.2110
		(0.3685)	(0.9465)	(0.2474)	(0.2198)	(0.0882)	(0.1908)	(0.9764)	(16.0453)	(0.2879)	(0.7850)	(0.2625)
t+3	55	0.3710	1.1960	0.0707	0.0533	0.0174	0.0610	7.5860	1.9050	0.4299	0.1771	0.2410
		(0.3350)	(0.9548)	(0.1483)	(0.2314)	(0.1782)	(0.1481)	(0.8533)	(13.4711)	(0.3141)	(0.3185)	(0.4086)
t+4	49	0.4147	1.4357	0.0502	0.0387	0.0115	0.0383	7.5143	1.3210	0.4513	0.1563	0.2369
		(0.5579)	(1.0515)	(0.1677)	(0.1806)	(0.0488)	(0.2047)	(1.3910)	(8.8321)	(0.3089)	(0.2009)	(0.4061)
t+5	37	0.3682	1.3344	0.1006	-0.0567	0.1573	0.0384	7.1345	0.7663	0.4985	0.4441	0.2146
		(0.3035)	(0.7816)	(0.2452)	(0.4547)	(0.3163)	(0.1110)	(2.2902)	(4.5931)	(0.3389)	(0.7265)	(0.3692)
t+6	36	0.3878	1.2282	0.0463	0.0459	0.0005	0.0334	7.5837	0.5800	0.4776	0.4419	0.2047
		(0.3054)	(0.5261)	(0.1511)	(0.1543)	(0.0370)	(0.1368)	(1.5893)	(3.3967)	(0.3309)	(0.7213)	(0.3430)
t+7	33	0.3557	1.9828	-0.0491	-0.0680	0.0189	0.0421	7.4298	0.3536	0.4925	0.5006	0.1807
		(0.2737)	(3.4860)	(0.2223)	(0.2350)	(0.0739)	(0.1171)	(2.1620)	(1.9792)	(0.3582)	(0.8173)	(0.2897)

Note: The table reports the means and standard deviations of firm characteristics. t is IPO year. N, is number of observations. All variables except M/B and SIZE are scaled by year and assets. Book leverage (D/A) is book debt divided by total assets. Market to book ratio (M/B) is book debt plus market equity (common shares outstanding) times share price divided by total assets. The net debt issues, (d/A) are the changes in book debt over total assets. The net equity issues (e/A) are the changes in book equity minus the change in retained earnings divided over total assets. The newly retained earnings (ΔRE/A) is the change in retained earnings divided by total assets. Profitability (EBITDA/A) is the earnings before interest, taxes and depreciation over total assets. SIZE is the logarithm of net sales. Tangibility of assets, (PPE/A) is net plant, property and equipment over total assets. INV/A is the capital expenditure divided by total assets. DIV/E is the common dividends divided by the book equity (B). CASH is defined as cash and short term investments.

Table 2. Market Timing Effects on IP firms

	$Proceeds/A_t$	$Proceeds/A_t$	$Proceeds/A_{t-1}$	$Proceeds/A_{t-1}$	$(d/A)_t$	$(d/A)_t$
Panel A: Mean Value						
Hot	0.4413	0.4413	0.9798	0.9798	0.0549	0.0549
Cold	0.4184	0.4184	0.6792	0.6792	-0.0003	-0.0003
t-value	-0.1404	-0.1404	-0.6446	-0.6446	-0.9908	-0.9908
Panel B: Regression Analysis						
HOT	0.0427	-0.6328**	0.5492	3.1283*	0.0233	-0.0875
	(0.1053)	(0.2798)	(0.4392)	(1.6596)	(0.0262)	(0.1218)
M/B_t	0.1284**	0.7051	0.0059	0.5173	0.0129	-0.039
	(0.0638)	(0.4364)	(0.1854)	(1.5101)	(0.0191)	(0.0810)
$EBITDA_{t-1}$	-0.5370	-0.5031	0.5733	0.6268	0.0871	0.0828
	(0.3672)	(0.3677)	(0.5829)	(0.6098)	(0.0788)	(0.0780)
$SIZE_{t-1}$	-0.0999**	-0.2039***	-0.4029**	-0.1984	0.0093	0.0026
	(0.0426)	(0.0372)	(0.1930)	(0.1460)	(0.0110)	(0.0068)
PPE_{t-1}	0.0053***	-0.0107***	-0.0123**	-0.0091	0.0000	0.0000
	(0.0015)	(0.0033)	(0.0052)	(0.0120)	(0.0002)	(0.0006)
D/A_{t-1}	-0.5726***	-0.6248***	-0.7063*	-0.5353	0.0553	0.0483
	(0.2372)	(0.2399)	(0.3901)	(0.3734)	(0.0797)	(0.0848)
$HOT*M/B_t$	-	-0.5499	-	-0.6177	-	0.0566
	-	(0.4247)	-	(1.4839)	-	(0.0672)
HOT*SIZE	-	0.1360***	-	-0.3358	-	0.0124
	-	(0.0501)	-	(0.2448)	-	(0.0188)
R^2	0.5430	0.5868	0.5062	0.5715	0.0696	0.0787
F	10.4975***	9.0568***	9.0561***	8.5055***	0.6613	0.5451

Panel A reports the mean values of hot and cold market firms for each variable Y_t. The period t denotes the IPO year. The results of the regressions from the following model are reported in Panel B. Standard errors are in paranthesis (). ***,** and * indicates the significance of coefficients at %1, %5, %10 level.

$$Y_t = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \varepsilon_t$$

$$Y_t = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \beta_7 HOT * M7B_t + \beta_8 HOT * SIZE_{t-1} + \varepsilon_t$$

According to Table.2, while the average hot market firm's IPO proceeds amount to 44% of its IPO asset value; the average cold market firm's proceeds amount to 41% of its IPO asset value. Similarly, while the average hot market firm's proceeds amount to 98% of its pre-IPO asset value, the average cold market firm's proceeds amount to 67% of its pre- IPO asset value. However, these differences are not significant. To understand whether the hot market effect exists when we control for industry effects and firm-characteristics, we regress IPO proceeds *(Y_t)* on various independent variables as (1) and (2).

$$Y_t = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \varepsilon_t \quad (1)$$

$$Y_t = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \beta_7 HOT * M7B_t + \beta_8 HOT * SIZE_{t-1} + \varepsilon_t \quad (2)$$

Panel B of Table 2 present the findings of (1) and (2). The dummy variable, HOT, is intended to capture the equity market timing effect. We used market to book ratio, profitability, size, tangibility of assets and lagged book leverage as control variables to test the differences between hot and cold market issuers. In addition, we used $HOT*M/B_t$ and $HOT*SIZE_{t-1}$ variables to understand whether firms with different growth opportunities and sizes behave differently with regards to market timing attempts (Guney and Hussain,2010).

In Panel B of Table 2, hot market dummy is significant at second and fourth column where the dependent variables are IPO proceeds from the sale of primary shares divided by IPO year-end total assets and IPO proceeds from the sale of primary shares divided by total assets at the begining of IPO year, respectively. However, their signs are different. While the sign is negative in the second column, it is positive in the fourth column. Alti (2006) found that HOT dummy is significant and has positive sign, and concludes that hot market firms tend to raise more capital than cold ones. When we use IPO proceeds from the sale of primary shares divided by total assets at the begining of IPO year as a dependent variable, our findings are consistent with Alti (2006). The coefficient of HOT dummy, 3,1283, is positive and significant supporting hot market firms tend to raise more capital than cold market firms. In general, our findings support Guney and Hussain (2010). While HOT dummy is insignificant in the first and third columns; it is significant for expanded model which exist in the second and fourth column. The sign of the first interaction term, HOT*M/B_t is negative and insignificant in all columns. The sign of the second interaction term, HOT*SIZE is positive and significant at second column. This means that as market firm's size increase, proceeds from the equity sales of hot market firms increase, too.

Market-to-book ratio is positive in five of the six colums and this finding indicates that firms with more growth opportunities tend to raise more capital. However, the sign of the SIZE variable is negative and significant indicating that smaller firms raise more capital. The sign of leverage is negative impliying that pre-IPO leverage level is negatively related with the amount of proceeds from IPO. The last two colums in Table 2 reports the net debt issue of hot and cold market firms. As a result of regression analysis, the coefficients of the model are not significant. Besides, explanatory power of independent variables is low. In summary, we can not find any robust evidence of market timing theory in Turkey from Table 2.

4.2 Difference in Quality of Hot Market and Cold Market Firms

In the literature, researchers explain why firms issue more equity from four different perspectives other than market timing considerations. First, firms may be severely over-leveraged before they go public and tend to lower their leverage ratios at the IPO time. Second, firms issue more equity because they want to finance their growth. Third, firms with low profitability level tend to issue more equity when market is favourable. Lastly, the amount of dividends that firms pay during the IPO year affects the amount of issued equity by IPO firms. These findings in the literature were tested in Table 3.

In panel A of Table.3, the mean value of leverage of hot market firms is greater than that of cold market firms. First and second column of panel B in Table 3 shows the regression results which we analyse book leverage as a dependent variable and hot market dummy and control variables as independent variables. HOT dummy is positive but is insignificant indicating that hot market firms do not deviate from their leverage target any more than cold market firms do in pre-IPO period. Thus, although the mean leverage values of hot market firms are higher than that of cold market firms, this difference is not significant when we control for other independent variables. As a result, we can not find any significant evidence that they go public and tend to lower their leverage ratios at the IPO time. In addition to this findings, it is obviously seen in Table 3 that profitability of firms is negatively and significantly related with the leverage supporting the pecking order theory.

The next six colums present findings of the growth rates of firms. If hot market firms have growth opportunities and invest at higher rates, they would issue more equity to finance their investments. Contrary to explanations above, the mean value of investment rates of hot market firms are lower than that of cold market firms at the IPO, IPO+1 years. The difference in investment rates is statistically significant after controlling for firm and industry characteristics with the coefficient of -0.5047 in IPO year. There is no evidence that hot market firms invest more than cold market firms. Besides, from Table.3, it is seen obviously that the profitability of firms is negatively related with less profitable firms tend to invest more.

Table 3. Differentiating Hot and Cold Market IPO Firms

			INV/A_t						$EBITDA/A_t$			
	D/A_{t-1}	**D/A_{t-1}**	**IPO**	**IPO**	**IPO+1**	**IPO+1**	**IPO+2**	**IPO+2**	**IPO**	**IPO**	**IPO+1**	**IPO+2**
Panel A: Mean Value												
Hot	0.4662	0.4662	0.3097	0.3097	0.3205	0.3205	0.3703	0.3703	0.0722	0.0722	0.0606	0.0606
Cold	0.3643	0.3643	0.3744	0.3744	0.3553	0.3553	0.3454	0.3454	0.2878	0.2878	0.0602	0.0602
t-value	-0.9196	-0.9196	0.6447	0.6447	0.345	0.345	-0.227	-0.227	4.5493	4.5493	-0.0065	-0.0065
Panel B: Regression Analysis												
HOT	0.0920	0.3185	-0.1449	-0.5047***	-0.2329***	-0.4780	0.0226	-1.9853***	-0.1964*	-0.2571***	-0.0501	0.7745
	(0.1069)	(0.2068)	(0.1017)	(0.1785)	(0.0772)	(0.7634)	(0.1572)	(0.4936)	(0.1056)	(0.0820)	(0.0823)	(0.6783)
M/B_t	-	-	0.0790**	-0.3085	0.0840**	-0.3967	-0.0111	-1.2661***	0.0423***	0.2687	0.0229	-0.6608***
	-	-	(0.0363)	(0.3059)	(0.0365)	(0.2867)	(0.0398)	(0.2557)	(0.0143)	(0.3358)	(0.0220)	(0.1956)
M/B_{t-1}	-	-	-	-	-	-	0.0330***	-0.0073	-	-	-	-
	-	-	-	-	-	-	(0.0081)	(0.0092)	-	-	-	-
$EBITDA/A_{t-1}$	-0.7582***	-0.7711***	-0.4709***	-0.4853***	-0.5088**	-0.4648***	-0.1090	-0.3051*	-	-	-	-
	(0.1309)	(0.1330)	(0.1614)	(0.1580)	(0.2167)	(0.1824)	(0.1621)	(0.1658)	-	-	-	-
$SIZE_{t-1}$	0.0359***	0.0613***	-0.0153	-0.0276	-0.0043	-0.0079	0.0016	-0.1926***	-0.0026	-0.0241*	-0.0320**	0.1137
	(0.0170)	(0.0189)	(0.0178)	(0.0171)	(0.0151)	(0.1025)	(0.0274)	(0.0646)	(0.0073)	(0.0137)	(0.0162)	(0.0773)
PPE/A_{t-1}	-0.0007	0.00E+00	-0.0032***	-0.0017	-0.0025**	0.0004	-0.0025***	0.0066***	0.0014***	-0.0001	-0.0010**	0.0034***
	(0.0006)	(0.0005)	(0.0007)	(0.0020)	(0.0011)	(0.0022)	(0.0010)	(0.0017)	(0.0003)	(0.0021)	(0.0004)	(0.0013)
$HOT*M/B_t$	-	-	-	0.3994	-	0.4843*	-	1.2450***	-	-0.2252	-	0.6871***
	-	-	-	(0.3014)	-	(0.2835)	-	(0.2470)	-	(0.3344)	-	(0.1954)
$HOT*M/B_{t-1}$	-	-	-	-	-	-	-	0.0738**	-	-	-	-
	-	-	-	-	-	-	-	(0.0332)	-	-	-	-
$HOT*SIZE_{t-1}$	-	-0.0341	-	0.0286	-	0.0071	-	0.1954***	-	0.0229	-	-0.1451*
	-	(0.0334)	-	(0.0257)	-	(0.1064)	-	(0.0649)	-	(0.0151)	-	(0.0875)
R^2	0.2089	0.2021	0.1672	0.2006	0.1251	0.1568	0.1073	0.2301	0.3732	0.3891	0.1063	0.2066
F	3.5393***	4.3079***	2.7321**	2.3665**	1.9166*	1.7275	1.1423	1.7938*	10.422***	7.2194***	2.0831*	2.9525***

Panel A reports the mean values of hot and cold market firms for each variable Y_t. The period t denotes the pre-IPO, IPO, IPO+1, IPO+2 year.

The results of the regressions from the following model are reported in Panel B. Standard errors are in paranthesis ().

***,** and * indicates the significance of coefficients at %1, %5, %10 level.

$$Y_t = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \varepsilon_t$$

$$Y_t = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \beta_7 HOT * M/B_t + \beta_8 HOT * SIZE_{t-1} + \varepsilon_t$$

Table 3. (con't) Differentiating Hot and Cold Market IPO Firms

	EBITDA/A_t						**DIV/E_t**					
	IPO+2	**IPO+2**	**IPO+3**	**IPO+3**	**IPO+4**	**IPO+4**	**IPO**	**IPO**	**IPO+1**	**IPO+1**	**IPO+2**	**IPO+2**
Panel A: Mean Value												
Hot	0.0754	0.0754	0.053	0.053	0.0082	0.0082	0.1511	0.1511	0.1096	0.1096	0.1109	0.1109
Cold	0.2821	0.2821	0.1151	0.1151	0.2532	0.2532	0.1417	0.1417	0.1556	0.1556	0.1754	0.1754
t-value	2.8308	2.8308	1.0362	1.0362	2.9596	2.9596	-0.1340	-0.1340	0.8409	0.8409	1.1504	1.1504
Panel B: Regression Results												
HOT	-0.2278***	-0.0075	-0.1407	1.5678***	-0.2055	1.1257***	-0.0218	0.1232	-0.0445	-0.1582	-0.0403	-7.7430***
	(0.0693)	(3.0227)	(0.0906)	(0.4817)	(0.1409)	(0.2240)	(0.1052)	(0.1516)	(0.0536)	(0.6045)	(0.0684)	(2.6512)
M/B_t	-0.0503	-0.6760	0.0115	-0.4098*	0.0198	-0.0627***	-0.0199	0.2518	0.0072	0.2283	-0.0031	-1.9710***
	(0.0439)	(0.7416)	(0.0203)	(0.2431)	(0.0206)	(0.0139)	(0.0320)	(0.2949)	(0.0193)	(0.2742)	(0.0225)	(0.6736)
M/B_{t-1}	0.1046**	0.2922	-0.0335*	-0.0057	0.0218	0.0724***	-	-	-	-	-0.0144	1.1068***
	(0.0459)	(0.3848)	(0.0183)	(0.0266)	(0.0529)	(0.0102)	-	-	-	-	(0.0167)	(0.3373)
$EBITDA/A_{t-1}$	-	-	-	-	-	-	0.3204	0.3325	0.0265	0.0049	0.0250	0.0453
	-	-	-	-	-	-	(0.2774)	(0.2849)	(0.3145)	(0.2824)	(0.0983)	(0.0768)
$SIZE_{t-1}$	0.0063	0.0527	0.0059	0.2476***	-0.0097	0.1378***	0.0183*	0.0155	-0.0012	-0.0283	-0.0015	-0.9777***
	(0.0087)	(0.3868)	(0.0195)	(0.0681)	(0.0206)	(0.0298)	(0.0109)	(0.0222)	(0.0062)	(0.0865)	(0.0138)	(0.3348)
PPE/A_{t-1}	0.0002	0.0045	-0.0026**	0.0010	0.0015	0.0024***	-0.0001	-0.0014	0.0000	-0.0014	0.0005	0.0099***
	(0.0005)	(0.0039)	(0.0011)	(0.0026)	(0.0010)	(0.0003)	(0.0004)	(0.0019)	(0.0012)	(0.0028)	(0.0010)	(0.0036)
$HOT*M/B_t$	-	0.6280	-	0.4146*	-	0.0819***	-	-0.2771	-	-0.2218	-	1.9699***
	-	(0.7374)	-	(0.2407)	-	(0.0250)	-	(0.2990)	-	(0.2796)	-	(0.6702)
$HOT*M/B_{t-1}$	-	-0.1899	-	-0.0106	-	-0.0960	-	-	-	-	-	-1.1283***
	-	(0.3855)	-	(0.0443)	-	(0.0735)	-	-	-	-	-	(0.3362)
$HOT*SIZE_{t-1}$	-	-0.0465	-	-0.2411***	-	-0.1612***	-	-0.0043	-	0.0263	-	0.9801***
	-	(0.3875)	-	(0.0674)	-	(0.0340)	-	(0.0236)	-	(0.0858)	-	(0.3352)
R^2	0.2439	0.2928	0.1281	0.2043	0.1833	0.2630	0.1029	0.1228	0.0136	0.0313	0.0349	0.2359
F	3.6783***	2.7956***	1.4329	1.4769	1.9310*	1.7844*	1.5612	1.3204	0.1797	0.2912	0.3322	1.7843*

Panel A reports the mean values of hot and cold market firms for each variable Y_t. The period t denotes the pre-IPO, IPO, IPO+1, IPO+2 year.
The results of the regressions from the following model are reported in Panel B. Standard errors are in paranthesis ().
***,** and * indicates the significance of coefficients at %1, %5, %10 level.

$$Y_t = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \varepsilon_t$$

$$Y_t = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \beta_7 HOT * M7B_t + \beta_8 HOT * SIZE_{t-1} + \varepsilon_t$$

Columns nine to eighteen in Table.3 report the profitability of hot and cold market firms at the IPO and subsequent years. At the IPO year, the mean profitability level of hot market firms is lower than cold market firms. This finding supports the view that favourable market conditions may lead less profitable firms to issue equity. HOT market dummy is also negative and significant supporting that hot market firms are less profitable than cold market firms.

Columns nineteen to twenty four in Table.3 show dividends paid by hot and cold market firms at the IPO and subsequent years. While the dividend payment of hot market firms is higher at the IPO year, it is lower subsequent years than that of cold market firms. However, this difference is not significant. In IPO+2 year, HOT dummy is negative and significant indicating that hot market firms paid less dividend than cold market firms. Interaction terms are only significant in IPO+2 year. The interaction of HOT dummy with market to book term has positive sign and significant meaning that hot market firms with higher growth opportunities pay higher levels of dividens during IPO+2 year. The second interaction term, HOT dummy with size also positive and significant indicating that larger hot market firms pay higher levels of dividends during IPO+2 year.

In summary, in Table 3 our findings support that firms with low profitability level tend to issue more equity when market is favourable.

4.3 The Impact of Market Timing on Capital Structure

In this section, we examined the impact of market timing on book leverage. First, we focused on the change in leverage levels from pre-IPO year to IPO year. We present the findings in Table 4.

Columns one to second of Panel A of Table 4 shows the mean values of the changes in leverage. The difference in leverage is greater for cold market firms. However, this difference is not statistically significant. To understand further this change, we regressed HOT dummy and control variables on change in leverage as follows;

$$D/A_t - D/A_{t-1} = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \varepsilon_t \quad (3)$$

$$D/A_t - D/A_{t-1} = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \beta_7 HOT * M/B_t + \beta_8 HOT * SIZE_{t-1} + \varepsilon_t \quad (4)$$

Panel B in Table.4 reports the results of (1) and (2). The sign of HOT dummy is positive and insignificant. The first interaction terms is significant and has negative sign. This suggests that an increase in market to book ratio will lead to decrease in leverage for hot market firms.

The change in leverage can be decomposed as follows (Baker and Wurgler, 2002; Alti, 2006);

$$D/A_t - D/A_{t-1} = -e/A_t + E/A_{t-1} * (\Delta Cash + \Delta OtherAssets)/A_t - \Delta RE/A_t \quad (5)$$

We used four components of leverage as dependent variables in the models (3) and (4). The first term is the negative net equity issued in year t[2]. The second term will capture the increase in assets. The last term is the change in retained earnings.

Columns three to ten in Table.4 report the mean values and regression analyses for the terms on the right hand side of (5). While net equity issues (e/A_t) and leverage are higher for the hot market firms at IPO year; change in cash and newly retained earnings are higher for cold market firms. However, these difference are not significant. Besides, HOT market dummy is insignificant for all dependent variables. In other words, change in leverage, net equity issues, change in cash, newly retained earnings and leverage are not affected by whether the firm goes public in a hot or cold market. The findings from the Table 4 do not support the market timing theory.

[2] The net equity issue is not the same as Prooceds/A_t;because it is calculated based on the total change in book equity in IPO year and includes other forms of equity issuance (Alti, 2006).

Table 4. The Impact of Market Timing on Capital Structure for IPO Firms

	D/A_t-D/A_{t-1}	D/A_t-D/A_{t-1}	e/A_t	e/A_t	$Cash/A_t$	$Cash/A_t$	RE/A_t	RE/A_t	D/A_t	D/A_t
Panel A: Mean Value										
Hot	-0.0911	-0.0911	0.0138	0.0138	0.2814	0.2814	0.0432	0.0432	0.4053	0.4053
Cold	-0.1378	-0.1378	-0.0834	-0.0834	0.4331	0.4331	0.0344	0.0344	0.2265	0.2265
t-value	-0.7789	-0.7789	-1.4598	-1.4598	1.3539	1.3539	-0.2163	-0.2163	-1.5904	-1.5904
Panel B: Regression Results										
HOT	0.0683	0.1277	0.1019	0.0912	0.0085	-0.0412	-0.0052	-0.0178	0.0683	0.1277
	(0.0728)	(0.0979)	(0.0754)	(0.1655)	(0.1123)	(0.1712)	(0.0291)	(0.0633)	(0.0728)	(0.0979)
M/B_t	-0.0123	0.4942*	0.0374	-0.1096	-0.0478**	0.6134**	-0.0269	-0.0495	-0.0123	0.4942*
	(0.0202)	(0.2615)	(0.0328)	(0.2081)	(0.0238)	(0.2745)	(0.0246)	(0.1077)	(0.0202)	(0.2615)
$EBITDA/A_{t-1}$	0.1145	0.1462	-0.3528	-0.3622	0.0323	0.0774	0.4395	0.4384	0.1145	0.1462
	(0.0801)	(0.0926)	(0.2943)	(0.3026)	(0.2559)	(0.2532)	(0.2819)	(0.2930)	(0.0801)	(0.0926)
$SIZE_{t-1}$	-0.0015	-0.0293	0.0049	0.0137	0.0469**	-0.0028	-0.0002	0.0000	-0.0015	-0.0293
	(0.0088)	(0.0226)	(0.0100)	(0.0186)	(0.0201)	(0.0226)	(0.0046)	(0.0135)	(0.0088)	(0.0226)
PPE/A_{t-1}	0.0000	-0.0031*	0.0001	0.001	0.0035***	-0.0009	0.0001	0.0002	0.0000	-0.0031*
	(0.0002)	(0.0016)	(0.0004)	(0.0016)	(0.0005)	(0.0018)	(0.0002)	(0.0007)	(0.0002)	(0.0016)
D/A_{t-1}	-0.2149***	-0.2093***	0.0152	0.0134	-0.6550***	-0.6462***	0.0448	0.0446	0.7850***	0.7906***
	(0.0662)	(0.0653)	(0.0822)	(0.0828)	(0.1303)	(0.1223)	(0.0518)	(0.0540)	(0.0662)	(0.0653)
$HOT*M/B_t$	-	-0.5112**	-	0.1482	-	-0.6638***	-	0.023	-	-0.5112**
	-	(0.2594)	-	(0.2102)	-	(0.2659)	-	(0.1212)	-	(0.2594)
$HOT*SIZE_{t-1}$	-	0.0227	-	-0.0075	-	0.0483	-	0.0004	-	0.0227
	-	(0.0228)	-	(0.0246)	-	(0.0302)	-	(0.0131)	-	(0.0228)
R^2	0.2162	0.2784	0.1339	0.1381	0.4692	0.4938	0.3015	0.3019	0.7225	0.7445
F	3.0347***	3.0878***	1.7017	1.2823	9.7261***	7.8041***	4.7482***	3.4603***	28.6462***	23.3216***

Panel A reports the mean values of hot and cold market firms for each variable Y_t. The period t denotes the IPO year.
The results of the regressions from the following model are reported in Panel B. Standard errors are in paranthesis ().
***,** and * indicates the significance of coefficients at %1, %5, %10 level.

$$Y_t = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \varepsilon_t$$

$$Y_t = \alpha + \beta_1 HOT + \beta_2 M/B_t + \beta_3 EBITDA/A_{t-1} + \beta_4 SIZE_{t-1} + \beta_5 PPE/A_{t-1} + \beta_6 D/A_{t-1} + \beta_7 HOT * M7B_t + \beta_8 HOT * SIZE_{t-1} + \varepsilon_t$$

5. Conclusion

In this study, we test how equity market timing affects capital structure from the perspective of IPO event in ISE. For this purpose, first we test the impact of market timing on the amount of equity issued by IPO firms. Second, we examine the impact of market timing on capital structure. Our main findings are as follows:

When we examine descriptive statistics of firms, we realize that book leverage declines substantially in the IPO year and increases after IPO year, supporting (Alti, 2006). Similarly, profitability of firms decreases substantially around IPO year. This finding is consistent with those of Jain and Kini (1994), Alti (2006) and Guney and Hussain (2010). Different from common literature, M/B ratio increases after IPO event (Alti, 2006; Guney and Hussain, 2010). In Turkey, some papers find evidence of underpricing of IPO's in Turkey (Eraydin, 2008). We think that our finding of M/B ratio increases after IPO event may arise from the underpricing of IPO's in Turkey.

In the next stage, we examine different characteristics of hot and cold market firms and try to explain why hot market firms tend to issue more equity except from timing considerations. Firstly, firms mat attempt to lower their leverage ratios due to highness of their prior leverage ratios. We find that hot market firms have higher leverage ratios before IPO year. However, this difference is not significant. So the leverage may not be an explanation to issue more equity. The second explanation would be that hot market firms have more growth opportunities and so they attempt to increase more capital than cold market firms. However, we could not find any evidence that hot market firms have more growth opportunities. They have lower investment levels than cold market firms. The third explanation of why hot market firms tend to issue more equity would be less profitable firms attempt to issue more equity in favorable market conditions since it is difficult for them to raise capital in unfavourable conditions. We reliaze that hot market firms are less profitable than cold market ones and this may be a reason for why hot market firms tend to issue more equity. Hot market firms tend to raise more capital than cold market firms. While prior leverage level and low profitability of firms may cause this hot market effect, growth opportunities can not explain why hot market firms tend to issue more equity.

Afterwards, we examine the impact of market timing on capital structure. In conclusion, we find no evidence of the impact of market timing on capital structure. Therefore, firms do not focus on the time and the form of the external financing in Turkey. In other words, capital structure of firms do not affected by whether the firm goes public in a hot or cold market in the short term. Because market timing theory suggests to issue stocks when the stocks are overpriced and to borrow when the stock price is underpriced, we can say that managers can not take the advantage of overvaluation by issuing equity in Turkey.

References

Alti, A. (2006), *How Persistent Is the Impact of Market Timing on Capital Structure?* Journal of Finance, 61(4), 1681-1710.

Alti, A., Sulaeman, J. (2012), *When Do High Stock Returns Triger Equity Issues?,* Journal of Financial Economics, 103(1), 61-87.

Baker M. and J. Wurgler, (2002), *Market Timing and Capital Structure,* Journal of Finance 57(1), 1–32.

De Bie, T., De Haan, L., (2004*), Does Market Timing Drive Capital Structures? A Panel Data Study For Dutch Firms,* DNB Working Papers, No. 016, Netherlands Central Bank, Research Department.

Bougatef, K., Chichti, J. (2010), *Equity Market Timing and Capital Structure: Evidence from Tunisia and France,* International Journal of Business and Management, 5(10), 167-177

Bradley, M., Jarrell, G.A., Kim, E.H, (1984), *On The Existince of An Optimal Capital Structure: Theory and Evidence*, Journal of Finance, 39(3), 857-880.

Bruinshoofd, A., Haan, L. (2012), *Market Timing And Corporate Capital Structure: A Transatlantic Comparison*, Applied Economics, 44(28), 3691-3703.

Cai, J., Zhang, Z. (2006), *Capital Structure Dynamics And Stock Returns,* Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=685462 (accessed 12 January 2011)

De Jong, A., Veld, C.H. (2001), *An Empirical Analysis of Incremental Capital Structure Decisions Under Managerial Entrenchment,* Journal of Banking and Finance, 25(10), 1857-1895.

Dong, M., Loncarski, I., Horst, J., Veld, C. (2010), *What Drives Security Issuance Decisions:Market Timing, Pecking Order, Or Information Asymmetry?,* Financial Management, 41(3), 637-663.

Doukas J.A, Guo, J. (2010), *Hot Debt Markets and Capital Structure*, European Financial Management, 17(1), 46-99.

Elliott, W.B, Kant, J.K., Warr, R.S. (2008), *Market Timing And The Debt-Equity Choice*, Journal of Financial Intermediation, 17, 175-197.

Eraydın, K., (2008), *The Underpricing And Long Run Performance Of Initial Public Offerings - Evidence From Turkey*, Available at : http://www.essays.se/essay/3e9e639a54/ (accessed 12 January 2011)

Guney, Y., Hussain, H.S. (2010), *Capital Structure and IPO Market Timing in the UK,* Behavioural Finance Working Group (BFWG) Conference: Fairness, Trust and Emotions in Finance, London,UK Available at http://www.cass.city.ac.uk/__data/assets/pdf_file/0006/56373/2A_Guney.pdf (accessed 12 January 2011)

Hovakimian, A. (2006), *Are Observed Capital Structures Determined by Equity Market Timing?*, The Journal of Finance, 41, 221-43.

Huang, R., Ritter, J.R.(2005), *Testing The Market Timing Theory Of Capital Structure*, University of Florida Working Paper, Available at http://bear.warrington.ufl.edu/ritter/TestingOct2805%20(1).pdf (accessed 12 January 2011)

Ibbotson, R. G., J. L. Sindelar, and J. R. Ritter, (1994*), The Market's Problem with the Pricing of Initial Public Offerings,* Journal of Applied Corporate Finance, 7, 66-74.

Jain, B.A., Kini, O. (1994), *The Post-Issue Operating Performance of IPO Firms*, The Journal of Finance, 49(5), 1699-1726

Kayhan, A., Titman, S. (2007), *Firms' Histories And Their Capital Structure*, Journal of Financial Economics, 83(1), 1-32.

Li, G.C., Feng, L. (2011), *Study Of The Relationship Between IPO Market Timing And Capital Structure Of Real Estate Companies Econometric Evidence From The Panel Data Of Hong Kong Main Board Stock Market,* Business Management and Electronic Information (BMEI), 2011 International Conference on, 718–723

Modigliani, F., Miller, M. (1958), *The Cost of Capital, Corporation Finance and The Theory of Investment*, American Economic Review, 48(3), 261-275

Ritter, J.R. (1984), *The Hot Issue Market of 1980,* Journal of Business, 57, 215-240

Welch, I. (2004), *Capital Structure and Stock Returns*, Journal of Political Economy,112(1), 106-13