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MARKET TIMING THEORY AND FIRMS' FINANCING DECISIONS IN PAKISTAN: EVIDENCE FROM NON-FINANCIAL FIRMS

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ABSTRACT
This study fills a gap in capital structure literature by identifying conditions and mechanisms of equity markets that make Pakistani firms financing decisions more relevant and predictable. This study used the data of 104 non-financial firms listed at Karachi Stock Exchange for the period of 1999 to 2011 to identify that either firms in Pakistan time the equity markets or this phenomena is flat. The core principle of market timing theory that firms go for issuance of securities when their prices are high in the market has been observed in this study. The study found the evidence that in short run firms consider the market valuations if going to issue equity however the results lost the economic significance when test of persistence were applied. In short, our results developed the concept that firm in Pakistan may consider the market timing effect to change their capital structure decisions.

1. INTRODUCTION

The recent paradox, either market timing is portrayed by the past market to book ratios or issuing IPO's in the HOT markets; has not yet been resolved. The line of research in capital structure adopted the new path as the paper of Baker & Wurgler (2002) Market Timing and Capital Structure get published. Since then, there has been growing attention in this domain albeit the presence of basic theories of capital structure like, Miller and Modigliani irrelevance theory (1958), tradeoff theory (1963), pecking order theory (1984) and much literature regarding current in hand market timing theory can also be found for example; Alti (2006) and Hovakimian (2004) etc. To explain all these, is not the subject of present research. However, this study would explain the previous theories in context of market timing theory where it is necessary.

The KSE 100 index has scored more than 25000 points all the time high level due to good political and economic factors and some new reforms to secure the investors rights have also been introduced off and on to increase the efficiency of the market; similarly, gradual cuts in policy interest rate to 10 basis points by the SBP relaxed the borrowers to reduce their business costs; former is capital market indicator from where firms raise the equity while later is core determinant of the debt ratios, therefore, this does make sense to study the firm financing behavior in relation to market timing.

Having brief overview on the economic indicators, this study would specifically focus on the important point; "the market timing influences on the capital structure". The pioneer work of Baker and Wurgler (2002) suggested that firms time the equity markets for choosing the capital structure choices and high market to book ratios are related with low leverage. Moreover, firms issue equity when prices of their shares are high, cost of equity is low, investors are enthusiastic about earning and repurchase the equity when the prices are low and cost of equity is high.

Hovakimian (2006) revisited the view of Baker and Wurgler (2002), it argued that negative effects of past weighted average market to book ratios on capital structure was not merely due to the market timing effects, in fact this was due to past market to book ratios which was indication of growth and that was affecting the financing decisions. Alti (2006) among others postulated the IPO issuances as indicator of market timing, it was viewed that the firms went public in HOT market, implied the market timing behavior, however, analysis failed to show long run effects of market timing on capital structure.

Following the methodology of Alti (2006), the goal of the current study is to shed light on the market timing and capital structure relationship, this relationship has not been focused in Pakistan. Contrary to the previous studies in Pakistan, this research identify the stylized facts of capital structure using debt and equity issuances, such investigation is strong notion in itself. Fama & French (2005) argued that examintion of debt-equity issues and repurchases would depict a more clear picture of the firm's capital structure choices.

More importantly, present study is inspired version of different homogeneous concepts that were found in the ealier literature. For example, Hovakimian (2006) found that firm having high market to book, is likely to issue equity. Fama (2005) suggested that previous theories (tradoff and pecking order) are unable to explain problems, so, one should try some new avenues be explored. Asymetric information is also an important factor to show the negative relations of market timing and leverage. Graham & Harvey (2001) suggested that mostly surveyed CEO's keenly observe their stock prices while choosing the capital structure decisions. Modigliani & Miller (1958) introduced the fact that changes in leverage ratios have impact on the shares' market values. It may have postive impact on market values of firms but using excessive leverage may trap the firms in to the financial distress. In that paper a specific section was introduced, naming as, "Debt Financing and its Effects on Security Prices" (p. 267). The market timing theory is a totally reversed function of Modigliani & Miller's (1958) concept that firms financing decisions have impact on shares of stocks of firms, while a plenty of later studies especially Baker & Wurgler (2002) tried to find out the market valutations impact on capital strucutre. There are a number of explanations behind the market timing practice by the firms, let's start with asymetric information idea of Lucas & McDonald (1990), a model that explained that overvalued firms would go for issuing equity immediately, because the market would avail the information that firm is undervalued uptill next year and even it may take more time to completely adjust abnormal prices in case of Pakistan. Because Pakistani stock markets are not as efficient as developed countries markets. Having said that this fact may encourage the managers to take advantage of asymetric information by selling the overvlued securities and buy back the undervalued stocks. Sell overvalued and buy undervalued is a well known concept among the investors based on the fact that in long run prices move towards normality.

This study is an effort to confirm the fact that financing choices of firms are the out comes of their past market values of their shares in case of Pakistan.

The primary purpose of this study is To identify that the firms in Pakistan time the equity market in their financing decisions and to explain that securities issuances have impacts on debt-equity choices of Pakistani firm in the long run and short run as well. Moreover, to see whether External finance weighted, average market to book ratios reflects the market timings. Finally, to identify the determinants of capital structure choices for Pakistani firms.

Remainder of the study is organized as follows. In second section previous literature has been discussed. Third section contains the information about data that has been used for this study, sample and some information about methodology. In fourth section results of the study has been discussed. Fifth and final section is about conclusion.

2. LITERATURE SURVEY

Capital structure has been given importance not only in a specific country but around the Globe. However, in Pakistan some evidences are found that focus on also be identified with the subject matter; firm specific determinants of capital structure. For example, the work of Mahmud (2003) identify the relationship between macroeconomic and firm specific factors with the capital structure of Pakistani firms, the Pakistani firms have high leverage because of less developed capital markets of Pakistan. Further, it is also explored that fixed assets might be important determinant of leverage ratios.

Shah and Hijazi (2004) also tried to check the determinents of capital structure from1997 to 2001, and found that size was positively related with leverage. It was argued that lager firms have less chances of bankruptcy so, such firms can exploit their debt limits by issuing more debt. Further, the results showed that the growth was negatively related with leverage. Sheikh & Wang (2011) emphasized the differences of developed and developing countries in relation to determining forces of leverage. This study found that tangibility, liquidity and profitability were related to low leverage using the panel data techniques. However, firms with larger size were expected to have high leverage.

Another study by Shah & Khan (2007) supported the pecking order, trade off theory and agency theory, jointly. The study analyzed the non-financial firm level data from 1994-2002 for 286 firms and revealed that Pakistani firms either small or large both were found to have negligible IPOs and information asymmetry might not have significantly affected the capital structure.

Baker & Wurgler (2002) addressed the significance of market timing linkages with capital structure decisions of the firms, and explored whether such connections were persistantly exited. The rationale to gauge this relationship was four dimentional; first, firms issued equity during the peak market valuation. Second, during such times the cost of equity was low, firms issued equity when investors were more enthusiastic to buy equity lastly, survey stated that mangers consideration to issue equity was primarily dependent on the market valuation of firms equity. For analysis the study took IPO as important decision for a firm in its life as reference point market to book ratio as an indicator of market timing, and attempted to estimate the persistance effects of past EFWAMBR on the leverage.

The primary pupose of Alti (2006) was to establish the insight regarding market timing in a more specific way and particularly to deal with question of persistance raised by Baker & Wurgler (2002). The study posited IPO in hot and cold markets as a indicator of market timing rather than market to book ratio as proposed Baker & Wurgler (2002). Study found negative association among leverage and market to book ratio, although sign was same as found by Baker & Wurgler (2002) but persistant question could not be answerd, the market timing effect was short lived and vanished in two years.

The broad motivation behind the Alti & Sulaeman (2012) study was to take a closer look at the behavior of the stock prices of issuers around issue of a season equity offers that coincides with high demands by institutional investors for such offers. According to analysis the probability that firm offered seasonal equity when it had high demand by institutional investors while otherwise, it had a probability to issue new equity that had low demand by the institutional investors. The institutional investors were more sophisticated and their purchase of shares acted as third party licence for the other participants in the market. The study analysed notion explained above by using the data from 1985:1 to 2005:4 of US firms. Probit regression was applied on the institutional demand variables, return variables and firm and stock characteristics. Results showed that firms that had strong institutional investors demand were likely to issue stock at the prevailing prices and such firms stock returns performed well after the issue than the firms that had low institutional investors demands.

Larrian & I.(2013) postulated the argument of maket timing in security issuances with respect to controlling share holdings. According to the study, sale of over valued securities was result of one of either; (i) out side investors were optimistics about the growth of a firm while those were found ambiguous about the intention of the controlling shareholders (ii) investors were naïve and which created the hot markets and, naivety kept them disadvataged by puchasing over valued securities (iii) investors were known about the intentions of large share holders but were found action less. These three dimentions were conditioned with institutional share holders to find the evidence of market timing. Mojar contribution of the study was to add the ownership structure and issuances behavior with firm level characteristics like size, leverage, growth and profitability etc, in the literature of market timing and capital structure. The study used the data from 1990 to 2009 for Chilean non financial firms, OLS and GMM tecneques were applied. The results showed that widely known behavior of firms; that was low return predictability after issuance of stocks, becomes only true when share issuances resulted the large stock holders dillution. More over study found no evidence of low return predictability for the firms those issues share but not for dillution of ownership. Because as information incorporated, the securities were more likely to be priced fairly. It was noted that institutional inverstors were found ubiquitous in Latin America, Asia and Europe. So, important aspect; ownership concentration must be considered in finance research. In summary selling overvalued shares were followed by higher returns and preceded by low returns only when ownership was dilluted.

Capital budgeting implied that if there were positive shifts in demand for an industry in near future it might go to raise funds by issuing equity (Dellavigna & Pollet, 2013).

While, market timing theory inferred that if there were positive shifts in demand for 5 to 10 years later, the firm would reduce the equity, because in this case the equity would be undervalued, and according to the market timing considerations firms attempted to repurchase the undervalued equity, so as the study found negative relation with stock issuance and long term demand shifts. The OLS regression estimates showed that the demand shifts due to demographics led the industries to support both of the implications proposed by capital budgeting and market timing during 1974 to 2004.

An examination done by Antoniou et al, (2008) to investigate the determinants of debt ratios in bank oriented and capital market oriented countries. It was found that factors other than the firm specific factor such as countries' markets, legal and financial conditions might also affect the debt ratios.The study used the data from 1987 to 2000 of five countries, and found that leverage was negatively related with equity issuance, earnings and growth prospects. By applying GMM (Generalized Method of Moments) the anlysis showed leverage positively associated with asset tangibility and size. The study agued that Share performance were negtivily associated with leverage, information asymetry played an important role. This negtive relation might only be due to equity overvaluation. Market value of equity increases as share prices increases, given that the book leverage is independent of the overvaluation.

Year by year analysis of net equity variations by Fama & French (2005) proposed that firm issue equity infrequently. Whereas the study exhibited that average equity issuers increased from 52% to 72% over the observed sample period. There were other ways, like; stock issuances to the employees and mergers etc., to issue equity that might have less information asymmetry and transaction costs. Further, it was identified that firm issued equity even if they were not in financial distress and net new equity issues exceeded the net new debt issues. In short, the results denied relevance of the pecking order theory's prediction that equity was not the last resort; the study also posited weak support for the tradeoff model of capital structure.

According to Booth et al., (2001) in developing countries the capital structure determinants were almost the same as empirically found in developed countries. For analysis the study used the balance sheet data of 10 developing countries for 1980 to 1990, and observed India and Pakistan in high debt group. Moreover, it was also identified that equity market in Pakistan were comparatively limited and had considerably less turnover. Additionally, the study argued that preferred sector loaning in Pakistan and Interest rate in India etc, might also affect firms' financing choices. By pooling the data of 17 developed and developing countries, the study found debt ratios were negatively associated with stock market developments and market to book ratio differed across countries. Debt was found to be associated with less profitability and more tangibility. Although, the study showed mixed results but, using the fixed effect and simple pooling model the study was able to identify some differences across both type of countries and, suggested, This might be due to the fact that different institutional setups existed, developing countries relied more on the short term borrowing.

Jenter (2005) stated that market timing in managarial decision making was due to contrarian views of managers about the market values of firms.

The study aimed to look at the mangerial decisions to time the equity markets when their personal stake was involved. It was argued that managers had contrarian view about market values of their stocks, the manager in high value firms tend to perceive such firms as overvalued firms thus sale of such company stocks was expected by the managers. On the other hand, the managers at low value firm perceive firms stock undervalued and tend to buy the stocks of such companies. The study used the data from 1993 to 2000, of US firms and found that this evidence was due to mispricing of securities rather than asymetric informations, investment opportunities or cost of capital considerations. Managers took advantages of this mispricing, however, it was argued that other explanations were equally important in the arena of market timing literature.

In spite of all above mentioned review of the literature study have used following variables. Firm considered market timing outlook because equity may be cheap and low probability of assymetric information during high market valuations, investor are more encourged to buy the equity. Baker and Wurgler (2002) report that firms issue equity whenever they have historically high market to book ratios and took EFWAMBR as an indicator of market timing and find significantly consistant results. Baker & Wurgler (2002) use $EFWAMBR = \sum_{s=0}^{t-1}\left(\frac{e_s+d_s}{\sum_{r=0}^{t-1} e_r+d_r}\right).\left(\frac{M}{B}\right)$ to look for the historical market valuations effects on capital structure, this study also apply the same estimate. This measure assume high values when external financing is made against the high market valuations. Baker & Wurgler (2002) reports negative and persistent relation while Alti (2006) and Havokimian (2006) reports negative relation but not persistent relation of EFWAMBR with leverage ratios.

External finance weighted average market to book ratio looked for the market valuations influence on capital structure with securities issuance behavior. While market to book ratio is an attempt to explain direct effect at the investment or growth opportunities. Historical literature identified high market to book ratios as window for opportunity or growth options to raise equity. Previously, it is associated negatively with leverage, Titman & Wessels (1988) argue that high growth firms tend to reduce the leverage in order to save potential for raising external financing during distressed conditions. It is the ratio of assets minus book equity and market equit then divided with assets.

According to Booth et. al, (2001), Rajan & Zingales (1995) tangibility is plus point for the creditors for colleteral consideration and liquidations point of view as well, because of high saleable value; tangibility is positively associated with leverage. This study measure the tangibility as fixed assets at cost divided by total assets as a meausure of tangibility. Baker & Wurgler (2002) found positive association between tangibility and leverage. However, agency theory expects a negative association among the tangibility and leverage ratios.

Mayers (1984) suggest that firms consider equity issuances as last resort to raise funds. Due to asymetric information it costs more than the debt. In addition it is argued that more profitable firms tend to reduce the leverage. While, Booth et al., (2001) discuss that profitability may also be positively associated with leverage, because under tradeoff hypothesis firms take advantage of tax deductable interest expenses, and it may thus be positively associated with leverage. Baker and Wurgler (2002) report negative association between profitability and leverage.

Furthemore, agency theory says that firm with more free cash flow would have more agency problems so, to reduce agency cost, profitable firms, are probably more expected to have high leverage ratios Antoniou et al., (2008). It is measured by net profit before taxes were divided by total assets.

Larger firms found to be more diversified firms thus, have lower bankruptcy costs which increase the investors lust to buy the shares of larger firms as compare to the smaller firms. Simply, the larger firms may have more ability to raise external finance either debt or equity contrary to the small firms. Baker and wurgler (2002) report positve association between leverage and size, and Alti (2006) also show similar results. Following the Baker and Wurgler (2002) the size has been measured as log of total sales.

This study use two measures of leverage; in book values and in market values. Book leverage is defined as total debt divided by assets, market leverage is defined as total debt divided by assets minus book equity plus market equity, market equity is number of out standing shares multiplied by share prices. Titman & Wessels (1988) conclude that different measures of leverage have different determinants, such as short term and long term debt, Mahmud (2003) in case of Pakistan, Japan and Malaysia report different signs for different dependent variables against the different measures of leverage, in that study two different measures of leverage are used and it is concluded that different measures of leverage have different determinants.

The empirical work on capital structure and market timing is generally ignored, market to book ratio has been used by the previous empirical studies, but it is not focused on the market timings consideration; for example external finance weighted average, market to book ratios and HOT markets effects, for firms. Previous research is usually focused on the earlier developed theories such as tradeoff theory of Modigliani & Miller (1958), pecking order theory of Mayer's (1984), market signaling and agency theory of capital structure. This study is an effort to bridge this gap, on the basis of above reviewed literature following hypotheses can be made

Hypothesis 1: Pakistani firms time the market for external financing.

Hypothesis 2: Market timing has long run effects in determining the leverage ratios.

Hypothesis 3: Firms issues equity during high market valuations.

Hypothesis 4: The market timing effects accumulate over time.

3. DATA AND METHODOLOGY

3.1. Preliminary Data Analysis

For analysis of market timing theory of capital structure this study uses data of Pakistani listed firms for the period of 1999 to 2011. Company's financials have been obtained from the Balance Sheet Analysis published by the State Bank of Pakistan and securities prices are obtained from the Karachi Stock Exchange (KSE).

All variables are in percentage form except market to book ratio and external finance weighted, average market to book ratio. Table 1 presents the variables characteristics; like mean, median, maximum, minimum values and standard deviations for the variables.

Market leverage (MKTLEV) has a mean value of 59.15% with standard deviation 26.25 which means; in general firms are 40% financed other than debt sources in market terms. Book leverage (BKLEV) has a mean value 57.65% which means in book terms firms generally are financed up to 42% by other than debt sources, having a standard deviation of 20.02. Market leverage has high standard deviation which might be due to variations in the stock prices of shares. Market to book (MBR) ratio has mean value of 1.18 with a standard deviation 0.79, external financing weighted average market to book ratio (EFWAMBR) with a mean value of 3.98 with a standard deviation of 2.65.

The measure of profitability; return on assets (ROA) has a mean value of 9.01 with a standard deviation of 13.11. Tangibility has a mean value of 60.63% and standard deviation of 23.48, log of sale (LSAL) as measure of size has a mean value of 3.55% with a standard deviation of 0.76. Non debt tax shields (NDTS) as measure of tax saving benefit, has a mean value of 3.54% and 3.28 as its standard deviation. Change in retained earnings (ΔRER) has a mean value of 5.04 with a standard deviation of 13.25, Debt issues (DTISU) have a mean value of 5.60 with a standard deviation of 16.89. Equity issues (EQISU) have a mean value of 0.86 and standard deviation of 4.89, this shows that Pakistani firms often, go for financing externally with debt rather than equity. More simply, firms in Pakistan are likely, to prefer debt rather than issuing equity if funds are required to be raised externally.

Table 1: Summary Statistics

Variables	Mean	Median	Maximum	Minimum	Standard Deviation
MKTLEV	59.157	61.793	99.924	0.2341	26.251
BKLEV	57.655	60.541	99.963	3.5527	20.024
MBR	1.1854	0.9921	9.9933	0.2224	0.7905
EFWAMBR	3.9883	3.7122	9.9920	0.0111	2.6576
ROA	9.0183	7.0000	91.800	-36.000	13.112
TANG	60.633	64.271	99.939	0.0828	23.480
LSAL	3.5591	3.5687	5.9141	0.4237	0.7635
NDTS	3.5486	3.4380	44.552	-63.011	3.2829
ΔRER	5.0491	4.0089	87.732	-80.351	13.255
DTISU	5.6069	5.3738	85.459	-94.256	16.894
EQISU	0.8640	0.0000	84.507	-83.832	4.8950

The primary reason for firm's behavior to prefer debt over equity may be due to higher costs associated with issuing equity and little access to the capital markets. Finally, little guidance for the investors and little trust on market efficiency may push them towards debt; although, some measures have been taken but there is still a long way to go for the achievement of efficient capital market.

Table 2 presents the correlation matrix of the explanatory variable in order to explain the issue of multicolinearity in the data and to avoid the spurious regression results. This can be identified that there are not very abnormal values. The highest value of correlation, among ROA and MBR, which may be due to reason that profitable firms are attractive for the investors and which may lead to the strong and positive association among the variables so investors are enthusiastic for buying such shares which may increase the market values, (EFWAMBR) is associated with high MBR with the correlation of 0.19 which may be due to the reason we use market to book ratio to derive both of the variables, however, this correlation is acceptable and there should be some correlation among the explanatory variables. In short, it can be observe that there is no problem of multicolinearity in the data.

Table 2: Correlation Matrix

	EFWA MBR	MBR	ROA	LSAL	TANG	NDTS	ΔRER	DTISU	EQISU
EFWA MBR	1.00								
MBR	0.19	1.00							
ROA	0.01	0.53	1.00						
LSAL	0.09	0.27	0.24	1.00					
TANG	-0.11	-0.07	-0.20	-0.27	1.00				
NDTS	0.02	0.04	0.01	0.01	0.30	1.00			
ΔRER	-0.08	-0.01	0.33	-0.02	-0.02	-0.08	1.00		
DTISU	0.13	0.09	-0.16	0.01	-0.09	-0.08	-0.25	1.00	
EQISU	0.06	-0.01	-0.02	-0.04	0.05	0.01	0.04	0.01	1.00

3.2. Methodology

This study moves to highlight the ecnometric tecniques to emprically test that is proposed so for in theory of market valuations. This study has applied ordinary least square model (OLS) to analyse the market timing effects on capital structure.

Equation 1 has been estimated to look for the net change in leverage. This is an effort to identify the annual change in leverage with respect to the independent variables used in this study.

$$\frac{D}{A_t} - \frac{D}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{M}{B}_{t-1} + \alpha_2 ROA_{t-1} + \alpha_3 LSAL_{t-1} + \alpha_4 TANG_{t-1} + \alpha_5 NDTS_{t-1} + \alpha_6 \frac{D}{A}_{t-1} + \varepsilon_t \quad (1)$$

Where $(\frac{D}{A})$ shows the leverage defined as book debt to book assets, $\left(\frac{M}{B}\right)_{efwa,\ t-1}$ shows external finance weighted average market to book ratio (EFWAMBR) it measures the past variations in market to book ratios and firm responses to such opportunities. Following the Rajan & Zingales (1995) other variables are lag of market to book ratio $\left(\frac{M}{B}\right)_{t-1}$ controls for current effect of market to book ratio on leverage, other variables are $\left(\frac{FIXAS}{A}\right)_{t-1}$ tangibility, $\left(\frac{EBITAD}{A}\right)_{t-1}$ profitability and $\log(s)_{t-1}$ size, $D/A_{initial-lev}$ is the level of initial leverage for the firm. d_i is the dummy used to capture industry specific effects.

Equation (2), (3) and (4) has been used to identify that which component is important in determining the leverage ratios. The change in leverage has been divided in to three components, change in retained earnings $(\Delta RER/A)$, equity issues $(EQISU/A)$ and residual change in leverage which depends on growth in assets.

$$\frac{\Delta RER}{A} = \beta_0 + \beta_1 \frac{M}{B}_{t-1} + \beta_2 ROA_{t-1} + \beta_3 LSAL_{t-1} + \beta_4 TANG_{t-1} + \beta_5 \frac{D}{A}_{t-1} + \varepsilon_t \quad (2)$$

$$\frac{EQISU}{A} = \beta_0 + \beta_1 \frac{M}{B}_{t-1} + \beta_2 ROA_{t-1} + \beta_3 LSAL_{t-1} + \beta_4 TANG_{t-1} + \beta_5 \frac{D}{A}_{t-1} + \varepsilon_t \quad (3)$$

$$\frac{A_t - A_{t-1}}{A_{t-1}} = \beta_0 + \beta_1 \frac{M}{B}_{t-1} + \beta_2 ROA_{t-1} + \beta_3 LSAL_{t-1} + \beta_4 TANG_{t-1} + \beta_5 \frac{D}{A}_{t-1} + \varepsilon_t \quad (4)$$

Before moving to the main check the study would replicate the tests of Baker & Wurgler (2002) and Hovakimian (2006) on our sample to estimate the main results, that leverage is such a phenomenon which can best be explained by past actions to time the equity market, for firms in Pakistan. By doing this it can be found that market timing is whether best explained by past market to book ratio or not.

$$\frac{D}{A_t} = \gamma_0 + \gamma_1 \frac{M}{B}_{efwa,t-1} + \gamma_2 \frac{M}{B}_{t-1} + \gamma_3 \frac{EBITD}{A}_{t-1} + \gamma_4 SIZE_{t-1} + \gamma_5 \frac{FIXAS}{A}_{t-1} + \gamma_6 d_i + \varepsilon_t \quad (5)$$

So for we have showed estimates for short term impact of market timing, this study now investigate more formally the basic question, either market valuation persistently affect the leverage or the effects of market timing accumulate over time. Our study will use the following equation in accordance to the Alti (2006) and Baker & Wurgler (2002) to have long run estimates.

$$\frac{D}{A_t} + \frac{D}{A_{initial-lev}} = \theta_0 + \theta_1 HOT_t + \theta_2 \frac{M}{B}_{t-1} + \theta_3 \frac{EBITDA}{A}_{t-1} + \theta_4 SIZE_{t-1} + \theta_5 \frac{FIXAS}{A}_{t-1} + \theta_6 \frac{D}{A_{initial-leve}} + \theta_7 d_i + \varepsilon_t \quad (6)$$

4. EMPIRICAL FINDINGS

First of all, the study have taken the analysis of yearly change in two measures of leverage, which will help to identify the effects in short run then further tests are applied to get a bit vast look at the arguments of market timing. Table 3 is representing OLS results of the determinants of annual change in book leverage and market leverage.

In table 3, the lagged value of Market to book ratio is negatively associated with annual change in market leverage, which means that firm in Pakistan reduces the leverage for high values of market to book ratio, it is not clear whether it is market timing or some other phenomenon for the case of Pakistani firms. Negative association between market leverage and market to book ratio may be due to fact that during high market values it is likely that firms will raise funds either by using internal equity (retained earnings) or external equity (share issuance in stock market), which ultimately reduces the leverage. Relationship of change in book leverage and market to book ratio is insignificant. Relationship of profitability and leverage is significantly negative in both measures of leverage a p-value of 0.00 and 0.01 respectively which means that profitability and leverage relationship is significant at the level of 1% in both market and book terms. MKTLEV(-1) is significantly related with both measures of leverage. TANG(-1) and NDTS(-1) are insignificant in both cases. Most of the results are consistent with the prior studies of Baker & Wurgler (2002), Alti (2006) and Sheikh & Wang (2011); Lemmon et al, (2008).

Table 3: Determinants of Annual Change in Leverage

	Determinants of annual change in market leverage		Determinants of annual change in book leverage	
	Coefficients	p-value	Coefficients	p-value
MBR(-1)	-9.61	0.00	0.20	0.78
ROA(-1)	-0.18	0.00	-0.10	0.01
LSAL(-1)	3.18	0.01	0.16	0.88
TANG(-1)	-0.01	0.61	0.01	0.69

NDTS(-1)	-0.04	0.82	-0.19	0.20
MKTLEV(-1)	-0.51	0.00	-0.35	0.00
R-Square	0.29		0.13	

Table 4 represent the components of change in leverage; this study following the Baker & Wurgler (2002) estimated each of three components of leverage for the lagged independent variables; market to book ratio, profitability, size and tangibility, which were identified as important variables in determining leverage ratios by previous studies. Panel (A) in Table 4 is to check the change in leverage due to change in retained earnings. It shows the positive association of market to book ratio and profitability with market leverage which is statistically robust as well.

Panel B depicts the second component of change in leverage, which is issuance of shares in stock market (net equity issues) this investigation did not find any significant coefficient for equity issues, which acknowledged that change in leverage is basically due to share issuance in stock markets and firms do not balance it away to maintain target leverage ratios. The insignificant coefficients for net equity issues ruled out the possibility that leverage is driven by equity issuances during the times of high market values; a basic prediction of market timing theory. Panel (C) represents growth in assets component to change the leverage ratios. Table 4 shows that when market values are high, firms raise retained earnings rather than issuing shares to avoid exploiting the existing shareholders and enthusiastic new investors. So; it supports the pecking order theory that firms rarely issue external equity because it is most risky or because of any other important factor considered by literature, on the other hand, it supports the market timing argument that firms reduce the leverage and firm issue equity during the high market valuations. So far this study reaches up to the conclusion that firms reduce the leverage for high market values, and this change may come through raising funds through internal sources; such as retained earning rather than issuing shares in stock market.

Table 4: Components of Change in Market Leverage

	Panel (A) (ΔRER/A)%		Panel (B) (EQISU/A)%		Panel (C) $(A_t - A_{t-1})/A_t$	
	Coefficients	p-value	Coefficients	p-value	Coefficients	p-value
MBR(-1)	2.67	0.00	-0.16	0.60	0.22	0.91
ROA(-1)	0.25	0.00	0.00	0.79	0.55	0.00
LSAL(-1)	-0.49	0.18	-0.50	0.25	-9.31	0.00
TANG(-1)	0.04	0.24	0.00	0.88	0.04	0.51
R-Square	0.14		0.26		0.19	

To find the main point of the current study; the determinants of market and book leverage using three independent variable of Rajan & Zingales (1995) profitability, tangibility, size and two of the Baker & Wurgler (2002) external finance weighted,average market to book ratio and lagged market to book ratio and non debt tax shields.

This regression has the good explanatory power than the earlier tables results in the current study, which for value of R-Square is 76% Baker and Wurgler (2002), Hovakimian (2006) and Alti (2006) report 20%, 17.6% and 41% respectively, however these results are interestingly different from the priors. The current study find opposite and significant signs for the external finance weighted,average market to book ratio and size. However, Baker & Wurgler, (2002) results also bear opposite sign in the regression results of 1980-1999 all firms sample; where market to lagged book ratio appears with 2.20 for book leverage and -5.53 for market leverage and which are significant at 1% as well for size.

While this study posits completely different signs for both the measures of leverage in book terms and market terms. For example, external finance market to book ratio has significant positive sign for book leverge and significant negative sign for market value, same is the the case for the lagged market to book ratios; however, this is insignificant for book leverage. Table 5 posits the determinants of leverage following the Baker & Wurgler (2002) for external finance weighted, average market to book ratio (EFWAMBR) this study report significant negative sign for market leverage and significant positive sign for book leverage although the results for book leverage are not according to Baker & Wurgler (2002) but there are several studies in Pakistan for example, Mahmud, (2003) report significant opposite results for different measures of leverage. It conclude that different mesures of leverge have different determinents, same is happened in current study. Fama & French (1992) also use assets over market equity and asset over book equity as proxy for leverage to explain relation with share values and find opposite and significant results. Having said that results are not suprising, the measure of market timing is negatively associated with market leverage and is significant as well.

Table 5: Determinants of Leverage

	Determinants of Market Leverage		Determinants of Book Leverage	
	Coefficients	p-values	Coefficients	p-values
EFWAMBR(-1)	-0.93	0.00	1.87	0.00
MBR(-1)	-3.48	0.04	0.62	0.64
ROA(-1)	-0.56	0.00	-0.46	0.00
LSAL(-1)	6.45	0.00	-10.5	0.00
TANG(-1)	-0.05	0.21	-0.09	0.21
NDTS(-1)	-0.05	0.10	0.05	0.78
R-Square	0.76		0.72	

In comparative statistic increase in EFWAMBR leads a decrease in leverage. This relationship follows the notion of the market timing that the firms reduce the leverge when market value for the company is high, now either firms reduce leverage to save debt capacity for a possible distressed time because increase in market value of shares increases the debt capacity for firms or the firms issues equity (internal or external) which ultimately will reduce the leverage. This is consistent with the view of Baker & Wurgler (2002) and Hovakimian (2006) of market timing. Lagged marekt to book ratio is found to be significant and inversely associated with market leverage; however, this is insignificant with book leverage.

If market to book ratio represents the growth or investment opportunities it will reduce the leverage. This may be due to the fact that the managers know the amount with which shares are overvalued; so, they give the discount of the same amount which brings the firm to reduce leverage by issuing equity in such cases, or it may be due to only statistical distortion. Because as the market values of equity go up, it is obvious, it will reduce the debt to equity ratio, which creates doubts about the persistence of market timing effects in determining the leverage ratios it may be only transitional or some data correlation may lead to so.

Increase in size leads to increase in market leverage and decrease in book leverage. Size is positively associated with market leverage which is consistent with the results of Baker & Wurgler (2002) and Sheikh & Wang (2011) etc. This can be explained by the fact that size reduces the bankruptcy risk which in turn increases the debt capacity, and is negatively associated with book leverage, smaller firms find it hard to get fund from issuing shares in stock market; so, they go for debt which Faulkender & Petersen (2006) report the negative relation of size with leverage and stated that it might be positive due to the other measure of leverage, and Mahmud (2003) also reported negative and significant association of leverage and size for Pakistan.

Increase in profitability leads to a decrease in market leverage and a decrease in book leverage, this is single variable which is same for both market and book leverage. Existing study explains the negative relation between profitability and leverage and that the firm will use internal sources if it needs financing and then go for out side to finance it projects.

Which further have two types; debt or eqity, debt is considered as less risky source to raise funds externally than equity. Because equity is associated with issuing cost and information asymetries etc. Hence it is considerd as a source of raising fund as last resort, among the three, mentioned earlier in the beginning of this paragraph, and which is the standard prediction of pecking order theroy. Profitable firms reduce the debt burden so, this is why, there is negative association, firms use internal fund first then go out side to raise funds. Previous research finds the similar relation of profitability and leverage Alti (2006) Rafiq et al., (2008).

Increase in tangibility leads to a decrease of in book leverage. Mostly, previous studies found asset tangibility positively associated with leverage Baker & Wurgler (2002), Titman & Wessels (1988). Tradeoff theory predicts a positive association of tangibility and leverage because firms with more colletrizable assets can get loans from the banks easily than the firms having low asset base.

Tangibility has insignificant effect on market leverage. Book leverage and tangibility, significant negative association among the two can be explained by the fact that, in Pakistan due to changing interest rates and a lot of other factors firms prefer short term financing which is mostly cash finance and running finance and colletralizable assets are of less importance in getting loans from banks. This negative relationship of tangibility and leverage is also predicted by the agency theory which elaborates that leveraged firms managers are more likely to invest suboptimally in risky projects; so, the debt holders of such firms require the management to get more satisfactory term, where managers are more likely to raise funds other than debt, which may be a factor for negative relationship of tangibility and leverage.

Table 6 showed the cumulative change in leverage, these are the results of regression by deducting the initial level of leverage for the firms that are included in the sample. Data set is divided into two panels, Baker & Wurgler (2002) divided their data set in to five panels, the current study due to limited observation could not divide the data set further. Panel A is showing the results of regression of a panel of 104 companies for the first half (1999-2005) of the data, panel B is about the second half (2006-2011) of the data and finally panel C has shown the results for whole (1999-2011) of our sample. The study followed the Baker & Wurgler (2002) and Alti (2006) to run this regression to check the persistence of the impact of market timing on the capital structure of the Pakistani firms. This study looked at the effects of market timing measures and other determinants of capital structure either the results are same across the whole sample year or as the firm get older.

Table 6: Determinants of Cumulative Change in Leverage

Cumulative change in market leverage						
	Panel A (1999-2005)		Panel B (2006-2011)		Panel C (1999-2011)	
	Coeffic-ients	p-values	Coeffic-ients	p-values	Coeffic-ients	p-values
EFWAMBR(-1)	0.03	0.89	-0.15	0.30	0.09	0.89
MBR(-1)	-10.2	0.00	-9.69	0.00	-7.88	0.00
ROA(-1)	-0.80	0.00	-1.00	0.00	-0.95	0.00
LSAL(-1)	-3.44	0.06	-1.04	0.72	-1.51	0.60
TANG(-1)	-0.04	0.77	0.05	0.73	0.02	0.68
NDTS(-1)	-0.17	0.58	0.33	0.35	-0.26	0.24
INITIAL LEV	-0.56	0.00	0.72	0.00	-0.60	0.00

R-Square	0.44		0.51		0.45	
Cumulative change in book leverage						
EFWAMBR(-1)	1.12	0.00	1.68	0.00	1.20	0.00
MBR(-1)	-11.5	0.01	0.38	0.00	-4.19	0.07
ROA(-1)	-0.25	0.00	-0.78	0.00	-0.53	0.00
LSAL(-1)	8.91	0.00	7.01	0.00	7.44	0.00
TANG(-1)	0.08	0.18	0.03	0.47	0.04	0.67
NDTS(-1)	-0.36	0.11	-0.55	0.72	-0.29	0.74
INITIAL LEV	-0.56	0.00	-0.72	0.00	-0.70	0.00
R-Square	0.49		0.54		0.52	

Table 6 showed the difference across the period age of the firms. External finance weighted, average market to book ratio is insignificant for market leverage, for book leverage such effect gets stronger as firms get older, its coefficient increased from 1.13 to 1.68, market to book ratio effects on accumulative leverage get smaller for market leverage as firms get older.

It can be seen by coefficient from 10.21 first half of the data set to 6.96 points in the second half of the data set, profitability effects have also increased over the age of the firms from -0.08 to -1.00 in second period of the data. Size effects on cumulative change in market leverage gets weaker and minor decrease in strength of its relation with book leverage over the time, other variable are insignificant. Profitability is negatively associated with both the measures of leverage increase in profitability bring a decrease in market leverage and decrease in book leverage. Size is associated with an increase in accumulative leverage for example one standard deviation increase in size brought an increase accumulative leverage in book terms; however, results are insignificant in case of market leverage.

By looking at the all three panels given in table 6 one may reach at the conclusion that persistence has not proved for the market timing however, our short term regression results are consistent with the previous empirical findings of Hovakimian (2006) and Alti (2006). We have found all industry dummy variables as insignificant which means that all effect is same for all sectors.

5. CONCLUSION

Basically, this study explored the relationship of market timing theory with capital structure in specific; however, this study used some other important independent variables those were identified by the previous literature. This study used 104; KSE listed 100 Index, nonfinancial firms' data for the period of 1999 to 2011. OLS technique has been applied for near 1200 observations. This study used two measures of leverage market leverage and book leverage.

Debt ratios were found to show different signs for different independent variables; for example, in the regression results of determinants of capital structure, external finance weighted average market to book ratio is found to have positive and significant relation with book leverage and significant negative relation with market leverage. These are weak signs to confirm the market timing argument; however, the negative sign for EFWAMBR with market leverage does confirms that there are market timing considerations. Market timing argument may be weaker due to underdeveloped equity and debt markets for Pakistan. Market to book ratio a measure of growth opportunities showed the significant negative signs for market leverage but insignificant relation with book leverage. Profitability showed negative relation with both of our measures of leverage; profitability (ROA) is a most significant variable for the current study which confirms the pecking order argument for the case of Pakistani firm. Size also has opposite signs for both the measures of leverage, by it is hard to say that a tradeoff theory argument is persistent for Pakistani firms, tangibility was negatively associated with leverage for our main regression results, which turns the attention towards the fact that firms in Pakistan facing the issue of sub optimally usage of the firms excess resources by the managers which leads firms to use more debt , or this might only be due to the fact that mostly firms use short term financing in the case of Pakistan. Lastly, it is hard to say anything in favor of the argument that the market timing effects that were found significant in the developed countries are also fallowed in less developed markets.

In short this study does not strongly support that firms issue equity during the high valuations, however, this effect has not completely ruled out, by using a large data sets, by different measures of market timing one may reach to more consolidated results.

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 trigger equity issues? Journal of Financial Economics, 103, 61-87.

Antoniou, A., Guney, Y., & Paudyal, K. (2008). The Determinants of Capital Structure: Capital Market-Oriented versus Bank-Oriented Institutions. Journal of Financial and Quantitative Analysis, 43, 59–92.

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

Booth, L., Aivazian, V., Demirguc-Kunt, A., & Maksimovic, V. (2001). Capital Structures in Developing Countries. The Journal of Finance, 56, 87-130.

Dellavigna, S., & Pollet, J. M. (2013). Capital Budgeting versus Market Timing: An Evaluation Using Demographics. The Journal of Finance, 68, 237-270.

Fama, E. F., & French, K. R. (1992). The Cross Sections of Expected Stock Returns. The Journal of Finance, 42, 427-465.

Fama, E. F., & French, K. R. (2005). Financing decisions: who issues stock? Journal of Financial Economics, 76, 549-582.

Faulkender, M., & Petersen, M. A. (2006). Does the Source of Capital Affect Capital Structure? The Review of Financial Studies, 19, 45-79.

Graham, J. R., & Harvey, C. R. (2001). The Theory and Practice of Corporate Finance:Evidence from the field. Jouranl of Financial Economics, 60, 187-243.

Hovakimian, A. (2004). The Role of Target Leverage in Security Issues and Repurchases. The Journal of Business, 77, 1041-1072.

Hovakimian, A., Hovakimian, G., & Tehranian, H. (2006). Determinants of target capital structure: The case of dual debt and equity issues. Journal of Financial Economics, 71, 517–540.

Jenter, D. (2005). Market Timing and Managerial Portfolio Decisions. Journal of Finance, 60(4), 1903-1949.

Larrian, B., & I., F. U. (2013). Controlling Shareholders and Market Timing in Share Issuance. Journal of Financial Economics, 109, 661-681.

Lemmon, M. L., Roberts, M. R., & Zender, J. F. (2008). Back to the Beging: Persistance and the Cross-Sections of Corporate Capital Sturcture. Journal of Finance, 63(4).

Lucas, D. J., & McDonald, R. L. (1990). Equity Issues and Stock Prices Dynamics. Journal of Finance, 45(4), 1019-1043.

Mahmud, M. (2003). The Relationship between Economic Growth and Capital Structure of Listed Companies: Evidence of Japan, Malaysia, and Pakistan. The Pakistan Development Review, 42(4), 727-750.

Mayers, S. C. (1984). The Capital Structure Puzzle. Journal of Finance, 39(3), 575-592.

Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. The American Economic Review, 48, 261-297.

Rafiq, M., Iqbal, A., & Atiq, M. (2008). The Determinants of Capital Structure of the Chemical Industry in Pakistan. The Lahore Journal of Economics, 13(1), 139-158.

Rajan, R. G., & Zingales, L. (1995). What Do We Know about Capital Structure? Some Evidence from International Data. The Journal of Finance, 1421-1460.

Sheikh, N. A., & Wang, Z. (2011). Determinants of Capital Structure An empirical study of firms in manufacturing industry of Pakistan. Managerial Finance, 37(2), 117-133.

Shah, A., & Hijazi, T. (2004). The Determinants of Capital Structure of Stock Exchange-listed Non-financial Firms in Pakistan. The Pakistan Development Review, 43(4), 605-618.

Shah, A., & Khan, S. (2007). Determinants of Capital Structure: Evidence from Pakistani Panel Data. International Review of Business Research Papers, 3(4), 265-282.

Titman, S., & Wessels, R. (1988). The Determinants of Capital Structure Choice. The Journal of Finance, 43, 1-19.