Synopsis

In corporate finance, market timing refers to issuing equity when it is overvalued and repurchasing equity when it is undervalued. Market timing can either be aggregate or firm-specific. In aggregate market timing, firm tries to take advantage of the overall market optimism or industry over optimism whereas in firm-specific market timing, firm tries to take advantage of the firm-specific overvaluation. However, the view of market timing is not acceptable to those researchers who believe that the markets are efficient. They believe that the firms issue equity when they can receive higher prices for their equity which is plausible when the economy is growing, markets are rising and there is higher demand for capital because of greater growth opportunities. They refer this phenomenon to market conditions hypothesis or pseudo market timing hypothesis. Indian equity market (where equity is issued through initial public offerings (IPOs) and follow-up-offerings (SEOs)) provides a perfect setting to test market timing hypothesis against market conditions hypothesis because of two reasons. One, the U.S. literature shows that most underpriced U.S. IPOs are highly overvalued and in India we do have the evidence of underpricing of IPOs but whether Indian IPOs are overvalued or not is yet to be tested. Two, majority of the IPOs issued in India are after the economic reforms of 1991 which signals the role of market conditions in the equity issuance. We do not find any study in India which examines market timing/pseudo market timing hypothesis. We attempt to fill this gap by examining IPOs and SEOs in emerging economy India. In addition to this, we investigate the investment motives of IPO and SEOs firms. For this, we decompose market-to-book ratio into two components – mispricing and growth opportunities. This decomposition is essential to construct clean test of market timing because market-to-book ratio is considered as a proxy of misvaluation as well as of growth options. We examine the independent effects of market timing
(misvaluation) and growth opportunities on the actual use of proceeds of equity issuance in the post-issue period. This is done to find out whether firms issue equity due to market timing or due to the genuine need of capital to finance its investments.

Broadly, the study examines the following three objectives:

1. To analyze the impact of aggregate market timing, firm-specific market timing and pseudo market timing on equity issuance.
2. To investigate whether pseudo market timing explains the long-run performance of firms issuing equity.
3. To study the investment based motives of equity issuance by examining the independent effects of market timing and growth opportunities on the actual use of proceeds of equity issuance.

Data of our study consists of 3958 IPOs and 724 SEOs which issued equity in India during 1991-2009. The data on individual equity issuance for IPOs and SEOs like company name, filing date, issue date, offer price, deal size, etc. is collected from Prime Database and Thomsonone Database of Securities Data Corporation. The stock price data for all the firms is collected from PROWESS database maintained by Centre for Monitoring Indian Economy (CMIE). Data on equally-weighted COSPI index prices and industry return is also collected from the PROWESS database. The data on macro-economic variables is collected from BUSINESS BEACON database maintained by CMIE and EPWRF (Economic and Political Weekly Research Foundation) maintained by Economic and Political Weekly. The remaining data on accounting and financial variables is collected from PROWESS database.

To examine objective 1, we use various proxies which capture firm-specific market timing, aggregate market timing and market conditions (pseudo market timing). The impact of
these proxies is analyzed on IPO/SEO activity. Number of IPOs and SEOs in a quarter is considered as IPO/SEO activity ($MktIPOs/MktSEOs$). Underpricing ($UP$) and buy and hold adjusted returns of the issuer ($BHAR$) for 4 quarters in post-issuance period are used to capture firm-specific market timing. Buy-and-hold market returns ($BHR$) for 4 quarters in pre-issuance period, buy-and-hold market returns for 4 quarters in the post-issuance period and market-wide market-to-book ratio ($MktM/B$) for the quarter prior to equity issuance are the variables which we use to capture aggregate market timing. We use gross domestic product ($GDP$), treasury bill ($TBill$) and price earnings ratio of Sensex ($P/E$) as proxies to capture market conditions. By using following regression, we analyze the impact of all market timing and market conditions variables on number of IPOs/SEOs:

$$MktIPOs_t = \alpha + \sum_{k=1}^{4} \beta_k BHR_{t-k} + \sum_{k=1}^{4} \beta_{k+4} BHR_{t+k} + \beta_9 (MktM/B)_{t-1} + \beta_{10} UP_{t-1} + \sum_{k=1}^{4} \beta_{k+10} BHAR_{t+k} + \beta_{13} \ln GDP_{t-1} + \beta_{14} (\frac{P}{E})_{t-1} + \beta_{17} TBill_{t-1} + \epsilon_t$$

In the above regression, $t$ represents a quarter. We carry out above analysis time-wise, ownership-wise and industry-wise. Since, our time period is large so to understand the effect of structural breaks, we divide the complete time period into three regulatory regimes for IPOs: Regime I (post-liberalized era from 1991 to 1996), Regime II (regulated era from 1997 to 2002) and Regime III (reformed regulated era from 2003 to 2009). Regime I is a post-liberalization era immediately after the economic reforms which were initiated in India in 1991. This time period is characterized by high growth rate of the economy, maximum number of IPOs and presence of very few regulations in Indian IPO market. SEBI introduced regulations on pricing of IPOs and imposed restriction on promoters holding in 1996, the impact of which is seen in Regime II in the form of very few IPOs as compared to Regime I. So, we call this era as regulated era. In order to encourage equity participation after the slump of IPOs in Regime II, SEBI again
introduced few changes for example, new allotment norms, book building process etc. in 2000, the impact of which is seen after 2002. The period after 2002 is considered as Regime III i.e. 2003-2009 and we call this regime as reformed regulated era. Since SEOs are less in number, time period of SEOs is classified into two regimes: Regime A (post-liberalized era from 1991 to 1996) and Regime B (initial and reformed regulated era from 1997-2009). Another important characteristic of Indian business landscape is dominated by business groups which are controlled by family members. We, therefore, classify IPOs and SEOs into three different ownership categories and examine them independently to highlight the differences among them, if any. The three ownership categories are: business group affiliated IPOs/SEOs, standalone IPOs/SEOs and other IPO/SEOs. The IPOs/SEOs which are neither group affiliated nor standalone are classified as ‘others’. We also carry out our analysis in six major industries where IPOs/SEOs cluster which are manufacturing industry, wholesale and retail trade industry, information technology and communication industry, financial institutions and insurance industry, construction industry and others.

To examine long-run performance of IPOs and SEOs in objective 2, we use calendar-time approach by using Carhart (1997) four-factor model which is given as under:

\[ R_{pt} - R_{ft} = \alpha + \beta_1(R_{mt} - R_{ft}) + \beta_2SMB_t + \beta_3HML_t + \beta_4MOM_t + \varepsilon_t \]

\( R_{pt} \) is the monthly portfolio returns calculated for the month \( t \) and \( R_{ft} \) is the one year risk-free rate. \( (R_{mt} - R_{ft}) \) is the market risk premium, where \( R_{mt} \) is the market return for the month \( t \), which is COSPI index return in this case. \( SMB_t \) is the monthly return on the portfolio of small stocks minus monthly return on the portfolio of large stocks for month \( t \). \( HML_t \) is the monthly return on the portfolio of high book-to-market minus the monthly return on the portfolio of low book-to-market returns for month \( t \). The forth factor added by Carhart (1997), \( MOM_t \) is the
momentum factor which is returns on the portfolio of high momentum stocks (high past returns i.e. winners) minus returns on the portfolio of low momentum stocks (low past returns i.e. losers) for month $t$. Momentum is computed on the basis of previous one year returns. In addition to Carhart model which is four-factor model, we also estimate Capital Asset Pricing Model single factor model and Fama-French three factor model. The intercept $\alpha$ in all the models is a measure of abnormal performance. In case of no abnormal performance $\alpha$ should be zero. A positive $\alpha$ shows positive abnormal performance whereas a negative $\alpha$ shows negative abnormal performance. By using above regression model, we examine long-run performance of IPOs and SEOs for the complete time-period as well for different time regimes. We also examine ownership-wise and industry-wise long-run performance of IPOs and SEOs. Further, we compare the long-run performance of hot-issue market versus cold-issue markets. On the basis of underpricing, we classify IPO/SEO market into hot IPO/SEO and cold IPO/SEO markets, high underpriced being hot and low underpriced being cold-issue market. Lastly, we compare the long-run performance of IPOs with SEOs.

To examine objective 3, we decompose market-to-book ratio into two components to analyze the independent impact of misvaluation ($M/V$) and growth opportunities ($V/B$). We follow the methodology developed by Rhodes-Krof, Robinson and Viswanathan’s (2005) to decompose market-to-book in the following way:

$$\frac{M}{B} = \frac{M}{V} \times \frac{V}{B}$$

Where $M$ is market value of equity, $V$ is fair value of equity and $B$ is book value of equity. We compute fair of value of equity for SEO firms by using residual income model and we follow Purnanandam and Swaminathan (2004)’s procedure to compute the fair value of IPO firms based on price multiples of industry peer. Industry peer/match firm is selected from non-IPO listed
firms in the same industry on the basis of similar sales and profits. Three price multiples namely price-to-sales ratio, price-to-(earnings before interest, tax, depreciation and amortization) EBITDA, and price-to-earnings ratio are used to compute the fair value of an IPO. Next, we analyze the impact of misvaluation and growth component on the use of actual process of equity issuance after controlling primary capital (PC) raised in equity issuance, other sources of funds (OSC) and size by estimating following regression with industry and time effects by using following regression:

\[ Y_{it} = \alpha + \beta_1 (M/V)_i + \beta_2 (V/B)_i + \beta_3 \ln\left(\frac{PC_i}{A_{i0}}\right) + 1 + \beta_4 \ln\left(\frac{OSC_i}{A_{i0}}\right) + 1 + \beta_5 \ln[A_{i0}] + D_T \]

\[ + D_t + \varepsilon_i \]

where, \( Y_{it} = ((S_i - S_{i0})/A_{i0}) \) for \( S_i = \) inventory, cash and total assets, for \( ith \) firm and for \( t=1 \) to 4 years. \( Y_{it} = (\sum_{j=1}^{t} S_{ij}/A_{i0}) \) for \( S_i = \) Capital expenditures, R&D and long-term debt reduction, for \( ith \) firm and for \( t=1 \) to 4 years. We regress changes in each of six accounting variables which are cash, inventory, total assets, capital expenditure, R&D and long-term debt measured over post-issue four years, +1, +2, +3, and +4 year. \( A_{i0} = \) Total Assets at time zero for \( ith \) firm. \( D_T \) and \( D_t \) are year and industry dummies respectively.

From the analysis of objective 1, we find that:

- At aggregate level, there is strong evidence of firm-specific market timing, aggregate market timing and pseudo market timing for IPOs issued during 1991-2009. Thus, we can say that in India, firms go public not only to time the market but due to market conditions.

- There is strong evidence of market timing and pseudo market timing in both business group affiliated IPOs as well as standalone IPOs. However, other IPOs which are mainly government IPOs do not show any evidence of market timing and pseudo market timing.
• There is strong evidence of market timing and pseudo market timing in manufacturing industry and financial institutions & insurance industry and we do not find any evidence of market timing as well as pseudo market timing in construction industry. It is important to note that construction industry mainly contains government IPOs and our ownership-wise analysis show that government IPOs do not show any evidence of market timing and pseudo market timing.

• IPO regime-wise analysis shows that there is strong evidence of market timing and pseudo market timing in regime I (1991-1996). The possible reason for strong evidence of pseudo market timing in regime I is that this is the initial phase of liberalization and economic reforms when economy was opening up and there was more demand of capital and it led to heavy equity issuance through IPOs. The reason for strong evidence of market timing in this era is that there were very few regulations during this period and many entrepreneurs took this as an advantage and eroded wealth of investors. Due to regulations imposed by SEBI on IPO pricing and other constraints on promoters’ holding in regime II, we do not find evidence of market timing and evidence of pseudo market timing is weak in this regime. This also led to very few IPOs during regime II. To encourage equity participation after observing the slump in IPO market in regime II, SEBI introduced norms for public equity offerings in 1999 and 2000 such as norms related to allotment, norms related to financial reporting, transparent book-building process, etc. We expect that the effect of these norms will be seen only after 1-2 years. That is why, we find moderate evidence of market timing and pseudo market timing in regime III. Our regime-wise long-run performance findings of IPOs support these results.
For SEOs, we find strong evidence of pseudo market timing and moderate and weak evidence of firm-specific and aggregate market timing respectively at aggregate level for the complete time period.

There is no evidence of market timing and pseudo market timing in SEOs other than business group and standalone SEOs but we find strong evidence of market timing and pseudo market timing in standalone SEOs and weak evidence of market timing and strong evidence of pseudo market timing in case of business group SEOs. Our long-run performance of IPOs and SEOs in different types of ownership show similar results.

SEOs belonging to manufacturing industry show strong evidence of market timing and pseudo market timing and we do not find any evidence of market timing and pseudo market timing in the construction industry SEOs. The SEOs belonging to other industries examined show weak evidence of market timing and pseudo market timing.

Regime-wise analysis of SEOs show that in regime A (1991-1996), we do not find any evidence of market timing but we find weak evidence of pseudo market timing whereas in regime B (1997-2009), we find weak evidence of market timing and pseudo market timing.

Our results of long-run performance of IPOs and SEOs for complete time period and in different regimes support above results.

From the analysis of objective 2, we find that:

- Pseudo market timing does not explain long-run performance of IPOs. In other words, we find negative long-run performance for in almost all cases by using calendar-time approach.

- Long-run underperformance of IPOs also supports the evidence of market timing.

- There no negative long-run performance in IPOs belonging to construction industry. This result also supports our results of objective one.
• Pseudo market timing of SEO also does not explain long-run performance of SEOs. In other words, we find negative long-run performance for SEOs in almost all cases by using calendar-time approach. This is the evidence of market timing.

• There is no long-run underperformance of SEOs other than business group and standalone SEOs i.e. which are mainly government SEOs. This supports our results of objective one.

• There no negative long-run performance in SEOs belonging to construction industry and other category of industry.

• Long-run underperformance is higher in hot IPO/SEO market as compared to cold IPO/SEO market. In other words, evidence of market timing in hot issue market is stronger than that of cold issue market.

• Long-run underperformance is higher for IPOs compared to SEOs. In other words, evidence of market timing in IPOs is stronger than that in SEOs.

From the analysis of objective 3, we find that:

• IPO and SEO firms have high level of mispricing and greater growth opportunities. This suggests that firms issue equity to take advantage of equity overvaluation and finance investment needs which are consistent with both behavioral and rational explanations of high M/B in pre-issue period.

• Issuing firms with high mispricing component increase their cash holdings in the post-issue period and issuing firms with greater growth opportunities invest the equity proceeds in total assets and capital expenditures in post-issue period. We find similar results for both IPO and SEO firms and results are stronger for IPO firms as compared to SEO firms.

• Long-run underperformance for both high and low overvalued IPOs but underperformance is higher for high overvalued IPOs as compared to low overvalued IPOs.
• IPOs which have greater growth opportunities as well as those with less growth opportunities underperform in the long-run.

• Underperformance of IPOs which have greater growth opportunities is higher than that of IPOs which have less growth opportunities.

• Our results of post-issue stock returns for IPOs are consistent with the behavioral explanation and rational explanation of long-run underperformance of firms issuing equity.

• In the context of SEOs, we find that long-run underperformance for high overvalued SEOs but we do not find any evidence of long-run underperformance for less overvalued SEOs.

• We find long-run underperformance for SEO firms which have less growth opportunities and no underperformance for SEO firms which have greater growth opportunities. This suggests that our SEO post-issue stock returns results do not support rational explanation of post-issue stock returns.

It may be noted that ours is the first study to examine market timing and investment based motives of firms issuing equity in emerging economy India. We use both direct as well as indirect tests to examine market timing and pseudo market timing, which has not been done before. In addition to this, we carry out analysis to separate market timing effects from growth opportunities (since market-to-book is proxy for both, misvaluation and growth opportunities) to explore the investment based motives of equity issuance not only for SEOs but also for IPOs as we do not find any study in the literature which separates market timing from growth opportunities for IPOs. In this way, to the best of our knowledge, even at global level, ours is the first study to conduct a comprehensive and more extensive test of market timing which has not been conducted before.

Keywords: Market Timing, Pseudo Market Timing, Investment Motives, Equity Issuance, IPOs, SEOs, Valuation, Residual Income Model