AN EMPIRICAL STUDY OF ASSET PRICING ANOMALIES

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ABSTRACT

This study is divided into four phases. In the first phase prominent asset pricing anomalies viz. size, value, momentum, liquidity, accruals, profitability, stock issues and stock repurchases have been tested for the Indian stock market. Using data on 493 companies on the BSE from Jan 1996-Dec 2010, empirical results confirm the presence of asset pricing anomalies in the Indian context. A negative relation between size and returns and between price to book and returns is obtained which confirms with results for mature markets. Strong momentum profits are observed on both 6/6 and 12/12 strategies. Relation between liquidity and returns is negative and that between repurchases and returns is positive which confirms with results for mature markets. Positive relationship is reported between accruals and returns, stock issues and returns and a negative relation between profitability and returns which is in contrast to results for mature markets. It is observed that on an unadjusted returns basis the size effect is the strongest followed by momentum. The CAPM is able to explain the cross section of returns on stock issues and stock repurchases sorted portfolios. Returns on value, accruals and profitability sorted portfolios are captured by FF model. However size, momentum and liquidity anomaly defy Fama French model. The liquidity augmented FF model is able to mop up all the extra normal returns on the liquidity sorted portfolios as well as 40% of the returns on the smallest stock portfolios. Sector momentum and earnings momentum factors do not contribute significantly towards explaining returns in the Indian case. Hence the four factor Liquidity Augmented FF seems to be a better descriptor of asset pricing compared to one factor CAPM and three factor Fama French model in India. Size and momentum persist as asset pricing anomalies.

The second phase of the study is on accruals anomaly and cash flows anomaly in the Indian stock market. Evidence shows accruals are less persistent than cash flows in shaping future earnings. On average investors in India under price the information in accruals component of earnings and overprice the information in cash flows component of earnings, which is in contrast to findings for mature markets. Accruals are positively associated with average returns in contrast with results for mature
markets where such relationship is reported to be negative. The accruals anomaly which is not captured by one factor CAPM is fully explained by three factor FF model due to risk premiums on size factor. The returns are found to be negatively related to level of cash flows which is in contrast to results obtained for mature markets. The cash flows anomaly which is again missed by CAPM is explained by FF model.

A study of the profitability anomaly in India is conducted in phase 3 of the research. Results show a negative relationship between profitability and returns which is robust to choice of profitability measure i.e ROA and ROE, in contrast to results obtained for mature markets. This relationship could be explained from the perspective of the investor. Firms with larger profits (ROA and ROE) are more likely to pay higher dividends while firms with comparatively lower profits would adopt lower payouts. This result is consistent with that obtained for mature markets. A profitability anomaly exists within the CAPM framework. Market beta for less profitable stocks is higher than for more profitable stocks. Negative relation between beta and dividend payouts is empirically confirmed. Size and value factors of the Fama French model absorb the profitability anomaly unexplained by CAPM. Less profitable firms are found to be relatively distressed and smaller in size. Size and value factors of the Fama French model however do not bear significant relationship with payout ratios.

Lastly a test of prominent equity market anomalies for select emerging markets has been carried out in phase 4 of the research for the time period Jan 1996:Dec 2011. Using the three factor Fama French model as performance benchmark, results show presence of the size anomaly in India, South Korea and Brazil, value anomaly in South Korea and South Africa, momentum anomaly in India and South Africa, mild reversals in Brazil, liquidity anomaly in India and South Africa, profitability anomaly in Brazil and South Africa, accruals anomaly in South Africa and stock repurchases anomaly in India and South Africa. Results confirm the presence of the size anomaly in three countries, value, liquidity, profitability and stock repurchases anomaly in two countries each and accruals anomaly in one country. The results show that momentum anomaly is present in two out of the six countries under study, with one country reporting mild reversals. Anomalous returns cannot be earned by trading strategy formed on stock issues in any of the countries under consideration. The liquidity
augmented FF is a better descriptor of asset pricing compared to one factor CAPM and three factor FF only in the Indian context and does not seem to play any significant role for explaining anomalies in other countries. The three factor Fama French model could be used as performance benchmark for all other markets as compared to the one factor CAPM. South Africa would serve as the most exciting destination for portfolio managers followed by Brazil, South Korea and India. China and Indonesia are the two countries not displaying any anomalous returns and hence would not be of interest to global portfolio managers.

When comparing the results of the study representing stock return behaviour on the Bombay stock exchange with that of Fama and French (2008) as observed on NYSE, it can be stated that momentum emerges as the premier anomaly in Indian market in line with that observed for the US market. However the relationship between stock returns and accruals, stock returns and profitability and stock returns and stock issues respectively, is in contrast to that obtained by Fama and French (2008). Fama and French (2008) found accruals and net stock issues to provide pervasive anomalous returns in the US market, which was not found for the Indian market.

In this study a test of the equity market anomalies was done for the Indian stock market by using two currencies viz. INR(phase 1) and USD(phase 4) to measure variables used in the study. It is noted that a change in currency does not change the essence of the relationships between various characteristic sorted portfolios and stock returns and short term prior return patterns and stock returns. The results demonstrated the superiority of the liquidity augmented FF model over the FF in explaining cross section of stock returns in both cases.

The research is relevant for global portfolio managers who indulge in international diversification as well as for policy makers who are looking for long term economic cooperation and greater financial integration among these markets. The study contributes to asset pricing and behavioural finance literature especially for emerging markets.