CHAPTER VIII

CONCLUDING REMARKS AND GUIDELINES FOR FUTURE RESEARCH

8.1. INTRODUCTION

Competition in capital markets requires continuous and cost effective trading strategies. The emerging markets have played an increasingly important role in global economic development and financial systems. The interest of portfolio managers and investment analysts to invest in emerging markets had increased after the mid-eighties. During this time, the capital markets of emerging economies started developing with financial liberalization, easing of legislative and administrative barriers and adoption of strict regulations which resulted in boost of confidence of investors in the emerging markets. Post liberalization, the flow of private capital increased in form of Foreign Direct Investments (FDI), by Foreign Institutional Investors (FII) and portfolio investments.

With rapid growth of developing countries, Goldman Sachs in its report (on Dreaming with BRICs: The path to 2050) in 2001 gave the acronym ‘BRICs’ to the fast developing economies of Brazil, Russia, India and China. The report stated that these four economies together may become larger than the current G6 economies of the world by 2039. Recently, the investment banking industry expanded the emerging markets basket from BRIC to BRICKS which included the countries of South Korea (K) and South Africa (S).

The study of BRICKS focused on the most populous countries, and their combined economies, which are likely to be the world’s six most influential countries. These economies have strong growth potential in view of large and young population; however they also face the challenge of maintaining high growth rates and improving their living standard in order to reduce the gap with mature markets. Owing to their strong growth potential and increasing global presence, BRICKS capital markets are on the radar of investment analysts and fund managers who are continuously on the lookout for trading strategies that can exploit observable market inefficiencies and generate extra normal returns.
Indian financial market had also experienced major changes after the economic liberalization in 1991. The market structure and corporate governance advanced post liberalization. The new policies resulted in opening of international trade and investment, deregulation, inflation control, privatization and globalization. The transformations of economic system also lead to high growth rates and emergence of technologically advanced enterprises. The banking sector also witnessed major changes with elimination of interest rate controls, reduction in foreign reserves; new private sector banks were given licenses to increase competition with public banks. There had been major reforms in India’s capital market. A major step taken in 1992 was the establishment of a statutory board, the securities and exchange board of India (SEBI) to introduce the basic framework for stock markets to function. This was followed by setting up of National Stock Exchange in 1993 with computerized screen based trading and subsequent dematerialization of securities in 1996. All these improvisations helped capital markets of India to grow by leaps and bounds and resulted in Indian stock market to be on a global platform with other capital markets.

Predicting returns on assets based on past returns gained importance in the last three decades. Broadly, there are two trading strategies based on prior returns, one in which returns exhibit continuation (momentum) while the other in which returns have a tendency towards fundamental reversion in the long run (contrarian). Both the strategies are diametrically opposite, and are meant to generate extra normal returns using historical price data in order to forecast the future performance of stocks.

Some researchers have showed that risk factors such as size, book-to-market equity, past sales growth, cash flow/price are related to firm’s average stock returns. Asset pricing models such as CAPM and Fama French three-factor model account for some of these risk factors, however there may be some other missing risk factor(s) which may be able to explain prior return patterns. Other researchers suggest that these abnormal returns may owe a behavioral explanation, that is, investors underreact or overreact to firm specific information.

With globalization, the focus of investors witnessed a paradigm shift from developed markets to developing markets. The emerging markets have become the new source of global spending and hence managers and investment analysts are interested in holding their portfolios across mature as well as emerging markets owing to the risk
differential in these markets. The asset pricing anomalies help them to design and gain from these trading strategies.

Data for six emerging economies, namely Brazil, Russia, India, China, South Korea and South Africa (BRICKS) was obtained from Thomson & Reuters Datastream software. The study period considered was from January 1993 to February 2008 (15 years) except for Russia where the evaluations were done from January 2000 to February 2008 due to paucity of data. The calendar year i.e. January to December was followed for estimation purposes.

The main aim of the study was to carry out a systematic and extensive empirical investigation for testing contrarian and momentum trading strategies for short-term (6-6 and 12-12) and long-term (24-12-12, 36-12-12, 48-12-12 and 60-12-12) windows in stock and sector returns for BRICKS markets. More specifically, prior return patterns for portfolios were formed on style characteristics by combining company characteristics (size, price-to-book, price-to-earnings, dividend yield, and past sales growth) and past excess returns applying double and triple sorted criteria. Moreover, it was inspected if some asset pricing model, such as one-factor (Capital Asset Pricing model, CAPM) or multi-factor model (Fama French three-factor model) could capture return patterns in stock returns. Further, prior return patterns in sector returns were tested at three levels, sector, industry group and industry level to distinguish if the patterns were different at all the three levels. Lastly, the information about sector returns was used to construct a sector factor to form an augmented Fama French model with the three factors (market, size and value) of Fama French and the constructed sector prior return factor.

8.2. MAJOR FINDINGS OF THE STUDY

The empirical structure of the study could be broadly divided in three phases. In phase one, the study discussed about short-term prior return patterns in stock and sector returns for India and then the study was extended for BRICKS emerging markets. In phase two, long-term (24-60 months) prior return patterns for stock and sector returns for India and BRICKS countries were evaluated. Finally, in the last phase of analysis, sector, industry group and industry based prior return patterns were tested for BRICKS and also how these patterns differed for short-term (6-12 months) and long-term (24-60 months) portfolio formation windows was studied.
In phase one, short-term momentum patterns in stock and sector returns were studied for India. Two investment strategies namely 6 month – 6 month (6-6) and 12 month – 12 month (12-12) were evaluated. First, mean excess of returns were evaluated for single, double and triple sorted portfolio. Next, it was tested if asset pricing models, CAPM and Fama French three-factor model could explain prior return patterns. Further, prior return patterns in sector returns were reviewed and lastly, four-factor model was constructed based on the sector factor and Fama French factors (market, size and value) to account whether prior return patterns in stock returns could be captured by prior return patterns in sector returns.

It was found that momentum based trading strategies were highly profitable. The momentum patterns were stronger for 6-6 strategy than 12-12 investment strategy. Characteristic sorted portfolios based on company characteristics size, P/B and P/E resulted in higher profits as compared to single sorted (prior return) portfolios. The risk models, Capital Asset Pricing model (CAPM) and Fama French three-factor model failed to capture momentum profits for the Indian market. CAPM failed to explain returns because there were very little differences in betas for winner and loser stocks. In case of Fama French model, winners comprised of large size and generally high P/B stocks thus defying the risk story. Strong momentum patterns were observed for sector returns to an extent that two-thirds of stock momentum in India was an outcome of sector momentum and hence sector selection seems more important than security selection while developing momentum based trading strategies for India.

The work was extended from Indian market to Brazil, Russia, India, China, South Korea and South Africa (BRICKS) emerging markets and short-term (6-6 and 12-12) prior return patterns on lines of Jegadeesh and Titman (1993) were discussed in the study. Employing 6-6 portfolio formation/holding strategies, strong momentum patterns were observed for the sample countries with exception of China where the momentum returns were negligible. Sorting on the basis of company characteristics enhanced profits on prior return portfolios for the markets except Brazil and South Africa. When the formation window was elongated from 6 to 12 months, the momentum patterns dissipated and reversals patterns emerged for some countries, except for India which reported momentum returns of 1.1% on monthly basis compared to 1.5% monthly returns for 6-6 strategy. CAPM was able to explain prior return patterns for most of the portfolios of Brazil, China and South Africa, however
was unable to capture for other countries. Fama French model, for 6-6 strategies, was not able to explain prior return patterns which were missed by CAPM, however did a good job in case of 12-12 strategies for Brazil, China, South Korea and South Africa. There were prior return patterns in sector returns as was observed in case of stock returns. Strong momentum profits with the exception of China were found for 6-6 strategies. However, these prior return profits substantially weakened for 12-12 strategies and actually exhibited reversal patterns for some countries. The four factor model with sector momentum as an additional factor was found to be a better descriptor of asset pricing but some unexplained returns warrant a behavioral explanation.

In the second phase, long-term (24-60 months) prior return patterns in stock and sector returns were examined for India and then BRICKS. The portfolios were formed on basis of (i months-j months-k months) strategy where i months involved portfolio formation period, ranging from 24-60 months, j months represented the 12 months that were skipped between portfolio formation and portfolio holding period, while k was fixed at 12 months as portfolio holding period. The asset pricing models, CAPM and multi-factor models (Fama French three-factor model and the four factor model constructed with sector factor as an additional factor) were tested if they could explain prior return patterns in stocks.

Contrarian profits emerged for almost all the test portfolios for long-term investment strategies. In case of return portfolios, 36-12-12 strategies gave the highest returns of 0.69% per month. Stylized portfolios gave lower returns in most of the cases with few exceptions. CAPM was a poor descriptor of prior return patterns across all long-term portfolio formation strategies. FF model was able to explain most of the long-term prior return patterns in stock returns with exception of 36-12-12 strategy. Strong momentum patterns were found in sector returns for all long term portfolio formation windows (24-60 months). This was in contrast to results of stock data, where short-term momentum and long-term weak reversals were observed. The constructed sector factor absorbed most of the profits on long-term prior return which were missed by the FF model.

Further, long-term prior return (24-60 months) as well as company characteristics and prior return based portfolios for BRICKS markets were evaluated. Four key
propositions were examined: (1) Do long-term portfolio formation strategies provide abnormal profits?, (2) Can these profits be absorbed by standard risk models like CAPM or the Fama-French three-factor model?, (3) Are there any long-term prior return patterns in sector returns and (4) Can the prior returns patterns in stock returns that were missed by CAPM and the Fama French model be absorbed by additional sector prior return factor. For long-term prior return and characteristic sorted portfolios, Brazil, Russia and South Africa reported momentum behavior while India, China and South Korea exhibited reversal patterns. CAPM was a poor descriptor for India and South Korea and worked well for 24 and 36 portfolio formation windows of other markets. The Fama French model was able to explain most of the extra normal returns except for 24-12-12 strategy in case of China and South Africa and 36-12-12 strategy for India. There were long-term prior return patterns in sector returns. The sector factor was able to capture average returns for 36-12-12 strategy of India and 24-12-12 strategy of South Africa; however returns for 24-12-12 strategy of China could not be explained.

In the last phase, prior return pattern for sector returns for BRICKS markets was conducted. The study considered the following propositions: (1) whether the prior return patterns at sector, industry group and industry level vary? (2) Do sector prior return patterns differ for short-term (up to 12 months) and long-term (24-60) portfolio formation windows? (3) Do winner and loser sector exhibit different growth potentials and whether sector factor could be formed using the information such that it was able to capture prior return patterns in stock returns that were missed by CAPM and the Fama French three-factor model.

It was found in case of sector returns, for short-term portfolio formation windows (up to 12 months); India and S.Africa reported momentum behavior while S. Korea reported reversals. For long-term formation windows, Brazil exhibited momentum patterns which disappeared for 60-12-12 strategies. For India and Russia momentum patterns continued even for long-term portfolio formation windows. S.Korea, S.Africa and China showed weak reversals for long-term portfolio formation windows. It was expected that the sector factor, which mimics the growth risk differences between corner portfolios, should have provided a better explanation based on short-term prior return formation. In case of long-term portfolio formation, the sector factor absorbed cross-section of average returns in case of Brazil, Russia and India. The constructed
sector factor based on Liu and Zhang (2008) argument (winner sector exhibit higher risk owing to stronger growth potential) showed that the results were stronger for short-term portfolio formation windows for all the sample countries and in case of Brazil, Russia and India for long-term portfolio formation windows.

8.3. INFERENCE AND POLICY IMPLICATIONS OF THE RESULTS

The findings are extremely relevant for global portfolio managers and investment analysts that are on the look out for developing portfolio trading strategies especially for emerging markets. Some important implications of the research are as follows:

- Strong momentum patterns are observed for 6-6 portfolio formation/holding strategies, with exception of China, elongating the formation windows to 12 months, reversals patterns emerge for some countries. On the other hand, for long term formation windows Brazil, Russia and South Africa report momentum behavior while India, China and South Korea exhibit reversal patterns.

- Stylized portfolios based on company characteristics and past returns enhances profits for some of the portfolios in the study.

- CAPM is able to explain profits on prior return based trading strategies for some countries; however it is a poor descriptor in case of India and South Korea.

- Fama French model fails to capture prior return patterns for 6-6 strategies, however it is able to explain most of the extra normal returns for 12-12 and long-term strategies with exception of a few strategies in case of China, South Africa and India.

- There are strong prior returns patterns for the sample countries with exception of China, S.Korea and S.Africa.

- The sector factor represents an additional risk dimension to the extent that winner sectors are riskier than loser sectors owing to differences in demand/supply conditions as well as environmental factors including government policies and foreign competition.
• The findings imply that sector prior return patterns account for a major part of stock prior return patterns and hence sector selection seems more important than security selection while developing prior return based trading strategies.

• The sector factor, which mimics the growth risk differences between corner portfolios, provides a better explanation based on short-term prior return formation. In case of long-term portfolio formation, the sector factor absorbs cross-section of average returns in case of Brazil, Russia and India.

• A large part of prior return patterns in stock returns is absorbed by similar patterns in sector returns.

• Finally, from academic point of view, it is recommended that a four-factor model comprising of three Fama French factors and an additional sector momentum factor should be used as a benchmark for performance evaluation of professionally managed portfolios.

8.4. DIRECTIONS FOR FUTURE RESEARCH

The present study examined several important propositions relating to evidence on prior return patterns in stock and sector returns for BRICKS which is an important emerging market basket. While the findings of the study raise doubts on the universal applicability of standard asset pricing models, CAPM and Fama French model, it has also raised some important issues and research questions that need an empirical investigation. Extending the work of present study, future research may focus on the following issues:

• It will be important to analyze if earning surprises and revenue surprises lead to a pattern in stock returns which differ across fundamentally strong (positive earning and revenue surprises) and weak (negative earning and revenue surprises) companies.

• A comparative study should be conducted for other emerging markets and verify if the prior return patterns are robust across these markets.
- The prior return patterns should be tested for commodity markets, bond yields, forex rates and other alternative investments.

- Rational sources of prior return patterns still need to be found as some other risk factor(s) may be there to explain returns.

- Other CAPM anomalies (Leverage, Net Stock Issues, Profits, and Accruals) may be taken into account for developing characteristic sorted portfolios.

- Global fund managers are interested in building portfolios at economy level and hence the prior return patterns should be extended from sector to country level.

The findings of the study are extremely relevant for portfolio managers and investment analysts who are continuously on the lookout for portfolio trading strategies especially for emerging markets given their low degree of co-relation with mature markets. From an academic point of view, it is suggested that a four-factor model comprising of three Fama French factors (market, size and value) and an additional sector prior return factor should be used as a benchmark for performance evaluation. The study contributes to asset pricing and behavioral finance literature for emerging markets. It is also suggested that the work may be extended to other emerging markets to verify if prior return patterns are robust across markets and determine implication for global portfolio management strategies.