

SMART

JOURNAL OF BUSINESS MANAGEMENT STUDIES

(An International Serial of Scientific Management and Advanced Research Trust)

Vol-4

Number-2

July- December 2008

Rs.200

ISSN 0973 - 1598

M. Selvam, M.Com, PhD,
Founder - Publisher & Chief Editor



SCIENTIFIC MANAGEMENT AND ADVANCED RESEARCH TRUST
(SMART)

TIRUCHIRAPPALLI (INDIA)

<http://www.geocities.com/smartbard>

RECENT VOLATILITY IN INTERNATIONAL CAPITAL MARKETS AND ITS IMPACT ON INDIAN CAPITAL MARKET : AN EXPATRIATE'S PERSPECTIVE

Sankaran Venkateswar

Associate Professor of Accounting, Department of Business Administration,
Trinity University, One Trinity Place, San Antonio, Texas, USA

Introduction

International financial markets have been extremely volatile of late. For example, the Sensex at the Bombay Stock Exchange (hereafter the BSE) nosedived by 4% yesterday, and I see a lot of gloomy faces in the audience today. At the end of my speech today, hopefully, many of you will leave with an understanding of the day to day gyrations in international financial markets.

My speech today centers on two themes: (1) the interdependence of international financial markets, and (2) demonstrate the reaction of stock prices to release of new information in the BSE.

Recent Volatility in International Capital Markets

The increased volatility in the Sensex yesterday can be traced back to the emerging credit crisis in the USA. Since last summer, the financial markets in the USA have been in the throes of the worsening sub-prime credit crisis. As the stock bubble in the USA burst in early 2000, led primarily by the technology stocks, the Federal Reserve embarked on a sustained course to reduce the interest rates to soften the impact of a worsening stock market on the U.S. economy. The terrorist attacks of 2001, accelerated the pace of the reduction in interest rates. This created an unprecedented amount of liquidity in global financial markets. Eager bankers, flush with credit, sought unsuspecting home buyers with questionable credit (sub-prime) and peddled them with Adjustable Rate Loans (ARM) with very low teaser interest

rates. These home loans were then packaged and sold to global financial institutions. As the Federal Reserve began the process of increasing interest rates in 2005, many of these ARM's began to adjust to higher rates that homeowners could no longer afford. Thus, the seeds of the sub-prime credit crisis were sown.

Some of the liquidity created in the USA had sought emerging markets such as India and China for superior returns. This could partly explain the outperformance of the stock markets in India and China over the few years. As the liquidity in the USA and other developed markets are eviscerated due to the worsening sub-prime crisis, liquidity is rushing back to the USA, and hence, the gyrations in global financial markets including India.

The USA continues to be the global engine for growth and as its economy slows, the effect will be felt by other economies (including India) globally. However, the impact on the growth rate of the Indian economy should be muted due to the high level of organic internal growth. But the Indian stock market will be buffeted by wide swings in the short term as foreign investors and speculators liquidate their holdings in the Indian capital market.

Information Content of Earnings Announcements in the BSE

The second theme in my speech today focuses on the informational efficiency of the Indian capital markets prior to the liberalization of the Indian economy in the late 1980's. Studies on the information content of annual and quarterly earnings announcements have

primarily focused on developed financial markets in Australia, United States, United Kingdom, Sweden and South Africa. Studies by Ball & Brown [1968], Brown [1970], Firth [1981], Forsgardh and Herten [1975] and Knight [1983], have established that annual earnings announcements convey information to the stock markets in the aforementioned countries. However, very few studies have assessed the information content of earnings announcements in developing markets. Among these studies, Dickinson and Muragu [1994] and Barnes [1986] shed light on the efficiency of markets in Nairobi and Kuala Lumpur. This study examines the cross-sectional variation in the price reaction to earnings announcements in the BSE, i.e., whether the price reaction depends on the magnitude of unexpected earnings.

Companies in India are regulated by the Companies Act of 1956. The standards for the preparation and reporting of financial statements are formulated by the Institute of Chartered Accountants of India. In addition to annual financial statements, companies are required to disclose semi-annual financial data. The financial statements are audited by an independent accountant (Chartered Accountant) and filed with the Registrar of Companies. At the time of filing, the earnings numbers are made available to the investing public and are reported by leading financial newspapers like the Economic Times and Financial Express. This study examines the information content of such earnings announcements through its impact on prices of stocks listed on the BSE. The following factor, in particular, motivates this study:

a. In recent times, the Indian Stock Market has drawn widespread attention of the international financial community. The growing interest in the Indian stock market necessitates the need for a more thorough understanding of the behavior of stock markets in India.

Regulation of Stock Markets in India

The stock exchanges in India are regulated by the Securities Contracts (Regulation) Act, 1956. The BSE is recognized under the Securities Contracts and Regulations Act (9) passed by the Government of India in 1956 and it is governed by the Securities Contracts (Regulations) Rules, 1957. It is the largest stock exchange, accounting for 60 percent of the total market capitalization and handles about 70 percent of the securities in India. Also a regulatory agency called Securities and Exchange Board of India (SEBI), has been set up to regulate capital markets and protect investor interests

Sample and Data

1985 and 1986 were important years for the Indian economy and the stock market. In 1985, the Indian government began the process of rapidly deregulating the economy and easing restrictions on foreign investment. The very first mutual fund to be traded in a foreign exchange was launched by Merrill Lynch (India Fund) in 1986. The rapid influx of foreign investment and money management firms has generated increased scrutiny of the Indian stock market. Consequently, the time period surrounding these momentous events was chosen for analysis. Unlike developed countries like the USA and UK, information on stock prices and other data are not available in machine readable form. Also, earnings announcements are not available for extended periods of time (sample earnings announcements from the Economic Times are in Appendix B). The Economic Times (a leading financial newspaper in India and similar to the Wall Street Journal) tracks and reports the earnings announcements for companies listed in the BSE. The earnings announcements were compiled for 1987 and 1988 (corresponding to earnings for 1986 and 1987). The daily official stock quotation list was obtained from BSE. The biggest constraint in determining the final size and composition of our sample was the

availability of share price data from the daily quotation lists. A limited number of stocks are actively traded in the BSE. A substantial number of stocks were not traded at all for long stretches of time, sometimes exceeding a year. The stocks for which gaps in stock prices existed were usually the stocks of smaller companies. Because of this unavoidable constraint, the analysis was limited to generally large companies listed in the BSE. The sample is listed in Appendix A.

Methodology

Several studies in this area, including the seminal studies by Ball & Brown [1968] and Beaver [1968], use the residual approach to assess the information content of earnings announcements. However, due to the lack of data on consensus earnings forecasts by stock analysts, this paper uses the expectation model approach put forth by Benston [1967] and later refined by Gonedes [1971] and Forsgardh and Herten [1975]. The market expectation of annual earnings is measured by using a simple average of the past three years (similar to Gonedes' approach [1971]). This expectation model may be stated as:

$$AR^*_{jt} = b1AR_{j,t-1} + b2AR_{j,t-2} + b3AR_{j,t-3} \quad (1)$$

where :

$$b1 = b2 = b3 = 1/3;$$

AR_{jt} = Annual earnings of firm j made known in time period t ; and

AR^*_{jt} = Expected annual earnings for firm j in time t .

Following the model used by Fama, Fisher, Jensen and Roll [1969], it is assumed that there exists a unique linear relationship between the market returns and the returns for each individual security expressed by the following equation:

$$\text{Log}_e R_{jt} = \alpha_j + \beta_j \text{Log}_e L_t + \varepsilon_{jt} \quad (2)$$

where :

$$\text{Log}_e R_{jt} = \text{Log}_e [P_{jt}/P_{j,t-1}];$$

$$\text{Log}_e L_t = \text{Log}_e (I_t/I_{t-1});$$

$$I_t = \text{BSE index on day } t;^5$$

$$P_{jt} = \text{Price of stock } j \text{ on day } t;^6$$

α, β = regression parameters; and

ε_{jt} = a disturbance term that should be uncorrelated to L_t , with constant variance and $E(\varepsilon_{jt}) = 0$.

A 60-day "estimation window" was used to generate the regression parameters for every individual stock in the sample. The estimation window started 71 days prior to the earnings announcement date and ended 11 days prior to the annual earnings announcement in order to avoid violating the assumption regarding the disturbance term.

The time window of interest is denoted as the "announcement window". This window was used to assess the impact of annual earnings announcements on stock prices. This window started 10 days prior to the annual earnings announcement and extended 10 days beyond the earnings announcement. For testing purposes, the announcement window is partitioned into fifteen time periods.

Then, the excess returns P^a_{jt} is given by:

$$P^a_{jt} = \text{Log}_e R_{jt} - (\alpha_j + \beta_j \text{Log}_e L_t) \quad (3)$$

where :

$$\text{Log}_e L_t = \text{Log}_e (I_t/I_{tm});$$

$$\text{Log}_e R_{jt} = \text{Log}_e (P_{jt}/P_{jtm}); \text{ and}$$

tm = time of earnings expectations measurement.

The α_j and β_j coefficients derived from equation (2) were applied to the actual values of $\text{Log}_e L_t$ and $\text{Log}_e R_{jt}$ to obtain the excess returns P^a_{jt} of each individual security for the fifteen time periods. Stating P^a_{jt} as a function

of the rate of change in earnings expectations, we have :

$$P^a_{jt} = f(ER_{jt}, U_{jt}) \quad (4)$$

where :

$$ER_{jt} = \text{Log}_e (E_{jt}/E^e_{jtem});$$

E^e_{jtem} = earnings expectation using the expectation model (1);

E_{jt} = actual earnings announced by company j at time t;

U_{jt} = other information about company j that becomes known in period t that will affect the stock price.

Again, following Forsgardh and Herten [1975], equation (4) can be restated as :

$$P^a_{jt} = \text{Log}_e a_0 + a_1 \cdot \text{Log}_e ER_{jt} + \text{Log}_e U_{jt} \quad (5)$$

Assuming no difference between expected and actual earnings, the parameter $\text{Log}_e a_0$ in equation (5) should be close to zero. The regression parameter a_1 should be positive assuming that there is a relationship between changes in earnings expectations and changes in stock prices.

The cumulative adjustment of stock prices to earnings announcement was analyzed by running the regression equation (5) for the fifteen time periods of interest. Regression parameters $\text{Log}_e a_0$ and a_1 were estimated for each of the fifteen time periods. The rate of change in earnings expectations (ER_{jt}) from the time of measurement (t_{em}) to the time of announcement ($t=0$) was the same for each of the fifteen regressions.

Results

The results from this study should be interpreted with the following limitations in mind. Data availability constraints have limited the time horizon and the sample size used in the study. Also, the study uses a relatively simple model to

generate earnings expectations. The advent of computerized trading systems in the BSE and the availability of earnings forecasts should enhance future empirical work in this area.

The results are presented in Table 1 for 1987 and 1988. For 1987, the regression coefficients are significant at 99.5% level of significance for the time period $t=-1, 0, \text{ and } +1$. For 1988, the regression coefficients are significant for the time periods $t=-1, 0, +1, \text{ and } +2$. This implies that stock prices adjust to release of new earnings information. Table 3 and 4 reflect the pattern of adjustment of stock prices to new earnings information. They show that the adjustment essentially takes place around the time of release of new earnings information

In general, the results obtained from this study suggest that the stock price reaction in the BSE depends on the magnitude of the unexpected earnings. These results are consistent with those of advanced financial markets around the world.

Conclusion

This study documents the adjustment of stock prices to the release of earnings data in a developing country context. It suggests that earnings convey information to the stock market and the stock price reaction depends on the magnitude of the unexpected earnings. Sophisticated research reports including earnings projections are beginning to appear with the widespread liberalization of financial markets. Future work in this area may refine estimation of earnings expectations and also look at the behavior of volume on the eve of earnings announcements.

References

1. Ball, R.J., and P. Brown, "An Empirical Investigation of Accounting Income Numbers," *Journal of Accounting Research* 6 (Autumn 1968), pp. 159-178.
2. Barnes, P., "Thin Trading and Stock Market Efficiency: The Case of Kuala Lumpur Stock

- Exchange,” *Journal of Business Finance and Accounting*, Vol 13, No. 4 (Winter 1986), pp. 609-17.
3. Brown, P. “The Impact of the Annual Net Profit Report on the Stock Market,” *The Australian Accountant* (July 1970), pp. 277-283.
 4. Beaver, W.H. “The Information Content of Annual Earnings Announcements,” *Empirical Research in Accounting: Selected Studies 1968*, supplement to vol. 6 of *Journal of Accounting Research* (1970), pp. 62-99.
 5. Benston, G.J. “Published Corporate Accounting Data and Stock Prices,” *Empirical Research in Accounting: Selected Studies* (1967) pp. 1-54.
 6. Dickinson, J.P., and K. Muragu, “Market Efficiency in Developing Countries: A Case Study of the Nairobi
 7. Stock Exchange,” *Journal of Business Finance and Accounting*, Vol 21, No. 1 (January 1994), pp. 133-50.
 8. Fama, E.F., L. Fisher, M. Jensen, and R. Roll, “The Adjustment of Stock Market Prices to New Information,” *International Economic Review* X (1969), pp. 1-21.
 9. Firth, M., “The Relative Information Content of the Release of Financial Results Data by Firms,” *Journal of Accounting Research* 19 (Autumn 1981), pp. 521-529.
 10. Forsgardh, L.E., and K. Herten, “The Adjustment of Stock Prices to New Information,” in E.J. Elton and M.J.
 11. Gruber, eds., *International Capital Markets*, pp. 68-86. Amsterdam: North-Holland, 1975.
 12. Gonedes, N.J. “Investor Actions and Accounting Messages,” *Accounting Review* 2 (1971), pp. 328 and 535-551.
 13. Gupta, L.C. “Rates of Return on Equities: The Indian Experience,” Delhi: Oxford University Press, 1981.
 14. Knight, R.F., “The Association Between Published Accounting Data and the Behavior of Share Prices,” unpublished doctoral thesis. Cape Town: University of Cape Town, 1983.
 15. Yalawar, Y.B., “Bombay Stock Exchange: Rates of Return and Efficiency,” *Indian Economic Journal*, Vol. 35, No. 4 (1985), pp. 68-121.

Table - 1: Regression Results : 1987

Time Window	Constant Log _e a ₀	Reg. coeff. a ₁	Adj R-sq	t-stat
t _{em} ←→ -10	-0.013	0.212	0.10	0.81
t _{em} ←→ -07	-0.008	0.154	0.14	0.92
t _{em} ←→ -05	-0.014	0.108	0.08	0.53
t _{em} ←→ -04	0.019	0.206	0.15	1.04
t _{em} ←→ -03	0.021	0.220	0.20	1.18
t _{em} ←→ -02	0.212	0.198	0.24	1.27
t _{em} ←→ -01	0.018	0.309	0.36	3.97*
t _{em} ←→ 0	-0.052	0.241	0.34	4.04*
t _{em} ←→ +01	0.024	0.201	0.21	2.68*
t _{em} ←→ +02	0.011	0.158	0.16	1.57
t _{em} ←→ +03	0.007	0.187	0.19	1.97
t _{em} ←→ +04	0.081	0.198	0.20	2.08
t _{em} ←→ +05	0.020	0.214	0.14	1.76
t _{em} ←→ +07	0.032	0.183	0.09	0.74
t _{em} ←→ +10	0.018	0.164	0.10	0.88

Table - 2 : Regression Results: 1988

Time Window	Constant $\text{Log}_e a_0$	Reg. coeff. a_1	Adj R-sq	t-stat
$t_{em} \leftrightarrow -10$	0.012	0.098	0.08	0.94
$t_{em} \leftrightarrow -07$	-0.015	0.142	0.10	1.07
$t_{em} \leftrightarrow -05$	-0.004	0.186	0.14	1.01
$t_{em} \leftrightarrow -04$	0.009	0.204	0.12	1.21
$t_{em} \leftrightarrow -03$	0.101	0.158	0.18	0.98
$t_{em} \leftrightarrow -02$	0.013	0.192	0.16	1.40
$t_{em} \leftrightarrow -01$	-0.024	0.241	0.28	2.84*
$t_{em} \leftrightarrow 0$	0.019	0.305	0.35	3.78*
$t_{em} \leftrightarrow +01$	0.084	0.247	0.38	4.12*
$t_{em} \leftrightarrow +02$	0.036	0.218	0.30	3.62*
$t_{em} \leftrightarrow +03$	0.055	0.200	0.14	2.44
$t_{em} \leftrightarrow +04$	0.059	0.114	0.21	2.70
$t_{em} \leftrightarrow +05$	0.087	0.093	0.25	2.12
$t_{em} \leftrightarrow +07$	0.019	0.148	0.08	1.36
$t_{em} \leftrightarrow +10$	0.011	0.195	0.05	1.18

• $t(0.995, 54) = 2.68$

Appendix A : List of Sample Firms

Apollo Hospitals	Escorts Limited	ITC Ltd	Roche Products
Ashok Leyland	Food Specialities	J.K. Industries	SAE India
Asian Paints	Garware Nylon	Kirloskar Cummins	Sandoz India
Andhra Valley	Glindia	Lakhme Ltd.	Siemens
Bajaj Auto	Grasim Ind.	Larsen & Toubro	SPIC
Best & Crompton	Gujarat Alkalies	Madura Coats	Sundaram Clayton
Bombay Dyeing	Hindustan Aluminium	National Organic	Synthetics & Chemicals
Brittania Industries	Hindustan Ciba Geigy	National Rayon	Tata Oil Mills
Brooke Bond	Hindustan Lever	Oswal Agro	Telco
Ceat Tyres	Hindustan Motor	Ponds	TVS Suzuki
Century Textiles	Hoechst India	Premier Auto	Voltas
Colgate	I.E.L Limited	Ranbaxy Lab	Widia India
Crompton Greaves	Indian Rayon	Reliance Ind	Zenith Ltd.
Dunlop India	Indrol Lubricants	Raymonds	

Appendix B : Sample Earnings Announcements from the Economic Times

Tata Oil Mills (reported on July 15, 1988)

Tata Oil Mills has reported satisfactory results for the year ended March 1988. Turnover at Rs 287.66 crores in the previous year is up by over 15 percent and the gross profit at Rs 4.50 crores against Rs 4.21 crores is up by 6.9 percent. The ratio of profit to sales is only marginally up from 1.6 percent to 1.7 percent. After providing for Rs 213.05 lakhs (Rs 218 lakhs) for depreciation and Rs 80 lakhs (Rs 75 lakhs) for taxation, and after some adjustments, the profit available for appropriation is Rs 130.86 lakhs against Rs 155.21 lakhs in the previous year.

Dunlop India (as reported on June 7, 1988)

Dunlop India has fared well for the year ended March 1988. The turnover went up to Rs 430.26 crores from Rs 413.34 crores in the previous year. The company earned a higher gross profit of Rs 40.19 crores against the previous Rs 33.24 crores. After providing Rs 13.43 crores (Rs 12.50) for depreciation and Rs 6.50 crores (Rs 4.80) for taxation and after some adjustments, there was a surplus of Rs 14.01 crores against Rs 13.48 crores in the previous period.
