



INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE AND MANAGEMENT

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DOES INDIAN EQUITY MARKET FOLLOW RANDOM WALKS? EVIDENCE FROM THE NATIONAL STOCK EXCHANGE

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ABSTRACT

The behavior of stock market returns in the financial literature is a central issue to the theory and practice of asset pricing, asset allocation, and risk management. The supporters of the efficient market hypothesis (EMH) claim that stock prices are basically random and as such any speculation based on past information is fruitless. The main objective of the paper is to test whether the Indian equity market follow random walk process or not. Since the determination of stock price is very difficult, the present study commences with the question of random walk model and its validity for the individual eighty-three stocks that belongs to eleven different sectors of the Indian economy. The paper investigates the random walk hypothesis applying two widely used unit root tests namely, Augmented Dickey-Fuller (1979) test and Phillips-Perron (1988) test using daily data for the period 1st June, 2005 to 26th March, 2010. The ADF and PP unit root tests clearly reveals that the null hypothesis of unit root is convincingly rejected in case of all eighty-three individual stocks that belong to eleven different sectors of the economy, suggesting that the Indian equity market do not show characteristics of random walk and as such is not efficient in the weak form implying that stock prices remain predictable. The empirical results does not support the validity of random walk hypothesis for stock return of individual firms that belongs to different sectors, viz., Automobiles, Bank, Cement, Electrical equipments, Fertilizers, Information Technology (IT), Oil & Gas, Pharmaceuticals, Power, Steel and Textiles, which possesses unique features and characteristics of its own firm-specific information releases. Results of the present study suggest that the Indian equity market is not weak form efficient indicating that there is systematic way to exploit trading opportunities and acquire excess profits. This provides an opportunity to the traders for predicting the future prices and earning abnormal profits. The implication of rejection of weak form efficiency for investors is that they can better predict the stock price movements, by holding a well diversified portfolio while investing in the Indian equity market.

KEYWORDS

Indian Equity Market, Random Walk Hypothesis, Unit root test

JEL CLASSIFICATION

C22, C52, G10

INTRODUCTION

The term market efficiency in capital market theory is used to explain the degree to which stock prices reflect all available, relevant information. The concept of Efficiency Market Hypothesis (EMH) is based on the arguments put forward by Samuelson (1965) that anticipated price of an asset fluctuate randomly. In finance, the efficient-market hypothesis (EMH) asserts that financial markets are "informationally efficient". That is, one cannot consistently achieve returns in excess of average market returns on a risk-adjusted basis, given the information publicly available at the time the investment is made. According to Fama (1970), there are three major versions of the hypothesis: "weak", "semi-strong", and "strong". Weak EMH claims that prices on traded assets (e.g., stocks, bonds, or property) already reflect all past publicly available information. Semi-strong EMH claims both that prices reflect all publicly available information and that prices instantly change to reflect new public information. Strong EMH additionally claims that prices instantly reflect even hidden or "insider" information. There is evidence for and against the weak and semi-strong EMHs, while there is powerful evidence against strong EMH.

Random walk hypothesis basically measures weak form of market efficiency. In weak-form efficiency, future prices cannot be predicted by analyzing prices from the past. Excess returns cannot be earned in the long run by using investment strategies based on historical share prices or other historical data. Technical analysis techniques will not be able to consistently produce excess returns, though some forms of fundamental analysis may still provide excess returns. Share prices exhibit no serial dependencies, meaning that there are no "patterns" to asset prices. This implies that future price movements are determined entirely by information not contained in the price series. Hence, prices must follow a random walk. However, if the markets were not efficient, the investors will beat the market and attain maximum profits. Participants in an inefficient market can use various devices such as trading rules and statistical techniques to predict the movement of stock prices.

REVIEW OF LITERATURE

Random walk hypothesis have been tested in many stock exchanges of the world. Several researches have been done on this topic on various stock markets of different countries or regions. Empirical studies on weak form efficiency in Asian stock markets have been extensively conducted in recent years. Indeed, in the Chinese stock markets, Mookerjee and Yu (1999) and Groenewold et al. (2003) consistently found that these markets (Shanghai and Shenzhen stock exchanges) are not weak form efficient. Besides, Lima and Tabak (2004) found that the B shares index for both Shanghai and Shenzhen Stock Exchange do not follow the random walk. However, they also report that the hypothesis of weak form efficiency cannot be rejected for A shares indexes of the two exchanges. Moreover, Seddighi and Nian (2004) found that the Shanghai Stock Exchange is weak form efficiency for the period from 4th January 2000 to 31st December 2000. Regarding the Taiwanese stock market, it is

proved that the market is efficient in the weak form (Fawson et al., 1996; Alam et al., 1999; and Chang and Ting, 2000). Similarly, the null hypothesis of random walk cannot be rejected for the Hong Kong stock market (Karemera et al., 1999; Alam et al., 1999; Cheung and Coutts, 2001; and Lima and Tabak, 2004). In addition, it is showed that stock market in the ASEAN region (Indonesia, Malaysia, Thailand and Singapore) follow the weak form of EMH (Barnes, 1986; Karemera et al., 1999; Alam et al., 1999). In the Southern part of Asia, Sharma and Kennedy (1977) and Alam et al. (1999) report that the random walk hypothesis cannot be rejected for stock price changes on the Bombay (India) and Dhaka Stock Exchange (Bangladesh) respectively. However, Abeysekera (2001) and Abraham et al., (2002) show evidence to reject the hypothesis of weak form efficiency for stock markets in Sri Lanka, Kuwait, Saudi Arabia and Bahrain. The studies such as Sharma and Kennedy (1977), Barua (1980, 1987), Sharma (1983), Ramachandran (1985), Gupta (1985), Srinivasan (1988), Vaidyanathan and Gali (1994) and Prusty (2007) supports the weak form efficiency of Indian capital market. However, some studies like Kulkarni (1978), Chaudhury (1991), Poshakwale (1996), Pant and Bishnoi (2002), Pandey (2003), Gupta and Basu (2007), Mishra, (2009) and Mishra and Pradhan, (2009) do not support the existence of weak form efficiency in Indian capital market.

In short, the above literature shows that still it cannot said with certainty that whether stock market follow random walk or stock prices are predicable. The quarrel between random walk believers and believers of non random behavior of asset prices has not end yet. Random walk hypothesis are testing in various stock market specially recently behavior of Stocks of emerging markets are of great concern of many researcher. In the Indian context, there has been wide range of studies concerning the efficient market hypothesis in the literature, but seems to provide mixed evidences. At a national level, most of the studies have adopted stock indices for the purpose of testing the weak-form efficiency. To the best of my knowledge, only a few studies have been conducted at individual stock level. Therefore, there exists a scope for further investigate the issue by using the stock prices on individual securities that belongs to different sectors of the Indian economy. The ability of Indian stock market to play the role that is ascribed to them – attracting foreign investment, boosting domestic saving and improving the pricing and availability of capital – depends upon the presence of random walks. A market following a random walk is consistent with equity being appropriately priced at an equilibrium level, whereas the absence of a random walk infers distortions in the pricing of capital and risk. This has important implications for the allocation of capital within an economy and hence overall economic development. If the Indian equity market is efficient, the need for government intervention is minimal. On the other hand, an inefficient equity market provides opportunities for profitable transactions. Participants in an inefficient equity market can use various devises such as trading rules and statistical techniques to predict the movement of share prices. Further, the stock market regulators and authorities can determine the best way to influence stock prices, reduce stock market volatility and evaluate the consequences of different economic policies.

In this context, the present study investigates weak-form efficiency of the individual eighty-three stocks that belongs to eleven different sectors of the Indian economy. The remainder of our article is organised as follows: Section-3 describes the methodology and data used for empirical analysis. Section-4 offers empirical results and discussion of the study. Concluding remarks are presented in section-5.

METHODOLOGY

Usually time series analysis considers stationary time series in empirical studies. If the series is non-stationary, the relationship between the independent and dependent variables may exhibit misleading inferences leading for spurious regression. A series said to be stationary if the mean and auto covariance of the series does not depends on time. In order to examine whether each variable’s time series is integrated and has a unit root, the study has considered two widely used popular unit root tests- Augmented Dickey-Fuller test (1979) test and Phillips-Perron (1988) test. Both the tests use the null hypothesis that the series does contain a unit root (non-stationary variable) against a stationary variable in the alternative hypothesis. If the calculated test statistics is higher than the critical value then one does not reject the null hypothesis and the concerned variable is non-stationary, if not that is stationary. To test the EMH (Efficient Market Hypothesis) of Indian equity market, the tools of stationarity of share prices are tested by using daily market returns.

The equation of unit root test is expressed as:

$$\Delta R_t = \alpha_0 + \alpha_2 t + \sum_{i=1}^k \beta_i \Delta R_{t-i} + \epsilon_t \dots\dots\dots (1)$$

where, R_t denotes the daily return of the individual stock at time t and β_i is the coefficient to be estimated, k is the number of lagged terms, t is the trend term, α_2 is the estimated coefficient for the trend, α_0 is the constant, and ϵ is white noise. MacKinnon’s critical values are used in order to determine the significance of the test statistic associated with β_0 . The unit root tests the null hypothesis $H_0: \beta_i = 1$ against the one-sided alternative $H_1: \beta_i < 1$. The null hypothesis of a unit root is rejected in favour of the stationary alternative in each case if the test statistic is more negative than the critical value. Phillips-Perron (1988) suggests an alternative approach for checking the presence of unit roots in the data. They formulate a nonparametric test to the conventional t-test which is robust to a wide variety of serial correlation and time dependent heteroscedasticity. The Phillips-Perron test incorporates an alternative (nonparametric) method of controlling for serial correlation when testing for a unit root by estimating the non-augmented Dickey-Fuller test equation and modifying the test statistic so that its asymptotic distribution is unaffected by serial correlation.

The data for the study consists of daily closing prices of eighty-three individual stocks that traded in National Stock Exchange (NSE). The selected stocks are belongs to 11 sectors of the economy. The sectors in the study comprises of Automobiles, Bank, Cement, Electrical equipments, Fertilizers, Information Technology (IT), Oil & Gas, Pharmaceuticals, Power, Steel and Textiles. The list of the selected stocks considered for the study had presented in Appendix-I. The data span for the study has been considered from 1st June, 2005 to 26th March, 2010. All the required data information for the study has been retrieved from the website of National Stock Exchange (NSE), Mumbai. Throughout this paper, stock market returns are defined as continuously compounded or log returns (hereafter returns) at time t , r_t , calculated as follows:

$$R_t = \log (P_t / P_{t-1}) = \log P_t - \log P_{t-1} \dots\dots\dots (2)$$

where P_t and P_{t-1} are the daily closing prices of individual stocks at days t and $t-1$, respectively.

EMPIRICAL RESULTS AND DISCUSSIONS

To examine the random walk hypothesis of the Indian equity market, the present study performs Augmented Dickey-Fuller (ADF) test with intercept, with intercept and trend and without an intercept and trend. We further test the series using the Phillips-Perron (PP) test for a confirmatory data analysis. The result of unit root tests (ADF & PP tests) of random walk model for the eighty-three individual stocks was presented in Table-1. The table result of both unit root tests clearly reveals that the null hypothesis of unit root is convincingly rejected in case of all eighty-three individual stocks that belong to eleven different sectors of the economy, suggesting that the Indian equity market do not show characteristics of random walk and as such is not efficient in the weak form implying that stock prices remain predictable. The empirical results does not support the validity of random walk hypothesis for stock return of individual firms that belongs to different sectors, viz., Automobiles, Bank, Cement, Electrical equipments, Fertilizers, Information Technology (IT), Oil & Gas, Pharmaceuticals, Power, Steel and Textiles, which possesses unique features and characteristics of its own firm-specific information releases. Results of the present study suggest that the Indian equity market is not weak form efficient indicating that there is systematic way to exploit trading opportunities and acquire excess profits. This provides an opportunity to the traders for predicting the future prices and earning abnormal profits. The implication of rejection of weak form efficiency for investors is that they can better predict the stock price movements, by holding a well diversified portfolio while investing in the Indian equity market.

CONCLUSION

The behavior of stock market returns in the financial literature is a central issue to the theory and practice of asset pricing, asset allocation, and risk management. The supporters of the efficient market hypothesis (EMH) claim that stock prices are basically random and as such any speculation based on past information is fruitless. The main objective of the paper is to test whether the Indian equity market follow random walk process or not. Since the determination of stock price is very difficult, the present study commences with the question of random walk model and it's validity for the individual eighty-three stocks that belongs to eleven different sectors of the Indian economy. The paper investigates the random walk hypothesis applying two widely used unit root tests namely, Augmented Dickey-Fuller (1979) test and Phillips-Perron (1988) test using daily data for the period 1st June, 2005 to 26th March, 2010. The ADF and PP unit root tests clearly reveals that the null hypothesis of unit root is convincingly rejected in case of all eighty-three individual stocks that belong to eleven different sectors of the economy, suggesting that the Indian equity market do not show characteristics of random walk and as such is not efficient in the weak form implying that stock prices remain predictable. The empirical results does not support the validity of random walk hypothesis for stock return of individual firms that belongs to different sectors, viz., Automobiles, Bank, Cement, Electrical equipments, Fertilizers, Information Technology (IT), Oil & Gas, Pharmaceuticals, Power, Steel and Textiles, which possesses unique features and characteristics of its own firm-specific information releases. Results of the present study suggest that the Indian equity market is not weak form efficient indicating that there is systematic way to exploit trading opportunities and acquire excess profits. This provides an opportunity to the traders for predicting the future prices and earning abnormal profits. The implication of rejection of weak form efficiency for investors is that they can better predict the stock price movements, by holding a well diversified portfolio while investing in the Indian equity market.

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ANNEXURES

Table-1: Results of Augmented Dickey-Fuller and Phillips-Perron Tests

Name of the Stocks	Market	Augmented Dickey-Fuller Test Statistics			Phillips-Perron Test Statistics		
		Intercept	With Intercept & Trend	Without Intercept & Trend	Intercept	With Intercept & Trend	Without Intercept & Trend
Industry Group: Automobiles							
ASHOKLEY	Equity	-13.97*	-14.22*	-13.96*	-26.59*	-26.70*	-26.60*
ESCORTS	Equity	-13.95*	-14.02*	-13.93*	-27.56*	-27.60*	-27.58*
HEROHONDA	Equity	-19.32*	-19.30*	-19.31*	-29.53*	-29.50*	-29.52*
M&M	Equity	-16.98*	-17.02*	-16.95*	-27.08*	-27.11*	-27.09*
MARUTI	Equity	-14.45*	-14.60*	-14.46*	-28.91*	-28.99*	-28.93*
TATAMOTORS	Equity	-13.86*	-14.29*	-13.81*	-25.44*	-25.59*	-25.41*
TVSMOTOR	Equity	-13.75*	-13.94*	-13.67*	-29.08*	-29.21*	-29.03*
Industry Group: Bank							
ALBK	Equity	-13.07*	-13.09*	-25.39*	-25.37*	-25.41*	-13.07*
ANDHRABANK	Equity	-16.27*	-16.29*	-25.41*	-25.39*	-25.42*	-16.27*
AXISBANK	Equity	-16.15*	-16.07*	-26.33*	-26.31*	-26.26*	-16.15*
BANKBARODA	Equity	-24.95*	-24.97*	-24.86*	-24.85*	-24.87*	-24.95*
BANKINDIA	Equity	-15.87*	-15.84*	-25.72*	-25.71*	-25.70*	-15.87*
CANBK	Equity	-13.37*	-13.39*	-25.11*	-25.12*	-25.13*	-13.37*
CORPBANK	Equity	-11.31*	-11.33*	-24.29*	-24.28*	-24.31*	-11.31*
FEDERALBNK	Equity	-12.47*	-12.45*	-25.70*	-25.69*	-25.71*	-12.47*
HDFCBANK	Equity	-14.38*	-14.23*	-25.43*	-25.44*	-25.37*	-14.38*
ICICIBANK	Equity	-13.32*	-13.19*	-23.48*	-23.52*	-23.47*	-13.32*
IDBI	Equity	-15.93*	-15.95*	-23.95*	-23.94*	-23.97*	-15.93*
INDUSINDBK	Equity	-13.62*	-13.61*	-25.40*	-25.39*	-25.42*	-13.62*
IOB	Equity	-13.50*	-13.48*	-24.06*	-24.05*	-24.07*	-13.50*
J&KBANK	Equity	-15.18*	-15.13*	-26.70*	-26.71*	-26.69*	-15.18*
KTKBANK	Equity	-12.32*	-12.25*	-26.74*	-26.73*	-26.71*	-12.32*
ORIENTBANK	Equity	-24.00*	-24.02*	-23.95*	-23.94*	-23.96*	-24.00*
PNB	Equity	-26.25*	-26.28*	-26.24*	-26.23*	-26.26*	-26.25*
SBIN	Equity	-25.78*	-25.74*	-25.75*	-25.76*	-25.71*	-25.78*
SYNDIBANK	Equity	-11.85*	-11.82*	-24.72*	-24.74*	-24.75*	-11.85*
UNIONBANK	Equity	-13.09*	-13.11*	-26.89*	-26.87*	-26.90*	-13.09*
VIJAYABANK	Equity	-25.21*	-25.24*	-25.14*	-25.13*	-25.16*	-25.21*
Industry Group: Cement							
ACC	Equity	-31.06*	-31.07*	-31.05*	-31.06*	-31.06*	-31.05*
GRASIM	Equity	-33.28*	-33.31*	-33.29*	-33.71*	-33.70*	-33.69*
INDIACEM	Equity	-34.02*	-34.05*	-34.03*	-34.13*	-34.19*	-34.14*
Industry Group: Electrical Equipments							

ABB	Equity	-33.67*	-33.66*	-33.68*	-33.72*	-33.71*	-33.73*
BHEL	Equity	-31.60*	-31.61*	-31.59*	-31.55*	-31.56*	-31.54*
SIEMENS	Equity	-33.67*	-33.66*	-33.68*	-33.67*	-33.67*	-33.68*
SUZLON	Equity	-32.18*	-32.16*	-32.17*	-32.15*	-32.11*	-32.10*
Industry Group: Fertilizers							
CHAMBLFERT	Equity	-32.44*	-32.43*	-32.45*	-32.42*	-32.41*	-32.40*
GNFC	Equity	-30.14*	-30.15*	-30.16*	-30.13*	-30.17*	-30.18*
NAGARFERT	Equity	-30.61*	-30.59*	-30.62*	-30.58*	-30.56*	-30.59*
TATACHEM	Equity	-30.25*	-30.24*	-30.26*	-30.28*	-30.27*	-30.29*
Industry Group: Information Technology (IT)							
HCLTECH	Equity	-17.61*	-17.66*	-17.62*	-28.81*	-28.84*	-28.82*
OFSS	Equity	-17.22*	-17.40*	-17.21*	-28.62*	-28.76*	-28.63*
INFOSYSTCH	Equity	-18.61*	-18.60*	-18.62*	-30.89*	-30.90*	-30.91*
PATNI	Equity	-11.97*	-12.06*	-11.96*	-26.70*	-26.73*	-26.71*
POLARIS	Equity	-11.80*	-11.82*	-11.84*	-27.67*	-27.66*	-27.68*
TCS	Equity	-21.45*	-21.47*	-21.46*	-29.85*	-29.89*	-29.86*
WIPRO	Equity	-12.96*	-12.95*	-12.18*	-29.64*	-29.63*	-29.66*
Industry Group: Oil & Gas							
BONGAIREFN	Equity	-24.95*	-24.94*	-24.93*	-24.55*	-24.53*	-24.56*
BPCL	Equity	-17.24*	-17.23*	-17.25*	-28.99*	-28.98*	-29.01*
ESSAROIL	Equity	-12.19*	-12.20*	-12.18*	-26.42*	-26.43*	-26.41*
GAIL	Equity	-14.99*	-15.08*	-15.01*	-31.69*	-31.71*	-31.74*
HINDPETRO	Equity	-15.94*	-15.93*	-15.92*	-28.04*	-28.02*	-28.05*
IOC	Equity	-16.03*	-16.02*	-16.04*	-24.98*	-24.96*	-24.99*
MRPL	Equity	-13.39*	-13.40*	-13.38*	-26.82*	-26.80*	-26.84*
ONGC	Equity	-14.73*	-14.79*	-14.75*	-29.74*	-29.78*	-29.75*
RELIANCE	Equity	-18.78*	-18.93*	-18.75*	-29.04*	-29.14*	-29.03*
Industry Group: Pharmaceuticals							
AUROPHARMA	Equity	-11.96*	-12.15*	-11.95*	-26.37*	-26.54*	-26.36*
CIPLA	Equity	-14.05*	-14.08*	-14.07*	-28.47*	-28.46*	-28.49*
DABUR	Equity	-14.39*	-14.40*	-14.41*	-30.71*	-30.69*	-30.72*
DIVISLAB	Equity	-20.05*	-20.06*	-20.09*	-28.85*	-28.85*	-28.87*
DRREDDY	Equity	-17.39*	-17.41*	-17.38*	-30.13*	-30.14*	-30.12*
GLAXO	Equity	-13.13*	-13.16*	-13.12*	-28.74*	-28.75*	-28.73*
MATRIXLABS	Equity	-14.31*	-14.37*	-14.30*	-30.21*	-30.24*	-30.23*
ORCHIDCHEM	Equity	-15.76*	-15.77*	-15.74*	-25.24*	-25.27*	-25.26*
PIRHEALTH	Equity	-13.80*	-13.79*	-13.81*	-30.68*	-30.67*	-30.70*
RANBAXY	Equity	-15.86*	-15.87*	-15.81*	-29.16*	-29.15*	-29.12*
STAR	Equity	-18.19*	-18.27*	-18.15*	-27.39*	-27.49*	-27.37*
SUNPHARMA	Equity	-21.45*	-21.50*	-21.42*	-31.65*	-31.68*	-31.62*
WOCKPHARMA	Equity	-20.11*	-20.31*	-20.04*	-29.14*	-29.32*	-29.06*
Industry Group: Power							
CESC	Equity	-30.85*	-30.83*	-30.80*	-30.74*	-30.75*	-30.70*
CUMMINSIND	Equity	-34.24*	-34.22*	-34.20*	-34.23*	-34.21*	-34.18*
JPHYDRO	Equity	-32.69*	-32.68*	-32.70*	-32.72*	-32.67*	-32.65*
NEYVELILIG	Equity	-31.72*	-31.73*	-31.74*	-31.69*	-31.68*	-31.70*
NTPC	Equity	-33.52*	-33.51*	-33.48*	-33.70*	-33.69*	-33.64*
RELINFRA	Equity	-32.02*	-32.00*	-32.06*	-31.98*	-31.97*	-31.99*
TATAPOWER	Equity	-32.09*	-32.08*	-32.06*	-32.03*	-32.05*	-32.04*
Industry Group: Steel							
JINDALSTEL	Equity	-32.14*	-32.16*	-32.12*	-32.11*	-32.13*	-32.15*
JSL	Equity	-31.40*	-31.39*	-31.41*	-31.43*	-31.42*	-31.45*
MAHSEAMLES	Equity	-30.29*	-30.28*	-30.31*	-30.27*	-30.26*	-30.25*
TATASTEEL	Equity	-30.64*	-30.63*	-30.65*	-30.60*	-30.59*	-30.61*
Industry Group: Textiles							
ALOKTEXT	Equity	-31.34*	-31.35*	-31.32*	-31.36*	-31.37*	-31.30
ARVIND	Equity	-30.54*	-30.53*	-30.50*	-30.58*	-30.57*	-30.55
CENTURYTEX	Equity	-33.14*	-33.13*	-33.15*	-33.18*	-33.20*	-33.23
SRF	Equity	-28.45*	-28.42*	-28.46*	-28.53*	-28.52*	-28.54
Notes: * – indicates significance at one per cent level. Optimal lag length is determined by the Schwarz Information Criterion (SIC) and Newey-West Criterion for the Augmented Dickey-Fuller Test and Phillips-Perron Test respectively. The Augmented Dickey-Fuller (ADF) and Phillips-Peron (PP) unit root test hypotheses are H ₀ : unit root (non stationary), H ₁ : no unit root (stationary).							

APPENDIX -1

A Brief Description of Selected NSE Stocks that considered for the Study

S. No.	Name of the Stocks/NSE Code	Company Name
1. Industry Group: Automobiles		
1.	ASHOKLEY	Ashok Leyland Ltd.
2.	ESCORTS	Escorts India Ltd.
3.	HEROHONDA	Hero Honda Motors Ltd.
4.	M&M	Mahindra & Mahindra Ltd.
5.	MARUTI	Maruti Suzuki India Ltd.
6.	TATAMOTORS	Tata Motors Ltd.
7.	TVSMOTOR	TVS Motor Company Ltd.
2. Industry Group: Bank		
8.	ALBK	Allahabad Bank
9.	ANDHRABANK	Andhra Bank
10.	AXISBANK	Axis Bank Ltd.
11.	BANKBARODA	Bank of Baroda
12.	BANKINDIA	Bank of India
13.	CANBK	Canara Bank
14.	CORPBANK	Corporation Bank
15.	FEDERALBNK	Federal Bank Ltd.
16.	HDFCBANK	HDFC Bank Ltd.
17.	ICICIBANK	ICICI Bank Ltd.
18.	IDBI	Industrial Development Bank of India Ltd.
19.	INDUSINDBK	IndusInd Bank Ltd.
20.	IOB	Indian Overseas Bank
21.	J&KBANK	Jammu & Kashmir Bank Ltd.
22.	KTKBANK	Karnataka Bank Ltd.
23.	ORIENTBANK	Oriental Bank of Commerce
24.	PNB	Punjab National Bank
25.	SBIN	State Bank of India
26.	SYNDIBANK	Syndicate Bank
27.	UNIONBANK	Union Bank of India
28.	VIJAYABANK	Vijaya Bank
3. Industry Group: Cement		
29.	ACC	Associated Cement Co. Ltd.
30.	GRASIM	Grasim Industries Ltd.
31.	INDIACEM	India Cements Ltd.
4. Industry Group: Electrical Equipments		
32.	ABB	ABB Ltd.
33.	BHEL	Bharat Heavy Electricals Ltd.
34.	SIEMENS	Siemens Ltd.
35.	SUZLON	Suzlon Energy Ltd.
5. Industry Group: Fertilizers		
36.	CHAMBLFERT	Chambal Fertilizers Ltd.
37.	GNFC	Gujarat Narmada Fertilizer Co. Ltd.
38.	NAGARFERT	Nagarjuna Fertiliser & Chemicals Ltd.
39.	TATACHEM	Tata Chemicals Ltd.
6. Industry Group: Information Technology (IT)		
40.	HCLTECH	HCL Technologies Ltd.
41.	OFSS	Oracle Financial Services Software Limited
42.	INFOSYSTCH	Infosys Technologies Ltd.
43.	PATNI	Patni Computer Syst Ltd.
44.	POLARIS	Polaris Software Lab Ltd.
45.	TCS	Tata Consultancy Services Ltd.
46.	WIPRO	Wipro Ltd.
7. Industry Group: Oil & Gas		
47.	BONGAIREFN	Bongaigaon Refinery Ltd.
48.	BPCL	Bharat Petroleum Corporation Ltd.
49.	ESSAROIL	Essar Oil Ltd.
50.	GAIL	GAIL (India) Ltd.
51.	HINDPETRO	Hindustan Petroleum Corporation Ltd.

52.	IOC	Indian Oil Corporation Ltd.
53.	MRPL	Mangalore Refinery and Petrochemicals Ltd.
54.	ONGC	Oil & Natural Gas Corp. Ltd.
55.	RELIANCE	Reliance Industries Ltd.
8. Industry Group: Pharmaceuticals		
56.	AUROPHARMA	Aurobindo Pharma Ltd.
57.	CIPLA	Cipla Ltd.
58.	DABUR	Dabur India Ltd.
59.	DIVISLAB	Divi's Laboratories Ltd.
60.	DRREDDY	Dr. Reddy's Laboratories Ltd.
61.	GLAXO	Glaxosmithkline Pharma Ltd.
62.	MATRIXLABS	Matrix Laboratories Ltd.
63.	ORCHIDCHEM	Orchid Chemicals Ltd.
64.	PIRHEALTH	Piramal Healthcare Limited
65.	RANBAXY	Ranbaxy Laboratories Ltd.
66.	STAR	Strides Arcolab Ltd.
67.	SUNPHARMA	Sun Pharmaceuticals India Ltd.
68.	WOCKPHARMA	Wockhardt Ltd.
9. Industry Group: Power		
69.	CESC	CESC Ltd.
70.	CUMMINSIND	Cummins India Ltd.
71.	JPHYDRO	Jaiprakash Hydro-Power Ltd.
72.	NEYVELLIG	Neyveli Lignite Corporation Ltd.
73.	NTPC	NTPC Ltd.
74.	RELINFRA	Reliance Infrastructure Ltd.
75.	TATAPOWER	Tata Power Co. Ltd.
10. Industry Group: Steel		
76.	JINDALSTEL	Jindal Steel & Power Ltd.
77.	JSL	Jindal Stainless Ltd.
78.	MAHSEAMLES	Maharashtra Seamless Ltd.
79.	TATASTEEL	Tata Steel Ltd.
11. Industry Group: Textiles		
80.	ALOKTEXT	Alok Industries Ltd.
81.	ARVIND	Arvind Mills Ltd.
82.	CENTURYTEX	Century Textiles Ltd.
83.	SRF	SRF Ltd.

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