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REVIEW OF LITERATURE

NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

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RECOMMENDATIONS/SUGGESTIONS

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- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

**CONTRIBUTIONS TO BOOKS**

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

**JOURNAL AND OTHER ARTICLES**

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

**CONFERENCE PAPERS**

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

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# EFFICIENT MARKET HYPOTHESIS IN CHINA STOCK MARKETS

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**ABSTRACT**

*This is a working paper which has examined the weak form of efficiency on two major stock exchanges of china that is Shanghai Stock Exchange and Shenzhen Stock Exchange. Historical index values were gathered on monthly basis for a period of 10 years (1st April 2002 to 2nd May 2013) for the Shanghai and Shenzhen Composite index. The random walk hypothesis is examined using two statistical methods, namely a serial autocorrelation test and a non-parametric runs test. In our earlier studies we have documented that Indian Stock Market (BSE) is weak form efficient whereas in this study we have concluded that Chinese stock market is not weak form efficient.*

**KEYWORDS**
Shanghai stock exchange, Shenzhen stock exchange, serial correlation, runs test, Weak-form Efficiency.

**JEL CODE**
G14

## 1. INTRODUCTION

### 1.1 OVERVIEW OF CHINA

China experienced tremendous change, from centrally planned economy in the middle of twentieth century to more market orientated economy since eighties. China has become the centre of global attention. It is the world's fastest growing major economy, with growth rates averaging 30% over the past 30 years.[1] GDP growth averaging about 10 percent a year has lifted more than 600 million people out of poverty. As China's economic importance has grown, so has attention to its stock markets.[2] Chinese emerging stock markets experienced a tremendous growth and development, since its two main stock exchanges – Shanghai Stock Exchange and Shenzhen Stock Exchange were established in 1990.Though both the Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) are relatively young with their respective inauguration in December 1990 and July 1991, they are the world's leading emerging stock market in terms of market capitalization, and Asia's second largest after Japan.[3]

The Shanghai Stock Exchange (SSE) was founded on Nov. 26th, 1990 and in operation on Dec.19th the same year. The exchange occupies large trading floor (more than 3600 square meters), making it the largest Exchange in Asia-Pacific region. It is the world's 5th largest stock market by market capitalization. It is a membership institution directly governed by the China Securities Regulatory Commission(CSRC). After several years' operation, the SSE has become the most preeminent stock market in Mainland China in terms of number of listed companies, number of shares listed, total market value, tradable market value, securities turnover in value, stock turnover in value and the T-bond turnover in value. As at the end of 2011, there were 931 listed companies on SSE, with 39 new listings in 2011 (including 1 holistic listing). By the end of the year, there were 975 listed stocks on SSE with a total market capitalization of RMB 14,837.622 billion, decreasing by 17.11% year-on-year, and free-float market capitalization of RMB 12,285.136 billion, up 13.69% from the previous year. The year-end total share capital of all the listed companies reached 2,346.65 billion shares, of which 1,799.38 billion shares or 76.68% were tradable. A large number of companies from key industries, infrastructure and high-tech sectors have not only raised capital, but also improved their operation mechanism through listing on Shanghai stock market.[4]Shenzhen Stock Exchange (SZSE), established on 1st December, 1990, is a self-regulated legal entity under the supervision of China Securities Regulatory Commission (CSRC). SZSE is committed to developing China's multi-tiered capital market system, serving national economic development and transformation and supporting the national strategy of independent innovation. The SME Board was launched in May 2004. SZSE's products cover equities, mutual funds and bonds. The product lines include A-shares, B-shares, indices, mutual funds, fixed income products, and diversified derivative financial products. Chinese stock market actually consists of several sub-markets, with limited access and ability to buy stock and shares. This situation suggests the possibility of a difference in market efficiency between markets for A and B shares. Class A shares are (with rare exceptions) restricted only to domestic investors. They are listed either on Shanghai or Shenzhen exchange, and they are denominated in not freely exchangeable Renminbi (abbr. RMB). Foreign investors can trade "B" class shares, but these shares don't carry ownership rights in a company. Before 2005 China didn't experienced boom that was present on other stock markets. The reasons were different, but what should be primarily pointed out is, that Chinese currency was pegged to USD, and not many firms were interested in listing B-class shares, which could be only bought by foreigners (market for A-class shares were restricted to domestic investors). When these strict regulations were partially liberalized, China experienced tremendous boom – in next year Shanghai Composite Index went up by 130% and Shenzhen Composite Index even more – by 197%.All A & B class shares on Shanghai and Shenzhen exchange Stock are indexed by SSE and SZSE Composite Index. SSE Composite Index- Constituents for SSE Composite Index are all listed stocks (A shares and B shares) at Shanghai Stock Exchange. The Base Day for SSE Composite Index is December 19, 1990. The Base period is the total market capitalization of all stocks of that day. The Base Value is 100. The index was launched on July 15, 1991. [a]Shenzhen composite index is basically similar to the index on the SSE. The SZSE Composite Index includes all A-share and B-share companies listed on the SZSE.

[a]http://english.sse.com.cn/information/indices/list/s/singleIndex/000001/intro/intro.shtml?code=000001&type=2

[1] "Report for Selected Countries and Subjects". Imf.org. 2013-04-16. Retrieved 2013-04-16.
[2] http://en.wikipedia.org/wiki/Economy_of_China
[3] http://www.world-stock-exchanges.net/top10.html
[4] http://english.sse.com.cn/aboutsse/sseoverview/brief/

## 1.2 OBJECTIVES AND METHODOLOGY

The core objective of this paper is to investigate whether the Chinese capital market is efficient in the weak-form degree with the observations including indices of both Shanghai and Shenzhen Stock Exchanges. Purpose of this study is also to find out whether Chinese stock returns violate the random walk hypothesis or not. In our study monthly closing prices for Shanghai and Shenzhen composite index over a period of $1_{st}$ April 2002 to $31_{st}$ March 2013 are used and various types of statistical tests are applied to examine market efficiency. This study applies a classical framework of testing market efficiency. To determine whether or not the time series predictability in Chinese stock returns violate the random walk model, which maintains that past stock return changes cannot be used to predict future stock returns. Statistical tests include serial correlation and runs test for null hypothesis of a random walk are employed.

## 2. LITERATURE REVIEW

Bachelier (1900) was the first person who had formulated the theory of random walks for the first time. Later on Osborne (1959) did more defined work on the formulation of random walk theory. There were two basic assumptions of random walk model presented by Bachelier and Osborne. First assumption was that new information upon which the analysts are used to estimate intrinsic value would occur in an independent or an unsystematic manner over the time. Second assumption was that the evaluation of the new information would also be independent which means that the evaluation by one analyst would not influence the evaluation of another analyst. On these assumptions Bachelier and Osborne had concluded that successive market price changes should be unsystematic. Fama (1965) had defined efficient market that is a place where there are large numbers of rational investors competing actively, where each investor is trying to forecast future market values of stocks and where important current information about stocks is almost freely available to all participants of market. Thus, in such market at any point in time, the actual price of a security would be a good estimate of its intrinsic value. He further argued that theory of random walk has borne out from the concept of efficient markets. The random walk theory states that prices of securities follow a random walk and thus the prices of the stock market cannot be predicted. Fama (1970) gave detail description on efficient markets. He elucidated that in an efficient market, prices of stocks entirely reflect all available information regarding stocks. He added that may be in reality efficient market model is not 100% achievable but it would probably serve as best viewed as a benchmark against which performance of market efficiency can be judged. Jensen (1978), the efficient market is where prices of securities reflect information up to the point in such a way that marginal benefits of acting on the information don't exceed than the marginal cost of collecting it. Additionally he said that regarding information a market is said to be efficient, if someone has information set and on the basis of this information set it is impossible to gain economic profits. Economic profits can be defined as the risk adjusted returns net of all costs. Then Fama (1970), did further analysis on the three types of efficient market based on information set. First, weak form efficient market, where prices of securities fully reflect historical information of past prices and returns in such a manner that no investor can generate excess returns on the basis of this set of information. Secondly, Semi-strong form efficiency where prices of securities fully reflect all public information and this public information should be known to all investors in such a manner that no investor can generate excess returns on the basis of this set of information. Finally, strong form efficient market is where prices of securities fully reflects all public & private information and this public & private information should be known to all investors in such a manner that no investor can generate excess returns on the basis of this set of information. Fama (1991) argued that the lower the transaction costs in a market, including the costs of obtaining information and trading, the more efficient the market. In the paper he mentioned that to test the efficient market event study is more effective as we just need to investigate the timing of information event and it's the speed of adjustment in prices. So if the prices react and show change rapidly after the occurrence of an event it means prices absorb the new information and hence market is efficient. He further argued that the events may hold information like investment decisions, dividend changes or changes in capital structure. Following by Fama's theory and comprehensive empirical work of efficient capital market a plethora of studies were devoted to testing validity of the weak form of the EMH. A large number of these researches have centred on developed markets.

Emerging stock markets have recently attracted increasing attention from both researchers and investors. The great interest is not surprising because during early nineties growth of emerging markets were remarkable. The empirical evidence on weak form efficiency of the emerging markets is controversial. Most of the emerging stock markets have been demonstrated to be inefficient even in the weak sense, while others were found to be efficient. Sharma and Kennedy (1977) compared the behaviour of stock indices of the Bombay, London and New York stock exchanges during 1963-73 using run test and spectral analysis. Both runs test and spectral analysis confirmed the random movement of stock indices for all the three stock exchanges. They concluded that stocks on the BSE (Bombay Stock Exchange) follow random walk and are weak- form efficient. Ramachandran (1986) tested for the weak – form of Efficient Market Hypothesis using weekend prices of 60 scrips over the period 1976-81. He used filter rule tests in addition to runs test and serial correlation tests and found support for the weak – form of EMH. *Poshakwale (1996)* presented evidence concentrating on the weak form efficiency and on the day of week effect in the Bombay Stock Exchange under the consideration that variance is time dependent. Moving from its traditional functioning to that required by the opening of the capital markets, the BSE has presented different patterns of stock returns and supports the validity of day of the week effect. The frequency distribution of the prices in BSE does not follow a normal or uniform distribution, which is also confirmed by the non-parametric KS Test. Vulic(2010) tested the efficiency of Montenegro stock exchange using unit root, runs test and autocorrelation test. Daily data was taken for a period March 3rd 2003 to July 31st 2009. The sample of 1675 observations concluded the inefficiency of Montenegro stock exchange. Wu (1996) used the serial correlation test on 8 and 12 individual shares for the period from June 1992 through December 1993 for the Shanghai and Shenzhen markets respectively and argued that CSMs seem weak. Mookerjee and Yu (1999) tested two market indices (Shanghai and Shenzhen) using the serial correlation and runs tests, concluded that the markets were inefficient. They concentrated their investigation of the market behaviour on the period from December 1990 to May 1992 and from May 1992 to December 1993.

Laurence *et al*. (1997) implemented serial correlation test based on daily data from 1993 until 1996. The results show the market for A shares to be efficient and that for B shares to be inefficient Liu *et al*. (1997) implemented unit root test using daily data from 1992 until 1995. On the basis of the results, it was asserted that both the Shanghai and Shenzhen markets are efficient. Li(2008)tested the efficiency of stock markets in China and Japan with Runs test, Dickey-Fuller Unit root test and Variance ratio test. The data of Shanghai, Shenzhen and Tokyo stock market indices from 2000 to 2007 was tested and found that even Shanghai and Shenzhen stock markets conform to the Random walk to some extent under the Runs Test1, they are still not efficient while Tokyo stock market was tested to conform to the Random walk characteristic under strict tests.

## 3. RESEARCH METHODOLOGY

### 3.1 DATA

The data used in this study are monthly closing prices of composite stock index for Chinese stock exchanges in Shanghai and Shenzhen. The data is collected from the yahoo finance and the observation period ranges from April 2002 to May 2013.

### 3.2 HYPOTHESIS

The main objective of this study is to examine whether the Chinese stock market follows a random walk or is weak form efficient. Accordingly, the hypothesis of the study is:

*H0: The Chinese stock market follows a random walk/ is a weak-form efficient*

*H1: The Chinese stock market does not follow the random walk*

### 3.3 METHODOLOGY

In this study, we use two statistical methods, namely a serial correlation test and runs test to examine market efficiency.

*RUNS TEST*

Runs Test is a traditional method used in the random walk model and ignores the properties of distribution. It determines whether successive price changes are independent. In this test actual number of runs is being compared with the expected number of runs. If the actual number of runs is not significantly different from the expected number of runs, then the price changes are considered independent, and if this difference is significant then the price changes are considered dependent. In order to test the significant difference between the actual number of runs and expected number of runs the test statistics employed will be 'Z'.

*SERIAL CORRELATION*

Serial correlation test measures the correlation coefficient between a series of returns and lagged returns in the same series, whether the correlation coefficients are significantly different from zero. Positive serial correlation means that positive returns tend to follow positive returns and vice versa. If the serial correlation is statistically significant it shows that successive price changes are related and market is inefficient.

## 4. EMPIRICAL FINDINGS

### 4.1 DESCRIPTIVE STATISTICS

Before employing any test it is very important to find out the normality of the data which can be found out by statistical description of the data. Table-1 presents statistical description of Shanghai stock exchange (SSE) and Table-2 represents description of Shenzhen Stock exchange. Under this mean, standard deviation, variance, minimum, maximum, skewness and kurtosis have been calculated. The critical values for skewness and kurtosis are 0 and 3 which represents that the observed data is perfectly normally distributed**.** The calculated value of skewness for SSE and SZSE are **-0.1167 and -0.02164 respectively** and value of kurtosis for SSE and SZSE **are 1.059523 and 0.332467**. The values from the table show that neither the skewness nor the kurtosis of both the indices shows normality of the data. The skewness is less than 0 and kurtosis is less than 3 which imply that data is not normal.

**SHANGHAI STOCK EXCHANGE TABLE-1**

| | |
|---|---|
| MEAN | 0.006032 |
| MEDIAN | 0.006586 |
| MAXIMUM | 0.274464 |
| MINIMUM | -0.24631 |
| STD DEV | 0.083608 |
| SKEWNESS | -0.1167 |
| KURTOSIS | 1.059523 |

**SHENZHEN STOCK EXCHANGE TABLE-2**

| | |
|---|---|
| MEAN | 0.009713 |
| MEDIAN | 0.010372 |
| MAXIMUM | 0.289396 |
| MINIMUM | -0.23516 |
| STD DEV | 0.092109 |
| SKEWNESS | -0.02164 |
| KURTOSIS | 0.332467 |

### 4.2 RUNS TEST

Our non-parametric analysis is made using Runs test. In case of SSE (Table 3) and SZSE (Table 4) it is noted that the z-values are computed as -1.03052 and -2.27027 respectively. The value of SSE lies inside the 95% confidence interval and so we accept the null hypothesis. This implies that the succeeding price changes move in an independent manner and so Shanghai stock exchange follows the random walk model. However in SZSE Z value lies outside the confidence intervals that is we fail to accept the null hypothesis. Hence Shenzhen stock exchange is not weak form efficient.

**SHANGHAI STOCK EXCHANGE TABLE 3**

| | |
|---|---|
| Total No. of runs | 63 |
| Total No. of positives (N1) | 69 |
| Total Number of negatives (N2) | 67 |
| Total Number of observations ( N1 + N2) | 136 |
| Estimated value (Mean) | 68.98529 |
| Variance | 33.73344 |
| Standard Deviation | 5.80805 |
| Z – statistics | -1.03052 |
| significance level 5% | -1.96 |

**SHENZHEN STOCK EXCHANGE TABLE 4**

| | |
|---|---|
| Total No. of runs | 55 |
| Total No. of positives (N1) | 73 |
| Total Number of negatives (N2) | 62 |
| Total Number of observations ( N1 + N2) | 135 |
| Estimated value (Mean) | 68.05185 |
| Variance | 33.05148 |
| Standard Deviation | 5.749042 |
| Z – statistics | -2.27027 |
| significance level 5% | -1.96 |

### 4.3 SERIAL CORRELATION

Under the weakest version of the random walk the increments or first-differences of the level of the random walk is uncorrelated at all leads and lags. Serial correlation test measures the correlation coefficient between a series of returns and lagged returns in the same series, whether the correlation coefficients are significantly different from zero. The autocorrelation in returns of Chinese stock markets are tested whether returns can be characterized by serial dependence.

**SHANGHAI STOCK EXCHANGE TABLE 5**

| | |
|---|---|
| R - square (A) | 0.325 |
| No. of Samples (B) | 132 |
| (A) x (B) | 42.9 |
| value of chi - square at 4 degree of freedom at 5% level of significance | 9.488 |

As 42.9 > 9.488 so we reject null hypothesis i.e. there is randomness and accept alternate hypothesis i.e. there is auto correlation

**SHENZHEN STOCK EXCHANGE TABLE 6**

| | |
|---|---|
| R - square (A) | 0.11 |
| No. of Samples (B) | 130 |
| (A) x (B) | 14.3 |
| value of chi - square at 4 degree of freedom at 5% level of significance | 9.488 |

As 14.3 > 9.488 so we reject null hypothesis i.e. there is randomness and accept alternate hypothesis i.e. there is auto correlation

## 5. CONCLUSION

This research mainly hunted for the evidence of weak form efficiency by hypothesizing normality of the SSE and SZSE monthly return series and random walk assumption. Regarding skewness and kurtosis, the monthly return series were found non-normal. Based on runs test carried out on the sample drawn from SSE and SZSE, it is concluded that the Shanghai stock market returns follow random walk and they support the weak form of market efficiency whereas Shenzhen stock market returns do not follow a random walk. So another test named serial correlation was used to test weak form efficiency. It is concluded that both shanghai and Shenzhen stock market returns follow random walk. Hence, the empirical study suggests that Chinese stock market is not weak form efficient and abnormal returns can be generated based on past price trends / information. In our earlier studies we have documented that Indian Stock Market (BSE) is weak form efficient whereas in this study we have concluded that Chinese stock market is not weak form efficient. Unlike India technical analysis can be used to predict future stock prices in case of Chinese stock markets.

## REFERENCES


1. Bachelier, l.,(1900). Théorie de la Spéculation (first two pages of English translation), Annales Scientifiques de l'Ecole Normale Superieure, I I I -17, 21-86.
2. Barua S. K and Raghunathan V. [1987] "Inefficiency and Speculation of the Indian Capital Market," Vikalpa, July-September.
3. Chung, Hin Yu, (2006), "Testing Weak-Form Efficiency of the Chinese Stock Market", Department of Business Administration, Lappeenranta University of technology.
4. Cootner P.H. (ed.) (1964), The Random Character of Stock Market Prices, Cambridge, MA: MIT Press.
5. Fama, E. F.(1965), "The Behaviour of Stock-Market Prices," Journal of Business, XXXVIII, January, , 34-105.
6. Fama, E.F. (1970), efficient capital markets: a review of theory and empirical work, Journal of Finance. 25, pp. 383—417.
7. Fama, E.F. (1998), Market efficiency, long-term returns, and behavioural finance, Journal of Financial Economics, vol.49 ( ) : pp. 283-306.
8. Fama, E.F.(1991) ,Efficient capital markets II, Journal of Finance 46 , pp.1575–1617.
9. Gupta, R., and Basu, P. K. (2007), "Weak Form Efficiency in Indian Stock Markets", IBER Journal, Vol.6, No.3, pp. 57-64.
10. Hamid, et. al., (2011), 'Testing the Weak form of Efficient Market Hypothesis', Empirical Evidence from Asia-Pacific Market, Euro Journals Publishing. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1795922
11. Khan et al," Testing Weak Form Efficiency for Indian Stock Markets" (2006). http://www.jstor.org/stable/4417642
12. Laurence, M., F. Cai and S. Quan (1997) "Weak-form efficiency and causality tests in Chinese stock markets" Multinational Finance Journal 1, 291-307.
13. Liu, X., H. Song and P. Romilly (1997) "Are Chinese stock markets efficient? A cointegration and causality analysis" Applied Economics Letters 4, 511-515.
14. Malkiel, Burton G. (2003), "The Efficient Market Hypothesis and Its Critics." Journal of Economic Perspectives, 17(1): pp. 59–82.
15. Mookerjee, R. and Q. Yu, 1999, "An Empirical Analysis of the Equity Markets In China,"Review of Financial Economics, 8, 41-60.
16. Pandey, A. (2003), "Efficiency of Indian Stock Market", A Part of Project Report, Indira Gandhi Institute of Development and Research (IGIDR), Mumbai, India
17. Poshakwale [1996] "Evidence of Weak Form Efficiency and Day of the Week Effect in the Indian Stock Market." Finance India, Vol. X No. 3, (September), 605-616.
18. Q. Khan, Sana Ikram and Mariyam Mehtab(2011)." Testing weak form market efficiency of Indian capital market: A case of national stock exchange (NSE) and Bombay stock exchange (BSE)'' pp. 105 – 114. www.academicjournals.org/ajmm/abstracts/.../Khan%20et%20al.htm
19. Ramachandran J (1986). Behavior of Stock Market Prices, Information Assimilation andMarket Efficiency, Unpublished FPM Theses, IIM Ahmedabad.
20. Samuelson, P. (1965), "Proof that Properly Anticipated Prices Fluctuate Randomly", Industrial Management Review. Vol.6, pp. 41-49.
21. Wu, S. N., 1996, "The Analysis of the Efficiency of Securities Market in Our Country," Jin JiYan Jiu (Economics Research, in Chinese), 6.
22. Xiaofeng li. Master's Thesis in Economics of Innovation and Growth in KTH. Stockholm, April 2008.

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