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EFFICIENT MARKET HYPOTHESIS:

UNDERSTANDING AND ACCEPTANCE IN INDIA

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ABSTRACT

In spite of some empirical evidence in favour of the capital market efficiency in weak form and mildly in favour of semi-strong form, the capital markets participants allege that the market is excessively speculative and inefficient. The objective of this study therefore is to assess the extent to which the users and preparers of accounting information in India are aware of the efficient market hypothesis (EMH) and accept the empirical findings on EMH in the Indian context. The research methodology used is the one developed by Mayer-Sommer.

A questionnaire was sent to 600 preparers and users who were divided into four groups: (1) the chief financial executives; (2) academicians; (3) chartered accountants; and (4) cross-section of investors and brokers. One hundred and sixty questionnaires were returned duly filled in by the respondents. The analysis reveals that the various-category respondents deny the existence of market to be efficient in any of its three forms. It is important to note these findings relate only to <u>attitudes and perceptions</u> in the understanding and acceptance of EMH.

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Stock markets are emerging as vital economic institutions in developing countries. Their importance is growing because of two major functions that they perform. First, in an era of capital scarcity, they are vehicle for the transfer of private savings into business investment. In India, for example, the aggregate market capitalization as in December 1985 was Rs.21,000 crores for all the listed companies, accounting for close to two-third of the value of all companies. Secondly, the changing share prices are indicative of the evolving profitability of business and significantly help investors to allocate resources better. Again in India, the share prices index is growing at 30 to 40 per cent annually and offering returns for existing prevailing interest rates. In fact, the growing importance of the stock market in India is reflected in the institutional structure that the market has already developed. The stock market in India operates through 14 recognized stock exchanges on which more than 6,000 securities are listed.

The stock market based research in India and abroad during the last two decades has primarily concentrated on the efficiency aspect of the market. The efficient stock market is one for which information is processed properly and securities such as shares and debentures are correctly priced. The market efficiency can be tested at three levels. These are known as weak form,

semi-strong form and strong form of efficiency. In each case, the question is same, namely, whether the stock prices reflect a particular piece of information correctly and in timely fashion; however, in each case the nature of information is different. In the weak form, the barest of information - past share prices and volumes - comprise the information set. This implies that investors in pricing shares today should have taken into account the information about past prices and volumes. In the semi-strong form, the information set comprises of publicly available infor- mation. The strong form comprises of ascertainable information including information which is privy to the managers.

The efficient market hypothesis in its various forms has been widely tested in the US. There is a reasonable consensus among the researchers on the stock market being efficient in its weak form, popularly known as random walk hypothesis (RWH). Number of the other studies e.g., Beaver, Kettler and Scholes[2] and Thompson[8] accept the semi-strong market efficiency also. Researchers have generally claimed that stock market in develop- ing countries are not as efficient as in the US. However, some empirical studies using Indian data have been conducted. For example, Barua[1] used daily closing prices of 20 securities and the Economic Times price index during the time period 1977 to June 1979 to confirm the efficiency of Indian stock market in its weak form. In a more comprehensive study, Gupta[3] tested

RWH using daily and weekly share prices of 39 companies along with the Economic Times (ET) and Financial Express (FE) index. The hypothesis was validated only for FE daily industries indices. Individual share prices series were found to be strongly supporting the RWH. Rao and Mukherji[6] using weekly prices of Indian Aluminium Company share during 1950-1970 also did not find any evidence contrary to RWH. Sarma and Kennedy[7] examined monthly indices of Bombay, New York and London Stock Exchanges during 1963-73 and found no distinguishable behaviour of three share price indices. There has been no empirical work of significant nature on semi-strong forms of market efficiency in India.[5]

OBJECTIVE AND METHOD OF INVESTIGATION

The empirical research on efficient market hypothesis (EMH) in India provides support in favour of efficiency in weak form and mildly in favour of semi-strong[5] form. On the other hand, the capital market participants allege that the market is excessively speculative and inefficient. The acceptance of EMH then really depends on the attitudes and perceptions of the participants about the efficiency of the stock market. Participants here include both preparers and users of accounting information. Therefore, the objective of this study is to assess the extent the users and preparers of accounting information are aware of the EMH and accept the EMH-researchers' findings with respect to the weak and semi-strong form of efficiency of the Indian stock

market. The present study uses the methodology developed by
Mayer-Sommer.[4].

A questionnaire[*] was mailed to about 600 preparers and users
of accounting information who were classified into the following
four groups: (i) the chartered accountants, who are members of
central or regional councils; (ii) academicians who are members
of Indian Commerce Association or involved in teaching of account-
ing; (iii) the cross-section of investors and brokers; and
(iv) the chief financial executives of top 250 companies. The firs·
three groups fall in accounting-information preparers' category
and the last group belongs to the users category. The group-wise
distribution of respondents is given in Table 1.

A closed-form, dichotomous format 24-item questionnaire, pro-
vided information about the respondents' awareness of the EMH
and their acceptance of the EMH research findings. To avoid the
holo effect, the use of concepts with labels was avoided as
suggested by Mayer-Sommer.[4] The phrase efficient market hypo-
thesis was not used anywhere in the questionnaire. The content
validity, construct validity and criterion-related validity about
the methodology adopted in this type of enquiry is discussed in
Mayer-Sommer.[4]

ANALYSIS

Each of the 24 questions on each questionnaire was replied by
checking either yes or no. Alternatively, in the absence of

*See Appendix 1.

sufficient information or no opinion, the respondent was given
an option to check 'other' category also. The answers pertaining
to understanding and acceptance of EMH in its various forms would
either confirm it or they may be non-confirming answers. Table 2
lists the non-confirming responses by question for each of the
forms of EMH in terms of its understanding and acceptance. Blanks
in this table indicate that the response to the particular question
was not relevant to the area being examined. For this purpose of
analysis, each respondent was examined at three different cut-off
rates, viz., 75 per cent, 50 per cent and 25 per cent cut-off
points. If any respondent answers/more than three-fourth of the
questions in a particular area, he was grouped in 75 per cent cut-
off category. The choice of cut-off point is subjective.

Table 3 presents a summary of understanding of EMH by respond-
ents in each of the occupational groups for each of the three cut-
offs. Fifteen per cent of investors exhibited no understanding of
EMH in any of its forms at 75 per cent cut-off. This figure is 12
per cent in case of academicians. It is also indicated that the
respondents who understood the EMH in its weak and semi-strong
form also understood in its strong form. At 75 per cent cut-off,
55 per cent of investors understood the EMH in all three of its
forms. In other three categories, around 70 per cent of the res-
pondents exhibited their understanding of EMH in all three of its
forms. Table 4 shows the attitude and perception of respondents

towards the acceptance of EMH. Table 4 indicates that the respondents who understood the EMH actually accepted it to a very limited extent. The respondents who do not understand EMH in any of its three forms have been included in the "excluded group". At 75 per cent cut-off, no respondent accepted the EMH in its semi-strong and strong form. Only 5 per cent of investors and 15 per cent of accounting academicians accepted EMH in its weak form. Around 20 per cent of company and chartered accountant respondents accepted EMH in its weak form. At 75 per cent cut-off, 74 per cent of chartered accountants, 71 per cent of accounting academicians, 95 per cent of investors and 81 per cent of company respondents do not accept the EMH in any of its three forms. The results in Table 4 indicate that the respondents who understood EMH do not accept it in reality. They find that there are methods and sources of information useful in consistently obtaining abnormally high returns. The last part of the questionnaire asked the respondents to indicate which methods or information sources they use in outperforming market averages and which alternatives they think are useful in achieving this goal over the long term? Table 5 summarizes the results on usefulness of various methods and different sources of information. Majority of the respondents in each category think the fundamental and technical analysis could be used to outperform the market. Index comparison is considered to be less useful than

the technical and fundamental analysis. On the various information sources, 82 per cent of the chartered accountants and company respondents consider the audited financial statements to be useful. Seveyty six per cent of company respondents consider other publicly available information to be useful. Eighty seven per cent of the accounting academicians thought inside information to be useful in outperforming the market.

SUMMARY

The respondents belonging to various groups deny the existence of market to be efficient in any of its three forms. Majorit of them consider technical and fundamental analysis and audited accounting information sources to be useful in investment management. It is important to note that the inferences and findings contained in this study relate only to <u>attitudes</u> and <u>perceptions</u> in the understanding and acceptance of EMH. From this type of investigation, it is not possible to make any statement on the relationship between attitudes and perceptions of the market participants and their actual behaviour in the market. Furthermore, the survey research typically involves some non-response bias and although steps were taken to ensure reasonable response rate, this study is no exception.

Table 1

Frequency Distribution of Respondent

Group	No. of Respondents	Percentage of Total
1. Chief Financial Executives	39	24.4
2. Chartered Accountants	32	20.0
3. Accounting Academicians	20	12.5
4. Investors	69	43.1
	160	100.0

Table 2

Non-confirming Responses

Question	Understanding			Acceptance		
	RW	SS	ST	RW	SS	ST
1.	o	o		y/o	y/o	
2.		o			y/o	
3.		o			y/o	
4.		o			y/o	
5.		o			y/o	
6.						
7.	o			y/o	y/o	
8.		o				
9.		o			n/o	
10.						
11.		o			n/o	
12.		o			n/o	
13.		o			n/o	
14.	o			y/o		
15.					y/o	
16.			o			n/o
17.						
18.						n/o
19.	o		o	y/o		
20.		o			y/o	
21.		o			y/o	
22.		o			y/o	
23.			o			n/o
24.		o			y/o	

Note: o stands for 'other'; y for 'yes'; n for 'no'; RW for Random Walk; SS for semi strong; ST for strong form of efficiency.

Table 3

Respondent Understanding of EMH

Respondent Group	Understood EMH in			
	None of its forms	Weak form only	Weak and semi-strong forms	Weak, semi-strong and strong forms
Chartered Accountants				
25 per cent cut-off	0%	0%	2%	97%
50 per cent cut-off	0%	0	5	94
75 per cent cut-off	7%	7	10	76
Accounting Academicians				
25 per cent cut-off	0%	0%	0%	100%
50 per cent cut-off	3	0	3	93
75 per cent cut-off	12	0	12	74
Investors				
25 per cent cut-off	0%	0%	0%	100%
50 per cent cut-off	5	0	5	90
75 per cent cut-off	15	10	20	55
Company				
25 per cent cut-off	0%	0%	0%	100%
50 per cent cut-off	2	0	2	97
75 per cent cut-off	8	5	13	72

Table 4

Respondent Acceptance of EMH

Respondent Group	Excluded Group	Accepted EMH in			
		None of its forms	Weak form only	Weak and semi-strong form only	All thre of its forms
Chartered Accountants					
25 per cent cut-off	0%	7%	19%	7%	66%
50 per cent cut-off	0%	35	51	7	5
75 per cent cut-off	7	74	19	0	0
Accounting Academicians					
25 per cent cut-off	0%	9%	28%	0%	62%
50 per cent cut-off	3	9	34	6	15
75 per cent cut-off	12	71	15	0	0
Investors					
25 per cent cut-off	0%	13%	15%	5%	65%
50 per cent cut-off	5	45	45	0	5
75 per cent cut-off	15	95	5	0	0
Company					
25 per cent cut-off	0%	18%	28%	0%	52%
50 per cent cut-off	2	53	40	2	3
75 per cent cut-off	8	81	18	0	0

Table 5

**Perceptions of Usefulness in Outperforming Market Averages
of Certain Information and Methods Commonly Used in
Investment Management**

Methods and Infor-mation Source	Percentage of 'yes' Responses indicating usefulness			
	Chartered Account-ants	Accounting Academi-cians	Investors	Company
Methods				
1. Technical Analysis	71	62(L)	80(H)	73
2. Fundamental Analysis	76	59	50(L)	79(H)
3. Index Comparison	56	50(L)	55	69(H)
Information Source				
1. Audited Financial Statements	82(H)	75	55(L)	82(H)
2. Other Publicly Availa-ble Information	66(L)	75	70	76(H)
3. Insider Information	61(L)	87(H)	80	82

Note: (H) : Highest percentage responding 'yes'

(L) : Lowest percentage responding 'yes'.

APPENDIX 1

The respondents were asked to check (✓) 'yes' or 'no' or 'other' for each question to indicate agreement, disagreement, or no opinion/insufficient information.

1. There is publicly <u>available</u> information that can, fairly and consistently, be used to identify over or under-valued securities.

2. Financial reports of companies listed on Stock Exchanges are one type of publicly available information useful in identifying over or under-valued securities.

3. Sophisticated investors may do better in the market because they understand more of the accounting information in financial reports than do naive investors.

4. Two listed companies in the same industry and alike in all 'real' economic aspects - like management ability and physical operating capacity - might consistently have different P/E ratios because of the way accountants prepare financial statements.

5. The smoothening of accounting income to promote economic stability and more orderly securities market is desirable.

6. The stock market reacts virtually instantaneously and on the average in an unbiased manner to information as it is announced.

7. Publication of financial reports frequently causes abnormally large and <u>persistent</u> changes in a company's share price.

8. The more volatile a company's risk-return characteristics, the less useful are its accounting reports in evaluating and predicting future returns.

9. The risk-return characteristics of most companies are fairly stable over time.

10. A company's accounting-determined risk measure (like earnings variability) is highly associated with the risk measure indicated by sensitivity of its share price with the stock market.

11. Usually in a short period of time, share prices on the Stock Exchanges fully reflect all publicly available information.

12. The revaluation of assets is a trivial matter: all that is needed is sufficient disclosure to investors.

13. The effects of alternative accounting procedures (like written-down versus straight line depreciation) on reported income are generally fully adjusted for in the relative prices of shares on the stock exchanges.

14. Some investors who analyze past pattern in the movement of share prices by preparing various types of charts are able to "beat the market" without using any accounting information.

Sometimes firms make accounting changes that do not affect their 'real' economic condition - like their tax liability. Do you think such changes are desirable if they:

15. Boost and maintain an artificially depressed share prices.

16. Provide information previously used only by insiders.

17. Achieve a better matching of expenses and revenues.

18. Provide information previously available to investors with private access to inside information.

Many investors use different sources of information trying to out-perform market averages. Which method do you think are useful in achieving this goal over the long run?

19. Study of the history of the share's price volume movements (known as technical analysis).

20. Study of the difference between a share's market price and its intrinsic value (known as fundamental analysis).

21. Audited financial statements.

22. Other outputs of a company's accounting system (like Chairman's speech, Directors' report, Auditors' report, advertisements quoting financial performance).

23. Inside information (information not publicly available even to sophisticated investors).

24. An estimate of the extent to which a share's market price moves with the overall average (e.g. Economic Times/Financial Express/Reserve Bank of India Index of Share Prices).

REFERENCES AND NOTES

1. Barua S.K. _Valuation of Securities and Influence of Value on Financial Decisions of Firm_. FPM Thesis, Indian Institute of Management, Ahmedabad 1980.

2. Beaver, W.H., P. Kettler, and M. Scholes, "The Association Between Market Determined and Accounting Determined Risk Measures", _Accounting Review_ October 1970 pp.654-682.

3. Gupta, O.P. _Behaviour of Share Prices in India_. National. New Delhi 1985.

4. Mayer-Sommer, A.P., "Understanding and Acceptance of the Efficient Market Hypothesis and Its Accounting Implications", _Accounting Review_ January 1979, pp.88-106.

5. Ramachandran, J. analyzed the impact of announcement of bonus share issues by corporate management on the share prices. His results indicate that market tended to carry over the new information made available with other information on its disposal. The study concludes that the behaviour of all three measures of abnormal return is consistent with the hypothesis of market efficiency in semi-strong form. See Ramachandran, J. _Behaviour of Stock Market Prices: Trading Rules, Information and Market Efficiency_. FPM Thesis, Indian Institute of Management, Ahmedabad. 1985.

6. Rao, N.K., and K. Mukherji, "Random-Walk Hypothesis: An Empirical Study", _Arthniti_ Jan.–July 1971.

7. Sarma, J.L., and R. Kennedy, "A Comparative Analysis of Stock Price Behaviour on the Bombay, London, and New York Stock Exchanges," _Journal of Financial and Quantitative Analysis_ September 1977.

8. Thompson, D.J., II, "Sources of Systematic Risk in Common Stocks" _Journal of Business_ April 1976, pp.173-88.