



UNIVERSITI PUTRA MALAYSIA

**THE EFFICIENT MARKET HYPOTHESIS AND THE THINLY TRADED
KUALA LUMPUR STOCK EXCHANGE: TESTS WITH
APPROPRIATE REFINEMENTS**

ANNUAR MD NASSIR

FEP 1991 3



THE EFFICIENT MARKET HYPOTHESIS AND THE THINLY TRADED
KUALA LUMPUR STOCK EXCHANGE: TESTS WITH
APPROPRIATE REFINEMENTS

ANNUAR MD NASSIR

DOCTOR OF PHILOSOPHY
UNIVERSITI PERTANIAN MALAYSIA

1991



**THE EFFICIENT MARKET HYPOTHESIS AND THE THINLY
TRADED KUALA LUMPUR STOCK EXCHANGE: TESTS
WITH APPROPRIATE REFINEMENTS**

by

ANNUAR MD NASSIR

**Thesis Submitted in Fulfilment of the Requirements for the
Degree of Doctor of Philosophy in the Faculty of Economics
and Management, Universiti Pertanian Malaysia.**

December 1991



ACNOWLEDGEMENTS

Writing this part of the dissertation signalled an end to a seemingly impossible and elaborate task ... that of completing the Ph.D. programme.

I am very grateful to my Ph.D. committee, consisting of Professor Dr. Mohamed Ismail Ahmad, Dr. Shaari Abdul Hamid (both from Universiti Pertanian Malaysia, UPM) and Dr. Mohamed Ariff of the Department of Finance and Banking, National University of Singapore (NUS). A special thanks to Dr. Mohamed Ariff, for his invaluable guidance, encouragement and constructive criticisms of the various aspects of the work leading to the completion of this dissertation. I have greatly benefited from his valuable help while attached to the Department of Finance and Banking, National University of Singapore, for which I express my sincere thanks to the University authorities, the staff of the Department of Finance and Banking and Associate Professor Dr. Wong Kie Ann, the head of the department.

This research has benefited from the help of numerous people whom I wish to name, Zainal Abidin Kidam and his research assistants, Dr. Zabid Abdul Rashid, Dr. Zainal Abidin Mohamed, Dr. Shamsher Mohamed, and Salleh Yahya, all from UPM, and to all those who have contributed in anyway towards the completion of this dissertation.



A special appreciation goes to Professor Dr. Mohd Ariff Hussein, Dean, Faculty of Economics and Management, UPM, who provided constant encouragement throughout the period of study. A special thanks to the staff of the research department, of the Kuala Lumpur Stock Exchange Berhad and staff of the Security Clearing Automated Network Services Sdn. Bhd. for providing the basic data.

Last, but not least, a special dedication to my wife, Hafizah Ismail and my three children, Akid, Afiq and Afham for their understanding and continuous encouragement throughout the long and lonely period of study.



TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
LIST OF TABLES	vii
LIST OF FIGURES	x
ABSTRACT	xii
ABSTRAK	xvi
CHAPTER	
I OBJECTIVES AND BACKGROUND	
Research Problem Definition	1
Justification and Usefulness of Study	7
Research Process and Plan	8
Outline of the Thesis	9
II THE EFFICIENT MARKET HYPOTHESIS: THEORIES AND EVIDENCE	
Introduction	12
Efficient Market Hypothesis (EMH)	
Early Ideas of Random Walk	12
Efficient Market Hypothesis: Further Development	19
Tests and Evaluation of EMH	
EMH Tests	34
EMH Evaluated	40
Evidence on EMH	47
EMH and the Developed Securities Markets	48
EMH and the Developing Securities Markets with Recent History	62
EMH and the Kuala Lumpur Stock Exchange	66
EMH and the Development of Security Market	70
III DATA, RESEARCH DESIGN AND METHODOLOGY	
Introduction	74
Data Set	75
Research Design and Methodology	79
Model Specifications	80
Kolmogorov-Smirnov D-test	82
Weak-form Tests	83
Tests of Semi-strong form	



	Efficiency	87
	Tests of Strong-form Efficiency	93
	Test Hypotheses	94
	Summary	95
IV	RESULTS OF WEAK-FORM EFFICIENCY	
	Introduction	97
	An Overview of the KLSE	98
	Historical Background	98
	Market Structure and Growth	103
	Trading Practices	106
	Commission Structure	106
	Frequency of Trading	107
	Some Preliminary Investigation	110
	Weak-form Test Results	117
	Average Serial Correlation Results:	
	Q-statistics	118
	Individual Serial Correlation Results	123
	Cash Equivalent Results	125
	A Critique	128
	Unit Roots Analysis	128
	Summary	133
V	SEMI-STRONG FORM EFFICIENCY TEST RESULTS	
	Introduction	136
	Errors Due to Index Chosen	138
	Results	141
	Market Adjusted Returns: Earnings	
	Announcements	142
	Market Adjusted Returns: Dividend	
	Announcements	149
	Risk-adjusted Returns: Discussion One -	
	A Comparison	156
	Earnings Announcements	156
	Dividend Announcements	162
	Risk-adjusted Returns using the DFR	
	Correction Technique - Discussion Two	169
	Earnings Announcements	169
	Dividend Announcements	176
	Differences in Thinly Traded and Non-	
	thinly Traded Stocks	181
	Summary	184
VI	A TEST OF STRONG-FORM EFFICIENCY	
	Introduction	187
	Results One	188
	Market Adjusted Returns	189
	Risk-adjusted Returns	190



Results Two	193
Risk-Adjusted with DFR Correction	193
Summary	195
Comparison of Overall Findings with Other Markets in Particular the Stock Exchange of Singapore (SES)	197
Weak-form Efficiency	197
Semi-strong form Efficiency	200
Comments	201
 VII CONCLUSIONS, LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH	
Introduction	206
Summary of Findings	208
Weak-form Efficiency	208
Semi-strong form Efficiency	211
Strong-form Efficiency	213
Possible Limitations	213
Suggestions for Further Research	215
Implications of Study	217
 REFERENCES	219
 APPENDICES	
A List of Companies and Abbreviation Used in the Study	240
B Beta of Individual Companies (OLS and DFR).....	248
C KLSE Composite Index and NST Industrial Index Component Companies	255
D Dickey-Fuller Critical Values	259
 VITA	261



LIST OF TABLES

Table		Page
1	Classification of the Three Levels of EMH into Three Potential Degrees	33
2	Composition and Market Capitalisation of Each Sector in KLSE: End 1989	101
3	Growth in Number of Companies, Market Capitalisation and Paid-up Capital over 1975-1989: Malaysian Ringgit	104
4	Annual Volume of Trading on the KLSE over 1975-1989	108
5	Mean and Standard Deviation of Volume Measure (Market Thinness Index) of Each Portfolio Decile on the KLSE over 1975- 1989	110
6	Summary Statistics of Various Industry Sectors and Portfolio Deciles: 1975-1989	112
7	Q-Statistic Values of Various Industry Sectors and Portfolio Deciles: 1975-1989	119
8	Sub-period Q-Statistic Values of Various Industry Sectors and Portfolio Deciles: 1975-1989	120
9	Q-Statistic Values of the 30 Component Stocks of the NST Industrial Index over 1975-1989	122
10	Individual Serial Correlation of Twelve Lags for Various Industry Sectors and Portfolio Deciles over 1975-1989: Percent Significant	123
11	Individual Serial Correlation of Twelve Lags for the 30 Component Stocks of the NST Industrial Index over 1975-1989: Percent Significant	124
12	Q-Statistic Values of the Ten Deciles based on Log Cash Equivalent Returns over 1975-1989	126



13	Cash Equivalent Returns - Individual Serial Correlation of Various Industry Sectors and Portfolio Deciles over 1975-1989: Percent Significant	127
14	Summary of Regression Parameters on Unit Roots Analysis: 1975-1989	130
15	Summary of Unit Root Regressions on 82 Stocks: 1975-1989	132
16	Beta Values of Portfolio Deciles on the KLSE over 1975-1989	139
17	Market Adjusted ARs around Earnings Announcements on the KLSE over 1975-1989: Sample One	143
18	Market Adjusted ARs around Earnings Announcements on the KLSE over 1975-1989: Sample Two	147
19	Market Adjusted ARs around Dividend Announcements on the KLSE over 1975-1989: Sample One	150
20	Market Adjusted ARs around Dividend Announcements on the KLSE over 1975-1989: Sample Two	154
21	Risk-adjusted ARs around Earnings Announcements on the KLSE over 1975-1989: Sample One	157
22	Risk-adjusted ARs around Earnings Announcements on the KLSE over 1975-1989: Sample Two	160
23	Risk-adjusted ARs around Dividend Announcements on the KLSE over 1975-1989: Sample One	164
24	Risk-adjusted ARs around Dividend Announcements on the KLSE over 1975-1989: Sample Two	167
25	Risk-adjusted ARs (with DFR Correction) around Earnings Announcements on the KLSE over 1975-1989: Sample One	170



26	Risk-adjusted ARs (with DFR Correction) around Earnings Announcements on the KLSE over 1975-1989: Sample Two	174
27	Risk-adjusted ARs (with DFR Correction) around Dividend Announcements on the KLSE over 1975-1989: Sample One	177
28	Risk-adjusted ARs (with DFR Correction) around Dividend Announcements on the KLSE over 1975-1989: Sample Two	180
29	Results of the Wilcoxon Signed-ranks test on ARs of Earnings Increases and Decreases, and Dividend Increases and Decreases	182
30	Results of the Wilcoxon Signed-ranks Test on ARs (with DFR Correction) of Earnings Increases and Decreases, and Dividend Increases and Decreases	183
31	Market Adjusted and Risk-adjusted ARs around "Stock of the Month" Announcements on the KLSE over 1975-1989	191
32	Risk-adjusted ARs (with DFR Correction) around "Stock of the Month" Announcements on the KLSE over 1975-1989	194
33	Individual Serial Correlations of Lag s (s = 1, 2, 12) of the Component Stocks of the NST Industrial Index: 1975-1989	198
34	Individual Serial Correlation Findings of Koo (1983)	199
35	Individual Serial Correlation Results of Hwang and Finn (1983)	199



LIST OF FIGURES

Figure		Page
1	Market Size Relative to Gross National Product and Income between Emerging and Developed Markets: 1987	103
2	Growth in Volume of Trading on the KLSE over 1975-1989	108
3	Log Returns Behaviour of the Least Actively Traded Portfolio (P1)	115
4	Log Returns Behaviour of the Moderately Traded Portfolio (P5)	115
5	Log Returns Behaviour of the Most Actively Traded Portfolio (P10)	116
6	Log Returns Behaviour of the NST Industrial Index	116
7	Market Adjusted CAR around Earnings Announcements on the KLSE over 1975-1989: Sample One	144
8	Market Adjusted CAR around Earnings Announcements on the KLSE over 1975-1989: Sample Two	148
9	Market Adjusted CAR around Dividend Announcements on the KLSE over 1975-1989: Sample One	151
10	Market Adjusted CAR around Dividend Announcements on the KLSE over 1975-1989: Sample Two	155
11	Risk-adjusted CAR around Earnings Announcements on the KLSE over 1975-1989: Sample One	158
12	Risk-adjusted CAR around Earnings Announcements on the KLSE over 1975-1989: Sample Two	161
13	Risk-adjusted CAR around Dividend Announcements on the KLSE over 1975-1989: Sample One	165



14	Risk-adjusted CAR around Dividend Announcements on the KLSE over 1975-1989: Sample Two	168
15	Risk-adjusted CAR with DFR Correction around Earnings Announcements on the KLSE over 1975-1989: Sample One	171
16	Risk-adjusted CAR with DFR Correction around Earnings Announcements on the KLSE over 1975-1989: Sample Two	175
17	Risk-adjusted CAR with DFR Correction around Dividend Announcements on the KLSE over 1975-1989: Sample One	178
18	Risk-adjusted CAR with DFR Correction around Dividend Announcements on the KLSE over 1975-1989: Sample Two	181
19	Market Adjusted and Risk-adjusted CAR around "Stock of the Month" Announcements on the KLSE over 1975-1989	192
20	Risk-adjusted CAR (with DFR Correction) around "Stock of the Month" Announcements on the KLSE over 1975-1989	194
21	Abnormal Returns around Earnings Announcements: 1973-1982 In the Singapore Stock Exchange	203
22	Abnormal Returns around Dividend Announcements: 1973-1982 In the Singapore Stock Exchange	203
23	Risk-adjusted CAR around Earnings Announcements for Australia over 1963-1972 ...	204
24	Risk-adjusted CAR around Dividend Announcements for Australia over 1963-1972 ...	204
25	Risk-adjusted CAR around Earnings Announcements for New Zealand over 1969-1979	205
26	Risk-adjusted CAR around Earnings and Subsequent Dividend Announcements for New Zealand over 1969-1979	205



Abstract of thesis submitted to the Senate of Universiti Pertanian Malaysia in fulfilment of the requirements for the degree of Doctor of Philosophy.

THE EFFICIENT MARKET HYPOTHESIS AND THE THINLY TRADED
KUALA LUMPUR STOCK EXCHANGE: TESTS WITH APPROPRIATE
REFINEMENTS

By

ANNUAR BIN MD NASSIR

December 1991

Supervisor: Mohamad Ariff, Ph.D.

Faculty: Economics and Management

Studies on the Efficient Market Hypothesis (EMH) in both the developed and developing capital markets have revealed mixed evidence. EMH presupposes an ability to detect incorrectly priced securities and profitable arbitraging opportunities which move the market towards efficiency. The early empirical work on developed securities markets purported to provide evidence that securities market prices are unbiased in their reaction to relevant information. This means that investors cannot consistently profit from any delays in price adjustment reflecting new information.



However, evidence from subsequent studies, in the early 1980s, have not reached such consistent conclusion. These studies show anomalous price behaviour in securities markets: among others, size effects, turn of the year effects, week-end effects, etc., which are argued by some as evidence of market inefficiencies.

The Kuala Lumpur Stock Exchange (KLSE) being small and illiquid provides a suitable setting to evaluate the EMH in a thinly traded scenario. In prior studies on market efficiency of the KLSE, no attempt was made to control for market thinness. In order to control for market thinness, ten portfolio deciles of KLSE listed stocks which differ in the degree of market thinness were created. The standardised volume of trading was proxied as a suitable indicator for measuring market thinness.

Three tests were performed to evaluate the weak-form efficiency of the KLSE: (i) Q-statistic which measures the average serial correlations, (ii) individual serial correlations analysis (for 12 lags) and (iii) unit roots analysis.

Test results on six equally-weighted dividend-distributed industry sector portfolios, two existing indices (namely the KLSE Composite Index and the New Straits Times (NST) Industrial Index) and an equally-weighted market portfolio



(R_{mt}) indicate that the KLSE Composite, the NST Industrial and the two industry sectors (hotel and tin sectors) exhibit average serial correlations consistent with weak-form efficiency. Results on the ten portfolios which differ on the degree of market thinness showed that all except three exhibit average serial correlations consistent with weak-form efficiency. For individual serial correlation results, 90 percent of the 30 component stocks of the NST Industrial Index showed price behaviour consistent with random walk or weak-form efficiency.

A unit root test was applied using a sample of stocks from each of the ten portfolio deciles. The Dickey-Fuller test of significance suggested that current prices are the best estimates of future prices. An average of 87 percent of the current price behaviour is explained by the immediate price lag variable.

To evaluate the semi-strong form efficiency, an infrequently traded sample (Sample One) and a frequently traded sample (Sample Two) of annual earnings and dividend changes were used to study price reactions to information arrival. Three methods were used to estimate the residual returns: the market adjusted returns, the risk-adjusted returns and the risk-adjusted returns incorporating the Dimson, Fowler and Rorke (DFR) corrections for thin trading bias.



The findings suggests that (i) earnings and dividend announcements contain information relevant for security pricing and (ii) the market anticipates the information contained in these announcements three to four months before the actual announcement. There were, occasionally, significant post-announcement residuals which may be interpreted as pockets of market inefficiencies: this is generally true for the infrequently traded sample (Sample One).

To complete the previous investigation, an attempt was made to evaluate the strong-form efficiency of the KLSE using sample of "stock of the month" recommendations. The results appear to support the notion that the market is strong-form inefficient.

The overall findings of this study are not inconsistent with the weak-form and semi-strong form EMH especially for actively traded portfolios (stocks). There is evidence of inefficiencies in the thinly traded portfolios (stocks) at the margin. Further work is needed to disentangle the reward for delayed immediacy in the pricing of thinly traded stocks. However, the evidence of strong-form inefficiency is pronounced.



Abstrak tesis yang dikemukakan kepada Senat Universiti Pertanian Malaysia sebagai memenuhi syarat untuk Ijazah Doktor Falsafah.

HIPOTESIS PASARAN CEKAP DAN BURSA SAHAM
KUALA LUMPUR YANG BERDAGANGAN RENDAH: PELBAGAI UJIAN
DENGAN KEHALUSAN YANG SESUAI

Oleh

ANNUAR BIN MD NASSIR

December 1991

Penyelia: Mohamad Ariff, Ph.D.

Fakulti: Ekonomi dan Pengurusan

Kajian terhadap Hipotesis Pasaran Cepak (HPC) di negara maju dan negara sedang membangun menunjukkan bukti yang bercampur-campur. HPC mengandaikan kebolehan mengenalpasti harga sekuriti yang tidak menggambarkan nilai sebenar dan peluang-peluang memperolehi keuntungan melalui arbitraj yang mana menggerakkan pasaran menjadi cekap. Kajian-kajian awal di pasaran saham negara-negara membangun mengukuhkan pandangan bahawa harga pasaran sekuriti bergerak tanpa bias mengikut kesesuaian maklumat. Ini bermakna para pelabur tidak berpeluang mengaut keuntungan secara tekal dari kelambatan tindakbalas harga sekuriti terhadap maklumat semasa.

Walau bagaimanapun, kajian-kajian berikutnya, terutama di awal 1980an, mendapati bukti-bukti sebaliknya. Kajian-kajian



ini menunjukkan gelagat "anomali" dalam pasaran sekuriti seperti kesan saiz, kesan hujung tahun, kesan mingguan dan sebagainya, yang telah dimajukan oleh setengah penyelidik sebagai bukti bahawa pasaran adalah tidak cekap.

Pasaran Saham Kuala Lumpur yang bersaiz kecil dan mempunyai tahap kecairan yang rendah, mewujudkan ruang yang sesuai untuk menguji HPC dalam suasana dagangan yang tipis. Dalam kajian-kajian lepas mengenai kecekapan pasaran Pasaran Saham Kuala Lumpur, metodologi untuk mengawal ketipisan pasaran tidak diambilkira. Untuk mengawal masalah ketipisan pasaran ini, sepuluh decile portfolio yang mempunyai darjah ketipisan pasaran yang berbeza telah dibentuk. Jumlah saham yang didagangkan menjadi proksi ketipisan dagangan.

Tiga ujian telah dijalankan untuk menguji hipotesis pasaran cekap dalam bentuk lemah: (i) Statistik-Q yang mengukur purata korelasi, (ii) korelasi individu (12 lags), dan (iii) analisis "unit root". Keputusan ujian terhadap enam portfolio sektoran, dua indeks pasaran (Indeks Composite KLSE dan Indeks Perusahaan New Strait Times, NST) dan satu portfolio pasaran (R_{mt}) menunjukkan Indeks Composite KLSE, Indeks Perusahaan NST dan dua portfolio sektoran (hotel dan tin) mempunyai ciri-ciri purata korelasi bertekalan dengan HPC dalam bentuk lemah. Sementara keputusan ujian sepuluh decile portfolio menunjukkan tujuh decile portfolio mencerminkan ciri-ciri purata korelasi



yang menyokong HPC dalam bentuk lemah. Keputusan korelasi individu 30 saham komponen Indeks Perusahaan NST menunjukkan 90 peratus saham mempunyai gelagat harga bertekalan dengan teori "perjalanan rambang" atau kecekapan pasaran dalam bentuk lemah.

Analisis "unit root" telah dilakukan terhadap sampel saham dari setiap decile portfolio. Ujian keberkesanan Dickey-Fuller menunjukkan bahawa harga semasa adalah anggaran terbaik harga di masa hadapan. Secara puratanya, 87 peratus gelagat harga semasa dihuraikan oleh variabel terdekat lag harga.

Untuk menguji HPC dalam bentuk separuh kuat, dua sampel iaitu sampel perubahan pendapatan dan dividen akhir tahun yang berdagangan lemah (Sampel Satu) dan yang berdagangan cergas (Sampel Dua) telah digunakan untuk mengkaji tindakbalas harga sekuriti terhadap maklumat yang relevan. Tiga kaedah digunakan untuk menganggarkan pulangan residual: pulangan pasaran terlaras, pulangan risiko terlaras dan pulangan risiko terlaras yang mengambil kira pembedaan Dimson, Fowler dan Rorke (DFR) untuk bias dagangan tipis.

Hasil kajian menunjukkan bahawa (i) pengumuman pendapatan dan dividen akhir tahun mengandungi maklumat-maklumat relevan untuk penentuan harga sekuriti, dan (ii) pasaran telah menjangka maklumat-maklumat yang terkandung dalam pengumuman

pendapatan dan dividen tiga atau empat bulan sebelum pengumuman maklumat-maklumat tersebut. Terdapat pulangan residual yang signifikan yang boleh diinterpretasikan sebagai bukti bahawa pasaran adalah tidak cekap: pengamatan ini adalah benar untuk sampel saham yang berdagangan lemah (Sampel Satu).

Satu analisis tambahan telah dibuat untuk menilai HPC dalam bentuk kuat di Pasaran Saham Kuala Lumpur dengan menggunakan "saham bulanan terpilih" sebagai sampel untuk tujuan ini. Keputusan ujian menunjukkan bahawa Pasaran Saham Kuala Lumpur adalah tidak cekap dalam bentuk kuat.

Keputusan menyeluruh kajian ini membuktikan bahawa Pasaran Saham Kuala Lumpur adalah cekap dalam bentuk lemah dan separuh kuat terutamanya untuk portfolio (saham) yang berdagangan cergas. Terdapat juga bukti yang menunjukkan pasaran tidak cekap terutamanya untuk portfolio (saham) yang berdagangan lemah. Kajian lanjut diperlukan untuk memahami kelewatan tindakbalas harga terhadap maklumat dalam penentuan harga saham-saham yang berdagangan lemah. Bukti ketidakcekan pasaran dalam bentuk kuat adalah kukuh.



CHAPTER I

OBJECTIVES AND BACKGROUND

Research Problem Definition

Two decades have passed since the term "efficient market" was first coined in the financial economics literature. The term efficient market was first used in the context of Efficient Market Hypothesis (EMH) by Fama, Fisher, Jensen and Roll (1969, p. 1), where it was defined as a market that adjusts rapidly to new information. Prior to that Fama (1965) proposed the EMH in some details. The idea of random walk, which preceeded EMH, is attributed to Bachelier (1900).

The idea has stimulated interest and controversy, agreement and, lately, some disagreement among both researchers and practitioners in the field of finance and economics. Over the years, a rich body of literature has grown documenting the general validity of EMH particularly in several developed securities markets of the world. As Fama (1970, p. 416) pointed out:

the evidence in support of the efficient market models is extensive, and (somewhat uniquely in economics) contradictory evidence is sparse.

This study is concerned with examining the efficiency of a developing capital market namely, the Kuala Lumpur Stock



Exchange. It will be fruitful to examine the status of the theory before defining the research objectives.

The early empirical works which provide evidence that securities market prices are unbiased in their reaction to relevant information was seen as the consequence of rational investor behaviour of wealth maximising in competitive markets. In a well-functioning market, the prices of stocks will reflect unbiased predictions based on all relevant and available information. It is generally believed that stock market, being intensely competitive in nature, is efficiently priced both in the weak-form sense and semi-strong sense: Fama, op. cit.

However, findings from subsequent studies have not reached such consistent conclusion, (although at the same time, evidence supporting EMH, is continually documented). For example, evidence of "anomalous" return behaviour is now widespread: size effects, turn of the year effects, low price earning (P/E) ratio effects, Value Line phenomenon, week-end effects, among other voluminous evidence of market idiosyncracies (for an excellent elucidation of stock market seasonalities, see Ariff and Johnson, 1990).

However, Officer (1975, p. 31) and Ball and Brown (1978, p. 1) asserted that the presence of a seasonal behaviour in stock prices is not in itself a sufficient condition for



rejecting the EMH. A more likely explanation is related to the structure of the economy, for example, changing opportunity costs of money through the year: the assumption of constant returns over all time period is not a necessary condition of capital market equilibrium.

Jensen (1978, p. 95), in an introductory comment:

I believe there is no other proposition in economics which has more solid empirical evidence supporting it than the EMH. It is evidence which we will not be able to ignore.

Ball (1989, p. 27) anticipates:

I expect many (though certainly not all) of the anomalies ("inefficiencies") to be resolved in favour of efficiency.

Based upon these commentary and the evidence to-date (to be discussed at a later stage) it is therefore premature to reject EMH based purely on empirical issues raised by the persistent anomalous stock return behaviour documented in the 1980s. Furthermore as Ball (1989) noted the evidence of apparent inefficiency is uncomplicated and readily discernible to investors, implying a relatively disingenuous use of information.

There are various reasons why market efficiency should hold. First, stock markets must rank highly among markets on a priori likelihood of being competitive: there are no

serious entry barriers, there are many buyers and sellers, and transaction costs are low and continues to get lower. Second, since tests of efficiency implicitly or explicitly involve test of efficiency as modelled by a particular equilibrium price behaviour, it seems more likely that failure to document efficiency might be prejudiced by failure in asset pricing model itself. As Ball (1978a, p. 111) raised: "The hypothesis is that: (i) the two parameter model when applied to a portfolio of common stocks, misspecified the process generating securities' yields in equilibrium." Strictly speaking, tests of market efficiency are joint tests of the hypothesis and the price-generating model assumed in the tests.

Third, there is a solid body of empirical work documenting the general validity of EMH and qualified interpretation of market "inefficiencies" (in view of the reluctance to totally reject the notion of market efficiency especially among academic researchers and to a lesser extent among practitioners). Fourth, the existence of a powerful and irreversible tendency for market's efficiency to increase over time rather than to diminish that is, markets will learn from experience (see, for example, Dawson, 1984b). Most tests of EMH, generally conform to expectations in the developed stock markets, characterised by among others, active trading, large turnover, large number of utility maximising investors, no