

# Assumptions and forms of emh finance essay



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The subject of efficient market hypothesis is more deliberated and discussed in available studies, but there is no special focus on the EMH form existing in Gulf area, by these means, this study analyses and evaluates the applicability of this model in some selected countries in Gulf area and how it would affect the decisions regarding the financial issues.

This chapter proposes the outlines of how the subject is going to be investigated and (ii) gives an introductory overview about the topic that is being probed.

At first, the motive of the study is declared and the framework is outlined, so as for the need and purpose of the study; then the research questions are proposed and stated. This section also contains a brief description about the participants which the study comprises. Secondly, the outcomes of the initial review of literature are appointed to form a base for the research questions. Thirdly, the rationalization for the used research approaches is stated, and then the methodology is justified and supported by evidential test that provides validation for the chosen methods.

This section also determines the suggested scheme for chapters 2, 3, 4, and 5. And in the final section, the outcomes of this study will be displayed, and the benefits will be discusses in details for each beneficiary.

## **Subject And Objectives**

The EMH topic fascinates the researcher, and relating the EMH concept to corporate finance through examination of markets can help improve the efficiencies within corporate world as well as increase investors wealth and decision taking. The primary objective of this study is to examine the form of

EMH is available in the selected markets which would contribute in guiding these firms in implementing good corporate practices and making these reforms feasible and appropriate, and to identify to what extent EMH constitutes a good approach for financial practices in KSA, UAE, and Kuwait.

While this dissertation aims to study which form of EMH does the selected markets undertake, it doesn't take the burden to prove the accuracy of EMH. After determining which forms of EMH, the benefits to both the investors and corporations interested in the selected markets are huge. It enables the investors to examine if possibility of abnormal earnings exists, while enabling the management to choose wisely its accounting choices, financial choices, and timing decision.

The data for this dissertation is highly accessible. It can be easily retrieved from stock indexes of the selected countries. The dissertation aims to examine stock prices changes covering the last 5 years with data retrieved from Tadawul, ADX, Central Bank, and KSE. This data will then be compared with major economic and company specific events. These events can be retrieved from company's announcement, country's economic reports, newspapers, and specialized financial reports.

Specific research questions include:

What types of information are available in the selected markets? Are they only historical, publicly available, or private/public information?

To what extent the stock prices in the selected markets reflect the available information?

Which forms of EMH do these markets exhibit?

What are the implications for corporate finance associated with these forms which these markets demonstrate (accounting choices, financial choices, and timing decisions)?

Answering research questions provided a general guideline for these groups. In an efficient market, there possibility of abnormal earnings is very minimal, and management can't time their decisions in a manner that affect price stocks greatly. This is the contrast of weak form of EMH, where the possibility of abnormal earnings is high, and management can influence stock prices by timing their decisions.

## **Preliminary Research**

Fama (1970) pioneered the Efficient Market Hypothesis (EMH) by stating that the markets are as efficient as the quantity and quality of information revealed by corporations. He categorized the markets into three forms depending on “ whether prices at any point in time “ fully reflect” available information” (Fama, 1970, p. 414). The strong form, while only theoretical, suggests that all information is available for investors, thus eliminating the possibility of abnormal earnings. The semi-strong form proposes that prices reflect all publicly available information, while the weak form implies that only historical information is reflected in the price.

Nowadays, no market is isolated from another. Investors, while acknowledging the risks associated with foreign trade, seek cross-border investments to increase their profits, especially if such investments may result in abnormal earnings.

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However, international investors must understand the behavior of these markets before diversifying their portfolios into intentional ones (TaÅŸ and TokmakçioÄŸlu, 2010). Similarly, firms operating in such markets can judge the fairness of their securities value based on the market form (Ross, Westerfield, and Jaffe, 2010).

Ross et al (2010) also suggest that market efficiency will impact accounting choices, financial choices, and the timing decisions in the world of corporate finance. In addition, policy makers can benefit greatly from identifying the efficiency of markets, enabling them to better remodel legislations that can attract capital.

This dissertation will focus mainly on three emerging markets: United Arab Emirates (UAE), Kingdom of Saudi Arabia (KSA), and Kuwait. Sabal (2002) provided general characteristics of emerging markets attributes such as uneven wealth distribution, unstable economic and political conditions, and a great portion of uneducated population. While the three countries don't exhibit all the characteristics described by Sabal (2002), they share some of these characteristics, labeling them as having emerging markets. For the purpose of this dissertation, stocks prices of publically listed banks and financial services providers in the three countries will be examined using information retrieved from Tadawul (Saudi Stock Exchange), Abu Dhabi Securities Exchange (ADX), Central Bank of UAE, and Kuwait Exchange (KSE).

Very few researchers have examined EMH in emerging markets (For example Kawakatsu and Morey, 1999, Chaudhuri and Wu, 2003, Chaudhuri and Wu,

2004). Yet the literature on EMH is enormous, containing both supportive and contradictive findings.

## **Methodology**

The sample covered 30 listed banks and financial service providers; 10 banks in KSA, 7 banks in UAE, and 13 banks in Kuwait.

Collection of data covering a time span of 5 years went through two major phases. The first included changes in stock prices of the selected sample. The second include factors that might affect stock price and are classified in three general categories. The first category will contrast the changes to country specific conditions such as economic changes, political/legal changes, and degree of relation to international markets. The second category contrast the changes in stock prices with company specific conditions such as management financial announcements regarding dividends and profit/loss, and decision making announcements such as retirement or firing of major key players inside the firms (Chairman, CEO). Some other variables are considered such as shocks to reputation and effect of competitors announcements.

Moreover, the impact of other factors has been investigated such as the laws set by the markets, then the country variables that constituted of inflation, interest and exchange rates. In addition, the data gathered included the time span between the factor occurrence and change in price.

The data is then run using SPSS software, which the researcher is very familiar with. Multiple regression analysis is then used to enable the author to examine if a relation exists between the change in stock price and the

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selected factors, which are the country variables (Inflation, Interest, and exchange rates).

The results of the statistical analysis will then be used to prove or reject the alternative hypothesis (ses). If a relation is established between the factors, it will imply that EMH holds in the selected markets. The time intervals between the factors occurrence and the change in stock price will then indicate how efficient the markets are

The statistical analysis included Descriptive Statistics, which include the numbers, tables, charts, and graphs used to describe, organize, summarize, and present raw data, and then multiple regression analysis is performed to determine the most influential factors in the results.

## **Outline For Following Chapters**

Chapter 2 usually summarizes relevant literature in the introduction to research reports. The review provides readers with a background for understanding and knowledge about a topic and illuminates the significance for the study which helps in determining the similarities and differences.

General information on EMH is included in the literature review but the focus throughout will be on establishing the characteristics of different forms of EMH, as identified by studies that have been conducted locally and internationally. Literature Review provided readers with the needed knowledge and information about EMH, the review is based on reliable resources and academic researches.

Chapter 3 illustrates the quantitative approach findings; it includes the statistical analysis that is performed to identify the results of the survey that consisted of the questionnaires. It represents the study's findings and the statistical analysis results. This analysis provided the researcher with the data that is interpreted and prepared to evaluate the suggested hypotheses.

Chapter 5 is the discussions of the results; it reviews the theoretical hypotheses, and evaluates the compatibility of these hypotheses to the selected countries context. The findings of the analysis are used to evaluate the certainty or the rejection of the suggested hypotheses. Conclusions are made based on analysis which helped in formulating the general concept about the EMH model and how effective it is in the selected markets. The analysis of the hypotheses helped in identifying the research questions that are the researcher main concern.

## **Outcomes**

The proposed research will have benefits for these principle beneficiaries, namely the author or researcher, the academic community, Professional Associations, Trainers and Developers, Managers and Organizations, and Policy Makers and Regulators:

The author or researcher: As an educator, the study will help in developing better comprehensive ideas about efficient market hypothesis, and to what extent it is needed, and how EMH is affected by different variables and factors.

The Academic Community: The research will add to the poor studies and researches base about EMH in KSA, UAE, and Kuwait markets and will also

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add to the available literature. The research could also work as a reference to future researches about this subject or any of its elements.

**Professional Associations, Trainers and Developers:** There is a scarcity of research concerning the effects of many factors on EMH and what type of EMH exists in the selected countries. Therefore, this study will be valuable to educationists, course administrators, and other researchers who work on related fields.

**Managers and Organizations:** Create awareness about the important of identifying the form of EMH that their markets endorse, eventually, the results of this study might make corporate decision-makers become more aware of the use of EMH as a financial tool.

**Policy Makers and Regulators:** The research will guide them about the context concerning the prospects that may encounter in case EMH tool is applied in the selected countries.

## **REVIEW OF THE LITERATURE**

This chapter aims to give a general review of the literature on the effect of EMH on the financial markets more specifically on banks. This section includes a theoretical background of EMH, it explores it by including its definitions and essential elements, and it also provides some reviews of literature conducted on the investigated subject.

### **Introduction**

A market is said to be efficient with respect to an information set if the price ‘fully reflects’ that information set, i. e. if the price would be unaffected by

revealing the information set to all market participants. The efficient market hypothesis (EMH) asserts that financial markets are efficient. On the one hand, the definitional 'fully' is an exacting requirement, suggesting that no real market could ever be efficient, implying that the EMH is almost certainly false (Fama, 1970).

On the other hand, economics is a social science, and a hypothesis that is asymptotically true puts the EMH in contention for one of the strongest hypotheses in the whole of the social sciences. Besides, science concerns seeking the best hypothesis, and until a flawed hypothesis is replaced by a better hypothesis, criticism is of limited value.

There are always incentives and motives to develop a market that enables buyers and sellers to discover information and to elaborate a social arrangement to allow them to carry out a voluntary exchange more efficiently. The securities markets tend to be the largest and best organized markets in the world. The concept 'efficient market' was at first used to the stock market, but the term was soon generalized to other asset markets (Tabak, 2003).

An efficient portfolio is one with the highest expected return for a given level of risk. An efficient market is one in which information is rapidly disseminated and reflected in prices (Mishkin, 1997).

The EMH has been the central proposition of finance since the early 1970s and is one of the most controversial and well-studied propositions in all the social sciences (Smith and Ryoo, 2003). Efficient market concept has been applied in an extensive way to theoretical models and empirical studies of

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financial securities prices, creating significant controversy, additionally to fundamental insights into the price-discovery process (Lo, 2007).

As quoted by Andrew Lo (2007): “ The most enduring critique comes from psychologists and behavioral economists who argue that the EMH is based on counterfactual assumptions regarding human behavior, that is, rationality. Recent advances in evolutionary psychology and the cognitive neurosciences may be able to reconcile the EMH with behavioral anomalies.” A decade after the EMH idea has been generated, many people extended their framework to allow for risk-averse investors, resulting in a ‘ neoclassical’ version of the EMH where price changes, properly weighted by aggregate marginal utilities, must be unforecastable (LeRoy, 1973; M. Rubinstein, 1976; and Lucas, 1978).

Given all of the theoretical and empirical evidence for and against the EMH, there is still no consensus among economists. Despite progress in the statistical analysis, databases, and theoretical models surrounding the EMH, the main result of all of these studies is to harden the resolve of the proponents of each side of the debate (Lo, 2007).

## **Definition**

Information in the Efficient Market Hypothesis is defined as anything that may affect prices that is unknowable in the present and appears at random in the future. EMH indicates that it is not possible to always outperform the market by using any information that the market already knows, except through luck (Fama and French, 1992).

EMH affirms that financial markets are informationally efficient, and that the prices on stocks, bonds, or property already reflect all known information, therefore are unbiased in the sense that they reproduce the common beliefs of all investors about future forecasts (Fama, 1970). The term 'efficient market' was first introduced into the literature by Fama in 1965, then it was followed by many subsequent definitions, the following quote illustrate one of these definitions:

Fama (Sep.-Oct. 1965) in Random walks in stock market prices: ' An "efficient" market is defined as a market where there are large numbers of rational, profit-maximizers actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants.'

## **History**

The term " Efficient market hypothesis" (EMH) was developed by Professor Eugene Fama at the University of Chicago Graduate School of Business as an academic concept of study through his published Ph. D. thesis in the early 1960s. Chronological reviews and researches related to EMH started since the 16th century, table 2. 1 resumes the evolving of EMH in the literature from year 1565 until year 1997, showing different outcomes and findings and conclusions made by these researchers throughout different period of time, which formulated the EMH concept. And after reviewing this table, we can notice that approximately half of the papers reviewed support market efficiency, with most of the attacks on the EMH coming in the 1980s and 1990s.

Since the first introduction of “ efficient market” term, there have been many empirical researches that contributed in the evolution and formulation of the efficient market hypothesis, as it was tested in different situations and circumstances using different variables, and implying different outcomes, which created some controversial debates and arguments which either supported or rejected the validity of the hypotheses. The following, will show how EMH evolved through literature (Sewell, 2011):

Fama defined an “ efficient” market for the first time in 1965, in his empirical analysis of stock market prices that concluded that they follow a random walk. In the same year, Samuelson provided the first formal economic argument for “ efficient markets”. In the following two years, Harry Roberts coined the term “ efficient markets hypothesis” and made the distinction between weak and strong form tests, which became the classic taxonomy in Fama (1970). Fama, Fisher, Jensen and Roll undertook the first ever event study in 1969, and their results lend considerable support to the conclusion that the stock market is efficient.

Eugene F. Fama’s definitive paper on the efficient markets hypothesis, in 1970, defined an efficient market as a market in which prices always “ fully reflect” available information is called “ efficient”. Two years later, Scholes studied the price effects of secondary offerings and found that the market is efficient, except for some indication of post-event price drift. In 1978, Jensen announced that there is no other proposition in economics which has more solid empirical evidence supporting it than the Efficient Market Hypothesis. While Ball wrote, in the same year, a survey paper which revealed consistent excess returns after public announcements of firms’ earnings.

LeRoy and Porter's research, in 1980, showed excess volatility and market efficiency is rejected. While Stiglitz showed that even with apparently competitive and "efficient" markets, resource allocations may not be Pareto efficient. Werner F. M. DeBondt and Richard Thaler discovered, in 1985, that stock prices overreact; evidencing substantial weak form market inefficiencies: This paper marked the start of behavioral finance. The following year, Lawrence H. Summers argued that many statistical tests of market efficiency have very low power in discriminating against plausible forms of inefficiency. Shiller published "Market Volatility" in 1989, which was a book about the sources of volatility which challenges the EMH.

In 1990, Laffont and Maskin showed that the efficient market hypothesis may well fail if there is imperfect competition. In the same year, Lehmann found reversals in weekly security returns and rejects the efficient markets hypothesis. After two years, Chopra, Lakonishok and Ritter found that stocks overreact. In the same year, Malkiel's essay "Efficient Market Hypothesis" is in the New Palgrave Dictionary of Money and Finance.

In 1994, Roll observed that in practice it is hard to profit from even the strongest market inefficiencies. While, Metcalf and Malkiel found that portfolios of stocks chosen by experts do not consistently beat the market. Then in 1995, Haugen published the book "The New Finance: The Case Against Efficient Markets", which emphasized that short-run overreaction may lead to long-term reversals. A year later, Chan, Jegadeesh and Lakonishok look at momentum strategies and their results suggested a market that responds only gradually to new information. And in 1997,

Andrew Lo edited two volumes that brought together the most influential articles on the EMH.

## **Assumptions And Forms of EMH**

Beyond the normal utility maximizing agents, the efficient market hypothesis requires that agents have rational expectations whenever new significant information appears; the agents must update their expectations properly (Sewell, 2011).

EMH points out that some investors when faced with new information may over-react and some may under-react. EMH requires that investors' reactions should be random and follow a normal distribution pattern so that the net effect on market prices cannot be reliably broken to make an abnormal profit, especially when considering transaction costs, including commissions and spreads. Thus, anyone can be wrong about the market but the market as a whole is always right (Blakey, 2006).

There are three common forms in which the efficient market hypothesis is commonly stated, and they are: weak form efficiency, semi-strong-form efficiency, and strong-form efficiency, each of which has different implications for how markets work.

### **Weak-Form Efficiency**

Weak-form EMH is a shot aimed directly at technical analysis. If past stock prices don't help to predict future prices, there's no point in looking at them. Most academic studies tend to show that weak-form EMH holds up pretty well (Pistor, 2003).

As stated, in the weak-form EMH, the price reflects all information contained in market trading data (past prices, volume, dividends, interest rates, etc.).

Therefore, an investor cannot use past prices to identify mispriced securities (Pistor, 2003).

The technical analysis for Weak-form EMH refers to the practice of using past patterns in stock prices and trades to identify future patterns in prices.

A form of the theory that suggests you can't beat the market by knowing past prices. Distinctive features are (Hagin, 1979):

No excess returns can be earned by using investment strategies based on historical share prices or other financial data.

Weak-form efficiency implies that technical analysis techniques will not be able to consistently produce excess returns, though some forms of fundamental analysis may still provide excess returns.

In a weak-form efficient market current share prices are the best, unbiased, estimate of the value of the security. Theoretical in nature, weak form efficiency advocates assert that fundamental analysis can be used to identify stocks that are undervalued and overvalued. Therefore, keen investors looking for profitable companies can earn profits by researching financial statements.

## **Semi-Strong Form Efficiency**

Perhaps the most controversial form of the theory, it suggests you can't consistently beat the market using publicly available information. That is,



you can't win knowing what everyone else knows – annual reports etc. Most distinctive features are:

Share prices adjust within an arbitrarily small but finite amount of time and in an unbiased fashion to publicly available new information, so that no excess returns can be earned by trading on that information.

Semi-strong form efficiency implies that fundamental analysis techniques will not be able to reliably produce excess returns.

To test for semi-strong form efficiency, the adjustments to previously unknown news must be of a reasonable size and must be instantaneous. To test for this, consistent upward or downward adjustments after the initial change must be looked for. If there are any such adjustments it would suggest that investors had interpreted the information in a biased fashion and hence in an inefficient manner.

Semi-strong EMH is a shot aimed at fundamental analysis. If all published information is already reflected in a stock's price, then there's nothing to be gained from looking at financial statements or from paying somebody (i. e., a fund manager) to do that for you (Pistor, 2003).

Semi-strong EMH has also held up reasonably well. For example, the number of active fund managers who outperform the market has historically been no more than can be easily attributed to pure randomness. The Fundamental analysis refers to the practice of using financial statements, announcements, and other publicly available information about firms to pick stocks (Pistor, 2003).

The trick, of course, is that it's nearly impossible to identify such an investor in time to profit from it. You must either (Hagin, 1979):

Invest with a fund manager after only a few years of outperformance (at which point his/her performance could easily be due to luck), or

Wait until the manager has provided enough data so that you can be sure that his performance is due to skill (at which point his fund will be sufficiently large that he'll have trouble outperforming in the future).

Let's consider the following example:

### **Market reaction to public announcement:**

Stock XYZ Mining closed yesterday at 100.

Morning paper reports: XYZ Mining has larger than expected reserves (extra value = \$10 per share).

Suppose this estimate is unanimously and immediately deemed valid and accurate.

Stock jumps to 110 immediately at the open. (More likely 109.9 bid, 110.1 offered.)

No trading is needed.

News report "XYZ climbed to 110 today on announcement of a new gold mine."

Suppose XYZ Mining stock only jumps to 104:

Report might be suspicious (“XYZ known to exaggerate”).

But if we deem the information reliable:

– A price of 104 for XYZ does not accurately reflect all the available information.

– We can make trading profits by buying XYZ at 104 and holding until:

a. The market realizes we’re right, or

b. XYZ pays out (in dividends or distributions) the value of the reserves.

– Semi-strong efficiency is violated in the senses that 104 does not fully reflect the new information. We can make trading profits.

## **Strong-form Efficiency**

The strong form of EMH says that everything that is knowable, even unpublished information has already been reflected in present prices. The implication here would be that even if you have some inside information and could legally trade based upon it, you would gain nothing by doing so (Pistor, 2003).

The form of the theory that states no information of any kind can be used to beat the market. Evidence shows this form does not hold. Features of this form are (Hagin, 1979):

Share prices reflect all information and no one can earn excess returns.

If there are legal barriers to private information becoming public, as with insider trading laws, strong-form efficiency is impossible, except in the case

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where the laws are universally ignored. Studies on the U. S. stock market have shown that people do trade on inside information.

To test for strong form efficiency, a market needs to exist where investors cannot consistently earn excess returns over a long period of time. Even if some money managers are consistently observed to beat the market, no refutation even of strong-form efficiency follows: with tens of thousands of fund managers worldwide, even a normal distribution of returns (as efficiency predicts) should be expected to produce a few dozen “ star” performers.

In Strong-Form EMH, All Private Information is reflected; private Information is information that you hold that is not reflected in the market price. There are two types of Private Information (Pistor, 2003):

a. “ Inside information” is an info that is known to company management but not yet made public.

- Knowledge of an impending takeover bid.

- Knowledge that earnings are going to be lower than the street expects.

b. A private assessment based on public information.

- An analyst’s report based on public accounting statements.

Let’s assume this example:

## **Private information can be impounded into the security price via reported trades.**

Stock XYZ Mining closed yesterday at 100.

Opening quotes today are 99.9 bid; 100.1 offered.

We overhear two geologists talking on the subway:

“ XYZ Mining has larger than expected reserves (extra value = \$10 per share).”

We begin to buy at the ask (100.1):

- Quotes revised to 100 bid, 100.2 offered.

- We buy more at 100.2.

- Quotes revised to 100.1 bid, 100.3 offered.

We will stop buying only when the price reaches 110.

Market price will be 110, reflecting the private information.

Market reaction is not driven directly by the private info, but instead by the related buying.

Trader profits at the expense of other market participants, those who have exposed offers, either dealers or limit-order traders.

The Qualifications that should be looked for are:

Timing of trades unclear (all at once? spread out over time?)

If more than one trader gets the info, most of the profits accrue to the one who trades first.

Trader might be capital-constrained (might not have enough cash to buy all the stock that is offered below 110).

## **Arguments Concerning The Validity of The Hypothesis**

Some Common Misconceptions about the EMH are (Beechey, Gruen and Vickrey, 2000):

Market efficiency does not mean it doesn't make a difference how you invest, since the risk/return trade-off still applies, but rather that you can't expect to consistently "beat the market" on a risk-adjusted basis using costless trading strategies.

Stock price fluctuations are evidence that the market is efficient since new information is constantly arriving – prices that don't change are evidence of inefficiency. The EMH doesn't say prices are random, but that price changes in an efficient market are random and independent. That is, they can't be predicted before they happen.

Some technical analysts argue investors overreact to good and bad news. Advice is to buy on bad news and sell on good news. This implies that returns should exhibit negative serial dependence because price reversals are more likely than continuances of price changes (DeBondt, Werner and Richard, 1985).

Some observers dispute the notion that markets behave consistently with the efficient market hypothesis, especially in its stronger forms. Some

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economists, mathematicians and market practitioners cannot believe that man-made markets are strong-form efficient when there are reasons for inefficiency including the slow diffusion of information, the relatively great power of some market participants (e. g. financial institutions), and the existence of apparently sophisticated professional investors. The way that markets react to surprising news is perhaps the most visible flaw in the efficient market hypothesis. For example, news events such as surprise interest rate changes from central banks are not instantaneously taken account of in stock prices, but rather cause sustained movement of pr