

Excerpt from Robert Hagin, *Modern Portfolio Theory*, Dow Jones-Irwin, 1979, pp. 11-13 & 89-91

Chapter 2: Forms Of The Efficient Market Hypothesis

An *efficient capital market* is an arena in which many participants, with similar investment objectives and access to the same information, actively compete. The stock market—with numerous profit-motivated professional and private investors continually searching for misvalued securities—certainly provides such a setting. Profit-motivated investors do have strikingly similar objectives. Each prefers a high rate of return to a low one, certainty to uncertainty, low risk to high risk, and so forth. Furthermore, securities law provides that both parties to a transaction must have access to the same material facts.

The efficient market hypothesis asserts that it would be impossible consistently to outperform the market—which reflects the composite judgment of millions of participants—in an environment characterized by many competing investors, each with similar objectives and equal access to the same information. In the context of this hypothesis, “efficient” means that the market is capable of quickly digesting new information on the economy, an industry, or the value of an enterprise and accurately impounding it into securities prices. In such markets participants can expect to earn no more, nor less, than a fair return for the risks undertaken.

In an efficient market, for example, news of an earnings increase would be quickly and accurately assessed by the combined actions of literally millions of investors and immediately reflected in the price of the stock. The purported result of this efficiency is that whether you buy the stock before, during, or after the earnings news, or whether another stock is purchased, only a fair market rate of return can be expected—commensurate with the risk of owning whatever security is bought.

THE FORMS OF THE EFFICIENT MARKET HYPOTHESIS

The efficient market hypothesis does not by any means deny the profitability of investing. It merely states that the rewards obtainable from investing in highly competitive markets will be fair, on the average, for the risks involved. Importantly, however, the three forms of the efficient market hypothesis hold that acting on publicly available information cannot improve one’s performance beyond the market’s assessment of a fair rate of return.

The weak form of the efficient market hypothesis describes a market in which historical price data are efficiently digested and, therefore, are useless for predicting subsequent stock price changes. This is distinguished from a semistrong form under which all publicly available information is assumed to be fully discounted in current securities prices. Finally, the strong form describes a market in which not even those with privileged information can obtain superior investment results.

If the stock market efficiently digests all available information, as the progressively stronger forms of the hypothesis imply, there is little justification for seeking extraordinary gains from investing. However, this does not lessen the importance of investing. It merely changes the underlying investment philosophy of a prudent and knowledgeable investor from that of trying to beat the other person to one of seeking a rate of return that is consistent with the level of risk accepted.

Thus, rather than being the all-encompassing specter of gloom which some people assume it to be, the efficient market hypothesis in its various forms provides a useful benchmark. From its perspective, researchers can determine how “efficiently” or “inefficiently” information is processed. It is thus possible to scrutinize the market’s ability to impound various kinds of information into securities prices. Most importantly, if research can determine which information is efficiently processed, investors can avoid analyzing this useless, fully discounted information—the first step in the successful and prudent application of MPT techniques!

TWO USEFUL ASSOCIATIONS

The following chapters in Part One review the conclusions of the many tests of the three forms of the efficient market hypothesis (weak, semistrong, and strong). However, before these findings are presented, it should prove useful to discuss the association between two forms of the efficient market hypothesis and two popular (although highly suspect) approaches to investment analysis—fundamental and technical.

Fundamental investment analysts base their predictions of stock price behavior on factors which are “fundamental” or internal to a company, its industry, or the economy (for example earnings’ products, management, competition, consumer spending, and so on). A market fundamentalist might issue a purchase recommendation for a company which has consistently shown year-to-year earnings increases and is in an industry that he or she believes will grow faster than the economy.

Technical analysts, by contrast, hold that all such fundamental factors are reflected in the market behavior of the stock. Thus, to a pure technician, all data of importance are internal to the stock market, and future stock-price movements can be predicted from the diligent study of historical stock market information (for example, changes in stock prices and trading volume). A market technician might, therefore, base a buy recommendation on a certain pattern of recent price and volume changes.

Under the weak form of the efficient market hypothesis, information on historical price trends is of no value for the prediction of either the magnitude or direction of subsequent price changes. As such, the weak form is directly opposed to the basic premise of technical analysis. Similarly, the semistrong form of the efficient market hypothesis holds that all publicly available information (as well as forecasts developed from such data) is of no value in the prediction of future prices. Thus, the semistrong form of the hypothesis is diametrically opposed to the concept of fundamental analysis.

Chapters 3 through 5 discuss research findings on the weak form of the hypothesis. Chapters 6 through 11 then examine the value of traditional forms of fundamental analysis within the context of the semistrong form of the efficient market hypothesis. Chapter 12 addresses the subject of inside information and the strong form of the hypothesis. The conclusions reached in Chapters 3 through 12 are summarized in Chapter 13.

Chapter 13: Conclusion: Efficient market hypothesis

WEAK FORM

The weak form of the efficient market hypothesis holds that information on the past movements of stock prices and volumes cannot be used to predict future stock prices. In examining the validity of this hypothesis, it is useful to divide the empirical tests into certain categories. First, since any discussion of the weak form of the hypothesis requires an explicit definition of “past,” it

is useful to discuss three categories of “past”-intraday, between 1 and 40 days, and more than 40 days. Second, since certain results can be statistically significant and still not provide the basis for a profitable investment strategy, it is useful to differentiate between two categories of “significant” research-statistical and practical.

When the evidence in support of the weak form of the efficient market hypothesis is viewed in this context, the conclusions are both clear and consistent. Beginning with the shortest possible time periods (intraday price changes), there is statistical evidence that such changes are not random. While this would imply that someone who could trade without commissions (such as a specialist) might be able to implement inordinately profitable trading strategies, this level of nonrandomness has no practical significance for someone who must pay transaction charges. This research is emphatic in the conclusion that practices such as tape reading are useless!

In the next time interval, the period between 1 and 40 days, there is absolutely -no reliable evidence that historical price and volume information is statistically, much less practically, significant. In the third time interval, in excess of 40 days, there is statistical evidence of the phenomenon of relative strength continuation, where the best performing stocks tend to show above-average performance in subsequent periods. Attempts to translate these statistical phenomena into reliable, practical trading strategies, however, have met with failure.

Thus, two conclusions can be drawn with regard to the weak form of the efficient market hypothesis:

1. The weak form of the efficient market hypothesis is a valid description of the market for anyone who is interested in developing profitable investment strategies from historical price or volume information.
2. There is neither a theoretical foundation nor empirical support for technical analysis based on historical price and volume data.

SEMISTRONG FORM

The most widely used form of fundamental security analysis rests on developing projections of price-earnings multiples and earnings per share. Unfortunately, price-earnings multiples are subject to wide swings for which there is neither a theoretical nor empirical basis for prediction. Nonetheless, even though the vagaries of price-earnings multiples compromise the basis for this kind of analysis, it can be shown that accurate earnings estimates would provide above-average investment performance.

The semistrong form of the efficient market hypothesis however, raises serious questions about an analysts’ ability to develop useful earnings forecasts. Specifically, this form of the hypothesis holds that the analysis of any publicly available information is pointless because all such information is already reflected in stock prices.

The evidence here is again clear. First, it has been shown that period-to-period earnings changes behave in accordance with a random-walk model. This means that the common practice of basing future earnings projections on historical patterns of earnings changes is of no value.

Second, studies which have examined the behavior of stock prices prior to unexpected earnings changes dramatize that the market is remarkably efficient at accurately anticipating such fluctuations. This evidence indicates that the marketplace is filled with competent analysts who, as a whole, accurately forecast earnings. In this extremely competitive arena it is doubtful that a few superior earnings forecasters consistently “beat the market to the punch.”

Dividend information raises a significant challenge to the efficient market hypothesis. There is evidence to support the contention that dividend changes mirror management's largely correct assessment of a firm's future.

A systematic examination of other levels of the information hierarchy reveals only isolated exceptions to a purely efficient market setting. There is evidence, for example, that professional opinions on stocks can cause price movements and that secondary distributions by sellers, whom the market views as "knowledgeable," precede price declines.

STRONG FORM

In its strong form, the efficient market hypothesis holds that even investors with privileged information cannot use that information to develop profitable investing strategies. Not surprisingly, there is little support for this hypothesis. Management insiders do have extra insight into their company's future. Also, there is evidence that stock exchange specialists cause abnormal patterns of fractional price movements.

Significance of the findings

Given the evidence, the stock market can accurately be described as a "nearly efficient" marketplace. Unquestionably, if an opportunity for inordinate profit presents itself in the market, it will not go unnoticed. In such a marketplace one would not expect prices to deviate by much, or for long, from what is perceived to be a "fair" price by the myriad market participants.

The conclusion that the market is "reasonably efficient" is important for two reasons. First, if the market was inefficient (i.e., there were feasible strategies for attaining consistently above-average performances) it would not be necessary to study MPT. But, given the fact that the market is reasonably efficient, it is naive to assume that the diligent pursuit of traditional forms of analysis will provide above-average returns. Second, a "reasonably efficient" market is a prerequisite for the use of MPT. Without such a high level of efficiency, the theoretical foundation upon which MPT rests would not exist.

End of Hagin excerpt

Efficient Market Theory Lives!

What happened on Black Monday was the utterly predictable result of the fact that information flows have become so good, so instantaneous.

By Susan Lee
The Wall Street Journal
Friday, May 6, 1988

What distinguishes journalism from mere reporting is the search for Deeper Meaning. And, since few events are immune from this search, it's hardly a surprise that the Oct. 19 stock market crash has attracted all sorts of Deeper Meaningfulness. What is rather surprising, however, is how far from the mark most of these commentaries are. Consider this portentous offering in the April 18 issue of *Business Week*:

The October 19 cataclysm marks the failure of the most pervasive belief in economics today: an unquestioning faith in the wisdom of markets. ... The intellectual core of the free-market paradigm was the efficient market theory (EMT). ... Then came Bloody Monday. The EMT can't explain it." Similar pronouncements appeared in *The Wall Street Journal*, London's *Financial Times* and elsewhere.

Actually, of course, Adam Smith had never heard of the Efficient Market Theory and many true capitalists on Wall Street bitterly oppose it. Indeed you don't have to swear fealty to this rather abstruse view of how financial markets work to believe that the U.S. Postal Service is never going to outperform Federal Express.

But in any case, much of this Deeper Meaning interpretation about the failure of the EMT proceeds from a misunderstanding of what, exactly, the EMT is.

How perfection is Achieved

So, what is it? A perfectly efficient market is one where the price of every security equals its investment value at all times. (For the financially literate, that means that the market price of a stock equals the present value of its future prospects. This perfection is achieved when all investors have access to all currently available information about the future. All are good analysts; all follow market prices and adjust their stock positions accordingly. In Short, a perfectly efficient market is one where an amazing amount of information is fully and immediately reflected in prices.

Great, but pie-in-the-skyish. You know, for example, that your brother-in-law wouldn't recognize a piece of information if it flew up his nose. Thus, as a concession to a world made up Of brothers-in-law and brokers, the EMT comes in three flavors: the "strong" form that argues that all current information, public and private, is reflected in stock prices; the "semi-strong" form that says that only publicly available info is; and the "weak" form which reflects what is known to the basic trade-off between return and risk reflected in prices of securities. Financial economists—particularly those who have brothers-in-law—don't believe in the strong form.

It's fairly easy to make a case that what happened in October supports the weak form of EMT. What happened was simple. There was a sudden wave at new information, all of it bad, and all of it threatening to swamp U.S. corporate earnings. Stock prices responded—just like they're supposed to—by collapsing. One finance academic called this process "a massive reformation of

investor expectations.” Indeed, even before the washout on Monday, Oct. 19, the market was busily digesting the news and reflecting these reforming expectations.

Directly before the crash, late Tuesday on Oct. 13, the Democrats on the House Ways and Means Committee agreed to tax changes that would make corporate takeovers less attractive. Eeeek! Corporate takeovers had been the mighty engine pushing up the market: News of a takeover, or rumors of one, enhance not only the future prospects of the target company, but (and more immediately) the price of the Stock as well. Even if only for the short term.

So that was bad news. But worse, early Wednesday morning on Oct. 14, the trade figures for August were announced and—eek!—the deficit was larger than expected. That not only depressed the dollar but goosed up interest rates: Treasury bond yields pierced the psychologically sensitive 10% barrier. Little wonder this information drove the Dow down 95 points by the close of trading Wednesday.

Even worse, consider what happened on Thursday, Oct. 15. Not only did Chemical Bank raise its prime lending rate, but Treasury Secretary James Baker threw a tantrum over West Germany’s monetary policy. Specifically, Mr. Baker suggested that he might go Germany one better in dumping on the dollar. His hint that the U.S. would not defend the dollar against the depressing impact of Bonn’s events seemed to confirm fears that Wednesday’s higher interest rates were not a random blip on the Inflation screen. Result? The Dow slid 57 points more.

On Friday, Oct. 16, more of the same. Reports of an Iranian attack on a U.S. flagged oil tanker didn’t help any. Pessimism spread as the news spread, and the Dow dived 108 points.

Over the weekend, the news got even grimmer. Mr. Baker continued to publicly threaten the Germans—double-eek! In fact, it was reported that he was ready to let the dollar drop even more. Indeed, It had gotten to the point where brothers-in-law all over the world realized that the dollar might keep falling. That, of course, would push up U.S. interest rates and inflation, and render corporate earnings—politely put—weak. Who would want to hold stocks in this kind of environment?

Indeed, by Monday morning, Oct 19, the bad news was zipping around the world, communicated by falling stock prices, which, in turn, constituted its own bad news. (Actually, foreign investors who had the most to lose from a falling dollar had started the dumping action Sunday night.) It’s no stretch at all to say that what happened on Black Monday was the utterly predictable result of the fact that information flows have become so good, so instantaneous. Unfortunately, but just as predictably, the group of investors seeking to respond to all this distressing information and adjust their portfolio holdings accordingly—that is, dump their stocks—became so large that they swamped the trading technology. Resulting illiquidity made an orderly retreat from the market impossible.

After October, of course, the tenor of information changed again. The news was surprisingly good. Interest rates subsided, inflation anxieties were quelled, the dollar remained fairly stable. unemployment continued to behave and takeover activity resumed. Consumer spending remained steady and GNP figures weren’t too bad. Thus—no hocus-pocus about it—corporate earnings seemed likely to be strong. And, of course, lower stock prices meant investors could purchase these improved, future prospects “cheap.” Investors seeking to adjust their portfolio holdings accordingly—that is, buy stocks—lifted the Dow some 200 points back from its October low.

As with all academic debate, needless to say, there’s an element of game playing. Critics can complain that it’s easy to discover reasons for events after the fact and ultimately impossible to prove how much effect these factors, or any others, really had.

But other aspects of EMT should not be forgotten. EMTERS maintain that stock prices do fluctuate around the underlying market valuation. That much (or all?) of a 500-point down move could be called a “fluctuation” is a disturbing thought. But there’s nothing in EMT to preclude it.

Proof Is in the Investing

The proof of the EMT is in the eating, or, more precisely, in the investing. If markets are efficient, and any price movements left over are random and hence unpredictable, equity investors will not in the long run be able to beat a strategy of buying and holding a diversified portfolio of stocks. They just won’t be able to find information that is not already reflected in prices. They may luck out, and beat the market in the short run, but eventually they will regress to the mean.

The evidence is very powerful that this is exactly what happens. For example, Forbes columnist Mark Halbert, proprietor of a Washington-based monitoring service, reports that only a dozen so of the 100 investment-newsletter portfolios he has monitored since 1960 have been able to beat the market—and not by much. Big institutional investors do about as well. There has been no decisive change in performance since the crash.

The market isn’t perfectly efficient. Some advisers did beat it. Many Of them exploited one or another of the marginal “anomalies” that researchers have known and puzzled about for years, such as the slight tendency of stocks with low “price-earnings ratios” (the market price of the stock relative to the company’s profits per share) to go up more than average.

But as dramatic as the crash was—and it was—it did not deck the Efficient Market Theory as properly understood, or lay bare the ruins of capitalism. Deeper Meanings to the contrary, look no further than the old Wall Street saying: When the market wants to go down, it does.

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