



COME THE REVOLUTION...

Andrew Smithers provides a radical new
vision of investment market performance

For financial planners and investment managers, efficient market hypothesis (EMH) is probably the most important and often the most irritating part of economics. With the subject in the middle of one of its revolutions (or "paradigm shifts"), the levels of interest and of irritation must be particularly high. The current revolution in thinking suggests that EMH is not longer valid and that a replacement is required.

Although never accepted by a significant minority of economists and, even by many of the faithful acknowledged to have its problems, the EMH has long been the dominant idea in finance. As its underlying assumptions have been implicitly accepted in many academic papers, much that is taught in courses on financial economics will be seen to be unsound if the EMH is discarded.

The sociologist and philosopher, TS Kuhn, has explained how a dominant idea, or paradigm, presents both advantages and problems to scientific development. When it is working well, a broad and generally agreed model eases scientific progress by allowing researchers to attack important issues without having to delve into fundamental and largely disputed areas. But, when a model is found to be seriously flawed, it becomes a major barrier to progress, and research which accepts the existing paradigm becomes a fruitless occupation.

But finding a new paradigm is difficult. Senior academics resist changes which render their past work obsolete and threaten their established reputation. It has been said, with more wit and truth than charity that "science advances obituary by obituary".

The EMH is arguably in the process of being discarded. It is demonstrably not a valid hypothesis, but as so often it is events rather than argument which determine the timing of a paradigm shift. The EMH is being discredited because the current financial crisis has shown the disastrous practical errors that spring from its acceptance.

To comprehend this difference between what we know and what is accepted

This article puts forward a radical thesis regarding the behaviour of markets and thus the way in which investment performance can be anticipated. It suggests that efficient market hypothesis is close to being discredited, which has major implications for financial planners and investment managers in terms of portfolio construction and the management of client expectations. Attitudes towards risk would also need to be revised if the conclusions of the article are accepted, with implications for holistic planning involving long-term investment strategies.

requires an appreciation of the distinction between epistemology, which is the theory of knowledge, and sociology, which determines what is accepted as being true. It has long been known that the EMH is unsound in terms of epistemology, but only recently have its absurdities been sufficiently recognised, as a result of the sheer pressure of events, for the need for a new paradigm to be acknowledged.

The EMH holds that financial markets are perfectly efficient, so that the market price always represents the correct value of an asset. It must therefore be at best an incomplete theory, since it does not allow scope for the research and management costs needed to produce such perfection to be rewarded. In my view, however, there are even more important objections to the EMH. It cannot, for instance, be tested and is thus, on the generally accepted principles set out by Karl Popper, not a valid hypothesis at all.

It may seem odd that, in the face of such a fundamental objection, the EMH was not discarded many years ago. The explanation lies in its history. When the EMH was first enunciated it was assumed that, as a natural corollary, share prices must move in a random way. This was known as the Random Walk Hypothesis (RMH) and its general acceptance was signalled by books such as *A Random Walk Down Wall Street*.

At first, the RMH appeared to be testable and robust, as the initial tests were concerned with the pricing of shares relative to one another. They showed, for example, that the number of managers who performed better than average over two or more successive periods was no greater than the number that would be expected if performance was random. But this was only evidence that shares were efficiently priced relative to one another.

Other tests were needed to see if the pricing of the stock market as a whole could also claim to be efficient. One such test derived from the fact that, if



share prices in aggregate followed a random walk, then their past fluctuations could not provide a guide to future behaviour.

In the jargon of finance, equity returns must follow a random walk with drift, so that the most likely return was the same as the very long-term return, whether or not share prices had more recently been giving exceptionally high or low returns. When this was applied, the RMH failed the test. The returns from the stock market are better after a sustained period of poor returns than their very long-term average and vice versa. Put more technically, real equity returns exhibit negative serial correlation.

Chart 1 illustrates the way in which this test can be conducted by showing how the volatility of real equity returns falls over time, much faster than would be the case if returns were unaffected by their own past. The extent to which real equity returns vary over time would, if the RMH held, be determined solely by the degree to which they vary over shorter periods of time. The volatility of real returns over, say, 30 years, could be predicted simply from knowing their volatility over one year.

In Chart 1 the green line would move

Made in Japan?

Economists who argue that efficiency market hypothesis is no longer valid point to the experience of Japan, where markets have been falling, or at best stagnant, for a period of 20 years. Sustained deflation during the period has also added weight to the argument that the foundations of EMH are no longer secure.

across the chart parallel to the x axis. However, as the chart shows, this is not what we actually observe: the green line falls steadily as volatility declines over time. Equity market returns are much less volatile over 30 years than their one-year volatility implies.

Faced with this evidence, there were two possible ways forward. The EMH could be discarded, or it could be modified. Discarding was the more obvious, as the simple explanation was that markets were only moderately, rather than perfectly, efficient and rotated around fair value, rather than, as the EMH held, were always at fair value.

As the simple explanation, this hypothesis satisfied the agreed principle of parsimony, also known as Occam's Razor. This is one reason for preferring the imperfectly efficient market hypothesis. The other was that attempts to modify the EMH failed. To be valid, a hypothesis must be testable and no testable modification of the EMH has yet

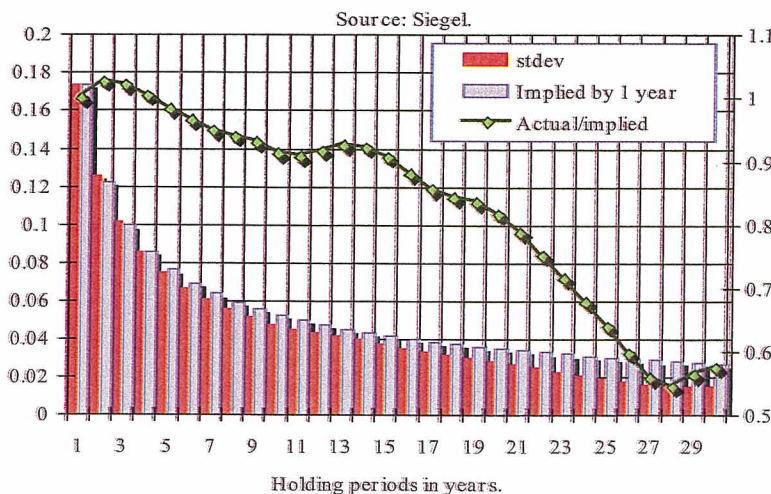
been found. Once the EMH was known to fail in its RMH form and untestable in any other, it ceased to have any intellectual foundation. But, for reasons of history, its partial and residual grip on financial economics remained. We are now seeing events taking over and providing the coup de grace for its acceptance.

In place of the EMH we must provide an alternative. It is necessary to recognize that discarding the EMH does not involve the assumption that asset prices are driven by irrational behaviour. If they were, then value would be of no interest and provide no more guide to policy than if asset pricing were perfectly efficient. In a perfectly irrational market, asset prices would wander in a random manner without any anchor to value and, in a perfectly efficient market, price and value would be the same. Value, as distinct from price, is a sensible concept only if the two diverge temporarily in a manner open to rational explanation.

Research is already developing an alternative to the EMH, which I call the "moderately efficient market hypothesis". This has two aspects. It needs to be shown that the new model is testable and remains robust under testing, which Stephen Wright and I have done for the stock market. We first set out a number of tests which valid measures of stock market value would have to pass and then looked at all the claims we could find. Most of the criteria we looked at were nonsense. This is largely because investment banks are in pursuit of commission rather than truth and believe, perhaps with justice, that it is important for business to be able to claim that shares are cheap.

As they don't wish to be doing business only 50% of the time and for only about 50% of the time will this be shown by any valid measure of value, they positively dislike valid measures and like to confuse the situation by producing invalid ones, like the so-called 'Fed Model', which seeks to value shares

Chart 1 Variance compression shown by US equity real returns 1801-2008



relative to bonds, or by extrapolating past market returns.

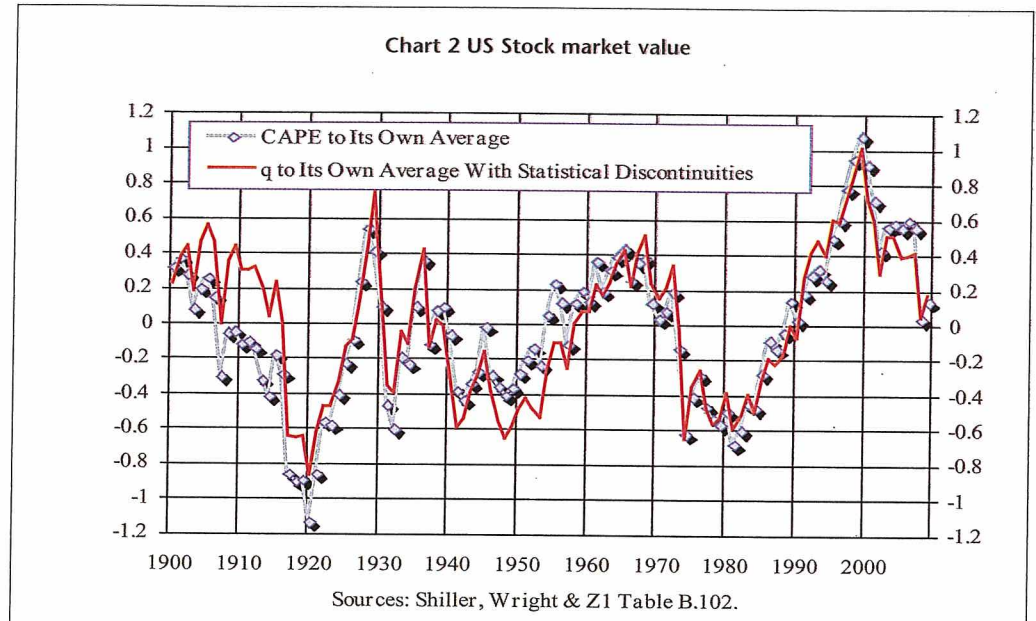
Most purported criteria failed the tests; we found two that passed them all. Furthermore, they passed together another test which was necessary if more than one criterion proved valid – they agreed with each other.

These two valid criteria are the cyclically adjusted PE (CAPE), which compares average earnings per share, adjusted for inflation, over the previous 10 years, with their long-term average, and the q ratio, which compares the net worth of companies, adjusted for inflation, with their market capitalization. Chart 2 shows how these two criteria have matched each other over time and how extremely overvalued they showed the market to be at its 2000 peak and even in 2007. The chart also shows that the US market at the beginning of 2009 was more or less fairly valued.

As chart 2 shows, the stock market rotates around fair value and it has recently been shown that this can be explained in a rational way. This is extremely important. Agreeing that financial markets are not perfectly efficient is not the same as believing that they are simply irrational casinos, and failing to make this distinction is a common fault of the financial press when it reports on the current changes in economic theory. It is increasingly common to read comments which imply that dropping the EMH involves discarding rationality. Throwing out the baby with the bath water is rightly condemned and this is a dangerous example of such folly.

Two particular issues on which the editor has asked me to comment are the management of investment portfolios and client expectations. Both are complex and deserve extended discussion. There are, however, some points which can be touched on briefly and, I hope, usefully.

The first is to emphasise the importance of taking value into account when considering investment policy and likely returns. When the stock market was roaring up in the years up to 2000, it was common for pension consultants to assume that future returns would not



thereby be reduced. They appeared, in general, to be ignorant about the evidence that real equity returns exhibited negative serial correlation. Implicitly, and some times explicitly, they assumed that markets followed a random walk with drift.

As a result, they allowed or even encouraged employers to reduce their pension contributions in response to the rise in the value of pension fund assets and, in my experience, resisted the sale of equities, even at their overvalued prices. This bad advice has been a major contributor to the current problems of under-funded pension funds.

Today, when equities are reasonably valued, I fear that the opposite risk is being run, and that pension fund returns will suffer from owning too many bonds, particularly government index-linked ones.

With regard to client expectations, the problem is that these are likely to be too optimistic in good times and too pessimistic in bad ones. Advisers who try to offset their clients' psychological bias will be doing them a good service. Unfortunately, providing good advice can be bad for business, as it is not necessarily what clients want to hear. Those fund managers who were most correct in understanding how

overvalued the stock market had become in recent years, and who therefore increased their clients' liquidity, have often suffered for it, with clients withdrawing money from their funds in response to the consequent short-term under-performance.

The money seldom comes back. Clients do not readily forgive those who gave them good advice which they failed to take.

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