

Can you beat the market?

You can't beat the market, the belief goes. All relevant information is already reflected in a stock price. There are so many smart and savvy investors out there, the Internet disseminates information so fast, trades are made so efficiently, that the moment something market-moving is known, stock prices adjust within minutes to what

they are actually worth. This theory is known as the Efficient Market Hypothesis, and it has profound implications for government policy and individual investor behaviour.

Today, Singapore Management University fourth-year student **POON HOW EE** examines theory versus reality.

THERE have been many studies and discussions about the soundness of the Efficient Market Hypothesis (EMH) since it was widely popularised in mid-1960s.

One approach is to examine whether EMH can explain the phenomenon of bubbles, particularly in the stock markets. If indeed the theory cannot, then one would conclude that the market is inefficient or not at all times efficient.

The EMH is developed by Prof Eugene Fama at the University of Chicago in the early 1960s.

It says that everything that can be known about a stock has already been incorporated into the price of that stock. Thus, it is impossible to beat the market and that prices will always tend towards equilibrium, which is the stock's intrinsic value.

To get to this conclusion, the EMH requires that:

- ◆ Agents (market participants or decision makers) have rational expectations. This means that their aim is to maximise gains and minimise risk.
- ◆ Agents update their expectations correctly after receiving new relevant information.
- ◆ On average the population is correct; and that even if agents do make errors in their expectations, their errors are independent across individuals and hence cancel out.

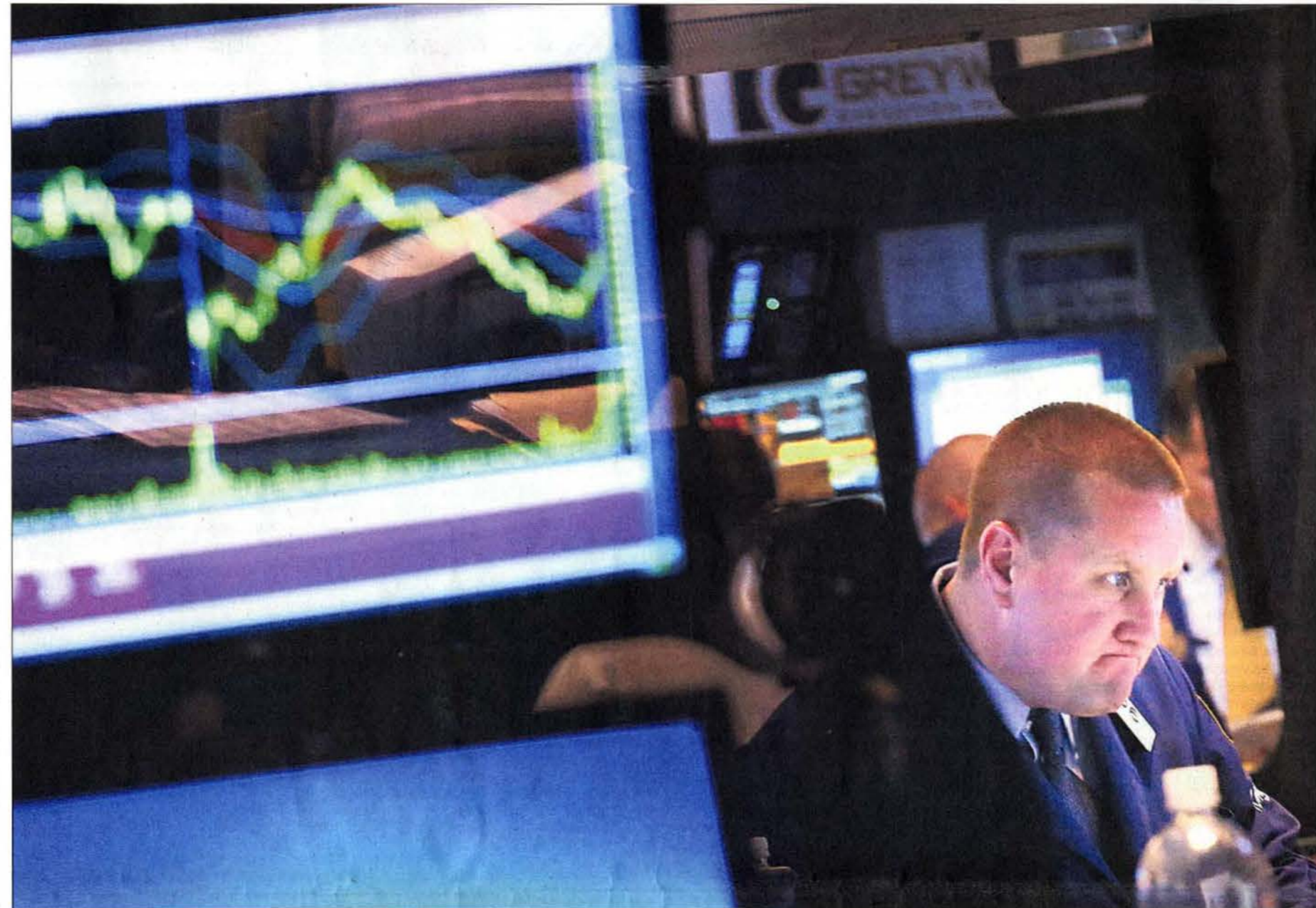
However, there have also been many theoretical and empirical arguments against the EMH, and most of all, its assumption that markets behave rationally.

Since rationality and information efficiency cannot be quantified, to disprove or falsify the EMH, one will have to show that the actual movements of stock prices are inconsistent with the model predicted by the EMH.

To show that, there must be either consistent cases where markets are inefficient, resulting in abnormal profits that people are "beating the market"; or periods of time where there are systematic deviation of market prices from its predicted level of equilibrium, known as the "presence of bubbles".

Outperforming the market

Some argue that there are strategies that have historically outperformed the market



What's happening? Many investors and academics have turned to behavioural theories to seek to understand the irrationality of markets. PHOTO: AFP

consistently over a long period of time.

One such strategy is value investing, which seeks to exploit market inefficiencies by buying stocks at prices below their intrinsic value. There has been much empirical evidence to show that value stocks, or stocks with low financial ratios like price to earnings, price to book, price to cashflow, outperform growth stocks, which have higher P/E, P/B or P/CF ratios. Value stocks even outperform the market in both an absolute and risk-adjusted basis.

Famous advocates for this strategy are Benjamin Graham, Warren Buffett and Sir John Templeton, who argued that their immense success is not due to chance but by sticking to the principle of "buying cheap and selling high".

However, if the stock market is truly efficient as suggested by the EMH, there should be no way that investors can beat the market. If such instances should happen, it is because of luck and not skill.

Evidently, we see that this is not the case.

Presence of bubbles

Another anomaly that the EMH finds hard to explain is the presence of bubbles. Speculative bubbles in the market often appear to be driven by buyers operating on irrational exuberance, who take little notice of underlying value, and drive the prices of stock markets to unprecedented levels before a crash occurs.

These systematic deviations in stock markets are contrary to the EMH, particularly in its assumption of rational expectations of individuals and that errors among individuals cancel out at equilibrium.

Since the dotcom bubble of the late 1990s to 2000, and even more after the recent sub-

prime mortgage crisis from 2007 onwards, the EMH has been under strong criticism.

This has led to the emergence of behavioural finance theories that try to explain how cognitive biases also play a part in the markets.

Difficulties in explaining bubbles

So how can the EMH explain such large deviations from the mean returns of stock markets during these periods?

Studies by Princeton's Dilip Abreu, Markus Brunnermeier and Berkeley's Brad DeLong and colleagues have shown that the asset pricing models associated with the EMH like the capital asset pricing model (CAPM) and Fama-French three-factor model have also yielded poor predictive results during periods of boom and bust. The rest of the time, asset-pricing models are accurate in predicting stock prices.

This does not necessarily mean that the development of equilibrium theories should be completely abandoned. Rather, more attention must be paid to learning such disequilibrium.

In fact some have even blamed the EMH and CAPM model for causing financial leaders to always underestimate the dangers of asset bubbles breaking. The belief that markets will self-correct and tend towards equilibrium is hard to believe in the face of such clear evidence.

Former Federal Reserve chairman Paul Volcker also said: "Among the causes of the recent financial crisis was an unjustified faith in rational expectations (and) market efficiencies."

In light of the failure of EMH to explain anomalies, many investors and academics have turned to behavioural theories to seek to understand the irrationality of markets, which so often leads to bubbles.

Even Sir Isaac Newton observed: "I can calculate the motions of heavenly bodies, but not the madness of people." This was said during the speculative frenzy surrounding the South Sea Company in the year 1720.

Minsky's hypothesis

The late American economist Hyman Minsky rejects the EMH and argues that markets are inherently unstable. Minsky argued that in prosperous times, when corporate cash flow rises beyond what is needed to pay off debt, a speculative euphoria develops.

Soon after, debts exceed what borrowers can pay off from their incoming revenues, which in turn produces a financial crisis. As a result of such speculative borrowing bubbles, banks and lenders tighten credit availability, even to companies that can afford loans, and the economy subsequently contracts.

This slow movement of the financial system from stability to fragility, followed by crisis, is now called the "Minsky moment".

Behavioural biases

Behavioural economists, like Amos Tversky, Daniel Kahneman, Richard Thaler and Robert Shiller, have tried to explain that bubbles are caused by cognitive biases such as overconfidence, over-optimism, confirmation bias, greed and herd mentality.

During times of irrational exuberance, peo-

ple are overly optimistic of the future, adopting a "this time it's different" mentality. They become overconfident of their stock-picking abilities.

As prices rise higher, a confirmation bias kicks in and investors feel affirmed that the decisions they made were correct, giving them greater confidence in their abilities. Furthermore, this blinds them from noticing early signals of a bubble forming.

This contagion of exuberance spreads as stories of great wealth creation are passed on. All is well, until the market crashes and suddenly fear and panic take over.

Even fund managers and institutions are not spared from cognitive biases. In fact, they may be more affected by it because of the herd mentality and self-serving bias.

Looking at the dotcom bubble, many fund managers were drawn into buying new Internet startups and popular growth stocks because everyone else was doing it and making a killing. Those who resisted this trend suffered from poorer relative performance and large withdrawals from their funds as a result.

On the other hand, fund managers "felt safer" by sticking with the herd, because if they were wrong, they couldn't be blamed as the whole market was wrong. Whereas, if they decided to resist the trend, the possibility that they could be wrong could mean the loss of their jobs. Hence job security meant more than rationality.

Also, they could not fully be blamed, because many were just reacting to the demands of their clients who usually suffer from short-term myopia.

However, identifying these cognitive bias-

es and concluding that market participants are not rational and hence inefficient, does not yet give us a quantitative pricing model that is able to factor in these inefficiencies.

This has been one of the main reasons why the EMH still remains a widely used model, despite having been proven false.

It seems investors will still prefer having a "model" that helps them predict returns even though such a model may not be always accurate, and can vary extensively from reality.

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Jointly launched by Citi Singapore and SMU in April 2012, the programme is Singapore's first structured financial literacy programme for young adults. It aims to equip young adults aged 17 to 30 with essential personal finance knowledge and skills to give them a firm foundation in managing their money, and a financial head start early in their working lives.