

## The Interrelated Market Efficiency Debate

**The 2013 Nobel Prize in Economics to Eugene Fama and Robert Shiller gives both sides of the Market Efficiency debate due recognition. But the two are also interrelated.**

This year the Nobel Prize in Economics was shared by Eugene Fama, best known for his work on asset pricing and Robert Shiller, who is more identified with behavioral finance. The third recipient was José Carreras (sorry; bad, obscure joke.) Eugene Fama is famous (or notorious) for the Efficient Markets Hypothesis (EMH), one of the cornerstones of modern finance, while Robert Shiller's work questions the underpinnings of EMH, where mistaken expectations take center stage. This led John Kay in a recent FT article to write, "It is like awarding the physics prize jointly to Ptolemy for his theory that the Earth is the centre of the universe, and to Copernicus for showing it is not." This is not the first time that the Noble committee has shown such diverse tastes. In 1974, they gave the Nobel Prize in Economics to Gunnar Myrdal, proponent of Keynesianism, foe of inequality, and architect of the Swedish welfare state. Myrdal shared the prize with Friedrich Hayek, the Austrian economist who makes libertarians swoon, and gives Keynesians the vapors with his paeans to the free market as the source of prosperity and liberty. Here is a modern equivalent of the Keynes/Myrdal vs. Hayek battle.

But back to the Fama-Shiller dichotomy. The efficiency term in EMH is to do with financial markets being informationally efficient – any news, good or bad, will be very quickly reflected in asset prices. And it the very act of trading, of buying and selling, that creates this informational efficiency – if there is some news out there about a company, someone would discover it, quickly act on that information, and this would be reflected in the company's stock price. The term 'quickly' is tricky – does it take a day, an hour, a second or a picosecond for news to be reflected in asset prices? A picosecond is too small a time interval and thus we witness the rise of algorithmic trading. If you allow me to use the term 'quickly' loosely, then EMH basically says that if we could see where prices are headed, then people would trade on it very quickly, and it would be really hard to make money on it. Essentially, asset price movements will seem random and unpredictable in the short-term. The only way to make abnormal returns is to take

systematic risk. Fama (and his co-author Kenneth French) then went on to show how returns on stock, bond and currency markets are predictable at longer time horizons. The predictability was attributed to time-varying risk premia, something that had been missing in classic finance workhorse models. This work, while less cited in the popular press, fundamentally changed research in finance. Any researcher, (including yours truly,) in search of anomalous returns, today needs to check whether the anomaly is consistent with either a time-varying CAPM model or a three-factor Fama-French model. Only then may they proceed. Having said all this, the EMH is a bit misleading as a term. First, this is not about Pareto efficiency, which we learn in Econ 101 – that competitive markets are Pareto efficient in the sense that they efficiently allocate resources. We could have externalities, in which case the market outcome would not be Pareto efficient, but EMH may still be valid. Second, there are various versions of EMH (weak, semi-strong, strong) so it should be Hypotheses rather than Hypothesis. Third, Grossman and Stiglitz in a beautifully titled paper, "On the impossibility of informationally efficient markets," show that the strong version of EMH (where stock prices reflect all information, both public and private) cannot be true. In a nutshell, their argument is that if markets are perfectly informationally efficient, the returns to gathering information would be zero and little reason to trade so that markets would eventually collapse. Given that information gathering and processing is costly, even in theory there must exist some abnormal returns to compensate those investors for these activities. Of course, these returns are no longer abnormal once we account for the costly information gathering activities. Third, testing EMH turns out to be quite tricky in practice. Any such test relies on an equilibrium model that establishes normal returns. So a rejection of EMH can either mean that financial markets are truly inefficient or the equilibrium model is incorrect. This is termed the *joint hypothesis problem* – that market efficiency as such can never be rejected. From here a couple of important takeaways follow, which link nicely to the behavioral finance literature. 1) Stock-picking is a

Visit **INSEAD Knowledge**  
<http://knowledge.insead.edu>

futile exercise. Even if you consistently beat the market for 10 years in a row, there is no guarantee you will manage to do so in the 11th year. 2) If you beat the market consistently 10 years in a row (or maybe your shiny new hedge fund manager does), this is far more likely due to luck rather than skill. But all the behavioral biases (overconfidence bias, recency bias, self-attribution bias) will trick your brain into mistaking luck for skill. EMH acts as a great check on these biases. 3) Ignore the masters of (the mutual fund, hedge fund) universe who tout their crystal-ball gazing abilities. Put your money in low-cost index funds; rebalance every now and then. In fact, Fama's greatest contribution to the real-world was the spread of low-cost diversified index funds. 4) Elide the siren call of apocryphal stories in the financial press, confident confidence men (and they all tend to be men) on CNBC, technical newsletters from your favorite wealth manager, the mindless ranting of financial websites such as [Zero Hedge](#), and even the dazzling erudition of your favorite academic. If any of these folks are as smart as they purport to be, and have this awe-inspiring trading strategy, they would trade on the information, rather than sharing it so generously and so freely with you. In fact, many are hoping that you, the [Greater Fool](#), are key to their strategy.

What about Shiller? Shiller in his AER (1981) [paper](#) showed that if price is the expected present discounted value of dividends, it should vary far less than the price based on the present discounted value of actual/realized dividends. In the data we observe exactly the opposite. It is easier to think of this in terms of variation rather than in levels. Variation in the dividend yield (dividends divided by price) can come from three sources: 1) variation in future expected returns, 2) variation in future dividend growth or 3) variation from a bubble. Here is what the data shows – all the variation in dividend yield comes from variation in expected returns – the first component. Why is that surprising? Well if EMH is true then returns should essentially be random, so a high price to dividend ratio should reflect that future dividends are expected to go up. Instead it all comes from the first component – a high price to dividend ratio forecasts lower returns. This is true in bond markets (Shiller, 1979; Campbell and Shiller, 1991), in housing markets (multiple papers by Case and Shiller), and in foreign exchange markets (Hansen and Hodrick, 1980) – high prices relative to fundamentals forecast lower future returns and low prices relative to fundamentals mean higher future returns. Returns are mean-reverting. In housing markets for instance, high house prices relative to rents today, forecast not higher rents or higher future prices but lower future returns. Moreover, this predictability increases as the time horizon increases (as mentioned earlier, this was actually shown by Fama and French.) More details, a bit technical in nature, are [here](#). Both Fama and Shiller

Visit [INSEAD Knowledge](#)  
<http://knowledge.insead.edu>

agree that we need a deeper understanding of excess volatility which drives the variation in expected returns. And here is where they part ways. Fama believes that volatility arises from volatility in the risk premium over the business cycle. People become more risk averse in a slump and more risk-seeking in a boom in response to consumption and wealth shocks. The fluctuation in risk premia drives the variation in future expected returns. Shiller believes that the variations in risk premium do not suffice and that irrational exuberance during booms and excessive pessimism in slumps are at the root of the problem. Their work is fundamentally important and inter-related and both started multiple streams in finance and economics, which is what the Nobel committee looks for.

Follow INSEAD Knowledge on [Twitter](#) and [Facebook](#)

Find article at

<https://knowledge.insead.edu/blog/insead-blog/the-interrelated-market-efficiency-debate-2959>

Download the Knowledge app for free

