

Eugene Fama, Robert Shiller, DAA and me

EDITION 36 – 25 NOVEMBER 2013



Key points

- > A good starting point when thinking about investment markets is the concept that they are “efficient” as espoused by Eugene Fama.
- > But as Robert Shiller and others have shown, the efficient market hypothesis often does not apply in reality as shares are more volatile than can be justified and tend to move in mean reverting cycles.
- > Combining the work of Fama and Shiller suggests that there is a strong case to invest in indexed funds in highly analysed share markets, eg, US shares, but importantly there is also a strong case for dynamic asset allocation.

Introduction

For twenty five years or so my core focus at work has been on the allocation of assets – shares, bonds, property, cash, Australian, global, etc – across multi asset portfolios. Some might say that’s a job that naturally flows from being an economist with a macro (ie big picture) focus. But my interest in asset allocation actually runs much deeper.

I was reminded of that by the news last month that Eugene Fama, Robert Shiller and Lars Peter Hansen had shared the 2013 Nobel Prize in Economics. For anyone interested in investing the contribution of Fama and Shiller to the understanding of investment markets is relevant, but this is particularly so for me as my PhD thesis, largely undertaken around the late 1980s, related in part to their insights.

Markets are efficient..

But first a bit of history on economic thought regarding the workings of investment markets. Economists prior to World War 2 had a somewhat ambiguous view of the role of speculators in investment markets. On the one hand seeing them as likely to smooth prices out over time (as to make money they have to buy low and sell high) thereby contributing to better functioning markets. But on the other hand the economic literature prior to World War 2 is strewn with references to occasional irrational markets with language like: manias, financial orgies, feverish speculation, frenzies, etc. In other words it was generally thought that financial markets occasionally go off the rails and by definition are not always right.

The well-known economist, John Maynard Keynes waxed lyrical on this, in fact arguing that speculators in investment markets are trading simply on the basis of “anticipating what the average opinion expects the average opinion to be” regarding where a security will go in price rather than what it is really worth based on prospective yields and that this causes instability. And he put his money where his mouth was, reportedly making a lot of money trading shares.

However, starting in the 1960s and 1970s, thanks in large part to the work of Eugene Fama, it became generally thought that asset markets are “efficient” in the sense that all publicly available information will be rationally reflected in prices for things like shares, bonds and currencies. As a result only new information will cause prices to change but since new information is unpredictable (otherwise it wouldn’t be ‘new’) and prices are always where they should be, asset price moves should be unpredictable or follow what became known as a random walk.¹ Initial tests of whether past share prices can predict future prices and whether new information is reflected in share prices provided support for the so called efficient market hypothesis (EMH) and so it became widely accepted. If investment markets are efficient this has a number of implications:

- No one can consistently beat the market - supporting the case for investing in passive share funds that track the index rather than trying to pick individual stocks.
- Starting point valuations don’t matter. The same return is available from high or low levels for share prices as the market is always right. It follows from this that there will be a constant return differential on offer between assets to compensate for different risk levels. Eg, shares will always offer a higher return than bonds. This helped cement the concept of buy and hold or set and forget when it came to determining investment portfolios.
- If markets are always right, free markets are the best way to allocate resources in an economy.

The market efficiency notion was often made fun of by the joke about the economics professor and his student walking through a university: the student sees a dollar note on the ground and tells his professor, but the professor says no it can’t be there otherwise someone else would have already picked it up!

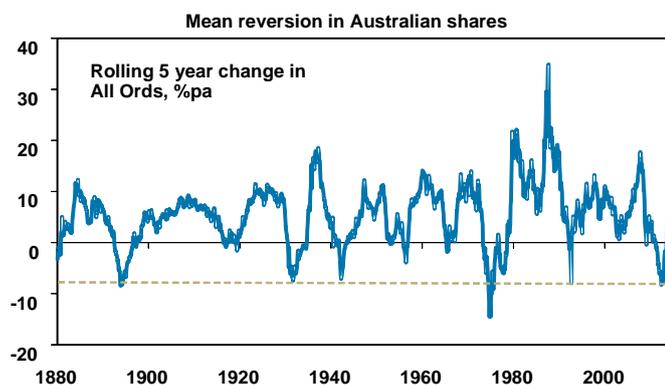
..markets aren’t efficient

But starting in the early 1980s a group of economists – in particular led by Shiller, but also helped along by some work undertaken by Fama himself – began to seriously question the market efficiency notion.

- In particular Shiller (in 1981) found that the volatility of share markets was far greater than can be justified by the rational expectations of future dividends.
- Various studies, including one co-authored by Fama (in 1988) found that while share price changes are positively (but not significantly) correlated at time horizons out to a year or so, over long time horizons – over 3 to 5 years or more – they are negatively correlated (and significantly so). In other words if shares perform poorly over one five year period they are likely to perform well over the next. This suggested that share markets are mean reverting with years of below average returns followed by years of above average returns. The next chart, showing rolling

¹ Now of course someone with inside information will have an advantage - but that’s why it’s banned.

five year changes in Australia share prices, illustrates this to some degree.



Source: ASX, Bloomberg, AMP Capital

- Various other studies found that share market valuation measures provide a guide to future returns.
- Finally, various anomalies in share markets – such as seasonal patterns like the January effect which sees above average returns from November through May – also called into question the efficient market hypothesis.

At its core, most of the early tests of the EMH focussed on whether publicly available information is quickly reflected in asset prices, whereas the tests by Shiller and others asked whether it was “rationally” reflected and the answer was no: share prices move more than is justified, they move in cycles over years and are affected by starting point valuations.

The final nail in the coffin of the EMH was the October 1987 share crash – changes in the long-term outlook for profits & interest rates cannot explain the 30% swing in US shares and the 50% swing in the value of Australian shares in late 1987. Likewise, changes in the outlook for IT stocks cannot justify the 80% swing in the tech heavy Nasdaq index early last decade. Problems with the efficient market hypothesis were all obvious long before the GFC came along!

Irrational man (and woman)

At the same time there was increasing evidence that individual decision making is not rational, but rather that individuals suffer from various lapses of logic. For example, they tend to: downplay uncertainty and project the current state of the world into the future; overweight recent spectacular or personal experiences; focus on occurrences that draw attention to themselves; be overconfident in their own abilities and suffer from wishful thinking. And these lapses tend to be magnified at times by crowd psychology.

The combination of lapses of logic by individuals in making investment decisions and the reinforcing effect played by crowd psychology go a long way to explaining why speculative surges in asset prices develop (usually after some good news) and how they feed on themselves (as individuals project recent price gains into the future, exercise “wishful thinking” and receive positive feedback via the media). Of course the whole process goes into reverse once buying is exhausted, often triggered by contrary news to that which drove the rise initially.

Now of course some argued that it doesn't matter whether all individuals are rational (economists know they aren't really!) but if enough are then a share market will behave as if everyone is. In other words: if lots of Warren Buffetts buy when everyone is panicking and sell when everyone is

greedy this will push share prices to where they should be despite an irrational bunch of investors. But it is clear that while there are rational investors like Buffett, there are barriers to their ability to buy low and sell high in sufficient volume to keep share prices at fundamentally justified levels:

- First, there simply may not be enough rational investors to battle against a constant stream of new investors with little knowledge of cyclical swings in markets.
- Second, given the size of the irrational crowd, to paraphrase Keynes “markets can remain irrational for longer than sensible investors can remain solvent”.
- Thirdly, competitive pressures may make it hard for institutional investors to have long term investment horizons making it harder for them to trade against the market if they believe it will take a long time to pay off.
- Finally, the true value for assets can never be known with certainty so at extremes there is always an element of doubt causing even the Buffetts to hold their punches.

So where does all this leave us?

There are several observations. First some see the EMH as an example of how economists have their heads in the sand, only to see them eventually wake up to reality that occasionally investment markets go off the rails. But in order to understand how markets work it's useful to get an idea of how they should work first, and then work from there. Which is in essence why Fama's work has been so valuable and recognised as such in the Nobel Prize.

Second, if investment markets get it wrong should we really trust them to play the key role in allocating resources in the economy. The short answer is yes. I would much rather trust a market than a soviet style bureaucrat to allocate capital throughout the economy. The proof is in the pudding – market driven economies performed much better than socialist economies last century which explains the demise of the latter. Related to this, speculative manias arguably play a role in the innovation that drives economic prosperity. Snuffing out the 1920s boom based on electricity and mass production or the 1990s IT boom prematurely could have starved a lot of great ideas of capital and slowed the long term rise in living standards that we are all benefitting from.

Third, some markets do behave efficiently for much of the time. For example the US share market is so overanalysed that it is very hard for individual stock pickers to consistently beat the market. In such markets it makes sense to just use passive index funds, futures or ETFs to gain exposure.

Finally, and perhaps most importantly, the insights of Robert Shiller and others over the last thirty years demonstrating that markets are excessively volatile and tend to follow mean reverting cycles highlight that asset allocation should be adjusted dynamically over time. Using a process that is increasingly referred to as ‘dynamic asset allocation’ (or DAA) this involves increasing the allocation to assets when they are undervalued and out of fashion with investors and reducing the allocation to them when they are overvalued and very popular with investors. This essentially means overweighting assets around the time their potential return is greatest and vice versa. It's perhaps the best way to take advantage of the insights of Robert Shiller and others.

Dr Shane Oliver
Head of Investment Strategy and Chief Economist
AMP Capital