

Lessons from the last 40 years for the next 20

Alan Brown | 03 December 2014

INTRODUCTION

Einstein reputedly said: "We should always make things as simple as we can, but no simpler." Looking back over the last 40 years, it is clear the investment community has repeatedly been guilty of oversimplification to the detriment of investors. The lessons of the past convince me that, going forward, successful asset owners and asset managers will be those that stop making things too simple.

They will instead acknowledge that: tail events occur more frequently than a 'normally' distributed world implies; volatility serves little purpose as a risk measure; acknowledging behavioural biases is the most important step to overcoming them; and, there are risks and opportunities that no backward-looking statistical measure will ever capture, but it would be extremely foolish not to account for those that should be expected.

1. EXPECT THE UNEXPECTED

Unforecastable events happen all the time. As investors, we need to recognise that and remain humble about our ability to predict the future.

This doesn't just include political or geological events. Disruptive technologies, for example, come out of left-field, surprise us and have a huge impact. The exponential growth in computing power and affordability has had a profound impact on our industry. Not just in terms of the products and capabilities of the companies we invest in, but also on our own technology and understanding.

Gordon E. Moore, founder of Intel, in his 1965 paper, predicted that computing capabilities would double approximately every two years. Known as Moore's Law, he was originally referring to the number of transistors on a chip, but today it is interpreted as speeds and memory will double every two years, while prices will halve. This has stood the test of time remarkably well.

Before Moore's Law was written, in 1952, Harry Markowitz first published his Nobel Prize-winning work in modern portfolio theory, Portfolio Selection. He introduced the concept of mean variance efficient portfolios, where risk was defined as the volatility (standard deviation) of returns. An efficient portfolio was one which gave the highest return for a given level of risk. While his theory was elegant, at the time it was impossible to implement as the

necessary computing power to handle large scale matrices of returns, volatilities and correlations didn't exist.

Then, in 1964, Bill Sharpe published his seminal paper describing the Capital Asset Pricing Model (CAPM). His ideas made the concepts of Markowitz's work tractable. Sharpe made a crucial assumption which seemed highly plausible – that return and risk were linearly correlated. This simple idea allowed Sharpe to introduce a single risk measure, Beta, the volatility of an asset relative to the market. In so doing, the computational limitations of Markowitz's model were overcome.

Two other conclusions were widely drawn from Sharpe's paper – returns should follow a normal distribution and, crucially, the market portfolio (or cap-weighted benchmark) provided the highest possible return to risk ratio.

It is hard to overstate the significance of this. It led to the start of the passive, index fund business, with Wells Fargo launching the first fund in 1975. Trillions of dollars have since been invested through passive funds and, more recently, through Exchange Traded Funds and Exchange Traded Products (ETFs/ETPs). It is, however, important to remember that almost all models are, in some way, an approximation or abstraction from reality.

As Moore's Law predicted, not only has computing power grown exponentially, so has the market data available, allowing the assumptions underlying the CAPM to be tested. Doing so has revealed that returns are neither linearly related to volatility nor normally distributed, but are instead fat-tailed (ie. tail events are far more common than expected under Markowitz's or Sharpe's models). That is exactly what we have experienced to our cost.

The growth in computing power and data has also proven to be seductive. In 1974, the challenge was to get information. In 2014, the challenge is how to make sense of all the data. Too many of us misuse and abuse our computing power and are seduced by the apparent sophistication of our models. As a result, we put far too much reliance on them and their ability to give us precise answers.

2. EXPECT THE EXPECTED

While the unexpected can come as a surprise, we really shouldn't be surprised by the expected.

There are at least three fundamental developments that can be predicted with a high degree of certainty – ageing demographics, climate change and more disruptive technology.

An ageing population in the developed world is baked in the cake for the next half century or so, which will have serious implications for populations and savings systems. We should also expect efforts to mitigate and adapt to climate change. In one form or another, businesses and individuals will likely pay more for the externalities they create and stranded assets on energy company balance sheets may need to be written off.

It isn't all negative. Disruptive technologies will help us cope. As investors, we should look out for the emergence of these technologies and recognise the risks and opportunities they create are not simply captured by volatility, beta or any other backward-looking statistical measure.

3. REMEMBER THE BLINKING OBVIOUS – BUY LOW, SELL HIGH

The best indicator of future returns is valuation. That statement may be obvious, but is often forgotten. When prices are high, future returns are low, and vice versa. Price/earnings ratios, for example, cannot rise or fall forever. When they reach an extreme, either price or earnings must correct. While a correction might be driven by developments in earnings, trend rates of growth don't change very often. More often than not, it is the price that must change.

We often ignore this fundamental relationship, choosing instead to buy high and sell low. Behavioural biases are almost hardwired into human DNA. It is, for example, well documented that we are far too confident of our ability to predict the future.

Helping clients and ourselves resist this bias is probably the single most important thing we can do. That task is neither easy nor simple – and it is hugely hindered by mass uptake of cap-weighted benchmarks as a simple investment model and regulation that is often guilty of over-simplifying the solution to a problem, resulting in unintended and often adverse consequences. Something as simple as a solvency margin requirement or funding target ratio can encourage pro-cyclical behaviour.

4. VOLATILITY DOESN'T MEASURE RISK

Standard deviation, or volatility, is not an adequate description of risk. Mathematically, mean variance optimisation treats upside risk the same as downside risk. No client or fund manager thinks that. Furthermore, upside and downside risks impact different types of investor completely differently. For the long-term investor accumulating assets, rising valuations represent re-investment risk and reduce future returns. For an investor in the decumulation phase, rising valuations are a Christmas bonus.

Using volatility as a measure of risk massively over-simplifies the task of managing something that is different for every investor.

5. TIME MATTERS, BUT NOT HOW YOU THINK

The asset management industry spends almost all of its time thinking about time-weighted returns (where the return in each period is given equal weight). Time-weighted returns are simple and convenient, but it is money-weighted returns that matter to savers – and the difference can be dramatic. Money-weighted returns take into account the quantum of assets that the return is acting on in each period.

Returns are far more episodic than the Efficient Market Hypothesis (Eugene Fama et al) assumes. Looking at US equity returns going back to 1802 (Figure 1), it is clear that secular bull and bear phases lasting between eight and 20 years are the norm. This creates very serious problems for investors trying to build assets to meet, for example, their retirement needs.

Figure 1: Long secular bull and bear phases are the norm
US equities 1802–2000

(Secular Bear Markets)			(Secular Bull Markets)		
Period	Duration	Annual real return	Period	Duration	Annual real return
1802–1815	13	+2.8%	1815–1835	20	+9.6%
1835–1843	8	-1.1%	1843–1853	10	+12.5%
1853–1861	8	-2.8%	1861–1881	20	+11.5%
1881–1896	15	+3.7%	1896–1906	10	+11.5%
1906–1921	15	-1.9%	1921–1929	8	+24.8%
1929–1949	20	+1.2%	1949–1966	17	+14.1%
1966–1982	16	-1.5%	1982–2000	18	+14.8%
Overall	95	+0.3%	Overall	103	+13.2%

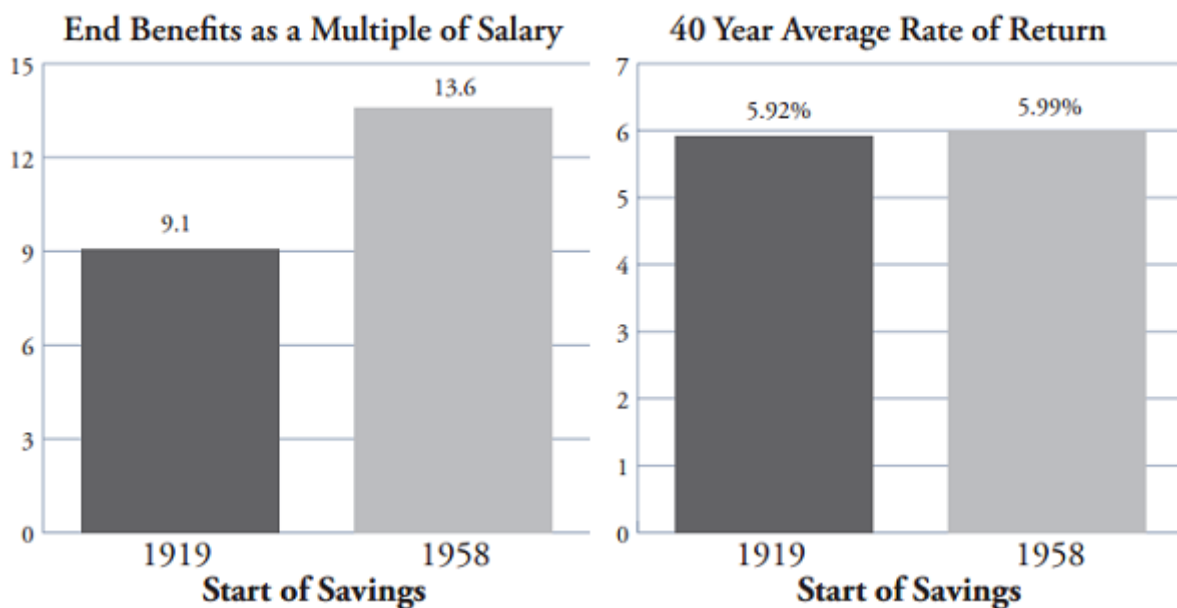
Sources: Stock Cycles: Why Stocks Won't Beat Money Markets Over the Next Twenty Years, Michael A. Alexander, 2000

Given some plausible investment and savings assumptions, a 1% change in contributions in the first 20 years has about the same impact as a 1% change in investment returns. During the second 20 years, however, when returns are acting on a much larger pool of money, a 1% change in investment returns has about six times the impact of a 1% change in contributions. This is where the order of returns really matters. If an investor contributes to a retirement pot over a 40-year period, the impact returns will have on the overall value of the portfolio will vary dramatically over time depending on when the market is in a bull or bear phase. If a bull market coincides with the second 20 years in the 40-year savings period, the gains will be significantly greater because they are working on a larger pot of money.

For example, there were two 40 year periods, starting in 1919 and 1958, in Australia during which a saver would have experienced nearly 6% real returns annually. However, the outcome can still vary enormously. In one instance, the final savings pot would have been 13.6 times

final salary, as the higher returns were experienced later in the saver's life and so acted on a larger pot of money. In another instance, the final savings pot would have been only 9.1 times final salary. There is, of course, no way for an individual to know the savings environment they are going to experience, either in terms of the level of returns or their order.

Figure 2



Sources: Schroders

Managing retirement outcomes by varying contribution rates alone is unlikely to be successful as investment returns, for better or worse, will overwhelm the effect of any changes in contributions in the final years.

So, while the level of returns matters, so does the order in which they occur. This is a chronic problem and has profound implications for lifestyle-type investments, which migrate savers' assets to less risky structures in the final years before retirement. As more and more individuals take responsibility for their own savings and bear the associated investment risk, we need to educate them about this reality and try as hard as possible to build strategies which, while unlikely to eliminate the problem, at least help mitigate it. This will not be simple.

CONCLUSION

From looking back over the last 40 years, it is clear that, in the next 20 years, successful asset owners and asset managers are going to listen to Einstein and stop making things too simple.

Instead, we will need to expect more of the unexpected, which means acknowledging and preparing for more frequent tail events. It would also be extremely foolhardy to ignore the expected. What will be our excuse for having ignored climate change when disruptive technologies make large parts of our portfolios obsolete? To do this, we really will have to think and act as long-term investors and recognise that some risks and opportunities cannot be captured by any backward looking statistical measure.

We must also acknowledge that naïve use of volatility as a risk measure serves little purpose. Plain vanilla mean variance optimisation must become a thing of the past. Furthermore, the investment community must embrace the power given to us by Moore's Law to move models closer to reality, which includes adopting a money-weighted rather than time-weighted view of returns.

Finally, if our regulators allow us, the smart part of the industry will start to act in a counter-cyclical fashion. That, after all, is how you buy low and sell dear.

Alan Brown is the former chief investment officer and senior adviser to Schroders, from which he retired in October 2014. This article is first published by The 300 Club, a group of leading investment professionals from across the globe. The mission of the 300 Club is to raise awareness about the potential impact of current market thinking and behaviours, and to call for immediate action.
