Volatility and risk are synonymous

By Michael Kemp

The dictionary defines volatility as “a liability to change rapidly and unpredictably”. In applying it to the financial markets its meaning has been extended to include risk and fear. Indeed academics have long used it as input to their security pricing models and market participants have dubbed the Volatility Index that tracks it as the “Fear Index”. But should the words volatility and risk be used interchangeably? This article explores both the validity of this assumption and how you, as an investor, can best deal with a volatile market.

Can risk in stock markets be measured?

In considering risk the investor should be aiming to avoid a substandard return, or even worse, a loss of capital. By holding a diversified portfolio of assets both with respect to asset class and, in the case of shares, to sector and company, risk can be reduced to a systematic one only. Systematic risk refers to loss associated with a downward movement in the general market itself. Diversification within an asset class cannot protect against systematic risk and it is this risk which will be addressed in this article.

But whilst we describe risk, can we actually measure it? In 1921 US economist, Frank Knight, released a ground breaking book titled *Risk, Uncertainty and Profit*. He argued that financial markets are characterized by ambiguity. That is, the future is so uncertain that a set of potential outcomes cannot be derived. This means that probability formulae cannot be applied to the interpretation or anticipation of price changes in financial markets. Thus their application as a measure of risk would seem to be inappropriate. Famed economist, John Maynard Keynes, carried the same sentiment as Knight. In *The General Theory of Employment, Interest and Money* Keynes wrote:

“It can easily be shown that the assumption of arithmetically equal probabilities based on a state of ignorance leads to absurdities.”

But despite the capacity and influence of these two great minds mathematics has been, and continues to be, used for exactly this purpose. Indeed the world of finance has actually given volatility a mathematical definition; something which Knight, Keynes and many others since would deny is possible. A recent addition to the camp of dissention is American author, Nassim Taleb. In his best-selling book *The Black Swan* Taleb argues that the regularity by which sharp, adverse stock market movements have been observed cannot be explained by the models we use.

Why volatility doesn’t equate to risk

Central to the development of these mathematical models was the publication of a research paper, in 1952, by a 25 year old graduate student called Harry Markowitz. Entitled *Portfolio Selection*, Markowitz’s paper described a model which aimed to define the trade-off between risk and reward. It ultimately won him a Nobel Prize in economics. As an input to his model Markowitz needed a mathematical proxy for risk. He chose a statistical measure called variance based on similar premises that have been used in deriving valuation formulae for options and in calculating the volatility

indices used today. But based on the reasoning given above, and the further list below, the investor should not equate high levels of market volatility to high levels of market risk:

1. Volatility is representative of both upward and downward price movements. But risk in financial markets is asymmetric; it is the risk of losing money. As stated by New York University's Peter Carr; "It is only a good measure of risk if you feel that being rich then being poor is the same as being poor then rich."

2. Fluctuating share prices are, to the seasoned investor, representative of opportunity not risk. This was the premise behind Ben Graham's classic tale of "Mr Market" and has been the bedrock of Warren Buffett's stock purchases for Berkshire Hathaway. A case in point can be seen in recent movement of The Chicago Board Options Exchange Volatility Index (VIX). Based on the implied volatility of 30 day options on the S&P 500 Index it recently reached its highest ever recorded levels at the very time that the US stock market was offering its best buying opportunities for years. It would be a perverse investor who would argue that buying sound assets at cheaper prices could be equated to higher risk.

3. Because volatility is a short term concept it is typically traders who should interpret volatility as being at least partly representative of risk. Investors however bestow upon themselves the luxury of time and as time increases the impact of volatility becomes less relevant.

Holding period to minimise systematic risk

It was mentioned at the start of this article that it was systematic risk that was under consideration. Hence for the purpose of this discussion the concept of "holding a portfolio of shares" is taken to mean remaining fully invested in a broad based portfolio of shares which closely tracks the index.

What is the period of time that you need to hold such a portfolio of shares before you can largely ignore the impact of systematic or market risk? In keeping with Knight's concept of ambiguity there is no perfect answer but we can get an idea from reviewing historical stock market returns.

The first thing that is obvious when observing annual returns over the last 100 years has been their significant variation. In the US the highest annual gain was 54% in 1933; the largest loss was 43% in 1931. The chance of a capital loss in any single year was approximately 1 in 4. The Australian experience has been similar. But in extending the holding period to 10 years, as opposed to a single year, the chance of a negative return was reduced to almost zero. As the holding period was extended the vagaries of market volatility were "ironed out". Indeed the longer a portfolio of shares is held the less appropriate (if it ever was appropriate) is it to consider volatility and risk as synonymous.

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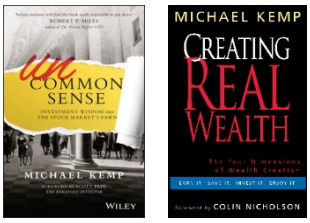

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Michael Kemp is the chief analyst for the Barefoot Blueprint and author of "Uncommon Sense". Published under the Wiley label "Uncommon Sense" delivers a deeply considered and logical approach to the otherwise complex world of investing.