

# PRICE VALUE PARTNERS

EMH ? WTF ?

22nd June 2020

“My son just told me that he can only play @FortniteGame in the evening... because half of his squad started trading. He is 10. @RobinhoodApp #TrueStory”

- Tweet from Joseph S. Mauro (@jsmauro13), 11<sup>th</sup> June 2020.

“Dave Portnoy, an internet celebrity, has posted daily trolling videos about his profits from the rally to his 1.5m Twitter followers. “The people on the internet are debating who is the better investor right now, myself or Warren Buffett?”, he said in a post this week. “It’s no debate. I killed him. He’s dead.””

- Miles Johnson, ‘Myths can make ‘smart money’ act dumb’, *The Financial Times*, 12<sup>th</sup> June 2020.

Or, as **Sven Henrich** (@NorthmanTrader) tweeted on 12<sup>th</sup> May:

This week markets are back to a 138% market cap to GDP valuation. That's with 14% unemployment and \$25 trillion in debt. Imagine what we can do with 20% unemployment and \$30 trillion in debt..

The Ratio of Total Market Cap to US GDP



No doubt, many observers of the financial markets find the idea of equities flirting, in some cases, with all-time highs at the start of one of the worst economic depressions in history to be somewhat disconcerting, not to say tasteless. Such observers might wish to consider just how specious most economic and investment theory already is.

In our book, *Investing Through the Looking Glass*, we take few prisoners from the battlefield that hosts both Modern Portfolio Theory and the Efficient Market Hypothesis. The time is March, 1952. Harry Markowitz has just published an article, *Portfolio Selection*, in the *Journal of Finance*. This article will go on to achieve cult status in financial circles..

Markowitz at the time was a young mathematician with no experience of investment. This would not prevent him from advocating the bold investment argument at the heart of his portfolio theory: that a diversified portfolio is always preferable to an undiversified one. This was in turn based on the presumption that “variance of return [volatility] is an undesirable thing” – and a mathematical proof that variance of return may be reduced within a portfolio of stocks and shares by holding a number of different shares.

But even by holding a large number of shares, it is not possible to eliminate variance of returns altogether. Nor is it possible for any one portfolio to exhibit both the maximum return and the minimum variance. As Markowitz wrote, once an investor has achieved effective diversification, then, “There is a rate at which the investor can gain expected return by taking on variance [reducing the number of shares he owns], or reduce variance by giving up expected return [by diversifying his portfolio again].”

Markowitz did not explicitly state that risk and volatility (variance) are the same thing. But as a result of his article, the financial industry would go on to treat volatility and risk as synonymous, and the financial regulators would then join them in that erroneous belief. Thus the more volatility in price that a given investment incurs, the riskier it is. But that is overly simplistic.

Once again, the Austrians were on the preferred track. Another substantive insight from the Austrian School is that risk – whatever risk might even be and however we might define it – is entirely subjective. It is subject to context. Your risk and my risk are not the same. *Markowitz assumed that they were.* As did the legions of financial professionals who followed in his wake.

Risk is not, realistically, volatility – the extent to which a price wobbles around an average level. Risk is, for example, the risk that you incur a permanent capital loss. You saved for your retirement and lost everything? Now *that* is risk.

Older economists than Markowitz never even dared to define risk. Although there was keen discussion among economists, before World War One, as to what risk might be, and whether it was the same thing as uncertainty, there was complete agreement that whatever risk was, it was probably too complex a thing ever to be fully understood and, crucially, that it was incapable of mathematical calculation.

But Markowitz essentially put a figure on risk. Risk, post-Markowitz, equated to the annualised standard deviation of a portfolio’s return – in other words, how much its net asset value wobbled. Not the likelihood of complete financial failure for the

portfolio's owner, but merely the extent to which its net asset value oscillated around a mean.

Peter L. Bernstein, in his biography of risk, *Against the Gods*, suggests that the sea change in attitude towards risk came about because of widespread revulsion at the horrific slaughter of the Second World War. The awful toll on human life bred an attitude that international cooperation could and should be organised so as to prevent any recurrence of that tragedy, and to try and improve the human condition in general. This attitude gave rise to new international organisations like the United Nations, the World Health Organization and the World Bank.

If science could give us the atom bomb, the thinking went, it could also define risk. Unfortunately it just wasn't able to identify it properly. Or deploy it within a model that might actually be of use to investors.

Markowitz's lack of underlying market knowledge is something of a scandal. In Bernstein's words:

"Markowitz had no interest in equity investment when he first turned his attention to the ideas [in his research note]. He knew nothing about the stock market. A self-styled 'nerd' as a student, he was working in what was then the relatively young field of linear programming...

"One day, while waiting to see his professor to discuss a topic for his doctoral dissertation, Markowitz struck up a conversation with a stock broker sharing the waiting room who urged him to apply linear programming to the problems investors face in the stock market. Markowitz's professor seconded the broker's suggestion enthusiastically, though he himself knew so little about the stock market that he could not advise Markowitz on how or where to begin his project."

To a man with a hammer, everything looks like a nail. To a mathematician with no market experience, why not assume that equations can solve everything?

Following Markowitz, the world of finance cheerfully adopted the volatility of historic returns as an appropriate proxy for risk. Based upon this idea, the Capital Asset Pricing Model (CAPM) was developed. CAPM would beget the Efficient Market Hypothesis (EMH). EMH would beget a statistical measure widely used by portfolio managers called value-at-risk.

The CAPM model is still alive and well and being taught to brand new generations of fund managers, and CFA candidates, despite the fact that it is pure nonsense. It can be defined by the following equation:

$$r = R_f + \text{Beta} \times (R_M - R_f)$$

Where:

r is the expected return on a security

R<sub>f</sub> is the risk-free rate (i.e. cash)

Beta is the overall market risk

R<sub>M</sub> is the return from the appropriate asset class

Where to begin with the flaws here? There is no longer any *risk-free* rate, if indeed there ever was one. The policies of QE and NIRP (Negative Interest Rate Policy) have essentially killed off the risk-free rate. (Both cash and Treasury bills now yield nothing, or less than nothing, in much of the developed world.) We can also ask whether beta is an appropriate, accurate or measurable proxy for market risk. And whether it's remotely sensible to boil down risk *per se* to an easily calculable figure.

We can also consider some of the additional assumptions that CAPM requires:

Investors are all identical.

Investors are all equally risk-averse, profit-maximising individuals (a life form known as *homo economicus* that has never been glimpsed in the real world).

All investors have access to all available information about the market simultaneously.

Market returns obey a model of normal distribution.

Asset markets are frictionless, information is costless, trading is costless, and the borrowing and lending rates are identical.

There are no such things as taxes, regulations or restrictions on short selling.

The financial theory behind CAPM doesn't hold up in any approximation to a normal financial market; it doesn't work in theory or in practice. Building on the work of Harry Markowitz, the CAPM was the creation of Jack Treynor, William Sharpe, John Lintner and Jan Mossin. Sharpe, Markowitz and Merton Miller would go on to receive the 1990 Nobel Memorial Prize in Economics – always a dangerous sign – for their contribution to financial economics. Fischer Black and Myron Scholes would go on to develop the so-called Black–Scholes model for derivative pricing in 1973.

Bad economics. Overly crude modelling. Widespread adoption within the financial services industry. What could possibly go wrong? First the Long-Term Capital Management collapse and then the financial crisis of 2007/8 showed exactly what.

Adherence to flawed economic models helped trigger the credit crisis. Adherence to questionable economic theories has dictated our authorities' response to the credit crisis. What if the authorities are simply wrong? Trillions of dollars, pounds and euros have been spent on quantitative easing and extraordinary monetary stimulus since the bankruptcy of Lehman Brothers. It is by no means clear that those trillions have been well spent.

If the efficacy – and ultimate consequence – of all those trillions was a cause for debate several years ago, it is surely even more urgently a cause for debate now. No matter. There are still statues to be pulled down, somewhere.

Tim Price is co-manager of the [VT Price Value Portfolio](#) and author of 'Investing through the Looking Glass: a rational guide to irrational financial markets'. You can access a full archive of these weekly investment commentaries [here](#). You can listen to our regular 'State of the Markets' podcasts, with Paul Rodriguez of ThinkTrading.com, [here](#). Email us: [info@pricevaluepartners.com](mailto:info@pricevaluepartners.com).

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