



## How 'Modern' and how relevant is **Markowitz**?

*Fifty years ago this year, Harry Markowitz, inventor of 'Modern Portfolio Theory' published his first book describing the 'Efficient Frontier' – the point at which the investor is positioned to receive maximum reward for the risk he takes when investing. Since then, designing an efficient portfolio – consisting of a diverse mix of assets which can be bought and held for the long term with minimal readjustment – has become the 'holy grail' of the intelligent investor. But exactly how modern and relevant are Markowitz' theories in this not-so-Brave new world of internet-enhanced trading and ever more complex investment products? We ask Sparinvest's Sidsel Møller, a portfolio optimization expert within the Group's Asset Allocation Department.*

**The Credit Crunch is now two years old. Isn't it true that stock, corporate bond and property markets have all behaved with remarkable synchronicity (high levels of correlation) during this period – both in nose-diving in 2008 and in recovering in 2009? Would – or indeed could Markowitz have predicted this scenario – was it within the scope of his theory?**

"Yes, it was definitely within the scope. Markowitz' theory is merely a mean-variance optimization. As the risk-return space of the efficient frontier is defined by standard deviation and expected return, it holds that sometimes actual return can deviate significantly from the mean return, just as correlations may vary over time. It is true that risky assets such as stocks, high-yield bonds and emerging-market bonds yielded extremely negative returns in 2008 and have rebounded since March. Property markets in many countries have also dropped significantly, but stayed stable in countries that haven't experienced bubbles. However, as long as asset classes are not perfectly correlated (correlation = 1), there is always a possibility of increasing return while reducing risk through diversification. A well-diversified investor would not have lost as much as the investor who forgot to diversify, or rebalance his portfolio, as stocks appreciated during the years leading up to 2008."

**Does it surprise you that – having lost considerable sums of money as a result of following 'buy-and-hold' strategies in the last two years, many feel that Markowitz 'Modern Portfolio Theory' is now dead in the water?**

"No, it does not surprise me at all. But a buy-and-hold strategy – without any rebalancing – would also have increased risk significantly. As stock markets rallied and credit spreads narrowed to being almost non-existent, the portfolio share invested in risky assets would have increased enormously without periodic rebalancing and with it, also the portfolio risk. The investor that diversified his portfolio initially, and performed a periodic rebalancing, would not, all else being equal, have lost as much as the investor who followed the buy-and-hold strategy."

**Do you still believe in Markowitz theory?**

"I still believe in determining client's risk profile and optimizing a well-diversified portfolio that fits the client, institutional or retail. Since Markowitz, we have moved forward and optimization no longer rests on finding the portfolio at the efficient frontier. But his theory is the basis for today's portfolio optimization. Taking correlations into account, also increasing short-term correlations, rests very much on the diversification effects introduced by Markowitz. So yes, I do believe in Markowitz underlying theory, but we have more advanced tools for portfolio optimization today than finding the portfolio that lies on the efficient frontier."

**It always used to be said that if America sneezed, the world caught a cold. In the last two years, no other mature market has shown any sign of decoupling from America and taking a new lead. Are the emerging economies the only geographical hope for finding low correlations?**



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"No, across markets correlations between various asset classes will always vary over time. The emerging markets have recovered much more convincingly than developed markets, as they are also the countries with the greatest real growth potential. But they also had a much deeper trough to rebound from, as they dropped more than developed markets last year. And this is something to take into account as well. However, emerging markets should always be a part of a well-diversified portfolio."

**How have the events of the last two years changed your asset allocation models – if at all?**

"We are constantly in the process of improving older models or developing new ones, thus the process has merely continued. However, we've seen an increasing focus on identifying investor risk profile, whether institutional or retail. The institutional investors' risk profiles are determined for the most part by regulatory requirements. Retail investors, on the other hand, are not subject to these constraints but they are subject to their emotions and psychological biases. Lately, there has been an increasing focus on Behavioural Finance. Under Modern Portfolio Theory it is assumed that the investors have rational expectations and are risk averse. This is the basis for the classic portfolio optimization. Portfolio optimization today is also about mapping the biases of the individual retail investor; discovering the threshold at which the investor will sell off with a loss, i.e. how much can he bear to lose and stay invested. It also takes into consideration any other constraints such as occasional liquidity requirements, etc. After taking all these factors into account; the next move will be to optimize his portfolio. This is a significant change from the classic theory. Optimization no longer maximizes expected return at some standard deviation level, but adjusts the portfolio so as to minimize the risk that the investor experiences the loss that would induce him to realize it."

**If your Strategic Asset Allocation funds are split purely between fixed income investments and equities, are you providing adequate diversification? What about commodities and property?**

"Theoretically the well-diversified portfolio holds the market portfolio; this means all sorts of assets. But for commodities, history has shown that their return over the long term equals inflation, which also makes sense, as inflation reflects the changes in price levels over time. So commodity investments, are roughly speaking, a hedge against inflation."

As for property, it should definitely be part of a well-diversified portfolio, if it contributes to the diversification. Therefore property will be introduced as part of the PROCEDO fund portfolio (the fund that we offer for longer-term investors), but only with a smaller share of the total portfolio. The investment will be through fund-of-funds thus providing some diversification within the asset class itself, and ensuring a minimum level of liquidity. As the Asset Allocation Funds should hold the optimal portfolio for a given risk profile, maintaining liquidity is important. Without it, we run the risk of not being able to rebalance according to the optimal allocation without large costs."



**Many investors are now looking to an increasingly exotic range of instruments including leveraged ETFs and structured products to control risk. Is that the way forward in your view?**

"It depends on the client. Leveraged ETFs are interesting but very risky. As it is a leveraged exposure to an index or some asset class, the leverage exacerbates the return of the fund, thus increasing risk – both upside and downside. Additionally, there are other risk factors affecting the return from this kind of investment. In order to maintain a fixed exposure to the asset class, the fund manager uses a vast number of derivatives as the prices change; this gives you a counter party risk, and induces extra costs. On top of this there are costs associated with the leverage (interest payments). In turbulent times, the risk of hitting the psychological threshold where the investor will sell with a great loss is increased, thus I do not recommend it for the average investor. For the time being, I think we can easily assume that investors are quite sensitive to further losses, and with the turbulent markets we are seeing these days this type of investment is only recommendable to a very limited number of investors. Structured products are great for tailoring an investment



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for a specific risk profile. The product can have various attributes - such as principal protection, accepting the possibility of losing some of the principal in return for a higher expected return, optionality etc. Thus, theoretically, there should be a structured product out there to satisfy any investor's possible needs. However, the very special features you see in a structured product are the source of other risk factors affecting the return, beyond simply the price changes in the underlying investments. Due to the high specialization, liquidity can be quite low for these products as they cater for a very narrow clientele. Additionally, many of these built-in return features are not realized before maturity (say, for instance it runs for three years), and lack of transparency makes it difficult to set a fair price of the product. At the very least, this results in structured products being a buy-and-hold until maturity strategy, thus reducing the possibility of getting out of the investment at fair price in the event of an acute liquidity need. Again, depending on the level of transparency of the product and investor constraints, I would not recommend structured products to just any investor."

***It has been said that asset allocations built on bonds and equities are best suited to secular bull markets but that non-traditional thinking (tactical and exotic investing) makes more sense in secular bear markets. Do you agree?***

"Yes, if only we could predict when these bear markets will occur. Ideally, one should hedge risky assets, or simply sell out just before sentiment shifts to being negative. At this time prices are high on the conventional assets and low on hedging instruments, so ideally you should be the first mover; although it's also possible to move too early. Even Soros lost \$700 million during the tech bubble betting on a decline. He was right, but too early. So even for professionals, timing is difficult.

The tendency is normally that investors trying this approach move too late. As shifts in sentiment are extremely hard to predict, the better strategy is to diversify, thus reducing long-term risk at a level where the likeli-

hood of hitting the sell-out threshold is minimized. So no, I do not agree.

***What do you see as the principal strengths of the 'buy-and-hold' strategy, based on strategic asset allocation?***

"For a start, it is a method that concentrates effort where it is most effective. Various studies have shown that more than 90% of a portfolio return is determined by the strategic asset allocation, the rest is determined by tactics and by selecting the right individual assets. These studies were done on pension funds and other professional investors as well as retail investors.

Let's assume that the professional money managers have the education, experience and spend more time at it, and yet, their tactics and stock picking explain less than 10% of the return their portfolios generate. We can

also easily assume that they are probably better at it (or should be) than the normal retail investor. So why spend a great deal of time on tactics and stock picking that have very little effect on your overall return? The most important thing is to optimize your portfolio according to risk profile and constraints; adjust it as the time horizon shortens or other constraints changes – and remember the periodic rebalancing.

The second strength of the strategy is that it saves time. Each of us has a busy life. We have jobs to do, family to look after, hobbies etc. The strength of sticking to the

strategic asset allocation with periodic rebalancing is that you can go about your life without spending too much time on worrying about your investments."

***Isn't the problem with Modern Portfolio Theory the fact that it doesn't work in a crisis because it doesn't have a 'sell trigger' built in? With MPT, risk is described in terms of 'standard deviation' (i.e. the average deviation away from the return mean of a given security) but there is no provision for what happens when volatility goes beyond what is expected in terms of losses.***

"Both in the original Modern Portfolio Theory and what we do today, which is based on MPT, there is definitely

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Sidsel Møller  
Sparinvest



provision for large deviations from the mean return. I just think that the risk/return trade off of investments has been forgotten during the years leading up to 2008. Stock returns were positive and stable, spreads narrowed much more than fundamentals could explain, property bubbles, etc. All of these developments would indicate that investors were being exuberant; they were forgetting that the return you get from your investments is the reward for accepting risk. Risk means that losses do occur sometimes, also huge losses. Of course the losses we've seen in 2008 have very low probabilities, but the probabilities are not zero and they never have been. It is also certain that we will see a financial crisis of this magnitude again and it may even be in our lifetime, even though we call it the '100 year crisis'. The problem with sell triggers is that market timing is extremely difficult-to-impossible. And as previously mentioned, market timing does not explain even 10% of the portfolio return. So if market timing is both uncertain and time consuming, the resources are better targeted at ensuring the right asset allocation for the client."



***In your view, when will we see the resumption of normal patterns of correlations between assets?***

"As security prices are determined by supply and demand, this also determines the correlations between the asset classes. At present, it seems that there is still confusion and differing opinions on which direction prices should take from here. Investors are oversensitive to news and many are acting upon the arrival of new information in a manner that borders on hysteria. This is apparently being exploited by day traders looking for fast profits, which in turn increases the short term volatilities. When the correlations will resume a more normal pattern is hard to say, but it will certainly be when the average investor starts investing in risky assets again, followed by the institutional investors that, at the moment, are unable to enter the markets again due to regulatory requirements. When these agents re-enter the markets for 'conventional' risky assets, such as stocks and corporate bonds, we will see a drop in correlations. But remember that the long-term correlations haven't increased by a large number."

***Do you have a message for the IFAs who are abandoning their buy-and-hold strategies?***

"The past years' trends have, among other things, seen an increased focus on investor protection and best practice. Financial advisors are now subject to the MifID regulation and it is highly probable that after the financial crisis, the focus from authorities will increase. It is now obligatory to know your client, i.e. draw the risk profile. Recently, more advanced tools have been developed

for determining not merely the risk appetite and return requirements of the client, but also the psychological biases we are all subject to, such as loss aversion. These tools are powerful for finding the optimal portfolio for the client, and I believe that this will be one of the mega trends in the future, taking into account the behavioural biases when determining the risk profile of the client and then using strategic asset allocation – in an updated shape – to find the best proposition for the client. At present, investors seem reluctant to buy into classic risky assets, creating a market for structured products, leveraged ETFs, etc. But the risks of adhering to these products may be understated,

because other risk factors beyond mere correlations and volatilities come into play. Factors such as liquidity risk, optionality, counterparty risk etc., all affect the return from such investments. I strongly advise IFAs to consider these risks as well and whether or not they fit with the individual client profile, when recommending these products to clients. Perhaps then they will not look so attractive after all."

***What would be your advice to investors who liquidated their assets in 'Black October' and are now so risk averse that they are still sitting with everything in cash and Government bonds?***

"The advice to investors who realized great losses last year would be to try and identify their risk profile, including the maximum loss they feel they can suffer without liquidating, and then to optimize their portfolio according to this individual risk profile."

For most investors this will mean consulting with one – or more – financial advisors that have access to the



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right tools, both in terms of a 'risk profiler' and advanced asset allocation tools.

Applying these two steps, risk profiling and strategic asset allocation, can help the investor to optimize investments so as to avoid realizing losses and not staying invested for the turnaround."

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