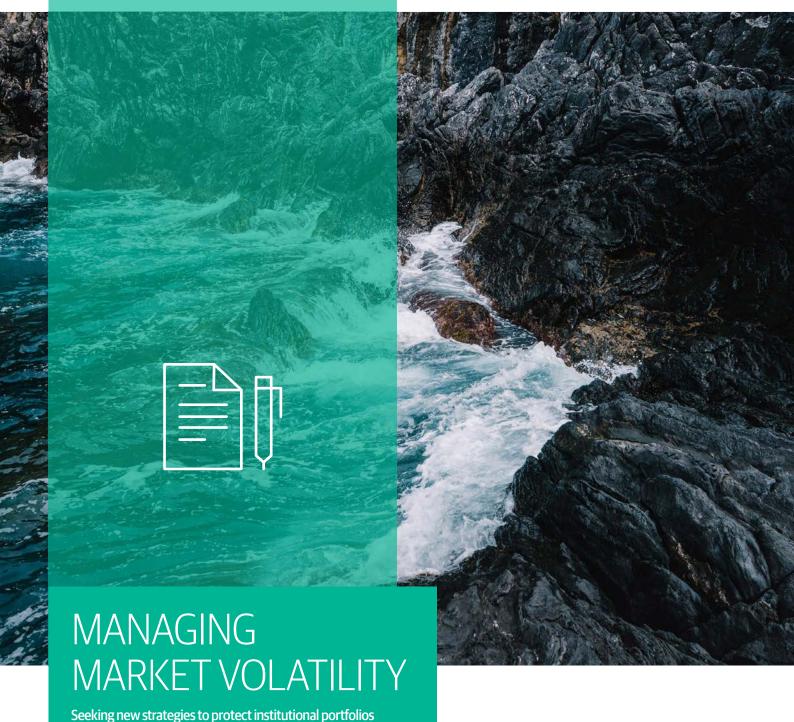
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MANAGING MARKET VOLATILITY

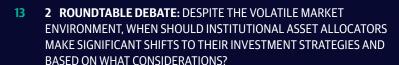
THE REGULATORY REPORTING ENVIRONMENT TODAY

1 EMEA ROUNDTABLE: HOW ARE DEFENSIVE MARKET STRATEGIES EVOLVING TODAY?

Traditional reallocation of capital during volatile markets has gradually evolved over the years. Part of this change has to do with the inclusion of broader asset classes in institutional portfolios. What are the ways that institutional investors are approaching volatility in the market, and the new strategies that they are employing to protect their portfolios?

Interviewer:

- David Grana, Head of Production, Clear Path Analysis Panellists:
- Mark Hedges, Chief Investment Officer, Nationwide Pension
- Jonathan White, Head of Client Portfolio Management, AXA Investment Management
- Mark Fitzgerald, Head of ETF Product Management, Europe, Vanguard
- Marlies van Boven, Managing Director, Research & Analytics, FTSE Russell



In spite of monumental changes to financial markets over the last few decades, strategies of old are still very deep-rooted in institutional investors' playbooks. Just like with many other preconceived strategies in financial markets, the current methods employed by investors to tackle market volatility simply isn't working, and a paradigm shift is needed. What is this new and elusive strategy that can help investors protect their portfolio from sharp market movements during volatile times?

Interviewer:

- David Grana, Head of Production, Clear Path Analysis
- Charles Van Vleet, Chief Investment Officer of Pension, Textron
- Chris Harvey, Head of Equity Strategy, Wells Fargo Securities
- Mo Haghbin, Global COO, Investment Solutions, Invesco
- Mark Barnes, Managing Director, Head of U.S. Research, FTSE Russell



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Charles Van Vleet, Chief Investment Officer of Pension, Textron

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4 INTERVIEW: IS THERE A WAY TO REPLICATE ACTIVE STRATEGIES THROUGH PASSIVE APPROACHES AND WHAT ARE THE IMPLEMENTATION HURDLES THAT MUST BE OVERCOME?

The active versus passive argument is overblown. Why can we find a happy medium? Is this what factor investing trying to teach? That you don't need one strategy or the other, but that they can be executed in unison? And how is it that factor investing creates this happy balance between the two?

Interviewer:

- David Grana, Head of Production, Clear Path Analysis Interviewee:
- Luke Oliver, Head of U.S. ETF Capital Markets, DWS



Chris Harvey, Head of Equity Strategy, Wells Fargo Securities



Mo Haghbin, Global COO, Investment Solutions, Invesco



Mark Barnes, Managing Director, Head of U.S. Research, FTSE Russell



Luke Oliver, Head of U.S. ETF Capital Markets, DWS



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ROUNDTABLE DEBATE

How are defensive market strategies evolving today?

Moderator



David Grana, Head of Production, Clear Path Analysis

Panellists



Mark Hedges, Chief Investment Officer, Nationwide Pension



Jonathan White, Head of Client Portfolio Management, AXA Investment Management



Mark Fitzgerald, Head of ETF Product Management, Europe, Vanguard



Marlies van Boven, Managing Director, Research & Analytics, FTSE Russell

POINTS OF DISCUSSION

- Volatility is higher than in 2017, but not in a long-term context
- Brexit has been more concerning to investors than the China-US trade wars
- Investors are not driven to change strategy according to short-term volatility, but rather by the end of the current economic cycle
- Passive investing that protects against volatility has been in great favour amongst investors
- A record number of institutional investors are currently evaluating and adopting Smart Beta strategies for their portfolios

David Grana: What is the current state of volatility in financial markets?

Jonathan White: It is higher than in 2017, when volatility dropped to multi-decade lows. The fourth quarter of 2018 was a bit of a wake-up call for the markets, but I wouldn't describe market volatility as being high in a long term context. In fact, it is more just moving back to normal. This is perhaps a little surprising, given how one man's Twitter feed impacts markets on a daily basis at the moment

Mark Fitzgerald: I agree. And this does have implications for what clients are thinking and the types of discussions that we have regarding our products.

In 2017, markets were aligned and it was a year of very strong returns. At the end of last year, we felt the path of rates was going one, way but is now going in another direction. In fact, we have seen the types of conversations that we have with clients shift, whereby asset allocation and fixed income have now become much more prevalent.

David: Are investors changing their strategies in response to swings in volatility?

Mark Hedges: As a pension fund, we tend to be long term investors. We don't generally take tactical decisions, unless we see significant opportunities, so we don't generally rebalance our portfolio. This is particularly true for us since we are a closed pension fund. We are on a path to endless de-risking. In seeking new opportunities, we tend to look for long term returns. We don't really take too much notice of what is happening on a day-to-day basis, and are not as tactical as a hedge fund.

We were particularly concerned about Brexit, as opposed to the China-US trade wars. There was a considerable amount of uncertainty and felt that we should hedge the risk associated with it.

IN WORKING WITH INSTITUTIONAL INVESTORS, WE SEE AN INCREASE IN THE USE OF MULTI-FACTOR STRATEGIES AS PART OF THEIR CORE ALLOCATION

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Come the last Brexit deadline, our sponsor and trustees didn't hedge, but we did do a lot of work on it. I felt it would be a good idea to hedge our equity position at that point, by using swaptions, as well as finding methods of inflation-hedging and interest rate-hedging. Since that time, rates have deteriorated quite dramatically, and we saw an equity sell-off in the last quarter of last year; though there has been a recovery since.

UK pension funds have to revalue their liabilities every three years, and for us, this happened to be on 31 March, which coincided with the original Brexit date. We were looking to hedge our position at this point, which is unusual for a pension fund. However, at the moment we are not taking any particular views around where we see volatility. Yes, there is still uncertainty around the US-China trade wars, as well as Brexit, but we are not looking to try and actively manage these.

Jonathan: Our experience is that investors aren't changing strategy based on short term swings in volatility. This isn't surprising, since our clients are looking to invest on a long-term basis.

We have seen some clients with some sensitivity to drawdown or those with one eye on the end of the cycle, wanting to place themselves more strategically in a more defensive and conservative type of allocation. But that is not, per se, driven by short-term volatility spikes. If anything, our experience is that interest in repositioning towards more conservative asset allocation often grows as markets rally and valuations become stretched.

Marlies van Boven: In most market environments, diversification helps to offer protection against any dominant source of risk. In working with institutional investors, we see an increase in the use of

multi-factor strategies as part of their core allocation. These multifactor solutions can help mitigate volatility associated with individual factors and obtain a more consistent performance over time.

If you look at Q4 of 2018, there was a sudden and large slide into large cap defensive stocks. But in Q1 of 2019, we observed a reversal into small cap and more cyclical strategies. It is very hard to time factors, and you may be caught out on both sides of the coin.

We generally work with clients to develop long-term strategies, rather than tactical shifts. There are only a few perhaps more extreme conditions where you may want to have a temporary, tactical allocation. That is situational and dependent on the client's very short-term portfolio requirements

David: How has the massive uptake of passive investing changed the way that you look at the equities market today?

Mark F: There has been a much greater focus on costs and performance, from clients, the press, and even regulators. You see this in the UK, Europe, and the US. I don't feel that it is something that is going away. And in many cases, the adoption of passive or index assets has been a reaction to the Financial Crisis, where many strategies that were expected to protect clients or perform in down markets didn't actually do so.

Across all client types, we have now seen a big shift into incorporating index assets, which are a key piece of the investment landscape. We aren't anti-active and actually have a very large active business in the US and Europe that many aren't aware of.

It is about paying attention to the performance and the costs of the products. Our philosophy is to advise people to think long term and to avoid getting caught up in short term reactions to market movements and volatility. It is about staying diversified, but above all, to consider how they use index and active strategies together.

We have done a lot of research on the impact of index investing on markets. This has aided further conversations and helped clients to understand how big indexing is and how big it might get. We don't currently see any correlation between market volatility and the growth of indexing, or even the dispersion of price returns across markets. Although it is growing and has grown, we do feel that it still has some way to go yet.

Mark H: We've moved all of our developed markets equity management to index trackers. We did have quite a number of active managers, but we didn't see that they were delivering - and certainly not net of fees. All of our developed exposure is on an index tracking basis.

We have had discussion around whether we should move some of this to some factor-based investing, but as we de-risk and the size of our equity holdings reduce, we decided not to split the allocation. We had a view that we would hold a third of our allocation in straight-forward,

earnings, both historically and in the future, that security is likely to exhibit lower levels of volatility when market conditions get tough.

This is our job as an active manager, and we do this through the lens of earnings and fundamentals. The rise of passive has more consequences, and causes more inefficiencies. These can be a long term benefit to an active approach.

Mark H: I don't disagree with this and do feel that market cap indexing is flawed. However, the view of my trustees is that passive works for us, given that net of fees our experience with active management meant that we had underperformed passive index tracking. Having had a period of sustained underperformance, the trustees were unable to continue with it, but I agree that there are flaws to market cap. Ultimately, price-making is determined by active equity, not passive equity. And, in the long term, it will be the price-makers who determine value in the market.

Mark F: I agree that price making is determined by active equity. We do have some active factor products and do believe that there are certain factors that will provide you with a premium over the broad market in the long run. There are potentially hundreds of factors, depending on what you read. But there are certainly six of them that will give you that long term premium.



in Q1 of 2019, we observed a reversal into small cap and more cyclical strategies



market cap indexation, and a third in factor-based investing. But in the end, we decided not to bother, since we were continuing to drive down our equity holdings. As pension funds de-risk and look to their cost base, they have moved very heavily away from active equity investments, particularly in the developed markets.

Jonathan: We focus on earnings and believe that future earnings drive prices and volatility. Our focus has not changed as a result of rise in passive equity investing.

This may not be universally popular with my fellow panellists, but we feel that there are some critical flaws with cap-weighted passive investments. This includes the mechanical exposure to critically weak securities, just because they are in an index, such as poor earnings, etc. This can be avoided by adopting a more fundamentally-driven and factor-orientated approaches and to bias portfolios away from those types of securities.

In terms of how we think of fundamentals being important, we build portfolios to lower risk and volatility. In this case we are not necessarily thinking about the price of volatility on its own, but we also consider companies' earnings. To us, if you invest in a company with solid

We tend to advise and caution investors to really understand their own risk objectives, risk tolerances, lengths of timeframes, etc., because it isn't for everyone.

We constantly work alongside the index providers to try and evolve their methodologies to better reflect the market. But ultimately, we have to remember that for any broad market, although you can slice and dice it in a number of different ways, they are trying to give you a close approximation of the total market exposure. We should also remember that these benchmarks were originally created as a measure for the active industry. It took three decades for index products to start to gain any traction, but the benchmarks themselves were originally created to measure the performance of active managers. It is just very difficult now for active managers to outperform over the long term. And it is equally difficult for investors to be able to find the managers before they go on a run of outperformance.

Unfortunately, behavioural traits mean that if you pick a good manager whose style might be out of favour, people tend to have a 2-3 year timeframe before they then switch the manager. In analyzing 7000-8000 active manager strategies on the equity and fixed income sides,

WE HAVE FOUND THAT EVEN THE VERY BEST MANAGERS OVER THE COURSE OF A 15-YEAR PERIOD CAN HAVE SEVEN OR EIGHT YEARS OF UNDERPERFORMANCE

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we have found that even the very best managers over the course of a 15-year period can have seven or eight years of underperformance.

It is very difficult, although this isn't to say that it can't be done. And strictly speaking, we are the biggest buyer of active management globally and work with Schroeders, Baillie Gifford, Wellington, etc., and have done for 40 years. On average, we work with a manager for around 17 years. It is a discipline and patience game. The index world and index products are transparent, low cost, easy to understand, and are there for the active management community to try to outperform. It can certainly be done, but it is just hard to find managers who can consistently do it.

David: What new tools and strategies are at investors' disposal today to effectively manage volatility?

Marlies: When I was on the buy side, asset managers quite often would allocate to cash in the face of market volatility. However, if you allocate, say 20% to cash, and thereby reducing portfolio volatility by 20%, you also only capture 80% of an upward market swing. This is a symmetrical solution and can be costly in volatile markets.

Investors tend to prefer an asymmetrical solution, where you protect on the downside, but don't give up as much on the upside. Defensive factor strategies, such as quality and low volatility, have this characteristic. Some investors who are interested in protecting capital are combining low vol and quality with, for example, value, or a different combination in line with their investment objectives.

The objective is to capture the risk premium of the factors. In the long term, certain factors pay off, which is well proven by academics and practitioners.

We also see a lot of interest in index approaches that seek to reduce overall portfolio volatility for example minimum variance, it's an effective risk management tool to reduce the equity beta of the core portfolio. It makes use of optimization to obtain the minimum risk portfolio subject to some constraints to ensure sufficient diversification.

What is really nice about this strategy is that the volatility reduction is at its highest when markets sell-off; providing on average 20-30% volatility reduction across different markets. It is a very defensive strategy, but you don't have to come out of the market and can stay fully invested.

Interestingly, as the Chinese market has opened up to international investors we've seen a lot of client interest in our China Minimum Variance Index, which could be quite valuable, given that the Chinese market is retail-driven and historically volatile. We've also examined placing quality and value factor overlays to this index, to reduce overall portfolio volatility whilst accessing factor risk premia.

Jonathan: We probably all agree that factor-based approaches offer better investment outcomes than cap weighted indices whilst keeping costs low.

Compared to the past, asset owners are now in a much better place, with access to a wide range of factor solutions that can help them manage volatility. However, we do feel that you have to be careful as you go about designing and building these types of factor-driven strategies.

For example, simple minimum volatility strategies are currently quite expensive. Their valuations are very high because they are fairly one-dimensional in how they think about lowering risk. Whilst they may do a good a job on the downside, there is a risk that if it is done in the absence of considering valuations, they may let investors down.

Whilst we can learn from history, the future is unlikely to be an exact replication of the past; it is our thought process as an active manager to focus on fundamental ideas that we can have confidence in moving forwards whist managing risk.

This means that we have to divert a lot of our time to research in this area, looking at new trends and data to help model emerging drivers of volatility.

In summary, when we build factor portfolios to manage volatility we use a combination of tried and tested ideas that have worked in the past, together with new ideas and data that are focused on the future. We also seek to avoid tail risk, extreme valuation risk, and other hidden risks that we believe are present in some simple index factor solutions. This is our job as a fiduciary, as well as an active manager.

Marlies: In terms of the costs associated with minimum variance, there are many ways to construct a portfolio and there are some minimum variance strategies out there that are concentrated. As a result, they tend to have high exposure to low volatility stocks, which often get expensive when investors flee to defensive strategies.

If you have a broad and more diversified strategy, you have less exposure to these factors and price seems to become less of an issue. It does depend on what type of portfolio construction process you apply.

David: What proportion (percentage) of investment portfolios do these strategies and tools represent?

Marlies: We have been running an annual smart beta survey to assess global institutional asset owners' attitudes towards evaluating and adopting smart beta strategies. This year, we saw a record high of around 58% globally, with 65% in Europe and 60% in North America.

We also saw the biggest uptake within smaller asset owners (assets up to \$1 billion). Investors have been allocating more towards smart beta, and it has been more generally accepted that factors exist. We saw that acceptance corroborated, with almost three quarters of survey respondents allocated to multi-factor strategies.

Most of the asset owners are more interested in using Smart Beta as a strategic asset allocation rather than a tactical one.

We saw that almost two thirds of the respondents were interested in combining smart beta with ESG considerations. They really are thinking about climate risks, with a wider adoption in Europe than North America. Investors are worried about the long-term risk of being exposed to stocks that do not have a sustainable business model.

Industrywide, smart beta continues to be an important and growing part of the conversation.



Investors have been allocating more towards smart beta, and it has been more generally accepted that factors exist

We have carried out quite a lot of analysis on this. Of course, during the Financial Crisis, these strategies did get expensive, because of the massive uptake. But apart from that, it hasn't been as bad as people expect it to be.

Low volatility tends to get more crowded, so it depends on what factor exposures you have within your minimum variance strategy as to how costly it gets.

Mark F: I agree with this. We have sought to use diversification within our factor strategies in an attempt to avoid too much concentration in certain types of securities or certain parts of the market. We have also tried to prompt conversation around clients and investors being aware of unintended factor biases, since there are many new products available. Low vol and min vol strategies have been around for awhile, whereas, some of the other factor and smart beta products have come onto the market in the past few years. It is about trying to understand what factors you are exposed to and whether they are intended versus unintended biases within any given strategy.

Mark H: I am not aware that this is now 50-60% of people's allocations. We were very much of the view when we presented factor-based investing to the trustees, the aim was to have a third in market cap, a third in synthetic, so that we could use the cash to invest elsewhere, and then a third in a multi-factor bucket that had four or five different strategies. This would remove the risk of being exposed to one particular factor strategy.

In the end, we decided not to go down this route, because our equity exposure was reducing and is now only 12.5% of the fund. Most of our focus is now on illiquid markets.

When speaking with our investment consultants, there are clearly pension funds that are taking this up, and there is certainly more focus on ESG. Based on our discussions, there is a tilt towards people looking at factors-based investing to be an arm of their ESG approach.

Year-on-year, there are certainly more people looking at factor-based investing, but I suspect that it is still substantially smaller than market cap allocations.

Jonathan: We see client interest in both multi-factor strategies and lower volatility factor strategies. It's not atypical for asset owners to be thinking about allocating a portion of their passive buckets to factor-based approaches, sometimes to the tune of around 30%.

We are also seeing some clients allocating to factor strategies by pulling allocations from their traditional active bucket. This may be a result of disappointment with performance and a desire for lower fees.

Mark F: For many investors, they understand the academic arguments and are coming at it from the perspective of whether they can substitute some underperforming, active, traditional, long-only managers, with some form of factor strategy (i.e. quant or lower feebased approach). It is just that many investors haven't quite worked out how to actually implement the factor strategy, whether it is a compliment, tilt, or substitute for other managers and what proportion should they be using.

This probably explains why multi factor tends to dominate the flow figures when you have a look. It is difficult to get accurate figures on these areas, particularly as a lot of strategies are separate accounts or segregated mandates. The same is true, and perhaps more, particularly with ESG. We don't see it as a factor, per se, since it is too multi-dimensional, with too many definitions.

Jonathan: Factor investing is very well suited to incorporating ESG information from exclusion to positively biasing towards companies with strong ESG scores or, for example, building portfolios focused on companies contributing positively to the environment and climate change through their products. They are very complimentary ideas.

Mark F: The difficulty we find is in the definitions of ESG. Tobacco is one example of something which is universally accepted as a negative company when looked at through an ESG lens. But it does get more complicated when you look at an issue such as nuclear energy. To a French client, this would be acceptable, whereas, a German client would view that investment differently. Definitions vary according to the client for which you are constructing the portfolio.

Marlies: We see the largest interest in smart sustainability (combining ESG criteria and Smart beta) indexes. Different clients have different ideas on what this means, but it generally translates to investments with a lower carbon footprint. A lot of clients are also interested in looking at the opportunity set of sustainable investing, such as green revenues. This includes overweighting stocks that are making the transition into the new low carbon economy, such as an oil company who has a percentage of their revenues coming from investing in windmills.

With local authorities, this seems to be a big theme. The Merseyside Pension Authority was a well published example. In climate change conscious countries like the Netherlands and Scandinavia, almost everyone is focused on ESG considerations, whether it is combined with factor investing or not.

Jonathan: Whilst we can rely on history to guide us when it comes to how we manage volatility, our view is that we should always approach investing with great with care and humility. It's not likely that sources of future volatility will be a simple replication of the past. We need to work hard to manage the tail risks that can often come from unexpected sources. One example of a recent innovation we have made is using machine learned models in order to be more adaptive and pick information more quickly; that helps us forecast future volatility spikes.

As market participants, our job is to continually focus on doing the best possible job for our clients. We do that by learning from past, as well as trying to anticipate the road ahead.

David: Thank you all for sharing your thoughts on this subject.

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ROUNDTABLE DEBATE

Despite the volatile market environment, when should institutional asset allocators make significant shifts to their investment strategies and based on what considerations?

Moderator



David Grana, Head of Production, Clear Path Analysis

Panellists



Charles Van Vleet, Chief Investment Officer of Pension, Textron



Chris Harvey, Head of Equity Strategy, Wells Fargo Securities



Mo Haghbin, Global COO, Investment Solutions, Invesco



Mark Barnes, Managing Director, Head of U.S. Research, FTSE Russell

POINTS OF DISCUSSION

- We will most likely continue to see more volatility spikes over the next year
- Many pension plans are investing in assets to match their liabilities and eliminate the volatility mismatch
- There has been a significant adoption of low volatility strategies over the last decade, particularly through FTF products
- A greater share of the market is inclined to invest in factor products today, versus 10-20 years ago
- The healthy state of the banking system today is a good indication that volatility will be quite low in the near term

David Grana: What is the state of the market right now when it comes to volatility?

Chris Harvey: What we have generally been seeing, and most likely will continue to see for the next year or so, is more 'spikes' of volatility. However, the level of volatility itself will not be exceptionally elevated, since the overall level of risk in the system is nowhere near where it was 10+ years ago. These spikes should be relatively well behaved, and we should see a continuation of what we have already been seeing in the last 12-18 months, whereby stress comes into the system but eventually decays back down. As credit spreads tighten and funding is more widely available, volatility will be less common. However, once the market starts to get nervous about the availability of funding, the stress will come back into the marketplace. Overall, we don't feel that we are moving into a higher level of volatility across the market.

David: How do pension plans generally deal with volatility?

Charles Van Vleet: Corporate plans are short volatility. Their liabilities are benchmarked to AA rated corporate bonds, and their assets are in private equity, real estate, hedge funds and public equity. That mismatch does not work well with high volatility events.

Increasingly, many of my peers are buying assets to match their liabilities & eliminate that volatility mismatch. However, even a fully 'de-risked' pension plan is advised to hold some growth assets to accommodate on-going accruals, PBGC premiums, and changes in mortality tables.

Textron is not perusing an LDI path. We remain steadfast focused on total return. However, as the cycle matures and valuations are arguably stretched, we have been reshaping the portfolio to have better drawdown characteristics (i.e. upside capture of 100%, but downside capture of 90%).

WE HAVE SEEN SIGNIFICANT ADOPTION OF MINIMUM VOLATILITY STRATEGIES OVER THE PAST 10 YEARS

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Broadly, we have substituted equity for up in cap-structure investments including first lien loans via business development companies (BDCs) and credit loan obligation (CLO) risk retention. We buy long volatility strategies, (i.e. non-complex, relatively inexpensive, positive-carry tail insurance). These strategies include levered 2-year US Treasuries, shorting Euro/US dollar 3-month forwards, buying short duration convertibles, and looking into the special purpose acquisition (SPAC) market.

I am not sure what to make of endless talk about factor investing. Mostly I think it is simply new names for old things. We have always had dedicated allocations to low-vol (staples), momentum (growth) and non-cap-weighted strategies (benchmark agnostic managers). At the equity level or overall portfolio-level we are all trying to achieve the same thing (i.e. better capture ratios).

David: Chris, what are you seeing as alternative methods of capturing beta?

Chris: On the equity side, we see a lot of active managers using factors as proxies for risk. In Q4, many active managers who had a decent year up to that point, saw their quant or fundamental fund performance go sour.

On the flip side, different types of strategies, such as low vol, had an exceptionally strong performance.

David: What are low vol strategies and how can investors implement them?

Mo Haghbin: People use various monikers, such as low volatility, defensive equities, min-variance, etc. Generally speaking, with these types of strategies you are looking at the lowest decile or quintile of a particular universe, such as the S&P 500 or Russell 1000, and building up with a rules-based methodology. The factor that most people look for is a trailing 12-month or 5 year realized volatility figure, while others may use an optimizer with various constraints. Typically, if it is done correctly, it should give you a certain return distribution, which allows you to participate on the upside while protecting on the downside. One of the nice aspects of this is that it is very flexible and relatively easy to weave into an active management strategy.

David: Mark, what are some of the details you could share about these strategies?

Mark Barnes: I recently wrote a paper on defensive equity strategies. Defensive equity strategies often get clumped together into one bucket, but there are some important differences between each of them. My paper chose to focus on three strategies, specifically. They all have common characteristics, such as the ability to protect on the downside while not giving up too much on the upside. However, at FTSE Russell we make a distinction between low volatility, which is a factor strategy with the objective of getting exposure to low volatility stocks with a return objective and minimum variance, which has the objective of lowering the overall portfolio volatility. I also looked at an alternative weighting strategy called equal risk contribution. This focuses on avoiding risk concentrations to make the index more robust relative to any volatility shock.

Even though these three strategies can be lumped into the bucket of defensive strategies, they have fundamentally different objectives which leads to different construction methodologies. This, in turn, leads to different index characteristics and factor exposures, which ultimately leads to different performance patterns.

For example, the low volatility factor is often considered to be a bond proxy and sensitive to bond movements. However, when you calculate minimum variance portfolios, for example, you take stock correlations into account when trying to reduce overall portfolio volatility. This means that you can include higher volatility stocks that have low average correlations, and minimum variance portfolios can behave

differently from bonds and from other defensive strategies. This is especially true in an international universe where correlations can be quite low.

David: How have ETFs played in a role in gaining exposure to these strategies?

Mo: From the client perspective, we have seen significant adoption of minimum volatility strategies over the past 10 years. This was accelerated post-Financial Crisis, and more recently, with more retail investors having access through ETF products. Last year, more defensive strategies, such as minimum volatility and quality, were favored by investors, particularly in the 4th quarter when volatility spiked. We also saw flows into multi-factor approaches with dynamic or rotation strategies also gaining traction.

Year-to-date, it is a little bit of the same story. Although we have been in a risk-on environment, investors are still pretty defensive with their equity allocations. Fixed income ETF flows made up about 55% of all flows into the US listed ETF market. And when you look at regional allocations, investors still favour US equities over international emerging market equities.

David: Chris, are you starting to see a shift, particularly in the volume of trading in certain types of equities that were mostly inclined towards the cap weighted index investing?

I haven't seen as much uptake on some of these multi-factors, but what we are starting to see is people realize that as they make these factor bets, they are also making other macro factor bets. Sometimes they learn this the hard way.

Low volatility and mid variance have characteristics that are very different to what you have in the marketplace. The return distribution is also becoming more attractive to people. It is one of the few solutions where it is actually good for the asset owner and the asset manager because you are providing real diversification.

Typically, when you get into periods of stress correlations start to go to one. This is an extreme, but not that extreme if you are a practitioner. One major diversification is not having a portfolio that is part value and part momentum, but rather having part of your portfolio as low volatility - however you define it.

Mark: Correlations going to one is a scary thought, but diversification does help in normal circumstances. However, we need to remember that there are intended and unintended factor exposures. While we usually focus on the intended factor exposure, say low-vol, we need to remember that a low-vol portfolio can also have unintended factor exposures, and it is those exposures that may drive performance in certain market environments. It may be best to think of every portfolio as being a multi-factor portfolio, even if there is one dominant factor. Then you can think more realistically about how these portfolios will behave in different market environments.



Fixed income ETF flows made up about 55% of all flows into the US listed ETF market



Chris: Since the introduction of the first min vol ETF around 2010-2011, it is now at around \$24-25 billion and is among the top 35 in the US. Suffice to say, uptake has been quite big. Looking at the sheer inflows of these various ETFs, it's a sign that either investors are still very concerned about the marketplace or that the performance in some of these funds has been quite good.

Mo: If we look at what has happened over the past several years, flows into single factor strategies have been extremely strong. But more recently, we have seen multi-factor approaches becoming more popular with investors, and there is a very good case for this. Investors are starting to accept the fact that they need diversification across their factor portfolios as much as they need diversification across asset classes, sectors or regions.

Chris: An interesting point is that people are slowly coming to the realization that as you get tied to a particular factor, you are also making other macro bets. For example, with low volatility, you are making an interest rate bet of sorts. With quality, there is typically a high correlation between what happens with credit and credit spreads.

Mo: One of the areas we have been working on over the past 2 years with FTSE Russell, has been the research around factor cyclicality and understanding the nature of factor returns through time. This is consistent with first taking a look at your portfolio risk relative to your benchmark. When thinking through a factor lens, you should understand which factors you are overweight or underweight, and then determine whether this is consistent with your philosophy or views. If it isn't, then perhaps you would use single factor strategies to correct some of these biases within the portfolio.

On the other hand, if you are looking for a core-equity solution, one of the things we have recognized is that focusing on single factor strategies tends to produce a portfolio that is exposed to some of the macro factors that don't necessarily reward investors at all times.

We have been thinking about factor strategies using the macro environment to make determinations around which factors to overweight or underweight. This is somewhat of a controversial topic within the marketplace right now, but we find there is an ability to

USING A MULTI-FACTOR COMBINATION STRATEGY SURGED FROM 49% IN 2018 TO 71% IN 2019

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add value with modest tilts using macroeconomic information when deciding factor allocations.

David: How big of an issue or determining factor is this on market conditions and macroeconomic conditions?

Mark: We know that factors will perform differently in the various macro environments. If we then understand factor behaviors in the different market environments, we can use this knowledge to better position the portfolio. Asset owners and asset managers need to master the tools they have to structure their portfolios in order to implement their views. This can either be reactive, whereby they see what is going on right now and they grab something off the shelf to implement their views; or, it can be more structured, whereby, they have a process in place that takes into account the macro environment in order to adjust the building blocks, or factor exposures, to position the portfolio in the correct way. The ability to accurately report current exposure and implement desired factor exposure is paramount in achieving this.

David: How pervasive are you seeing this within the various markets?

Chris: I am seeing it across the board with institutional, retail and high net worth to varying degrees. You do hear people talking about factors more today, compared to 10-20 years ago. Back then, it was mostly the realm of quants.

We are seeing larger portfolios and asset allocators starting to think about why they want certain factors. They will then take a broad exposure, whether it be momentum, growth or value, and determine which percentage of the portfolio to allocate to the strategy. Every year, it is becoming a larger component in how people think, talk about, and structure their portfolios. I don't believe there is any part of the market that doesn't consider factors and factor exposures. It is more the degree to which they are sophisticated enough to understand them. As we move forward, we are going to see investors wanting a broad exposure, followed by an attempt to add alpha or try to provide liquidity overtime.

Mo: I agree. The strategy started within the institutional space. This was something that institutions had been considering for many years. With the availability of products and tools, third-party or otherwise, that allow you to take a look at factor exposures within your portfolio, we have seen more mainstream adoption of these types of approaches.

I spend quite a lot of my time now speaking with financial advisors around their factor exposures and how to position portfolios to be more consistent with their philosophy. We have gone as far as to say that when you are thinking about your risk allocation, the traditional way of doing this doesn't make sense anymore. Rather than thinking in terms of sectors or regions, factor exposures are the primary drivers of risk and return of a portfolio.

Chris: This is a great point. Typically, people assume an equity to fixed income ratio of 60/40. But as interest rates have moved lower, we have been saying that it doesn't matter if a product or asset is equity or fixed income; what really needs to be looked at is the volatility. Many of the areas we thought about traditionally aren't holding up in today's market. Volatility and risk are more important now.

Mo: Generally, when we think about exposures to the market, we are using indices that are market cap weighted, and bond indices that are issuance weighted. There are certain factors that impact what you own if you use these as your benchmark. For example, you may have an over concentration of interest rate risk in standard bond indices as a result of many years of QE. Today, your standard aggregate bond index has 90% of the risk coming from interest rates, and only 10% coming from credit. In the past, there was more balance. Similarly, with market cap weighted equity strategies, you get a structural momentum bet. You tend to own more of something as security prices run up. But if there is a momentum crash, you are impacted by this more heavily because you have essentially overbought the winners over time. Understanding these dynamics when you are thinking about portfolio

construction can be very helpful. There isn't necessarily a right or wrong way, but rather an understanding of what you own.

Chris: The momentum component is very topical, especially with passive becoming such a big part of what is going on in the market at the moment. We do see the momentum component, as passive has become a bigger part of the marketplace.

It has grabbed more market share. If we take the passive S&P 500 Index Fund, what exactly are you doing when you are putting money in there? It buys what is working and typically continues to buy more of what is working. As the market goes up, we have seen an amplification of this momentum component. It can work effectively, but it can also be a dangerous element to have when a market crash occurs and people start to take out money. It that situation, you have the reverse effect occurring. It is a very simple mechanism, which can become very powerful and painful, if you are on the wrong side of it.

David: Are we shifting away from cap weighted and is factor going to be the plain vanilla of the market when it comes to passive?

Mark: There is much more acceptance of thinking about the risk and drivers of equity markets that are not simply the cap-weight benchmark. However, we still use cap-weighted benchmarks for asset allocation and we focus on our performance relative to the cap-weight. We expect investor interest in factors to continue to grow but we think the cap-weight will continue to be central to investing for the foreseeable future. However, it is interesting to note that in our 2019 survey of global asset owners the percentage of respondents who reported using a multi-factor combination strategy surged from 49% in 2018 to 71% in 2019.

Mo: From a theoretical standpoint, cap weighting does make sense, because you get an aggregate view of the market when it comes to the value of a security. It is a good starting point, but it isn't the only way that you can think about ownership of a basket of stocks or bonds. Alternative methodologies have tended to focus on factor-based approaches or fundamental indexation. Although this isn't a new strategy, in times where you see market cap weighted strategies underperform, you tend to see fundamental indexation outperform. This is because it tends to tie the ownership of individual stocks to a fundamental, such as revenue, earnings or cashflows. This is probably more closely aligned with how an active manager thinks about ownership.

Chris: One of the reasons why we don't feel volatility will be exceptionally high is because the US banking system is in much better shape than it has been in the past. Years ago, before we entered periods of stress or a recession, banks' balance sheets were typically upside down, backwards, and in some cases, illiquid. This just isn't the case today. Banks have not been left to their own devices, and the regulators have kept bank balance sheets fairly pristine. As a result, the market is a better place for it.

Mo: Chris, with the yield curve as flat as it is, what are your thoughts on credit creation and supply going-forward? The way I see it, if the spread between deposit rate versus your lending rate is extremely low, what is the incentive for banks to continue to provide credit? We are seeing credit creation starting to slow down and margins are starting to peak. Could this lead to a volatility event?

Chris: To some degree, the banks have been disintermediated. There have been alternative lenders and growth in the CLO market. Because of that, banks have more fire power and balance sheet than they have had in the past. In times of stress, banks will 'get paid' for their balance sheets because they will be one of the lenders of last resort. This is an important factor to consider.

David: Thank you all for sharing your thoughts on this topic.

WHITEPAPER

Market Turmoil Shows All Defensive Strategies Are Not The Same



Mark Barnes, Managing Director, Head of U.S. Research, FTSE Russell

The recent market turbulence has reawakened painful memories. It has also revived interest in defensive strategies that can provide long-term downside protection when markets fall without sacrificing much upside participation when they rise.

But not all defensive strategies are created alike—they have distinct objectives that have produced very different return patterns over time. The December 2018 meltdown and subsequent snapback offer a live test case of this point.

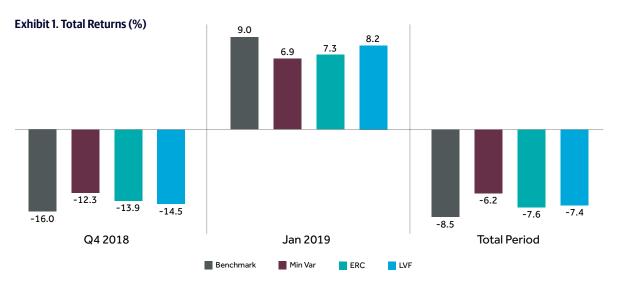
In our recent research paper - https://www.ftserussell.com/files/research/implementation-considerations-defensive-strategies-look-three-approaches - we compare three popular defensive approaches based on back-tested FTSE Russell index data since September 2003: Minimum Variance (Min Var), Low Volatility Factor (LVF), and Equal Risk Contribution (ERC)¹. They pursue very different goals:

- Min Var seeks to minimize the portfolio volatility, while maintaining sufficient diversification.
- LVF explicitly targets consistent exposure to the (low) Volatility factor.
- ERC portfolios are built so that each stock contributes equally to the overall portfolio volatility, with the aim of avoiding concentration risk.

To achieve these goals, each strategy employs its own implementation ground rules. As our research shows, even small differences in these methodologies can yield major differences in risk exposures and performance, especially over the short run.

This was clearly the case in the most recent bout of market volatility. As expected, all three defensive portfolios fell less than the benchmark (the FTSE Developed Index) in the Q4 downturn and rose less in the January rebound, outperforming for the full four-month span. Excess returns were highest for Min Var (at +2.2%), followed by LVF (+1.0%) and ERC (+0.85%).

¹ See Ground Rules: FTSE Global Minimum Variance Index Series. January 2018, Ground Rules: FTSE Global Equal Risk Contribution Index Series. June 2017 and Ground Rules: FTSE Global Factor Index Series. November 2018.



Source: FTSE Russell. Data from October 2018 through February 3, 2019. Data based on the FTSE Developed Index Universe. Past performance is no guarantee of future results.

Looking at participation ratios, Min Var was the most defensive of the three approaches (with participation ratios of 0.77 for both the Q4 and January 2019), meaning that it captured 77% of the broader market's selloff in Q4 and 77% of the market's rebound in January. By contrast, LVF was the least defensive (with respective ratios of 0.90 and 0.92), while ERC was in the middle, with respective ratios of 0.87 and 0.82.

Interestingly, Min Var's similar participation ratios for both periods indicates that its outperformance came from the market not fully regaining lost ground. LVF, on the other hand, had a slightly positive participation difference (up minus down), meaning that it protected more on the downside than it gave up on the upside. Thus, if the market had completely recovered, LVF would have risen modestly, given these participation ratios. Meanwhile, ERC's participation difference was negative.

Table 1 provides a more granular look at the sources of excess returns. Most of Min Var's and ERC's excess returns came from country and industry exposures, while very little came from factor exposure. By contrast, three-fourths of LVF's excess return came from factor exposure.

Table 1. Attribution Summary	of Coureas of Evence I	Doturne (%) - Oct 2010 to	Inn 2010
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	Country	Industry	Factors	Residual	Excess Return
Min Var					
Q4 2018	1.33	1.12	0.64	0.98	4.06
Jan 2019	-0.77	-0.23	-0.57	-0.49	-2.07
Total Period	0.56	0.89	0.06	0.48	1.99
ERC					
Q4 2018	1.71	0.48	-0.42	0.47	2.23
Jan 2019	-1.42	-0.11	0.27	-0.30	-1.57
Total Period	0.28	0.37	-0.16	0.17	0.67
LVF					
Q4 2018	-0.30	0.12	1.88	0.04	1.74
Jan 2019	0.39	0.00	-1.13	-0.01	-0.76
Total Period	0.08	0.12	(0.75)	0.03	0.99

Source: FTSE Russell. Data from October 2018 through February 3, 2019. Data based on the FTSE Developed Index Universe. Past performance is no guarantee of future results.

² The attributed effects do not precisely match the actual excess returns due to compounding effect.

Table 2. Select Factor Attribution Details - Oct 2018 to Jan 2019

	Attributed Volatility Effect	Average Active Volatility Exposure	Attributed Momentum Effect	Average Active Momentum Exposure
Min Var	-0.10	0.01	0.29	-0.06
ERC	-0.40	-0.15	0.40	-0.15
LVF	0.71	0.31	0.00	0.03

Source: FTSE Russell. Data from October 2018 through February 3, 2019. Data based on the FTSE Developed Index Universe. Past performance is no guarantee of future results.

In our research paper, we delved into how these strategies behaved during previous major market shocks, specifically the Global Financial Crisis, the Lehman Collapse, the European Credit Crisis and the China Growth Scare of 2015. Although all approaches provided meaningful downside protection during these episodes, they did so in ways specific to their makeup.

For example, during the preliminary global financial crisis sell-offs from November 2007 to March 2008, all three defensive portfolios provided relatively small reductions in volatility. Although they all benefited from industry diversification (for example, underweights to Technology and overweights to Utilities), Min Var and LVF held up better than ERC. This was mainly because of their positive exposure to the (low) Volatility factor, whereas ERC had negative exposure.

In the Lehman collapse from June 2008 to February 2009, our research shows that ERC was helped by its country diversification (for example, the overweight to Japan, which performed relatively well during that period). However, once again, ERC was underexposed to (low) Volatility, whereas Min Var and LVF were overweight. Moreover, exposures to (small) Size, which also performed well during part of this period, helped Min Var and ERC, but hurt LVF.

In the 2011 European Credit Crisis, we found that Min Var and LVF benefited considerably from their (low) Volatility exposure, but ERC had only a slightly positive active weight to the factor. ERC was also hurt by its sizable overweight to Japan and underweight to the US. As with the previous episode, Min Var's exposure to Size and Volatility provided considerable downside protection during that episode.

During the China Growth Scare from August 2015 to January 2016, ERC once again benefited from its underexposure to (low) Volatility. Size, on the other hand, benefited Min Var and ERC but hurt LVF. Again, ERC held large active weights in Japan and the US, which detracted from performance.

These analyses underscore the effectiveness of defensive strategies to perform as expected during times of heightened volatility. As important, however, it reinforces how their differing objectives result in different exposures and, thus, performance outcomes. It is important for investors to understand these differences when choosing the approach that can best addresses their investment needs.

Implementation considerations for defensive strategies can be downloaded at https://www.ftserussell.com/files/research/ implementation-considerations-defensive-strategies-look-three-approaches

INTERVIEW

Is there a way to replicate active strategies through passive approaches and what are the implementation hurdles that must be overcome?

Interviewer



David Grana, Head of Production, Clear Path Analysis

Interviewee



Luke Oliver, Head of U.S. ETF Capital Markets, DWS

SUMMARY

- Quantitative easing and low interest rates have been the main drivers for low volatility over the last few years
- It is possible to see implied volatility without seeing major sell-offs in the market
- Active and passive investing both have an essential role to play in volatile markets
- Mutual funds and ETFs are underrated tools that can help to manage volatility in portfolios
- Passive ETFs with a passive option overlay have been particularly useful in volatile markets

David Grana: We have seen quite a bit of market volatility lately. Do you see this as a commonality, or more of a blip on the radar?

Luke Oliver: We have seen a historically low period of volatility. This recent bout has been one of only a handful. We would typically expect to see some volatility after a period of low volatility. Recently, we have seen some market dislocations and higher implied volatility.

In February of 2018, the market experienced an outsized spike in volatility. This period of time is now known as volmaggedon. This exacerbated spike in volatility was caused by investors unwinding their short volatility bets, which was something that was quite new. Coming out of a historical period of low volatility, people had almost become complacent, and began to bet that volatility would remain low. Part of this was the backdrop of quantitative easing and low rates.

What we have seen more recently is more traditional. This includes shocks related to the trade wars between the US and China, and the impact that this could have on the global economy. I think it is important to note that the CBOE Volatility Index 'VIX', provides a measurement of volatility in the market, and is not just a mathematical equation that is tied to the price of stocks. Volatility is one of the main inputs in the price of options, which are used as protection. The VIX doesn't just measure how volatile stocks are, but also how much risk the market expects there to be within the market in the future. This is

an important distinction to make, especially when we think about how people will manage this in the future.

I think the market will see more bouts of volatility, but I don't believe it necessarily means that we have more or less volatility when compared to the long-run average. Certainly, after a period of low volatility, it might seem that these are happening more often, however, the market is probably just due for higher volatility.

David: Is this to say that when investors see sharp sell-offs, they should not see this as a return of volatility?

Luke: There are two types of volatility - realized and implied. Realized volatility is a measure of how volatile the market has been recently, or over some period of time. In simple terms, stocks going down generally means more volatility in realized terms.

Implied volatility is a measure of how risky the market is, based on demand for hedges, as well as expected risk. The market can potentially sell off without the market anticipating much more risk. Mind you, they do generally go hand in hand. However, it is also possible to see an increase in implied volatility (i.e. the VIX), without necessarily seeing a sharp sell-off. But, again, they traditionally go hand in hand.

THERE ISN'T REALLY EVIDENCE TO DEMONSTRATE THAT ACTIVE OR PASSIVE PERFORM BETTER IN A HIGH OR LOW VOLATILITY ENVIRONMENT

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David: Is there a right or wrong time, depending on volatile markets, as to when to use active management versus passive? And is this argument fair when volatility has returned to the markets?

Luke: It is definitely reasonable to have a debate around the benefits of active and passive asset management, however, both strategies are necessary in all market cycles. Somewhat ironically, you would need the ability to time the market to successfully implement one versus the other. For example, if you believed that passive does better in a bull market and active does better in a bear market, that would require you knowing exactly when to switch, which is by no means easy.

I should point out that volatility isn't inherently bad. If you have a longer time horizon or an appetite for risk, volatility might be completely acceptable and may lead to greater long-term returns. However, if you have a shorter time horizon and less of an appetite for risk you would probably want to experience less volatility or be in a less risky portfolio. This is not so much an active or passive discussion, but an asset allocation discussion.

There isn't really evidence to demonstrate that active or passive perform better in a high or low volatility environment. Both have an essential role to play in either of these scenarios. What gets interesting is that there are tools coming into the market that specifically consider volatility.

David: What are these new innovations and how can they be implemented into an existing portfolio?

Luke: There are many new innovations out there, but something that is really underrated is the mutual fund and the ETF itself. The fact is, an investor can buy or sell a fully diversified portfolio in a single ticket, which can help reduce the volatility in your overall portfolio. Whether

it's exposure to developed market equities, emerging market equities, or investment grade international fixed income, they can give you immediate, cost efficient diversification.

Further innovations include leveraged products, which need to be looked through the lens of being more risky, though offer tactical usage. ETFs also offer listed options for hedging purposes. The major innovations since then, have seen ETFs that provide exposures that accentuate or reduce certain risk factors or provide imbedded hedges or options. For example, our currency hedged suite of ETFs allows investors to invest globally while hedging the currency risk inherent with international investing.

David: Is this a way of using passive tools but in an active manner?

Luke: Absolutely. There are many different use cases of ETFs. They can be both an asset allocation tool as well as a capital markets tools. For example, we have seen managers use ETFs as a cash equitization tool, which allows managers to put money to work right away and helps reduce their cash drag while waiting for investing opportunities.

A second method of using ETFs actively is in becoming more active in your asset allocation. It is very common to see registered investment advisors running an ETF model, where they continuously shift their allocations using passive building blocks.

Another approach that we see more with institutions, such as insurance companies, is where securities and bonds are held directly, and then a small ETF sleeve is used for liquidity during periods of volatility. In these instances, they aren't necessarily seeking to protect against volatility, but rather ensuring that they have a liquid vehicle that they can dispose of in a highly volatile market.

David: Are you suggesting that an overlay is the best use of ETFs if you are using them as tools to manage volatility?

Luke: ETFs can be core building blocks to your portfolio and have been adopted wholesale across the industry. However, the fact that they are liquid gives you a risk management tool to either manage liquidity or to have a tradable vehicle in your portfolio that you can either upsize or downsize quickly.

And, of course, there is the option to have a potential overlay to help you manage risk. This option overlay is quite complex and requires some amount of expertise.

Due to the large innovation in the ETF market place, there are products and asset classes that allows investors to express views in risk on and risk off scenarios. There are also products that allow investors to go long or short volatility. During these periods of higher volatility, we do see a flight to safety. We see investors expressing this view by selling down higher risk allocations and buying treasuries.

In the environment that we have seen over the last few years, being short volatility has been a lucrative trade, but it is extremely risky when there is a sudden shock to the financial markets. Case in point was February 2018, when the VIX spiked to 50.30 from all-time lows. These sudden risk-off periods in the market can make the short side a tough position to hold..

More recently, we have seen ETFs with defined outcomes. This ETF is a passive strategy with a built-in passive option overlay. Someone with the right expertise manages the options for you inside the ETF. These ETFs tend to be a little bit more expensive, but that gives the downside protection that we mentioned before.

David: When moving forward with any of these strategies are there any caveats that should be mentioned to investors whether they be institutional or high net worth investors?

Luke: The thing to note is that, if you are hedging a portfolio against some risk, you should expect to underperform in a bull market. When you hedge, you are almost always foregoing some upside in order to protect yourself from the downside risk.

There have been low volatility ETF factor products, which seek to reduce your risk by focusing on a specific factor - the most relevant one here being stocks that have exhibited the lowest volatility.

However, when investors buy stocks with low vol, they need to think about what unintended biases the portfolio now has, such as potentially the low vol stocks being concentrated in the same industry. It is important to understand all of the various pieces that are going into it, so that you know what you are getting into.

The critical key is the importance of understanding what the methodology is and what the manager in that fund is doing to achieve

their goals. Before any investor invests into an ETF please familiarize yourself with the risks of such investment.

David: Thank you for sharing your thoughts on this topic.



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