



Paradigm shift in asset management Part 2: Diversification – models and limits

The need for diversification of risk across different individual investments is unquestionable. Achieving sensible and appropriate diversification is accordingly a basic subject area in asset management. However, after the exceptional events of 2008, a whole range of assumptions previously regarded as standard now have to be reconsidered.

Let us assume that out of the whole universe of all possible financial investments we could pick the one which is expected to make the most profit. Wouldn't every rational investor put all their money into just that one asset? The answer is yes – but only if they could be certain of actually making this profit in future. Because this is obviously not the case, investors have from time immemorial been inclined – purely intuitively – to spread their capital across different investments. This principle – what we now call diversification – has been handed down in sayings over the generations, and finally put on a sound theoretical footing in the 20th century. However, implementation is still a practical and theoretical problem.

Academically, the topic of diversification has been around for more than half a century. In his 1952 paper "Portfolio Selection", Harry Markowitz proved for the first time that a properly diversified

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Diversification and portfolio risk in the classical model

Portfolio risk is not the sum of the risk of the individual assets in the portfolio. Instead, it is determined by the probability that the individual assets will trend in the same or opposite directions.

To illustrate the underlying concept, let us consider two individual assets, A and B, which in the past have always moved in the same direction. In other words, every time A gained, B also gained. Conversely, every time A lost, B lost. The only difference between A and B is that the fluctuations were 50% larger for A. On average, A gained 1.5% when B gained 1%. A and B display extreme mutual dependence, which is expressed statistically in the maximum possible coefficient of correlation of +1. A mix of A and B would accordingly offer no benefit, as the returns and risk for B could just as easily be achieved by investing 1/3 less in A.

By contrast, let us consider a portfolio of A and another (profitable) asset C, which rarely moves in the same direction as A: in this case, there will be at least one mix which shows lower fluctuation in value than A or C alone, and in some periods will also show a better return. Such a portfolio is efficient in the sense of the Markowitz model. C would then be suitable for diversification with A, because the portfolio consisting of A+C has better characteristics in terms of risk and return than A alone.

The diversification effect becomes clear if we see how the portfolio risk (V_p) is estimated in the classical Markowitz model:

$$V_p = \sqrt{a^T \cdot \text{Cov} \cdot a}$$

a^T and a represent respectively the transposed and original vector of the individual portfolio weights (e.g. 0.5, 0.5). Cov represents the covariance matrix.

Whether there is at least one efficient mix of A and C depends decisively on the values in the covariance matrix. This is given by the products of the individual standard deviations (SD) and correlation coefficients (Cor) for all combinations, including combining an asset with itself. For our two assets A and C, the matrix accordingly contains the results of four calculations (two of which are identical).

The most important factor for assessing the diversification effect is the coefficient of correlation Cor_{AC} , as all other figures in the matrix are characteristics of the assets themselves (and not the interaction between A and C). The closer Cor_{AC} is to zero, the smaller are the results of the multiplications, and the more likely the portfolio risk is to be reduced by mixing the two assets. The effect is directly apparent in a smoothed performance curve, and becomes clearer as more assets with little correlation are included in the optimization.

What look like very small numbers in the covariance matrix ultimately take on substantial weight after multiplication with the portfolio weighting vectors (a^T and a), and determine whether the portfolio under consideration promises a comfortable evolution or a wild ride.

portfolio of assets with positive expected returns has a lower risk than each individual investment. This is the basis and starting point for modern portfolio theory with its statistical underpinnings, and the concepts have ruled the field in asset management until the present.

But how is this diversification achieved? Those who wish to explore the subject in more depth can follow the references in the box into a broad selection of theoretical literature. For those not interested in the underlying mathematics, the results may be sufficient.

Diversification & correlation

The correlation between two assets determines whether adding one asset (not risk free and at least potentially profitable) to another is a promising move when trying to reduce risk. Correlation can take a value between +1 (the assets move in the same direction in all time periods) and -1 (the assets move in the opposite direction in all time periods). The lower the tendency of the assets under comparison to move in the same (or opposite) direction over the same periods, the closer correlation is to zero. In general, the lower the correlation between assets, the more risk diversification exists when putting them together in a portfolio. The ideal case for two assets is when both have positive expected returns but they are negatively correlated to each other since then we would expect one to make money when the other loses and vice versa, but the combination would be profitable overall.

Shares and bonds, the archetypal mix in a diversified portfolio, show low (and sometimes negative) correlation over long periods, although they can move almost in lock-step or contrary motion over given periods.

By contrast, shares in the same sectors, such as European blue chips in different EU member states, tend to show high positive correlation. A mix of these would accordingly offer little in the way of diversification.

Finally, a blend of assets with extremely high coefficients of correlation (even in different sectors) would be virtually without any diversification effect. Gold and stocks on gold mining companies are a simple example of this.

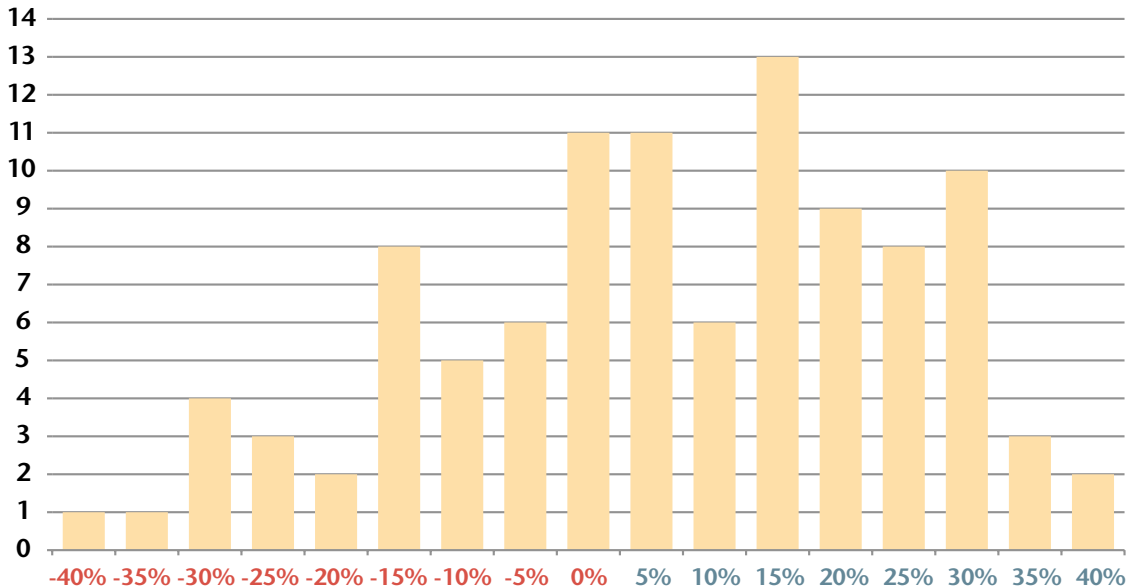
This is why asset managers pay particular attention to investment opportunities which not only have an attractive risk-return ratio but show little or ideally negative correlation with existing investments. For a long time, this search was limited to the traditional asset classes – the money market, stocks and bonds – and modern portfolio theory as practiced is essentially almost entirely concerned with variations on this basic idea.

In the classical Markowitz model, the practical method for identifying a diversified and efficient portfolio involves two steps:

1.) Make the relevant assumptions:

Estimate the potential return on candidate assets, e.g. industrial and technology stocks, government or corporate bonds.

Estimate the individual risk and correlation between assets.



Distribution of annual returns for the Dow Jones Industrial Average since 1900. Considerable imagination is needed to see the required normal distribution here (arithmetic mean: 6.91 %).

Example: In 13 cases (tallest bar) the annual return was between 10 and 15 %.

2.) Optimization and selection:

Calculate likely portfolio risks and returns for the various mixes, identify the efficient portfolios.
Select the efficient portfolio with the highest return for the personal risk tolerance.

Whether we're talking about the classical Markowitz variant or the later techniques of Tobin and Sharpe, the modern portfolio theory models are all solidly based and consistent. The biggest problem that has emerged with the application of the theory is the assumption that returns are derived from "Normal Distributions" which implies a number of non-realistic conditions, for example stationarity (i.e. that correlations and volatility are constant in all states of the world). The reason for the use of the Normal Distribution assumptions is that given the state of computational power in the 1950's and the need for advanced mathematical ability to develop solutions for all but the trivial case of normal distributions, the prescribed formula took the practical if simplified approach.

The art of good estimation

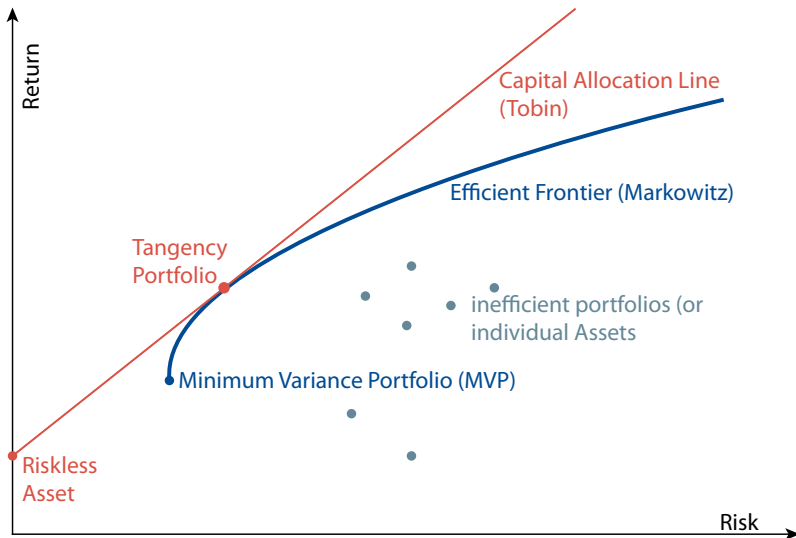
In his 1952 paper "Portfolio selection", Markowitz leaves the door open to make more sophisticated assumptions. "In this paper we have considered the second stage in the process of selecting a portfolio. This stage starts with the relevant beliefs about the securities involved and ends with the selection of a portfolio. We have not considered the first stage: the formation of the relevant beliefs on the basis of observation." While Markowitz is convinced that there must be a way to do this, for example through a combination of "statistical techniques and the judgment of practical men", he leaves the details of this open – as the later Nobel laureate puts it, this is "another story".

In his speech at the Nobel Prize ceremony in 1990, Markowitz turned to this first step, on which he (and many other theoreticians) had worked and published extensively in the intervening decades. Without going into the details of the underlying mathematical and statistical ideas, we can say in simple terms that in the absence of information about the future, the history of joint returns is the best available estimate. However, once again this was reduced to a few summary measures of the history which eliminate part of the information. In particular the focus was put on the average of historically observed cases and their deviation from the mean (variance) as the best available estimates. This mean-variance approach is still part of the standard repertoire, and every commercially available spreadsheet program today includes the necessary functions.

The universe of the bell curve

The world of modern portfolio theory has since been ruled by the bell curve, as the mean-variance approach only allows usable estimates for assets whose returns are approximately normally distributed. Earlier, there was agreement that at least the annual average returns of stocks possessed this property, although this was only true to a limited extent for shorter or longer periods. This assumption has continually been challenged in the realms of academics and derivative traders, but the arguments were too complex for the common asset manager so the normality assumption was not challenged in the wider world. It is now generally certain that the assumption of normal distribution does not apply – and here the experts are in unusual agreement.

The crucial thing for our purpose is that whether the diversification effect described earlier actually applies or not depends decisively on the reliability of the normal distribution assumption for returns and the estimators of volatility



The diagram shows the Markowitz model "efficient frontier" and the Tobin approach of separation into a risk-free asset and the market portfolio.

In the Markowitz model, all portfolios of all risk-bearing assets are reflected in a risk-return coordinate system within a parabolic surface (unless all assets are extremely correlated). The only efficient portfolios are those on the limit line above the saddle point (where the efficient MVP with the lowest variance – and so lowest risk – is located). These portfolios offer the highest return for a specific level of risk.

Tobin introduces the idea of the market portfolio (all risk-bearing assets in the ratio of their market capitalization). On this basis, depending on the individual risk tolerance, a larger share of the market portfolio and a smaller share of a risk-free asset (in practice, money market interest) are mixed to achieve an efficient portfolio. All efficient portfolios lie on the capital allocation line, which forms a tangent to the efficient frontier based on the risk-free return.

and correlation. The more robust these are, the more likely the portfolio is to survive phases in which the returns on individual assets move adversely for the investor.

Let us assume for the moment that the normal distribution curve is a reasonable reflection of reality (at least for traditional assets). In this situation, the more observations that are available, the better the estimates will be. The theoretical literature illustrates this typically by the comparison with drawing lots. For this purpose, we fill a large drum with small tickets on which all possible annual returns of an asset are written. We now draw lots successively and calculate the cumulated mean and standard deviation (variance). The more lots we draw, the better our estimates match the overall expectation for all lots.

Strategic portfolio: Implications of the assumption of normal distribution

This idea has far reaching consequences. In the early days of the practical application of modern portfolio theory, one of the results of the mean-variance approach was that strategic asset allocation became the dominant technique for investment. This is naturally perfectly logical. If the estimators from the normally distributed return population are accurate, it is sufficient to calculate the "correct" mix of individual investments once and invest accordingly. At most, it is necessary to make slight adjustments on the basis of new drawings from the drum, which contains a new ticket every year. Any interim disappointments can be confidently ignored, because in the long term – as we know from our knowledge of normal distributions – the return and risk will go back to their expected values.

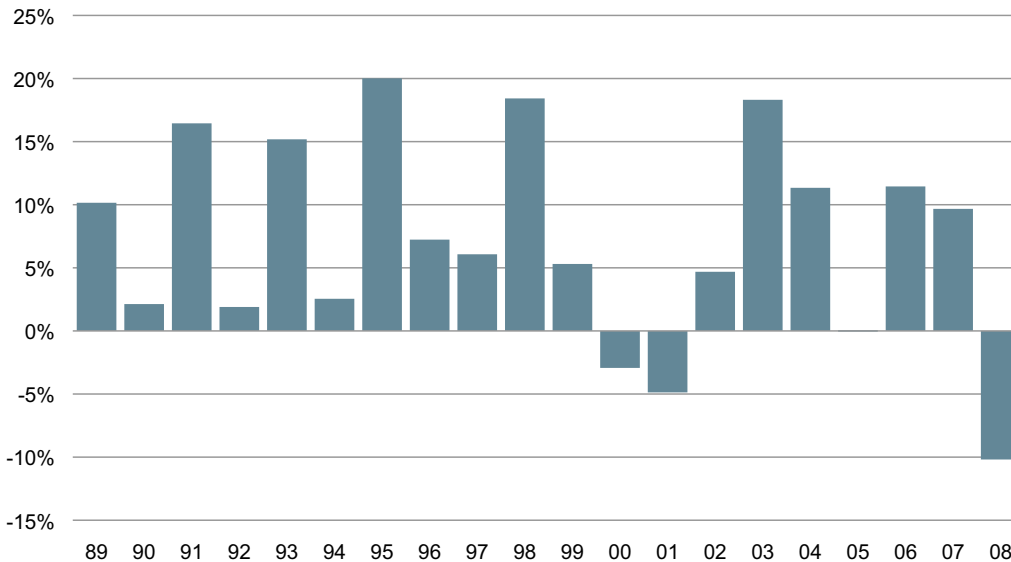
The only problem facing the "strategic" asset manager is then to correctly identify the "correct" mix of investments for the portfolio which matches their risk tolerance. Despite the easily-written Markowitz formula, this was a virtually insurmountable task. The covariance matrix for two assets has

four elements, rising to 25 for only five assets. The matrix for the S&P 500 has 250,000 entries. Even if we only calculate the upper triangular matrix (the results are repeated below the diagonal), this involves considerable effort. To estimate the portfolio variance, each element must again be multiplied by the vectors of individual weights under consideration, and finally totalled to give the results for each mix.

Constructing the market portfolio

Markowitz's heirs, who carried on the work in the 60s and 70s and expanded his ideas on portfolio selection into the edifice of modern portfolio theory, make child's play of the estimation problem at a stroke. Tobin, Sharpe and Lintner proposed the surprisingly simple solution based on a meta-asset, the "market portfolio". This is automatically as broadly diversified as possible, because by definition it contains all (available) risk-bearing assets in the ratio of their capitalization. Assets which cannot hold their own automatically disappear (because the capitalization falls to zero), for example because even major banks with an illustrious history have had to drop out of the stock market. A rational investor, according to modern portfolio theory, will always select that mix of the market portfolio and risk-free money market interest which matches their personal risk tolerance. An elegant and thoroughly logical solution!

The definition of the market portfolio essentially completes the theoretical structure of the passive investment style. This approach is implemented in practice by moving from optimizing individual stocks or bonds to optimizing sub-portfolios of the market portfolio which are as representative as possible of an entire market, and mixing these to match risk tolerance. This became possible because of the numerous index and funds providers which made it possible to invest in components of the market portfolio in the form of products.



Annual returns for 1989-2008 of a standard portfolio consisting of 70% globally diversified bonds ((JPM Global Aggregated Bond Index Total Return) and 30% globally diversified stocks (MSCI World Total Return).

Problems with estimation

There is, however, still a problem, even for the old-style strategic asset managers who revalue their portfolios perhaps only once a year. This problem is in addition to the profound doubt that capital market returns are at all normally distributed (which, as we said earlier, is another story). In fact, it regularly happens that investors get a major surprise which forces them to make a fundamental revision to their original assumptions. For example, 2008 was a disastrous year for shareholders which forced down the long-term average annual return on the MSCI World Index (one of the standard approximations of the equities component of the market portfolio) since 1969 by around 1.2 percentage points, and raised the standard deviation of returns (i.e. the risk) by 1.5 percentage points. While this may not sound so earth shaking, statistically it is a major event, with the same likelihood as a killer asteroid impact in even the hundred years and more of the Dow Jones price series: 2008 saw the steepest loss in a calendar year since 1931.

2008: Model assumptions under the microscope

It was not only stock market losses which made 2008 a year for wholesale reconsideration of estimates and model assumptions. Since the availability of "total return" market indices which track share prices including dividend yields, and "mark to market" valuation of bond investments in the form which a (rational) investor would achieve (since the late 80s, in other words), there has never been a phase with such an extreme impact on traditional passive investment portfolios.

A conservative mix of widely diversified bonds and stocks in the ratio 7:3, for example, suffered really painful losses for the first time in 2008, something which previously many risk managers would have regarded as beyond all expectation. A portfolio consisting of 70 % JPM Global Aggregated Bond

Index Total Return (i.e. globally diversified bonds) and 30 % MSCI World Total Return Gross, each valued in USD, suffered a loss of over 10 % in this exceptional year, well outside the range of previously calculated estimates. Even in the previous worst year (2001), the loss on this standard portfolio was less than 5 %.

However, many institutional portfolios were much harder hit by the failure of precisely those instruments which people had used extensively because of their presumed low risk. These include particularly strategies which do not make their returns from the beta (at least statistically).

In William Sharpe's portfolio model (capital asset pricing model, or CAPM), the beta is the measure of pure market risk, and alpha is the measure of performance independent of market risk. In other words: beta is the leverage of an individual investment to market risk, while alpha is a measure of what excess return premium can be expected if market risk were totally neutralised. In this approach, the beta can only be reduced in two ways, either by including fewer components of the market portfolio and more risk-free investments (risk reduction by lower exposure to market risk) or by dropping individual assets with a high beta from the market portfolio (constructing a less sensitive individual sub-portfolio from the market portfolio). The question is: can alpha be maintained when beta is eliminated? To put it more simply, by accepting a lower risk, do you accept that the risk premium will also be lower in the event of a profit?

Investors do not follow portfolio theory

As we know from the subsequent empirical work on the modern portfolio theory from the 1980s and 90s, neither private nor institutional investors actually stick to the market portfolio required by the theory. Instead they use a set of assets which differs more or less from the market portfolio. This is either because they are unable to construct the market portfolio (for whatever reason), or because they hope to

do better with a different portfolio than if they had passively invested in the market index. To stay with the terminology of modern portfolio theory, this produces the following effect: they exchange part of the systematic market risk for an unsystematic management risk. They are trying to generate additional alpha (as described above) through somewhat more active management. The general inference is that portfolios which have a lower beta than the market portfolio and a positive alpha means that their managers have taken less risk than the market, but earned a higher risk premium through their skill. Naturally, this success (positive alpha) can also be a matter of luck. It can even be a methodological error, because a practitioner is comparing something with the "market portfolio" (an index) which is not included in it at all. This does happen, and leads to very complicated problems, but is another story.

Suffice it to say that the appeal of alpha investments is understandable, as it implies that portfolio return can be substantially independent from general market risk. (People extrapolate this to mean that returns will always be positive and high – which is a mischaracterisation of the concept.) Mankind have always liked concepts which promise maximum results for minimum effort. Examples include the search for a perpetual motion machine or the alchemist's goal of transforming lead into gold, and even buying lottery tickets. The equivalent in asset management is to seek high returns for zero risk. This is naturally an unattainable ideal, and everyone involved is perfectly aware of this. But if you promise them at least an approximation of this, even professionals are ready to sink their proper scepticism for an opportunity.

Alpha strategies in the crisis

Alpha strategies (as popularly perceived) accordingly have strong appeal and the term has been commonly used at the latest since the bear market after 2000. Some of these strategies have already been around for a long time. The best-known goes back to the 50s, is known as "long-short equity", and makes up the biggest segment of the hedge funds industry. This tries to reduce beta risk by buying undervalued shares and selling overvalued shares short ("shorting"). Determining what is undervalued or overvalued is done by the manager or by a computer program on the basis of fundamentals or technical criteria.

Hedge funds with this strategy have long been a cornerstone of institutional portfolios in the Anglo-American world. It is also true that they have delivered equity-grade returns for a significantly lower beta, year after year. They even survived the baptism of fire of the bear market following the collapse of the dot-com bubble, doing substantially better than index-linked passive instruments. Over the period 1993-end 2007, the Long/Short Equity Sub-Index in the Credit Suisse hedge index showed a beta of only 0.42 compared to the S&P 500 Total Return, but outperformed the stock index by almost 100 percentage points over the period – an impressive alpha. On closer analysis, the bulk of the

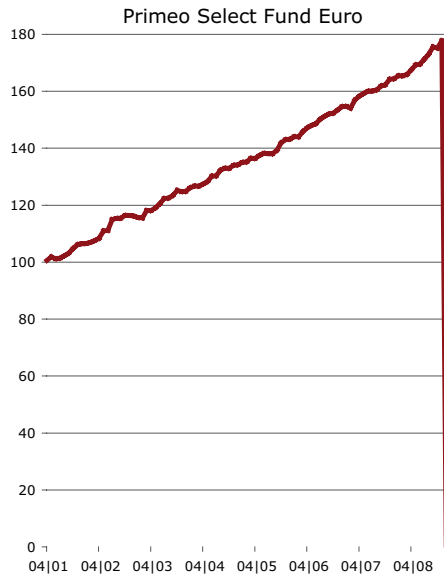
outperformance in absolute return occurred by these strategies incurring much smaller losses on average for both 2001 and 2002 than the stock market. During good years in the equity markets it is sufficient enough to just track the indices (even though the source of return is vastly different). Their managers were unable to repeat the success in 2008 – the lack of liquidity and the general absence of regular investors meant that most of their positions were replicated amongst all the managers. When the strategies indicated that exit from the positions was prudent there were no alternative takers of the positions and the move to unwind caused even more adverse valuations. The Credit Suisse Long/Short Index closed 2008 with by far the highest 12-month loss since its formation (c. -20 %).

Too good to be true

Among the worst hit were the equity-based alpha strategy aimed at particularly risk-averse investors – "equity market neutral". In this version of the long/short approach, the aim is to reduce the beta risk to virtually zero by offsetting all kinds of exposures in long positions (say sector risk) with offsetting equal sized short positions in the same sector. Most practitioners of this type of model did not account for liquidity nor contagion risk in their position sizing. According to their models, the return depends entirely on the right selection of a few buy positions which the manager believes are particularly promising relative to their hedge. Many times they hope to generate alpha from the shorts, as well, as those are supposed to be stocks which underperform the market. The result is expected to generate positive alpha on average.

One supposed wizard of this type of strategy was the former chairman of NASDAQ – Bernard Madoff. Nobody else came near his consistent performance, showing an almost straight-line trend well above the market rate for approximately zero risk. Admittedly, long before the remarkable events of December 2008 critics had pointed out that the published returns would be impossible according to everything that was known about his trading strategy – their voices went unheard. Today, we know that the returns were not merely tweaked, but completely fictitious. The Madoff system was a well-disguised Ponzy scheme, which only collapsed in the course of the crisis when investors tried to convert their (presumably valuable) shares into cash. After the scandal broke, Credit Suisse had to reduce the preliminary estimate for the Market Neutral Subindex monthly result at end-November heavily downwards from + 0.85 (published 8 December 2008) in the final monthly calculation to a loss of over 40 %, due to index funds which had to charge off their shares in the Madoff pyramid scheme. At a stroke, the scandal destroyed the entire price record of the equity market neutral funds for the past ten years.

The Madoff scandal was one of the most scurrilous moments in the financial crisis, and further proof that something that looks too good to be true generally isn't. It also exposed the danger of the masses using mathematical con-



"Value" growth of the Madoff feeder fund Primeo Select: over a long period, too good to be true

cepts that they don't really understand. Alpha is used for the component of return that is not correlated to the market. There is nothing in the math that implies it will be always be positive. A good manager will have volatile results but they will average positive. But people want the impossible which is high returns with no or little volatility to the downside.

Risk from 0 to 100: worthless credit instruments

Structured credit investments imploded over the period from mid-2007 to the present. This segment of securities includes structured securitized loans, known under abbreviations like ABS or CDO.

Over the years, these instruments had grown into impressive bundles owned by the institutional portfolios of banks, insurance companies or public sector institutions. Basically, the driver was the same thought that made numerous foundations and umbrella funds pump billions into the Madoff system – apparently risk-free excess returns. Granted, these instruments were not based on fraud in a criminal sense. In contrast to Madoff's pyramid scheme, they were all "real" investments, and in addition carried the stamp of the rating agencies, still the uncontested authorities on questions of risk assessment. Moody's or Standard & Poors gave their top ratings to countless securities which subsequently realised significant losses. Until that point, asset managers were able to shovel them into their portfolios in bulk with a perfectly clear conscience and virtually unrestrained by the requirements of risk managers, auditors or executive boards (partially because the same ratings agencies rated the same banks and insurers that bought the rated paper).

What they had failed to think through carefully enough, or at least keep in mind was that financial instruments with a complicated construction which consistently show historical excess returns for virtually the same (or even less) risk than simple investments, such as US government bonds, are either based on fraud (like the Madoff system) or assump-

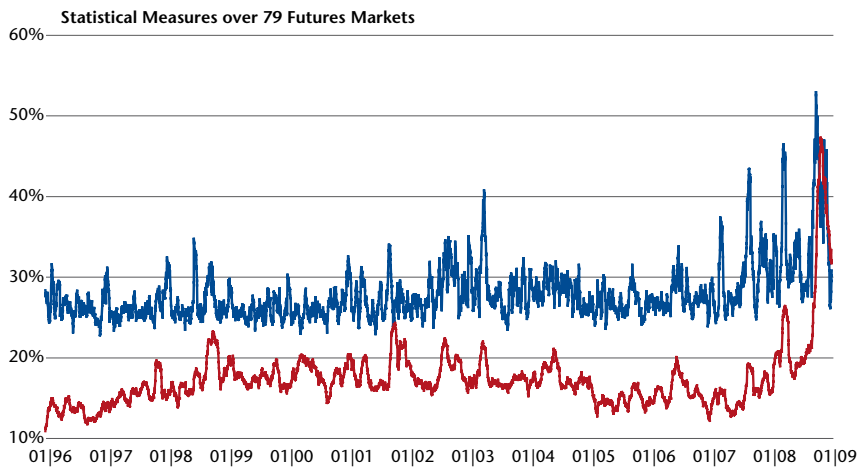
tions of economic behaviour that are too good to be true. For the structured credit instruments, the latter case applied. Their base – the repayment of loans by borrowers – depends on at least the overwhelming majority of borrowers remaining solvent and the assets from which the loans are secured being of sufficient value even in extreme situations to cover any default by the borrower. Naturally, everyone involved was aware of this, and a certain percentage of defaults were always included in the calculation. However, the major driver of mis-investment was the total disregard by most investors and rating agencies for a correlated fall in housing prices (never mind a collapse). This is an extreme example of the same type of estimation risk that is inherent in modern portfolio theory. If enough people feel comfortable assuming the same (erroneous) thing, everyone feels safer than they should.

Long-term correlations can be misleading

As if it was not enough that over the course of the crisis (which is still with us) stocks, hedge funds and credit instruments had left gaping holes in portfolios, another highly undesirable phenomenon occurred. Correlations established over long periods which were the basis for the estimated diversification effects failed en masse. Assets which historically showed virtually no correlation with each other suddenly started moving in lockstep – from interest rates through foreign currencies to crude oil. This alone would have been a serious problem, but at the same time volatilities soared to previously unseen levels. The dimensions of the wildly fluctuating markets are striking when you look at the output from FTC's risk management system (see page 8). Among other things, this measures short-term intermarket absolute correlation of (currently) 79 different traded securities and their volatility – a sort of seismograph of the current risk level. Not since the beginning of the data series were the markets as strongly correlated and volatile as they were in autumn 2008.

For traditional long portfolios, the start of the slide in the commodities markets was an additional shock at this point. A lot of money had gone into this so-called asset class during the years of the commodities bull market. For trading strategies relying on fairly stable correlations and historical volatility estimates, the situation was closest to a failure of a parachute to open in a jump from 1,000 metres – it was all downhill from there.

Then another dam burst – arbitrage, another popular alpha strategy became obsolete as a risk limiter when historical estimates failed. Arbitrage funds exploit relative differences between related assets (e.g. stocks and bonds of the same company or interest instruments with different maturities) which are very stable over time, and hence particularly suitable for statistical trading models. Arbitrage funds are known for delivering moderate returns with equally moderate volatility, on average. However, these strategies also harbour a risk which will occur very rarely, but can then cause losses which are far greater than usual. The tripwire here is a model failure when statistical assumptions suddenly no longer hold



Output of the most important parameters for risk management in the FTC Futures Fund: Short-term intermarket correlations (blue) and volatility (red) over almost 80 markets and the volatility of these markets. Never before have such extreme levels been seen as in autumn 2008.

(because the models assumed stationarity, those that didn't performed well). This is exactly what happened in 2008. The Fixed Income Arbitrage Segment in the Credit Suisse Hedge index fell over the course of the year to its September 2001 level, losing over 14 % in October 2008 alone – 14 times its monthly standard deviation over the period 1993-2008! Convertible Arbitrage was similarly impacted. Even assuming they were someday to deliver returns similar to those before 2008, these two strategies would need years to make good the loss from the few extreme months.

Diversification has not survived

Back to our general theme: basic diversification based solely on passive allocation between traditional assets seems to only work when markets are rising (but not in the two bear markets since 2000). Faced by major fluctuations in the financial markets, it failed massively. The (partial) replacement of shares and bonds by non-transparent assets or exotic strategies, with risks which are presumed to be minimal but in fact merely have extreme distributions, has also clearly failed, and in the case of the securitized loans actually proved one of the sources of the crisis.

It seems that after these events, the financial industry currently lacks legitimacy, and investors may well wonder if their money is just as safe under their mattresses as invested in a fund or individual securities.

So, what should one do? As strange as it sounds – diversify! Nobody can seriously believe that it would be a better idea to put all their capital into (say) German treasury bills than to spread the risk. Even if the application of diversification methodology has been faulty, it is still the best idea.

Thoughts for the futures: diversification by strategies

In future, many investors – once they have recovered from the shock – will want to move outside their current box and search for new and promising opportunities, for example, trading models which do not track the full downside potential of a crisis, but cut their losses when trends turn sour. The most dangerous problem is not market losses, but the lack of exit scenarios and risk buffers. A reasonably small allocation to first-class managed futures funds (which tend to predominantly trade trend-following strategies) would have balanced the long only bias of most asset portfolios. This would have significantly offset the worst losses in 2008.

In future, increased diversification between investment strategies instead of just between assets will play a growing role. Systematic and tactical methods of asset allocation which pay more attention to the current market situation and less to historical time series are already increasingly popular. This is accompanied by a focus on positive (but not extreme) returns in every year, if at all possible. This approach is increasingly replacing the old paradigm, where long-term average returns will re-emerge despite intervening heavy losses.

New solutions resulting from the paradigm shift in asset management are accordingly very much in prospect. More on this in one of the next issues.



Market & Opinion:

Enjoy your vacation!

Eduard Pomeranz, CEO

Classic Markowitz optimization always works – in retrospect. However, you would have to do it in the past using the knowledge of the future in order to profit from the result. Put another way, with the help of Google any child today can find out in a moment what allocation would have produced significantly better returns with significantly lower risk for great-grandmother's securities holdings than she herself was able to do. Such demonstrations have entertainment value at best. This is a simple trick, about as useful as a lottery ticket with six right numbers filled in after the draw.

In a reality where there are no time machines (and a lot of uncertainty instead), we know much less about the future from past correlations, returns and risk parameters than we like to believe in moments of overconfidence.

Many prominent critics of the classical theories would put it even more provocatively – correlations are unstable. Some say past returns provide no information about the future. It seems the smaller the risk of a financial asset estimated on the basis of the past results implies an absolutely disastrous risk for the future.

Even so, my recommendation for the best possible behaviour in the face of the many uncertainties in the markets is "Don't panic!" – even and particularly in the middle of the crisis. First, it is wise to think calmly before acting, and second, even in this difficult market environment there are not only risks but also – and particularly - opportunities. To identify these, it is necessary to arrive at an opinion. This can be done, for example, by combing through financial statements, economic forecasts and all kinds of economic indicators – something we call discretionary decision making. Or you can develop a system for determining the more

probable of the two possible market trends, e.g. from the price alone. This is a systematic decision making process. FTC follows the systematic approach exclusively, and I would say that it has so far steered the funds we manage through the crisis in an outstanding manner.

Systematic trading, once a solely the domain of the managed futures industry, has been gaining ground steadily over the past decades, and has long since been applied to other markets. This is naturally connected with the fact that the trading floor has been largely replaced by computers, making it possible to use several of the newer systematic trading models. But it is also the result of the recognition that there are only a very few fortunate traders who are consistently more successful on a discretionary basis than trading systems. The latter are no less prone to error, but they have no difficulty correcting these errors immediately.

Portfolio management will be the next goal of the trading systems. If they can manage individual asset classes successfully, then why not their allocation weights as well? After the failure of many discretionary approaches last year, the market is ready for this. I will tell you more about this after the summer break. Until then, I hope you have a panic-free and enjoyable vacation. Oh yes – if you haven't entrusted the shares and other securities in your deposit account to a system (or systematic manager), don't forget the stop-loss orders before you go off on vacation.

*Eduard Pomeranz
Vienna, July 2009*