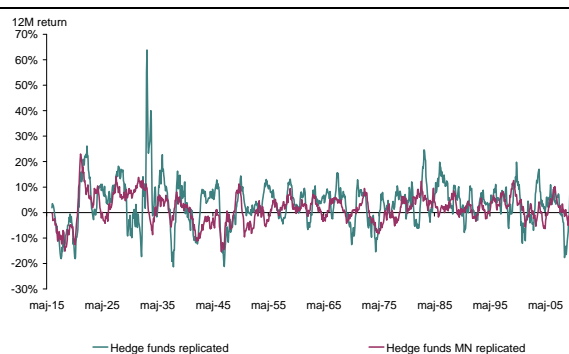


X-asset themes

SEB X-asset, 19 August 2010

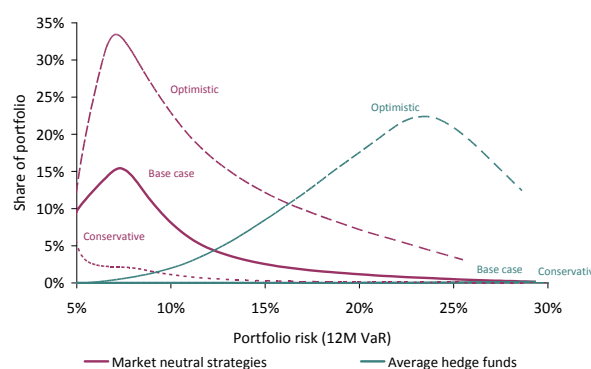
X-asset themes #5, 2010: Do hedge funds add value to portfolios?

Long-term replication of hedge funds' real beta returns



Source: Bloomberg, Ecowin, GFD, Fama/French and SEB X-Asset calculations

Allocation to hedge funds (3 alpha scenarios)



Source: Bloomberg, Ecowin, GFD, Fama/French and SEB X-Asset calculations

The hedge fund industry has tripled to around \$1.5 trillion in the last decade as investors have pursued alpha from skillful managers and diversification from “alternative betas”. However, the performance in 2008 has raised questions on the value of hedge funds and their role in a portfolio. This analysis provides a framework to address these issues.

Replicating hedge fund returns with risk factors: assessing long-term characteristics

Replication of hedge fund returns fits actual data fairly well allowing us to separate alpha and beta return. Alpha has dropped the last 20 years and we base alpha scenarios on the last decade. The analysis suggests the beta return is slightly higher long-term, but so is the correlation to equities. Diversifying strategies maintain their properties long-term.

Return dynamics of hedge funds: cyclicity and stress-tests

Average hedge funds are cyclical at both the strategic and tactical level and provide limited protection in periods of market turmoil. In contrast, diversifying strategies provide a good macro hedge and weather stress periods better. Both average hedge funds and diversifying strategies struggle in high inflation, while diversifying strategies provide a hedge in deflation.

Long-term portfolio results: what does it take for hedge funds to be attractive?

The average hedge fund is not attractive as the cyclicity raises the bar for required alpha. Investors thus need to identify hedge funds with alpha above average or better diversification properties. This requires knowledge of the industry and intensive monitoring of risks. With the right investment process hedge funds add value to portfolios of all risk levels.

X-asset Themes is a series of occasional studies from SEB X-asset, focusing on themes that go across asset classes and their implications for asset allocation.

SEB
Financially yours

X-asset themes, #5 2010: Do hedge funds add value to portfolios?

| | |
|---|----|
| X-asset themes #5, 2010: Do hedge funds add value to portfolios? | 1 |
| Actual hedge fund performance: the past 20 years | 3 |
| Replicating hedge fund returns: assessing long-term characteristics | 4 |
| Return dynamics of hedge funds: cyclicity and stress tests | 8 |
| Long-term portfolio results: what makes hedge funds attractive? | 11 |

Lead analyst on this study: Jakob Lage Hansen

SEB X-asset Team

Thomas Thygesen
+45 33281008
thomas.thygesen@seb.dk

Karsten Hansen
+45 33281468
karsten.hansen@seb.dk

Kristina Haglind
+46 8 50623048
kristina.haglind@seb.se

Jakob Lage Hansen
+45 33281469
jakob.lage.hansen@seb.dk

Actual hedge fund performance: the past 20 years

“Hedge funds” are not a uniform asset class, but rather a broad range of trading strategies with less restrictive investment guidelines allowing short selling, leverage and investments in “alternative betas” (the latter being systematic exposure to non-traditional risk premiums like volatility, liquidity risk and event risk). As a result the potential for alpha, absolute return and diversification is higher than for long-only funds. The data has limitations: there is no market index of hedge funds, there is no consensus requirements to qualify as a hedge fund and different index providers only have partial coverage relying on managers for data. We use the HFRI Fund Weighted Composite Index as a proxy for the broad hedge fund universe (denoted hedge funds). We use this rather than an investable index to get as broad coverage as possible.

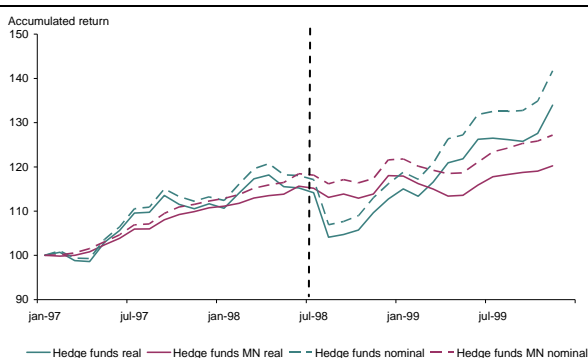
Table 1. Real return, risk and correlations, 1990-2009

| | T-bill | Treasuries | Lower grade credit | Equities | Commodities | Hedge funds | HF relative value | HF event driven | HF macro | HF equity hedge | Hedge funds MN |
|------------------------------|--------|------------|--------------------|----------|-------------|-------------|-------------------|-----------------|----------|-----------------|----------------|
| Real return | 1.1% | 3.7% | 5.3% | 2.9% | 2.6% | 9.2% | 7.7% | 9.4% | 11.0% | 11.1% | 4.9% |
| Standard deviation | 1.2% | 4.8% | 5.9% | 15.5% | 13.7% | 7.2% | 4.4% | 7.0% | 8.0% | 9.3% | 3.3% |
| Sharpe ratio | - | 0.54 | 0.71 | 0.12 | 0.11 | 1.13 | 1.48 | 1.18 | 1.24 | 1.09 | 1.15 |
| Correlation matrix (monthly) | | | | | | | | | | | |
| T-bill | 0.41 | 0.41 | 0.34 | 0.10 | -0.15 | 0.15 | 0.11 | 0.13 | 0.24 | 0.13 | 0.36 |
| Treasuries | 0.41 | 0.41 | 0.60 | -0.04 | -0.08 | -0.07 | -0.09 | -0.10 | 0.28 | -0.08 | 0.21 |
| Lower grade credit | 0.34 | 0.60 | 0.60 | 0.31 | 0.08 | 0.31 | 0.37 | 0.31 | 0.28 | 0.28 | 0.19 |
| Equities | 0.10 | -0.04 | 0.31 | 0.31 | 0.27 | 0.74 | 0.53 | 0.68 | 0.37 | 0.71 | 0.20 |
| Commodities | -0.15 | -0.08 | 0.08 | 0.27 | 0.33 | 0.33 | 0.33 | 0.28 | 0.21 | 0.35 | 0.12 |
| Hedge funds | 0.15 | -0.07 | 0.31 | 0.74 | 0.33 | 0.71 | 0.71 | 0.90 | 0.66 | 0.94 | 0.41 |
| HF relative value | 0.11 | -0.09 | 0.37 | 0.53 | 0.33 | 0.71 | 0.75 | 0.75 | 0.36 | 0.66 | 0.34 |
| HF event driven | 0.13 | -0.10 | 0.31 | 0.66 | 0.28 | 0.90 | 0.66 | 0.53 | 0.82 | 0.82 | 0.35 |
| HF macro | 0.24 | 0.28 | 0.28 | 0.37 | 0.21 | 0.66 | 0.36 | 0.53 | 0.57 | 0.57 | 0.36 |
| HF equity hedge | 0.13 | -0.08 | 0.28 | 0.71 | 0.35 | 0.94 | 0.66 | 0.82 | 0.57 | 0.82 | 0.43 |
| Hedge funds MN | 0.36 | 0.21 | 0.19 | 0.20 | 0.12 | 0.41 | 0.34 | 0.35 | 0.36 | 0.43 | 0.43 |

Source: Bloomberg, Ecowin, GFD and SEB X-Asset calculations

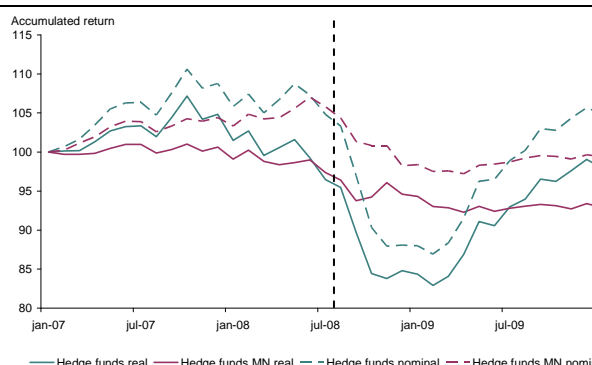
Table 1 shows that over the last 20 years returns of hedge funds have been very attractive with a sharpe ratio well in excess of traditional asset classes (with the caveat that the index contains various positive biases: back-fill bias, survivorship bias and self-selection). However, the average hedge fund has been very correlated to traditional assets - particularly to equities, but also to commodities and credit bonds. Additionally, they have not always been a hedge in market turmoil - particularly the sharp drop following the Lehman default disappointed many investors.

Chart 1. Asian crisis



Source: Bloomberg, GFD and SEB X-Asset calculations

Chart 2. Lehman default



Source: Bloomberg, GFD and SEB X-Asset calculations

The hedge fund universe can be broken down into 4 categories (each containing multiple investment strategies – see table 1). They have different risk, but all have exhibited attractive sharpe ratios. Their correlation characteristics vary, but they share fairly high correlations to equities, credit bonds and commodities. As many investors look for diversification in their hedge fund investments, we focus on a strategy within the equity hedge category, equity market neutrals (MN), in the following analysis. The table and charts above illustrate that market neutral strategies have provided diversification with low correlations to traditional assets and better hedging in periods of stress. Market neutrals are used as an example of a less correlated strategy and should not be seen as the only way to achieve diversification with hedge funds.

Replicating hedge fund returns: assessing long-term characteristics

There are at least three challenges when assessing characteristics of hedge funds. *First* of all, 20 years is too short a sample for directly estimating long-term characteristics. A case in point is the negative equity risk premium seen in the period. This challenges us to think a little deeper about what to expect long-term from risk, return and correlations of hedge funds. *Secondly*, hedge fund data comprises actively managed funds and thus has two drivers of return: *beta* from systematic exposure to risk factors (like equities), as well as *alpha* from skillful managers. We thus need to decompose returns and evaluate them independently. *Thirdly*, hedge funds are less well-defined than traditional asset classes due to their broader investment guidelines and changing composition of strategies. This makes it necessary to consider the robustness of estimates.

To address these issues we replicate hedge fund returns with risk factors. This gives alpha/beta separation and allows long-term replication of hedge fund characteristics. The basic methodology is widely used in the academic literature, but the long-term application is not standard.

How good are replications? Taking a closer look at alpha and beta returns

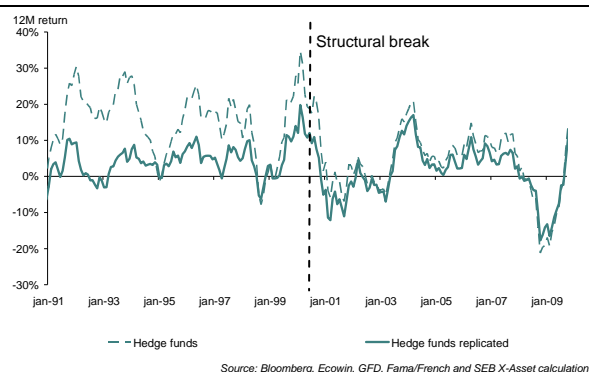
We use a number of market risk factors identified in the academic literature to replicate real returns of hedge funds: equity returns, equity styles (large cap/small cap and value/growth), credit excess returns, commodity returns and t-bill returns¹. A regression of hedge fund returns on these factors results in an R^2 of 0.75, suggesting $\frac{3}{4}$ of return deviations are captured². Table 2 shows the result from combining the calculated betas and risk factor returns to replicate hedge fund performance: the replication is a pretty good match in terms of risk and correlations. The difference between actual returns and replicated beta returns is usually interpreted as alpha and it has been significant. Chart 3 illustrates that the replication has caught the return deviations quite well, particularly in the last decade where there is also a convergence in the level of returns.

Table 2. Risk and return of replications 1990-2009

| | HF | HF rep. | HF MN | HF MN rep. |
|--------------------|-------|---------|-------|------------|
| Real return | 9.2% | 2.6% | 4.9% | 1.8% |
| Standard deviation | 7.2% | 6.2% | 3.3% | 3.3% |
| Sharpe ratio | 1.13 | 0.25 | 1.15 | 0.20 |
| Correlations | | | | |
| T-bill | 0.15 | 0.17 | 0.36 | 0.36 |
| Treasuries | -0.07 | -0.10 | 0.21 | 0.20 |
| Lower grade credit | 0.31 | 0.34 | 0.19 | 0.20 |
| Equities | 0.74 | 0.85 | 0.20 | 0.22 |
| Commodities | 0.33 | 0.38 | 0.12 | 0.21 |

Source: Bloomberg, Ecowin, GFD, Fama/French and SEB X-Asset calculations

Chart 3. Real return of replications vs. actual hedge funds



Not surprisingly, market neutrals are less well described with an R^2 of 0.22. Our simple replication understates the risk of market neutrals and to address the uncaptured risk sources we add a random element to each month's return with a mean reflecting the normal compensation for added risk. The resulting risk and correlations match real data well (see table 2). The alpha of market neutrals has been smaller than hedge funds on average.

March 2000 is considered a structural break in the industry as the poor performance of equities caused a large inflow from institutional investors and an explosion in the number of hedge funds³.

¹ For instance, Fung, Hsieh, Naik and Ramadori, Hedge Funds: Performance, Risk and Capital Formation, AFA 2007 Chicago Paper. Note that we cannot use more complex replication rules involving options etc. as we for this purpose need risk factors with long history. The yield curve has mixed results in the literature and was not found to be significant in our study.
² Although R^2 is likely overstated due to non-linear returns, see Hasanhodzic and Lo: Can Hedge-Fund Returns Be Replicated?: The Linear Case, Journal of Investment Management, 2007.
³ Fung and Hsieh, Hedge Funds: An Industry in Its Adolescence, Economic Review, Q4 2006, Federal Reserve Bank of Atlanta.

We use this as a reference for a robustness check of our results. The beta results for hedge funds are similar after the break and thus seem fairly robust, although this is less so for market neutrals. On the other hand, there has been a sharp drop in alpha, evident as a narrowing gap between the lines in chart 3. While the alpha over the whole period was 6.5% yearly, it has “only” been 2.2% since March 2000. The development is likely to be driven by more crowded markets and efficient trading technologies. It is worth noting that the estimates also capture positive biases due to backfill bias, survivorship bias and self-selection in the database⁴ and thus overstate the actual alpha. A rough estimate is that half the calculated alpha is due to positive biases⁵.

Long-term replication of hedge funds – how would they have performed?

By combining our long history of risk factor returns and the estimated betas we get an idea of how the beta return of hedge funds could have performed prior to 1990. We implicitly assume that hedge funds would have followed similar strategies in the past. As chart 5 illustrates, the long-term beta return of hedge funds is slightly higher (due to higher equity returns), while the long-term beta return of market neutrals is somewhat lower (due to lower real t-bill returns).

Chart 4. Long-term real return of replicated series

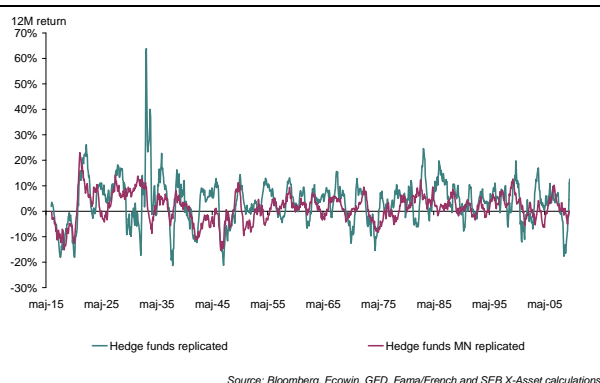
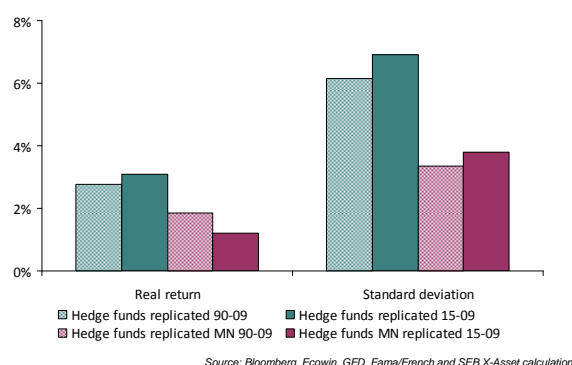


Chart 5. Risk and real return – 1990-2009 VS 1915-2009



The long-term standard deviations are marginally higher than the replication results over the last 20 years. Chart 4 suggests that both average hedge funds and market neutrals have experienced large real losses over the long time horizon, but that the frequency and magnitude of losses are bigger for average hedge funds.

Table 3. Real return, risk and correlations, 1915-2009

| | T-bill | Treasuries | Lower grade credit | Equities | Commodities | Hedge funds replicated | Hedge funds MN replicated |
|------------------------------|--------|------------|--------------------|----------|-------------|------------------------|---------------------------|
| Real return | 0.5% | 1.7% | 3.3% | 6.1% | 3.9% | 3.1% | 1.2% |
| Standard deviation | 2.3% | 5.0% | 6.6% | 18.6% | 14.9% | 6.9% | 3.8% |
| Sharpe ratio | - | 0.23 | 0.42 | 0.30 | 0.23 | 0.37 | 0.18 |
| Correlation matrix (monthly) | | | | | | | |
| T-bill | | 0.50 | 0.38 | 0.11 | -0.17 | 0.27 | 0.57 |
| Treasuries | 0.50 | | 0.61 | 0.10 | -0.13 | 0.12 | 0.27 |
| Lower grade credit | 0.38 | 0.61 | | 0.44 | 0.07 | 0.51 | 0.22 |
| Equities | 0.11 | 0.10 | 0.44 | | 0.30 | 0.89 | 0.22 |
| Commodities | -0.17 | -0.13 | 0.07 | 0.30 | | 0.42 | 0.07 |
| Hedge funds replicated | 0.27 | 0.12 | 0.51 | 0.89 | 0.42 | | 0.32 |
| Hedge funds MN replicated | 0.57 | 0.27 | 0.22 | 0.22 | 0.07 | 0.32 | |

Source: Bloomberg, Ecowin, GFD, Fama/French and SEB X-Asset calculations

⁴ Back-fill bias occurs because new funds in the index include track record that is typically positive; survivorship bias results from poor performing funds leaving the index; and self-selection occurs as inclusion in the index is voluntary and often is contingent on good results. One of many references is Jaeger and Wagner, Factor Modelling and Benchmarking of Hedge Funds, Partners Group, 2005.

⁵ Fung and Hsieh, Hedge Funds: An Industry in Its Adolescence, Economic Review, Q4 2006, Federal Reserve Bank of Atlanta, put the backfill- and survivorship biases at 3.2% for HFRI 1994-2004. In this period our analysis yields an alpha of 5.2%, suggesting 62% of the calculated alpha in this period is from biases.

Table 3 and chart 6 put the beta returns of hedge funds and market neutrals in the context of traditional assets: hedge funds resemble credit bonds when it comes to risk and return, while market neutrals are positioned between t-bills and treasuries. The correlations of hedge funds with traditional assets are generally slightly higher in the long term compared to the last 20 years reflecting the higher correlation between bonds and equities. The analysis suggests that the diversifying properties of market neutrals are a long-term phenomenon.

Forward-looking estimates of risk, return and correlations

The long-term analysis suggested that the risk of hedge funds is similar long-term to the actual risk of hedge funds over the last 20 years, while the risk of market neutrals is marginally higher, and we base our forward-looking estimates on these findings. We also use the slightly higher long-term correlations in forward-looking optimizations.

Chart 6. Risk and real return: 1915-2009

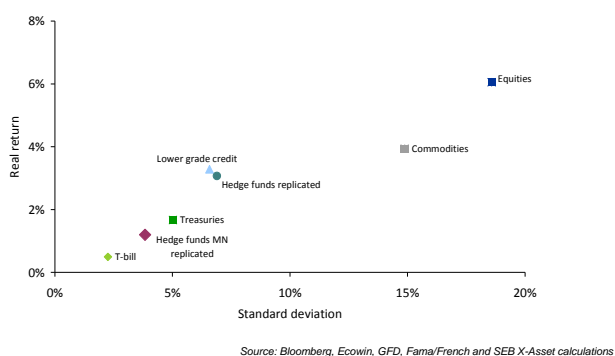
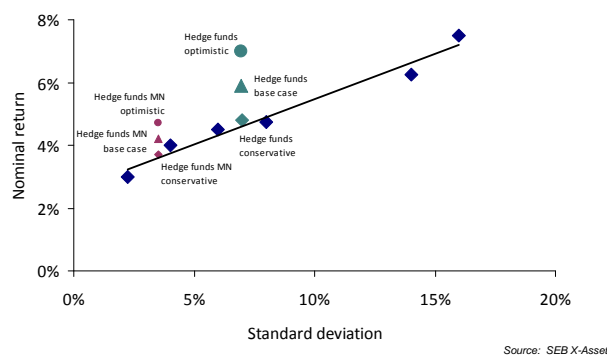


Chart 7. Risk and nominal return: forward-looking estimates



Our forward-looking returns are based on the betas from our replications and our forward-looking estimates for traditional assets. For market neutrals we add the return from unaccounted risk factors that we also used in the historic analysis. Chart 7 shows that the resulting beta returns of hedge funds and market neutrals are on the general risk-reward line of traditional assets, i.e. *in isolation* the attractiveness of their beta is similar to traditional assets.

To take the skill of hedge fund managers into account, we also consider alpha. As the drop in alpha over the last 20 years is to a large extent driven by technological and industrial trends which we do not believe are going to be reversed, we base 3 alpha scenarios on the performance since the structural break in March 2000: a *conservative* estimate with no alpha, which acts as a lower bound for expected returns; an *optimistic* scenario based on the pure estimate of alpha, which forms an upper bound on expected returns; and a *base case* half-way between the two that adjusts for the positive biases in the alpha estimation discussed previously.

We stress that these are estimates for average hedge funds. There is a large dispersion in hedge fund returns, considerably larger than between mutual funds⁶, and hence the optimistic alpha assumption is achievable for investors with an investment process consistently identifying high-performing managers. However, the wide dispersion is a double-edged sword as it also points to the risks of picking underperforming managers. Both sides of the argument underpins the importance of having a thorough manager selection process.

⁶ Malkiel and Saha, Hedge funds: Risk and Return, Financial Analysts Journal, 61, 2005.

Another point worth noting is that we are considering alpha for hedge funds, but not for other asset classes. A justification for this is that the average bond or equity mutual fund has historically not produced alpha⁷.

⁷ For instance, Malkiel, Returns From Investing in Equity Mutual Funds 1971 to 1991, Journal of Finance, 1995 and Blake, Elton & Gruber, The Performance of Bond Mutual Funds, The Journal of Business, 1993

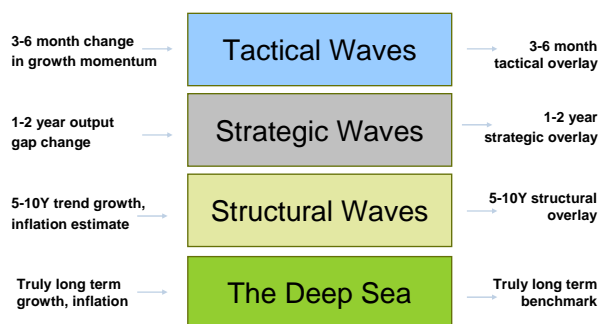
Return dynamics of hedge funds: cyclicality and stress tests

To understand return dynamics of hedge funds we use our SEB Waves framework to illustrate systematic deviations in returns in macroeconomic cycles of different frequency. Afterwards we look at stress tests around specific episodes of market turmoil prior to 1990.

SEB Waves analysis

Our SEB Waves model links macroeconomic cycles and trends in financial markets at 3 levels of analysis, sketched in chart 14.

Chart 14. SEB Waves

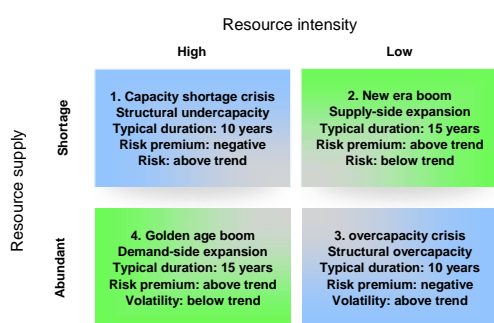


Source: SEB X-Asset

Structural analysis

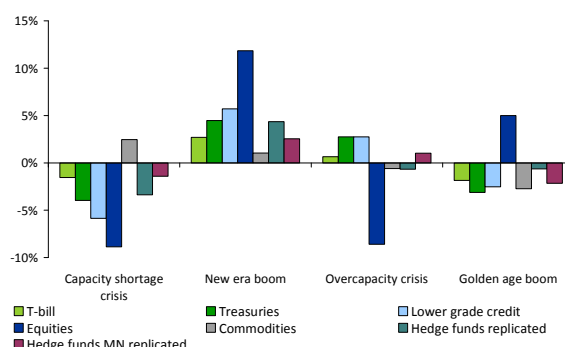
The structural analysis covers long trends in inflation with crisis phases being characterized by either peaks in inflation (capacity shortage crisis due to fall in productivity) or troughs in inflation (overcapacity crisis due to excessive investments). Boom phases are periods of more moderate inflation – either falling (new era investment booms) or rising (golden age booms).

Chart 15. Stylized structural wave phase model



Source: SEB X-Asset

Chart 16. Real de-trended returns (1915-2009)



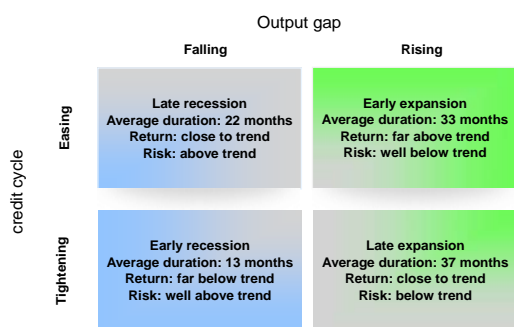
Source: Bloomberg, Ecwin, GFD, Fama/French and SEB X-Asset calculations

Due to the limited data, the structural results are indicative. Chart 16 shows the variations in beta returns at the structural level as deviations from the long-term trend. The inflationary environment of the capacity shortage crisis causes the largest underperformance, while new era investment booms are associated with the largest outperformance. Hedge funds have slightly lower return than trend in the two last structural phases. Turning to market neutrals, they exhibit smaller return deviations, doing best in new era booms and worst in golden age booms. The structural analysis suggests, that market neutrals suffer most in real terms, when inflation is rising.

Strategic analysis

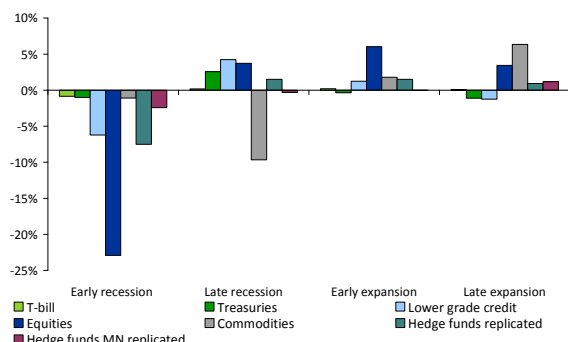
The strategic analysis tracks the GDP-cycle with recessions being associated with growth below trend (rising unemployment) and expansions the opposite.

Chart 17. Stylized strategic waves phase model



Source: SEB X-Asset

Chart 18. Real de-trended returns (1970-2009)



Source: Bloomberg, Ecowin, GFD, Fama/French and SEB X-Asset calculations

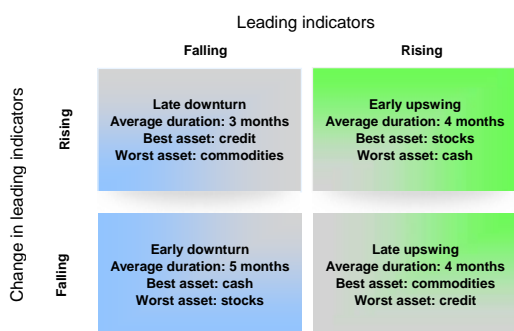
The strategic return deviations in chart 18 are shown without long-term and structural trends. The analysis suggests that hedge funds on average are very cyclical, particularly to the downside having large underperformance in early recessions. On the other hand, the above trend return is fairly evenly split between the other three phases. Market neutral strategies provide a much better cyclical hedge, even though underperforming slightly in early recessions.

Tactical analysis

The tactical level follows swings in the more cyclical parts of the economy caused by the inventory dynamics in manufacturing. Upswings see rising leading indicators and vice versa.

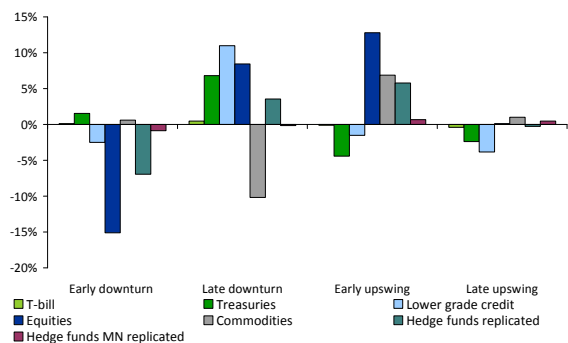
Chart 20 shows that hedge funds are also very cyclical at the tactical level (with returns shown as deviations from long-term, structural and strategic trends): There is a large loss in early downturns and a big gain in early upswing. Again market neutral strategies are largely a-cyclical.

Chart 19. Stylized tactical waves phase model



Source: SEB X-Asset

Chart 20. Real de-trended returns (1970-2009)



Source: Bloomberg, Ecowin, GFD, Fama/French and SEB X-Asset calculations

To wrap up, the Waves analysis show that the cyclicity of average hedge funds is similar to equities providing no hedge in periods where balanced portfolios generally have the lowest returns. On the other hand, market neutrals are a good macro hedge and hence a valuable investment option in times of uncertainty.

Stress tests

The long-term replication allows a glimpse at potential hedge fund returns in periods of stress not covered by the short track of actual hedge fund performance. For instance, it gives an idea of what to expect in an inflationary environment that we have not experienced in the last 20 years. There is a few caveats: the analysis implicitly assumes similar strategies to the last 20 years and does not take alpha and possible beta adaptation into account. The results for market neutrals are particularly tentative.

Chart 21. Start of depression

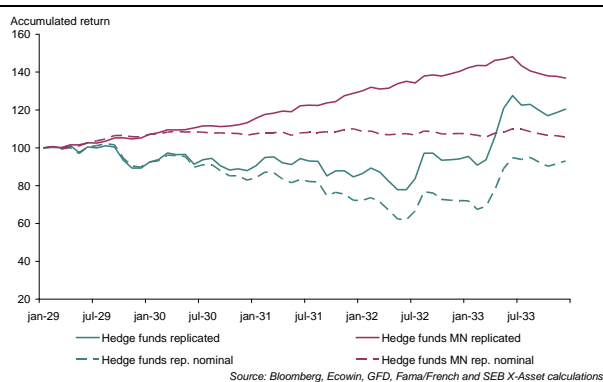


Chart 22. Post WWII

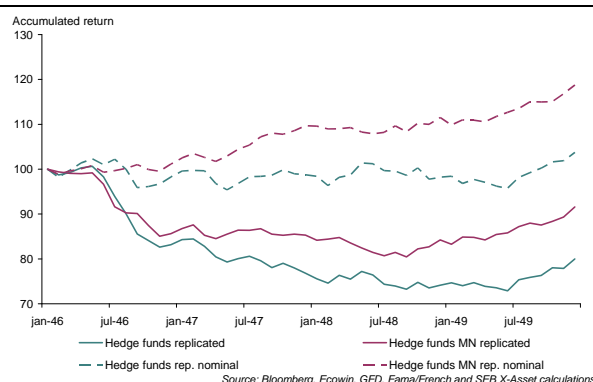


Chart 23. Oil crisis

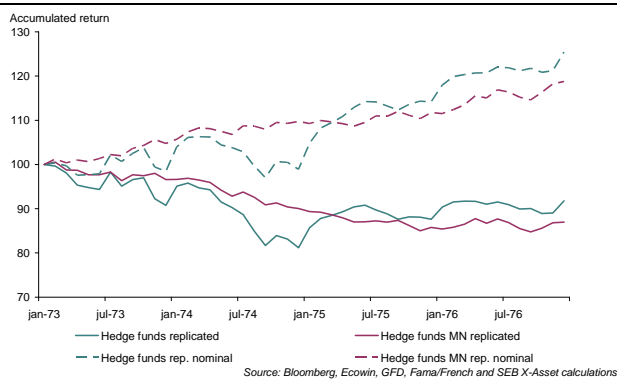
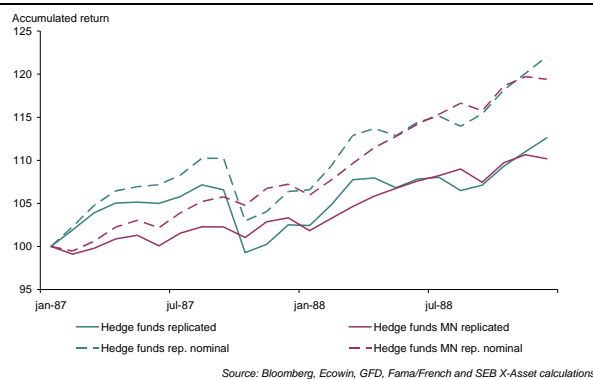


Chart 24. Black Monday (October 19, 1987)



The charts depict a deflationary shock, two inflationary shocks and an equity market crash respectively and show the accumulated return in both real and nominal terms. Hedge funds have on average struggled in these episodes, particularly in real terms. However, the 1929 crash, while severe and protracted in real terms, was even worse nominally due to deflation. Market neutrals generally weather the stress-full periods better, both in terms of volatility and capital preservation. Specifically, they fare better in the deflationary period. However, they also suffer in real terms in periods of high inflation.

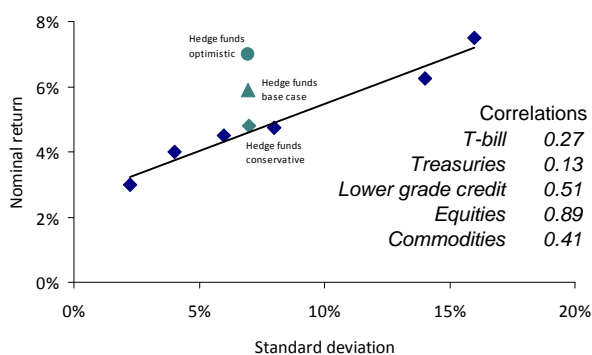
Bottom line: investors cannot rely on the average, random hedge fund if they wish a true portfolio hedge in stress-full periods. That makes careful hedge fund selection crucial if one is aiming for diversification. This in turn requires deep knowledge of the industry and intensive ongoing monitoring of the inherent risks of targeted hedge funds.

Long-term portfolio results: what makes hedge funds attractive?

Including average hedge funds in a balanced portfolio

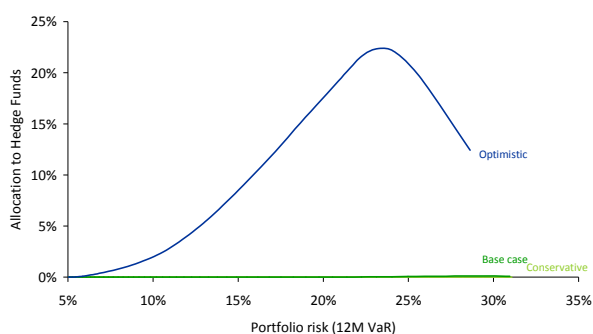
Chart 8 re-caps the forward-looking assumptions for average hedge funds. Chart 9 shows the resulting truly long-term allocation results for various portfolio risk profiles (measured by 12M VaR, i.e. loss risk) for the 3 alpha scenarios using re-sampled optimization. The conservative and optimistic scenarios give a lower and upper boundary respectively for the allocation.

Chart 8. Forward-looking hedge fund assumptions



Source: SEB X-Asset

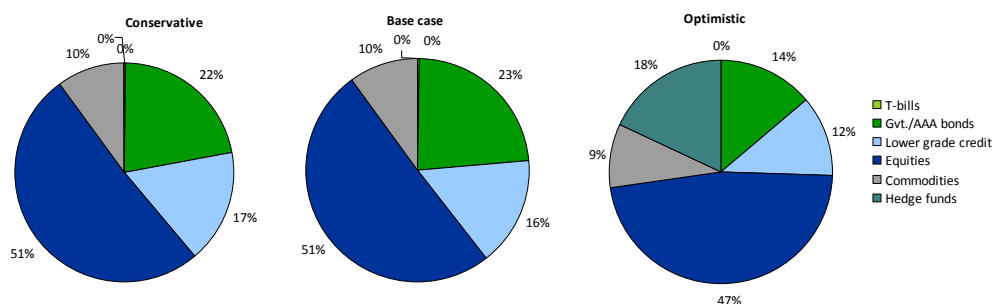
Chart 9. TLT allocation to hedge funds



Source: SEB X-Asset

There is no allocation to hedge funds in the conservative scenario as hedge funds offer limited diversification. Even in the base case there is very limited allocation to hedge funds. On the other hand, the optimistic scenario shows a very large shift into hedge funds, particularly for more risky portfolios as hedge funds have fairly high risk and are very correlated to equities.

Chart 10. TLT allocation to hedge funds, 20% VaR portfolio



Source: SEB X-Asset

To get a sense of the impact of including hedge funds in a portfolio we focus on a 20% VaR portfolio (see chart 10). Adding hedge funds primarily comes at the expense of high grade bonds, but also credit and equities. In the optimistic scenario the expected return is 32 basispoints higher than in a portfolio without hedge funds. For a 10% and 15% VaR portfolio, the expected return is 7 and 14 basispoints higher respectively in the optimistic scenario. In other words, hedge funds with limited diversification, but high alpha, are more attractive for high-risk portfolios.

The analysis suggests that the average hedge fund is not attractive in a balanced portfolio – the bar for alpha is too high. A corollary is that investable indices offering simple replication of aggregate hedge fund returns are not attractive either, as they do not capture alpha. Investors need to consistently pick hedge funds from the better performing part of the universe and hence hedge fund selection is key.

Including diversifying strategies in a balanced portfolio

We use market neutral strategies as an example of an uncorrelated hedge fund strategy with the same methodology as for hedge funds on average.

Interestingly, market neutrals make it into low-risk portfolios even without alpha due to diversification, as the bottom line in chart 12 illustrates. Their low risk makes them a substitute for t-bills and treasuries and thus more attractive for defensive portfolios. In the optimistic scenario they are attractive even for more risky portfolios.

Chart 11. Forward-looking market neutral assumptions

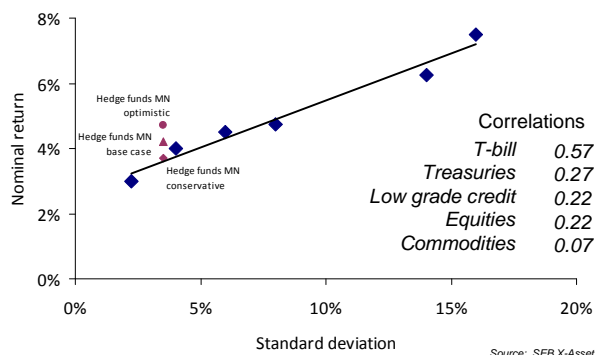


Chart 12. TLT allocation to market neutral hedge funds

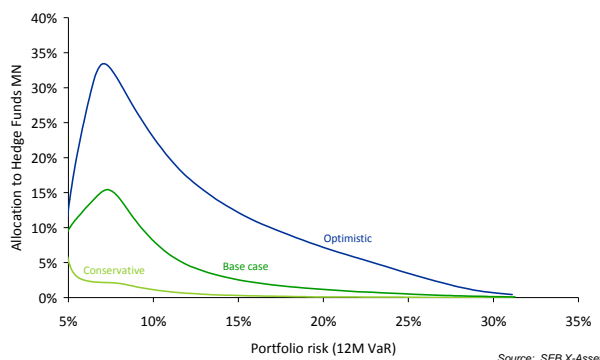
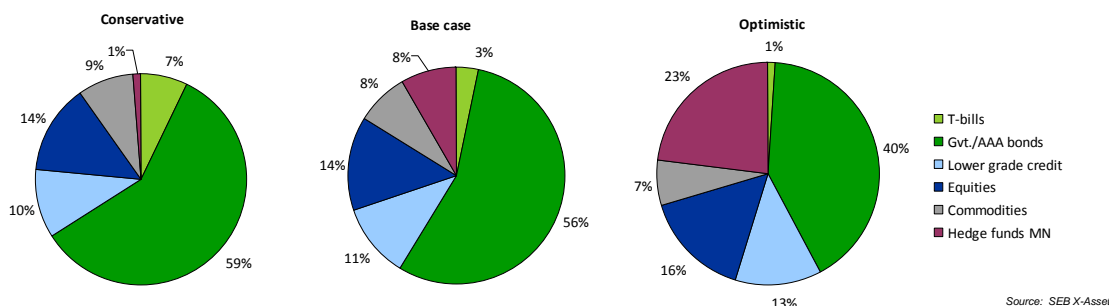


Chart 13 shows the composition of 10% VaR portfolios for different alpha scenarios. The inclusion of market neutrals is primarily at the expense of high grade bonds, but also t-bills and commodities. Interestingly, more equities and credit are allowed in the portfolio – the opposite conclusion from the general hedge fund analysis. The inclusion of market neutrals boosts expected returns 2, 10 and 25 basispoints in the conservative, base case and optimistic scenario respectively. 15% VaR and 20% VaR portfolios add 8 and 6 basispoints respectively to expected returns in the optimistic scenario. The value of the low risk/return diversifying strategies is thus largest for less risky portfolios. However, our analysis suggests that leverage can be used to extend the attractiveness of market neutrals to more risky portfolios.

Chart 13. TLT allocation to market neutral hedge funds, 10% VaR portfolio



To sum up, it is crucial to find managers delivering high, consistent alpha or managers with an investment process targeting uncorrelated returns. The right balance between these goals depends on investors' overall portfolio goals and the choice of hedge fund investment strategy has implications for the composition of the rest of the portfolio. With the right hedge fund selection process, hedge funds add value to portfolios of all risk levels.

| | | |
|--|--|--|
| <p>Stockholm Kungsträdgårdsgatan 8 Merchant Banking Division SE-106 40 Stockholm Telephone: +46 8 763 80 00</p> <p>Capital Market Bond Sales Telephone: +46 8 506 231 70 Enskilda Equity Sales Telephone +46 8 522 29 500 Commodities Sales Telephone +46 8 763 91 93 FX Sales Telephone +46 8 506 23 140 Emerging Markets Cross Assets Telephone +46 8 506 231 10 Global Financial Solutions Telephone +46 8 506 233 71</p> <p>Wealth Management Division Sveavägen 8 SE 106 40 Stockholm Telephone: +46 8 763 50 00</p> | <p>London 2 Cannon Street GB-London EC4M 6XX Telephone: +44 207 246 4000 Registered in England under NFC014326 BR000979</p> <p>SEB Futures Desk Telephone: +44 207 489 8964</p> <p>Oslo Filipstad Brygge 1 NO-0123 Oslo Telephone: + 47 22 82 72 03</p> <p>Luxembourg 6 A, Circuit de la Foire Internationale L-2014 Luxembourg Telephone: +352 26 23 1</p> <p>New York Enskilda 245 Park Avenue, 42nd Floor L- New York, NY 10167 Telephone: +1 (212) 692 4760</p> | <p>Copenhagen Bernstorffsgade 50 P.O Box 2098 DK-1014 Copenhagen K Telephone: +45 3328 1400</p> <p>Frankfurt Merchant Banking Division Ulmenstrasse 30 DE-60283 Frankfurt Telephone: +49 69 258-0</p> <p>Wealth Management Division Rotfeder-Ring 7 DE-60283 Frankfurt am Main Telephone: +49 69 27299-1000</p> <p>Helsinki Unioninkatu 30 P.O Box 630 FI-00100 Helsinki Telephone: +358 9 616 280 00</p> |
|--|--|--|

Disclaimer

Important: This statement affects your rights

The information in this document has been compiled by Skandinaviska Enskilda Banken AB (publ) ("SEB AB") and SEB A/S, a subsidiary to SEB AB. It is produced for private information of recipients and SEB is not soliciting any action based upon it.

All information has been compiled in good faith from sources believed to be reliable. However, no representation or warranty, expressed or implied, is made with respect to the completeness or accuracy of its contents and the information is not to be relied upon as authoritative. Recipients are urged to base any investment decisions upon such investigations as they deem necessary. To the extent permitted by applicable law, no liability whatsoever is accepted for any direct or consequential loss arising from use of this document or its contents. Any presented performance data is un-audited.

Information relating to taxes may become outdated and may not fit your individual circumstances. Investment products produce a return linked to risk. Their value may fall as well as rise, and historic returns are no guarantee of future returns; in some cases, losses can exceed the initial amount invested. Where either funds or you invest in securities denominated in a foreign currency, changes in exchange rates can impact the return. Your attention is drawn to the fact that SEB, a member of, or any entity associated with, SEB or its affiliates, officers, directors, employees or shareholders of such members may from time to time have holdings in the securities mentioned herein.

SEB AB is incorporated in Stockholm, Sweden, with limited liability.

SEB AB is regulated by Finansinspektionen (the Swedish Financial Supervisory Authority).

SEB A/S is incorporated in Copenhagen, Denmark, with limited liability

SEB A/S is regulated by Finanstilsynet (the Danish Financial Supervisory Authority)

Confidentiality Notice