

## **THE GS VIP LISTS**

AND WHAT THEY TELL US ABOUT LARGER HEDGE FUNDS

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## INTRODUCTION

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Goldman Sachs publishes two indices (VIP or Very Important Positions lists) that track long and short positions that are widely held by fundamentally driven hedge funds.<sup>1</sup> In the note below, we analyze the historical performance of the indices over the past decade and seek to draw broader inferences about hedge funds. We find that the VIP lists provide interesting insights about the recent performance of hedge funds, especially those with greater than \$1 billion in AUMs, and that a simple long and short portfolio provides a surprisingly accurate picture of industry returns over time.

Based on the data, we reach two principal conclusions:

- Hedge funds have demonstrated a consistent ability to generate outperformance through stock selection, even in the highly competitive landscape of large capitalization US equities. Although the outperformance has declined somewhat post-crisis, we interpret this as broad validation that “talent matters” in the investment business.
- Shorting large capitalization stocks was value-added up to and through the crisis, but has been a material drag on performance over the past three years.

In the following analysis, we first employ a synthetic long and short portfolio to test the assertion that the indices are representative of the industry as a whole. Next, we examine the performance of each of the long and short indices against the S&P 500 over the past decade. Finally, we seek to understand what might be driving the decline in short side performance, propose a simple model for thinking about short side performance thresholds and explore the market capitalization bias in the two indices.

## GS VIP LONG AND SHORT PORTFOLIOS

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The GS VIP index consists of an equally weighted portfolio of the 50 US-listed equities that most frequently appear as top ten holdings among fundamentally driven hedge funds. The positions are drawn from the holdings of 569 hedge funds with \$522 billion in equity assets, for a mean fund size of \$917 billion.<sup>2</sup> Consequently, the GS universe is heavily weighted toward larger hedge funds.<sup>3</sup> Further, since the methodology is designed to identify securities held by multiple funds, the stock universe is naturally geared toward large capitalization stocks: the median market capitalization is \$48 billion versus \$13 billion for the S&P500. Total dollar hedge fund holdings in these 50 stocks are approximately \$170 billion, or an average of over \$3 billion per stock, and the typical hedge fund position size is \$75-90 million. The typical stock is a top ten position for 17 hedge funds and is 6% of the long book. Twenty stocks are top ten positions for 20 or more funds, with AAPL and GOOG topping the list at 109 and 76, respectively.

The GS VISP (very important short position) index, by contrast, is an equally weighted basket of 50 stocks from the S&P 500 index with the highest dollar value of short interest outstanding (excluding any that fall into the VIP long portfolio and stocks with more than 10% of float-adjusted shares held short). The VISP basket has a median market capitalization of \$33 billion, well above that of the S&P 500, and a median short interest ratio of 3%. It is important to note that current disclosure rules on shorting are minimal, so the index is designed to be an approximation of heavily shorted stocks, rather than a direct survey. In light of this, GS assumes that 85% of short interest outstanding

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<sup>1</sup> Goldman Sachs, [Hedge Fund Trend Monitor](#) (November 19, 2012).

<sup>2</sup> Elsewhere, the authors cite 696 hedge funds with \$1.3 trillion in gross equity positions, but this includes some funds that appear to have been excluded by holding more than 200 equity positions.

<sup>3</sup> Note that GS draws the holdings from 13F positions, which are required filings only for funds with more than \$100 million in AUMs.

is attributable to hedge funds. We gain some comfort from the fact that GS presumably has the ability to verify the relevance of the index through proprietary access to its prime broker, but we are unable to confirm this.

Both indices report back to 2001, which makes them very useful in analyzing the long and short performance of hedge funds over the past decade.

## A SIMPLE TEST OF THE INDICES

One way to test the validity of indices as proxies for hedge fund exposure is to run a simple 100/50 portfolio that combines the long and short portfolios into a synthetic hedge fund. We assume a 100% allocation to the long portfolio and a 50% inverse position in the short portfolio for two reasons: empirically, the average equity long/short fund has a beta of around 0.50 and the GS universe has similar weights (\$834 billion in long positions and \$434 billion in short positions).<sup>4</sup> Note that the following analysis does not include hypothetical management or incentive fees, trading costs, stock borrowing costs, short rebates or similar items.

The following charts demonstrate that this hypothetical portfolio is an extremely good proxy for the HFRI Equity Hedge index over the past five and ten years. (Note that the 100/50 portfolio has outperformed materially during 2012, a point discussed in a later section.)

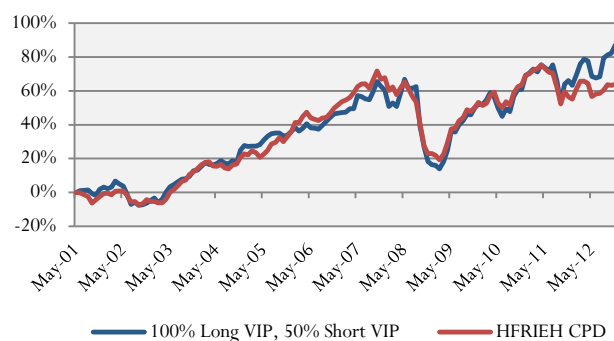


Figure 1 – 100/50 Portfolio v HFRIEH

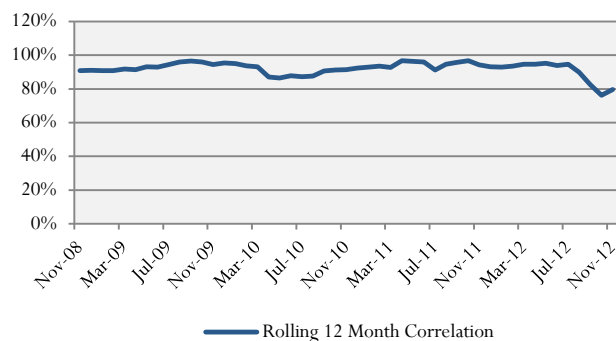


Figure 2 – Correlation

Due to the exclusion of management or incentive fees in the 100/50 portfolio, it might be expected to outperform the hedge fund index by 200-400 bps over time. The fact that the returns match so closely likely reflects three factors. First, the HFRI indices are somewhat overstated (100-150 bps per annum) due to reporting bias that allows some funds to exit the indices prior to reporting bad performance.<sup>5</sup> Second, when interest rates were higher, the short rebate on actual short positions would have offset a portion of the fees (50% exposure x perhaps 2-3%). Third, the GS sample does not pick up excess returns from less efficiently priced investments and/or an illiquidity premium. Taken together, these figures appear to roughly offset the fee differential.

## PERFORMANCE VERSUS THE S&P500

Based on the charts below, 2002-07 deserves to be called the “golden age” of stock selection by hedge funds. The line chart shows that the VIP long portfolio outperformed the S&P 500 index by 288 bps per annum with 309 bps per annum of alpha. Likewise, the short VIP portfolio consistently underperformed the S&P 500, which suggest that a

<sup>4</sup> Note that this universe reflects the actual long positions of 696 hedge funds and GS’s inferred short interest exposure.

<sup>5</sup> See [Short Essays on Hedge Funds \(www.andrewbeer.net\)](http://www.andrewbeer.net) for a more detailed explanation.

short position in such stocks would have added 353 bps of outperformance, or 408 bps of alpha, on a fully invested basis.

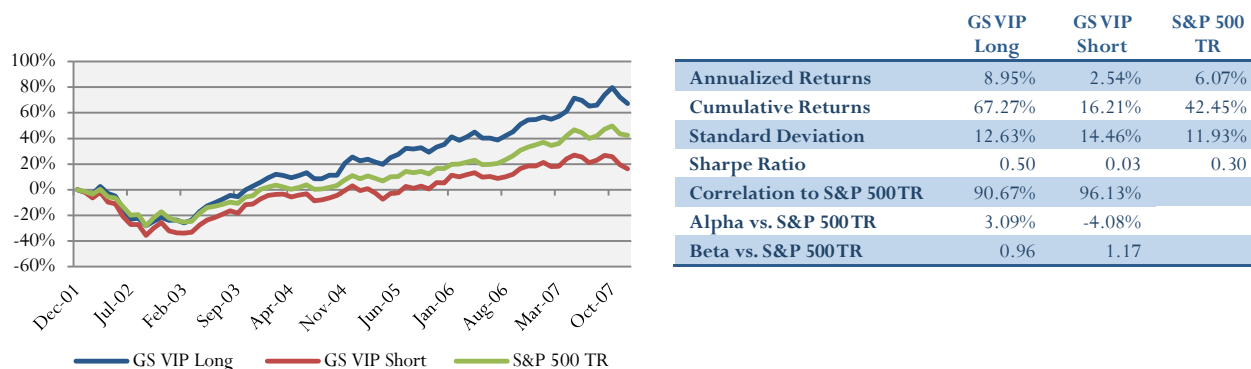


Figure 3 – GS VIP v S&P 500 over 2002-07

A noteworthy characteristic of this period is that beta of the long portfolio was slightly less than 1.0, while the short portfolio beta was 1.17. This implies a classic value versus growth trade across the industry.

During 2008, the long portfolio underperformed the S&P 500 as hedge funds scrambled to exit crowded names; this may partially explain how overall hedge fund beta appeared to rise during the crisis.<sup>6</sup> In 2009, the portfolio recovered more strongly and finished 2009 down around 20% in aggregate over the two years – almost identical to the losses in the S&P 500. (Note that alpha was still positive to offset the effect of higher beta in a down market.) The short side, on the other hand, declined more than the S&P 500 during 2008 yet did not recover as much in 2009 and ended over 700 bps below the long indices; consequently, short side alpha was a very solid 335 bps per annum.

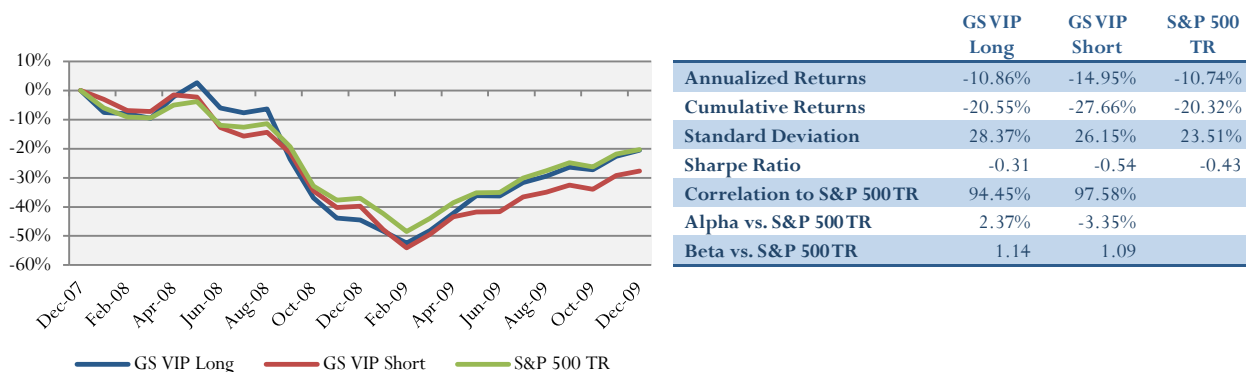
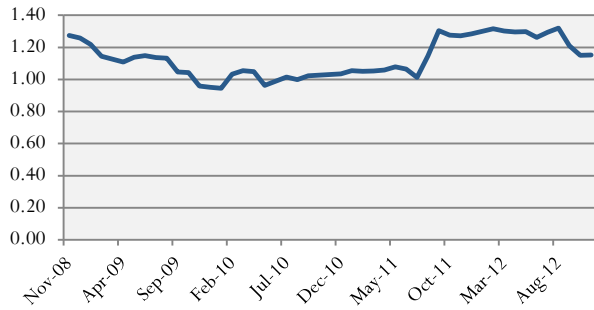


Figure 4 – GS VIP v S&P 500 over 2008-09

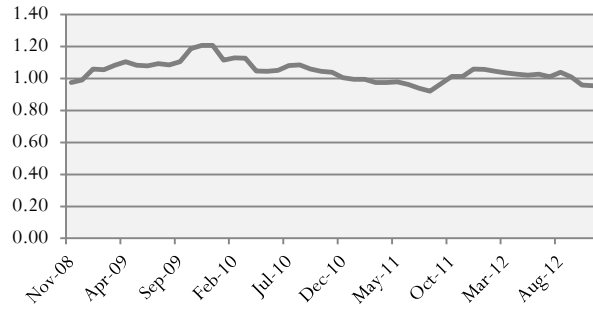
2010-12 tells a very different story. During this period, the long portfolio has maintained a beta consistently above 1.0 and well above that of the short portfolio. This implies a shift away from a value vs. growth bias to its opposite. The following charts show the rolling beta of the long and short portfolios over the past several years.

<sup>6</sup> The industry as a whole appeared to suffer a sharp illiquidity discount during 2008. Given the liquidity of the GS portfolio, however, the additional losses, and higher beta, during 2008 likely were attributable to position crowding and liquidations.



— GS VIP Long Rolling Beta vs. S&P 500

Figure 5 – Long VIP Beta to S&P500



— GS VIP Short Rolling Beta vs. S&P 500

Figure 6 – Short VIP Beta to S&P500

The combination of higher beta (1.14) in a rising market and alpha (127 bps per annum) contributed to aggregate outperformance of almost 1000 bps over this period. The short portfolio, by contrast, appreciated by almost 700 bps more than the S&P 500 – not due to beta, which was approximately 1.0. The short portfolio contributed negative alpha of 162 bps per annum.

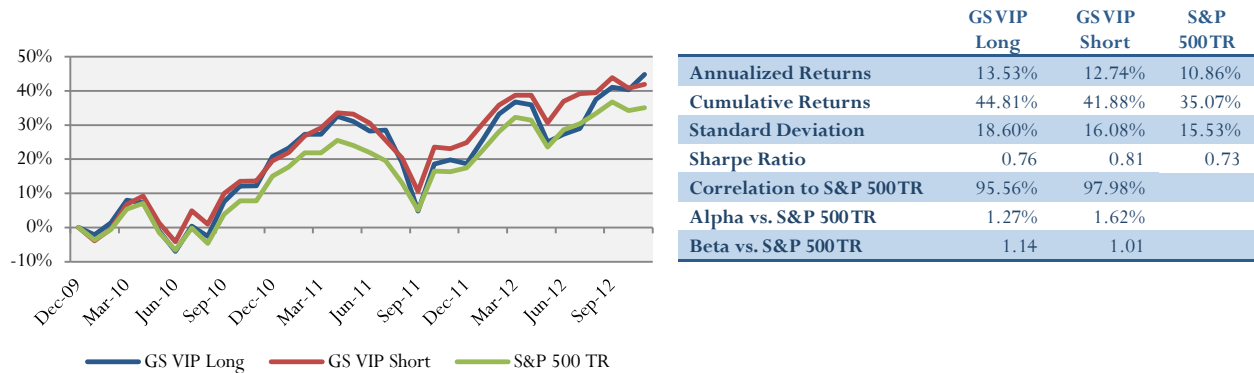


Figure 7 – GS VIP v S&P 500 over 2010-12

Most investors would contend that hedge funds generate the majority of outperformance on the long side; however, short side outperformance in fact exceeds that of the long side over 2002-09. The starkness of the decline in short-side profitability is summarized in the two following charts. While long-side alpha has declined over the past ten years, it has remained consistently positive; on the short side, however, high alpha during the pre-crisis and crisis period has been supplanted by materially negative alpha.

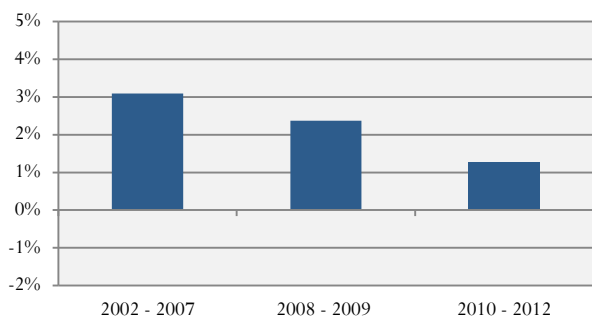


Figure 8 – Annualized Alpha Long VIP v S&P500

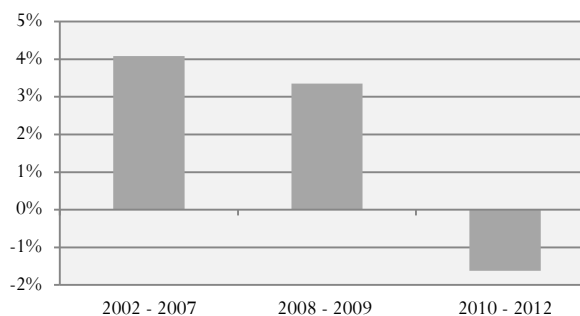
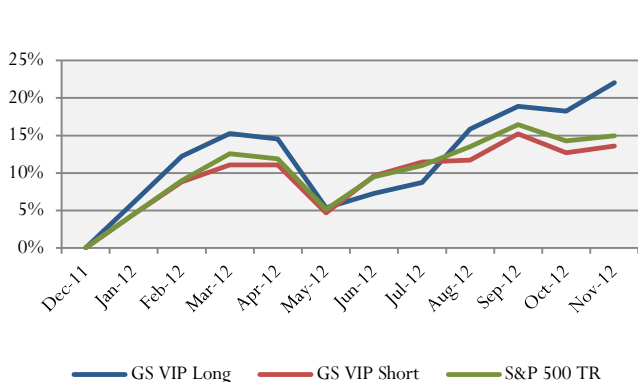


Figure 9 – Annualized Alpha Short VIP v S&P500

Year to date through November, the performance of each portfolio has improved. The VIP long portfolio is up 22%, or approximately 500 bps above the beta-equivalent performance of the S&P 500; a good portion of this outperformance appears to be attributable to higher exposure to financial stocks that materially outperformed the broader indices and S&P subsectors this year. Likewise, the short portfolio has returned 13.6%, or approximately 135 bps less than the S&P 500.



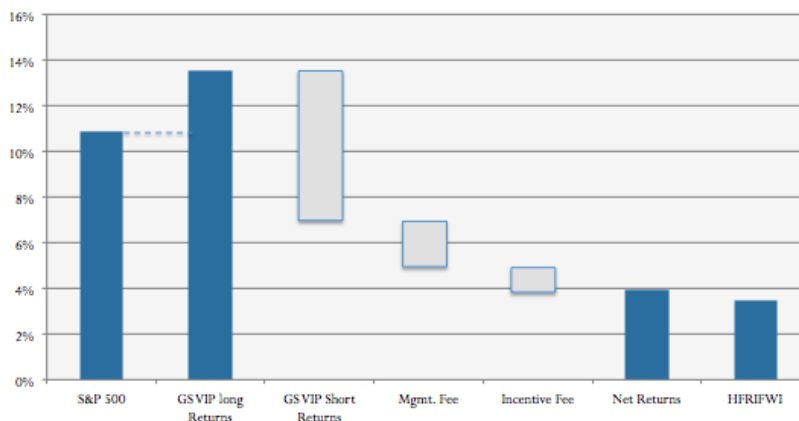
	GSVIP Long	GSVIP Short	S&P 500TR
Annualized Returns	22.04%	13.61%	14.96%
Cumulative Returns	22.04%	13.61%	14.96%
Standard Deviation	14.23%	10.92%	11.03%
Sharpe Ratio	1.60	1.32	1.43
Correlation to S&P 500TR	88.72%	96.59%	
Alpha vs. S&P 500TR	4.81%	-0.62%	
Beta vs. S&P 500TR	1.14	0.96	

Figure 10 – YTD Performance

It's too early to claim that the recent outperformance is evidence that the market will once again reward stock picking to the extent that it did during 2002-07. However, if this outperformance persists, it will lend real weight to the argument that the underperformance of hedge funds during 2010-12 was attributable to ephemeral macro-driven factors such as the European sovereign debt crisis and US fiscal uncertainty.

## RECONCILIATION WITH ACTUAL HEDGE FUND RETURNS

Using the 100/50 portfolio over the past three years as a framework, a very simplified reconciliation with reported hedge fund industry returns is as follows. Before fees, hedge funds have generated approximately 250 bps per annum of long-side outperformance (13.53% minus 10.86%, not beta adjusted), while losing roughly 100 bps on the short side (12.74% minus 10.86%, times 50%). Consequently, hedge funds added around 150 bps relative to the S&P 500. However, management fees (1.5-2.0%), incentive fees (around 100 bps given performance, assuming no high water marks from the crisis) and other costs were substantially higher. The net result is that the fee-adjusted portfolio would have returned approximately 4% per annum, or 35-40% of the return of the S&P 500, which is consistent with (albeit slightly higher than) actual hedge fund results. The chart below provides a visual reconciliation.



**Figure 11 – Reconciliation of 100/50 Portfolio with Industry Returns**

Interestingly, the same analysis conducted over 2002-07 would have generated a return of approximately 80% of that of the S&P 500 with around half the beta – consistent with the widely-held pre-crisis view that a good equity long/short manager could “capture 80% of the returns of the S&P in an up market with half the downside.”

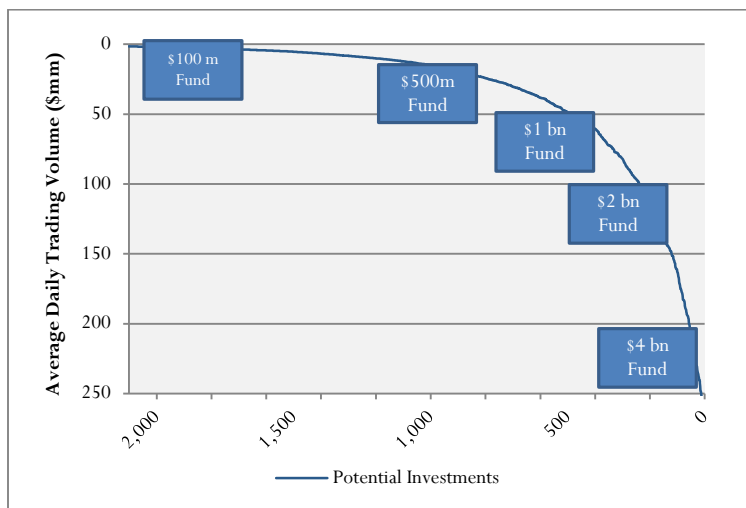
Clearly, a more nuanced analysis should adjust for the difference in long side and short side beta, trading commissions, financing costs and short rebates, among other factors. However, for purposes of comparison, this simplified format seems to capture the principal relationship.

## INTERPRETING THE DECLINE IN SHORT-SIDE PERFORMANCE

In a forthcoming note, we address three structural changes in the stock lending market that have created headwinds for hedge funds over the past several years: (1) a decline in interest rates and negative short rebates, (2) more proactive agent stock lenders and beneficial owners and (3) regulatory changes.<sup>7</sup> However, a negative short rebate is not a factor in the analysis above since the hypothetical 100/50 portfolio does not assume any actual costs or rebate on shorting. Likewise, the effects of more aggressive agent stock lenders and regulatory changes are more pronounced with difficult to borrow securities, where lenders aggressively drive up borrowing costs as demand rises; since the GS sample reflects very large capitalization stocks with relatively low short interest ratios (median short interest of 3%), we believe that all stocks in the GS sample would qualify as general collateral and hence have borrowing rates below 50 bps per annum.

The most likely explanation is that the concentration of capital among larger hedge funds has drastically narrowed the opportunity set of short positions. In the chart below, we show the number of stocks in a broad based US index mapped against average daily trading volume. We then superimpose break points assuming a target investable long position of 5% of fund size with a liquidity constraint of 20% of the average daily trading volume over five days. For example, a \$1 billion fund has an opportunity set of long positions with a minimum average daily trading volume of \$50 million. Note that the typical position size in the long VIP list (\$75-100 million) implies an investable universe of 300-400 US equities. As shown below, the number of potential investments falls off rapidly as AUMs increase.

<sup>7</sup> Expected completion in January 2013.



**Figure 12 – Long Side Constraints as AUMs Increase**

Most managers run far less concentrated short portfolios: while a typical long portfolio might consist of 20-25 positions, the short portfolio might consist of double this amount. Given that the short book is likely to be, on average, around half the size of the long portfolio, the average short position should be around one fourth the size of the average long.

In theory, a smaller average target position size should lead to a larger opportunity set. Somewhat paradoxically, though, larger managers run into capacity constraints much earlier on the short side. The reasons are both structural and behavioral. Short positions, especially those with higher short interest ratios, are subject to violent price movements; liquidity evaporates quickly as a succession of managers hit loss limits and rush to cover. Funds can be forced to buy-in positions if stock loans are pulled – generally, at precisely the wrong time. Due to this, liquidity constraints are far more onerous on the short side. Further, in direct contrast to long positions, short position gains are capped at 100% while losses are theoretically infinite. Loss aversion and risk control criteria lead managers to limit short-side positions sizes to avoid catastrophic, franchise-threatening losses.

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### BREAKEVEN ECONOMICS OF SHORTING FOR HEDGE FUNDS

Using the 100/50 framework above, we can treat a hedge fund as a combination of a long portfolio and a short portfolio. The short portfolio then serves two functions: to mitigate broad market risk and to generate outperformance. Since an investor can hedge the broad market risk efficiently through futures or similar instruments, the relevant question is how much outperformance is necessary to cover the higher fees while maintaining comparable overall portfolio risk.

Based on Figure 8, we assume that a large hedge fund can consistently generate 200 bps of outperformance on a long portfolio of large capitalization stocks while, as noted above, the all-in hedge fund fee structure is closer to 3% per annum today. The short portfolio therefore has to cover a 100 bps shortfall, or 200 bps on a beta-adjusted basis (100 bps divided by 50% exposure), for the hedge fund to generate risk-equivalent returns net of fees. Per Figure 9, this was a reasonable assumption during the 2002-09 period.

A more accurate model is to treat the portfolio as comparable to a high-quality actively managed long only fund and to use a competitive cost benchmark. A good long only product might command a management fee of 100 bps as





most investors are willing to pay a premium for an investment product with a high likelihood of outperformance over time due to a competitive advantage in research, information, etc. In return for paying higher fees, the investor justifiably expects a good portion of the outperformance to inure to his or her benefit; in this case, the additional 100 bps of outperformance. By inference then, the short portfolio has to cover 200 bps of shortfall (3% hedge fund fee less 100 bps for equivalent actively managed long portfolio). With an assumed 50% short position, this implies 400 bps of outperformance on a beta-adjusted basis to just breakeven – roughly what the GS short portfolio was able to generate during the “golden years.”

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#### IMPACT OF MARKET CAPITALIZATION BIAS IN THE RESULTS

Opportunities to generate substantial excess returns are likely to be greater on both the long and short side in less efficiently priced smaller and mid capitalization stocks. The exhibits to the GS report provide support for this. The report also includes a list of 50 US stocks with a market capitalization greater than \$1 billion and with the highest percentage ownership by hedge funds.<sup>8</sup> The median market capitalization is \$2.3 billion, at the low end of the \$2-10 billion mid cap range, and the median percentage ownership by hedge funds is 33%. The median position size per fund is around \$22 million, or less than one third that of the VIP list. The mean (median) YTD performance of this portfolio through November 15, 2012 was 26% (30%), or approximately 1000 bps ahead of the 17% (20%) for the GS VIP list. Again, while the window is relatively short, the magnitude of outperformance is notable.

On the short side, the conclusions are similarly striking. The comparable list consists of 50 US stocks with a market capitalization above \$1 billion and the highest short interest ratio.<sup>9</sup> For this sample, the median market capitalization is \$1.6 billion with a median short interest of 22%. The YTD return figures by stock are much more dispersed – from down 75% to up 330%, or over three times that of the VIP list -- which explains the divergence in mean (up 8%) and median (down 7%). However, both figures are well below the mean (up 13%) and median (up 11%) returns of the VIP short list and support the contention that there are more compelling opportunities for “alpha shorts” in smaller and mid capitalization stocks. Please note that this analysis does not factor in borrowing costs, which are likely to be materially higher in heavily shorted positions.

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<sup>8</sup> The report also includes the 50 stocks with a market capitalization below \$1 billion with the highest percentage ownership by hedge funds. The mean and median market capitalization were \$435 million and \$367 million, respectively, as of November 15, 2012 with 35-40% of the typical stock owned by hedge funds. The mean (median) YTD return of this portfolio was 8% (down 3%), or below that of the overall market. Due to the thin trading volume of some of the stocks and wide dispersion, we discount the significance of the results. We also note that funds with assets below \$100 million are not required to file 13F reports and therefore are excluded from this analysis.

<sup>9</sup> The report also includes the 50 stocks with a market capitalization below \$1 billion with the highest short interest ratio. The mean and median market capitalization were \$498 million and \$504 million, respectively, as of November 15, 2012 with 25-28% typical short interest. The mean (median) YTD return of this portfolio was down 15% (down 25%), or significantly below that of the overall market. Due to the thin trading volume of some of the stocks and wide dispersion, we discount the significance of the results. We also note that these figures do not include stock borrowing costs, which are likely to be significant for small capitalization, heavily shorted stocks.



## CONCLUSION

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The GS VIP indices appear to be good proxies for the exposures of the overall long/short universe and provide insight into hedge fund performance over time. In particular, the synthetic 100/50 portfolio appears to be a good approximation of industry results, with the notable divergence over the past six months.

Due to the market capitalization bias of the two indices, this analysis is geared toward larger (\$1 billion plus) hedge funds. With institutionalization, capital has become concentrated among a smaller number of larger managers, which is driving more of the industry into large capitalization stocks; this lends support to the argument that the indices may track well going forward. The consistency of long side outperformance through the three periods supports the view that talented managers with robust research organizations can outperform broad market indices over time.

The results support the contention that shorting has become much more challenging today than five years ago. The reasons for this are less clear, although position constraints seem like the most obvious answer. A more elaborate analysis might explore the extent to which short side underperformance is attributable to the outperformance of growth vs. value in recent history. Due to a lack of granular historical data, we've limited our analysis to the S&P 500 as a benchmark that is broadly reflective of large capitalization US equities.

As with any analysis of hedge funds, there is a tension between broad industry analyses and understanding the idiosyncratic nature of individual managers and strategies. Empirically, we do see many smaller managers who have continued to generate substantial short side alpha post-crisis and have minimal position overlap with the GS indices. Consequently, for smaller funds, the results are less relevant.

As a final note, the recent flight of capital into non-equity strategies, such as structured credit and macro, conceivably could limit the relevance of the indices going forward. That said, consistent with the past twenty or so years, we expect the majority of industry risk exposure to continue to be concentrated in the equity markets.