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Do hedged mutual funds hedge?

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Abstract

Mutual funds using hedge fund strategies, known as “hedged mutual funds,” have experienced rapid growth in recent years. In theory, these funds should provide a source of diversification for retail investors however the 2008 credit crisis negated the expected benefits of many equity diversifiers. Between 2004 and 2009, hedged mutual funds underperform hedge funds using similar strategies. In contrast, hedged mutual funds outperform the S&P 500 although funds with a market neutral strategy underperform the risk-free rate. These findings suggest that, when compared to a long-only equity strategy, hedged mutual funds offer retail investors improved performance in bear markets.

¹ I thank Dr. David Smith for helpful comments and for providing a method of analysis.

1. Introduction

1.1 Hedge funds for retail investors

In a decade that saw both the dot-com and real estate bubbles burst, investors are seeking better sources of diversification and risk management. One possibility is the hedged mutual fund (HMF), an alternative investment vehicle that offers hedge fund strategies to average investors. For an average minimum investment of \$5,000, these funds represent tools to actively increase or decrease investors' exposure to equity, currency, bond, commodity and futures markets. HMFs provide a unique way for retail investors to diversify their portfolios and middle America has taken notice, causing this asset class to quadruple in size from 2004 to 2009 according to Morningstar data.

HMFs mimic the trading strategies of hedge funds (HF) within the mutual fund framework but unlike traditional mutual funds (TMF), HMF use leverage, derivatives, and/or short selling as a significant component of their strategies. Management fees for HMFs are low by HF standards, although expense ratios, at 2-3 percent, are higher than most other mutual funds. From 1995-2007, HMFs categorized by Morningstar as long/short had 13 consecutive years of positive returns after ongoing expenses. No other stock category has this distinction. In the decade ending June 2008, HMFs returned 3.5% annually, ahead of the S&P by one-half percent over the same period. Table 1 depicts the performance of the Morningstar long/short category versus the S&P 500 from 1998-2009.

HMFs are required to provide daily net asset values and are subject to the leverage and short-selling constraints set forth in the Investment Company Act of 1940 as are all mutual funds. Specifically, HMFs must comply with restrictions on covering short positions, limiting borrowing to one-third of total assets, and investing no more than 15% of total assets in illiquid securities. They must also provide audited semi-annual reports. HFs do not have these regulatory or transparency

requirements. Liquidity requirements for HFs are quarterly, not daily, and ownership of hard-to-price, illiquid securities can lead to lock-up periods unlike HMF. HFs have better incentives and usually charge performance fees, causing HF managers to take larger risks to deliver superior returns. In the mutual fund industry, a performance-based fee (called a “fulcrum fee”) is uncommon and managers are generally more conservative. Differences in regulation and incentives as well as manager skill in using hedge fund strategies imply that HFs are likely to outperform HMFs. From 2004-2009, HFs significantly outperform HMFs by 4.6% net-of-fees².

HMFs have a tax advantage over HFs, as do all mutual funds, because of the limitations on investors' ability to deduct management fees. HF investors must often pay tax on “phantom income,” or income that is never earned because management fees “flow-through” to investors. HMFs do not create phantom income because they are allowed to deduct management fees against their profits before they arrive at taxable income. Tax differences are not accounted for in the following analysis.

1.2 Low correlation to stock market returns

Through all the financial turmoil, HMFs have quietly posted single-digit returns year after year. The 13-year streak of positive returns was broken in 2008, although the long/short category fell only 15.4 percent while the S&P 500 was down 37 percent for the same year. In 2000 and 2001, long/short funds outperformed the S&P 500 by 18 and 17 percent, respectively, according to Morningstar data. In bull markets, long/short funds typically underperform the stock market. In 1998 and 2003, for example, long/short funds underperformed the S&P 500 by 16 percent 22 percent, respectively. These stable returns suggest that HMFs offer diversification benefits similar to a balanced portfolio combining 40

² This statistic comparing HMFs to HFs (and those that follow) includes only funds that existed over the entire sample period and therefore does not include defunct funds.

percent stocks and 60 percent bonds. Supporting this idea, HMF managers themselves usually identify an equity index and an aggregate bond index as fund benchmarks.

The selling point of HMFs should be their low correlation to the stock market but such a conservative message is easily drowned out by the hype surrounding alternative investments. Retail investors may become enamored with the false idea of owning a hedge fund, failing to appreciate the regulation and incentive differences between HMFs and HFs. One HMF manager told Marketwatch, “We’re finding increasing demand from investors who want to gain more protection against downside risks without losing their exposure to stocks.³” New investors in HMFs may be expecting a free lunch – less risk with all the upside potential – and at least some of the funds are willing to offer it. One active fund states its objective is to beat the S&P 500 with less volatility, and another sets a benchmark of inflation plus 5 percent. These objectives seem unrealistic over the long-run and suggest that some funds are capitalizing on a surge in HMF popularity to increase inflows from overzealous investors.

To meet rising demand for an equity fund with limited downside risk, the number of long/short funds has grown from 12 in 2000 to 82 in 2009. With so many new funds to choose from, it becomes increasingly important for investors to perform their due diligence before investing. McNeela (2005) cautions that most of the new offerings have suffered from tepid returns and high expense ratios. Agarwal, et al. (2007) provide one reason for the variability in HMF performance when they find that only HMF managers with experience using hedge fund strategies are able to outperform traditional, long-only funds. As the number of offerings grows, skilled HMF managers with experience using HF strategies will be harder to find. Furthermore, HMFs with high management fees are unlikely to

3 Christopher Holt, 2007: Year of Hedge/Mutual Fund Convergence?, 22 January 2007 ([http://seekingalpha.com/article/24697-2007-year-of-hedge-mutual-fund-convergence.](http://seekingalpha.com/article/24697-2007-year-of-hedge-mutual-fund-convergence))

outperform a simple asset allocation strategy between stocks and bonds over the long-term.

1.3 Long/short equity strategies

For a traditional long-only strategy, the portfolio's return in excess of that on the benchmark is called alpha. A long/short strategy can add value equal to two alphas because the manager can use the proceeds from a short position to support a long position. Ultimately, the success of any long/short strategy relies on the ability of the manager to identify overvalued and undervalued stocks.

Long/short market neutral funds attempt the difficult task of eliminating systematic and idiosyncratic risk (market beta equals zero) while outperforming the risk-free rate. Such absolute returns require both a long and short portfolio of equal dollar amounts and similar characteristics, a profile that was impossible until the Taxpayer Relief Act of 1997 removed the 30 percent limit on profits from short selling. In practice, maintaining this 50/50 balance requires frequent rebalancing contributing to high expense ratios. To limit transaction costs, McConnell (1999) points out that portfolio managers allow exposures to fluctuate within a certain range bringing into question the actual neutrality of these funds. From 2004-2009, market neutral HMFs underperform the risk-free rate , supporting the argument that these funds are not truly market neutral.

A variation of the market neutral long/short portfolio is one with an equity overlay, or equitized market neutral. The purpose of this strategy is to provide investors with full market equity exposure in addition to an active, skill-based return from the portfolio manager. An equity overlay is usually created by rolling over call options on a broad-market index such as the S&P 500. Among HMFs, two of three bond fund managers use an equity overlay.

Like market neutral, short-extension strategies specify a stated level of short selling to control risk but the long and short positions are not of equal value. These funds are generally designed to have

a market beta of 1.0 and are commonly implemented as a 130/30 portfolio. For every \$100 received from a client, a 130/30 portfolio manager would short \$30 worth of securities and then invest long the initial \$100 plus the \$30 provided by short sale proceeds, resulting in a total exposure of 160% of assets. Other names for the short-extension strategy are partial long/short and active-extension.

Less common HMF equity strategies are merger arbitrage, convertible arbitrage, and collar option strategies. A handful of HMFs specialize in these strategies, often bringing experience from the HF industry. In most instances, these strategies are combined with a more conventional long/short equity or market neutral strategy.

1.4 Statement of hypotheses

H₀ Hedged mutual funds (HMFs) will not outperform their benchmarks on a risk-adjusted basis and hedge funds (HFs) will not outperform HMFs.

H₁ HMFs will outperform their benchmarks on a risk-adjusted basis because HMFs use strategies to actively hedge market risk. HFs will outperform HMFs because they have less regulation and greater performance incentives.

2. Literature Review

2.1 Mutual funds using hedge fund strategies

In 1997, the Taxpayer Relief Act repealed the “short-short rule” (SSR) which required that mutual funds derive less than 30 percent of their gross income from securities held less than three months. Soon after, the number of mutual fund companies offering long/short HMFs rose rapidly. Bae and Yi (2008) find that the SSR constrained hedging strategies involving short-term trades and repealing the tax regulation significantly increased the timing performance of mutual funds.

Yi and Kim (2005) examine how the SSR repeal changed the trading activities and investment

strategies of mutual funds. Using a sample of mutual funds from 1994-2001, they find that mutual funds use greater flexibility to increase risk as measured by beta, idiosyncratic risk, and systematic risk. Cash holdings decrease but turnover ratios increase slightly after 1997. For growth-oriented funds, risk-adjusted return increases but income-oriented funds show a decrease in beta and risk-adjusted performance, perhaps because of more conservative management. The investment objective of a mutual fund will affect how the fund manager responds to greater flexibility.

Prior to 1997, the SSR capped mutual funds' short-term gains at 30 percent and all gains from short sales were considered short-term irrespective of how long the position was actually held. Chen, Desai, and Krishnamurthy (2008) evaluate the performance of mutual funds that use short selling as an investment strategy in light of the regulation change. Mutual funds short larger and more liquid “glamour” stocks displaying poor earnings quality. These funds earn economically and statistically significant large returns on both their long and short portfolios, indicating that fund managers engaging in short selling are skilled. Investors reward this skill with large inflows into funds utilizing short selling, which may help explain the rapid growth of HMFs.

Long-only managers' profit potential is limited to rising stocks. The manager cannot express a negative view on a stock other than underweighting it relative to the benchmark. A manager permitted to use short selling should be able to construct a more optimal portfolio, and there may be reason to believe more pricing inefficiency exists on the short side of the market for several reasons: first, fewer investors are searching for overvalued stocks; second, “window-dressing” of accounts provides a shorting opportunity; and third, equity analysts are more likely to issue a buy recommendation than a sell recommendation. A positive outlook on a stock creates more opportunity for commissions and satisfies their managers who may have a vested interest in seeing the share price in question go up.

Armfelt and Somos (2008) show that a pool of active-extension portfolios outperforms long-only portfolios over the sample period from 1927 to 2007. Active-extension is defined as a strategy having both long and short positions, using leverage, and maintaining a beta of 1.0. Significantly, as leverage increases from a 100/0 long/short ratio to 150/50, the 150/50 portfolio will show the highest improvement in performance providing support for the efficacy of leverage used by HMFs.

The use of derivatives by HMF managers should allow them to manage risk better and deliver better performance. In practice, derivatives are frequently viewed as speculative and high-risk investments. Koski and Pontiff (1999) attempt to provide evidence about the ways in which mutual fund managers actually use derivatives. They find no differences in measures of risk or performance between funds that do and do not use derivatives. Funds using derivatives do experience less severe increases in risk in response to poor performance during the first-half of the year, suggesting that mutual funds use derivatives as a tool for risk management.

2.2 Hedged mutual funds performance

Hedged mutual funds are a relatively new class of managed portfolios. Consequently, these funds have scant representation in the academic literature. Agarwal, Boyson, and Naik (2007) provide the first comprehensive examination of HMFs, defined as mutual funds using hedge fund strategies to enhance performance. HMFs significantly underperform HF's from 1994-2004 (as much as 3.3% per year on a net-of-fee basis) which they attribute to differences in regulation and incentives. Mutual funds must limit borrowing, provide daily liquidity and pricing, and cover short positions in compliance with the SEC, constraining their ability to implement strategies as effectively as hedge funds. HMFs also lack performance-based compensation while hedge fund managers have strong incentives to take additional risks to deliver better performance.

Agarwal, et al. (2007) also find that hedged mutual funds outperform traditional mutual funds because HMF have greater flexibility to capture alpha on both the long and short sides. The benefits of flexibility in investment strategies outweigh the agency costs of affording fund managers more control. Additionally, mutual fund managers with experience in hedge fund trading strategies outperform those without by 4.1% net-of-fees. This result implies that most of the superior performance of HMFs over TMFs can be attributed to manager skill.

From 1994 through 2000 Almazan, Brown, Carlson, and Chapman (2004) find that mutual fund managers were becoming less constrained, paralleling the rise of hedged mutual funds. Restrictions are a common feature of contracts between fund managers and investors intended to reduce agency costs and include prohibitions against borrowing, short sales, derivatives, and holding illiquid assets. Almazan, et al. (2004) examine the motivation for and economic impact of constraints placed on mutual fund managers and, when controlling for fund size, investment style, and portfolio turnover, variations in the level of restriction do not produce economically or statistically significant differences in returns. This finding provides more support for the hypothesis that superior performance of HMFs over TMFs is based on managerial skill and not flexibility.

2.3 Risk and return of hedge funds

Many hedge funds promise the diversification benefits of low market correlations for traditional portfolios. Asness, Krail, and Liew (2001) find support for this claim when using simple regression analysis of excess returns, however HFs often hold difficult-to-price, illiquid securities. HFs will report stale or managed prices in these instances which can lead to return data asynchronous with the broad market and a significant understatement of market exposure. To the extent this is true, estimates of alpha will be overstated whenever the equity market is rising. Asness, et al. (2001) account for this

increased market exposure (i.e. risk) for data between 1994 and 2000 and find that in the aggregate, HFs do not add value. This conclusion challenges the notion that HFs can provide protection from a market correction.

In retrospect, the 2007-2009 financial crisis validated concerns about HFs' risk exposure and their lack of diversification benefits. Stulz (2007) compares the risks and performance of HFs and mutual funds over the last decade and points out that HFs' correlation to mutual funds is increasing and that more HFs are chasing fewer pricing discrepancies, limiting their profitability going forward. Stulz (2007) predicts that the performance gap between the mutual funds and HFs will narrow, that regulation will limit the flexibility of HFs, and that the HF industry will become more institutionalized as pension and endowment funds become the primary investors instead of individuals. All of these external and internal pressures on the HF industry suggest a financial product similar to HMFs in terms of strategies, restrictions, and transparency requirements.

In the wake of numerous hedge fund blow ups in 2007 and 2008, the calls for stronger regulation of HFs have gained some momentum. Aglietta and Rigot (2008) attribute a significant part of the crisis to HFs and provide recommendations for dramatic reform to the HF industry. This course of action would likely undermine the profitability of the hedge fund strategies such as those used by HMFs. Ferrari (2009) points out that HFs have generally performed well in other market downturns and enhance market liquidity at times when no one else is willing to take on risks. Indirect regulation of the channels through which a shock in HFs could be transmitted to public financial institutions would be more effective than direct regulation of HFs. Even without regulation, enhanced risk management is a sensible course of action already being adopted by commercial banks and pension funds. This process may spur institutional demand for HMFs, which provide attractive risk-management features including

stable returns, transparency, low correlation to stocks, and restrictions on leverage.

3. Data

3.1 Source

The analysis uses monthly return data from the long/short mutual fund category in the Morningstar Principia database. Hedge fund monthly returns and benchmarks are provided by TASS. Total returns do not adjust for sales charges but reflects all ongoing fund expenses and assumes reinvestment of dividends. Investment objectives and strategies for mutual funds are taken from the prospectuses and other marketing literature provided by the funds themselves. Benchmarks for individual funds are provided by either Morningstar or the fund prospectus. Portfolio composition and major holdings data are provided by Morningstar's "Mutual Fund Detail Reports." Explanatory information about the long/short category is provided by Morningstar senior analyst Dan McNeela (2006) and www.Morningstar.com.

3.2 Time period

The sample period is January 1, 2004 to September 30, 2009. This period was chosen for two reasons: first, it succeeds the time period used by Agarwal, et al. (2007) in a similar study, and second, it includes the United States bear market of 2007-2009. The performance of HMF and HF over this time period demonstrates the ability of the respective managers to hedge market risk, as well as the potential diversification and risk management benefits of investing in each asset class.

3.3 Hedged mutual funds

Selection of the HMF sample begins with the 81 distinct long/short portfolios appearing in the Morningstar database as of September 20, 2009. Table 1 provides summary statistics for this group of

funds. Of these long/short funds, three are identified by Morningstar as exchange-traded funds (ETF) and are excluded, leaving a sample of 78 actively managed funds. The sample does not include defunct funds, causing legitimate concern about survivorship bias. Dan McNeela, an analyst for Morningstar, says three funds that would have been included in this category dissolved in 2005 alone, even before the market downturn. Identifying defunct HMF is difficult since a mutual fund company will usually absorb a failing long/short fund into its other offerings. These short-lived HMF often represent a mutual fund company trying to capitalize on the budding HMF industry and are not motivated by experience using hedge fund strategies.

The Morningstar long/short classification began in March, 2006⁴. Inclusion in the Morningstar long/short category reflects activity of the underlying portfolios in the past three years and does not rely on the name of the fund, which may be misleading. Mutual funds must have a significant shorting component to their strategy, roughly defined as 20% of net assets to be included. This criteria may exclude some HMF using event-driven strategies, like distressed debt, because these strategies do not necessarily involve short selling. Despite its name, the long/short category comprises many other unique hedge fund-like strategies.

Table 1, Panel B summarizes the range of HMF strategies represented in Morningstar long/short category as of September 2009. To identify the strategy for each of the 78 HMF in the sample, I relied on the strategy and benchmark stated in the prospectus, as well as current portfolio composition. If a fund was new and had not yet implemented a complex strategy identified in the prospectus, the fund was classified simply as long/short equity.

Categorized by strategy, the largest group of HMF are long/short equity and market neutral. The

4 Before 2006, Morningstar placed long-short funds in the moderate or conservative allocation categories.

34 funds identified as long/short equity in Panel B invest primarily in domestic and/or foreign stocks and aim for a market beta of 1.0. These funds' primary benchmark is the S&P 500 although some list Barclay's US Aggregate Bond Index as a secondary benchmark. A few HMF make references to “absolute” returns in the fund name or prospectus but are grouped as long/short equity (and not market neutral) since the S&P 500 is used as the benchmark. Funds using long/short equity in concert with other strategies are grouped as multi-strategy. Of these 7 multi-strategy funds, 4 are fund of funds.

Of the 20 long/short market neutral funds identified, 1 is a convertible arbitrage fund and 2 are multi-strategy. Since market neutral funds attempt to offer an absolute return to investors irrespective of market direction, the natural benchmark is the risk-free rate. All of these funds list the 3-month Treasury bill as their benchmark. In a few cases, a long/short HMF did not explicitly identify a market neutral strategy in their prospectus but were grouped with market neutral funds based on their chosen benchmark of the risk-free rate.

Each of the remaining HMF strategies comprises four or fewer funds. These lesser-represented strategies include global macro, collar options, merger arbitrage, long/short commodity, managed futures, alternative beta (also called “synthetic hedge funds”), and fixed income strategies. For the purposes of analysis, multi-strategy, global macro, collar option, and merger arbitrage funds are included in the long/short equity group if they use an equity-based benchmark. This step increases the sample of long/short equity funds to 50. The remaining strategies are non-equity and are ignored.

3.4 Hedge funds

The sample of HFs includes all equity market neutral and long/short equity hedge funds listed in the TASS database as of September 2009. To match the strategies used by HMFs, the HF sample was restricted to only these two investment styles. Unlike the HMF sample, both live and defunct HFs are

included providing a total sample size of 1250 long/short equity and 158 equity market neutral funds. Table 1, Panel C lists the total number of HMFs and HFs by strategy for each year of the sample period. All funds have increased in number since 2004.

3.5 Key variables

Because HMFs and HFs are exposed to many different risk factors, two measures of risk adjusted performance are used as a basis of comparison: 1) total return divided by risk, and 2) percentage of funds outperforming their benchmark. The analysis uses monthly net-of-fee returns and includes only funds active at the beginning of the sample period. Table 2 reports HMF and HF performance.

First, raw monthly returns for HMFs and HFs are compounded and annualized for each fund over both a three and five year period ending September 2009. Standard deviations (SD) of monthly returns are also annualized over 3 and 5 years to provide a measure of risk for each fund. To calculate total returns and SD for a group of funds, fund averages are used. Panel A reports three and five year annualized return, BMAR, SD, and return divided by SD. Summary statistics are computed separately for long/short funds and market neutral funds. HF performance is analyzed both with and without defunct funds to provide a fairer comparison with HMFs. Panel B reports risk and return characteristics of fund benchmarks.

Benchmark-adjusted returns (BMARs) are calculated in the same way as total returns except that monthly benchmark returns are subtracted from the corresponding monthly fund returns before compounding and annualizing. For long/short HMFs, the benchmark used in this step is usually the S&P 500 and less frequently the Russell 1000 or Russell 3000 depending on the fund's choice of benchmark. The assumed benchmark is the S&P 500 for all long/short HFs is and the 3-month US

Treasury Bill for all market neutral HFs. To interpret the BMAR, a positive value indicates that the fund has outperformed its benchmark over the sample period and vice versa. The total number of outperforming funds is divided by the total number of funds within its group to compute the percentage of funds that have outperformed their benchmarks. Panel C reports the percentage and number of HMFs and HFs that have outperformed and underperformed their benchmarks.

4. Analysis and results

4.1 Hypothesis about HMF versus HF performance

The first part of the analysis compares HMF performance to HF performance. Consistent with the findings of Agarwal et al. (2007), HMFs underperform HFs using similar strategies, not controlling for other fund characteristics or past performance. This observation is attributed to differences in regulation between HMFs and HFs related to liquidity and disclosure as well as restrictions on short selling and leverage, which inhibit implementation of strategies used to hedge risk. HFs also have greater performance incentives and manager experience using HF strategies.

Despite the small sample size of HMFs, HFs outperform HMFs in a statistically and economically significant way. Comparing total net-of-fee returns divided by risk, HFs active as of 2009 outperform HMFs using similar strategies over both a three and five year period. In all cases, HFs have a higher total return but also a higher standard deviation of returns. If the sample of HFs is expanded to include defunct funds, HMFs outperform HFs over a period of five years.

Observing only long/short equity funds over three years, 83 percent of HFs outperform the S&P 500 compared to only 64 percent of HMFs. Equity market neutral funds are less successful at outperforming their benchmark, the risk-free rate: among HFs, 50 percent of market neutral funds

outperform the 3-month Treasury bill compared to 38 percent of HMFs. Hedge funds outperformance of hedged mutual funds indicates that merely using hedge fund strategies cannot overcome the flexibility constraints placed on mutual funds.

To test for significance, returns are compared for a paired sample of HMFs and HFs. For both fund types, 26 pairs of equity long/short funds and 13 pairs of equity market neutral funds are matched based on fund size. Table 3 reports the results of these t-tests comparing annualized returns. Based on the matched sample, the performance gap between long/short equity HMFs and HFs is narrower over three years than five years. This result supports the prediction made by Stulz (2007) that mutual fund and HF returns will converge as more funds using HF strategies chase fewer pricing discrepancies.

4.2 Hypothesis about HMF versus benchmark performance

The second part of the analysis compares performance of HMFs to fund benchmarks. HMFs are expected to provide a low correlation to broad equity indices because of their ability to use short selling to hedge against downside market risk. Table 1 provides initial support for this hypothesis: in the decade ending in 2009, the S&P 500 posted four years of negative returns (2000-2002; 2008) and in each of these years, the Morningstar long/short category outperformed the S&P 500. In the remaining six years, the S&P 500 outperformed long/short mutual funds.

The nature of hedged mutual fund returns implies that managers use flexibility to hedge market risk and not to attempt market timing. A long/short manager trying to predict the direction of the market would switch between long or short positions depending on her market outlook, which would likely result in inconsistent performance. In contrast, a long/short manager that maintains a level of short positions at all times is likely to underperform long-only funds in bull markets but outperform the same funds in down markets. The data provides evidence for the latter scenario.

Table 2 reports that HMFs return 2.6 percent annually from 2004 to 2009 while the S&P 500 returns 1.0 percent with a higher volatility of monthly returns. Limiting the sample to HMFs with equity-based benchmarks, the average fund outperforms its benchmark by 3.0 percent annualized over three years. Although grouped with long/short equity funds, two HMFs in the analysis use a merger arbitrage strategy and represent two of the four top-performing HMFs over five years. Both of these funds' managers bring experience from the HF industry, which is consistent with the finding by Agarwal et al. (2007) that superior performance of HMFs over TMFs is driven by manager experience using HF strategies.

Table 3 reports that equity market neutral HMFs do not produce significantly different returns from long/short equity HMFs. Although market neutral HMFs display lower risk than long/short funds, they underperform the risk-free rate by 2.1 percent annually over three years and generally do not provide absolute returns. As noted by McConnell (1999), market neutral funds cannot realistically maintain long and short portfolios of equal dollar amounts without skyrocketing transaction costs. Furthermore, history does not show improved fund performance attributed to managers' stock-picking skill, which is the essence of a market neutral strategy.

5. Conclusions

Hedged mutual funds, defined as mutual funds that use short-selling to mimic hedge fund trading strategies, are able to actively hedge market risk unlike long-only funds. The 2007-2008 bear market provided the litmus test of whether hedged mutual funds provide meaningful diversification benefits to retail investors. This paper uses data from hedged mutual fund, hedge funds, and fund benchmarks to analyze hedged mutual fund performance from 2004-2009.

Hedged mutual funds significantly underperform hedge funds using similar strategies, but the performance gap is narrowing over time based on a matched sample of funds. This result is attributed to differences between hedged mutual funds and hedge funds related to regulations, incentives, and experience using hedge fund strategies; the profitability of hedge fund strategies may be shrinking as more funds chase fewer investment opportunities.

More relevant to diversification benefits, hedged mutual funds outperform the S&P 500 from 2004-2009 by 1.6% net-of-fees with lower volatility, providing evidence that hedged mutual funds do use short selling to hedge market risk versus a long-only strategy. Grouped by strategy, the largest subsets of hedged mutual funds are long/short equity and equity market neutral although returns are not significantly different between the two groups. While market neutral funds have lower risk than long/short funds, they do not provide true absolute returns. These findings have important implications for investors seeking to benefit from hedge fund strategies within the mutual fund environment.

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Table 1. Summary statistics for hedged mutual funds (HMF) and hedge funds (HF)

This table reports summary statistics for HMF and HF. Panel A is taken from *Morningstar Mutual Funds* (Vol. 58, Issue 10) published April 21, 2009 and provides descriptive statistics of the Morningstar long/short mutual fund category each year from January 1, 1998 to March 31, 2009. The graph depicts performance of the Morningstar long/short category against the S&P 500. Returns are net of ongoing expenses but before sales charges. Returns, expense ratios, income ratios, turnover rates, and net assets are fund averages.

Panel A. HMF summary statistics by year

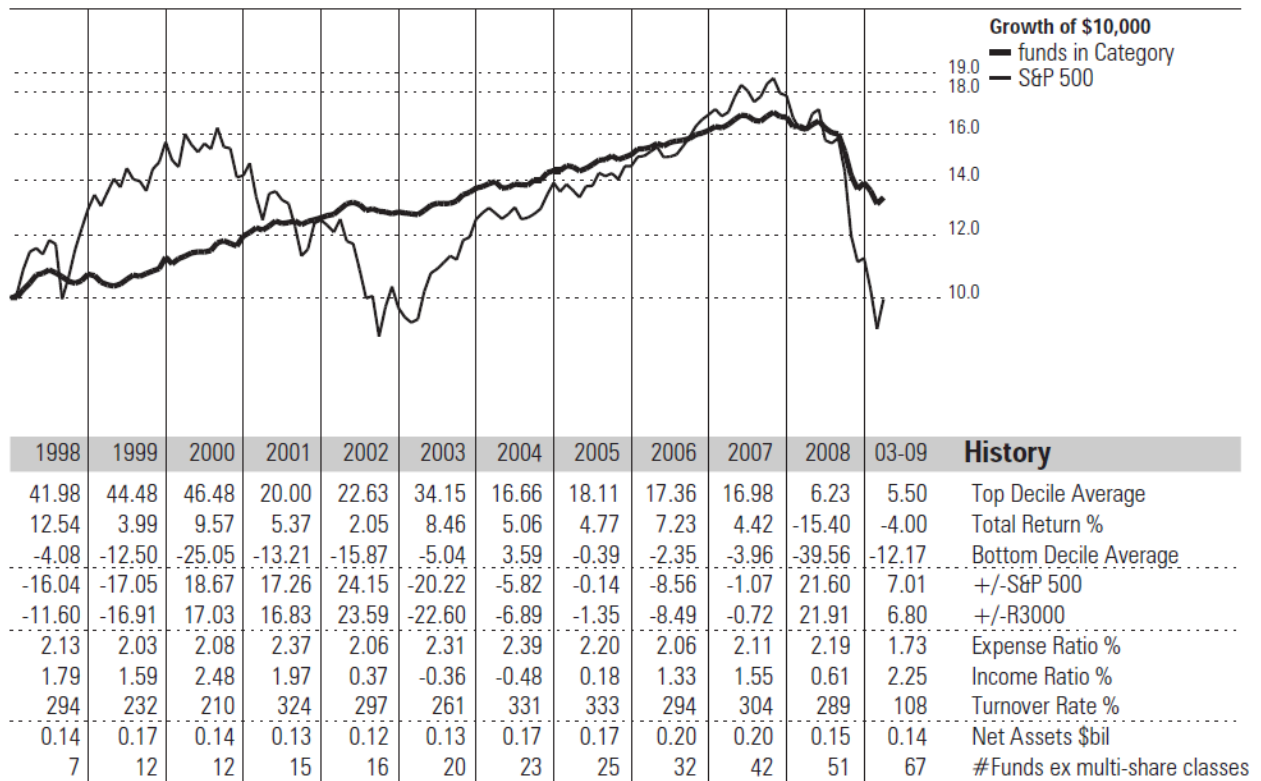


Table 1 (cont.) Summary statistics for hedged mutual funds (HMF) and hedge funds (HF)

Panel B shows the range of strategies used by HMF in the Morningstar long/short category as of September 20, 2009. Strategies and benchmarks are determined by consulting the fund prospectuses. Multiple shareclasses are combined. Panel C reports the number of hedged mutual funds (HMF) and hedge funds (HF) for each year during the sample period, 2004-2009. HMF and HF are divided into those using a long/short equity strategy (LS), and those with a market neutral strategy (MN). For each year, active HF are listed separately from defunct HF. Numbers in parentheses indicate defunct funds that were active in the year indicated but are no longer active as of September, 2009.

Panel B. Number of HMF by strategy

Strategy	No. of funds	Description	Standard benchmark
Long-short equity	34	Holds both long and short equity positions	S&P 500 index
Global macro	4	Top-down trading in many asset classes based on macro trends	varies
Options collar	3	Combines covered calls and protective puts on an index	S&P 500 index
Merger Arbitrage	3	Goes long on the target of a merger and short on the acquirer	S&P 500 index
Equity market neutral	17	Uses a long/short strategy to provide absolute returns	3 mo. US Treasury Bill
Convertible Arbitrage	1	Exploits improper valuations between convertibles and stocks	3 mo. US Treasury Bill
Commodity long-short	2	Holds both long and short commodity positions	Commodity price index
Managed Futures	1	Run by CDTs, trades long and short futures based on price patterns	Barclay's CTA index
Fixed income long-short	1	Holds both long and short bond positions	US Aggregate Bond index
Fixed income + equity overlay	2	Managed fixed income portfolio with equity exposure	60/40 Balanced index fund
Multi-strategy	7	Combines strategies, often as a fund of funds	S&P 500 index or T-Bill
Alternative Beta	3	"Synthetic hedge fund" replicates market exposure of hedge funds	HFRI composite index
TOTAL	78		

Panel C. Number of funds by strategy and year

Year	All HMF	HMF - MN	HMF - LS	HF - MN	HF - LS
2004	26	10	16	68 (319)	615 (625)
2005	29	10	19	87 (242)	783 (525)

2006	37	13	24	102 (169)	982 (406)
2007	48	17	31	132 (97)	1107 (285)
2008	64	20	38	157 (27)	1213 (129)
2009	78	20	50	155 (3)	1234 (16)

Table 2. Performance of hedged mutual funds (HMF) and hedge funds (HF)

This table reports HMF and HF performance between 2004 and 2009. Panel A reports total net-of-fee returns, benchmark-adjusted returns, standard deviations of monthly returns, and total return divided by risk for HMFs, and HFs. Funds are further divided into long/short equity and equity market neutral investment styles and HFs are analyzed with and without the inclusion of defunct funds. Combined HMF and HF performance is reported below. Panel B reports risk and return characteristics of fund benchmarks.

Panel A. Annualized fund performance

		Hedged Mutual Funds		Hedge Funds (live only)		Hedge Funds (all)	
		3 Yr	5 Yr	3 Yr	5 Yr	3 Yr	5 Yr
		Annlzd	Annlzd	Annlzd	Annlzd	Annlzd	Annlzd
Long/short Equity	Total Return	-0.54%	3.23%	3.97%	7.60%	2.71%	3.44%
	+/- S&P 500	2.98%	1.11%	7.55%	5.12%	5.34%	0.36%
	Standard dev.	12.63%	11.10%	15.83%	14.17%	20.72%	16.61%
	Return/SD	-0.04	0.29	0.25	0.54	0.13	0.21
Equity Market Neutral	Total Return	0.26%	1.74%	2.18%	3.87%	-0.35%	-0.42%
	+/- T-Bill	-2.11%	-1.11%	-0.18%	1.02%	-2.16%	-2.12%
	Standard dev.	6.60%	5.90%	9.39%	8.50%	11.30%	10.60%
	Return/SD	0.04	0.30	0.23	0.46	-0.03	-0.04
Combined	Total Return	-0.27%	2.63%	3.80%	7.23%	2.21%	2.53%
	Standard dev.	10.62%	9.10%	15.21%	13.60%	19.21%	15.21%
	Return/SD	-0.03	0.29	0.25	0.53	0.11	0.17

Panel B. Benchmark performance

	S&P 500		3 month T-Bill	
	3 Yr	5 Yr	3 Yr	5 Yr
	Annlzd	Annlzd	Annlzd	Annlzd
Total Return	-5.43%	1.02%	2.37%	2.82%
Standard dev.	19.68%	15.96%	0.56%	0.49%
Return/SD	-0.28	0.06	4.26	5.75

Table 2 (cont.) Performance of hedged mutual funds (HMF) and hedge funds (HF)

Panel C reports the number and percentage of HMFs and HFs that have outperformed and underperformed their chosen benchmarks over 3 and 5 year periods. Long/short equity funds are compared to either the S&P 500 or Russell 3000 and equity market neutral funds are compared to the 3-month Treasury bill. Funds are divided into the same groups as Panel A.

Panel C. Number of outperforming/underperforming funds

		Hedged Mutual Funds		Hedge Funds (live only)		Hedge Funds (all)	
		3 Year	5 Year	3 Year	5 Year	3 Year	5 Year
Long/short Equity	Outperform	16 (64%)	9 (60%)	828 (83%)	522 (83%)	969 (70%)	626 (50%)
	Underperform	9 (36%)	6 (40%)	166 (17%)	107 (17%)	424 (30%)	622 (50%)
	Total	25	15	994	629	1393	1248
Equity Market Neutral	Outperform	5 (38%)	4 (40%)	53 (50%)	40 (58%)	109 (40%)	121 (32%)
	Underperform	8 (62%)	6 (60%)	52 (50%)	29 (42%)	163 (60%)	261 (68%)
	Total	13	10	105	69	272	382
Combined	Outperform	26 (67%)	14 (56%)	881 (80%)	562 (81%)	1078 (65%)	747 (46%)
	Underperform	13 (33%)	11 (44%)	218 (20%)	136 (19%)	587 (35%)	883 (54%)
	Total	38	25	1099	698	1665	1630

Table 3. Results of T-Tests Comparing Annualized Returns

This table reports the results of t-tests comparing net-of-fee returns across fund types and strategies. Panel A compares HMF and HF returns using a matched sample based on fund size. Differences are calculated as [mean HF return] – [mean HMF return] and are marked with ***, **, or * to show significance at the 1%, 5%, and 10% levels, respectively. Panel B compares returns of long/short HMF and market neutral HMF using a two-tailed t-test. Differences are calculated as [mean HMF long/short return] – [mean HMF market neutral return.]

Panel A. Matched sample results for HMF and HF

	<i>Difference (HF - HMF)</i>	<i>t Stat</i>	<i>P-value</i>
<i>Long/Short Equity</i>			
5 Year annlzd.	3.96%**	2.11	0.03
3 Year annlzd.	1.47%	0.54	0.30
<i>Equity Market Neutral</i>			
5 Year annlzd.	4.18%***	3.18	0.01
3 Year annlzd.	5.76%**	2.16	0.03

Panel B. Unmatched sample results for long/short HMF and market neutral HMF

	<i>Difference (L/S - MN)</i>	<i>t Stat</i>	<i>P-value</i>
5 Year annlzd.	1.49%	1.09	0.29
3 Year annlzd.	-0.80%	-0.50	0.62