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# Economic Letter

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*Hedge funds  
have become  
increasingly important  
in financing the  
originate-to-distribute  
banking model.*

## Hedge Fund Investors More Rational Than Rash

*by Jeffery W. Gunther and Anna Zhang*

The banking industry's treatment of loans has undergone a dramatic transformation over the past two decades. While maintaining their traditional role in originating loans and holding them on their books, banks have become more likely to create and sell securities backed by pools of loans and other debt instruments.

Banks' adoption of the "originate-to-distribute" model has been accompanied by equally dramatic changes in risk management.<sup>1</sup> When banks sell these asset-backed securities to institutional investors, they disperse risks outside the banking system. Banks also provide tools to address the risks of loans and asset-backed securities through derivative instruments, such as interest-rate and credit-default swaps. These changes not only enhance banks' and investors' ability to manage risk but also increase the availability of credit to businesses and individuals.



Integral to this process are hedge funds—largely unregulated, leveraged investment vehicles that, unlike mutual funds, freely employ complex and flexible trading strategies. As one of the most dynamic forces among institutional investors, they’ve become increasingly important in financing the originate-to-distribute banking model.

The shift in banking strategy and the rise of hedge funds have led to a financial system increasingly based on the pricing and trading of complex credit-related instruments. As a result, investor and market behavior play a greater role in overall financial steadiness. Hedge funds can contribute to stability when they provide liquidity to financial markets, particularly for risky assets. In times of financial stress, the funds can undermine stability if their own health comes into question, triggering rapid withdrawals.

The roles of banks and institutional investors had evolved over the past few years under generally favorable conditions, without the stresses that accompany financial turbulence.<sup>2</sup> But this year, troubles in the home mortgage market have meant steep losses and closures at some hedge funds. The situation has revealed some of the risks inherent in hedge funds and the originate-to-distribute model.

Hedge funds’ potential to roil financial markets makes headlines. Examining funds’ performance and money flows over a decade, however, provides a more balanced view of their overall role in financial stability.

Except in especially adverse circumstances, we find hedge fund investors tend to focus on longer-term rather than immediate performance. In addition, they often stick with successful fund managers through a downturn. Such behavior adds stability to hedge funds’ financial bases and limits capital flight.

### Source of Liquidity

Hedge funds have operated for a long time, but they’ve become

increasingly popular in recent years as institutional investors turned to them as vehicles for pursuing outsized returns.<sup>3</sup> Industry estimates suggest hedge funds account for more than half the trading volume in distressed debt, emerging market bonds and credit derivatives and about a third of all U.S. equity trading.

Hedge funds’ growing prominence belies a checkered past that includes a well-publicized episode involving Long-Term Capital Management (LTCM). In early 1998, the hedge fund bet that yields on high-risk bonds would fall relative to

low-risk bonds. This proved wrong, and Russia’s devaluation and debt default that August multiplied the fund’s losses.

With financial markets already fragile, the possibility that LTCM’s collapse might spill over to large banks and securities firms led to a rescue by a creditor consortium.<sup>4</sup> Although major troubles were averted, the LTCM episode illustrates the potential risks hedge funds pose to overall financial system stability.

Hedge funds, however, aren’t just sources of added risk. They benefit financial markets by determining asset

## Hedge Funds: A Balance Sheet

### Benefits

**Price discovery**—By seeking arbitrage opportunities associated with misaligned prices and exploiting them through short sales, derivatives and other leveraged trading strategies, hedge funds promote price discovery, resulting in more efficient markets and lower capital costs.

**Risk dispersion**—As counterparties to derivative and securitization transactions, hedge funds help banks disperse risk and foster innovation in risk-management tools and techniques.

**Investor diversification**—Because hedge funds often focus on arbitrage opportunities, they tend to be market neutral, offering investors an attractive means of diversification.

**Market liquidity**—Hedge funds are significant providers of liquidity to the financial market, especially the riskiest and most vulnerable segments. In providing such liquidity, funds can help stabilize markets when disturbances strike.


### Risks

**Price volatility**—Innovations in financial products, such as complex derivatives and structured products, have expanded the ways hedge funds apply leverage. A concentration among hedge funds of similar market positions and high leverage could lead to extreme price volatility if traders unwind their positions at the same time.

**Market illiquidity**—Pervasive losses on similar positions could lead many hedge funds to retrench simultaneously, leading to market illiquidity and credit contraction.

**Loss spillovers**—Hedge fund problems typically don’t pose risks to the financial system. But there remains the potential for a major fund’s losses or failure to trigger a broad dislocation that would damage the system enough to adversely affect overall economic activity.

**Hidden losses**—Some of the complex and often illiquid financial products hedge funds have helped foster are difficult to value, raising concern that potential losses might remain hidden for a considerable time and lead to market uncertainty and unpleasant surprises for investors.



prices, dispersing risk and fostering diversification (see “Hedge Funds: A Balance Sheet”). Perhaps most important, funds’ routine activities contribute to financial stability by providing liquidity for the originate-to-distribute banking model.

In pursuing this strategy, banks bundle debt instruments into pools, which provide the projected income streams that serve as the basis for new securities. These securities are structured with the safest segment, or tranche, at the top, with an investment-grade rating. It incurs losses only if bad debts have already eaten through all the lower tranches.

Because of their desire for higher yields, hedge funds often invest in the riskier tranches—assets designated to absorb the first or second level of losses. In doing so, hedge funds supply the liquidity needed to support the higher tranches of investment-grade securities sought by other institutional investors. By selling insurance in credit-default swaps, they also help provide protection for other institutional investors and banks themselves.

Because of hedge funds’ growing significance as a source of market liquidity, their health and stability have become key issues for the overall financial system.

## Money Flows

Hedge funds run into trouble when investment strains mean they can’t maintain a stable funding base. Investors’ attempts to withdraw their funds after a period of poor performance often force funds to contract, sometimes necessitating distress sales of assets. In extreme circumstances, funds are forced to shut down.<sup>5</sup>

Hedge funds are well aware of the need to maintain liquidity, and they impose restrictions to reduce the likelihood and magnitude of capital outflows (see “Stability-Enhancing Restrictions”). These measures may help solidify a hedge fund’s capital base, but they can be overwhelmed

## Stability-Enhancing Restrictions

### Minimum Investment

Hedge funds typically require a minimum investment, sometimes \$1 million or more. The restriction usually limits participants to relatively sophisticated investors who would conduct considerable due diligence before investing and be unlikely to withdraw their funds on a whim. Hedge funds’ limited accessibility has been one of the primary arguments against the need for regulation and investor protections.

### Lockups

Most hedge funds impose “lockup” periods, during which investments can’t be redeemed. While lockups typically last from six months to two years, some funds have secured five- or even 10-year periods. Lockups enable hedge funds to reduce the need for liquid assets while shifting investment strategies into more exotic and less liquid arenas. For investors desperate to leave hedge funds under lockup, secondary markets have sometimes provided an escape.

### Redemption Periods and Gates

The illiquid nature of many hedge fund investment strategies often makes the immediate satisfaction of redemption requests difficult. Hedge funds typically require a one- to two-month redemption notice. Fund managers can often extend notice periods, allowing greater flexibility in managing a large number of redemption requests. Fund managers also have the ability to invoke “gates” that restrict how much money can be withdrawn in a given period.

### Side-Pocket Accounts

Hedge funds sometimes place especially illiquid assets in side-pocket accounts. One reason is that the funds can require that investors leave part of their money in these accounts as a condition for redemption, ensuring continued funding of these assets.

by adverse money flows, especially in the face of marked reversals in performance. So the issue of money-flow stability looms large.

Economic theory tells us that investors should respond to the risk-adjusted performance of individual hedge funds, an indicator of fund managers’ skill levels.<sup>6</sup> In a rational market, hedge funds with the most successful leadership should receive greater money inflows.

One measure of risk-adjusted performance is “alpha,” the part of a hedge fund’s return above the risk-free rate that can’t be explained by exposure to underlying market movements.<sup>7</sup> The Sharpe ratio, a related measure, captures a fund’s risk-return profile, taking into account

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both profitability and underlying volatility.

If capital providers respond to indicators closely related to managers' skills, short-run ups and downs in profits may not necessarily precipitate injections or withdrawals.

Similarly, investors who focus on longer-term prospects associated with managers' skills may not necessarily retract their money when performance falters as part of a general decline among funds operating in a particular strategy, or market segment. Such a broad-based decline could reflect temporary market setbacks; if so, it may not represent an indictment of managers' ability over the longer term.

Does the historical pattern of hedge fund money flows bear out these implications?

**Short- Versus Long-Term Performance.** Over the past 10 years, the hedge fund industry has experienced substantial swings in monthly profitability (*Chart 1*).<sup>8</sup> The low point during this period occurred in August 1998, the month of the Russian debt default.

Over longer stretches, monthly

volatility averages out, making the industry's profitability over a rolling 12-month period much more stable. It turned negative only once in the decade—in September 1998, with the Russian situation again the culprit.

Now, let's look at net monthly money flows, defined as capital contributions less withdrawals.<sup>9</sup> They're considerably less variable than monthly profits, exhibiting a relatively subdued pattern closely related to 12-month profitability.

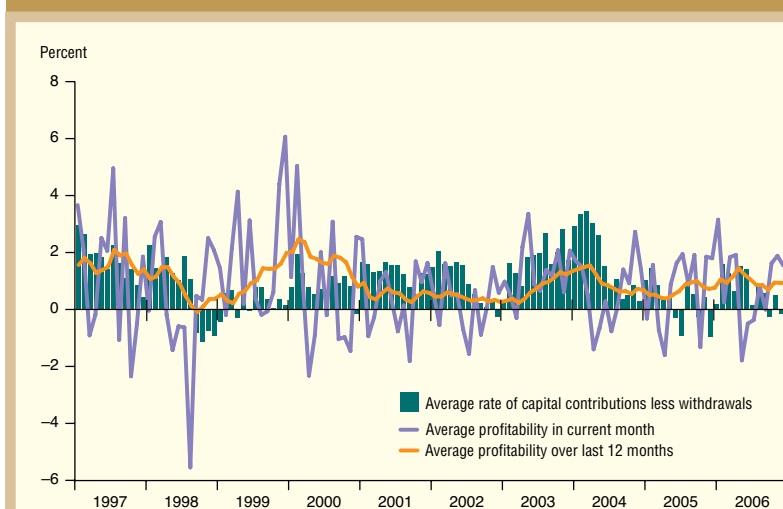
The money flow pattern suggests capital providers aren't heavily swayed by monthly gyrations in profitability. Instead, money flows are more strongly associated with funds' longer-term performance, which should more closely reflect the skills of hedge fund managers.

This correlation of money flows with longer-term performance points to an important source of stability for individual hedge funds and the industry as a whole.

**Absolute Versus Relative Performance.** Hedge fund investors won't necessarily retract their money in the face of a downturn affecting

Chart 1

### Money Flows Track Longer-Term Profitability



SOURCE: Authors' calculations using Lipper TASS database.

an entire industry segment, especially when their funds perform well relative to others pursuing the same strategy. Investors' willingness to take into account relative performance provides an additional source of stability in hedge fund liquidity.

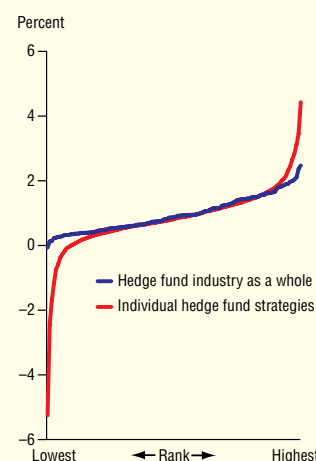
One commonly used breakdown identifies 11 major hedge fund business models (see "Hedge Fund Strategies"). The groups can serve as proxies for the markets in which hedge funds compete. For example, all funds following an equity-market neutral strategy attempt to create portfolios uncorrelated with overall market movements, and they compete directly with each other to provide this investment service.

Firms pursuing some of these strategies have encountered difficult operating environments at some point over the past 10 years.

When it comes to 12-month profitability, the 11 strategies, calculated separately, show a much wider range of performance than the hedge fund industry as a whole (Chart 2). Losses occurred about 10 percent of the time at the strategy level but in only one period for the industry.

Money flows during times of stress in a particular strategy should provide additional insight into hedge fund stability. To conduct the analysis, we divided the 10-year sample's data on individual funds into five groups based on absolute performance, or

**Chart 2**  
**Profits Vary More at Strategy Level**  
*(Average 12-month profitability)*



SOURCE: Authors' calculations using Lipper TASS database.

## Hedge Fund Strategies

**Convertible arbitrage**—Exploits mispricing of convertible bonds. The strategy typically is long on a corporation's convertible bonds and short on its common stock.

**Dedicated short bias**—Holds a portfolio heavily weighted with short positions. Returns tend to be highly volatile.

**Emerging markets**—Invests in fixed income and equity in emerging markets, which often have high inflation and volatile growth. Effective hedging is often difficult.

**Equity-market neutral**—Balances long and short positions to achieve minimal market exposure. Returns tend to exhibit low volatility and little correlation with equity markets.

**Event-driven**—Includes distressed securities, merger arbitrage and other styles that focus on returns from a particular event.

**Fixed-income arbitrage**—Exploits relative values of government bonds, corporate bonds, government agency securities, swap contracts, and futures and options on fixed-income instruments.

**Global macro**—Exploits divergences between and within currencies, bonds, equities and commodities. Investment decisions are based largely on macro, or top-down, views of large-scale trends.

**Long/short equity**—Holds long and short equity positions. Investment decisions typically are based on bottom-up stock analysis but may include top-down macro-based factors.

**Managed futures**—Holds long and short positions in liquid commodity or financial futures, such as oil, currencies, interest rates and stock market indexes. Investment decisions are based on quantitative, trend-following models.

**Multistrategy**—Follows a diversified approach that employs various strategies to capitalize on short- and long-term opportunities.

**Fund of funds**—Holds a portfolio of hedge funds to diversify strategies and asset classes.

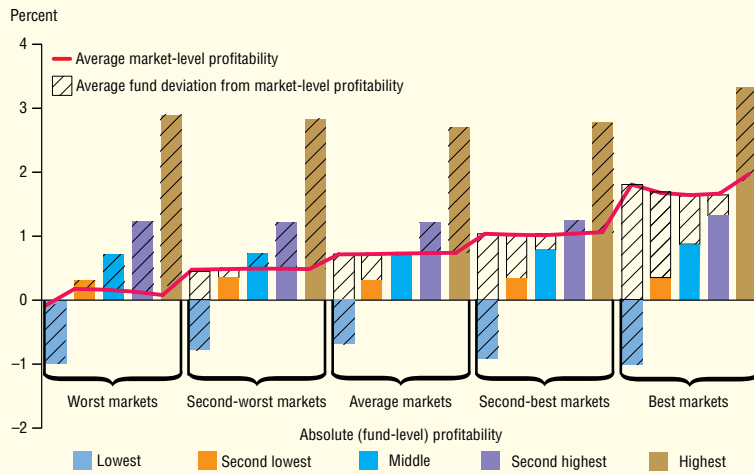
*Investors' willingness to take into account relative performance provides an additional source of stability in hedge fund liquidity.*



Chart 3

### Within Markets, Absolute and Relative Profitability Rise Together

(Average 12-month profitability for each intersection of absolute and market performance)



SOURCE: Authors' calculations using Lipper TASS database.

each hedge fund's 12-month profitability.<sup>10</sup> We also constructed five groups based on market conditions, or the median level of 12-month profitability for the strategy within which a hedge fund operates.<sup>11</sup>

These two groupings neatly characterize hedge funds' absolute performance, market conditions and performance relative to peers in the same strategy (*Chart 3*).<sup>12</sup> By definition, strategy-level profitability increases with the move from worst to best market conditions (red line). Within each of the five market conditions, funds vary on both absolute profitability (bar height) and relative profitability (striped sections).

A hedge fund that's among those facing the worst market conditions but in the group for top absolute performance (far right bar within far left bracket) has performed very well relative to its peers.<sup>13</sup> Conversely, a hedge fund encountering the best market conditions but falling into the bottom absolute-performance group (far left bar within far right bracket) has performed very poorly relative to its peers.<sup>14</sup>

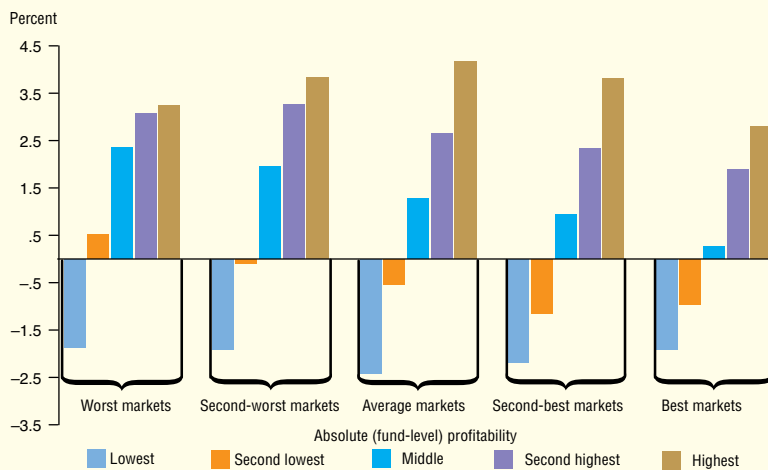
How do net money flows respond to these varying levels of absolute and relative performance? Within each of the five market-conditions groups, we see a strong tendency for money flows to rise along with absolute performance (*Chart 4*). Note, however, that these rising money flows within market-conditions groups involve increases in two quantities—absolute performance and, perhaps more important, performance relative to peers.

An interesting pattern emerges in average money flows for some absolute-performance groups as we move across varying market conditions. For the second-lowest, middle and second-highest absolute-performance groups, money flows tend to decline as market conditions improve. Looking at the middle absolute-performance group (bright blue bars), for example, investors reward this performance

Chart 4

### Money Flows Rise with Absolute and Relative Profitability

(Average monthly capital contributions less withdrawals for each intersection of absolute and market performance)



SOURCE: Authors' calculations using Lipper TASS database.



level with greater capital inflows in the worst markets (far left) than in the best markets (far right). Most likely, this occurs because when holding absolute profitability constant, improving market conditions imply declining fund-level profitability relative to others following the same strategy.

For the middle three absolute-performance groups, the patterns reveal a positive association between money flows and superior returns relative to similar funds. However, for some absolute-performance groups, most notably the bottom and top, the absolute level of performance itself appears to dominate, with little apparent association between money flows and performance relative to peers in the same market.

Similar patterns emerge using the Sharpe ratio as a measure of managers' skills. This risk-adjusted metric is based on the ratio of average profits over the most recent 12 months to the standard deviation of monthly profits.<sup>15</sup>

Once again, for the three mid-range performance groups, an association exists between money flows and performance relative to those in the same market (*Chart 5*). Greater net inflows reward superior returns relative to other funds following the same strategy.

These findings confirm that investors have tended to provide additional capital to hedge funds that outperform competitors in their category. The positive association between managers' skill and money flows enhances the stability of hedge fund liquidity because an individual fund's profitability tends to elicit larger money flows in a down market than in an up one. When a hedge fund's performance declines during a market segment downturn, capital providers tend to cut back to a lesser extent than when a fund's performance declines in both absolute and relative terms, creating an additional source of stability in hedge fund liquidity.

Money flow data indicate these beneficial dynamics have limits. Capital flight tends to occur once funds' longer-term performance sinks in absolute terms, irrespective of relative performance. This pattern suggests that sustained deterioration in fund performance, or even strong signals pointing in that direction, will lead to capital outflows. We've seen this scenario play out recently for hedge funds entangled in mortgage losses.

### More Rational Than Rash

The data on hedge fund performance and money flows reveal factors that enhance stability. Longer-term performance matters for hedge fund money flows, apparently more than short-run gyrations in returns. Money flows also suggest that investors are attracted substantially by hedge funds' performance relative to others following the same strategy, providing a cushion for funds that do relatively well in a falling market.

We must never forget, however, that especially adverse performance can lead to more abrupt capital outflows. All told, the links between hedge funds' performance and money flows point to both the sources and limits of stability in today's financial system.

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### Notes

<sup>1</sup> For a high-level overview of challenges posed by the originate-to-distribute model for financial stability, see "Risk Management and Financial Stability—Basel II and Beyond," remarks by Nout Wellink, president of the Netherlands Bank and chairman of the Basel Committee on Banking Supervision, to the Global Association of Risk Professionals' 8th Annual Risk Management Convention and Exhibition, New York, Feb. 27, 2007 ([www.bis.org/review/r070228a.pdf](http://www.bis.org/review/r070228a.pdf)). For an

Chart 5

## Money Flows Rise with Absolute and Relative Profitability—Sharpe Ratio

(Average monthly capital contributions less withdrawals for each intersection of absolute and market performance)



SOURCE: Authors' calculations using Lipper TASS database.

overview of challenges financial markets pose for banks and financial stability, see “The Risks of Financial Institutions,” by Mark Carey and René M. Stulz, National Bureau of Economic Research Working Paper no. 11442, June 2005 ([www.nber.org/papers/w11442.pdf](http://www.nber.org/papers/w11442.pdf)).

<sup>2</sup> Like policymakers, researchers have also expressed concern about the rapid growth in the prominence of institutional investors, particularly hedge funds. See “Systemic Risk and Hedge Funds,” by Nicholas Chan, Mila Getmansky, Shane M. Haas and Andrew W. Lo, National Bureau of Economic Research Working Paper no. 11200, March 2005 ([www.nber.org/papers/w11200](http://www.nber.org/papers/w11200)).

<sup>3</sup> For a comparison of hedge funds and mutual funds, see “Hedge Funds: Past, Present, and Future,” by René M. Stulz, *Journal of Economic Perspectives*, vol. 21, Spring 2007, pp. 175–94.

<sup>4</sup> See “Hedge Funds and the Collapse of Long-Term Capital Management,” by Franklin R. Edwards, *Journal of Economic Perspectives*, vol. 13, Spring 1999, pp. 189–210. The Federal Reserve played a role in bringing the parties together.

<sup>5</sup> Often, it’s also the banks from which hedge funds have borrowed that seek to withdraw funding, which can force the sale of hedge fund assets when market prices are low.

<sup>6</sup> For a mathematical demonstration of the idea that money flows respond to past risk-adjusted performance, as an indicator of skill levels across hedge fund managers, see “Mutual Fund Flows and Performance in Rational Markets,” by Jonathan B. Berk and Richard C. Green, *Journal of Political Economy*, vol. 112, December 2004, pp. 1269–95.

<sup>7</sup> For evidence of the empirical linkage between alpha and capital inflows at hedge funds, see “Hedge Funds: Performance, Risk and Capital Formation,” July 19, 2006, by William Fung, David A. Hsieh, Narayan Y. Naik and Tarun Ramadorai, American Finance Association 2007 Chicago Meetings paper (<http://ssrn.com/abstract=778124>).

<sup>8</sup> The figures are based on 207,035 monthly observations involving 5,180 hedge funds, obtained from the Lipper TASS database.

<sup>9</sup> The formula for net inflows at an individual hedge fund is  $I_t = [AUM_t - AUM_{t-1}(1+R_t)]/AUM_{t-1}$ , where  $AUM$  refers to assets under management,  $R$  is the hedge fund’s return, and subscripts

denote months. Values below the 1st or above the 99th percentile are set to those boundaries. We tried a similar adjustment for profitability, which didn’t materially affect the results.

<sup>10</sup> The absolute-performance groups measure a hedge fund’s profitability. The bottom one consists of the lowest 20 percent of observations based on rolling 12-month returns, or the bottom performers. The middle three groups include the next 60 percent of monthly observations, ranked from low to high profitability. The top group contains the highest 20 percent, or the top performers.

<sup>11</sup> The market-conditions groups measure the level of profitability prevailing in a hedge fund’s strategy. The bottom group in this second ranking consists of the lowest 20 percent of observations based on the median 12-month returns prevailing in a hedge fund’s strategy. This bottom group represents the worst market conditions. Market performance improves with each group of 20 percent, with the final group representing the best, or most favorable, market conditions.

<sup>12</sup> For each category of absolute performance, profitability tends to remain the same across the five groups measuring market performance. Hedge funds in the second-highest absolute-performance group, for example, earned average monthly returns of about 1.25 percent, regardless of whether they operated under the worst market conditions (the bottom 20 percent) or the best market conditions (the top 20 percent). In this way, the intersection of the two groupings holds individual fund performance constant across varying market conditions.

<sup>13</sup> Some analysts find some degree of persistence in a type of relative alpha when they evaluate relative performance with respect to other hedge funds following similar investment strategies. See “Do Hot Hands Exist Among Hedge Fund Managers? An Empirical Evaluation,” by Ravi Jagannathan, Alexey Malakhov and Dmitry Novikov, National Bureau of Economic Research Working Paper no. 12015, February 2006 ([www.nber.org/papers/w12015](http://www.nber.org/papers/w12015)).

<sup>14</sup> Of course, the lower groups based on absolute performance are overrepresented in the worst markets, while the higher absolute-performance groups are overrepresented in the best markets.

<sup>15</sup> These returns were calculated relative to the three-month Treasury bill yield.

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