Hedge Funds in the Aftermath of the Financial Crisis

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1. What Are Hedge Funds?

There is no such thing as a well-defined hedge fund strategy or approach to investing. Rather, a hedge fund is a limited investment partnership otherwise exempt from registering with the Securities and Exchange Commission under Sections 3C1 and 3C7 of the Investment Company Act of 1940. The available data show a remarkable diversity of styles of management under the "hedge fund" banner.

The long-short strategy often associated with hedge funds captures about 30 to 40 percent of the business. The style mix has been fairly stable (in terms of percentage of funds) but there have been shifts in market share as a fraction of assets under management. For example, event-driven funds focusing on public mergers, spin offs, other events of public firms and sometimes private equity, have risen in market share from 19% to 25% over the past decade, while the global macro style popularized by Soros has actually fallen from 19% to 3%. Moreover, there has been a dramatic rise in assets managed by funds of funds. According to Stephen Brown and William Goetzmann, 2003, Journal of Portfolio Management 29, 101-112, accounting for style differences alone explains about 20 percent of the cross sectional dispersion of hedge fund returns.

The hedge fund industry has experienced rapid growth since 1992. According to the Hennessee Group, assets under management by hedge funds have grown from $35 billion in January 1992 to $1.535 trillion in January 2007. However, the financial crisis has certainly affected the hedge fund industry. According to data compiled by Hedge Fund Research, more than 75 hedge funds having liquidated or restricted investor redemptions since the start of 2008 as they cope with fallout from the global financial crisis. Investors pulled $40 billion from hedge funds last month, while market losses cut industry assets by $115 billion. The average fund has a return of -10.11 percent for the year through September 2008 while equity hedge funds have a return of -15.45 percent. So based on these numbers, hedge funds are down less than the equity market this year. However, hedge funds could actually be down by more than these numbers suggest, due to self-reporting biases contaminating the reported performance numbers.
Turning to fund manager incentives, aggressive incentive fee structures (often 20 percent of any profits on top of a management fee of about 2 percent of assets under management) encourage risk taking, while career concerns provide the opposite incentive. According to Stephen Brown, William Goetzmann and James Park in “Careers and Survival: Competition and Risk in the Hedge Fund and CTA Industry” 2001, Journal of Finance 61, 1869-1886, managers can be quite risk averse because of career concerns: the typical hedge fund has a half life of five years or less, and it is hard to restart a hedge fund career after a failure.

Operational controls in hedge funds are often weak, which can lead to excessive risk-taking by fund managers. According to Stephen Brown and William Goetzmann, “Estimating Operational Risk for Hedge Funds: The ω-Score”, forthcoming in the Financial Analysts Journal, operational risk is a more significant explanation of fund failure than is financial risk. They find that financial risk events typically occur within the context of poor operational controls.

Hedge funds are reluctant to reveal their trading strategies for fear of imitation. According to Vincent Glode and Richard C. Green in “Information Spillovers and Performance Persistence in Private Equity Partnerships”, Working Paper, Tepper School of Business, Carnegie Mellon University, private equity partnerships are widely reported to be secretive about their strategies and return histories. On the other hand, there is a market for information about hedge fund positions: e.g., private investigator reports exist for a large number of hedge funds.

Hedge funds have the ability to short sell assets, which allows them to use leverage. Leverage is more important for some strategies than others and is most concentrated in funds conducting fixed income arbitrage, which is a very small proportion of all hedge funds. Quantitative funds, implementing long-short equity positions, also use leverage, and there is evidence that these funds have been using more and more leverage over time.

It is important to understand the current regulatory environment in which hedge funds operate. Hedge funds typically issue securities in “private offerings” that are not registered with the SEC under the Securities Act of 1933. In addition, hedge funds are not required to make periodic reports under the Securities Exchange Act of 1934. But hedge funds are subject to the same prohibitions against fraud as are other market participants, and their managers have the same fiduciary duties as other investment advisers.

II. How Do Hedge Funds Add Value?

Hedge funds are major participants in the so-called shadow banking system, which runs parallel to the more standard banking system. Along with hedge funds, this shadow financial system includes insurance companies, broker dealers, money market funds, mutual and pension funds, SIVs (Structured Investment Vehicles), and other financial entities. The shadow banking system plays a significant role in financial markets, providing alternative funding sources and financial intermediation services that are not fully captured by traditional banking activities.
Investment Vehicles], conduits, and so forth. Within this system, it is quite possible for participants, such as hedge funds, to provide functions more typically associated with banking. While some criticize this system because of the ability of its participants to conduct regulatory arbitrage, it should be noted that many parties, including hedge funds, are provided no explicit government guarantees.

Hedge funds add value to the financial sector in a number of ways. First, hedge funds are a primary provider of liquidity to the market. Many securities could probably not be issued in the first place without hedge funds being willing to hold them in the secondary market. It may be too costly, both internally and from a systemic point of view, for the banking sector to hold certain illiquid securities. Because the investors in hedge funds tend to be well capitalized institutions or individuals, their price for liquidity may be much lower. Moreover, hedge funds help firms in general raise capital by extending the investor pool, especially with respect to difficult to value securities like convertible bonds and asset-backed securities, among others.

Second, hedge funds help correct mispricings in the market, to the extent that there are mispricings. So, for example, their actions may reduce the likelihood of speculative bubbles or, more importantly, excess volatility. To the extent it is better for market participants to be allocating capital under conditions in which asset prices reflect their fundamental economic value, hedge funds are therefore an important part of the financial system. In addition, to the extent hedge funds are willing to trade opaque securities, their investment decisions help incorporate information into the market. And, alternatively, their unwillingness to purchase certain securities, e.g., subprime-backed assets, also reveals valuable information.

When thinking about whether to regulate hedge funds because they might impose externalities on the financial system, it is important to understand how hedge funds add value to their investors. First, they provide investment strategies that either outperform other comparable investment vehicles or generate returns with low correlation to traditional investments and asset classes. Second, they give investors access to leverage. The rapid growth of the hedge fund industry suggests that investors are firmly of the belief that hedge funds are adding value for them.

III. Problems Associated with Hedge Funds.

While hedge funds add value, they also create problems for the financial sector as a whole and for their investors in particular. Each is discussed in turn below.

A. Systemic Risk within the Financial Sector.
Funds that follow certain styles (e.g., quantitative funds implementing long-short equity positions) often follow similar strategies and therefore have interrelated and correlated positions. (Note that this is certainly not true for all fund styles.) Indeed, it is not surprising that funds with similar objectives have correlated
positions. But funds following different styles have also become more interconnected over time. But that too, probably isn’t too surprising either. Hedge funds provide liquidity to the aggregate of liquidity demanders and as such it is quite natural that they are similar – that is, they all take the other side of the liquidity demand and so end up with returns and positions that are correlated. That said, even if this commonality is a byproduct of hedge funds providing a valuable function, this commonality may create systemic risk.

Figure 2 describes 13 different hedge fund indices and how they have grown more interconnected from the period 1994-2000 to 2001-2007. In particular, the figure portrays three possible types of pairwise connections between any two hedge fund indices: correlated returns over 50% (thick line), correlated returns between 25% and 50% (thin line), and correlations less than 25% (no connecting line). Two primary observations from Figure 2 are in order. First, the more recent period shows a much more correlated structure. That is, many more hedge fund classes are now connected, and, more important, their return correlations exceed 50%. The figure looks much thicker. Second, and perhaps more alarming, the multi-strategy class was barely connected to the hedge fund system in the earlier period, but now is highly correlated to most strategies.

How does this increase in connectedness lead to systemic risk? There are three main ways, all driven by the fact that capital erosion occurs at the same time for these funds because of price moves in the same or similar securities. First, the resulting margin calls occur at the same time too and cause further price moves due to the resulting illiquidity in those securities. The price moves caused by the hedge funds when they demand immediacy in this way create systemic risk in the financial system, especially if banks and other financial institutions have similar positions and so are also moving prices in the same directions with their trades. This is a potential externality that hedge funds might impose on the financial system.

Second, hedge funds provide liquidity and the simultaneous failure of a number of hedge funds, whose total net asset value is large, because they are following similar strategies, imposes costs on the financial system because of the loss of the liquidity services provided by these funds. It could be a few large funds with correlated positions or a large number of small funds with correlated positions. The individual funds may be small, but if a large number of funds follow similar strategies and so have highly correlated positions, these funds may still create systemic risk for the financial system, even though no one fund is particularly large.

What determines if the created risk is systemic? One important question is whether the total size of the hedge funds in question is sufficiently large that their collapse creates a vacuum in liquidity provision that imposes costs on the financial system. Another important question is whether the hedge funds in

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question are failing or losing large amounts of capital at the same time that other liquidity providers to the financial system are also experiencing severe capital erosion. In either case, new capital will likely flow back into the financial system eventually, but the question is the extent of the disruption to the financial system in the meantime.

Third, hedge funds impose counterparty credit risk on other participants in the financial system. The externality that this imposes on the financial system increases as hedge fund positions become more interrelated and correlated, especially if hedge funds impose high counterparty credit risk exactly when banks and other financial institutions also impose high counterparty credit risk. So many hedge funds having interrelated and correlated positions exacerbates the systemic risk that hedge funds can generate because of the counterparty credit risk they impose.

Notice that the systemic risk we are discussing here has nothing to do with the argument that hedge funds manipulate markets to make profits at the expense of other market participants. Rather, this systemic risk stems from the risk of large coordinated losses or coordinated failures all at the same time of a large number of hedge funds following similar strategies.

There are two reasons why the systemic risk for the financial system created by the hedge fund industry can be larger and more significant than the systemic risk created by other asset management counterparties in the shadow banking system. First, hedge funds are able to use leverage, which can have a number of unfortunate consequences for the financial system. Leverage forces hedge funds to unwind their positions when confronted with margin calls, which can disrupt their ability to provide liquidity to the financial system. It also leaves hedge funds exposed to the possibility of negative equity positions if prices move against them, which can cause them to generate counterparty risk. Since leverage causes any given position to suffer larger losses as a percentage of capital (and to earn larger profits as a percentage of capital), it causes some hedge funds (the ones that often have interrelated and highly correlated positions) to have all at the same time even more depleted capital reserves than they otherwise would.

Second, a lack of transparency of hedge fund positions can make it difficult to assess how levered and exposed hedge funds are. It can also make it difficult to assess the magnitude of the counterparty risk being generated by hedge funds. Since systemic crises are characterized by investor “panic” and extreme flights to quality, this lack of transparency will most likely lead to more extreme reactions on the part of investors and ensuing liquidity runs on the system. As an example from the current crisis, consider another class of institutions from the shadow banking system, namely money market funds. After Lehman Brothers declared bankruptcy over the weekend of September 13th-14th, 2008, one of the largest money market funds, the Reserve Primary Fund, announced that it had “broke the buck” (i.e., its net asset value had fallen below par value) due to its owning a significant portion of Lehman Brothers’ short-term debt. The possibility that money
market funds were exposed in such a way to the financial crisis led to a run on money market funds, resulting in the government temporarily guaranteeing all losses in these funds. It is a small leap of faith to recognize that if lack of transparency in safe assets, like money market funds, can cause a liquidity spiral, then funds that are even less transparent and much riskier pose an even greater systemic risk.

The above example of the Reserve Primary Fund also shows that redemptions, i.e., runs on asset management funds, are an additional concern for hedge funds. Investors typically redeem shares after poor performance and since hedge funds that follow certain styles often have interrelated and correlated positions, redemptions tend to occur all at the same time for funds following these styles. This, in turn, causes liquidations of the same positions by these funds at the same time, which can create systemic risk for the financial system. Finally, it is worth noting that weak operational controls can lead to excessive risk-taking by fund managers, which in turn can cause some funds (the ones following certain styles that often have interrelated and highly correlated positions) to generate even more systemic risk than they otherwise could.

B. Examples of Hedge Funds Generating Systemic Risk

We briefly describe two examples that show how hedge funds are capable of generating systemic risk in the financial system, the first being the Long Term Capital Management (LTCM) collapse in September 1998, and the second, which occurred in the leadup to the current crisis, the quant meltdown of August 2007. Both provide warning signs as to the types of problems that can occur when hedge funds are allowed to impose systemic risk on the financial system.

i. LTCM

LTCM was founded in 1994 to take advantage of perceived mispricings in the fixed-income market by investing in convergence trades, that is, between securities that are similar enough that they will eventually have similar values. Because the fund would be subject to the aforementioned redemption risk, LTCM was structured to have a three-year lockup in order to allow the trades to converge. For its first four years, LTCM was enormously successful, becoming one, if not the largest, hedge fund at the time with $7 billion under management. By 1998, as more funds entered the fixed-income arbitrage market and opportunities began to dry up, LTCM returned funds to investors, and managed their money and the original limited partners money. To try and extract returns, this $5 billion was levered up to $125 billion worth of assets, most of it funded short-term via the repo market. Moreover, LTCM’s off-balance sheet positions included approximately $1.25 trillion worth of swaps, options and futures positions. While many of these positions netted out, only six banks worldwide had $1 trillion plus of derivatives positions.
One of the primary markets of convergence trades for LTCM was that of mortgage-backed securities. In May and June of 2008, a widening of spreads in the mortgage-backed securities caused LTCM, with their degree of leverage, to lose an astonishing 16% of its value. Around the same time, Salomon Brothers had decided to close its fixed income arbitrage group and liquidated very quickly its holdings. As one of the largest fixed income arbitrage groups, and the precursor to LTCM (i.e., most of the partners came Salomon), there was a similarity amongst the trades of the two firms. This immediate price pressure in fixed income markets is generally considered to be a major cause of the mortgage-backed security price drop. Then, on August 17, 1998, Russia defaulted on its debt, causing a massive flight to quality. While LTCM had only limited exposure to Russia, other funds had to liquidate their positions, causing even greater losses in illiquid fixed income arbitrage positions. As a result, LTCM’s positions worsened, and by the end of the month, it had lost 52% of its value, leaving it with over a 50 to 1 leverage ratio.

The following month, as risk appetite disappeared in the marketplace, almost all of LTCM’s trades went in the wrong direction, leaving them with additional losses of 83% in September. Firms began to pull funding, and to demand liquid collateral, which caused LTCM to go into a “death” spiral. Out of fear of the systemic consequences of an LTCM bankruptcy, both for its counterparty implications as one of the largest players in OTC derivatives and because of the effect of fire sales on other financial institutions, the Fed organized a bailout of LTCM by a consortium of investment banks on September 23, 2008.

**ii. Quant Meltdown**

This is an example of a particular hedge fund sector, the quantitatively managed equity market-neutral hedge fund sector, experiencing large losses over a four-day period in August of 2007, before experiencing a considerable rebound on the day after those losses. This example demonstrates clearly that funds in at least one style, namely the quantitatively managed, long-short equity hedge fund style, often follow similar strategies and so often have interrelated and highly correlated positions and trades. It is important to also recognize that a number of hedge funds performed poorly during this period, consistent with Figure 2 showing the interconnectedness of funds.

From Monday, August 6th, through Thursday, August 9th, many successful quantitatively managed equity market-neutral or “statistical arbitrage” hedge funds suffered enormous losses. By Friday, August 10, the equity prices causing the losses had rebounded significantly but not completely. However, faced with mounting losses on the 7th, 8th, and 9th, many of the affected funds had cut their risk exposures along the way, causing them to miss out on a portion of the reversals on the 10th. The financial press reported month-to-date losses ranging from -5% to -30% for some of the largest quantitatively-managed funds.
One possible explanation is what’s called the “Unwind Hypothesis”. This hypothesis suggests that the initial losses from the 6th through to the 9th were due to the forced liquidation of one or more large equity market-neutral portfolios, primarily to raise cash or reduce leverage, and the subsequent price impact of this unwinding caused other similarly constructed equity funds (long/short, 130/30, and long-only) to experience losses. These losses, in turn, caused these other funds to deleverage their portfolios, yielding additional price impact that led to further losses, more deleveraging, and so on. The precipitating factor for the initial liquidation was most likely the shutdown in late July of the securitization market for non-guaranteed credit securities such as subprime and Alt-A mortgages, corporate bonds and leverage loans, leading to an immediate drop in their valuations. Risk spiked, with the “carry trade” in currencies suffering its largest move in several years.

What Do These Examples Tell Us About Systemic Risk?

Both these examples have similar features. First, the trades had become overcrowded with more and more capital chasing fewer and fewer opportunities. As a result, the firms (i.e., LTCM and the quant funds) relied on more and more leverage. Any losses, therefore, would be greatly amplified. Second, there was a general lack of transparency in the marketplace in that few participants realized how interconnected LTCM or the quant funds had become with the rest of the market. Third, a sudden event, either the Russian default or the collapse of the CDO market, created a climate of fear and panic, heightening the risk sensitivities of managers and investors across all markets and style categories. Fourth, a large liquidation by a participant in the market most likely started the downward spiral that rippled across firms.

Both these events underscore the apparent commonality among hedge funds. The coordinated losses in these two very different cases do imply a common component in the hedge-fund sector. LTCM aside, the big question is whether any group of hedge funds with interrelated and correlated positions is large enough, as a group, that their simultaneous failure or collapse would create an externality for the financial system because of (i) the loss of the liquidity services they provide, (ii) “fire sales” of illiquid securities that would affect many more institutions, and (iii) counterparty risk.

C. Problems faced by Hedge Fund Investors.

When thinking about whether to regulate hedge funds because they might impose externalities on the financial system, it is important to be aware of any

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2 See the aforementioned paper by Khandani and Lo (2007).
problems being faced by hedge fund investors because the regulations may affect the severity of those problems. There are a number of problems that the hedge fund industry inflicts upon its investors. First, a lack of transparency of hedge fund positions can allow hedge funds not to disclose their leverage levels to their investors. To deal with this, investors can require leverage limits in contracts and violating these limits is fraud. Even so, funds with bargaining power, because of high demand, can insist on no leverage limits.

Second, hedge funds earn liquidity premia most of the time. But interrelated and highly correlated positions across groups of hedge funds that follow certain styles can lead to periods when these hedge funds are forced to unwind similar positions at the same time to meet margin calls or satisfy redemptions. At these times, these funds are forced to pay liquidity premia to obtain the immediacy they need, which adversely affects their performance.

Third, lock-up periods force investors to keep their capital in hedge funds for prespecified periods, and the reduction in flexibility is likely not good for investors. However, it may sometimes be in the investors’ best interests that they’re all locked up, as it might prevent a “bank run” in which the hedge fund would otherwise be forced to sell at “fire sale” prices. Fund size affects the likelihood of the hedge fund getting only “fire sale” prices: small funds are less likely to be subject to “fire sale” prices than large funds. Moreover, investors can always wait and redeem later when the “fire sale” is over, though if others redeem early, those that redeem late may end up with the “fire sale” price as part of their fund holding. Faced with this choice, it may be that investors would redeem gradually. The fact that investors can redeem later (and their shares of the assets will still be there) may distinguish this situation from the typical “bank run” situation. Lastly, operational risks adversely affect the returns earned by investors from investing in hedge funds.

IV. Principles.

There is considerable discussion about the unregulated nature of hedge funds both in the public policy arena. At first glance, hedge funds being unregulated would seem to be patently unfair as it allows them to take advantage of regulatory arbitrage, namely the ability to offer intermediation services in direct competition against regulated institutions like banks. However, this ignores the substantive advantage banks have through either the explicit guarantee of deposit insurance or implicit guarantees of “too-big-to-fail”. In fact, one could argue that one of hedge funds’ primary functions, that of proprietary trading, could be a quite dangerous systemic function as part of a large complex financial institution (LCFI) because of their cheap access to financing. For example, in the current crisis, many of the major write-downs were tied to explicit bets on subprime-backed assets — Morgan Stanley losing $15 billion on ..., Merrill Lynch losing $*** on its non-prime mortgage portfolio, and so on.
This stated, however, the analysis in Section III above does suggest that either a large hedge fund or a collection of smaller ones within this shadow financial system could be systemically important. Thus, regarding the impact of hedge funds on the financial sector as a whole, all the following are undesirable because they impose externalities on the financial system: (i) counterparty credit risk; (ii) correlated trades that move prices away from fundamentals; and, (iii) systemic capital erosion. Actions that limit the ability of hedge funds to impose these externalities on the financial sector often adversely affect the ability of hedge funds to provide liquidity and generate good performance for their investors. Balancing these considerations is important.

Determining the amount of transparency in the hedge fund industry involves balancing these considerations as well. Fund investor transparency allows investors to better monitor the hedge fund managers and to better assess the operational risks of funds. But it is costly since transparency of positions allows imitation, which adversely affects fund performance. Non-disclosure agreements between funds and their investors may be able to limit these imitation costs. Transparency to regulators is desirable, as it can help the regulator measure and manage potential systemic risk.

Hedge funds need to have in place well-functioning operational controls, because these controls can limit the adverse impact of hedge funds on the financial system by reducing the possibility that the failure of one institution brings the system down. Lastly, it must be remembered that many hedge funds can easily leave the U.S. and will do so if regulation becomes too burdensome. This consideration limits the amount of regulation that can be imposed on the mutual fund industry.

V. Regulation of Hedge Funds in the Aftermath of the Crisis

It is worth noting that there is very little evidence to suggest that hedge funds caused the current financial crisis or that they contributed to its severity in any significant way. That been said, it is possible that hedge funds, or subsets of hedge funds, may still impose externalities on the financial system. If so, the question is how to manage those externalities.

With respect to any measure designed to limit the externalities created by an entity for the financial system, hedge funds should not receive any special treatment, either preferential or discriminatory. Any fees levied on financial institutions for using financial markets in a manner that generates systemic risk (and the associated externalities) should also be levied on hedge funds when they use financial markets in this manner. The exception of course is that financial institutions that receive explicit guarantees from the government (e.g., deposit institutions) necessarily require oversight.
Most important is the idea that transparency to regulators is desirable, as it can help the regulator measure and manage potential systemic risk. As described in the other white paper on “Systemic Risk”, this would require information about the hedge fund’s asset size, both on and off-balance sheet, its leverage, its proportion of illiquid positions, its risk concentration and its contribution to aggregate systemic risk. If a hedge fund falls into the class of firms considered to be systemic, then it would be subject to an externality tax, in other words, to purchase insurance against systemic states.

There is a secondary issue regarding transparency. While transparency is important to regulators, it may also be important to financial participants at large. Transparency may help these participants make better-informed decisions and allocate capital more appropriately. For this reason, it makes sense to also have recommendations regarding transparency that are designed to help fund investors better monitor their funds. For example, hedge funds perhaps should be required to periodically disclose summary leverage measures.

One of the major ways hedge funds currently disclose their positions is through Form 13F. Specifically, 13F requires hedge funds with more than $100 million under management to disclose their long positions as of the end of each calendar quarter to the SEC and the public within 45 days of the end of the quarter. It is difficult to understand why long positions are required to be disclosed but short positions are not. Either long and short positions should both be required to be disclosed or neither should be required to be disclosed.4 In general, requiring disclosure of positions imposes costs on hedge funds since position disclosure by a hedge fund facilitates imitation by others, which likely leads to deterioration in the hedge fund’s performance. The improvement in transparency that position disclosure brings reduces the externalities that hedge funds impose on the financial system. There is a trade-off; it is not clear where to draw the line.

Hedge funds need mechanisms that encourage them to implement well-functioning operational controls. The reason is the considerable benefits for fund investors of well-functioning operational controls. Penalties for violating operational controls in place should be sufficiently harsh to act as a deterrent.

Any additional regulation of hedge funds is in general not warranted. Since the funds do not receive guarantees from the government that may induce moral

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4 The only possible reason to require disclosure of long positions but not short positions is that long positions have voting rights, which can have implications for corporate control. But Schedule 13D already addresses this concern. When a person or group of persons acquires beneficial ownership of more than 5% of a voting class of a company’s equity securities registered under Section 12 of the Securities Exchange Act of 1934, they are required to report the acquisition and other information by filing Schedule 13D with the SEC within ten days after the purchase. The schedule is provided to the company that issued the securities and each exchange where the security is traded.
hazard, it is not clear why regulation is needed. As mentioned above, however, the exception is when the hedge fund imposes externalities on the financial system. If the hedge fund falls into the class of large complex financial institutions (LCFIs), like the LTCM example in Section 3, then it is fairly clear it needs to be treated as a systemic institution and regulated (and taxed) as such.

The regulatory difficulty arises if a subset of funds together imposes externalities because those funds are capable of generating considerable counterparty credit risk in the financial system, because they are capable of large trades that move prices far away from fundamentals, or because of the capacity of those funds for severe capital erosion. Each fund alone though would not qualify for the LCFI category. The funds involved in the quant fund meltdown described in Section III might be an example of such a subset of funds. However, it is not clear that systemic risk was present in very large amounts since the funds generally traded liquid equity securities. At the same time, prices moved a great deal, seemingly in response only to the hedge fund “unwind” trades, which suggests that prices may have been far away from fundamentals during the meltdown.

A. Regulation of Small Hedge Funds – Some Considerations

Figure 2 suggests a high degree of interconnectedness across styles. Nevertheless, one way to distinguish funds may be to look at them style by style (or by groups of styles that we expect to be related) to see if any fund style contains a group of funds that might constitute a systemic subset. For a subset to be regarded as imposing such externalities on the financial system, one would need all the following to be satisfied: (i) the total net asset value of funds in the subset must be above a given cutoff, (ii) the subset must contribute a certain amount to aggregate systemic risk, and (iii), the extent of the correlation across the fund returns in the subset must exceed some threshold. When considering a style as a possible subset, any fund following that style whose return does not exceed the specified correlation threshold should be excluded from the subset. This recognizes that even within a style, there can be considerable variation in the strategies actually being implemented by funds.

Each hedge fund in such a subset may be too small in terms of its positions or trade volume to be subject to any fees that might be levied on financial institutions for using financial markets in a manner that generates systemic risk (and the associated externalities). However, if the subset taken together as a single entity qualifies to pay such fees, then each fund in the subset should pay a fraction of the fees depending on its contribution to the subset along whatever trading dimension (most likely positions or trade volume) is being used to determine the fees to be paid.

5 The threshold could be applied to the minimum of the pairwise return correlations for the funds in the subset or to the minimum of the percentage return variation explained by the first principal component for the returns of the subset.
Hedge funds that belong to one of the subsets imposing externalities on the financial system may need mechanisms that discourage investors from withdrawing funds after bad performance, since correlated performances across the funds in such a subset leads to correlated withdrawals, which may be contributing to the externalities that the subset is imposing on the financial system. Here are some possible channels that could be used.

- **Lock-up periods could be lengthened**, though this imposes a cost on investors who otherwise would like to withdraw their money. There is a trade-off and it is not clear exactly what restrictions would best balance the competing considerations.

- **Redemptions could be regulated**. Right now, most funds that allow redemptions allow them at the end of calendar quarters. The externality to the financial system that hedge fund redemptions cause could be reduced if hedge funds stagger redemptions across the year. There would be 3 cycles (more if mid-month redemptions are encouraged): (i) December, March, June and September; (ii) January, April, July and October; and, (iii) February, May, August and November. Again, there is a cost to investors since this staggering either reduces investment options available to investors after redemptions (if hedge funds only accept new funds at the times when they allow redemptions) or increases the trading costs incurred by hedge funds (if hedge funds accept new funds at the end of each month or even more frequently).

- **The length of notice that investors must give hedge funds before they can get their money back could also be regulated**.

On first reflection, it would seem that lockup restrictions would be difficult to either enforce or regulate, but that is not the case. Lockups help stabilize the system. If funds within a systemic subset do not impose lockups, then they would be charged a fee, i.e., taxed. Of course, in equilibrium, whether a fund imposes a lockup restriction or not depends on the fees it pays the regulator if it doesn’t versus its increase in funds under management if it doesn’t (since investors prefer funds not to be restricted). The most likely system would have unlocked funds charging higher management fees, which would be used to help pay the regulator. In general, the costs of the tax would be shared between the hedge fund principals and investors.

### B. A Novel Idea for Regulation of Hedge Funds

Professor Andrew Lo of MIT has proposed the following idea for hedge fund regulation. Because hedge funds are so diverse and complex, it is currently impractical to regulate and impose rules that are appropriate for every hedge fund. As an alternative, he suggests a “Capital Markets Safety Board” (CMSB)

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modeled on the National Transportation Safety Board (NTSB). Similar to the NTSB, the CMSB would investigate and report on financial industry disasters. The CMSB would bring together an experienced team of professionals – accountants, finance professionals, and lawyers. Because these professionals would investigate all “disasters” together, through experience, a set of systemic risk measures, important principles, and possible regulatory rules would emerge. Most important, the CMSB could learn about the “cracks” in the system. The cost of such an exercise would be quite low with the potential to be quite informative. In contrast, poor regulation based on conjectures (as opposed to underlying factual information) can have many unintended consequences.

VI. Conclusion

The hedge fund industry has grown rapidly over the last 15 years. As of January 2007, hedge funds had upwards of $1.5 trillion of assets under management. However, there is very little evidence to suggest that hedge funds caused the current financial crisis or that they contributed to its severity in any significant way. That being said, it is possible that a particularly large hedge fund (of the LTCM-type) or some subsets of the hedge fund industry may still be imposing externalities on the financial system if they are capable of generating considerable counterparty credit risk in the financial system, if they are capable of large synchronized trades that move prices a far away from fundamentals, or if they are capable of severe and synchronized capital erosion. All three are possible since funds following certain styles have correlated and interrelated positions and many styles also have correlated and interrelated positions. The quantitative hedge fund meltdown of August 2007 is a good example of how interrelated the trades and positions of the funds in the quantitative “statistical arbitrage” hedge fund sector can be. We argue that the hedge fund subsets imposing externalities on the financial system may require additional hedge-fund specific regulation to manage these externalities. Just as importantly, the rest of the hedge fund industry, which is not imposing such externalities, should not be subject to the same regulation. It is important to always remember that hedge funds are an organizational form, not an investment strategy.
**FIGURE 2 - Hedge Fund Interconnectedness**

