HEDGE FUNDS: DEVELOPMENTS AND POLICY IMPLICATIONS

The near-default of Long-Term Capital Management (LTCM) in 1998 highlighted the significance of the hedge fund industry for the global financial system at large. Since then the hedge fund industry has continued to grow and develop unabated so that it has remained a focus of attention for authorities and the financial community. With an emphasis on the European dimension, this article describes the main features of the hedge fund industry and discusses recent developments. It also provides an overview of the current policy debate on regulation, which is centred on the implications of the increasing role of hedge funds for the financial system and the possible public and private sector initiatives to address them.

1 INTRODUCTION

The near-default of Long-Term Capital Management (LTCM) in September 1998 and the fall-out effects on the global financial system brought hedge funds firmly to the attention of both authorities and the financial community. The LTCM episode, however, proved to be only a temporary set-back for the long-term growth of this industry, which has continued unabated since then. Between December 1998 and September 2005, total hedge fund capital under management grew at an annual rate of 28%, with estimates exceeding USD 1 trillion.[1] Whereas hedge funds were reserved initially for very wealthy investors, they have now developed into an important alternative investment vehicle accessible to both institutional investors and, directly or indirectly, retail investors.

The purpose of this article is to provide an overview of the hedge fund industry's development and the policy debate it has triggered. The industry is essentially global in nature but wherever possible its specific European dimension is also addressed. To this end, the article is divided into seven sections, with the following two providing facts on the hedge fund industry and the subsequent three focusing on the current policy debate.

Section 2 looks at the typical features of hedge funds and how they differ from traditional investment funds. Section 3 reviews the main developments in the industry over recent years. The implications for the financial system at large, mainly from a stability angle, are addressed in Section 4. Section 5 reviews the debate about the possible regulation of hedge funds, either directly or through their interactions with banks. Section 6 follows up on this issue by reviewing the supervisory implications for banks in the field of risk management practices and capital requirements. The final section draws some conclusions on the policy debate.

2 CHARACTERISTICS OF HEDGE FUNDS

DEFINITION

The origin of the term "hedge fund" is related to the activities of the first institutions of this kind in the beginning of the second half of the last century.[2] These institutions were involved in buying and short-selling equities with the aim of eliminating (hedging) the risk of market-wide fluctuations. Since then hedge funds have become increasingly sophisticated in using a wide variety of other investment strategies that do not necessarily involve hedging. As a result, there is at present no generally accepted definition of what exactly a hedge fund is. Moreover, alternative terms have also occasionally been used – such as "leveraged investment funds", "highly leveraged

1 This figure does not include private managed accounts accepted by hedge fund managers and managed using hedge fund-like strategies. According to Tremont Capital Management, total assets in such accounts were USD 325 billion at the end of June 2005.

2 Alfred Winslow Jones is often credited with having started one of the first hedge funds as a private partnership in 1949. His hedge fund combined short-selling and leverage to hedge against stock market movements. Short-selling is the sale of borrowed assets that a seller does not own. Leverage refers to debt financing or the making of investments on margin.

institutions" and "sophisticated alternative investment vehicles" – which have the same definitional problems.

One possible way of defining hedge funds is to exclude various types of pooled investment vehicles from the funds' universe, rather than to try to single out their truly distinctive features. By following this approach, one would separate traditional investment funds (e.g. UCITS[3]) and other alternative funds (e.g. real estate, venture capital, private equity funds). The remaining funds could then be labelled as "hedge funds". However, such an approach would not be satisfactory for statistical or legal purposes and would in the end not add much clarity.

An examination of typical hedge fund characteristics (see Table 1) allows for a better understanding of some of the differences in relation to other investment pools. It tends to support the view that hedge funds represent a flexible business model rather than an alternative asset class.

The key differences between hedge funds and other investment pools that emerge from such an analysis are that hedge funds generally have broad investment mandates, no or very limited regulatory restrictions on the type of instruments or strategies and that they make extensive use of short-selling, leverage and derivatives. The ability to pursue unconstrained and leveraged investment strategies lies at the core of hedge fund activities and should be an enduring feature, whereas other second-tier characteristics – including regulation, investor base and disclosure – will probably evolve.

For the purpose of this article, a hedge fund can therefore be described as a fund whose managers receive performance-related fees and can freely use various active investment strategies to achieve positive absolute returns, involving any combination of leverage, derivatives, long and short positions in securities or any other assets in a wide range of markets.

3 Undertakings of Collective Investments in Transferable Securities.

Table 1 Typical hedge fund characteristics

Investment strategies	Position-taking in a wide range of markets. Free to choose various investment techniques and instruments, including short-selling, leverage and derivatives.
Return objective	Positive absolute returns under all market conditions. Usually managers also commit their own money, hence preservation of capital is important.
Incentive structure	Typically a 2% management fee and a 20% performance fee. Quite often high "watermarks" apply (i.e. performance fees are paid only if cumulative performance recovers any past shortfalls) and/or a certain hurdle rate must be exceeded before managers receive any performance fees. Moral hazard stemming from asymmetric performance fees is to some extent curtailed by high watermarks and managers co-investing their own money.
Subscription/ Redemption	Predefined schedule with quarterly or monthly subscriptions and redemptions. Lock-up periods for up to several years until first redemption. Some hedge funds retain the right to suspend redemptions under exceptional circumstances.
Domicile	Offshore financial centres with low tax and a "light touch" regulatory regime, as well as some onshore financial centres.
Legal structure	Private investment partnership that provides pass-through tax treatment or offshore investment corporation.
Managers	May or may not be registered or regulated by financial supervisors. Managers serve as general partners in private partnership agreements.
Investor base	High net worth individuals and institutional investors. Not widely available to the public. Securities issued take the form of private placements.
Regulation	Generally minimal or no regulatory oversight due to their offshore residence or "light touch" approach by onshore regulators; exempted from many investor protection requirements.
Disclosure	Voluntary or very limited disclosure requirements.

TYPES OF STRATEGY

The investment style of a hedge fund is more important to its risk-return profile than its asset class selection or sector/geographic orientation. In general, four major groups of strategies can be distinguished:

– *Directional* hedge funds generally try to anticipate market movements and offer returns commensurate to the high risks and leverage involved. Macro hedge funds are the most prominent example of this investment style. These funds follow a "top-down" approach and try to take advantage of major economic trends or events. By contrast, emerging markets and other directional hedge funds with a regional focus favour a "bottom-up" approach, i.e. they tend to be asset-pickers in certain markets and look for inefficiencies in developing markets.

– *Market neutral* hedge funds (also referred to as "arbitrage" or "relative value" funds) search for relative value or arbitrage opportunities to exploit various price discrepancies and try to avoid exposure to market-wide movements. Returns from such strategies usually exhibit lower volatility, but their implementation requires medium to high leverage in order to benefit from small pricing distortions, particularly in bond and other credit markets.

– *Event driven* strategies try to take advantage of "special situations" in a company's life, such as mergers and acquisitions, reorganisations or bankruptcies. These strategies lie somewhere in the middle of the volatility spectrum, with corresponding medium volatility and low to medium leverage. Some event driven hedge funds, specialising in securities of distressed companies, try to exploit the fact that it is difficult to value such securities and that institutional investors are prohibited from investing in them.

– *Funds of hedge funds* (FOHFs) invest in a number of other hedge funds and are expected to have lower volatility and attractive risk-adjusted returns due to diversification benefits.

PARTIES INVOLVED

Hedge funds are predominantly domiciled offshore, meaning that they generally have minimal regulatory intervention and a favourable tax treatment, although their managers generally conduct their operations from major financial centres. Most of the European hedge funds, for instance, are managed from London.

Hedge fund managers prefer to concentrate on their proprietary trading strategies (where their strengths are) and typically outsource support services to fund administrators. Administrators provide a variety of services, including the valuation of positions and the calculation of the fund's net asset value, legal counselling, assistance in reporting and the processing of investor transactions. Position valuation and net asset value calculation are particularly important for ensuring that investors have adequate information on a hedge fund's performance and its investment portfolio.

Hedge fund investment strategies involve substantial trading and thus require extensive operational support, brokerage and financing services from "prime brokers", i.e. banks or securities firms offering brokerage and other professional services to hedge funds and other large institutional clients. Prime brokerage platforms facilitate the financing, risk management, execution, clearance and settlement of transactions. Other services include custody of assets, access to research, consulting and the introduction of managers to potential investors. The major share of prime brokers' income comes from trading commissions and collateralised cash or securities-lending to facilitate short-selling.

Sometimes the assets of a hedge fund are deposited with a custodian bank instead of a prime broker. For hedge fund investors, this

arrangement serves as an additional safeguard as the custodian bank is subject to fiduciary duties vis-à-vis them, whereas a prime broker holds assets largely as a principal and as a security against its underlying fund positions.

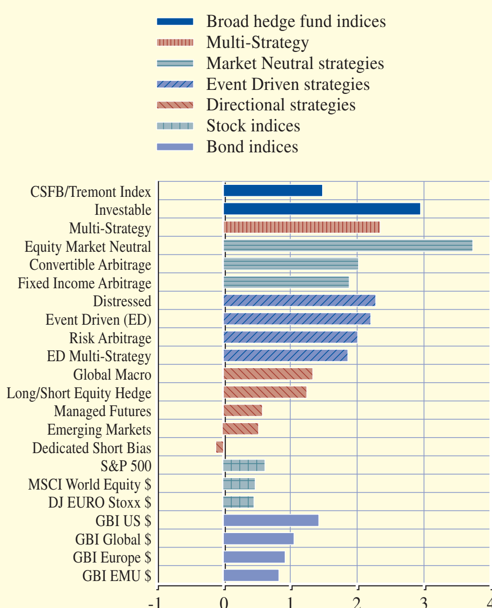
3 DEVELOPMENTS IN THE HEDGE FUND INDUSTRY

CAPITAL UNDER MANAGEMENT

Persistently low interest rates and ample liquidity led to a global search for yield that began in 2003.[4] Faced with the unsatisfactory performance of traditional assets, such as bonds and equities, many investors turned to hedge funds to improve their risk-adjusted returns. Investors were particularly attracted by the performance profile of hedge funds (see Chart 1), which is largely uncorrelated with that of other assets.

Chart 1 Return-to-risk ratios

(annualised compound rate of return divided by annualised volatility of monthly returns; January 1994-October 2005; monthly data)



Sources: Datastream, Bloomberg and ECB calculations.
Notes: CSFB/Tremont Index and sub-indices began in January 1994, except Multi-Strategy, which began in April 1994, and Investable, which began in January 2000. Global Bond Index (GBI) EMU $ began in January 1995.

Inflows into the hedge fund industry have been particularly strong since 2002 (see Charts 2 and 3). The European segment, comprising funds either domiciled or managed from Europe, has been growing faster than the whole industry and is estimated to account for at least 20% of capital under management globally.[5] Another development is the growing share of multi-strategy funds, as both managers and investors appear to prefer the ability to switch among investment strategies depending on market conditions (see Charts 4 and 5).

However, there are some signs that inflows have been decelerating following recent mediocre returns. This has raised questions about whether there are capacity constraints for the hedge fund industry to continue delivering high absolute returns as both the number of market imperfections and resulting arbitrage opportunities may eventually decline. If capacity limits are reached, this would probably induce more pressure on hedge fund fees and attrition rates would increase, especially as some hedge funds are increasingly found to be taking exposures towards general market risk rather than providing extra returns resulting from active management. Expansion beyond capacity limits could also lead to the process of redistribution of capital among hedge funds themselves, as active hedge fund trading would itself create opportunities for other hedge funds. According to another scenario, the differences between the traditional fund management industry and hedge funds could become more blurred as conventional funds start using investment techniques similar to hedge funds and the latter are compelled to lower their fees.

4 See ECB (2004), Financial Stability Review, December; ECB (2005), Financial Stability Review, June; ECB (2005), Financial Stability Review, December.

5 See Garbaravicius, T. and F. Dierick (2005), "Hedge funds and their implications for financial stability", ECB Occasional Paper No 34, August.

Chart 2 Hedge fund net flows by strategy

(USD billions; quarterly data)

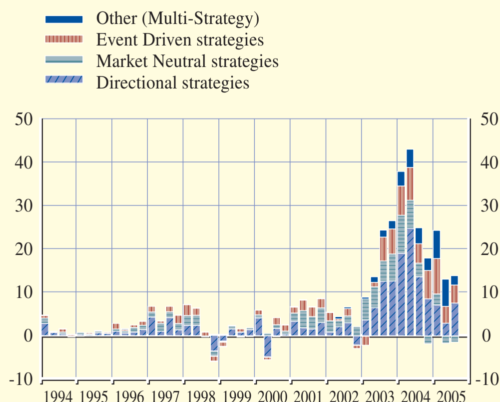


Chart 3 Hedge fund capital under management by strategy

(USD billions; quarterly data)

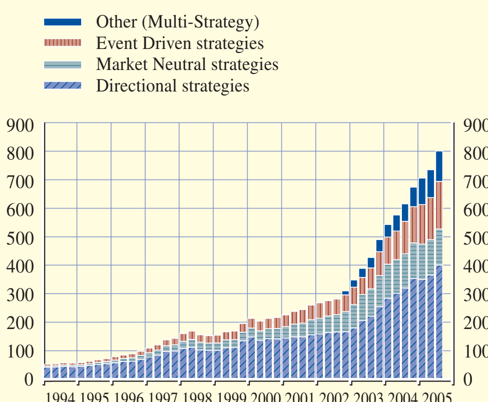


Chart 4 Hedge fund capital structure by strategy

(percentages; quarterly data)

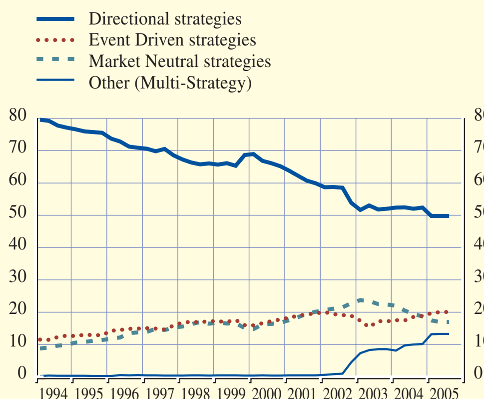
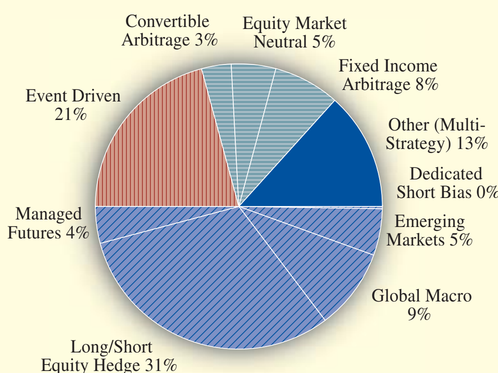


Chart 5 Hedge fund capital structure by strategy

(September 2005)



Source: Tremont Capital Management.
Notes: Excluding FOHFs. Directional strategies comprise Long/Short Equity Hedge, Global Macro, Emerging Markets, Managed Futures and Dedicated Short Bias; the Market Neutral group comprises Convertible Arbitrage, Equity Market Neutral, Fixed Income Arbitrage.

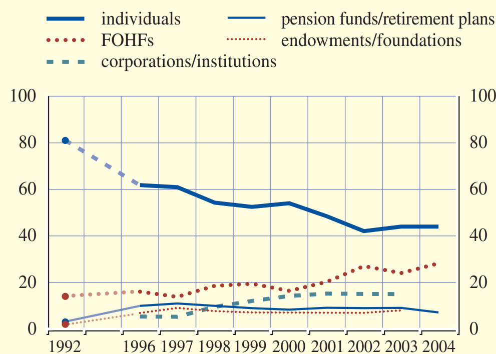
INVESTOR BASE

Throughout the 1990s, high net worth individuals were the dominant investors in hedge funds (see Chart 6). This fact, notwithstanding the LTCM episode, diluted somewhat the systemic concerns of such funds. However, the growing interest from institutional investors has, over time, changed the investor profile, as even moderate absolute hedge fund returns can enhance the overall risk-return profile of institutional portfolios thanks to the low correlation of hedge fund returns with traditional investments.

The growing role of FOHFs is another noticeable trend (see Chart 7), as even institutional investors often prefer to rely on their expertise and diversification benefits despite the second layer of fees charged on top of the fees of the underlying single hedge funds. Futhermore, the attrition rate is rather high among single hedge funds – another reason why some investors prefer FOHFs.

Chart 6 Hedge fund investors

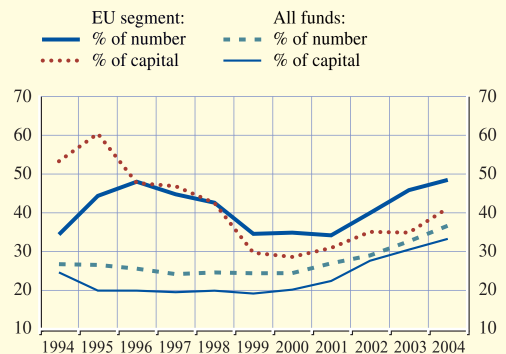
(percentages of total; 1992 and 1996-2004; end-of-year data)



Source: Hennessee Group.
Note: 1992 data from International Financial Services, London (obtained from Hennessee Group and CQA analysis).

Chart 7 The importance of FOHFs

(FOHFs as a percentage of single hedge funds; end-of-year data)



Source: Lipper TASS database (30 June 2005 version).
Note: Only funds with reported (estimated) capital under management.

Moreover, institutional investors often have a minimum amount to allocate in absolute terms or in relation to the capital under management of a target hedge fund owing to the high costs associated with the due diligence and monitoring of a large number of funds. This makes FOHFs the key source of funds for smaller hedge funds, because the latter are usually too small for institutional investors. At the same time, FOHFs are an important vehicle for retail investors acquiring access to hedge funds owing to the lower minimum investment requirements or lower restrictions on public offering in some countries.

As more institutional investors consider investing in hedge funds, they also bring requests for stronger governance and better risk management. This may lead to some consolidation in the industry as the costs of running a hedge fund have been increasing, and many funds are rather small with less than USD 100 million under management. Consolidation could take place in tandem with the growing institutionalisation of the hedge fund industry, as banks increase their participation by acquiring or setting up their own funds in response to investors' demand for a broader spectrum of alternative investments.

4 FINANCIAL STABILITY IMPLICATIONS

POSSIBLE POSITIVE EFFECTS

There is often more discussion about the risks posed by hedge funds than discussion about the positive aspects of their activities. However, hedge funds can also have beneficial effects. They may contribute to market liquidity, as they tend to be more willing to put their capital at risk in volatile market conditions so that market shocks can be absorbed. The presence of hedge funds as active risk-takers may also contribute to the development of fledgling and sophisticated over-the-counter markets, such as the credit derivatives market, and enhance the spreading of risks among market participants. In their quest for excess returns, hedge funds arbitrage away price differences for the same risk across markets, which is beneficial to the price discovery process. It may be argued that in this way hedge funds also contribute to the integration of financial markets. Their activity may also enhance the disciplinary force exercised by markets. Furthermore, hedge funds offer more possibilities for diversifying portfolios, thereby increasing the completeness of financial markets and ultimately leading to

greater social welfare. Finally, all these features, taken together, suggest that hedge funds can even contribute positively to the stability of the global financial system.

POSSIBLE NEGATIVE EFFECTS

The rapid growth of the hedge fund industry also raises important questions about possible negative implications for financial stability. Hedge funds can cause financial instability through their potential impact on financial markets and banks. These two channels are closely related and a hedge fund-related triggering event associated with either of them may be further escalated through these mutual links.

(A) THROUGH FINANCIAL MARKETS

The near-collapse of LTCM in September 1998 provides the most vivid example of how hedge funds have the potential to disrupt the functioning of global financial markets. The prevention of a similar event occurring depends critically on the application of prudent risk management practices by both hedge funds and banks. In this respect, it is particularly important that both take into account the interaction between leverage, credit risk and liquidity risk. If not supported by adequate liquidity reserves or borrowing capacity, leveraged and possibly undiversified market risk associated with high return objectives can force a fund to default on its margin calls and other obligations. The situation can be further exacerbated by asset illiquidity in stressed markets, as hedge funds may not be able to unwind their positions at reasonable prices and banks may encounter difficulties in liquidating collateral.

Since the LTCM event, most hedge funds have seemed to make more cautious use of leverage, though a comprehensive assessment is hampered by the limited disclosure of the industry. Many of the largest hedge funds are also diversified among several strategies, which also reduces somewhat the concerns. Nonetheless, there are some indications that lower profit opportunities in the current environment of low interest rates, low volatility and high perceived liquidity have prompted some hedge funds to increase their exposures to illiquid instruments. At the same time, hedge funds seem to be seeking more stable funding facilities from banks or imposing longer lock-up periods to protect themselves from sudden withdrawals by investors. However, lock-ups alone do not provide a complete picture of redemption risk, as redemption frequency, notice periods and early redemption possibilities (after paying the “gate” fees) have to be considered as well.

Another often debated issue is the impact of hedge fund trading on market volatility. Hedge funds are often blamed for their aggressive short-term-oriented strategies, which may cause excessive volatility and destabilise financial markets. However, it is not clear whether hedge fund managers generally tend to be momentum or contrarian traders. Momentum or positive feedback trading refers to the buying of financial instruments after price increases and selling after decreases, which can amplify price swings or lead to bubbles. In this respect, the study by the US Commodity Futures and Trading Commission (CFTC) is particularly interesting. On the basis of micro trading data, it found that managed futures hedge funds[6] can dampen, rather than increase, volatility in energy markets by providing liquidity to other market participants.[7]

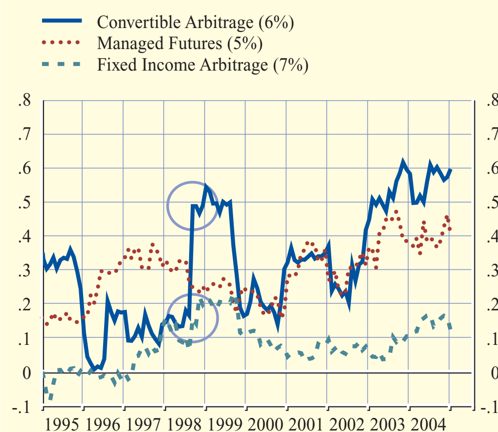
A further concern is related to the “crowding” of hedge fund trades. As an increasing number of funds attempt to exploit profitable opportunities from similar strategies, the positioning of individual hedge funds can become more similar or crowded. If market participants try to liquidate their positions simultaneously, this could leave hedge funds,

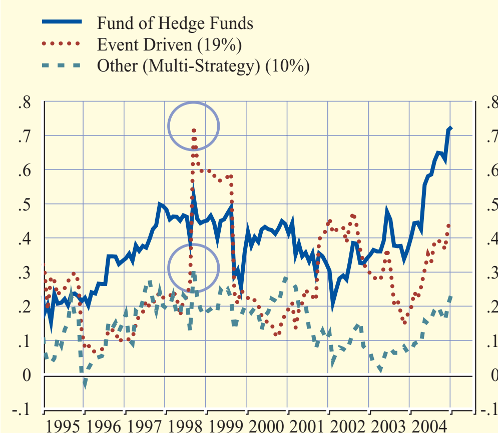
6 Managed futures hedge funds invest in financial and commodity futures markets, and are reportedly cited as adopting trend-following (i.e. momentum) strategies.

7 Haigh, M. S., J. Hranaiova and J. A. Overdahl (2005), “Price Dynamics, Price Discovery and Large Futures Trader Interactions in the Energy Complex”, CFTC, April.

Chart 8 Median pairwise correlations of hedge fund returns within strategies

(moving 12-month window; monthly data)





Source: Garbaravicius, T. and F. Dierick (2005), "Hedge funds and their implications for financial stability", ECB Occasional Paper No 34, August.
Notes: Circled points relate to increases in August 1998. For each 12-month moving window, only hedge funds with 12 monthly observations were included. Numbers in parentheses after strategy names indicate the share of total capital under management (excluding FOHFs) at the end of December 2004, as reported by Tremont Capital Management.

investment banks with hedge fund-like strategies, and affected markets vulnerable to adverse market dynamics. This concern is partly validated by the fact that correlations of hedge fund returns within strategies have recently been increasing for some strategies (see Chart 8). Moreover, the correlations are the highest for convertible arbitrage and credit strategies, which usually have the highest leverage. The unwinding of leveraged positions could be disruptive for affected markets, especially if the degree of liquidity in these markets was to prove low.

(B) THROUGH BANKS

Bank exposures to hedge funds can be divided into direct and indirect exposures. Direct exposures include financing, trading, investment and income exposures. Indirect risks arise from exposures to counterparties that in turn have exposures to hedge funds and to financial markets affected by hedge funds. Among direct risks, financing and trading links with hedge funds constitute the greatest source of risk, given the complexities associated with the management of such exposures.

In 2005 the ESCB's Banking Supervision Committee conducted a survey on large EU banks' exposures to hedge funds.[8] The survey provided some evidence that exposures of large EU banks varied significantly across countries. Generally, they were not large in relation to banks' balance sheets or total income and were mostly in the form of investments. This is at least partially due to the fact that the global prime brokerage market is largely dominated by US financial institutions. But even the limited data showed that exposures were growing rapidly and are likely to continue doing so in line with the further expansion of the hedge fund industry and its European segment.

Generally speaking, the banks surveyed had stringent requirements for exposures to hedge funds, with a strong emphasis on collateralisation. Most banks reported the use of stress tests for the evaluation of potential effects of volatile or illiquid markets on their exposures. At the same time, the survey highlighted scope for further improvement in a number of areas. Stress testing, for example, seemed to be less common for collateral and was mostly limited to individual exposures.

8 ECB (2005), "Large EU banks' exposures to hedge funds", November.

Some banks had difficulties in aggregating – on a firm-wide basis – their exposures to individual hedge funds and groups of hedge funds with similar strategies. Banks also experienced difficulties in assessing the risk profile of a fund as a whole, particularly in the case of large funds with financing and trading relationships involving several counterparties. Furthermore, certain shortcomings regarding the quantity, quality and timeliness of information provided by hedge funds to banks were identified. Moreover, counterparty discipline, as applied by banks, was found to be under pressure owing to competitive market conditions. Hedge funds, particularly the larger ones, were successful in negotiating less rigorous credit terms, including, for example, lower lending spreads, higher net asset value decline triggers or trading on a variation margin only.

In conclusion, the survey indicated that most of the recommendations made after the near-default of LTCM (see Section 6) remain relevant. Banks should therefore continue to strengthen their risk management further and keep exerting pressure on hedge funds to increase transparency.

5 REGULATORY ISSUES

The strong development of hedge funds has raised a number of concerns that are central to the debate about whether hedge funds should be regulated, and if so how. There are three main reasons why one might consider regulation: for financial stability, to protect investors and for market integrity. Another, though less frequently quoted reason, is that a common (light) regulatory regime might benefit market integration. This argument was raised in the debate about a possible EU regime for hedge funds that would benefit from the "single European passport", as is currently the case for UCITS.

The financial stability reason is probably the most relevant, but, as mentioned in Section 4, it is very difficult to make a definitive judgement about the net result of positive and negative aspects. The investor protection reason is very much tied to the question of to what extent retail investors should be permitted to invest in hedge funds and be protected against practices such as inappropriate selling and insufficient disclosure. In some countries hedge funds have become more accessible to retail investors. This "retailisation" can occur directly, but very often it takes place in an indirect way through FOHFs or financial instruments whose performance is linked to that of hedge funds (e.g. certain types of structured notes or unit-linked insurance policies). Finally, the market integrity reason is based on the argument that the international and unregulated character of the hedge funds business makes it particularly vulnerable to illicit activities, such as fraud, market abuse and money laundering. However, there is no conclusive evidence that such abuses occur more frequently in the case of hedge funds than for other types of unregulated intermediaries.

As regards the possible regulatory approaches, a wide spectrum is available ranging from no regulation at all to full direct regulation, with various alternatives in between. These alternatives include self-regulation (e.g. through codes of conduct adopted by the asset management industry), indirect regulation (through the interaction of hedge funds with regulated counterparties) and soft direct regulation (e.g. by regulating certain aspects, such as disclosure or the interaction with retail investors). Since the hedge fund business is very international in nature and can easily evade national regulations, the emphasis up to now has been on indirect regulation, which is ultimately more in the field of banking supervision. Recently, however, the Securities and Exchange Commission (SEC) in the United States adopted a regulation targeted at hedge fund advisors (managers), who will be required to register with the SEC before February 2006 and will henceforth be subject to the provisions of the Investment Advisers Act.

CURRENT EU FRAMEWORK

The current regulatory framework for investment funds in the EU is based on the UCITS regime.[9] UCITS are collective investment schemes that are dedicated to the investment of funds raised from retail investors. They benefit from the "European passport", meaning that once they have been authorised in one Member State they can also be offered to retail investors in all other EU Member States, subject only to a simple notification. As a corollary to this greater ease of cross-border commercialisation, risks to retail investors are limited through strict rules as regards the UCITS' investment policy, capital and disclosures, asset-safekeeping and oversight by an independent depository. The UCITS regulation is quite restrictive in terms of financial products to invest in and the risk diversification rules that apply, so that the typical hedge fund would be excluded. However, as a result of the "UCITS III" regime, investment restrictions have been loosened. For example, UCITS are now allowed to make greater use of derivatives and leverage so that they have more possibilities to engage in hedge fund-like strategies.

At present, there is no common regulatory regime in the EU that specifically addresses hedge funds or their managers. However, several countries have adopted domestic legislation. For example, France, Germany, Ireland, Italy, Luxembourg and Spain are countries in the euro area that have introduced national legislation for single hedge funds or FOHFs. The focus of these national rules seems to be mainly on investor protection, though they differ in various aspects, such as the way hedge funds can be distributed, subscription restrictions, rules regarding the management of the fund and disclosure requirements.

Finally, though not specifically targeted at hedge funds or the asset management business, there are a number of more general EU rules that may also affect the hedge fund industry. These include the Markets in Financial Instruments Directive (MIFID)[10], the Prospectus Directive[11] and the Market Abuse Directive[12]. For example, a hedge fund manager provides investment advice and portfolio management services, activities which are covered by the MIFID. Hence, the manager also needs to comply with the ensuing obligations in areas such as order execution, conflicts of interest and risk management.

RECENT EU INITIATIVES

National differences regarding non-harmonised asset management products, such as hedge funds, result in fragmentation that may hamper the development of a single market. This was an important consideration in the resolution adopted by the European Parliament in January 2004 with the proposal to adopt a light regulatory regime for "sophisticated alternative investment vehicles" (including hedge funds). The purpose of this proposal was to bring funds onshore that are presently offshore and to provide them with the benefit of the European passport.

The question of hedge fund regulation at the EU level is also being addressed within the current discussions on the overall financial services strategy for the next five years, now that the Financial Services Action Plan (FSAP) is nearing completion. An expert group that was set up to provide input in the area of asset management recommended in May 2004 that the European Commission review the framework for non-harmonised products, such as hedge funds, with the aim of developing a pan-European market. In this respect, the current UCITS framework was seen as a useful reference point that could be adapted to the specific nature of such products.

9 See in particular Directive 85/61/EEC, as amended, inter alia, by Directive 2001/107/EC ("Management Company Directive") and Directive 2001/108/EC ("Product Directive"). These latter two Directives are generally known as "UCITS III".
10 Directive 2004/39/EC.
11 Directive 2003/71/EC.
12 Directive 2003/6/EC.

Table 2 Major initiatives of international organisations related to hedge funds	
January 1999	Basel Committee on Banking Supervision, Banks' Interactions with Highly Leveraged Institutions (HLIs)
January 1999	Basel Committee on Banking Supervision, Sound Practices for Banks' Interactions with HLIs
June 1999	Counterparty Risk Management Policy Group I, Improving Counterparty Risk Management Practices
November 1999	International Organization of Securities Commissions, Report on Hedge Funds and Other HLIs
January 2000	Basel Committee on Banking Supervision, Banks' Interactions with HLIs: Implementation of the Basel Committee's Sound Practices Paper
April 2000	Financial Stability Forum, Report of the Working Group on HLIs
March 2001	Basel Committee on Banking Supervision/International Organization of Securities Commissions, Review of issues relating to HLIs
August 2002	Alternative Investment Management Association, Guide to Sound Practices for European Hedge Fund Managers
July 2005	Counterparty Risk Management Policy Group II, Toward Greater Financial Stability: A Private Sector Perspective
August 2005	Managed Funds Association, Sound Practices for Hedge Fund Managers (update of the practices papers of 2000 and 2003)

In May 2005 the Commission published a Green Paper outlining its preliminary views on financial services policy for the next five years. However, the communication did not indicate any particular Commission initiatives as regards hedge funds. In July of the same year, the Commission launched a public consultation on the enhancement of the EU framework for investment funds in which it stated that there was currently no compelling evidence for EU legislation on hedge funds. It nevertheless confirmed that further attention should be paid to the growing "retailisation" of hedge funds, the impact of this on financial markets and the exposures of investment banks. To investigate these issues in greater detail, it announced the creation of an industry-wide working group on alternative investment strategies.

6 SUPERVISORY ISSUES

Any direct regulation of hedge funds is confronted with the problem that the industry is global in nature and that hedge funds can easily relocate their domicile, thus evading national regulation. This is basically why all international initiatives regarding hedge funds taken since the LTCM episode have tried to influence the activity of hedge funds through their interactions with regulated firms, and in particular banks. Most of these initiatives relate to sound risk management practices. Although banking supervisors were the first to publish specific guidance in this area, the private sector has also taken several initiatives (see Table 2). Another important supervisory dimension is how hedge fund exposures are dealt with under the capital rules for banks.

RISK MANAGEMENT PRACTICES

(A) PUBLIC SECTOR INITIATIVES

In 1999, when reviewing banks' dealings with hedge funds in the aftermath of the LTCM episode, the Basel Committee on Banking Supervision (BCBS) identified a number of weaknesses in banks' credit risk management. These included an insufficient weight placed on in-depth credit analyses of counterparties, an over-reliance on financial collateral to limit credit risk, and deficiencies in the measurement and management of exposures. To address these weaknesses, the Committee developed specific guidance for banks' interactions with "highly leveraged institutions" (HLIs), which are primarily hedge funds. These recommendations are complementary to the BCBS' general risk management guidance, such as in the area of credit risk.[13] The Financial

13 Basel Committee on Banking Supervision (2000), "Principles for the Management of Credit Risk", September.

Stability Forum (FSF) later stressed that strong counterparty risk management and enhanced oversight of HLI credit providers are key elements with which to provide an adequate response to the systemic risk concerns posed by HLIs.

The BCBS guidance requires banks to establish clear policies and procedures for their interactions with HLIs as part of the general credit risk management. This has to include adequate information gathering, due diligence and satisfactory credit analysis. Credit exposures should be correctly measured and closely monitored. As the measures have to be adapted to the nature of the dealings with HLIs, which often include trading and derivatives transactions, the use of "potential future credit exposure" measures[14] and stress testing would normally be part of such a process. To bound potential losses, exposures need to be subject to formal limits. Another way to limit losses is to better align collateral and contractual provisions with the features of HLIs, for example by requiring initial margins and by using covenants that allow an early termination in the event of a material deterioration in a HLI's credit quality. The BCBS and the International Organization of Securities Commissions (IOSCO) also reviewed to what extent the sound practices had actually been implemented. They concluded that although banks had improved their risk management practices, further improvements were possible in the due diligence process, exposure measurement and stress testing.

(B) PRIVATE SECTOR INITIATIVES

The various public sector initiatives are complemented by the efforts of the financial industry to improve risk management standards, something that was also called for by the authorities in the aftermath of the LTCM crisis.[15] One of the most significant initiatives in this respect are the recommendations of the Counterparty Risk Management Policy Group (CRMPG), a group of major, internationally active commercial and investment banks. The first report, released in 1999, aimed at improving internal counterparty credit and market risk management practices. It was followed in 2005 by an update, driven by developments such as the increased proliferation of hedge funds and complex financial instruments. Some of the CRMPG recommendations are targeted at individual firms (in particular for risk management practices), others at the industry (e.g. in the area of netting and master agreements) and a third category at authorities (e.g. to investigate the reporting of large exposures by regulated firms).

Finally, in line with the policy recommendations of the FSF, the asset management industry also took several initiatives to improve sound risk management practices for hedge fund managers. For example, the Alternative Investment Management Association (AIMA) and Managed Funds Association (MFA) both issued recommendations in this respect.

CAPITAL REQUIREMENTS

Banks are required by supervisors to hold regulatory capital in relation to the risks they take on. At present, the capital requirements are based on crude credit risk measures as laid down by the BCBS in its Capital Accord of 1988 ("Basel I"). In 1996 the Accord was extended to cover market risk. A fundamental change in the capital rules came about in 2004 when a new, and much more developed and risk-sensitive framework was adopted ("Basel II"), which countries will implement in the coming years.[16] Whereas Basel I only covered minimum capital requirements, the Basel II

14 Current credit exposure is equal to the value of credit outstanding or the replacement cost of trading positions. Potential future credit exposure, by contrast, takes into account the possible variations in the value of the current credit exposure over the life of the trading positions.

15 See, for example, The President's Working Group on Financial Markets (1999), "Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management", April.

16 Basel Committee on Banking Supervision (2004), "International Convergence of Capital Measurement and Capital Standards", June.

framework is based on three complementary pillars:

– Pillar I – minimum capital requirements,

– Pillar II – the supervisory review process, and

– Pillar III – market discipline.

An important innovative feature of the new framework is that, in order to calculate the minimum capital requirements for credit risk, banks can now rely for their risk assessment either on ratings provided by rating agencies (the "standardised approach") or on ratings that result from their own risk assessment models (the "internal ratings-based approach").

The capital requirements for banks do not provide for a specific treatment of exposures to hedge funds. Hence, they have to be fitted into the general solvency framework. In this respect, Basel II is much better suited to deal with the risks that hedge funds pose.

Whereas Basel I does not provide much differentiation of capital requirements in terms of risk levels, this is much more the case under Basel II, both under the standardised approach and the internal ratings-based approach. Hence, Basel II can better accommodate the increased risk that hedge funds generally demonstrate as a result of their high leverage, relative opacity and dynamic risk profile.

But even under Basel II, banks may face considerable challenges when using their own models to estimate the risk of hedge funds exposures. Potential difficulties include the suitability of credit risk models originally developed for corporate clients to hedge funds that have a very different and more complex risk profile. For market risk models, difficulties may relate to the low frequency of net asset value figures (needed to calculate volatilities) and the skewed distribution of returns that result from certain investment strategies.

Furthermore, under the supervisory review process of Basel II, the bank's management has to make sure that the institution has adequate capital to support its risks; supervisors should take appropriate action when this is not the case. Such action can, for example, include requiring the bank to strengthen its risk management, improve internal controls, increase provisions and, ultimately, even increase capital. Pillar II therefore provides a useful framework for ensuring that the bank adequately addresses its risks, including those resulting from its interactions with hedge funds.

7 CONCLUSION

Hedge funds have shown very impressive growth over recent years and have developed into an important alternative investment instrument that has also become increasingly available to retail investors. This development, as well as the international character of the hedge funds business and its largely unregulated nature, poses considerable challenges to authorities. These challenges can be subsumed under two basic policy questions: the possible implications of hedge funds for the stability of the financial system, and the way in which the public and private sectors can reduce risks associated with the increasing role of hedge funds in the financial system.

Although hedge funds are often associated with negative market events, a balanced assessment should also take into account their beneficial effects on the financial system, for example through their contribution to the price discovery process, market liquidity, market discipline, risk diversification and financial integration. Nevertheless, forming an unambiguous assessment about the systemic impact of hedge funds still remains a challenge, not least because such an assessment is hampered by the lack of high-quality information and the continued opaqueness of the industry. It is important, therefore, that both the industry and authorities continue with their efforts to make further progress in this area and improve their understanding of the

implications of hedge fund developments for the financial system at large.

The main arguments advanced in the debate on a possible direct regulation of hedge funds are in the area of financial stability and investor protection. Although hedge funds and hedge-fund related products have become increasingly available to retail investors, the extent to which they have already developed into a significant investment alternative for households remains unclear. Efforts to gain a better insight into this issue, such as the recent survey organised by IOSCO, should therefore be welcomed. At the same time, if one comes to the conclusion that hedge funds should be regulated for financial stability reasons, it seems that this can only be done effectively in a strongly coordinated manner at the international level because of the very nature of the business.

The indirect regulation of hedge funds (i.e. the control of risks through banks) has been addressed through various public and private initiatives that pertain mainly to the domain of risk management practices. Moreover, the capital adequacy regime for banks, and in particular the supervisory review process of Basel II, provides an appropriate and flexible framework for addressing risks, also in relation to hedge funds. Thus, it is important that these best practices and recommendations are put in place effectively and are not eroded as a result of competitive pressures.