

Links between institutional investors and banks¹

Pim Lescauwaet²
National Bank of Belgium

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² Department of international cooperation and financial stability, National Bank of Belgium. Email: pim.lescauwaet@nbb.be.

1. Introduction

The importance of institutional investors in global financial markets has increased considerably in recent years, both as a result of supply and demand factors. At the supply side, Davis and Steil (2001) i.a. point to the increasing possibilities for diversification, improved corporate control and risk management, deregulation, financial and technological innovation and enhanced competition. At the demand side, demographic developments and growing wealth are important drivers.

As a result of their growing size, changes in their investment strategies and their increasing counterparty relationships with other financial institutions – especially banks – institutional investors have become more relevant for financial stability.

On the positive side, the presence of institutional investors is often said to lead to wider opportunities to diversify and spread risk.³ In particular, they may enhance financial stability by realising a shift of risks outside the banking sector. Compared to banks, institutional investors do not play an important role in payment systems, have less liquid liabilities - which makes them less prone to runs on suspicion of insolvency -, and are less exposed to contagion risks. Moreover, the increasing diversity in types and sizes of institutional investors, with a wide variety of investment strategies, leads to more complete and stable financial markets.⁴ Institutional investors are also likely to speed the adjustment of asset prices to fundamentals – leading to a more efficient market –, and to reduce volatility as a result of the additional liquidity they generate (Davis, 2003).

Nevertheless, institutional investors may also pose a number of risks to financial stability. The growing importance of institutional investors led to ever more intensive interlinkages between financial sectors. These enhanced the complexity of the financial system, making it more challenging to assess the exact localisation of risks, and increased the risk for contagion between financial sectors. The blurring of the borders between financial sectors may moreover lead to a more aligned risk profile of banks and certain institutional investors, which makes them increasingly prone to the same shocks. Finally, the growing size of institutional investors, changes in their investment behaviour and the increasing size of alternative types of institutional investors, such as hedge funds, may not only increase their potential destabilising impact on financial markets, but also on the real economy.

Although the focus of this paper is on the links between banks and institutional investors and their consequences for financial stability, in Chapter 3, it also briefly touches upon institutional investors' potential impact on financial markets in Chapter 2, as turbulences in these markets may, in a second round, also affect banks. As this paper has been written as a background paper for a CGFS working group whose goal was i.a. to analyse the impact of regulatory changes on institutional investors' asset allocation and, from there, asset prices, this paper will also pay attention to the potential impact of changes in regulation pertaining to institutional investors on the nature and intensity of the links between institutional investors and banks.

³ Note that there exist different types of institutional investors, with different characteristics and, hence, a different potential impact on financial stability. While insurance companies, and even more, pension funds, have (very) long-term investment strategies, hedge funds tend to take short-term positions and quickly turn their investment strategy, increasing market efficiency and discipline, but possibly creating fast and large market movements.

⁴ This diversity in investment behaviour could in the future however be reduced, and volatility increased, as a result of changes in regulation requiring insurance companies and pension funds to follow similar, shorter-term and lower-risk investment strategies (Davis, 2000).

2. Direct impact of institutional investors on financial market stability

It is often argued that, while the growing importance of institutional investors may lead to a more stable financial system for most of the time, it might give rise to larger systemic shocks, i.e. large shifts in asset prices or changes in liquidity, in bad times.

Indeed, as institutional investors may at times be subject to (rational) herding, they may, in exceptional circumstances, lift capital market turbulence beyond what would be generated by similar reactions in a more traditional investor base composed of individuals (Davis, 2003).⁵ One can distinguish two particular types of financial turbulence as a consequence of institutional investors' herding. First, a rapid shift in institutional investors' asset allocation may lead to high market price volatility at the moment of the turnover. Financial stability issues may especially arise when institutions that have taken leveraged positions on the current level of asset prices are put in difficulties. Second, one-way selling by institutional investors may also lead to a collapse of market liquidity.

Financial turbulence caused by institutional investors on financial markets could be amplified by the fact that banks are often big players in the same markets, and, as such, could also be hurt by the instability of these markets. Note in this connection that, in recent years, banks have increasingly been involved in financial market transactions, i.a. to boost their income as their traditional deposit taking and lending activities became less profitable and started to decline (Edwards and Mishkin, 1995).

Institutional investors' herding behaviour is likely to be much more marked in periods of market stress however. Reasons for such behaviour follow from principal-agent problems, changing demand by individuals or the regulatory regime (minimum funding requirement). Changes in regulation and accounting may thus have an impact on the potential for herding behaviour. In case of stricter minimum funding limits, institutional investors are subject to heightened shortfall risk if asset values decline (Bodie, 1991), which may entail increased herding at certain points in time. As Frijns et al. (1995) show, tighter solvency requirements will also shorten time horizons and may introduce more volatile investment behaviour. On the other hand, more risk-based requirements should in principle help to reduce market volatility, by promoting investments in low risk assets and by inducing improvements in risk management techniques. The implementation of new requirements or accounting regimes may however in an initial phase temporarily distort financial market prices to the extent that these require important shifts in institutional investors' asset allocation.

Besides their impact on financial markets, institutional investors may also pose risks to financial stability as a result of their potential impact on the macro-economy. Systemic problems in the insurance or pension fund sector may for instance entail a loss of savings and, hence, a loss of confidence with households, potentially leading to a decrease in consumption and economic growth through wealth effects. These macro-economic problems may in turn have an impact on the stability of the financial system as a whole.

3. Links between banks and institutional investors

As already mentioned above, this paper focuses on the impact of institutional investors on financial stability as a result of their linkages with the banking sector.⁶ Banks can be linked to institutional

⁵ See also CGFS (2003b) for more detailed information on the implications of institutional asset management for financial markets.

⁶ The paper focuses on the exposures of banks to institutional investors, and not these of institutional investors to banks, which include the formers' holdings of bank shares and bonds or investments in bank deposits. As a matter of fact, the amounts of these exposures are also limited.

investors in a number of ways. They can lend to institutional investors, they can own stocks or bonds issued by institutional investors and they can possess other financial contracts (derivatives) of which institutional investors are counterparties. The credit, bond and equity exposures are discussed in section 3.1. Section 3.2 looks into risk transfers – mainly involving derivatives – between banks and institutional investors, with a focus on the credit risk transfer market. The subsequent sections look in more detail at a number of specific issues, standing at the centre of recent discussions about the impact of institutional investors on financial stability: banks' links with hedge funds (3.3), the links created within financial conglomerates (3.4) and banks' pension liabilities (3.5).

Note that, besides the abovementioned contagion channels, there also exist a number of more indirect channels linking banks and institutional investors. A bank commercialising products from institutional investors (e.g. mutual funds or insurance products) may for instance be exposed to legal risks and reputational risks, possibly incurring losses as a result of a loss of confidence following problems with one of the commercialised products, even in the absence of the above-mentioned exposures. Also more broadly, a loss of confidence in one financial sector may well spread to other sectors. These links are however difficult to gauge and will not be dealt with further in this paper.

3.1 Banks' credit, bond and equity portfolio

This section looks at the links between institutional investors and banks in the latter's credit, bond and equity portfolios. All of these exposures can be analyzed with respect to the risks they involve for the bank: interest rate risk, other types of market risk, credit risk and liquidity risk. In principle, the risks associated with these exposures are not different from those related to banks' other loans and investments, at least to the extent that sound risk management practices are applied, for instance as to diversification.

The amounts of these exposures have been retrieved from financial account (Belgium and euro area) and flow of funds data (US). While the available information is incomplete and not always comparable, it still gives a rough idea of the magnitude of the different exposures. Note however that off-balance-sheet commitments, such as credit lines and letters of credit, are not included in these figures.

In Belgium, banks' exposures to institutional investors through their credit, bond and equity portfolio remain very limited (Table 1). Banks have no such exposures to pension funds. Banks' exposures to insurance companies mainly include loans, amounting to 0.40% of banks' total assets. Holdings of shares of insurance companies amount to 0.16% of banks' total assets. Banks' investments in mutual funds amount to 0.10% of their total assets.

Table 1 Assets of Belgian banks with institutional investors as a counterparty
(data at the end of 2005, percentages of banks' total assets)

Bonds	0.00%
Loans	0.40%
Equities	0.16%
Parts in investment funds	0.10%

Source: NBB.

In order to assess the implications for financial stability, one has to bear in mind that the risk associated with banks' exposures to institutional investors depends much on the distribution of these exposures among banks, which is not shown in the available aggregate figures. In Belgium, banks' large exposure reporting does not suggest important concentrations in banks' exposures to institutional investors. Second, it is possible that the amounts observed in normal times may grow considerably in times of

stress, in case banks would lend to institutional investors to help them overcome financial strains. This may be more likely to take place within financial conglomerates however (see section 3.4).

Banks' credit exposures to institutional investors are of comparable importance in the euro area and in the US. At the end of 2005, euro area insurance companies' loans taken from euro area banks amounted to 64.6 billion euros (0.36% of euro area banks' total assets). In the US, bank lending to insurance companies was even lower. However, it seems that some banks have been important lenders to insurance companies (Van den Berghe, 2001). As to banks' investment in shares of institutional investors, it has to be noted that banks traditionally hold very low investments in shares. This is especially true in the US, where, up to 1999, the Glass-Steagall Act severely restricted commercial banks' holdings of equities. Although the Act has been repealed in 1999, after a number of relaxations since 1987, US commercial banks still invest a very small share of their total assets in equities. Investment banks on the other hand, may hold a considerable amount of shares on their balance sheet. In the EU, shares seem to take a slightly greater portion of banks' total assets than in Belgium.⁷

3.2 Links through derivatives markets

3.2.1 Description of the risk transfer market

The business of both banks and institutional investors involves risk-taking. Institutional investors take mainly insurance risks, longevity risks and market risks, while banks predominantly take on credit, interest rate and liquidity risk. Some of these risks can be transferred from one institution and, hence, financial sector, to another. If the institution has no comparative advantage in managing certain risks, there is no real reason for the firm to absorb and/or manage such risks, rather than to sell them at their fair market price (Allen and Santomero, 1997). While this is a traditional practice, the possibilities have greatly increased through the growth in derivatives and structured financial products. Table 2, taken from Rule (2001), provides a synthetic overview of possible ways in which banks and institutional investors can shift market and credit risks between them. This section will mainly focus on the more recent techniques for such risk transfer.

The size of the OTC derivatives market may provide an indication of the development of this risk transfer market. According to BIS (2006), which performs a semi-annual survey on the OTC derivatives market, the notional value of outstanding OTC derivatives amounted to USD 370 trillion at the end of June 2006, compared to USD 72 trillion at the end of 1998 (+414%).

Table 2 Classification of risk transfer instruments

		Risk type	
		Credit risk	Market risk
Direction of risk transfer	Banks to institutional investors	ABSs, CDOs, CDSs, financial guarantees, residual value insurance, surety bonds, credit insurance, loan trading, securitisation	Insurance companies writing options and buying bonds with embedded options
	Institutional investors to banks	Letters of credit Liquidity facilities	Hedging of embedded options in portfolios of life insurance and pension products

Source: Rule (2001).

⁷ Including banks' holdings of mutual fund shares.

3.2.2 Market risk transfer

According to the semi-annual BIS OTC derivatives statistics, interest rate derivatives covered a notional value of USD 262 trillion (or 71% of total outstanding OTC derivatives) at the end of June 2006, compared to USD 42 trillion at the end of 1998. Equity-linked contracts amounted to a notional value of USD 7 trillion and foreign exchange contracts to USD 38 trillion at the end of June 2006.

Transfers of market risks occur both from banks to institutional investors and vice versa. In fact, a variety of OTC derivatives products are used by life insurance companies, pension plan providers and also mutual funds, both to cover embedded optionality in their liabilities portfolio (e.g. minimum guaranteed returns) and to manage risk in their asset portfolio (Rule, 2001). Partly as a consequence of changes in regulation and accounting frameworks, which make the risks to which institutional investors are exposed more transparent and increasingly align capital requirements with these risks, these institutions wish to further reduce their exposure to interest rate risk, by so far as possible matching liabilities with asset portfolios comprising instruments with comparable cash-flow patterns or durations. Institutional investors either invest in long-term bonds or change their interest rate position using derivatives. Often, the counterparties in these derivatives are large investment banks, which in turn are exposed and have to hedge their risk.

Besides the transfer of market risks from institutional investors to investment banks, commercial banks sometimes transfer market risks to institutional investors. Certain insurance companies have provided protection to banks against downside market risk by providing principal guarantees on their investments in equity funds and funds of hedge funds for instance. They also wrote options on equities, interest rates and currencies which were bought by banks (Rule, 2001).

3.2.3 Credit risk transfer

3.2.3.1 Recent developments⁸

As part of financial institutions' credit risk management and as a result of differences in the regulatory, accounting and tax treatments of different financial intermediaries, techniques for transferring credit risk between different types of financial institutions, such as financial guarantees and credit insurance, have been a long-standing feature of financial markets. In the past years however, the range of credit risk transfer (CRT) instruments and the circumstances in which they are used have widened considerably. On the one hand, the innovations in the CRT market widened the options available to originating institutions and enhanced the possibilities for banks to shape their risk profile independently of their origination business (CGFS, 2003a). On the other hand, a greater focus by banks and other financial institutions on credit risk management, a more rigorous approach to risk-return judgements by lenders and investors and an increasing tendency on the part of banks to look at their credit risk exposures on a portfolio-wide basis, partly as a result of (expected) changes in regulation, spurred the market. Also the increasing demand from insurance companies and other institutional investors for credit risk, prompted by their desire for higher yields as a result of increasing competition, lower market yields, the expected low correlation of credit risk with much of the other risks they bear, the shortage of certain types of (government) bonds and (expected) changes in regulation, added to this growth (Rule, 2001 and CGFS, 2003a).

⁸ More information on recent developments in CRT markets can i.a. be found in British Bankers' Association (2006), CGFS (2005) and ECB (2004).

The exponential growth of the credit derivatives market since the instrument was first traded in 1996 has played a key role in the development of the CRT market (Chan-Lau and Ong, 2006). In fact, since its inception around 1996, the credit derivatives market has known a growth rate similar to that of the interest rate derivatives market between 1986 and 1996 (IMF, 2006). According to BIS data, the notional amount outstanding of credit default swap (CDS) contracts at end-June 2006 was USD 20.4 trillion. This amount was reported at USD 6.4 trillion at the end of 2004, which is consistent with the survey of a smaller sample of institutions by FitchRatings (2005), which estimated that the notional value of outstanding credit derivatives contracts had swelled to USD 5.3 trillion in 2004 from USD 2.8 trillion a year earlier. FitchRatings (2006) reported issuance of collateralised debt obligations (CDOs) in 2005 for a notional amount of USD 1.3 trillion (+ 58% compared to 2004), with synthetic CDOs accounting for the bulk of this amount. The demand for synthetic CDOs has been particularly strong in Europe, driven by the existing legal and taxation barriers to securitization transactions involving the true sale of underlying assets and the limited interest in these transactions for refinancing purposes (Cousseran and Rahmouni, 2005). Further, the outstanding volume of corporate bonds in Europe is much smaller than in the United States, making it more difficult to source assets for cash CDOs (Chan-Lau and Ong, 2006).

Notwithstanding the sharp growth in CRT, the Joint Forum (2005) states that the aggregate amount of credit risk that has been transferred via credit derivatives and related transactions is still quite modest as a proportion of the total credit risk that exists in the financial system. The real size of CRT is in any case smaller than the notional amounts provided above, which may give a misleading picture of the amount of risk actually transferred.⁹ At the end of June 2006, the gross market value of CDSs stood at USD 294 billion, compared to USD 133 billion at the end of 2004 (BIS, 2006).

Together with the growth of the CRT market, the range of market participants has expanded significantly in recent years and now includes a wide variety of banks, insurance companies, hedge funds, pension funds and asset managers. Large international investment banks and universal banks remain the most important market participants however. A survey conducted by FitchRatings (2006) showed that most credit risks are still transferred within the banking sector and that only a relatively small portion of credit risk was transferred to non-banks. The global banking sector purchased net protection for about USD 268 billion at the end of 2005, corresponding to only 2.2% of the total CRT market volume, compared to about 8% a year earlier.

Insurance companies remain the most important net sellers of protection, with a net notional amount of sold credit protection of USD 514 billion at the end of 2005 (Fitch, 2006). A small number of large US insurance companies take on the bulk of transferred credit risk. Two types of participants can be distinguished: (i) life insurance and property and casualty companies and (ii) monolines and reinsurers. The first category of companies typically use credit risk instruments to enhance the return on their investment portfolio. The second category participates to increase premium income and to diversify their portfolio into credit risk (Counterparty Risk Management Policy Group, 2005). There is anecdotal evidence that, on aggregate, the importance of these investments in institutional investors' total portfolio remains very limited (less than 1 p.c. on aggregate). In addition, they mainly invest in the most secure (senior) tranches of these instruments. Going forward, institutional investors in search of additional yield, may take increasingly risky positions in these instruments however (Joint Forum, 2005).

⁹ Notional amounts of outstanding contracts do not necessarily provide a good indication of the actual amount of risk transferred, which can, for a certain notional amount, vary to a large extent from one transaction to another, depending on the seniority of the transferred tranche (e.g. equity tranches transfer the largest amount of risk for a given notional value).

The growing difference between the net amount of credit risk protection bought by banks and the net amount sold by insurance companies, is taken up by other players, which thus on aggregate perform as important net protection buyers.

Various studies confirm that hedge funds have emerged as key players in CRT markets, both as protection buyers and sellers. With the growth of hedge funds, banks and other buyers of protection have discovered a much greater ability to transfer credit risk, particularly the sale of equity tranches (IMF, 2006). The rising implication of hedge funds also improved liquidity in credit derivative markets. On the other hand, the shift - i.a. as a result of changes in regulation - of credit risk from regulated institutions such as banks and insurance companies to hedge funds, which are unregulated and traditionally rather opaque institutions, may lead to financial stability concerns in case these funds become important credit risk protection sellers. While CRT transactions with hedge funds remain limited up to now, a further growth may be expected in the future.

Next to hedge funds, also proprietary traders and the more traditional asset management industry started to enter the market recently. Even some pension funds, which have generally followed conservative investment strategies, are said to have started taking on the role of protection sellers (Chan-Lau and Ong, 2006). In some countries, the growth of a managed funds market resulting from the introduction of private pension schemes may further promote the growth of CRT. A case in point is Australia, where the growth of superannuation funds and other private pension vehicles is expected to greatly contribute to the development of the CRT market (CGFS, 2003a).

In sum, a wide variety of institutional investors become increasingly important counterparties in the CRT market. Current and future changes in regulations pertaining to these sectors may lead to a further growth of their investments in CRT instruments, as these changes induce institutional investors to take on investment strategies which improve the diversification and the yield of their portfolios, which could for instance take place through investments in CRT instruments. More generally, these new rules should lead to improvements in institutional investors' risk management systems and better investment strategies.

3.2.3.2 Impact on financial stability and prudential concerns

As risk transfer markets enable banks to reduce certain risk exposures and diversify across types of exposures, making them less vulnerable to particular regional, sectoral or market shocks, and, perhaps, to price risks more efficiently, the net outcome of risk transfer is expected to be a greater dispersion of risks, with a positive impact for overall financial stability and efficiency (Rule, 2001).

However, there are also some risks associated with the growth of the CRT market. Recent product innovation tends to add complication to the financial system by introducing products that may be difficult to value (by some market participants) and by creating potentially opaque flows of risks, which makes it more difficult to track risks through the financial system and which may lead to the unnoticed building up of undesirable concentrations of risks in certain sectors or individual companies. A related issue is the potential for contagion between financial sectors, for instance as a result of counterparty risk in credit risk transfer markets or through reputation effects as problems in one financial sector could harm public confidence in the financial sector in general (Counterparty Risk Management Policy Group, 2005). The introduction of new regulation and accounting frameworks for certain institutional investors may increase the transparency of such contagion channels and often opaque flows of risks throughout the financial system, having a beneficial impact on financial stability.

Also the still limited liquidity in the secondary market of CRT instruments, as a result of the fact that credit risk protection sellers often decide to buy and hold the acquired credit risk exposures, may pose some risks (Chan-Lau and Ong, 2006). Next to that, the high and further increasing concentration in the market, with the top 15 dealers - all being large global financial institutions - accounting for 83% of sold positions, deserves close attention (Fitch, 2006). Another possible source of disruption in credit derivative markets lies in the observed operational problems, largely caused by the rapid growth in trading volume and in the complexity of many new products. The backlog of unconfirmed trades and the management of trade reassignments, as well as the need to improve settlement procedures has been a source of concern (IMF, 2006), although improvements have been observed in recent months (ECB, 2006)..

Finally, institutional investors tend to have taken on more credit risk through the CRT markets, which may have increased their risk profile. Some of these institutions have limited experience in these markets and may have mispriced certain risks. Moreover, in their search for yield in recent years — i.a. spurred by recent changes in prudential legislation —, a wide variety of investors — some with little experience managing credit risk — may have invested in more risky tranches of CRT instruments. Related to this is the increased participation by hedge funds and other leveraged counterparties as sellers of credit risk protection. On the positive side, their increased participation should serve to further diversify credit risk through the financial system. On the negative side, their participation may marginally increase protection buyers' counterparty risk due to some hedge funds' leveraged nature (Counterparty Risk Management Policy Group, 2005).

3.3 Banks' relations with hedge funds

3.3.1 increasing importance of hedge funds

The role of hedge funds as participants in financial markets and as counterparties to banks and other institutional investors has rapidly increased in recent years. According to various estimates¹⁰, there were at the end of 2005 about 8800 hedge funds managing assets of approximately USD 1200 billion, compared to USD 600 billion five years ago. By way of comparison, banks' total assets at the end of 2005 amounted to USD 23916 billion, according to the BIS.

Most (large) hedge funds are located in the US. They represent about 5% of all US assets under management and account for about 30% of all US equity trading volume (Cox, 2006). In Europe, London is the most important hedge fund centre. Japanese funds have been the largest growers in recent years, but remained relatively small up to now. Although the number of very large funds - which are often related to large financial groups - is small, their growing market share raises their potential impact on financial stability.

It is widely acknowledged that hedge funds - through their active risk-taking, provision of liquidity, elimination of market inefficiencies and potential enhancement to investment diversification - can contribute to the efficiency, integration and even stability of the global financial system. Nonetheless, they may also have a number of negative implications for financial stability. First, hedge funds could affect financial stability through their potential amplifying impact on market shocks in times of market stress, creating larger swings in market prices and liquidity. This may happen especially when their investment strategies and returns are strongly correlated. Second, the failure of a large hedge fund could damage the soundness of its largest creditors and counterparties, i.e. banks (ECB, 2005). Also the rapid changes in their market positions and their opacity, which makes it difficult to assess their

¹⁰ See for instance Hedge Fund Research Inc.

market positions and to localise risks within the financial system, can have negative implications for financial stability (Greenspan, 2005).

Note however that, over the last years, risk management with hedge funds has greatly improved as banks and other institutional investors investing in hedge funds are insisting on more transparency and information on risk. Also the fact that prime brokers have been acquiring or setting up in-house hedge funds, leading to an institutionalisation of the hedge fund industry, may be positive for financial stability as it may induce the hedge fund sector to professionalise further and introduce risk management and control mechanisms traditionally used in large banks (Dierick and Garbaravicius, 2005).

On the other hand, while hedge funds' counterparties are traditionally sophisticated, such as banks and wealthy individuals and companies, a wider range of households indirectly becomes increasingly exposed to hedge funds, through pension funds' and life insurance companies' investments in hedge funds. These institutional investors favour hedge fund investments in order to stabilise the rates of return of their overall investment portfolio through diversification in non-correlated asset classes. The recent or envisaged changes in regulation and accounting may further reinforce this trend, and as such lead to a further growth in the hedge fund sector and, hence, banks' exposures to hedge funds. Pension funds' and insurance companies' investments in hedge funds reinforce the links between hedge funds and other types of institutional investors. This may entail certain risks, especially if not all institutional investors understand the risks associated with investments in hedge funds. However, hedge funds are reportedly screening investors more carefully. They reportedly prefer investors who understand their strategy and are able to guarantee a stable relationship for a longer period of time. Hedge funds are also asking for longer lockup periods, often from one to three years.

3.3.2 relationships between banks and hedge funds

Bank exposures to hedge funds can be divided into direct and indirect exposures. Direct exposures include banks' financing, trading, investment and income exposures. Indirect risks arise from banks' exposures to parties (e.g. other banks or institutional investors) that in turn are exposed to hedge funds or to financial markets potentially affected by hedge funds. While the remainder of this section will mainly focus on the direct exposures of banks to hedge funds, one should bear in mind that these direct exposures may underestimate the true risks that hedge funds pose to banks.

Besides these direct and indirect exposures, banks may also incur some other risks. A first type is legal risk, i.a. related to the enforceability of netting and collateralisation provisions contained in various agreements with hedge funds. In addition, the complexity of the instruments involved may challenge banks' operational and risk management capacities. Operational risks may occur due to the growing and high amount of transactions with hedge funds, which challenge the capacities of front, middle and back offices (e.g. calculation risk, valuation and settlement of collateral). Finally, banks may also incur reputational risks in case of failure of a related hedge fund (ECB, 2005).

Banks that are most exposed to hedge funds are the so-called prime brokers. Prime brokerage activities include a wide range of services provided by banks to hedge funds, including considerable operational support, financing and trading. For prime brokers, financing and trading exposures constitute the biggest source of risk. Given that prime brokerage services are concentrated among a limited number of large, global players, a serious mismanagement of these exposures at an individual institution might possibly provoke a systemic crisis. The global prime brokerage market is largely dominated by US firms. Three US banks, Morgan Stanley, Goldman Sachs and Bear Stearns, control more than half of hedge fund clients' capital under management. The largest prime brokers in the EU are Deutsche Bank, Société Générale, Barclays and SEB (Dierick and Garbaravicius, 2005). Yet, as

competition between prime brokers increases, the concentration in the market tends to decline. Such competition – i.a. as the result of the fact that demand from investors, for instance insurance companies and pension funds, is fierce – might lead to declining risk standards however.

In any case exposures to hedge funds of the large banks remain rather limited in terms in balance sheet total, regulatory capital and total revenues, despite their sharp growth. Several studies estimate global revenues from prime brokerage to amount to about USD 8 to 10 billion (excluding trading income), which is still small compared to banks' total revenues. However given that that three US investment banks account for about 65% of this market, these banks may have become considerably dependent on the income stream from prime brokerage services to hedge funds. In some cases, such income is reported as making up more than a quarter of their trading and commission income or an eighth of total revenue. Many banks have also increased their own trading activities, as evidenced by the higher VaR numbers reported recently. The appetite to take on more risk is probably related to the less volatile market conditions and the insufficient growth of other traditional income sources (Dierick and Garbaravicius, 2005).

In the European Union, the ECB (2005) investigated the links between large EU banks and hedge funds, on the basis of a survey organised by the European Banking Supervision Committee (BSC) in 2005. The survey results revealed that the direct exposure of large banks to hedge funds varied significantly across countries and banks. In many EU countries, investments of banks in hedge funds were the most widespread direct link, although the amounts involved remained limited to 4.3% of the surveyed banks tier I capital. Credit granting to hedge funds was concentrated with a smaller number of banks, while the amounts involved were more important, accounting for 50.2% of the considered banks' tier I capital. Almost all lending was well collateralised. Banks are also exposed through the OTC derivatives market, with the outstanding amount of these derivatives with hedge funds amounting to 2.7% of the total outstanding amount of OTC derivatives of these banks. Banks' income related to hedge fund activities amounted to 3% of their total income, mainly resulting from trading activities. While these amounts seem limited in relation to banks' balance sheets and total revenue, or similar exposures undertaken by US banks, it has to be noted that they grow rapidly.

3.4 Financial conglomerates

3.4.1 Definition, rationale and typology

Financial conglomerates are active in several financial sectors and offer a combination of banking, insurance and/or investment services. While in a world with perfect capital markets and perfect competition and no information or agency problems, there would be no need for financial conglomerates since they would not create any value added, financial conglomerates exist in reality as a result of the potential for cost and revenue synergies, diversification benefits and agency problems. Their emergence has been encouraged by improvements in (information) technology, the emergence of new distribution channels, financial deregulation, globalization of markets (e.g. due to the introduction of the euro in the EU) and increased shareholder pressure for financial performance (Schilder and van Lelyveld, 2002).

Financial groups can provide financial services through various corporate structures. Four basic models can be distinguished: the integrated model, the parent-subsidiary model, the holding company model and the horizontal group model. In the integrated model, the financial services are offered by one and the same entity. This model can in most countries not be used to combine banking and insurance activities however, as the provision of banking and insurance services has to take place through

separate legal entities.¹¹ The other models make use of separate legal entities. Nevertheless, in the US, the parent-subsidary model is not allowed for a combination of banking and insurance activities. The main difference between the parent-subsidary model and the holding model is that in the latter case, the various specialised firms do not have direct capital links, but indirect ones through the holding company. Finally, in a horizontal group, the entities are not linked to each other through direct or indirect capital links. Nevertheless, they can be considered to belong to the same group because pursuant to a contract or provisions in a memorandum or articles of association, they are managed on a unified basis, or because the members of their corporate bodies are largely the same persons. Such groups are particularly difficult to identify (Dierick, 2004).

3.4.2 Relevance in the EU

The cross-sectoral mergers and acquisitions on the EU financial market that have taken place in recent years, have contributed to this increasing importance of financial conglomerates. In the period between 1990 and 2005 cross-sectoral mergers and acquisitions amounted to 105 billion euro, compared to 740 billion of M&A's within the banking sector. It mainly concerned banks taking over insurance companies. Nevertheless, these conglomerates account for a large market share both in banking and insurance in a lot of EU countries. On average, the market share of financial conglomerates in the EU amounted to about 40% in banking and 36% in insurance at the end of 2005, with especially large market shares of up to 80% in banking in Belgium, Finland and Sweden.

While there are no figures available on banks engaging at the same time in commercial and investment banking activities, which is also a form of financial conglomeration, it is clear that this is a common combination of activities throughout the EU and one can expect a very large number of banks to provide both services. As such, banks are often important managers of mutual funds. Banks' investment and private banking activities thus create other specific links between banks and institutional investors.

3.4.3 Relevance in the US

In 1999, the U.S. Congress passed the Gramm-Leach-Bliley (GLB) Act, permitting affiliations between banks and securities firms and creating a special type of bank holding company (BHC), called a financial holding company (FHC), which are allowed to engage in a wider range of activities (e.g. insurance underwriting and merchant banking) or under less stringent regulations (e.g. securities underwriting and dealing) than traditional BHCs. Before that, the ability of banks to engage in such activities was strictly constrained by the Glass-Steagall Act and the Bank Holding Company Act¹² (Barth et al., 2000).

In total, 644 FHCs were created by end March 2003. A significant number of the largest BHCs have chosen to become FHCs. In fact, 49 of the 71 U.S.-BHCs with assets of USD 10 billion or more have become FHCs. But also a large number of smaller BHCs have elected to become FHCs, which suggests that FHC status also provides benefits to smaller banking organizations (Board of Governors of the Federal Reserve System and US Department of Treasury, 2003). At the end of 2003, total assets of the 20 largest BHCs amounted to USD 5.6 trillion, equivalent to 64% of the aggregate for all BHCs or about 50 percent of GDP (De Nicoló et al., 2004). In total, FHCs represent 78% of the total assets of all BHCs.

¹¹ Moreover, while in the EU several types of banking services are traditionally provided by the same entity, in the US, the Glass-Steagall Act imposed a very strict separation between commercial and investment banking up to 1999.

¹² Banks had important distribution alliances with insurance companies however (Van den Berghe, 2001).

In practice, almost all of the new activities undertaken by the FHCs have been in insurance (in case of the smaller FHCs) and merchant banking (in case of the larger FHCs). The assets attributable to these expanded activities of FHCs have grown significantly since the end of 2000. In particular, the assets of the securities underwriting and dealing subsidiaries of FHCs have grown by two-thirds since 2000, and the reported insurance underwriting assets of FHCs have tripled in that period. All in all, the structure of the financial services industry has not changed dramatically as, on the one hand, banks remained more interested in selling insurance, which was already permitted before 1999, rather than in underwriting it, and, on the other hand, banks were already able to perform a number of securities related activities before 1999 (Dierick, 2004).

3.4.4 Motivations, benefits and risks

The benefits associated with financial conglomeration are often said to lead to a higher financial soundness of these groups and, more broadly, financial stability. First, diversification benefits, i.a. resulting from opposite interest rate positions in the banking and insurance business, may reduce the volatility of profits and thus reduce the group's risk profile. One may however pose the question whether these diversification benefits will also hold in times of stress (Santomero and Eckles, 2000). Second, cost and revenue synergies, as a result of economies of scope and scale, may lead to a more efficient financial sector. At the costs' side, economies of scale can be realised in distribution, financial engineering and risk management. Distribution channels and customer databases on the other hand are areas where efficiencies of scope can be realised. At the revenues' side, a larger scale allows a group to enter certain market segments which are closed to smaller groups. Economies of scope arise because of cross-selling opportunities, the sharing of the reputation associated with a certain brand name, the possibility of developing a close customer relationship and the preference of the customer to reveal private information to a single group. These economies may however be difficult to realise in the short term. There is also a risk that these efficiencies, at a certain point, turn into inefficiencies, for instance when one moves away from the core business or when conflicts of interest arise.

There are however also a number of risks associated with the combination of different activities within one organisation (see for instance National Bank of Belgium (2002), Dierick (2004) and Trichet (2005)). First, financial conglomerates are generally large, complex institutions. The lower transparency of such groups may lead to increased informational problems within the group and to more difficult supervision. Monitoring capital adequacy and risk management and control at the group level becomes more difficult, both internally and for supervisors. This is i.a. related to the potential for regulatory arbitrage and multiple gearing within such groups. In addition, important risk positions might build up unnoticed because they are dispersed over many group entities. The group's complexity may also make a winding-down very difficult and the group may become "too big to fail", which entails a range of specific moral hazard issues.

Second, the formation of a conglomerate increases the risk of contagion between the constituting parts, as adverse developments affecting one sector spread more quickly to the other sector, within the conglomerate, but possibly also throughout the financial system. Intragroup exposures are a specific source of risk in this respect. These exposures are not limited to capital links, but often include credit granting and off-balance sheet exposures (e.g. guarantees, derivatives positions, ...). Contagion can also be indirect, when it results from the behaviour of third parties (e.g. customers or investors) towards a group entity in response to a problem of an affiliated group entity (loss of confidence). One might try to limit the contagion risk through the design of fire-walls, but there is the possibility that these may become ineffective, especially in times of stress.

Specific regulation, both in the US and the EU, deal with these specific risks. In the EU, financial conglomerates are subject to a group-wide solvency assessment, in order to avoid cross-sectoral double or multiple gearing. These groups' regulated entities or mixed financial holding companies also have to report on a regular basis any significant risk concentration at the level of the conglomerate as well as significant intra-group transactions. The Directive also introduces a number of organisational rules for financial conglomerates, relating to risk management, internal control mechanisms and fit and proper requirements (Dierick, 2004). In the US, the Federal Reserve Board focuses on the holding company's financial strength and stability, its consolidated risk management and its overall capital adequacy, with the specific goal of assuring the soundness of the affiliated depository institutions. Areas that are particularly important are intra-group exposures and risk concentrations. There are also some restrictions on transactions between depository institutions and their subsidiaries and affiliates (De Nicoló et al., 2004). The supervisory framework in the US is much more bank-oriented than in the EU, its ultimate goal being the safeguarding of the depository institution. Another difference is that the US regulations pose more organisational restrictions (Dierick, 2004).

Changes in regulation pertaining to institutional investors, and insurance companies in particular, may bring changes to the risks and benefits posed by financial conglomerates. For instance, the new prudential framework for insurance companies in the EU, Solvency II, will be better aligned with that in the banking sector, possibly reducing the scope for regulatory arbitrage. Second, new accounting rules and supervisory requirements may improve the transparency of financial conglomerates, i.a. regarding large exposures and intragroup relations, which may take a variety of forms. Finally, insurance companies' improved risk management practices, i.a. with a better matching of assets and liabilities, may have a positive impact of the overall risk profile of financial conglomerates. On the other hand, in case these companies increase their exposure to alternative investments with a higher risk profile, this will also have an impact on the overall risk profile of the conglomerate of which they are part.

3.5 Pension funds

Banks, as employers, are, to the extent that they provide post-employment benefits to their employees via pension funds, also interlinked with this type of institutional investors. As sponsoring companies, banks have to pay regular contributions to their pension funds and, in the case of defined benefit plans, are responsible for the sufficient funding of their pension plans compared to their liabilities.

This may give rise to potentially large cash-outflows at certain points in time. Indeed, declining stock valuations and a sustained period of low interest rates have contributed to a marked deterioration of the funding situation of corporate defined-benefit pension plans a few years ago. In response to these problems, some authorities introduced stricter solvency requirements and new accounting principles for pension funds, which made these problems more visible and aimed to reinforce the financial position of these institutions. On the one hand, these new rules, induced pension plans to increasingly invest in long-term fixed-income instruments in order to improve the matching between assets and liabilities. On the other hand, to the extent that such a movement has locked in lower returns, sponsoring companies may have to step up their contributions to ensure adequate funding. Defined-benefit pension funds may also have searched for additional yield and increased the part of "alternative investments" in their portfolio, such as hedge funds and private equity, indirectly exposing the sponsoring companies to these instruments. Going forward, a shift towards defined contribution schemes is expected however, which limits the risks for the sponsoring banks and improves transparency.

4. Conclusions

This paper analyzed the main links between banks and institutional investors. They are diverse and have become more important over the last years. Their growing importance results quite naturally from the fact that institutional investors themselves have become larger. The impressive growth of some institutional investors should not mask the fact that in terms of assets under management these investors are still small compared to banks however. Also changes in regulation and accounting frameworks pertaining to institutional investors have had an impact on the size and the nature of their links with banks.

Banks and institutional investors are traditionally linked with each other through banks' credit granting. Banks may also invest in financial instruments, such as bonds and equities, issued by institutional investors. These basic transactions have not shown particular developments in recent years and remain quite limited compared to banks' overall activities. The risks associated with these links are comparable to the risks to which banks are exposed in general. However, these links might, in times of stress, grow considerably, especially within financial conglomerates.

Next to that, the growing importance of financial interlinkages between banks and institutional investors in recent years is largely due to a number of specific developments: the growth of financial conglomerates, the development of the CRT market, the increasing links between banks and hedge funds and the banks' exposures to pension funds as plan sponsors. While all of these links remain rather small compared to banks' total activities and should not pose specific risks to financial stability per se, their rapid development and their sometimes complex nature, which may not be fully understood by all market participants, may create some concerns for financial stability.

Of the three issues mentioned above, financial conglomeration may be the most widespread and well-known. Especially in the EU, financial conglomerates already exist for quite some time and have an important market share in a number of countries, both in banking, insurance and investment services. The main risks resulting from the creation of linkages between banks and institutional investors within financial conglomerates include the potential for contagion between sectors, for agency problems within the group, for regulatory arbitrage and for double or multiple gearing. Both in the EU and the US, regulatory and supervisory measures are in place to take care of these potential problems. Changes in regulation and accounting frameworks pertaining to insurance companies may have a positive impact on the overall risk profile of financial conglomerates, as these changes may reduce the scope for regulatory arbitrage, improve the transparency of financial conglomerates and improve risk management practices of insurance companies.

The credit risk transfer market from its side is developing very rapidly, with new instruments emerging and banks' and institutional investors' activities in this field expanding fast. Although credit risk transfer mainly takes place between banks, and especially a small number of large banks, a growing number of institutional investors enter the market. Insurance companies are the most important protection buyers, but even then, the amount of CRT instruments in their investment portfolio remains very low. Although insurance companies traditionally invest mainly in the safest tranches of CRT instruments, their search for yield – which may be partly related to changes in regulation – may have induced them to invest more and in the more risky tranches of CRT instruments in recent years. More recently, also hedge funds and other, more traditional, types of asset managers (e.g. pension funds) have emerged in the CRT market. This allows for a wider dispersion of risks, increases the possibility for protection buyers to transfer credit risk, especially for junior tranches, and improves liquidity in the market. The opacity of hedge funds and the limited experience of certain players in this market may however be a point of concern. In general, the main risks related to banks' CRT activities are the creation of (opaque)

interlinkages between financial sectors, possibly giving rise to contagion, and the fact that it becomes more difficult to track risks through the financial system, which could lead to undesirable concentrations of risks in certain companies or sectors. The new regulation and accounting frameworks for institutional investors should however improve transparency and risk management with these institutions.

Banks' relations with hedge funds have also intensified greatly in recent years. Moreover, as prime brokerage services are concentrated among a limited number of large, global players, a serious mismanagement of these exposures at an individual institutions might possibly lead to a systemic crisis. Currently, demand from institutional investors for investments in hedge funds is high, potentially enhancing competition between prime brokers, which want to take part in this profitable business, and contributing to further growth of the hedge fund sector. Institutional investors' demand may be partly induced by changes in their regulation.

Finally, banks are often sponsors of pension plans for their personnel. In the beginning of the decade, declining stock valuations and a sustained period of low interest rates have contributed to a marked deterioration of the funding situation of corporate defined benefit pension plans. The stricter solvency requirements and new accounting principles that have been introduced i.a. as a reaction to these problems induced pension plans to improve the matching between assets and liabilities, reducing the risks for sponsoring companies. On the other hand, pension funds may have increased the part of alternative investments in their portfolio as a reaction to the lower returns locked in as a result of higher investments in bonds, indirectly exposing the sponsoring companies to these instruments. Going forward, a shift towards defined contribution schemes is expected however, which limits the risks for the sponsoring banks and improves transparency.

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