

## NOTES AND COMMUNICATIONS

## BANKS PROSPERED AGAINST THE ODDS. WHY?

*Summary*

This communication sketches in headlines long term developments in American and European banking. Contrary to the expectation of both practitioners and theorists in the nineties, has the role of banks in the economy not diminished but increased. This is demonstrated by the long term increase of bank credit as a percentage of GDP (resulting in a stronger growth of M2 and 3 than GDP), a growing contribution of bank sector income to GDP, growing employment (until recently) and a growing share of bank shares in total market capitalisation over the past three decades until 2004–2006. This growing share may have been induced by a comparatively superior performance, supported by a relatively high dividend yield, despite a lower-than-average price-earning ratio. Banks counteracted increased competition and disintermediation tendencies in their traditional lending business by a progressive involvement in capital markets. They developed themselves, in several functions, these markets. For this reason the often used distinction between bank-based and market-based financial systems is less meaningful. Capital markets function thanks to banks. Even more because a rapidly growing volume of new, unlisted investment instruments are constructed by banks and traded over their counter. By this development the risk absorbing and intermediating function of banks – being their basic function in the financial system – is also accentuated. The professional capability of leading banks to fulfil this basic function has in the current “sub prime” crisis come under severe criticism.

**Key words:** bank assets/M3, bank/market-based systems, bank performance, banks’ weight in market capitalisation, risk transformation, information asymmetry, bank crisis

**JEL Code(s):** G15, G20, G21

## 1 INTRODUCTION

Bank experts – both practitioners and theorists – have long suggested that the worldwide rise of a capital market based financial system should diminish the role of banks. It was even predicted that the big commercial banks would become extinct.<sup>1</sup> Are they nearing that stage? On the contrary. If one takes a longer term view it is clear that, despite the recent, much publicity drawing sub prime crisis which has hurt the stock exchange value of large banks

1 See e.g. [Canals \(1997\)](#): “The decline in the banks’ results has led many managers and industry analysts to wonder about the banks’ future. In the United States some authors have dared to ask whether banking is dead” (p. 328). See also ([Llewellyn 1999](#), Chap. 3: “Are banks in decline?”).

in the U.S. and Europe dramatically, the banking industry at large was and still is basically flourishing. This is demonstrated by the share of bank stock in the total equity market capitalisation which was distinctly increasing until 2004–2006. The economic and financial importance of banks has not lost but gained weight in the worldwide evolution from a bank based towards a market based financial system. This seems paradoxical and is not explained by the current, generally accepted paradigm of banking which defines the function of banks as information asymmetries solving, intermediating agents between savers and real investors (Freixas and Rochet 1997; Merton and Bodie 1995). In view of the information technology driven expansion of public capital markets this paradigm would rather support the extinction scenario of banks. Evidently, banks perform other activities and create more value for stakeholders than bank theorists up to now observe. Further to their traditional role as depository and lending institution banks are redirecting their business more towards facilitation and promotion of investment and financing on capital markets, both public and private. They strongly promote the flow of funds on these markets through the innovation and sale of new investment and risk instruments and through the promotion of new financing techniques.

The purpose of this communication is to sketch in headlines the growing and evolving role of banks in the economy, to explain their evolution by their progressive involvement in capital markets and to place this evolution in the context of contemporary banking theory.

The communication is structured as follows: long run developments in the banking industry are briefly reviewed, in macro economic perspective and illustrated by empirical evidence. Next, the evolving role of banks in capital markets is sketched and the present distinction between bank-based and market-based financial systems investigated. Finally, the current paradigm on the intermediating role of banks in the economy is reconsidered in an attempt to realign the paradox between theory and evidence.

## 2 LONG RUN DEVELOPMENTS: SOME EMPIRICAL EVIDENCE

There is ample evidence to support the claim that banks play an increasing role in the economy and the capital markets. This section briefly sketches long run developments in the banking industry in a macro economic perspective, illustrated by empirical evidence. These developments concern the ratio of total financial assets and bank assets to GDP, the value addition of the banking sector to GDP, employment in the banking sector, the mix of interest and other income in total bank revenue, and finally the weight of bank shares in total stock exchange value. The figures are related to the US and the EU, incidentally to the Netherlands.

### 2.1 Total Financial Assets and Bank Credit as a Percentage of GDP

The impressive growth of total financial assets (the sum of stock market capitalisation, bank credit to the private sector and domestic debt securities issued by the private sector), representing the financial system as a whole, is widely known nowadays. This growth surpasses the growth of GDP strongly. Less known is that the growth of bank assets also surpasses the growth of GDP, be it less spectacular. The often commented disintermediation tendency, meaning that bank credit is supplanted by capital market financing or financing provided by non bank financial and non-financial institutions, is a real phenomenon but its scope is of relative, not absolute importance. The following figures, derived from ECB studies and statistics, are illustrating this (Tables 1 and 2). Note that these figures even don't include private equity (unless refinanced by bank credit or via the public capital market) and non-listed investment funds! The trend is clear: bank credit grows in relation to GDP in the EU area and the growth rate is accelerating.

The same trend is visible in the United States, as we already know from studies by Barth, updated by [Allen and Santomero \(2001\)](#). They calculated that bank assets to GDP rose from 25% in 1950 to over 80% in 1998. Our own calculations point to the following figures in Table 3. Here too an acceleration of the growth rate in recent years is visible.

TABLE 1 – TOTAL FINANCIAL ASSETS AS A PERCENTAGE OF GDP

	1990–1994	1995–1999	2000–2005
Euro area	140	180	210
UK	225	280	300
US	220	400	410

Source: ECB (2006): “The performance of the European Financial System”.

TABLE 2 – BANK CREDIT TO THE PRIVATE SECTOR AS A PERCENTAGE OF GDP

	1985	1990	1995	1997	2005	2006	2007
EU (Euro area+UK+Sweden)	96	117	117	124			
UK	147	201	206	220			
Euro area sec					113	118	121

Source: ECB (2000): “EU Banks’ Income Structure”. Years 2005–2007 are derived from tables in ECB Monthly Bulletin, March 2008.

TABLE 3 – TOTAL ASSETS AT ALL COMMERCIAL BANKS (YEAR END) AS A PERCENTAGE OF GDP IN CURRENT PRICES

	1975	1980	1985	1990	1995	2000	2005	2007
US	56	56	57	57	57	62	70	78

Source: Federal Reserve System: time series.

TABLE 4 – ANNUAL PERCENTAGE GROWTH; EURO AREA

	Credit to private sector	M3	GDP (real prices)		HICP		GDP + HICP
2004	7	6	2.1	+	2.1	=	4.2
2005	9	8	1.6	+	2.2	=	3.8
2006	11	8	2.8	+	2.2	=	5.0
2007	11	11	2.6	+	2.1	=	4.7

Source: ECB Monthly Bulletin, March 2008: Euro Area Overview. HICP is consumer price index. Growth of GDP in real prices plus growth of HICP are used as proxy of growth of nominal GDP.

## 2.2 Monetary Dynamics and the Growth of Bank Credit

The growth of bank credit as a percentage of GDP is reflected in the growth figures of M1, M2 and M3, which also exceed the growth of GDP strongly in recent years in the EMU. Although the growth of bank credit to the private sector can differ widely from the growth of M3 in individual years, the long run parallel is striking, especially since 2004. This is not surprising taking into account that bank credit, together with a balance of payments surplus, is the main source of M1-2 growth. The growth rates of bank credit and M3 are clearly exceeding the growth of GDP in these years, as can be seen in Table 4.

The excess growth of bank credit and M3 over GDP creates an increasing “money gap”. The “money gap” indicates the difference between the level of M3 and the level needed for non-inflationary growth. A large part of this “money gap” reflects, according to the Annual Report 2005 of the ECB, temporary higher liquidity holdings as an effect of portfolio readjustment by investors on the capital markets.<sup>2</sup>

The “money gap” is an important indicator of liquidity potentially destined for investment on the capital market; when stock prices are rising the money will be used again for reinvestment. As the liquidity is held with banks

2 See graph 9 on page 35 of Annual Report ECB 2005 (ECB 2006).

the “money gap” is also an important indicator of the supportive role of banks to the capital market. In previous years, 1999 and 2000, an opposite movement took place: bank credit was growing stronger than M3. This may have indicated – in the absence of a EMU balance of payments deficit – a building up of capital market investments with bank credit; the “money gap” was low at that time. Bank credit growth exceeding M3 growth and M3 growth exceeding nominal GDP growth are therefore presumably important signs of a deep involvement of banks in capital markets, supplying them with massive financing of capital market investments.<sup>3</sup>

### *2.3 Bank Sector Income as a Percentage of GDP*

The more than proportional increase of bank credit, in comparison to GDP, does not imply a parallel increase of bank sector income as a percentage of GDP because the margin on assets earned by the banks decreased. This margin (interest plus non-interest income, as a percentage of total bank assets) decreased from 2.90% to 2.78% over the years 1995 to 1998 in the EU (EU Staff Report, 2000). This decrease is sizeable over 4 years time, but the 7 percentage points increase of bank credit to GDP over the same period (see figures above) overcompensated the loss, resulting in a slight increase of 0.05% of bank sector contribution to GDP during these years. In its 2005 Annual Report the [European Central Bank \(2006\)](#) underlines the prominent place of services in the sector composition of GDP in the EU countries.<sup>4</sup> Not less than 27% of GDP is related to financial and other services. This percentage is, according to the study, growing over time: on average 0.7% each quarter during the period 1991 to 2005, compared to 0.5% growth of total GDP. Unfortunately the study does not specify financial services in the services component, nor banking in financial services, but it seems reasonable to assume that banking did take its share in the relative growth of the services component. This conjecture is also based on the approximation calculated in Table 5.

Real estate is of course the confusing element in the figures above, but nevertheless do they feed the impression that financial intermediation is gaining ground in GDP. It is unfortunate, and also surprising, that Eurostat does not publish a full specification of the sector composition of GDP of the Euro and EU area.<sup>5</sup>

3 [International Monetary Fund \(2005\)](#) has made a comparable analysis in “Global Financial Stability Report 2005” and also observed for the G7 countries (except Japan) a considerable growth of excess liquidity held by the private sector.

4 In a separate box on pp. 61–64.

5 Neither the OECD publishes figures on bank sector income of the member states, but they do on total financial sector income. These data show moderately varying percentages in recent years (4.5 to 4.9% in 2001 to 2004/5) for the most important continental European countries: France, Germany, Italy, Spain, with a fairly constant trend over this period. In contrast to

TABLE 5 – EURO AREA: GROSS VALUE ADDED OF FINANCIAL INTERMEDIATION, REAL ESTATE, AS A PERCENTAGE OF GDP (AT MARKET PRICES)

1995	22.1
2000	23.6
2005	24.8
2007	25.0

Source: ECB: Statistical Data Warehouse.

TABLE 6 – UNITED STATES: COMPOSITION OF GDP BY SECTOR, IN PERCENTAGES

	Banks	Finance and Insurance
1998	3.2	7.3
2000	3.2	7.5
2001	3.6	7.7
2002	4.0	7.9
2003	4.1	7.9
2004	3.8	7.8
2005	3.8	7.7
2006	n.a.	7.8

Source: Bureau of the Census.

The relevant figures for the US are easier to find (Bureau of the Census, see Table 6). From statistics of the composition of GDP by sector the following percentages of contribution of the banking industry and financial services (including banking) to GDP can be derived. Remarkable is the strong growth of the banking percentages between 2000 and 2003. In these years the stock exchange was still depressed; on the other hand, the banking industry might have been less influenced by the sluggish economy in these years than other industries.

For the Netherlands too the value addition of banks to GDP can be derived from national statistics (Table 7). Between 1988 and 2005 the value addition to GDP by all Dutch industries increased 123%, by banks: 156%; (the value addition by insurance companies and pension funds even 233%). So, the Dutch picture resembles to the US, showing a light cyclical but in the long run distinctly growing contribution to GDP. In the Netherlands

Footnote 5 continued

continental Europe a distinct upward trend is to be seen in the UK (4.8% in 2001, 7.4% in 2004), in the US (see the figures in Table 6 of the US Bureau of the Census; the OECD figures are identical) and also in the Netherlands (6.2% in 2001, 7.4% in 2004).

TABLE 7 – NETHERLANDS: VALUE ADDED BY BANKS TO GDP (IN PERCENTAGES)

1988	3.7
1990	2.8
1995	3.7
1998	3.2
2000	3.4
2001	3.4
2002	4.0
2003	4.3
2004	4.4
2005	4.3

Source: CBS.

the banking and insurance industries might have profited from the relative favourable fiscal treatment of pension savings and private mortgage lending.

It should be noted that the interpretation of a growing level of bank sector income in GDP is ambivalent. The *direct* effect is undoubtedly positive: a higher bank sector income is directly translated into higher GDP. But from the viewpoint of *efficiency* of the banking system a high sector income might be interpreted as having a negative impact on economic growth, as the high income level may be gained thanks to imperfect banking markets allowing for high interest margins; high margins obtained by “fat” banks unduly hamper GDP growth (Diamond and Rajan 2001). But interest margins are continuously shrinking during the past decades, due to stronger competition in liberalized banking markets. So, this argument is losing relevance, if ever it was relevant.

#### 2.4 Bank Employment

Eurostat has not yet published recent yearly figures for the EU as a whole. Over the period 1998 to 2001 the total number of persons employed in banking in the Euro area increased slightly, from 2.15 million to 2.22 million. It might be assumed that this number fell slightly in the years afterwards as costs reducing interventions by banks’ management became more severe in the years after 2001. It is noteworthy that in the largest continental EU countries employment in banking remained fairly stable, or decreased only slightly, over a fairly long period of time (Germany, France, Spain: 1994–2000) and even increased in Switzerland, the Netherlands and the UK, the last one being the most important capital market based country in Europe (same period 1994–2000).

For the US the Bureau of the Census does not publish separate figures of bank employment, only of finance and insurance combined. Employment of

these industries together rose from 6.6 million in 2000 to 7.0 million in 2005 (4.9% and 5.0% of total labour force). Note the relatively high and slightly increasing labour productivity, comparing these percentages with those of the sector contribution to GDP.

Dutch bank employment figures are available over a fairly long period (CBS). In 1987 132,000 persons were employed in banking (2.1% of total labour force), in 2005 156,000 (1.9% of labour force). The number peaked in 2001: 170,000 (2.0% of labour force).

### *2.5 Composition of Bank Income*

We noticed already that the strong volume growth of bank credit is not fully reflected in the growth of net interest income, as increased competition in the industry and from other financial and non-financial institutions, has put the interest margins under severe pressure. Several studies by IMF, BIS, ECB and central banks have illustrated this. Moreover, part of the interest margin is a result of the so called mismatch (the duration arbitrage implied in borrowing short and lending long). The flattening of the yield curve in recent years restricted the profitability of mismatching and is an additional force pushing down the interest margin.

The causes behind the increased competition can be summarised under the heading: disintermediation and liberalisation. Large companies found their way to capital market financing instead of bank credit (sometimes through their own financing company) and insurance companies set up their own mortgage lending and saving schemes. The opening of national borders, ordered by liberalisation and deregulation measures, intensified cross border competition in the upper segment of traditional bank lending. Banks formulated answers to this volume- and margin-erosion along three policy lines: conglomeration, internationalisation and extended penetration on capital markets. Conglomeration meant briefly mergers between banks and insurance companies to reach economies of scale and scope mainly in the retail market. Examples of bank-insurance combinations have remained scarce. Their success in terms of value added by the combination is very limited and unbundling already happens (Credit Suisse/Winterthur).

Internationalisation turned out to be a long affair for most banks and only really successful for a handful of them.<sup>6</sup>

6 See Slager (2006);, p. 9: "Internationalization for banks as a group produces doubtful results for bank profitability and shareholders. Foreign profitability is on average lower than domestic; an increase in internationalization therefore lowers total profitability. Also, foreign banking activities do not improve stability of earnings. Geographical diversification benefits were not observed for the total banking organization. A small group of banks succeeds though".



The most successful answer to the increased competition in the traditional banking business was certainly the intensified penetration of the banks on the capital markets. This is clearly illustrated by their other income revenue. A study by the [European Central Bank \(2000\)](#), called “EU Banks’ Income Structure”, reports that the relative importance of non-interest income increased as a percentage of their total operating income throughout the whole observed period 1989 to 1998. In the latter part of this period, 1995 to 1998, there was a noteworthy increase from 32% to 41%.<sup>7</sup> Non-interest income, expressed as a percentage of total assets, largely compensated the decline of the interest margin. Over the whole observed period this margin declined, in particular in 1995 to 1998 when it came down from 1.96% to 1.63%. By contrast, the non-interest income to assets ratio increased from 0.94% to 1.15% and thus compensated the decrease of the interest margin of 0.33% by 0.21%. From a later study by the [European Central Bank \(2006\)](#) it can be derived that the interest margin further declined by 0.35% and the non-interest ratio further increased by 0.2% during 2000 to 2003.<sup>8</sup>

A dominant part of non-interest income is capital market related. Non-capital market related revenues are commissions for credit guarantees, documentary credits, national and international payments and foreign exchange transactions. These commissions grow slower than capital market related income like commissions for securities transactions ordered by clients, corporate finance advisory fees, underwriting and sales fees and, above all, proprietary securities trading. The ECB study does not provide a split up in capital market and non-capital market income but specifications in the study give ground to the supposition that around 75% of non-interest income is market related (1993–1998) while the rest is not, and that the market related component is cyclically growing.

Big retail banks like Citibank, Deutsche Bank, Dresdner Bank, BNP managed to broaden their capital market business quickly by buying British and American investment banks. The EU program of deregulation of banking and liberalisation and harmonisation of capital markets, initiated in the early nineties, together with the introduction of the Euro in 1999/2001, helped them strongly to unfold this new orientation. The upsurge of stock markets and gradual decrease of interest rates since the early eighties stimulated the market orientation too. Liberalisation of the financial markets went hand in hand with privatisation of government owned companies in many European countries. This too created big business. Mergers and acquisitions became booming. This all resulted in initial private offerings, market consolidation of take-over financing, proprietary trading, new investment funds and

7 The Annual Report of De Nederlandsche Bank reports on p. 120 that in twenty years time interest income decreased from 70% to 50% in favour of other income.

8 Charts 32 and 34 in [Hartmann et al. \(2006\)](#).

over-the-counter trading of derivatives becoming important spearheads of banks' business in a very short period of time.

### 2.6 *Weight of Bank Shares in Total Stock Exchange Value*

Figures on the long run development of bank profits in the EU and the US, in relation to total corporate profits, are not available on macro level. But as far as profits are reflected in the stock exchange value of listed companies the value of banks can easily be related to the value of all listed companies. Calculation of the weight of bank shares in the total market capitalisation gives an important, and also a surprising, insight in the increasing importance of banks in investment portfolios in the long run.

In the US the weight of bank shares (commercial banks and investment banks taken together) in total stock market capitalisation has increased spectacularly, from 1.8% in January 1973 to 6.9% in January 2008 (Table 8). All figures are also illustrated in charts in the Appendix. The source is Datastream with 1973 the first year available. In Europe the weight of bank shares started higher: 9.1% in January 1973. This is understandable in view of the more bank oriented character of the European financial system and, related to this, the relative smaller aggregate size of capital markets in Europe. Here the weight of bank shares also increased, to 15.8% in January 2008. That means, in percentage points even more than in the US, but in a relative sense somewhat less.

TABLE 8 – WEIGHT OF BANK SHARES IN TOTAL MARKET CAPITALISATION IN THE UNITED STATES AND THE EURO AREA, IN PERCENTAGES (JANUARY AND DECEMBER)

	US	Euro area
1973	1.8–2.1	9.1–9.3
1984	2.1–2.4	8.9–8.2
1989	3.6–3.5	10.2–10.1
1990	3.5–3.0	10.2–10.7
1992	4.4–5.2	10.3–11.3
1999	8.0–6.3	15.1–14.6
2000	6.4–7.3	13.6–15.4
2004	9.9–9.6	18.1–18.8
2006	8.7–9.0	18.8–18.8
2007	8.9–6.5	19.1–16.4
2008	6.9	15.8

Own calculations; Source: Datastream.

The upward trend in the weight was far from straight-lined, however. The most important movements can be summarized in Table 8.

The fluctuations around the upward trend line had different causes over time, most likely both sector-intrinsic (bank crises, interest rate and yield curve movements, stock market volume fluctuations) and macro-economic. During recessions bank shares are more attractive because of their high dividend yield; during upswings shares of growth oriented companies are more popular. The strong downturn in the weights in 2007, both in the US and Europe, is a spectacular result of the current bank crisis. The downturn continued in 2008.

Europe roughly followed, with some delay, the US development of stock market weights. The weight was rather steady, fluctuating mostly between 9% and 10% from 1973 until 1992, whereas it was steady too in the US, fluctuating around 2% and 3% until 1990. A “take off” happened after these years, with an interruption in 1999/2000, to around 10% in the US (mid 2003–August 2004), and 19% in Europe (mid 2006). In Europe like in the US bank stock prices are falling stronger than the market recently, under influence of the bank crisis.

Considered over the long run, the upward trend in the weight of bank shares in total market capitalisation demonstrates a fluctuating but unmistakably positive shift of investors’ preferences towards bank shares. What could be the reason for this shift? An obvious explanation could be that the performance of bank shares made them gradually more attractive in comparison to other shares. This hypothesis is, perhaps surprisingly, supported by facts in the US for the full period and, later, also in Europe. In the US the total return to investment (= share price increases plus dividends ) increased over the whole period 1973–2007 more on bank shares than on total stock. This is expressed by the ratio of bank share return to total market return. This ratio climbed from 1.0 in 1973 (first calculated year) to 1.5 in 1986 and further to 2.0 in 2003, with two drops to 0.8 and 1.0 respectively in 1990 and 2000. Recently the ratio declined again, to 1.5 (See charts in Appendix). A view on the charts reveals immediately the very close connection between bank shares weight and the return ratio in all years; when the return ratio went up the bank shares weight went up, and vice versa.<sup>9</sup>

In Europe the bank/market return ratio declined between 1976 and 1992 to about 0.6, but moved up again to 0.95 in 2007. Here too, all fluctuations in the return ratio are reflected in weight fluctuations, be it that before 1992 downward fluctuations in the return ratio are weakly translated in downward weight fluctuations and after that year upward return fluctuations strongly in

9 Note that in a static equity portfolio a ratio bank/market return > 1 automatically leads to an increasing weight of bank shares in the total portfolio, assuming full reinvestment of dividends.

upward weight movements. This asymmetry is striking. It is clear that the take off of the weight from 10% to 19% after 1992 was supported by the recovery of the return ratio.

Dividend yields are part of total returns on share investments but play a separate role in investors' preferences. Dividend yields on bank shares in the US distinctly exceed those of the stock market as a whole and the excess grew over time: from 0.5% in 1973 to 2% in 2007. In Europe bank dividend yields were lower than the market in 1973 but exceeded the market since 1983. The ratio dividend yields banks/market increased in the US from 1.3 in 1973 to 2.2 in 2007 and in Europe from 0.8 to 1.3. There was an extreme peak in the ratio in 1999, both in the US and Europe, indicating the extraordinary decrease of dividend yields on other-than-bank shares during the peak of the "bubble". It is conceivable that the increase of the dividend yield ratio over time in both the US and Europe has favoured the increase of bank weights in total stock investment.

Price-earning ratios of banks were over the period on average lower (around 11; investment banks 14) than of non-financials (around 17). The difference in p/e ratios between the two categories was fluctuating during the years, sometimes sharply in favour of other shares (strong market growth) and sometimes sharply in favour of banks (strong market decline). In the US the p/e ratio banks/market fluctuated in the range 0.6–0.8, with sharp exceptions in 1987 (upward) and 2000 (downward). In Europe the ratio developed along similar lines, on the level 0.8 since 1988. A ratio below 1.0, indicating a relative lower p/e level for bank shares, points to a higher risk premium required by investors, in accordance with a higher volatility of bank shares than of other shares. It is noteworthy that the bank/market p/e ratios in the US and Europe did not move upward on the long run. They therefore do not help to explain the increasing bank weights over the long run.

Houston and Stiroh (2006) found that over the period 1975 to 2005 financial sector volatility has steadily increased, reaching extraordinary levels from 1998 to 2002. Our chart (see Appendix) of the ratio bank/market volatility (calculated on the basis of monthly averages of stock prices) shows that also before 1998 extreme peaks appeared in the US and that in Europe, after the last peak in 1998, bank volatility calmed down to near average levels in more recent years. Some short periods excepted the bank/market volatility ratio was above 1.0 (in most years in the range of 1.0–1.5) in the full period 1973–2007, both in the US and in Europe, in accordance with the low p/e ratio.

### *2.7 Summary of Empirical Indications*

Despite the often cited increasing pressures on the traditional deposit taking and lending business of banks, due to disintermediation by non-bank institutions and by increasing financing/ investment via capital markets, the banking

industry has not shrunk. Not in the US, nor in Europe. On the contrary, the banking industry expanded steadily and consistently over the past decades. Bank credit grew faster than GDP, as did bank sector income of GDP in the US and the Netherlands. Lack of statistics prevented to conclude this for the EU as a whole, where it is certain that the total services component of GDP is relatively growing. The financial services part is growing too in the UK, being fairly stable in the largest continental countries. Bank employment also grew until recently, or decreased only slightly.

Most striking is the spectacular growth in popularity of bank shares in investment portfolios since 1973. This growth seems to have been driven by a market exceeding growth of total return to equity over the whole period. The expansion of banking was not stopped by, but went hand in hand with, the expansion of the capital markets and had undoubtedly to do with the deep involvement of banks in capital markets, as will be amplified below. The parallel instead of contradictory evolution of banks and capital markets sheds another light on the discussion on the structure of the financial system, especially on its evolution from being bank based to market based.

### 3 THE ROLE OF BANKS IN CAPITAL MARKETS

The strong growth of bank credit to the private sector during recent years, exceeding the growth of nominal GDP, together with the strong growth of the “money gap”, demonstrate how important bank credit has become to the capital markets, especially the stock exchanges, and how equally important bank deposits, containing “precautionary” and “speculative” money according to Keynes’ nomenclature, have become. This importance for the markets could perhaps be roughly characterized by the observation that every excess percentage growth of bank credit above the growth of nominal GDP – that means real GDP growth plus inflation of real products and services – is blowing liquidity into the financial economy. This leads to price inflation of financial assets traded on capital markets to the degree that the excess liquidity is not absorbed by new financial assets, created through the issue of new financial titles in public and private markets. Anyhow, the (potential) liquidity in the capital markets resulting from the relatively high growth of bank credit and deposits, has become massive. The sizeable increases of the ratio of bank credit to GDP and of M3, as presented above, illustrate the magnitude of this phenomenon.

The provision of liquidity is, as is well known, not the only service banks deliver to capital markets. Underwriting of new issues and securities brokerage were historically the exclusive domain of investment banks and securities brokers, but universal banks have, particularly after they took over the majority of securities brokers and investment banks, an overriding share in this business, at least in Europe. And this business is growing at an accelerated

pace. The volume of initial private offerings has grown tremendously and so did the underwriting fees; mergers and acquisitions show the same eye catching development and so do the advisory fees. On the liquidity side banks often provide large financing for takeovers, mostly when they also act as advisors. This has got an even bigger dimension since private equity funds are worldwide taking interests in corporations on a large scale. These participations are massively financed by bank credit, partly or fully paid back by a super dividend of the newly acquired company (which often needs credit to finance the dividend!). Although no figures are published, or can be derived from bank annual reports, on credit extended to private equity funds or, in general, on credit for financing corporate take-overs, it must be assumed that banks have managed to find ample compensation for their relative loss of corporate credit volume to corporate financing via capital markets. They continue to provide back-up credit lines to corporations and they finance the capital market operations of other financial institutions like private equity funds. Just like interest margins on credit, the commissions on securities brokerage eroded. Here the growing market power of institutional investors changed the rules of the game. Complete disappearance of commission on large orders and on block trading forced the banks into proprietary trading, that means trading for their own account. Underwriting and proprietary trading have made the capital market business of banks both more remunerative and more risky. This is reflected in "other income". During episodes of more than average GDP growth and declining interest rates/inflation expectations "other income" is booming; in the reverse situation "other income" falls back, be it that the base revenues in this item, comprising both banking and securities commissions, provide a fairly stable minimum.<sup>10</sup>

Noteworthy too is that innovation of capital market instruments mostly emanates from banks. Banks played a prominent role in the development of new corporate finance instruments like convertible bonds, reverse convertibles, equity linked bonds, warrants, subordinated debt, mezzanine finance etc. They developed project finance, which means stand alone finance without recourse to initiating companies. They developed lease financing structures, which are also applied now by institutional investors for their investment purposes. They securitize packages of private mortgages, receivables, lease portfolios etc. for investment by other institutional parties and thus create new markets for private investment. Securitization has now become part of their solvability and liquidity management. Banks developed a broad spectrum of investment funds, both listed on stock exchanges and unlisted. They lead the innovative process towards complete new investment instruments like real estate notes, protected equity funds and funds of funds (mixed equity/fixed income; hedge funds with different investment policies). More recently they developed CDO's

10 See the earlier quoted ECB study (2000, p. 6).

(Collateralized Debt Obligations): corporate bond funds with differentiated risk profiles, making use of credit default swaps.<sup>11</sup> Within a very short time span the volume of these constructed, new investment instruments reached a staggering high level, now potentially impairing the stability of the financial system. The more so because the ownership of these new titles – when placed in *conduits* in which the creating bank keeps a minority shareholding in order to avoid balance sheet consolidation – is far from transparent.

The construction of these new products adds to the other income item of banks when placed with institutional and private investors directly or via conduits and other special investment vehicles or adds to their interest income when held on their own balance sheets. But the *inherent* lack of transparency of these products, in conjunction with them being traded exclusively on informal markets outside the official stock exchanges, with ratings by rating agencies as sole anchor for the pricing, and no public information available on prices and traded volumes, now turns into a major set back for these products. Their unknown volume leaves open any reliable knowledge about the size of these bank made investment instruments in relation to the conventional capital market instruments, and leaves also open the present commitment of banks to these instruments. This backfires on public confidence in the banking industry – its most precious asset – as it experiences now.

Not all financial product innovation comes from banks. The stock exchanges cooperated with banks in developing stock exchange listed finance instruments and the derivatives exchanges contributed milestones to innovation by creating market platforms for standardized options and futures on stocks and bonds. But over-the-counter options on equity and interest yield curves are tailor made inventions by banks. The same is true for the newest over-the-counter market: that of credit default swaps and other credit derivatives. This new market, originally developed by JP Morgan some ten years ago, has nearly doubled every year during the last five years and has reached the size of 26 billion US dollars in the second half of 2006.<sup>12</sup> Credit derivatives are now on the brink of being introduced on public exchanges. All these new private markets now compete with the public derivatives markets in importance for the financial system.

It should also be noted that private funds investing in ships or real estate, mostly making use of certain income tax advantages, are notable examples of non-bank innovations.

It is remarkable that other financial industries like (not bank-linked) investment fund managers, insurance companies and pension funds, did hardly

11 See Llewellyn (2008), “Financial Innovation and the Economics of Banking and the Financial System” (Introductory chapter, to be published), for an overview of financial innovation in the nineties and its impact on the efficiency and stability of the financial system.

12 *Financieele Dagblad* April 7, 2007; DNB’s Annual Report (2007, p. 121); DNB (2008).

contribute to the development of new financial market instruments. They are mostly users, not inventors of financial instruments and copiers of new investment structures invented by banks.

The growing involvement of banks in the spectacular development of capital markets – reflected in the change of their activities and composition of their revenues – obviously had a strong impact on the character, strategic priorities and organisation of the banking industry. Not all banks, however, concentrated on capital market business or they retreated partly because of the specific risks and volatility of that business. Many wisely preferred to concentrate on traditional banking services and to capitalise on their regional client base. Others decided not to be active in all capital markets with all investment banking services. It is, after all, a not very large, but leading force of big US investment banks and big US and European universal banks that initiated a very powerful support and innovative stimulus to the capital markets on a world wide scale.

Historically, banks have always facilitated, as brokers, the functioning of capital markets. Nowadays banks act as brokers as well as financiers, proprietary dealers and inventors of new investment products. They now are an integral part of capital markets. As inventors, dealers and financiers of products on the over-the-counter market they essentially condition the development of capital markets, including these markets in the systemic risk of the banking industry, as we are discovering today.

Blommestein (2006) has painted a colourful sketch of the fundamental changes in banking in the past and near future in his inaugural address to the Tilburg University on 25 November 2005. In his concluding remarks he argues “that a new hybrid type of banking system is emerging, with both strong links to capital markets and a renewed emphasis on competency-based relationship banking. In this new type of banking system, called a *relationship-cum-market-based banking system*, financial engineering and the integration of products and services from outside suppliers will play an even greater role than before”. He considers it likely “that based on our long-term vision of the future, financial systems from all jurisdictions will be dominated by new and complex links between banks and capital markets”.<sup>13</sup>

#### 4 BANK-BASED VERSUS MARKET-BASED

Since the pioneering work of Goldsmith on the structure of financial systems there was a long silence on this topic until during the end of the nineties and in the early years of the present century a group of researchers (Allen and Gale, Demirguc-Kunt, Levine, Beck, Huizinga and others) reopened the discussion on the question which type of financial system: bank-based or

13 SUERF Studies 2006/2, pp. 37, 57–58.



market based, would be most conducive to economic growth. Thanks to their theoretical analysis (mostly Allen and Gale) and their extensive empirical investigations this question is clearly settled.

Demirguc-Kunt and Levine (1999) classified the financial system of 150 countries on the basis of a conglomerate ratio of banking sector development versus stock market development. They also classified these financial systems as highly developed versus underdeveloped. They found that: (1) financial systems (the totality of banks, institutional investors, stock and bond markets) are on average more developed in high income countries; (2) national financial systems become more market oriented as they become richer; (3) countries with an Anglo-Saxon law tradition, strong protection of shareholder rights, good accounting regulations tend to be more market based, whereas countries with a French civil law tradition, poor market- and protection-oriented bank-regulation tend to have underdeveloped financial systems. The importance of a sound contracting system and regulatory environment for development of the financial system, be it bank-based or market-based, is stressed (Demirguc-Kunt and Maksimovic 2002). The authors also found that countries do not grow faster in either market-based or bank-based financial systems, but that economic growth is higher in countries with higher levels of overall financial-sector development.

Levine (2002) summarized the outcome of the research as follows: “This view minimizes the bank-based versus market-based debate and emphasizes the quality of financial services produced by the entire financial system .... Distinguishing countries by financial structure (bank-based or market-based) does not help in explaining cross-country differences in long-run economic performance. Rather, ... distinguishing countries by their overall level of financial development helps to explain cross-country difference in economic growth. Countries with greater degrees of financial development – as measured by aggregate measures of bank development and market development – enjoy substantially greater growth rates”.

The outcome of the research provides empirical evidence on competing theories of financial structure: the bank-based view highlighting the positive role of banks as financial intermediaries by acquiring information about firms and managing risk, thereby enhancing investment efficiency and economic growth, versus the market-based view highlighting the growth enhancing role of well-functioning markets by effectively transmitting information to all investors, not hampered by powerful banks that extract informational rents and protect established firms with close bank-firm ties from competition. The research endorses neither of these views; it endorses the so-called financial services view, as formulated by Merton and Bodie (1995) and Levine (1997). This view minimizes the importance of the bank-based versus market-based debate and stresses that the whole context of financial arrangements – markets, institutions, legal and regulatory environment

– should and can be conducive to ameliorate market imperfections. According to this view, the main issue is not banks *or* markets. The issue is creating an environment in which intermediaries *and* markets provide sound financial services. The financial services view places the analytical spotlight on how to create better functioning banks *and* markets, and relegates the bank-based versus market-based debate to the shadows (Levine, 2002).

The financial services view also resounds in the authoritative study “Comparing Financial Systems” by Allen and Gale (2000). They analyzed the history of the most important national financial systems and opened theoretical insights into the differences of the various systems. One of their main arguments is “that financial institutions, intermediaries and firms, solve market failures and compensate for the limitations of financial markets”. Their analysis is focussed on market imperfections and the need for intermediary parties and market governance to overcome these imperfections. In most of the chapters the functioning of banks and other intermediaries in capital markets is analysed, but only from the viewpoint of removal or compensation of market imperfections; no allusion is made to the intrinsic contribution of banks to the functioning of the markets as such.

This is our main argument in this debate: the supposed antithesis between bank-based and market-based financial systems is not realistic as in market-based systems capital markets are developing *thanks to* the facilitating and innovative support by the banking system. As we have argued above, there are inextricable ties between banks and capital markets; the growth of capital markets is, particularly in recent years, strongly pushed by banks. Therefore, it would be better to speak of “bank-oriented” and “market-oriented” financial systems, or “bank-dominated” and “market-dominated” systems, as market-based systems are bank-based in many respects and owe their evolution largely to the market orientation that banks have taken.<sup>14</sup>

Recent research also bypasses, in line with Merton and Bodie’s functional approach, the distinction between bank- and market-based financial systems, by focussing on the *quality* of the system measured by its impact on productivity and growth of GDP. By quality of the financial system is meant the efficiency of banks, the level of bank competition, capital market organisation and liquidity, transparency, shareholder and creditor rights, ownership structures, corporate governance etc. (Hartmann et al. 2006). Access of small

14 David T.Llewellyn (op.cit. p. 34) comes to a conclusion in the same direction: “In many ways, new financial instruments (especially those focussed on shifting credit risks) have changed in a fundamental way the underlying economics of banking. As part of this the traditional formal distinction between bank and capital market intermediation has tended to become less pronounced”.

and young innovative companies to external finance sources draws attention (Bena and Jurajda 2007). More generally, the question to what extent and in particular, how financial development and deepening of the financial system fosters macro economic growth and to what extent this process is nation specific, maintains central attention (Rousseau 2007; Wachtel 2007). Research on the central “causation question” (does the financial system promote economic growth or does economic growth promote the financial system?) got a major stimulus by the authoritative cross-section study by Levine (1997). See also Fase (2000) and Fase and Abma (2003). Banks have, through their close ties with capital markets, strongly benefited from the spectacular growth of these markets, both in their “other income” revenues and in their market related interest income. Their involvement in capital market business is the main reason why banks were prospering, against the odds.

## 5 BANKING THEORY: A NOTE ON THE PARADIGM OF BANKING

### 5.1 *Forgotten and Present Paradigms*

It took a long time – effectively until the fifties of last century – before the money creating function of banks (already determined by Hawtrey in 1919 and Hahn in 1920<sup>15</sup>), instead of their merely being intermediaries between savers and investors, was generally accepted and codified as a basic paradigm in the “canon” of monetary analysis and policy. Since then, the liquidity creating function of banks seemed so obvious that it did not even get a place in a next banking paradigm which emerged, in the 1970’s, as a specification of the agency theory and the theory of transaction costs (Akerlof, Diamond, Stiglitz and many others). In this paradigm *asymmetric information* is the keyword for explaining the role of banks. This new, neoclassical approach took the viewpoint of market imperfections. Financial markets are not transparent. Therefore, the prime function of banks is to bridge information asymmetries between savers and (real) investors. Banks act as agents between these parties. Monitoring debtors on behalf of a coalition of savers, avoiding adverse selection and moral hazard, these are the key activities of banks, which they perform via acquired (captive) information on debtors against transaction costs at efficient scale levels. These justify the transaction costs of the bank as a firm according the theory of the firm. In the new theory of financial intermediation banks act as agents in imperfect financial markets. More or less forgotten was that banks create liquidity through risky credits, which worries central banks for monetary and systemic reasons and justifies minimum solvency requirements for banks. In the new theory banks act as intermediating agents and do not need much capital because “fat” banks would

15 de Roos (1968), pp. 11–12.

dominate the market and consequently aggravate market imperfections (Diamond). Bank regulation leads to imperfect functioning financial markets and must be weighed against this disadvantage.

For about three decades the information asymmetry approach provided a rich variety of insights in the behaviour of banks in the credit and deposit markets in different market structures and in situations of monetary tightness or affluence. A micro economic theory of banking was constructed (Freixas and Rochet 1997). The banking industry as institutional target of monetary policy was investigated, making use of information asymmetry concepts, in order to test the effectiveness of monetary policy. A drawback was, however, that the information asymmetry approach of bank policies was well suited for econometric modelling but in many cases less for empirical verification. And the accumulation of incidental analyses of agency problems under information asymmetry, mostly based on anecdotal evidence, buried the central question what the basic function of banks in the economy is. Moreover, asymmetric information as *the* central paradigm of banking runs into the paradox that, thanks to the blessings of the information and communication revolution, information about markets and companies is readily available and verifiable, everywhere and real time, and thus less asymmetric. Nowadays, Akerlof's (1970) "lemons" get ratings by public rating agencies! So, taking asymmetric information as the central paradigm of banking logically supports the extinction scenario of the banking industry.

Do we see signs of nearing extinction? Do we see that the banks, thanks to abundant availability of information, are bypassed by open financial markets where savers meet investors directly? In a relative sense, yes. But in absolute figures banks are flourishing, and growing like they always did, in terms of asset growth, value added to GNP and stock exchange value, as we have demonstrated above. Allen and Santomero (1998, 2001) and Scholtens and Van Wensveen (2000) pointed to this paradox and supposed that another basic force drives banking and might better serve as a central paradigm: risk transformation.<sup>16</sup>

## 5.2 Risk Transformation

Despite the formidable growth of investment instruments traded on public capital markets bank credits and deposits are growing as well. This indicates that depositors want to shield a certain part of their savings against the volatility of public markets. And they want secure, liquid titles. Banks offer both. The sacrifice of depositors is lower interest, their gain is security and liquidity, backed by banks. In the CAPM of savers the low side of the investment spectrum mainly consists of bank investment instruments, not of

16 See also Scholtens and Van Wensveen (2003).

traded market instruments. Real investors, on the other side, do not all have an entrance ticket to the public capital market. That relates to the innumerable number of small companies which as a group form the backbone of the economy, and the innumerable number of private persons who want financing for their house and for other durable consumption goods. Both categories remain dependent on banks, which implies that banks keep, both on the asset side and the liability side of their balance sheets, a substantial piece of the strongly rising financial cake. The transformation of deposits into credits is risky in many respects (duration, counterparty, sovereign, currency risk, to mention the most important ones). Therefore, risk transformation is the heart of a bankers business and risk management is the central focus of his attention. Risk management is now accepted as the central theme in recent textbooks on banking (e.g. [Cornett and Saunders 1999](#)) and has got its proper place in training courses (also to the satisfaction of bank supervisors!).

The risk transforming function of banks has got an even more prominent meaning because the world economy has become substantially more risky since the early 1970s. The blowing up, by the U.S., of the Bretton Woods system of fixed exchange rates in 1971, the oil crises in 1973 and 1979 followed by balance-of-payments crises in Latin America and Asia, and the Russian political upheaval in the end of the eighties can be considered as the most important idiosyncratic shocks that triggered a situation of much higher inflation, initially sky high interest rates in the U.S. to combat inflation, sovereign payment crises in large developing countries and strong price fluctuations on the stock exchanges. Interest rate risk, stock market price risk, sovereign and credit risk became much more important than before. All financial institutions were challenged to improve their risk management procedures and to apply new instruments to cover the increased risks by spreading them over markets and in the time. These new instruments (interest and currency swaps and options, futures, FRA's) were originally developed by banks and later partly, in standardized form, taken over by public exchanges. Now two circuits exist for these products: standardized contracts, mainly futures and options, traded on exchanges, and a fast growing over-the counter market (mainly interbank) for tailor made risk instruments. In recent years credit risk instruments, like credit default swaps and real or synthetic credit risk securitization, joined the existing products and show a steep rise.

All these instruments were essentially new because they embody a pure risk transferring, not a finance or investment function. Because they imply a (potential) future right or obligation they are booked off-balance. The new instruments were primarily developed by banks to serve the needs of corporate and institutional clients for risk coverage. To limit their own net obligations banks started a fast growing interbank/inter financial-institution market. This over-the-counter market reached in June 2006 the tremendous amount

of about 370.000 billion US Dollars, nominal value (BIS, quoted in Annual Report 2006 of DNB (2007)).

All this implies that in only a few decades time the risk transformation function of the banking industry has acquired an even more important place in the financial intermediation process than it originally had via the traditional in-balance business. So, not surprisingly, risk versus reward is now the most important consideration of bank managers. Administrative systems and ict systems are being remodelled around these key variables. Raroc (risk adjusted return on capital) has become the guiding measure for every bank activity.

### 5.3 *The Functional Approach*

Considered from Merton's six underlying financial functions which form the core needs served by the financial system the banking industry still fulfils *all* these functions or provide essential services and instruments for their fulfilment by capital markets. It is important to keep this in mind, as it puts into perspective the evolution of the financial system from bank-based towards market-based on a global scale. This is also, as we noted earlier, the key to understanding the *growing* role of banking in terms of value addition to GNP and stock market capitalisation. [Merton and Bodie \(1995\)](#) listed the following underlying functions, forming the core needs of the financial system: (1) methods of clearing and settling payments; (2) mechanisms for pooling of resources; (3) ways to transfer economic resources through time and across distances; (4) methods of managing risk; (5) price information to help coordinate decentralized decision-making in various sectors of the economy; (6) ways of dealing with incentive problems created when one party to a transaction has information that another party does not or when one party acts as agent for another.

In a recent publication [Merton and Bodie \(2005\)](#) proposed a synthesis of the neoclassical, institutional and behavioural perspectives. In this synthesis of functional and structural finance (FSF) the institutional structure is endogenous. Market institutions are responding to market structures and market behaviour, smoothing market imperfections in the transfer of resources. To these imperfections belong behavioural biases.<sup>17</sup> This integrated functional approach represents a necessary addendum to the neoclassical approach in which asymmetric information is the dominant factor. In the behavioural perspective risk awareness and risk perception plays a pivotal role.

17 [Merton and Bodie \(2005\)](#).

#### 5.4 *The Redefined Role of Banks*

To summarize: the economic importance of banks has increased despite the disintermediation effect of rising capital markets. This disintermediation effect affected the traditional wholesale finance functions of banks which are taken over by capital markets. However, the disintermediation effect proves to be restricted and is partly compensated by wholesale financing of financial institutions which have become increasingly active on capital markets. Relationship banking apparently still fulfils a solid role between banks and clients both in the corporate and the private segment, besides standard products for retail financing. Taken together, the traditional in-balance bank financing is not declining but growing, in absolute terms and in relation to GDP, be it at a lower pace than capital market financing.

The economic progress of banks should, moreover, be increasingly associated to their involvement in the fast growing capital markets. Their services to these markets are so extensive, and their role in the product innovation process in these markets is so dominant, that the well functioning of these markets is to a high degree dependant on banks. The variety of their client services to the capital markets is landing in both “other income” and interest revenue. Their proprietary trading has, from time to time, a sizeable impact on “other income” as well. “Other income” has gradually increased to 50% of total bank revenue. The economic function of banks is clearly going beyond the financing of GDP; it finances and services the capital market as well.

The deep involvement of banks in capital markets implies that the distinction between “bank-based” and “market-based” financial systems is less meaningful. Recent research indicated already that this distinction does not explain differences in economic growth between countries. “Market-based” systems are developing thanks to the innovative support of banks. The spectacular growth of these markets, on the other hand, strongly pushes the growth of banks and may be the main reason why banks were prospering, against the odds. Like bank credit, bank sector income has grown faster than GDP and there was a structurally growing popularity of bank shares in investment portfolios over the past thirty five years.

The increasing variety of bank services and the broadening of their capital market activities has not changed the common denominator of their economic involvement. That is and remains: risk transformation. However, risk transformation in modern banking has got a much broader scope than risk transformation through the in-balance conversion of deposits into credits. Risk transformation is likewise the essence of off-balance sheet derivative products sold by banks and securitized investment products offered by them or by investment funds run by them. When these products are sold to investors without recourse to the offering institution the risk is distributed to these investors, in accordance with their risk/reward preferences. Via these

products banks transfer risk to investors in stead of absorbing risk themselves. Their value addition to these products rests on their expertise to manage and transform risk.

## 6 THE BANKING CRISIS

In view of the above it is salient that the banking crisis, which started in the course of 2007 and is dragging on in 2008, centres around securitized investment products like sub-prime mortgages and cdo's and casts serious doubt on the professional expertise of banks to manage and transform risk. What went wrong? Banks blended private mortgage paper of different quality, packaged and sold it to off-balance sheet vehicles which financed themselves by issuing short-term notes in the over-the counter market. The notes were sold to large institutional investors as cash management paper because they got favourable ratings. These ratings were high because the default record of private mortgage lending was very favourable, until mid 2007. Here the first professional mistake was made by banks who structured the paper and, above all, by the rating agencies: the tables indicating the probability of default for various categories of mortgage collateral and personal income covered a short history in which a widespread fall of house prices was lacking. Moreover, the trade in the notes was implicitly based on the supposition that the ratings would never change. The second mistake was that banks underestimated the liquidity risk run by the notes issuing vehicles. They guaranteed the financing of their own vehicle on the supposition that their guarantee by itself would secure continuous (re)financing in the market. No thought was given to the possibility that when a investment product would generally come under fire the whole refinancing market could dry up. As soon as this happened all liquidity guarantees were effectuated and turned out to be full guarantees. The notes, or the mortgage portfolios themselves, had to be consolidated on the balance sheet of the banks, which ended the game of solvency rule arbitrage by the originating banks. The third mistake, by supervisors, was that these had not, or insufficiently, recognized the potential impact of liquidity guarantees supporting off-balance sheet vehicles from a systemic point of view. Liquidity risk was of course well known on bank firm level. Now it manifested itself on market level, as an immediate effect of severe asymmetric market information. This asymmetric information was the result of a lack of transparency of the securitised new products and their ownership and created a unprecedented inter-bank confidence crisis. The ownership was unknown partly because the notes were not only bought by institutional investors but also by banks themselves, as treasury paper. This presumably implied, and that would be the fourth mistake, that the buying of the notes – because they had a high rating – did not pass the scrutiny of a credit committee of the bank. The result was that the top management of the banks involved had been taken aback by both



TABLE 9 – AGGREGATE RESERVES OF us DEPOSITORY INSTITUTIONS (BLN US DOLLARS)

	Total reserves	Required reserves	Excess reserves
January 1959	11,263	10,765	498 = 4.6% required
December 2006	43,363	41,500	1863 = 4.3% required
December 2007	42,735	40,960	1775 = 4.3% required
June 2008	43,932	41,552	2380 = 5.7% required

Source: US Federal Reserve System, time series (June 2008).

the effectuated guarantees and the existing portfolios of notes. It should be stressed that the mistakes spotted above do not point to the basic causes of the crisis. These have to do with the excessive lending policies of American mortgage institutions and their intermediaries, fuelled by the Fed's long-term policy of low interest rates, under a near absence of supervision on this industry.<sup>18</sup>

The result was and is a shaken confidence in the banking industry. But thanks to market interventions by central banks world-wide the sub-prime crisis has not developed into a world-wide banking crisis. Lessons have to be learnt by banks and by supervisors, who were confronted by a new type of systemic risk, but it is fair to conclude that the present crisis has not impaired the reserve position of the American banking system as a whole.<sup>19</sup> This can be concluded from recent figures published by the Fed (Table 9).

These figures show that the initial loss of reserves between December 2006 and December 2007 has been fully recovered in June 2008, and that the excess reserves even increased. Note that the figures relate to all commercial banks country-wide (around 9600), but that investment banks are not included.

The crisis raises the question whether the involvement of banks in the capital markets, specifically in the grey area of by themselves created new unlisted investment products has gone too far and part of banks' prosperity for that reason should be considered as "artificial", as a non-service to the economy. A first answer to that question is that, anyhow, bank supervisors should get

18 See for a concise analysis of the bank crisis the annual report 2007 of DNB (2008, pp. 21–24).

19 Systemic risk raised acutely because the crisis was both fundamentals-based (the mortgage crisis in the American home market after a series of interest rate increases) and contagion-based (rumours on heavy sub-prime mortgage involvements of certain banks). Systemic risk was already considered as being raised in the past decades by certain industry developments like bank concentration and conglomeration. For the Netherlands see Minderhoud (2006). The contagion element in the present crisis is new in the sense that the threat of contagious bank failures is not induced by actual interbank debt positions of ailing banks but merely by market rumours which impeded normal interbank financing.

more grip on that grey area in their prudential supervision. Proposals to amend Basel II are under consideration. But the crisis contains primarily a serious warning to the bankers themselves to perform their main function, namely the transformation of risk, more prudently than they recently did in these newly developed activities. The mistakes they made can and should be addressed by better, completely integrated internal risk information and risk management systems, including better liquidity risk management. Bonus systems which inevitably undermine the prudent weighing of risk and reward should be reconsidered. But the mistakes are not of a kind that banks should stop altogether a search for new instruments and activities in the performance of their risk transforming function. Risk transformation is and remains their basic job. A recent report of McKinsey's research staff underlines a positive belief in the future of banking, concluding that banking was the most profitable industry in the world in 2006 and predicting that, despite the present crisis, banking will continue to grow faster than the world economy in the coming ten years.<sup>20</sup> This requires, however, that banks – especially the large, internationally operating ones – regain the trust of the public at large and consider consistent and trustworthy measures with that purpose as their top priority. The present crisis has widely shaken confidence in the banking industry as a whole.

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20 McKinsey Global Institute: Mapping Global Markets, Fourth Annual Report, January 2008.

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APPENDIX

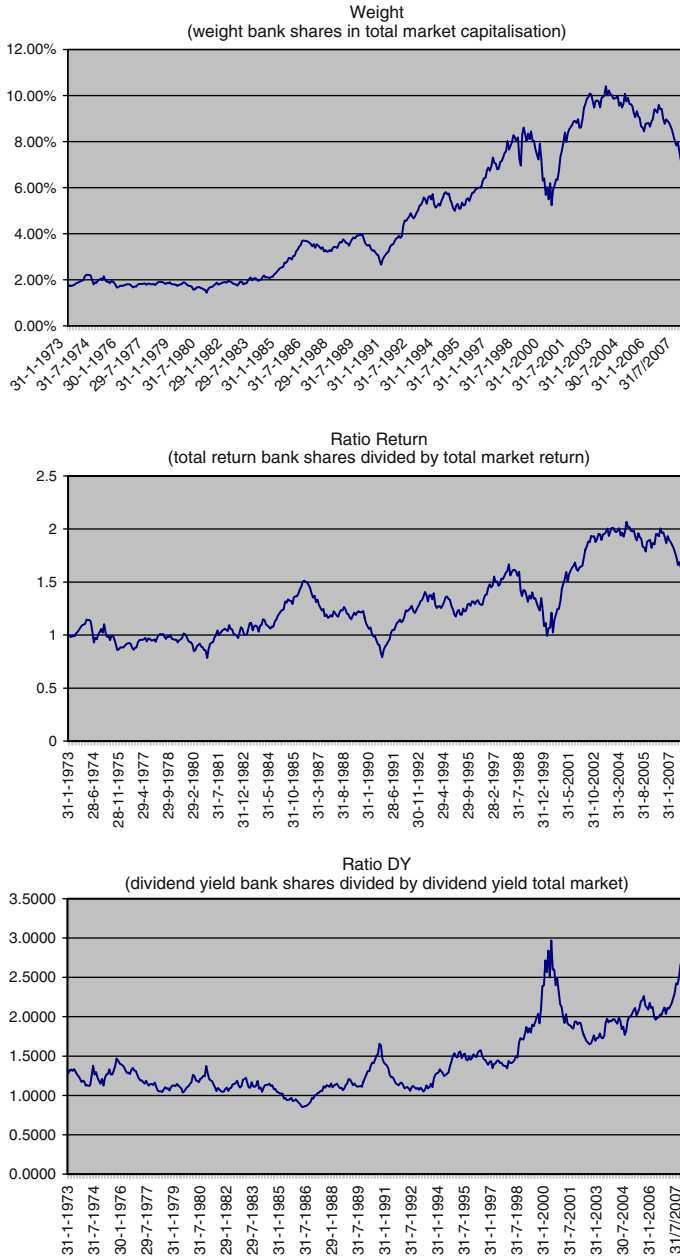


Chart 1 – UNITED STATES; Volatility calculated as a 12-month rolling standard deviation

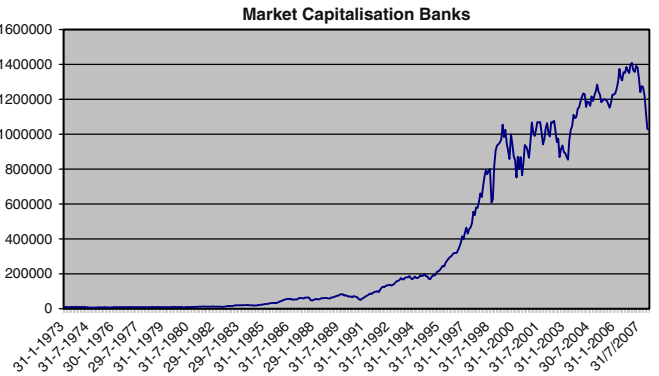
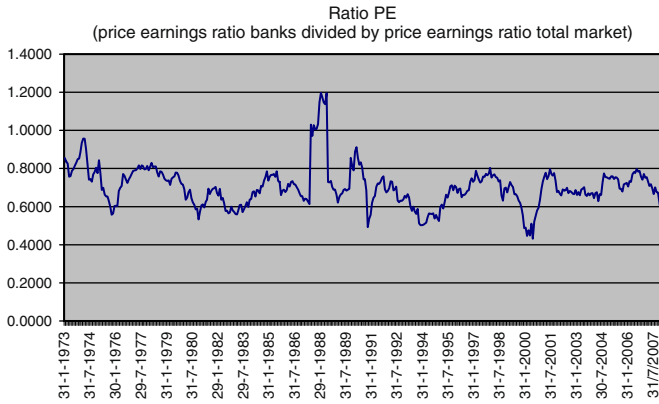
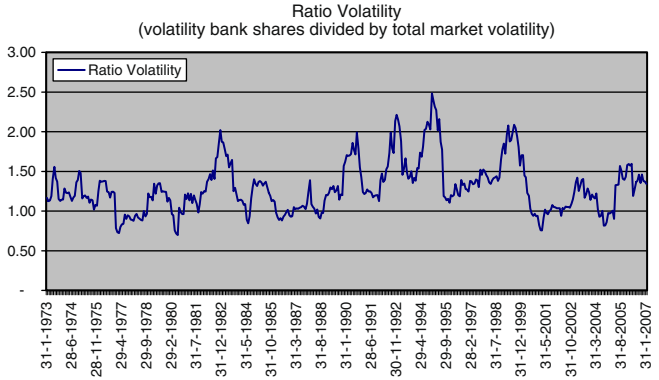


Chart 1 – continued

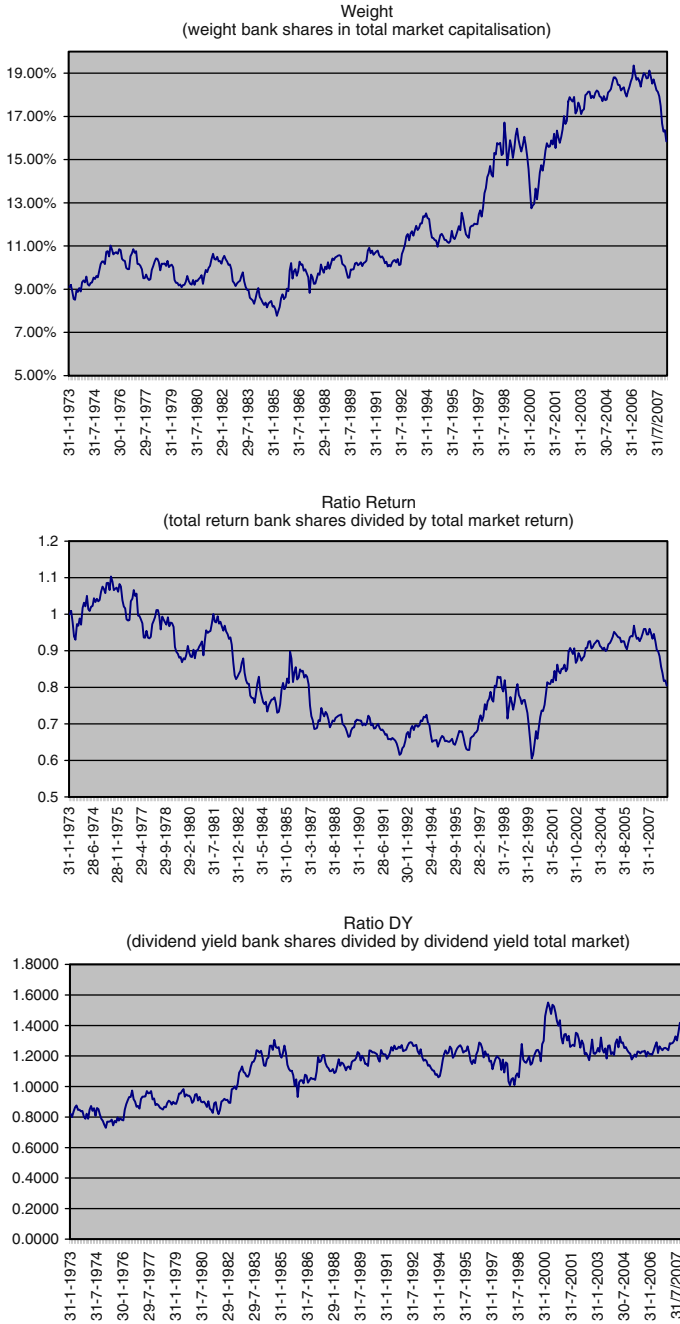


Chart 2 – EUROPE

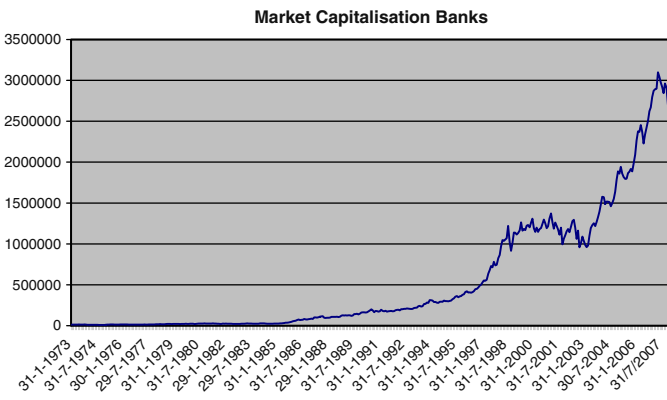
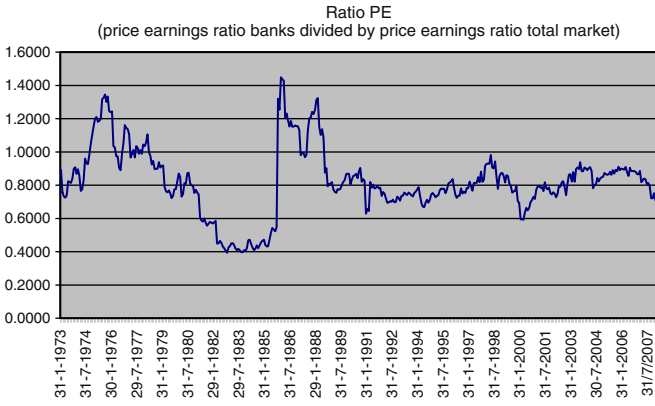
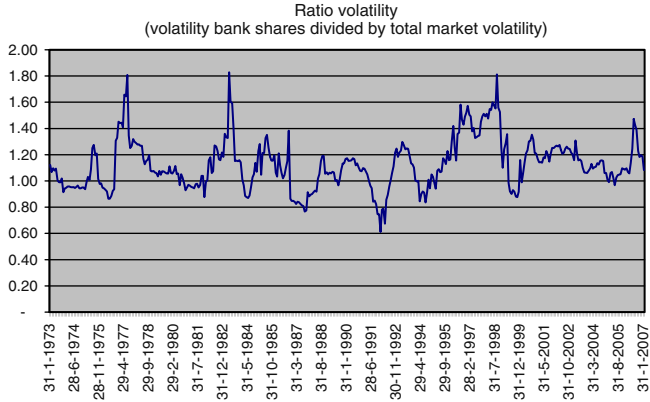


Chart 2 – continued

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## REFERENCES

- Akerlof, G. (1970), 'The Market for "Lemons"; Quality, Uncertainty and the Market Mechanism,' *Quarterly Journal of Economics*, 84, pp. 488–500.
- Allen, F. and D. Gale (2000), *Comparing Financial Systems*, Cambridge, Massachusetts, The MIT Press.
- Allen, F. and A. M. Santomero (1998), 'The Theory of Financial Intermediation,' *Journal of Banking and Finance*, 21, pp. 1461–1485.
- Allen, F. and A. M. Santomero (2001), 'What Do Financial Intermediaries Do?' *Journal of Banking and Finance*, 25, pp. 271–294.
- Bena, J. and S. Jurajda (2007), Which Firms Benefit More from Financial Development? LSE, Paper presented to SUERF conference in Helsinki.
- Blommestein, H.J. (2006), Visions About the Future of Banking. SUERF Studies 2006/2.
- Canals, J. (1997), *Universal Banking: International Comparisons and Theoretical Perspectives*, Oxford, Clarendon Press.
- Cornett, M.M. and A. Saunders (1999), *Fundamentals of Financial Institutions Management*, Irwin/Mc Graw-Hill.
- De Nederlandsche Bank (2006), *Annual Report 2005*, Amsterdam.
- De Nederlandsche Bank (2007), *Annual Report 2006*, Amsterdam.
- De Nederlandsche Bank (2008), *Annual Report 2007*, Amsterdam.
- Demirguc-Kunt, A. and H. Huizinga (2000), *Financial Structure and Bank Profitability*, World Bank Policy Working Paper No. 2430.
- Demirguc-Kunt, A. and R. Levine (1999), *Bank-Based and Market-Based Financial Systems; Cross-Country Comparison*, World Bank Policy Working Paper No. 2143.
- Demirguc-Kunt, A. and V. Maksimovic (2002), 'Law, Finance and Firm Growth,' *Journal of Finance*, 53(6), pp. 2107–2137.
- Diamond, D.W. and R.G. Rajan (2001), 'Liquidity Risk, Liquidity Creation, and Financial Fragility; A Theory of Banking,' *Journal of Political Economy*, 109(2), pp. 287–327.
- European Central Bank (2000), *EU Banks' Income Structure*, Frankfurt.
- European Central Bank (2006), *Annual Report 2005*, Frankfurt.
- Fase, M.M.G. (2000), *Financial Intermediation and Long-Run Economic Growth in the Netherlands Between 1900-2000*, DNB Research Memorandum nr. 625, Amsterdam.
- Fase, M.M.G. and R.C.N. Abma (2003), 'Financial Environment and Economic Growth in Selected Asian Countries,' *Journal of Asean Economics*, 14, pp. 11–21.
- Freixas, X. and J.-C. Rochet (1997), *Microeconomics of Banking*, Cambridge, Massachusetts, The MIT Press.

- Hartmann, Ph., A. Ferrando, F. Fritzer, F. Heider and M. lo Duca (2006), *The Performance of the European Financial System*, ECB, mimeo.
- Houston, J.F. and K.J. Stiroh (2006), *Three Decades of Financial Sector Risk*, Federal Reserve Bank of New York Staff Reports, no. 248.
- International Monetary Fund (2005), *Global Financial Stability Report 2005*.
- Levine, R. (1997), 'Financial Development and Economic Growth: Views and Agenda,' *Journal of Economic Literature*, 35, pp. 688–726.
- Levine, R. (2002), 'Bank-based or Market-based Financial Systems: Which is Better?,' *Journal of Financial Intermediation*, 11(4), pp. 398–428.
- Llewellyn, D.T. (1999), *The New Economics of Banking*, SUERF Studies no. 5.
- Llewellyn, D.T. (2008), *Financial Innovation and the Economics of Banking and the Financial System*, mimeo.
- McKinsey Global Institute (2008), *Mapping Global Capital Markets: Fourth Annual Report*.
- Merton, R.C. and Z. Bodie (1995), 'A Conceptual Framework for Analyzing the Financial Environment,' in D.B. Crane, et al. (eds.), *The Global Financial System: A Functional Perspective*, Boston, MA: Harvard Business School Press, pp. 3–32.
- Merton, R.C. and Z. Bodie (2005), 'Design of Financial Systems: Towards a Synthesis of Function and Structure,' *Journal of Investment Management*, 3(1), pp. 6–28.
- Minderhoud, K. (2006), 'Systemic Risk in the Dutch Financial Sector,' *De Economist*, 154(2), pp. 177–195.
- Mishkin, F.S. (2001), *The Economics of Money, Banking and Financial Markets*, 6th edn, Addison Wesley.
- de Roos, F. (1968), *De Algemene Banken in Nederland*, 5th edn, Oosthoek.
- Rousseau, P.L. (2007), *Financial Development and Economic Growth in Industrialised and Emerging Economies*, Vanderbilt University, Keynote paper delivered to SUERF conference in Helsinki.
- Scholtens, L.J.R. and D.M.N. Van Wensveen (2000), 'A Critique on the Theory of Financial Intermediation,' *Journal of Banking and Finance*, 24(8), pp. 1243–1251.
- Scholtens, L.J.R. and D.M.N. Van Wensveen (2003), *The Theory of Financial Intermediation, An Essay on What it Does (Not) Explain*, SUERF Studies 2003/1.
- Slager, A. (2006), *The Internationalization of Banks: Patterns, Strategies and Performance*, Palgrave Macmillan.
- Wachtel, P. (2007), *Tales of the Finance Growth Nexus*, Stern School of Business New York University. Keynote paper delivered to SUERF conference in Helsinki.