Financial Stability in the Euro Area:

Some Lessons From US Financial History

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FINANCIAL STABILITY IN THE EURO AREA - SOME LESSONS FROM US FINANCIAL HISTORY[1]

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Summary

There are important structural parallels between the new euro area and the US. Both are large monetary areas - in which developments can have repercussions for global financial stability - and are rather closed in the sense that external trade is a small proportion of GDP. There are subsidiary fiscal areas within the overall monetary area. And banking sectors are fragmented and are not generally diversified across the monetary area. Meanwhile, in the wake of EMU, convergence of the euro area financial system with that of the US is widely expected to accelerate. Owing to factors such as economies of scale, price transparency and removal of exchange rate risk, EMU will "leverage" existing forces pushing European finance in this direction, such as technological development; deregulation and liberalisation; increased and transformed wealth of individuals; and globalisation. This is expected to result in a more securitised financial system, with bank credit accounting for a smaller proportion of financial claims.

Viewed both in the light of the structural parallels and likely behavioural convergence, we suggest that a close examination of US financial history will be highly instructive of potential issues for the euro area in terms of financial stability, both in the transition to a securitised system and in the future steady state. Accordingly, the paper examines the stylised facts underlying selected periods of systemic risk in US financial history, to see what lessons there are to be learnt for the euro area. Naturally, features of particular episodes of financial instability are unlikely to recur in detail, so we concentrate on generic aspects.

It is emphasised that the article does not seek in any way to comment upon the current structures of supervision and monetary policy in the euro area. Nor does it seek to make any specific predictions regarding systemic risk. Also, it is not suggested that EMU will lead to an increase in the absolute level of risk, although its nature and locus may change. Generally, our aim is to map out some of the challenges that may face both authorities and market participants in the euro area in the light of the likely evolving structure and behaviour of its financial markets.

The events covered are the 1929-33 Stock Market crash and banking crisis, Continental Illinois (1984), the US thrifts (1979-89), the regional banking crises in Texas (1985-89), the stock market crash of 1987, the collapse of the junk bond market in 1989 and the Russia/LTCM crisis of 1998. Particular focus is put on two aspects, following the points made above. First, we assess the link of crises to structural features of a large monetary area with segmented banking systems and regional economic specialisation. Second, we consider how disintermediation, growth of securities markets and enhanced competition may link to financial instability, as opposed to the European tradition of banking intermediation based on private information and close banking relationships.

US history shows that in a large and diverse monetary area with segmented local banking markets, regional crises can pose a major challenge to policy makers, while the existence of a large monetary area in a global sense means that there will inevitably be international transmission of shock s generated within it. There is also a need for special care in the case of new monetary arrangements that have not yet experienced major financial instability.

Meanwhile money and securities market liquidity become of great systemic concern in a securitised financial system; equity prices too may become of major importance for financial stability. Also disintermediation becomes a major issue for banks to adjust to, while non banks such as investment banks and even hedge funds may become of systemic importance; even institutional investors' trading strategies can cause major asset price shifts which threaten systemic stability.

More generally, whereas European financial instability has traditionally been of a pattern of bank failures following loan and trading losses, the likely securitisation of euro area markets may pose challenges arising from the occurrence of crises of a type more characteristic of the US, linked to price volatility in asset markets following shifts in expectations (which may threaten leveraged institutions that hold

positions in these assets) or the collapse of market liquidity and issuance, which threatens institutions needing to transact or issue in such markets. On the other hand, it is noted the presence of both banks and securities markets is beneficial in offering a form of diversification for the financial system, reducing the danger of a “credit crunch”. Indeed, banks after LTCM gave substitute finance for corporate borrowers when securities markets were closed, while securities markets substituted for banks after the Texan banking crisis.

Some key general aspects of financial instability raised by US crises are also worthy of highlighting in the context of the study. For example, US experience shows that issues such as too-big to fail can arise in a large monetary zone in the same way as a small state with a concentrated banking sector; the thrift crisis underlined for all time the dangers of forbearance in respect of banks with zero or negative net worth, and showed the need for careful design of deposit insurance guarantees. Finally, real estate lending booms and rising corporate leverage are shown by US financial history, as in some European countries, to be major warning signs for financial instability.

Introduction

There are important structural parallels between the new euro area and the US. Both are large monetary areas - in which developments can have repercussions for global financial stability - and are rather closed in the sense that external trade is a small proportion of GDP. There are subsidiary fiscal areas within the overall monetary area. And banking sectors are fragmented and are not generally diversified across the monetary area. Meanwhile, in the wake of EMU, convergence of the euro area financial system with those of the US is widely expected to accelerate (Davis 1999a, 1999b). This is expected to result in a more securitised financial system, with bank credit accounting for a smaller proportion of financial claims.

Viewed both in the light of the structural parallels and likely behavioural convergence, we suggest that a close examination of US financial history will be highly instructive of potential issues for the euro area in terms of financial stability, both in the transition to a securitised system and in the future steady state. Accordingly, the paper examines the stylised facts underlying selected periods of systemic risk in US financial history, to see what lessons there are to be learnt for the euro area. Naturally, features of particular episodes of financial instability are unlikely to recur in detail, so we concentrate on generic aspects. Particular focus is put on two aspects, following the points made above. First, we assess the link of crises to structural features of a large monetary area with segmented banking systems and regional economic specialisation. Second, we consider how disintermediation, growth of securities markets and enhanced competition may link to financial instability.

We define financial instability (also referred to as financial disorder or systemic risk) as a sequence of events entailing heightened risk of a financial crisis, where a financial crisis is seen in turn as "a major and contagious collapse of the financial system, entailing inability to provide payments services or to allocate funds for investment."[2] Note that instability of institutions and markets tends to be a necessary but not sufficient condition for a financial crisis in this sense.

It should be noted at the outset that the article does not seek in any way to comment upon the current structures of supervision and monetary policy in the euro area[3]. Nor does it seek to make any specific predictions regarding systemic risk. Also, it is not suggested that EMU will lead to an increase in the

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2 An issue arises as to whether the definition should include the mispricing of financial assets. We suggest that while this may accompany a financial crisis, the failure of payments and of credit allocation of funds are the defining features. Arguably, mispricing of financial assets is quite common (e.g. in asset bubbles, exchange rate misalignments and mispricing of credit risk) without entailing a financial crisis, or even systemic risk, whereas failure of payments and of credit allocation are only seen in a crisis. Mispricing may nonetheless, we suggest later, be part of the overall pattern which builds towards a crisis.

3 See Aglietta (1999), Bruni and de Boissieu (1999) and Prati and Schinasi (1999) for recent contributions. One aspect of interest for financial stability may be the contrasting methods of providing liquidity in the US and Euro area.

absolute level of risk, although its nature[4] and locus may change. Generally, our aim is to map out some of the challenges that may face both authorities and market participants in the euro area in the light of the likely evolving structure and behaviour of its financial markets.

The events covered are the 1929-33 Stock Market crash and banking crisis, the 1970 Penn Central crisis, Continental Illinois (1984), the US thrifts (1979-89), the regional banking crises in Texas (1985-89), the stock market crash of 1987, the collapse of the junk bond market in 1989 and the Russia/LTCM crisis of 1998. The paper is structured so as to present stylised features of the Euro area and US and a brief overview of theories of financial instability, followed by account of each event, in each case drawing out some of the lessons and warning signs. We conclude with broader lessons for macroprudential surveillance.

1 Background items

(a) The US and EMU - similarities and contrasts

The parallels in terms of overall economic structure between the Euro area and the US are illustrated in Table 1. The two areas have similar shares of world GDP and world trade, which far exceed the next-largest area, Japan (8% of GDP and 10% of exports). The areas are also fairly "closed" in that exports are less than 10% of GDP, a marked contrast to EU countries themselves to date. Another feature - common in this case to all OECD countries - is the dominance of services in GDP, and the insignificance of agriculture. There are also sovereign (euro countries) or semi-sovereign (US states) fiscal areas within the overall monetary area, although note that the Federal level of taxation and expenditure is much more important in the US than in the EU.

As regards financial structure, banking sectors in the US and EU are both fragmented (Table 2). There are 23000 banks[5] in the US and over 7000 in the euro area. Concentration is even lower in the euro area (12% of bank assets is accounted for by the top 5 firms) than in the US (16%)[6]. The high branch/population ratio in the euro area is one indicator of potential excess capacity relative to the US. Note also that banks are generally not diversified across the monetary area in the EU (due to the existence till recently of independent monetary areas) or the US (owing to the ban on interstate banking and branching that was only lifted recently).

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4 For example, a decline of relationship banking and growth of securities markets could lead to a decline in credit risk and a risk in market risk.

5 Note that a number of these are not separate institutions.

6 On the other hand, given the larger size of the euro area banking system, the value of financial assets accounted for by the top five banks is larger.

Turning to flow of funds data, whereas total financial claims relative to GDP are similar in the US and Europe (around three times GDP), at present there are sharp contrasts between the US and Europe in terms of the size of securities markets relative to banking (Table 3). Banking assets are over 200% of GDP in the euro area (and the EU-15), while US banking assets are only 60% of GDP. On the other hand, US equity markets are three times larger than those in the Euro area, and public and private bond markets are also considerably larger. Correspondingly, institutional investors are much less important in the Euro area than in the US. The fact that total of financial assets is comparable suggests securitisation in the US involved a substitution for banking and not a growth in the overall financial superstructure.

There are strong arguments that EMU is unleashing forces leading to convergence, with the Euro area developing a more securitised financial system, and bank credit accounting for a smaller proportion of financial claims. Indeed, already there has been massive growth of private bond issuance in euros and of euro area mutual funds. EMU will "leverage" existing forces pushing European finance in this direction, such as technological development; deregulation and liberalisation (i.e. the regulatory environment); increased and transformed wealth of individuals; and globalisation. Without going into detail, we highlight some of the main points:

Securities market integration in EMU is assisted by a number of factors. Tendencies to equalisation of risks and returns on financial assets are generated by aspects of monetary integration (elimination of exchange rate uncertainty; in some countries, reductions of inflation uncertainty; and tendencies to a common business cycle driven by a single monetary policy) and by fiscal integration (fiscal consolidation and a focus on credit risk-based arbitrage in the context of the no-bailout clause) (Davis 1999a). Further key factors are freedom of institutional investors to diversify holdings of government bonds, corporate bonds and equities within the expanded 'domestic' zone and enhanced contestability of markets for underwriting in euro countries. In an integrated and unified securities market, with a euro wideteumbUS and

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(Davis 1999b). There is also increased openness of the Eurozone countries to cross-border competition in banking, with EMU "leveraging" the deregulation of the Single Market programme.

Finally, euro companies may wish to issue more equity and less debt for structural reasons. First, monetary integration will leave euro area national economies - and hence their corporate sectors - more vulnerable to asymmetric shocks. Second, increased banking competition - and securitisation - may undermine exclusive banking relationships (Petersen and Rajan 1993), owing to competition between lenders, and as a corollary, lenders will be less willing to rescue firms in financial distress[10], as they could not charge higher interest rates to finance such "implicit insurance". An offsetting factor may be shareholder pressure to lever up to increase returns on equity. In any case, investors will probably demand responsiveness on the part of the management to "shareholder value" concerns (such as transparency, protection of minority shareholders and greater profit orientation) before providing equity.

These elements are likely to entail a relative shrinkage of banking relative to securities, and may in the process[11] put banks' profitability under pressure, not least because banking sectors already show signs of excess capacity[12] (Davis and Salo 1998). Precise convergence of financial systems is unlikely. The US banking system was historically more strictly regulated in terms of products and geographical location than the European. Equally, there are various structural factors that would limit balance-sheet convergence with the US and within Europe, such as the possibly differing liquidity preferences of the household sector, fiscal differences and residual regulatory differences. Nevertheless, the tendency is clear.

An important supplementary question is whether the fragmentation and localisation of the euro area banking sector is a durable feature or is likely to be removed. The period since EMU has so far been characterised by mergers mainly within national borders and not across borders, as would be needed to diversify risk. Legal, regulatory and political barriers may underlie this. Also there are large public and mutual banking sectors in most euro countries, which are relatively resistant to consolidation. These factors suggest that the emergence of a euro wide banking sector will be a protracted process, and the legacy of fragmented national banking systems will persist for some time. The slow erosion of within-state banking in the US since the abolition of the regulation restricting interstate banking may indicate a comparable ceiling to likely progress in the euro area.

(b) Elements of a theoretical framework for financial stability analysis

10 There will still be reputational costs to “walking away” from a banking link, even in a transactions based banking system.

11 In the longer term, the remaining banks may be highly profitable if they can profit from non interest activities (and cut costs) like their US counterparts.

12 Besides the above-mentioned branch density, the indicators of excess capacity used by Davis and Salo include the proportion of banks earning less than the real money market rate on their equity and the proportion of banks with provisions in excess of 50% and 100% of their net interest income.

Besides illustrating the similarities and outlining convergence mechanisms, it is also useful as a preliminary to analysis of periods of systemic risk to set out some elements of a framework for analysing and seeking to predict periods of financial instability. This is set out in detail in Davis (1999c), drawing on Davis (1995a). There, it is suggested that many of the strands of the theory of financial instability have a contribution to make to our understanding of financial crises, but that the explanations are in most cases partial. In our view, a selective synthesis drawing on the evidence of actual crises set out in the second lecture is the correct approach to adopt. It is suggested that these are helpful in the present context in interpreting some of the events detailed below. The theories are those of:

- "debt and financial fragility", which suggests that over indebtedness and banking crises are a normal feature of the cycle (Fisher (1933), Kindelberger (1978), Minsky (1977));
- "monetarist" that bank failures impact on the economy via a reduction in the supply of money (Friedman and Schwartz 1963);
- "uncertainty" as opposed to risk as a key feature of financial instability, linked closely to confidence, and helps explain the at times disproportionate responses of financial markets in times of stress (Shafer 1986);
- "disaster myopia" that competitive, incentive-based and psychological mechanisms lead financial institutions and regulators to underestimate the risk of financial instability (Guttentag and Herring 1984);
- "asymmetric information and agency costs" that these well-known market failure of the debt contract help to explain the nature of financial instability e.g. credit tightening as interest rates rise and asset prices fall (Mishkin 1991);

and complementing these,

- "bank runs" that panic runs on banks (which may follow the various stimuli identified by the above theories) link to the maturity transformation they undertake, and the relatively lesser liquidity of their assets (Diamond and Dybvig 1983)[13]; such theory can also be applied to securities market liquidity (Davis 1994, 1999d);
- "herding" among institutional investors as a potential cause for price volatility in asset markets, driven e.g. by peer-group performance comparisons, that may affect banks and other leveraged institutions (Scharfstein and Stein 1990, Davis 1995c);
- "industrial" that effects of changes in entry conditions in financial markets (Davis (1995a)) can both encompass and provide a supplementary set of underlying factors and transmission mechanism to those noted above.

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13 Note that such “runs” lead to a contraction in the money supply, in line with the monetarist view, if the depositors seek cash, but not if they “run” to “safer” banks.

With these elements of a framework in mind, we now go on to examine some specific experiences of the US, and the lessons in each case for the euro area.

2 The Stock-Market Crash and the Great Depression (1929-1933)

The 1920s saw a rapid economic expansion, which in combination with financial innovations such as investment trusts led to marked rises in equity values, which is often characterised as a speculative bubble. Stock-market speculation was financed by rapid increases in borrowing. There was a large and broad-based expansion of private debt in the 1920s; outstanding corporate bonds rose from $26 bn in 1920 to $47 bn in 1928 (over 50 per cent of GNP). Small businesses and households increased indebtedness sharply; outstanding mortgages rose from $11 bn in 1920 to $27 bn in 1929. Indeed, as noted by Taggart (1985), business debt was proportionately higher in the 1920s than the 1980s (and 1990s). Monetary policy was tightened from mid-1928 onwards, to seek to curb the stock-market boom. Initially, higher nominal interest rates had little effect, as stock-market lending remained profitable, though general prices began to fall and demand began to weaken. The stock-market collapse coincided with minor events such as the Hatry crisis in London; but it appeared more to be the deflation of a speculative bubble, where prices had departed from fundamentals. (See Galbraith (1954) for a highly readable account.)

The crash led to a sharp tightening of credit, which was initially counteracted by the Fed as lender of last resort. Industrial production began to fall sharply in 1929-30. The fall in stock prices spread to commodities, which led to widespread default on international and domestic bank loans and depression in commodity exporting countries Beginning in 1930 there was a flight to quality in the bond market - cutting off a source of credit - and an increasing number of bank failures. The number of US banks halved over 1929-33. As well as deteriorating loan quality owing to the recession, crash, and commodity price falls, banks suffered from cash withdrawals and from outflows of gold from the US, the nominal money supply contracted over 1931-3 while high-powered money increased, reflecting the flight to cash. Prices fell sharply, increasing pressure on debtors holding debt contracts written in nominal terms, with the debt service/GNP ratio rising from 9 per cent in 1929 to 20 per cent in 1933.

Among debtors, insolvency rates were very high for small businesses, farmers, mortgage borrowers, and state and local government, which given asymmetric information had no alternative sources of credit to banks (Bernanke (1983) cogently argues that the severe macroeconomic effects of the Depression link to the loss of information following bank failures). Only large corporations were relatively immune, given their stronger internal cash flows. The wave of bank failures came to a climax in March 1933, resulting

in a panic and closure of all banks. The Fed did not respond as lender of last resort[14], nor did the banks act as a "club" to suspend cash payments to depositors, as they often had in the nineteenth century when the Central Bank did not exist[15] (they now considered maintenance of stability to be the Fed's responsibility). US GDP remained depressed in the wake of the banking crisis throughout the 1930s. Summers (1991) notes that all of the effects of the financial crisis were aggravated by an absence of automatic stabilisers (i.e. increase in government expenditure relative to taxation in a recession). Before the Second World War, a 1 per cent decline in GNP generated a 0.95 per cent fall in disposable income, whereas since 1945 it has only generated a 0.39 per cent fall.

The Depression was, of course, a global rather than purely US phenomenon. A feature that worsened the global crisis was a trade war, prompted by the US Smoot-Hawley tariff increase. Developing countries that had borrowed heavily in the 1920s, and/or were dependent on commodity exports, together with advanced countries that sought to maintain fixed exchange rates (such as France and Germany), were hardest hit by the overall crisis[16]. A major feature in Continental Europe was failure of major universal banks such as the Austrian Kreditanstalt, partly owing to collapses in the value of their equity holdings. In addition, countries such as the US, with a structure of small and poorly diversified banks, suffered more runs and panics than those with nation-wide branch systems, such as Canada and the UK, and as a consequence suffered more adverse macroeconomic consequences (Haubrich 1990). (Although it is argued by Kryzanowski and Roberts (1989) that there was also 100% implicit deposit insurance in Canada.)

The US regulatory response was to tighten regulation of banks and thrifts. Entry controls were imposed, asset and liability composition restricted, capital requirements imposed, self-dealing restrictions tightened, and deposit insurance was introduced. Besides seeking stability, some of these regulations sought to reallocate credit to "socially desirable" purposes such as housing. Some analysts such as Kane (1985) attribute to these restrictions the difficulties US institutions underwent in the 1970s and 1980s in the context of high inflation and innovation (compare the discussion of the thrifts crisis below).

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14 This failure was linked to a conflict between Washington and New York in the wake of the death of Benjamin Strong.

15 See Gorton (1988).

16 Bernanke and James (1991) offer an international comparison of links from finance to the real economy in the Depression, focusing on the exchange rate regime, deflation, and financial crisis. They suggest that banking crises significantly aggravated the downturns.

3 The US thrifts crises (1979-89)

US savings and loans institutions (or thrifts) are a long-established form of mutual bank, which in the 1980s were subject to two linked crises, a "maturity mismatch" crisis at the beginning of the decade and a "loan quality" crisis in the mid to late 1980s. However, it is suggested that the genesis of these events lies several decades further back. As noted, in the tightening of regulation and compartmentalisation of the US financial system which ensued after the crises of 1929-33, thrifts were assigned responsibility for provision of residential mortgages (usually long-term, at fixed rate) while interest-rate ceilings were imposed on bank deposits. Such a system sought to provide stability and protection for the institutions.

But problems arose as the regulatory structure came to conflict with economic conditions. Already in the 1950s and 1960s, interest rates were occasionally high enough to result in disintermediation of deposits to market instruments such as Treasury bills, but in practice rates soon fell, and the high denomination of bills limited depositor interest. Imposition of ceilings on thrifts' own rates - at their own request - in 1966, prevented their liability rates exceeding asset yields. In the 1970s the problems became more serious as, first, under pressure from inflation, interest rates rose for long periods above the deposit

ceilings (typically around 5 per cent depending on maturity) and, second, the development of money-market mutual funds enabled small depositors to shift to money-market instruments. Thrifts thus suffered increasingly from liquidity problems. To prevent such disintermediation, interest-rate ceilings were progressively raised, while the institutions switched heavily into wholesale funding (after being permitted to issue unregulated Money Market Certificates, with a denomination of $10,000, in 1978). This, however, exposed a serious problem of interest-rate risk owing to the mismatch between the existing stock of fixed-rate long-term mortgage assets (often at low interest rates) and high-interest short-term floating-rate liabilities. This effect was particularly severe after US monetary policy was tightened in 1979 (while the recession also increased bad debts). Net worth, earnings, and capitalisation declined and failures increased.

Rather than seeking orderly closure of the whole industry while net worth remained positive, the authorities sought to enable them to continue in business, in the hope that eventually profitability could be re-established, as new mortgages at higher interest rates replaced old unprofitable ones. The problem was deferrable because confidence was retained and insolvent institutions were allowed to continue operating. In acts of deregulation dated 1980 and 1982, thrifts were allowed to diversify assets away from long-term home mortgages in the hope of speeding the return to profitability, and capital standards were relaxed. The level of deposit-insurance coverage was increased in 1980. Finally, as regards interest-rate controls, they were further eased as permission was granted for issue of high-interest/low-denomination, money-market deposit accounts in 1982, and interest-rate ceilings were finally abolished in 1986. Heightened risk-taking was the response, as many thrifts tried to grow out of their problems by rapid expansion, diversifying into high-yield and high-risk assets such as land, development, construction, and commercial real estate as well as "junk bonds" although there was also considerable expansion in traditional fields of mortgage lending (and some fraud). Risk was often concentrated in narrow types of business as well as geographically. Real estate was particularly favoured due to generous depreciation provisions in the tax code at the time. Growth tendencies were particularly marked in the South-West, which experienced an oil-related boom over 1983-5.

Depositors were content to finance such ventures, given the generosity of US deposit insurance, which covered 100% up to $100,000 per bank - hence individuals and even pension funds could hold $100,000 deposits with many banks in total safety, despite increased credit and interest-rate risk. With low capital standards and limited liability, equity holders had little to lose, particularly for thrifts that were technically insolvent (438 in 1984). Managers, who had often entered the industry de novo or taken over faltering institutions, had little reputational or monetary capital at risk. And reductions in supervisory budgets, as well as disruptive reorganisations, over this period meant monitoring of these trends was highly imperfect. After declines in commodity prices in 1985-6, as well as overbuilding and tightening of tax laws, the office real estate market collapsed, and many of the other speculative loans proved non performing (see also Section 5). In combination with low capital ratios, resulting insolvency was

widespread - thrifts were unable to sell remaining mortgages on secondary markets to pay off depositors. There was also evidence of insider abuse, fraud, mismanagement, and unsound banking practices, such as inadequate credit appraisal, at many of the insolvent institutions, although pursuit of higher yields via acceptance of high risk was probably the overriding factor. Such problems were compounded by the fact that the deposit insurer (FSLIC) lacked the resources to wind down all the insolvent thrifts, which were thus left to operate while taking ever-increasing risks. Pauley (1989) recorded that at the end of 1988, 360 thrifts were insolvent according to "generally accepted accounting principles" (GAAP) and another 150 had negative GAAP capital after deducting goodwill. A further 292 had GAAP net worth of under 3 per cent of assets. In combination with those already closed or merged, assets of these institutions amounted to $540 bn. The second thrifts crisis occurred without runs, except in Ohio and Maryland in 1985 when a panic took place among depositors with privately insured thrifts (see Davis 1995a).

The policy response was to guarantee deposit-insurance liabilities (the danger of not doing this could have been loss of faith in insurance of banks, and hence widespread runs and failures) and set up a corporation (Resolution Trust) to acquire ailing thrifts, closing them or selling them to other institutions. Meanwhile, under the FIRREA (Financial Institutions Regulatory Reform and Enforcement Act) of 1989 remaining thrifts were subjected to tighter capital standards and limits on types of investment. Reserves were required against risk of future defaults on higher risk assets -- which in turn reduced ability to meet the new capital standards. As a consequence, the industry shrank and by the mid 1990s less than half of the institutions present in 1980s still existed, while assets fell around 20% from 1989 to 1995 (Eisenbeis et al 1999).

4 The Continental Illinois Bank Failure (1984)

The Continental Illinois bank, at the time one of the largest US banks, suffered from non-performing loans arising from the ldc debt crisis and the weakness of commodity prices, after a rapid and concentrated increase in lending both to ldcs and the energy sector in the early 1980s. Partly due to the US regulations against interstate banking, it was also forced to rely heavily on wholesale deposits, 40 per cent of which were from the international markets, and 16 per cent domestic interbank deposits. In 1984, after a period when the bank had to pay a higher price for its wholesale deposits, large depositors began to withdraw funds, as concern about the quality of its loan portfolio grew. The Penn Square failure of 1982 was important background to the crisis, as uninsured depositors suffered losses. The run started in the international interbank market, as Japanese, European, and Asian banks began to cut credit lines and withdraw overnight funding. Only later did US non-banks begin to follow. Such withdrawals reached $8 bn per day, outstripping liquidity and capital. The run continued despite an announcement by the Federal Deposit Insurance Corporation that all of the bank's liabilities were guaranteed.

The authorities feared systemic risk if the bank failed - adverse rumours had already caused difficulties at Manufacturers' Hanover bank, and ex post calculations by the FDIC suggested that 2,299 banks had deposits and Continental and of these 179 might fail if Continental failed. Accordingly, the authorities instituted a major rescue operation. This entailed a $5.5 bn line of credit arranged by twenty-eight banks, $2 bn of new capital infused by the Federal Deposit Insurance Corporation and a group of commercial banks, and discount window funds from the Fed (with $4.5 bn in discounts being done in the week beginning 16 May). Partly as a result of this, there was no contagion to other institutions or markets. While the bank was not explicitly nationalised, the government placed a representative on the executive board of the bank.

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17 The risk in such patterns is that the availability of non-domestic inter-bank funds might not be reliable, as the banking sector becomes exposed to institutions that have no stake in the stability of the domestic financial system.

5 The Texas banking crises (1985-89)

The Texas financial sector suffered a major reversal in the mid 1980s, with no less than 400 banks becoming insolvent over 1985-9 (Gunther et al 1995), and Texas accounted for 50% of US bank failures over this period. Also nine of the ten Texan bank holding companies were provided with new ownership under federal assistance or were purchased by out-of-state institutions. These banking difficulties came on top of the thrifts crisis, as outlined in Section 3.

This pattern mainly reflected the impact of the weakening of oil prices on the region's economies. The rises in oil prices in the 1970s had led to a boom in the regional economy, which spawned a great deal of speculative real estate expenditures, all of which was highly dependent on the energy business. Even when oil prices began to ease in 1982, banks were unwilling to accept lower growth from lesser demand for loans from the energy industry, but rather continued to grow by shifting loan growth to real estate (perhaps an illustration of what Guttentag and Herring (1984) entitle "disaster myopia"). At a national level, real estate development was also encouraged by the Economic Recovery Act of 1981, which encouraged investors to finance real estate purely for the tax benefits. And furthermore, as outlined above, the thrifts were inadequately supervised and insolvent thrifts were allowed to continue operating in negative net worth, thus financing real estate that would not otherwise have been built and contributing to oversupply. In Texas, thrifts tended to be state chartered and had yet more liberal asset powers than federally chartered institutions - loan to value ratios could be up to 100%.

When oil prices weakened after 1980, and finally collapsed in 1986, they inflicted a sharp adverse shock on Texas. In the context of overbuilding as outlined above, such effects were magnified. Since US banks were obliged to operate in one state at the time[18], they were highly vulnerable to region specific economic downturns, being unable to diversify their activities across diverse regional economies. Note that the Federal Reserve could not appropriately respond to such a shock by reducing interest rates, since the rest of the US economy was actually boosted by the fall in oil prices. Accompanying the oil price counter shock was fiscal action (the Tax Reform Act of 1986) to reduce the tax incentives for real estate investment, which reduced demand for new real estate investment and reduced the market value of projects under construction and already built.

The Texan real estate banks were particularly vulnerable to such a shock because they were heavily invested in construction and development loans as well as loans to commercial property - to a greater extent than similar banks elsewhere in the US. Indeed in 1983-6, banks in Texas had construction loans

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Domestic banks could face a cut-off of credit at times of stress, especially they are seen to face a common shock (see Section 5).

18 A more recent reform has facilitated cross state banking, and at the time of writing banks are becoming more widely diversified across the country.

three times larger as a proportion of assets than banks elsewhere in the US. On top of the region-specific shock, this was an important reason for poor performance relative to other banks across the US (Eisenbeis et al 1999) - banks in effect aggravated their own problems of vulnerability to asymmetric shocks. It was reflected in average losses for real estate banks of no less than 11% of assets over the period 1986-90, and over 2% a year from 1987 to 1989. Texan banks also had lower capital adequacy ratios when entering the crisis period than banks elsewhere in the US (although they were not obviously undercapitalised till much later), as well as higher operating expanses. Accordingly, over 100 banks per year failed during 1988-90, several years after the initial shock to oil prices.

The banking crisis was accompanied by a significant shift from correspondent banking links to use of the Federal Reserve payments system, as this protected against counterparty risk. Banks were particularly sensitive to this in the wake of the Continental Illinois crisis, and the risk that their own counterparty would not be considered as too-big-to-fail (Clair et al 1995). This facility helped to minimise spillovers from banking problems to the payments system.

Research into the causes and consequences of the Texan crisis (Gunther et al 1995) suggest that the regional economic downturn was indeed a key feature underlying the bank failures, but there was not a strong knock-on effect in terms of a local restriction on credit supply leading to further repercussions on the macroeconomy. Possible reasons for this were that banks and financial intermediaries from outside the area may have provided necessary lending, while businesses were able to make use of commercial paper and other types of securities market financing.

Texas was of course not unique in having banking difficulties in the 1980s and early 1990s. Another regional crisis occurred somewhat later in New England (Randall 1993, Jordan 1998), amid a slowdown in the region's economy and real estate market.

6 US equity markets in 1987.

Whereas popular accounts tend to focus on the events of October 19-20, focus on the Crash itself abstracts from the need for an explanation why the market rose so much prior to the Crash. Davis (1995a), summarising available accounts, suggests that there was a deviation between fundamentals and prices - a form of speculative bubble - which was reflected in historically unprecedented yield ratios between bonds and equities. Such a situation leads to a suspicion that forms of herding or trend-chasing, led by institutions fearing to perform worse than their peers, was involved. But clearly many other factors may have played a role in generating buoyant investor expectations, such as the merger wave in many countries, falling interest rates over 1987, buoyant economic prospects, rapid money and credit growth and lower transactions costs, which fostered an impression of high liquidity and led funds into the illusion that they could exit before prices fell sharply.

As regards the immediate causes of the collapse, since a bubble relies on continuously rising prices, it can be burst by any form of adverse news; in practice, factors underlying the crisis itself may have included current account imbalances between the US, Germany and Japan, which led to fears of a falling dollar and caused rises in long term US interest rates in the week prior to the crash. Also, tensions in the policy co-ordination process between the G-3 countries (following the Plaza and Louvre accords on exchange rates) may have played a role in triggering the crisis. Evidence supportive of the bubble hypothesis is that none of these items could in themselves justify a price adjustment of the magnitude observed (Fortune 1993).

[19] Asymmetries in asset price and credit growth are marked at the time of writing, however (ECB 2000b).

Some commentators in the United States also blamed the interaction between pension fund managers' portfolio insurance and index arbitrage[20] strategies for causing volatility at the time of Crash itself. Basically, it was considered that computer-driven sell orders for futures, which are a normal feature of portfolio insurance (or 'dynamic hedging') strategies when prices fall helped drive the market down much faster than would otherwise have been the case. The initial wave of selling of futures is thought to have driven futures to a discount to the market itself (known as backwardation) as well as reducing stock prices themselves and triggering further portfolio insurance-related sales of futures. The backwardation, seen as a market failure in the futures markets, encouraged index arbitrageurs to sell stocks and buy futures, thus, according to Brady (1989), leading to a so-called cascade effect or accelerating declines in prices.

Note also that US pension funds were relying on portfolio insurance strategies to protect them against market falls, such strategies could be held partly responsible for provoking the bubble. Only in the US was portfolio insurance used to a significant extent[21], whereas markets collapsed world-wide. The view of the Crash itself as dominated by portfolio insurance is also disputed (for a survey see Fortune (1993))[22]. What is less disputed is that institutions were heavily involved in the selling wave that accompanied the crash, with a particular tendency to dispose of cross border holdings. Such sales helped to generate the contagion across markets, which was such a feature of October 1987.

The crash posed major issues for monetary policy makers in both the short and medium term. In the short term the major concern was to avoid potential systemic risk arising from failure of investment banks, which was combated by an easing of liquidity and moral suasion on banks to lend. Such an easing was continued, however, owing to fears that there would be a major recession in the wake of the crash. In fact the latter fears seem not to have been justified, and the easing of monetary conditions sowed the seeds of inflation in a number of countries.

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20 Index arbitrage involved buying and selling simultaneously a stock index futures contract and the underlying stocks, so as to profit from any discrepancy (known as spread or basis) between them.

21 Indeed, in the UK the Crash was largely irrelevant to pension funds, since at the time their funding status relies on estimates of future dividend growth, that were unaffected by the Crash, rather than market values.

22 On the one hand, any form of strategy which aimed to lock in current values, such as stop-loss selling of equities (that is, selling when the price had fallen to a pre specified level), would equally have induced a rush of sales when the market fell; and this was probably the more prevalent strategy. Also Fortune (1993) suggests that the discounts between stock index and futures prices were in fact illusory, resulting from such phenomena as delays in reporting of individual share prices, late openings or trading halts for individual stocks, but their appearance led traders to panic; in other words, the problem was in the cash market and not the futures markets. Moreover Grossman (1988), examining US daily transactions data for 1987 as a whole, found no link from stock market volatility to programme trading.

7 The failure of the high yield (junk) bond market (1989) [23]

US corporate finance in the 1980s was marked by a rapid growth in leverage, much of which was associated with issuance of high yield bonds. Whereas there had always been low rated or speculative bonds on the market - often a result of loss of credit rating by firms ("fallen angels") - in the late 70s and early 1980s the investment bank Drexel Burnham Lambert set out to create a market for bonds that would have low credit ratings at issue. An additional stimulus was the decline in the private placement market, as life insurers sought greater liquidity (Crabbe et al (1990)). Initially, the market was largely a source of finance for small emerging companies which could not easily find credit from other lenders, while offering equity-like risks and rewards to investors seeking high yields. But the market also attracted take-over and LBO activity, often enabling corporate raiders to take over large companies from a small asset base. Issuance grew rapidly. Drexel undertook to make markets in the securities, aided by certain savings and loans and insurance companies having close relationships with the firm.

Initially other US investment banks sought to distance themselves for the market, but were eventually attracted by the high profitability of primary issuance activity. Investors, such as Savings and Loans institutions and insurance companies were keen investors, given the market offered equity returns together with guarantees and security associated with bonds. Also they were partly forbidden by regulation from investing directly in equities. Bush and Kaletsky (1990) suggest that junk bonds enabled such companies to offer higher yields to retail investors and gain market share at the expense of more prudent competitors, thus increasing the onus on them to hold junk bonds too. It is a matter of controversy whether risk was underpriced in the market; while the yields seemed generous enough to compensate for realised defaults, these occurred in the context of a period of prolonged economic expansion.[24] High leverage, the high prices paid for companies, (whose security thus depended on inflated asset values) and accounts and prospectuses based on an indefinite continuation of expansion gave grounds for caution. It can be suggested, in effect, that junk bonds dispensed with the credit analysis[25] usually performed by banks, leaving investors to rely on liquidity and diversification to protect

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23 See Bush and Kaletsky (1991).

24 The 1990-91 slowdown exacted a heavy toll of bonds, with default rates of 8.8% in 1990 (Moody's 1991).

25 Although in principle the lead manager should offer credit assessment, balance may have been affected by the attraction of the front end fee.

themselves. As discussed below, the former proved an illusion in changed circumstances; the latter also (given higher defaults than anticipated) to some degree.

By 1989 the market had reached a value of $200 bn and issues were still proceeding briskly. These included part of the financing of the $25 bn RJR/Nabisco take-over, the largest yet. But the market was weakened by a number of factors which increased uncertainty arising particularly from a default at Campeau, a Canadian conglomerate that had financed purchases of US retailers by junk bonds as well as sharply increasing supply and declining liquidity. Fundamentals worsened sharply when the government's Savings and Loans bail-out bill ordered thrifts to dispose of all junk bonds, although it is not clear this was sufficient to account for all of the subsequent decline. As a consequence, prices fell rapidly, liquidity collapsed[26] and new issues dried up. In the wake of this came the failure of Drexel Burnham Lambert, the main[27] market-maker in February 1990, as the declining value and liquidity of its holdings of junk bonds - in effect, they turned into loans - led to a downgrade of its own debt by the rating agencies and consequent inability either to rollover its commercial paper or to obtain substitute bank finance. It is notable that the market failure occurred without a tightening of monetary policy or a recession, though the later slowdown in the US weakened the market further. No intervention was felt necessary to rescue[28] Drexel - whose failure was felt to pose no systemic threat - nor the market itself. Issuance was near zero through 1990, though a tentative recovery was apparent by the end of 1991.

[29]

8 Russia/LTCM and US securities markets

In considering the events of 1998, it is important to note that the crisis followed a long bull period, where equity prices had risen sharply and credit quality spreads on bonds had contracted. Issuance even of low grade bonds was very high. The Asian crisis had had little effect on this pattern, although bid-offer

26 Whereas trading was $400 mn a day before Campeau, it was $150 mn in December

27 It accounted for 50% of trading.

28 However, the authorities were careful to ensure an orderly rundown of its affairs.

29 The similarities should not be exaggerated - markets cannot become "insolvent" like banks, and an investor who "sits tight" till liquidity is restored need not make a loss.

widening was apparent in the mortgage backed securities market - where LTCM was active - in April 1998. The trigger for serious turbulence was the moratorium on sovereign debt and effective devaluation of the rouble by Russia in August. It led to a sharp fall in equity prices, a in core government bond prices (in the context of a "flight to quality") and a rise in spreads, most markedly on low grade corporate bonds (although the rise in yields was cushioned by an overall fall in bond yields). Issuance collapsed for the US high yield market (to $2 bn in October compared with $15 bn per month in the second quarter), and was sharply reduced for all private debt instruments. Crucially, it was apparent at the time that not all of the widening in spreads was linked to credit risk perceptions, but to an extreme liquidity preference and a general unwillingness to deal in corporate bonds. In the words of McDonough (1998), there was an "abrupt and simultaneous widening of credit spreads globally, for both corporate and emerging market sovereign debt, (which) was an extraordinary event beyond the expectations of investors and financial intermediaries".

Underlying these patterns, a wide variety of institutions had taken long positions in Russia and other emerging markets. The spillover to the US and other mature markets was linked to the financing of these positions in a leveraged manner in those markets. Rapid attempted liquidation by a large number of investors in the context of high leveraging led to sharp price changes. The overall widening of spreads in turn inflicted heavy losses on the significant number of large investors which had purchased other higher-risk and/or lower-liquidity assets (e.g. junk bonds or mortgage backed securities – and off-the run[30] Treasuries) while going short in high-quality debt on the assumption that the existing widening that had occurred after the initial Asian crisis would be unwound (i.e. spreads would "mean revert"). Such losses led to further margin calls, liquidation and hedging, putting further demands on liquidity.

LTCM was one such investor, a hedge fund with large and (50:1) leveraged positions across what were thought to be a diversified range of financial markets. US and European banks had major credit exposures to it. Simultaneous price shifts in previously uncorrelated markets in the wake of Russia wiped out its capital and threatened insolvency. A rescue was undertaken by private-sector banks to preserve orderly market conditions (McDonough 1998). Notably, there was concern if LTCM had suddenly been put into default, its 75 counterparties would have rushed to "close out" hundreds of billions of dollars of positions, causing massive illiquidity and price shifts, harming both the counterparties and other market participants. Such a move might generate further uncertainty in a vicious circle, which would ultimately impact sharply on the cost of capital[31].

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30 On the run Treasury securities are the most recently issued stocks and heavily traded; off the run are earlier issues of the same maturity which lack liquidity, being largely in the hands of long term investors. As both are obligations of the US Treasury, there is no distinction in credit risk, and the spread is one of the "cleanest" indicators of liquidity risk.

31 The US investor Warren Buffett reportedly sought to resolve the situation, but his help was refused.

Despite the rescue, LTCM heightened uncertainty by leading to fear of the unknown regarding unwinding of its positions and similar hedge fund[32] or bank failures which would entail the unloading of assets into illiquid markets at distressed prices. There was a sharp increase in price volatility and departures from normal pricing relationships (spreads between long term on-the-run and off-the-run Treasuries widened from a norm of under 10 bp to 35 bp, despite similar duration and the same credit risk) implying a major premium was placed on liquidity. Further widenings were seen in the yield spreads on eurodollar bonds and on private sector instruments over US treasury bills, as well as on swaps of fixed for floating rates, showing also heightened concern about counterparty risk. Even in currency markets such as the dollar-yen, there was a sharp rise in bid-offer spreads – and, separately, a one-day move of 15 yen as the so-called yen carry trade was rapidly unwound. There was concern about a possible credit crunch - as issuance of corporate debt and commercial paper fell, but a rise in bank lending tended to substitute - apparently US non-financial firms were apparently able to switch between markets and backup lines of credit with banks, on tighter terms.

Much larger institutions than LTCM had similar if not greater positions with comparable leverage i.e. the markets lacked “macro portfolio diversification”. LTCM had $ 80 bn in US Treasury arbitrage positions while commercial banks had $ 3000 bn. Direct creditors and counterparties of LTCM were hence not the only ones likely to be hit by losses from an enforced unwinding of LTCM’s positions. In such circumstances, market makers were naturally reluctant to take the opposite side of the market[33]. According to the Wall Street Journal, they “cut back on the size of trades, quoted wider bid-offer spreads or did not quote at all”. Consequently, liquidity plunged and market prices moved to levels which were at times wholly unjustified by fundamentals. Markets that were traditionally uncorrelated became highly correlated, and VaR models were interpreted as prompting further sales. There was paralysis among long term investors who could have corrected pricing anomalies, due to risk aversion and/or lack of credit. Trading techniques such as dynamic hedging and portfolio insurance apparently worsened such tendencies, and exacerbated market price movements once they began. The result was intensified focus on paper that could be liquidated quickly, regardless of its quality in other respects.

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32 One of the key issues raised by the crisis was the lack of transparency of hedge funds, despite which banks appeared willing to offer financing. See Basel Committee (1999).

33 The institutions making markets had themselves been financially weakened in the crisis.

9 Some broader lessons for macroprudential surveillance

We now go on to examine some of the broader generic lessons of US financial turbulence, which is useful for the euro area as well as other OECD countries and emerging market economies. We would suggest that US historical experience as outlined above (Table 4), in common with experience elsewhere in the world (Table 5), suggests financial instability manifests itself in three main ways (Davis 1999c), although within these broad groups there are many sub-categories and further distinctions to be made.

One generic type of crisis is bank failures following loan or trading losses. Examples include the Texas banking crisis and the US thrifts crisis (as well as the LDC debt crisis, the banking crises in Japan, the Nordic countries and Australia and the Asian crisis). Many developing countries have suffered such crises in recent decades. Within those banking crises one may distinguish those that were confirmed to the domestic financial system as opposed to those that are also linked to cross border bank lending and indebtedness in foreign currencies (LDC debt, Asia).

A second type involves extreme market price volatility after a shift in expectations. Such crises are distinctive in that they tend to involve institutional investors as principals, and are focused mainly on the consequences for financial institutions of sharp price changes which result from institutional "herding" as groups of such institutions imitate one another's' strategies. Whereas violent price movements may in themselves not have systemic implications[34], these may emerge when such movements threaten e.g. institutions that have taken leveraged positions on the current levels of asset prices. Examples are the stock market crash of 1987, the ERM crisis, the 1994 bond market reversal and the Mexican crisis. There were also elements of this in the Asian crisis.

A third type, which is linked to the second, involves protracted[35] collapse of market liquidity and issuance. Again often involving institutional herding, the distinction with the second type is often largely one of whether markets are sufficiently resilient, and whether market maker structures are suitably robust. Also such crises tend to characterise debt markets rather than equity or foreign exchange. The risks are acute not only for those holding positions in the market but for those relying on the market for debt finance or liquidity – which increasingly include banks. Examples in the past have tended typically to be rather specific and idiosyncratic markets, which by nature relied on a narrow investor base, market maker structure and/or issuer base (junk bonds, floating rate notes, Swedish commercial paper, ECU bonds). However, the events described in Section 8 following the Russian default and the rescue of the hedge fund LTCM were much more serious, as liquidity failure was threatened in markets such as the US securities repurchase (repo), swaps, commercial paper (CP), corporate and Treasury bond market (see

34 They may, however, lead to resource misallocation.

35 It is not denied that all sharp price changes will tend to affect market liquidity to a greater or lesser degree

IMF (1998), Davis (1999d)). The main historical precedent was the Penn Central Bankruptcy and its effect on the US commercial paper market. In these cases liquidity was threatened in core markets, thus leading the US authorities to take decisive action.

An immediate point to make is that most periods of financial instability in Europe have linked to the first type of crisis (i.e. banking crises), with market crises occurring in, or largely originating in the US (although US banks have made far greater losses from credit risk than market risk). The likely securitisation of euro area markets may pose similar challenges there. Given that securities market problems are likely to generalise across the monetary area while banking crises can remain local, the former would be more likely to provide a challenge directly to the ECB.

On the other hand, the presence of both banks and securities markets as a source of financing in a monetary area is beneficial in offering a form of diversification for the financial system - and indeed, banks have often offered substitute finance (e.g. after LTCM[36]) when securities markets are closed while securities markets substituted for banks in the Texan banking crisis. European financial systems would thus become less vulnerable to economic repercussions of banking crises as securities markets develop.

Generic features of the crises may also be helpful in pinpointing potential danger signs in the euro area. Table 6 provides a summary of the features of the US financial crises outlined above, which was developed also in the light of the theories listed in Section 2. We consider these to be the most basic dataset that is suggested by US experience as being common to crises[37]. As shown in Davis (1999d), a wider range of crises reflect similar features.

Notably, in advance of crises, the stress is laid on:

- Debt accumulation (economy wide, by individual sectors or in individual markets)
- Asset price booms (be it property or equity prices)
- Concentration of risk on the part of financial institutions (implying excessive optimism in respect of potential “correlations”)
- Unanticipated regime shifts towards laxity on the part of monetary, fiscal or regulatory authorities (including "financial liberalisation")
- Easing of conditions for new entry of intermediaries to the relevant market
- Financial innovation (and rapid growth of the markets concerned)
- Declining capital adequacy of financial institutions
- Monetary tightening or unanticipated regime shifts towards rigour on the part of monetary, fiscal and regulatory authorities.

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36 Penn Central in 1970 was another example (Davis 1994).

37 See also Demirguc Kunt and Detragiache (1998a and b)

Of course, many of these features have occurred separately without entailing a crisis, and indeed are part of the normal functioning of a market economy. It is their combination and acuteness that is crucial. There are conceptual distinctions between these features: monetary or other forms of policy tightening is a which may indeed be warranted by the other elements, while most of the other elements are arising from an (such as changes in regulation or technology in the real economy or financial markets). Moreover not all of these features were present in all cases. Nevertheless, we suggest that they constitute a useful checklist derived from actual experience – and that the experiences themselves warrant considerable attention.

Conclusions

We would suggest that the episodes that have been specified are of interest in the light both of structural similarities of the euro area to the US of the likely evolution of the euro area towards the US model. Such evolution is widely predicted in terms of the importance of capital markets, institutional investment and publicly-available information regarding issuers and borrowers (as opposed to the European tradition of banking intermediation based on private information and close banking relationships).

Table 7 seeks to summarise the key lessons of each crisis according to the division set out at the outset between those elements relating to securitisation and those linked to structural elements, as well as some elements common to the generality of financial crises. US history shows in particular in a large and diverse monetary area with segmented local banking markets, regional crises can pose a major challenge to policy makers, while the existence of a large monetary area in a global sense means that there will inevitably be international transmission of shock s generated within it. There is also a need for special care in the case of new monetary arrangements that have not yet experienced major financial instability.

Meanwhile money and securities market liquidity become of great systemic importance in a securitised financial system; equity prices too may become of major importance for financial stability; disintermediation becomes a major factor with which banks must contend and adjust as best they can; that non banks such as investment banks and even hedge funds may become of systemic importance; and that even institutional investors strategies can cause major asset price shifts which threaten systemic stability. More generally, whereas European financial instability has traditionally been of a pattern of bank failures following loan and trading losses, the likely securitisation of euro area markets may pose challenges arising from the occurrence of crises of a type more characteristic of the US, linked to price volatility in asset markets following shifts in expectations (which may threaten leveraged institutions that hold positions in these assets) or the collapse of market liquidity and issuance, which threatens institutions needing to transact or issue in such markets. On the other hand, the presence of both banks and securities markets is beneficial in offering a form of diversification for the financial system - and

indeed, we have cited cases where banks have provided substitute finance when securities markets are closed, and vice versa.

US experience shows that issues such as to-big to fail can arise in a large monetary zone in the same way as a small state with a concentrated banking sector; the thrift crisis underlined for all time the dangers of forbearance in respect of banks with zero or negative net worth, and deposit insurance guarantees. Finally, real estate lending booms and rising corporate leverage are shown in the US, as in Europe, to be major warning signs for financial instability.

It may be added that we have by no means exhausted the material that recent US financial history provides, as for example:

- the Penn Central bankruptcy of 1970 showed that liquidity of money markets, even one as established as US CP, is not necessarily robust, and liquidity failure may prompt policy action. Accordingly, the growth of money market financing of non-financial corporations - itself likely to accompany the integration of financial markets in the EU -. may broaden the locus of systemic financial instability beyond banks;
- the LDC debt crisis shows inter alia the risks of cross border lending to emerging markets - that also came to the fore for Asia for EU banks - partly driven by disintermediation of banks from domestic corporate lending and intense competition;
- the capital crunch of 1990-1 showed again the dangers of high corporate leverage and real estate lending (again related to concentration of bank lending on high risk borrowers following securitisation), see Davis (1995c), as well as the role constraints on bank lending can play at a macroeconomic level;
- and the Mexican crisis showed the growing influence of mutual funds on cross border flows.

Having set out the various ways in which the euro area may learn from lessons of history in the US, it remains to note some of the recognised challenges in respect of financial stability in the euro area. The ECB (1999) provide a number of suggestions. They note that EMU will reinforce prevailing trends in EU banking sectors, notably

, spread of mergers and higher conglomeration (author's italics). Among pressures on banks' profitability were the reduction in forex activities, securitisation and disintermediation and the decrease in correspondent banking owing to centralisation of treasury functions by large firms. In this context, EMU "will also affect the features and magnitude of banking risks", whereby in the context of the development of deep and liquid markets, which can facilitate direct access for the best borrowers and the "resultant ". Maturity transformation risk and country risk from increased involvement in non-euro markets were also highlighted. More recently, the ECB has noted the rapid growth of the euro interbank market, with a high

proportion of unsecured activity[38], as well as growing concentration of such lending (ECB 2000a). The patterns of real estate prices in some countries is seen as a potential source of risk at the time of writing (ECB 2000b).

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38 In mitigation, the maturity of the unsecured activity is typically short. Growth of interbank repo transactions is limited by the lack of integration of securities settlements systems across the eurozone.

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Table 1: European Union and US, economic indicators 1997

	Popula-tion	GDP (% of global)	Exports (% of GDP)	Exports (% of world trade)	Agri-culture (% of GDP)	Industry (% of GDP)	Services (% of GDP)
EU-15	374	25	9	-	2	30	68
EU-11	290	19	12	20	2	31	67
US	268	20	8	15	2	26	72

Source: EMI (1998)

Table 2: European Union and US, banking sector indicators, 1996 (*1995)

	Number of banks	5-firm concentrati-ion ratio	Population per branch	Interest margins
EU-15*	8165	10	2255	2.1
EU-11*	7361	12	1950	2
US	22846	16	3778	3.4

Source: Davis (1999b)

Table 3: European Union and US, financial structure indicators end-1996, $ billions(% of GDP)

	Equities	Govt bonds	Private bonds	Bank assets	Total	Institu-tional assets (1995)
EU-15	4518 (55)	4617 (56)	2945 (36)	18066 (207)	30146 (345)	6214 (74)
EU-11	2447 (35)	3818 (55)	2391 (34)	14321 (206)	22976 (331)	4041 (59)
US	8458 (117)	6965 (96)	4327 (60)	5580 (73)	25330 (331)	10501 (145)

Source: Davis (1999b)

Table 4: US financial instability

Date	Event	Main feature
1929-33	Stock market crash and banking crisis	Price volatility after shift in expectations and bank failures following loan losses
1979-89	US thrifts	Bank failures following loan losses
1984	Continental Illinois (US)	Bank failure following loan losses
1985-89	Texas banking crisis	Bank failures following loan losses
1987	Stock market crash	Price volatility after shift in expectations
1989	Collapse of US junk bonds	Collapse of market liquidity and issuance
1998	Russian default and LTCM	Collapse of market liquidity and issuance

For detailed accounts see Davis (1994, 1995b, 1995c)

Table 5: Further episodes of financial instability

Date	Event	Main feature
1970	US Penn Central Bankruptcy	Collapse of market liquidity and issuance
1973	UK secondary banking	Bank failures following loan losses
1974	Herstatt (Germany)	Bank failure following trading losses
1982	Ldc debt crisis	Bank failures following loan losses
1985	Canadian Regional Banks	Bank failures following loan losses
1986	FRN market	Collapse of market liquidity and issuance
1989	Australian banking problems	Bank failures following loan losses
1990	Swedish commercial paper	Collapse of market liquidity and issuance
1990-1	Norwegian banking crisis	Bank failures following loan losses
1991-2	Finnish banking crisis	Bank failures following loan losses
1991-2	Swedish banking crisis	Bank failures following loan losses
1992-6	Japanese banking crisis	Bank failures following loan losses
1992	ECU bond market collapse	Collapse of market liquidity and issuance
1992-3	ERM crisis	Price volatility after shift in expectations
1994	Bond market reversal	Price volatility after shift in expectations
1995	Mexican crisis	Price volatility after shift in expectations
1997	Asian crisis	Price volatility following shift in expectations and bank failures following loan losses.

For detailed accounts see Davis (1994, 1995b, 1995c)

Table 6: Features of selected episodes of US financial instability

	Great Depress-ion (1933)	Contl Illinois (1984)	Thrift crisis (1979-89)	Texas banking crisis (1985-9)	Stock market crash (1987)	Junk bond market (1989)	Russia and LTCM (1998)
Debt accumulation	●	●	●	●	●	●	●
Asset price boom	●		●	●	●	●	●
Concentration of risk	●	●	●	●	●		●
Regime shift	●		●	●	●		●
New entry of intermediaries	●		●	●	●	●	●
Innovation	●				●	●	●
Monetary tightening	●				●		
Declining capital adequacy of financial institutions	●	●	●	●		●	●
Credit rationing/liquidity failure/bank runs	●	●		●	●	●	●
Contagion between markets	●				●		●
International transmission	●				●		●
Action by the authorities		●	●		●		●
Severe macroeconomic impact	●						
Dysfunction of financial system/economic collapse	●						

Source: Davis (1995a)

Table 7: Summary of lessons from US financial instability

Date	Event	Structural elements	Securitisation elements	General features
1929-33	Stock market crash and banking crisis	International transmission; new monetary arrangements; lack of bank diversification on asset and liabilities side; importance of automatic stabilisers		Corporate leverage; equity prices and financial stability
1979-89	US thrifts	Lack of bank diversification on asset side.	Disintermediation, excess capacity, and the viability of banking sectors	Real estate lending risks; forbearance; deposit insurance.
1984	Continental Illinois (US)	Lack of bank diversification on asset and liability side		Too-big-to-fail
1985-89	Texas banking crisis	Lack of bank diversification on asset side		Real estate lending risks
1987	Stock market crash	International transmission	Importance of institutional investors trading strategies; systemic role of non banks.	Equity prices and financial stability
1989	Collapse of US junk bonds		Importance of securities market liquidity.	
1998	Russian default and LTCM		Systemic role of non banks; importance of securities market liquidity.	