

## POLICY RESEARCH WORKING PAPER

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# The 1985–94 Global Real Estate Cycle

## Its Causes and Consequences

*Bertrand Renaud*

The rapid emergence of a global financial system in the late 1980s was signaled in the real estate sector of most OECD countries and some middle-income NIE countries by unusually strong booms followed by exceptionally sharp, protracted real estate busts. Can we draw any lessons by probing the unappealing trilogy of "bad luck, bad policy, and bad banking that has affected the sector?"



## Summary findings

The peak of the first global real estate boom was reached around 1990 in most OECD countries. Asset inflation was massive: in office markets across Europe, capital values rose 400 percent between 1980 and 1990, accelerating after 1986 — while average consumer price inflation went up only 150 percent. Property values have declined sharply since 1990, with most property markets losing at least 20 percent in nominal terms the first year of the crash's onset. Cumulative drops in capital value often reached 50 percent by the end of 1993.

This pattern of a sustained buildup, usually peaking in 1990, followed by a sharp fall in nominal values, has been encountered in most OECD markets and in several NIE countries.

Real estate booms and busts are recurring events, says Renaud, but real estate volatility on the scale and with the intensity just experienced is costly and destructive. Real resources are misallocated, and the impact on the banking system, on households, and on the economy can be lasting.

Renaud surveys the global real estate cycle of 1985–94, trying to identify domestic and international factors

that triggered this new phenomenon of global real estate volatility. His intent: Assuming that the globalization of financial markets is irreversible, can we separate unique factors from recurring ones in this first global cycle? Can we map generic policy lessons and identify policy priorities and research agendas? Can we identify factors that accentuate real estate price and investment volatility?

Four domestic factors lay behind the unusual volatility of this first global cycle, says Renaud: the liberalization and deregulation of capital markets, a distorted incentive structure that often stimulated the use of debt, new macroeconomic tools and occasional policy errors, and the structure of the real estate sector itself.

The wide-ranging survey includes a proposal for research in certain areas, and offers some diagnosis. For example: If the global real estate crash has publicized one thing, it is the poor quality of information on real estate markets.

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**THE 1985-1994 GLOBAL REAL ESTATE CYCLE:  
Its Causes and Consequences.**

by

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**The views presented in this paper are solely those of the author. They should not be attributed to the World Bank nor any of its affiliated organizations. An earlier version of this paper was presented at a joint session of the American Real Estate and Urban Economics Association and of the American Finance Association, ASSA Meetings, Washington D.C. January 7, 1994. The author thanks Dwight Jaffee, Susan Wachter, Michael Lea for their comments, and Mira Kuczynska for her assistance in preparing this paper.**



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# THE 1985-1994 GLOBAL REAL ESTATE CYCLE: ITS CAUSES AND CONSEQUENCES.

“ Il y a quelque chose de commun entre l’art du puzzle et l’art du go; seules les pièces rassemblées prendront un caractère lisible, prendront un sens: considérée isolément une pièce d’un puzzle ne veut rien dire, elle est seulement question impossible, défi opaque...”  
(Georges Perec, *La vie mode d’emploi*)<sup>1</sup>

## I. THE GLOBAL REAL ESTATE CRASH, A NEW PHENOMENON

The rapid emergence of a global financial system during the late 1980s has been signaled in the real estate sector of most OECD industrial countries –and NIE middle-income countries as well–by coincident cycles with unusually strong booms followed by exceptionally sharp and protracted real estate busts. The peak of the boom was reached in 1990 in most OECD countries. The massive asset inflation which took place can be illustrated by the performance of *office* markets across Europe as monitored by the Jones-Lang-Wootton European Property Index. *Figure 1* shows that capital values rose 400% between 1980 and 1990 with an acceleration after 1986. During that period, average consumer price inflation went up only 150%. Since 1990, the decline in property values has been sharper, most property markets losing at least 20% in nominal terms the first year of the onset of the crash. Cumulative falls in capital value have often reached 50% by the end of 1993. This pattern of a long sustained buildup in real estate asset prices usually peaking in 1990 followed graphically by a very sharp fall in nominal values thereafter has been encountered in most OECD markets and in several NIE countries.<sup>2</sup>

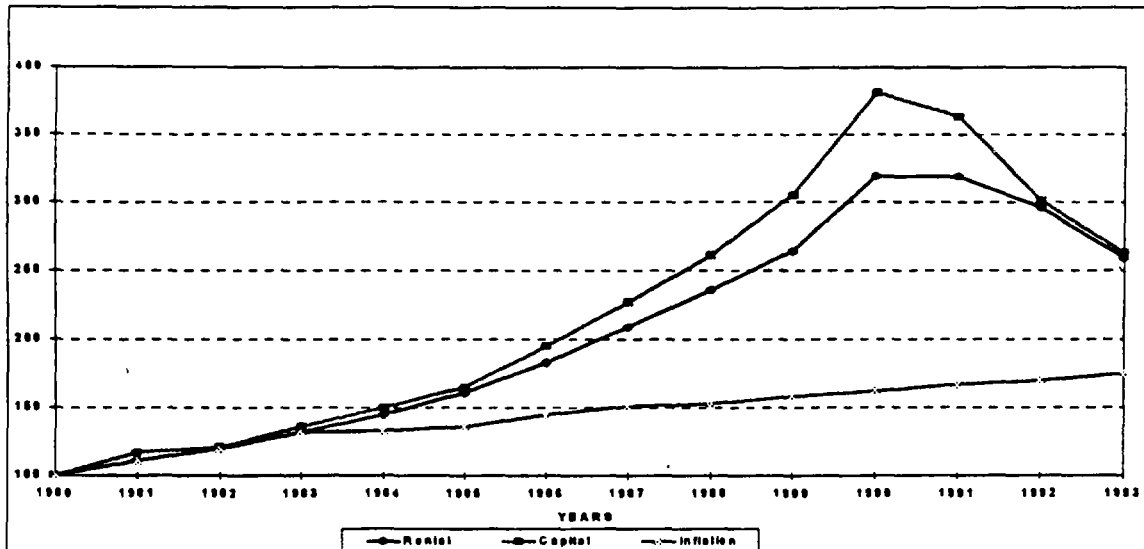
Real estate booms and busts are recurring events. However, real estate volatility on the scale and intensity just experienced is costly and destructive. Real resources are misallocated, the impact on the banking system can be lasting and reach far beyond the real estate sector itself. The widespread appearance of negative housing equity can have a catastrophic impact on large numbers of households. In addition to their unusual intensity, the coincidence of so many real estate crashes on a global scale is also a new event. The effects of this global crash on the real estate industry, the financial system, the household sector and the overall economy are still being felt in most countries today.

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<sup>1</sup> “There is something in common between the art of puzzle assembly and the game of go. Only when the pieces are fitted together do they acquire a legible character, gain a meaning. Examined in isolation a piece of a puzzle means nothing; it is just an impossible question, an opaque challenge”.  
Georges Perec, *Life, A User’s Manual*.

<sup>2</sup> The JLW office index is weighted by market size and compiled across 14 of the largest metropolitan markets in Europe. Price patterns similar to Europe’s real estate cycle are found in East and South East Asian countries like Taiwan (Taipei), Hong-Kong, Korea (Seoul), Thailand (Bangkok), Malaysia (Kuala Lumpur).

**Figure 1: The European Office Property Boom**  
European Property Index for Offices (1980=100)



Source: Jones Lang Wootton International.

From an analytical perspective, the global crash presents unusual research opportunities. More importantly, from a policy viewpoint, we need to understand much better how national and local market experiences differ to avoid other episodes of synchronous and extreme volatility. What has triggered this global cycle? Why is its volatility so much greater in some countries than others. The phenomenon has been global, yet knowledge about it is usually limited to one's own country, or remains fragmentary. For instance, the causes and consequences of regional and local booms and busts in the US during the 1980 has been studied with a fair amount of thoroughness. The existence of a Japanese asset "bubble" has also been debated at some length. But the links between Japanese domestic asset inflation experience and the spread of the global boom should also be spelled out. Also, why have some groups of countries like the Nordic Countries -- especially Finland -- been hit so severely when other countries like Germany appeared remarkably immune to the drama unfolding almost everywhere else?

This paper presents an exploratory survey of the global real estate cycle of 1985-1994.<sup>3</sup> Prior to engaging in detailed quantitative analyses of the shape of individual cycles for countries, cities and individual markets, it aims to identify more clearly the international and domestic factors that triggered this new phenomenon of global real estate volatility. The intent is threefold. First, taking as a given that the globalization of financial markets is most probably an irreversible process, can we separate unique factors from recurring ones in this first global cycle? Second, is it possible to map the generic policy lessons and, by implication, identify more clearly policy priorities and research agendas? Can we identify more clearly the international and domestic factors at work which accentuate real estate price and investment volatility? Third, probing into the unappealing trilogy of "bad luck, bad policy, and bad

<sup>3</sup> The selection of the years which bracket this first global cycle are partly a reporting convenience since the national real estate cycles surveyed have not been perfectly synchronous. 1985 is the year of the G-5 Plaza agreement on currency realignment with implementation beginning in February 1996. The 1987 Louvre G-7 meeting agreed that new exchange levels were adequate and focused on the coordinated macroeconomic stimulation of the G-3 economies, particularly Japan. (See Volker-Gyohten [1992] pp. 274-5 and 357-9). 1994 usually marks the bottoming out of the real estate sector in most countries.



banking” what are the lasting analytical, institutional and regulatory lessons which can we can draw? What would individual countries need to do reduce the volatility of their real estate sector under the conditions created by the new global financial markets? Can useful lessons be drawn for countries that are not yet fully integrated into the global capital markets such the semi-reformed socialist economies, and developing countries.

We begin with the analysis of the international factors at work and review the evidence on Japanese net capital outflows after 1985 as the major reason behind all these synchronous national cycles. Then we consider the domestic factors that have encouraged real estate volatility such as capital market liberalization, financial deregulation, pre-existing tax structures, distorting fiscal policies, as policy errors. The differentiated impact of the real estate crash, the various ways different countries chose to handle it, and some the innovations that are emerging from the rubble complete this survey.

The work is based on a data collection covering Japan, the US, the UK, the Nordic countries, France, Germany, Spain, as well as selected middle-income countries of East Asia, South-East Asia, and Latin America. Only selective evidence is presented in this paper.

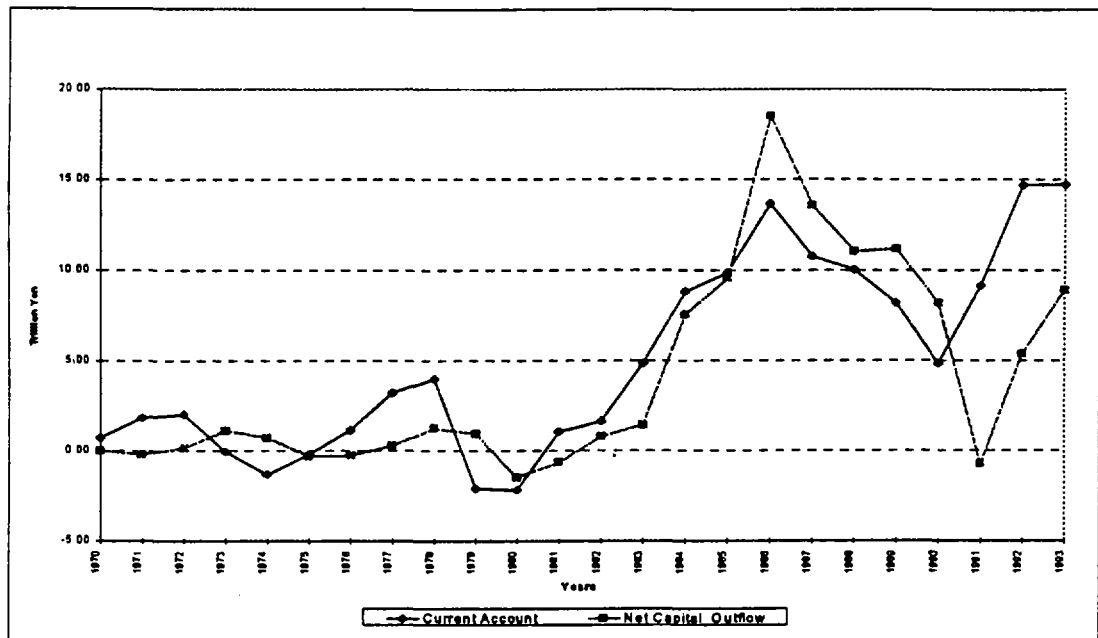
## II. INTERNATIONAL FACTORS IN THE 1985-1994 CYCLE

### 2.1 A Dominant Global Factor: Japanese Foreign Investment

The coincident real estate cycles encountered in most – but not all –OECD countries and many middle-income developing countries during the period 1986-to 1993 were responses to a combination of external and domestic causes. In the past, surges of capital inflows into different parts of the real estate sector of these countries have differed in terms of timing, persistence, and intensity. The major financial deregulation and decontrol of capital flows that took place during the 1980’s have certainly made the global real estate cycle possible. However, they do not explain its origin. A central feature behind the global cycle – i.e. so many synchronous national cycles – has been the massive Japanese dominance of world financial markets during the period. To quote one of the best analyses of the powerful Japanese asset price cycle and the associated net long-term capital outflows:

“Japan’s share of net long-term capital outflows among the G-7 countries plus traditional capital exporters Denmark, the Netherlands, Switzerland and Saudi Arabia rose from a quarter in 1982 to nearly 90% in 1987. In 1989, more than half of all foreign direct investment in these countries came from Japan. By that time, Japan had become the biggest net creditor nation on record, easily surpassing previous US or OPEC surpluses at their peak. [...] This historical expansion of Japanese capital exports was, however, followed by an historical collapse: virtually within the short period of one quarter, Japan became a sizable net importer of long-term capital in 1991.” (Richard A. Werner. [1994]).

Figure 2. Japan: Balance of Payments and Net Capital Outflows, 1970-1993



Source: IMF, International Finance Statistics, 1994 Yearbook

This massive surge of Japanese net capital exports raises four basic questions: what triggered this tidal wave, or more appropriately this *tsunami*? What domestic institutional arrangements made the generation of this capital possible? How was it exported? Why did the flow stop so abruptly?

## 2.2 The 1985 Plaza Accord as Trigger of the Japanese Asset Boom

The massive Japanese international capital flows were directly linked to the "land bubble" and the interactions between very rapidly appreciating land values, appreciating equity prices and easy credit by the banking sector. The trigger that led to the acceleration in land values has been the G-5 Plaza Accord of September 1985. That accord led to the major currency realignment across G-5 countries, particularly the Dollar-Yen exchange rates. This currency realignment was accompanied by negotiations on a coordinated stimulus package and the stabilization of exchange rates (Louvre Agreement) which included in the case of Japan a lowering of the central bank discount rate first to 3.00 and soon to a then historical low of 2.5%.<sup>4</sup> Bank loans as well as bank loans from non-bank financial institutions to real estate companies. From a stable share of about 7% of total bank loans for two decades, such real estate

<sup>4</sup> Such a stimulus package was at first strongly resisted by Japanese financial authorities because the national government deficit had reached almost 22 percent of the budget by 1985, and total outstanding public debt was equivalent to 42 percent of GNP and growing. Earlier in 1984, work by the Regan-Takeshita committee laid the basis for the rapid emergence of the Euroyen market. (For details on international finance coordination during the 1980's, see Volker and Gyohten [1992] pp. 248-280, especially pp. 274-75). At the beginning of the boom, in 1986, the Bank of Japan discount rate had fallen to a first historical low point of 2.5 percent. In 1993, following three consecutive years of brutal real estate and equities price deflation, Japan experienced a new historical low in the discount rate at 1.75%. The Bank of Japan's new discount rate of 1.75% aimed to remedy the massive credit crunch caused by the severe deterioration of the balance-sheets of Japan's banking sector.

lending activities climbed sharply after 1985 to 17% in 1990. (see Figure 3, Yoshino [1991], Werner [1994]). Land wealth as a share of net worth shot up from 55% to over 70% between 1985 and 1988, as a share of GNP it rose from 2.8 to 5 times during the same period. This land price dynamics in Japan has been abundantly reviewed internationally in various papers (see for instance, Noguchi, 1990 and Stone and Ziemba, 1993).

### 2.3 Domestic Asset Price Inflation in Japan: Land and Equities

The combination of low interest rates and abundant liquidity favored real estate investments, and impacted most sharply on the inelastic urban land supply to generate accelerating land price appreciation. The institutional arrangements in Japan through which rapidly rising land values can lead to other forms of asset appreciation are by now well understood. (See for instance, Ito [1992], Chapter 14). Increases in the price of land price held by corporations means a rise in the value of this asset on their balance-sheet. Unrealized capital gains lead in turn to both increases in Tobin's  $q$ , the ratio of market value to corporate asset value, and easier access to bank loans which may be used for new productive investment or more speculative real estate investments.<sup>5</sup>

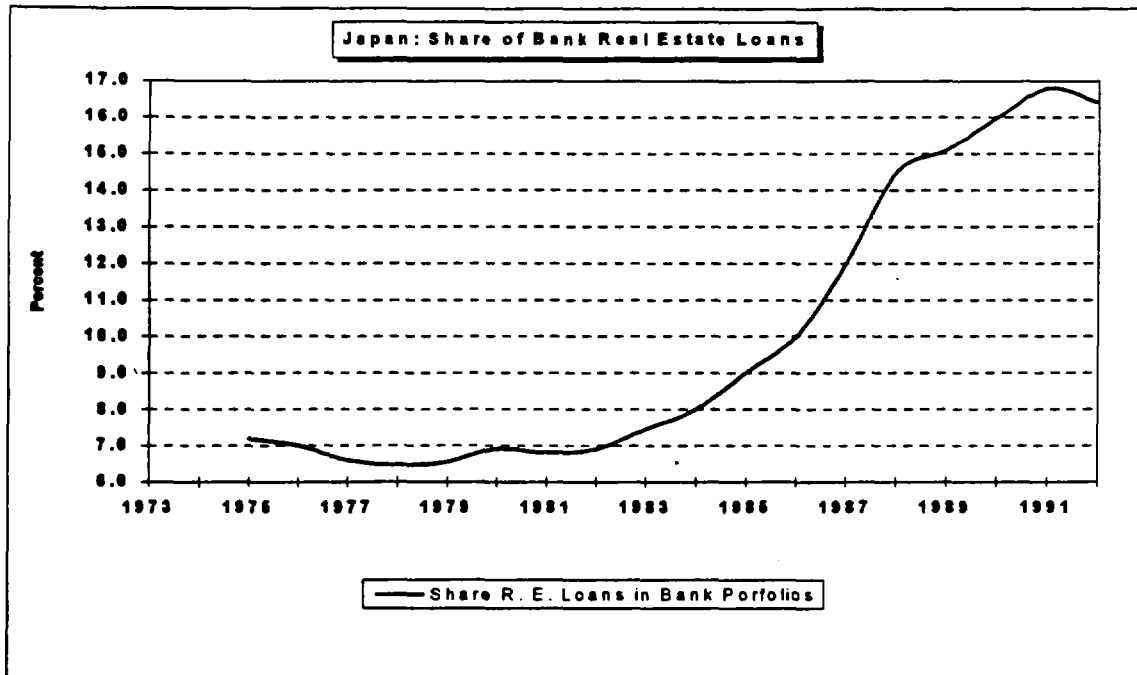
Real estate sector rigidities combined with relaxed macroeconomic policies have amplified land price volatility. The inelasticity of urban land supply associated with complex urban development regulations is accentuated in Japan by land use regulations which restrict rural-urban land use conversion. Land price volatility is also fueled by fiscal arrangements that encourage land hoarding [Kirwan, 1987], [Mera, 1992], [Case, 1992]. These distorting regulatory and fiscal arrangements are: the land and building leases laws, low property taxation, the privileged treatment of farm land in cities, the very favorable treatment of capital gains treatment on real estate property which triggers lock-in effects, and bequest taxes which give favorable treatment to real estate over other assets. [Noguchi, 1990]. The impact of rising land prices on other assets, especially high equity price-earnings ratios has been amplified by cross-holding because in Japan about 40-50 percent of all outstanding shares of stocks are held by other corporations, and banks.<sup>6</sup> [Ito, 1992]

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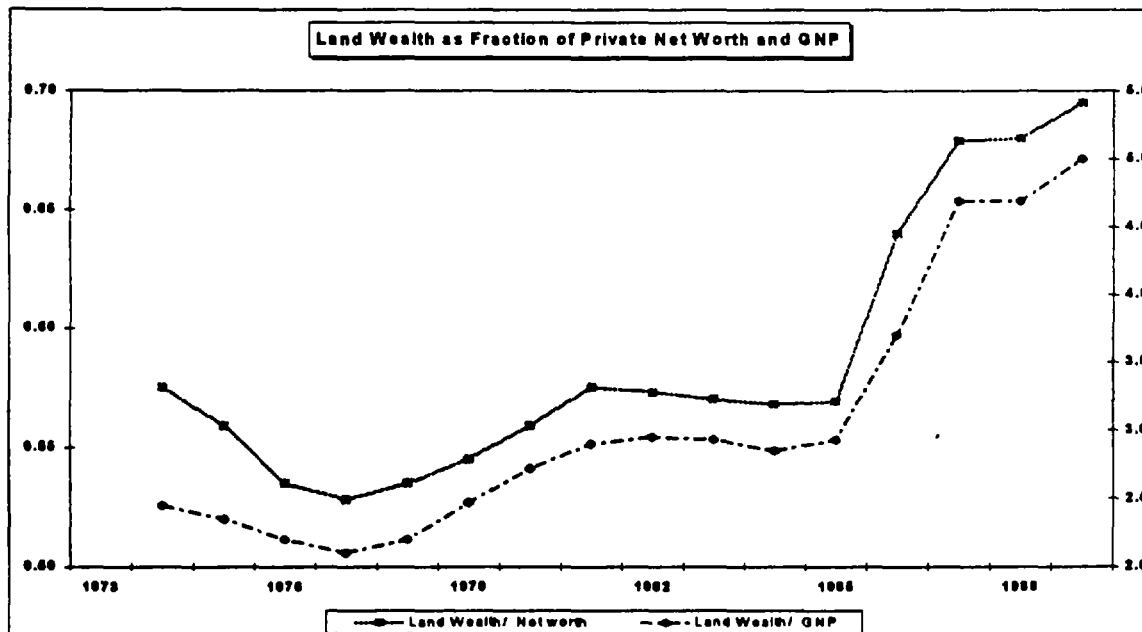
<sup>5</sup> There was a massive rise in Japanese stock price-earning ratios from 20 in 1984 to 60 in 1990.

<sup>6</sup> Ito [1992] uses the concept of the "required rate of return" on holding assets such as bonds, equities and land to link high price-earning ratios on the Japanese land market and on the stock market. Japanese land prices are extremely high by international standards, but rents are comparable with other metropolitan centers such as London (Noguchi, 1990). For a given expected total return  $r$  for all assets, if  $L_t$  is the price of land and its rent  $r_t$ , the arbitrage condition between land and these other assets is:  $r = [r_t + (L_{t+1} - L_t)] / L_t$  or  $r = r_t / L_t + (L_{t+1} - L_t) / L_t$ . A low earnings/price ratio is then expected to be compensated by a high rate of capital appreciation.

Figure 3. Japan: Changing Composition of Bank Lending and Land Inflation



Source: R. Werner [1994] and Ueno [1992].



Source: R. Werner [1994]

## 2.4 Land Price Inflation and Japanese Net Long-Term Capital Flows

How could high and rising land prices possibly affect Japanese international capital flows? After all, foreigners have been playing a very marginal role in the Japanese property market. If an owner sells his highly appreciated property, and as long the buyer is also Japanese, the macroeconomic impact on the rest of the world should be zero. The existence of a link between the explosive fluctuations in real estate asset prices and Japanese net long-term capital flows has been successfully established empirically by Werner [1994]. Traditional models of capital flows are based on national accounting identities; they lead to the automatic conclusion that net capital outflows are equal to the current account surplus. In fact net capital outflows were larger than the current account surplus in Japan during the global real estate boom (see Figure 2). The basic national accounting identity is:

$$(X-M) = (S-I) + (T-G) = -F$$

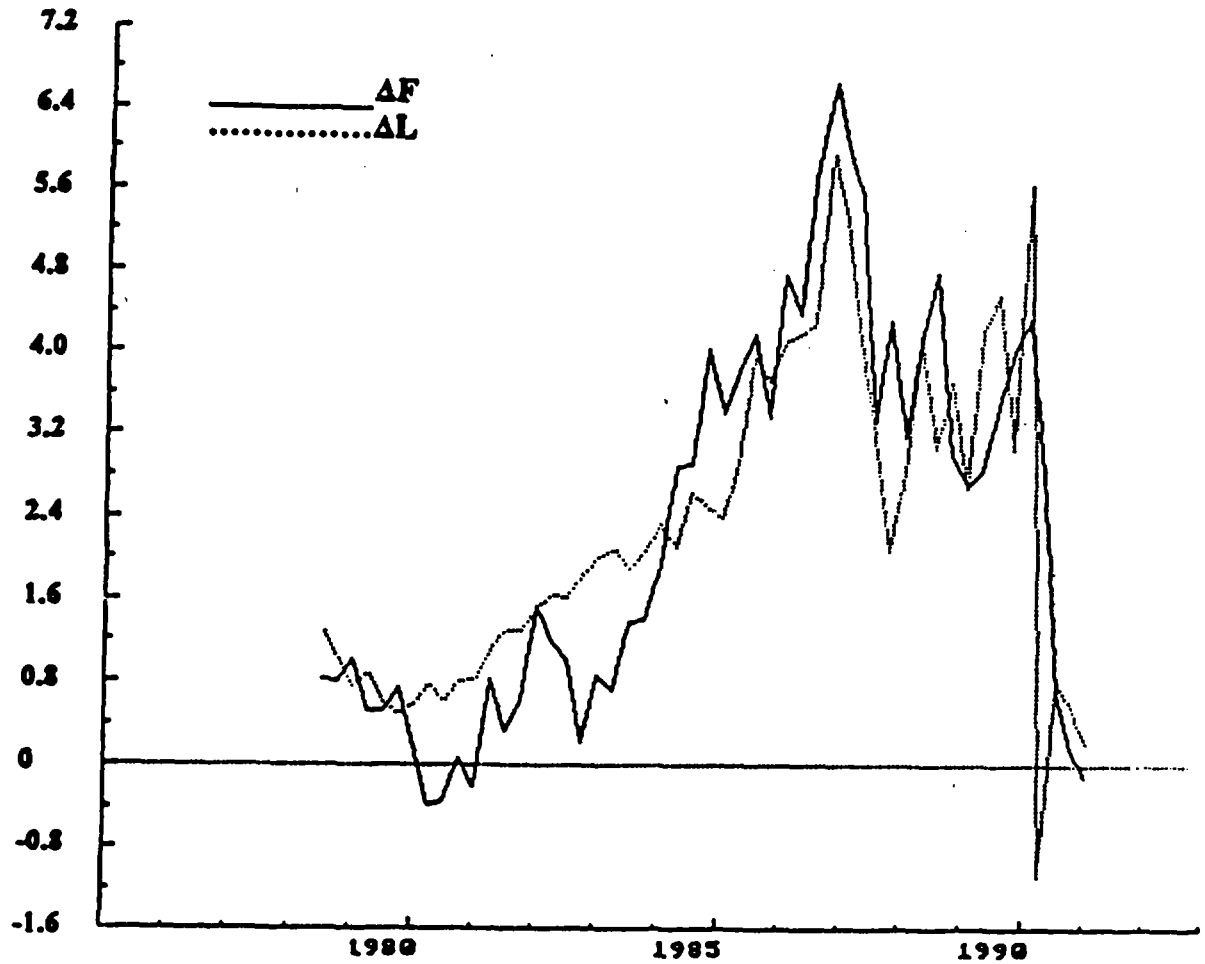
The current account surplus ( $X-M$ ) is equal to the sum of net private investment ( $S-I$ ) plus the public sector deficit or surplus ( $T-G$ ); it is also equal to net capital outflows which are recorded as a negative value in international finance statistics. It is the behavior of each term of these identities that needs explanation. How did Japan borrow its way into such explosive growth in overseas investment? Werner has shown that real estate asset appreciation has played the critical role in Japanese net capital outflows. He demonstrates this link by shifting to a theoretically more sound behavioral macroeconomic portfolio model of international capital flows, in which he introduces land-related loans.<sup>7</sup> He finds that the rate of change on the volume of real estate related loans has a statistically significant effect in explaining net capital outflows (see Figure 4). Werner's finding is that "through its interaction with the banking system, Japan's "land bubble" appears to have been a major factor contributing to the movement of Japanese net long-term capital flows" (Werner [1994], p. 175).

There have been two links between land inflation and bank credit in the Japanese financial environment. First, banks made land-related loans directly to real-estate companies or indirectly through loans to the non-bank financial institutions which are in Japan the main loan channels to real estate companies. Such lending rose very sharply and, as just noted, fueled a joint land and equities asset price inflation. Second, Japanese banks have traditionally relied on real estate collateral rather than project quality and cash flow to make loans. After 1985, the soaring value of land has provided the collateral against which Japanese firms could borrow at home to buy assets abroad. Much of this investment was portfolio investments (US bonds and other securities), yet a very large volume also went to direct real estate investments.<sup>8</sup>

<sup>7</sup> Werner's analytical strategy is to compare the explanatory powers of two versions of his capital flows model, without and with land loans. In the first version the aggregate financial portfolio of Japan is:  $W = M + B + F$  (high power money, domestic bonds plus net foreign assets). In the second version the total portfolio  $V$  is redefined to include land loans  $L$ :  $V = M + B + F + L$ .  $L$  is taken as exogenous and influenced by central bank supervision. (See Werner [1994]).

<sup>8</sup> The spread of the boom around the world was summarized at public hearings by the head of the real estate department of *Crédit Lyonnais*: "We were told that French real estate was not expensive compared to British real estate, which was cheap compared to US real estate, which was cheap compared to Japanese real estate"... "For the first time, in 1989-1990 there were transnational influences. Remember the Japanese investors coming to Paris and buying blocks of buildings"... "The mother of all corporate headquarters operations was the Shell building. It was a wonderful operation for the Paris market: you start renovating a building and, even before work on it has started, the entire facility has been sold to investors. This operation had a unquestionable stimulating impact on the entire market" (Peene testimony, see *Assemblée Nationale* [1994], pp. 590-1). In the US, it is estimated that Japanese real estate investments during the period 1985-1993 amounted to \$77 billion, with one third of this flow going

Figure 4: Changes in Property Related Loans and Net Japanese Capital Outflows, 1980-1990



$\Delta F$  = Change in net foreign investment  
 $\Delta L$  = Change in net lending to real estate and construction  
(Trillion Yen, Matched Means and Ranges)

Source: R. Werner [1994]

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to California (See *Economist* July 23, 1994). "Trophy" or "paquebot" (luxury liner) investment by Japanese and other investors had similar impacts in most of the international cities.

## 2.5 Steep Domestic Asset Deflation in Japan, 1990-91

The abrupt end of asset price inflation in Japan came in 1990 through the combination of two main factors: one domestic, the other external. In 1990, deflationary and restructuring policies were implemented by Yasushi Mieno as new Governor of the Bank of Japan in order to correct the 'bubble economy'. Liquidity was cut back -- particularly for real estate loans -- and the discount rate was raised five times moving it from 2.5 percent to 6.0 percent by the end of 1990. These restrictive credit policies were already leading to an important stock market correction, but the stock market adjustment became really massive with the Gulf crisis. Externally, the August 1990 invasion of Kuwait and the Gulf War contributed to a shift in expectations and a sharp fall in the Nikkei index of 36.3 percent in just three months. See Ueda [1990].

Together with stock prices, Japanese real estate prices have declined sharply since 1990.<sup>9</sup> Japanese banks now face an unprecedented increase in non-performing loans following five years of rapid growth in their real estate exposure from 7% to 17% of total loans between 1986 and 1990. Banking institutions have been hit with the double problem of falling real estate values and the sharp fall in security prices. This situation has forced banks to drastically curtail new lending with the joint effect of a severe credit crunch at home with an actual fall in domestic lending by city banks by 1% in 1993. This contraction of bank lending together with the overregulation of Japanese capital markets is leading to the migration of large corporate borrowers and financial services abroad.

At the end of this first global cycle which it contributed so much to creating, Japan's economy carries the dual burden of the decline in consumption linked to asset deflation and the credit crunch linked to the weakened banking system's inability to lend. Bad loans to all sectors are significantly concentrated in non-bank financial institutions --plus the seven housing loan companies (*jusen*) with an estimated ¥6 trillion ( \$60 billion) of bad debt-- which together had increased their loans four-fold since 1986. A 1991 survey of the 300 largest non-bank financial institutions by the Ministry of Finance shows that 63 percent of their loans were secured by real estate, and 41 percent of total loans were to real estate and the construction industry. Long-term credit banks and trust banks were particularly affected by bad real estate loans.<sup>10</sup>

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<sup>9</sup> Comparisons with transaction data collected by private Japanese firms suggest that there a significant amount of deliberate smoothing in the real estate price changes (*Koji Kakaku*) reported by the National Land Agency. The expressed rationale for such price smoothing being to reduce market volatility by not reporting extreme prices. During the boom, the magnitude of price gains was underreported. During the crash, price declines have been understated. It is generally agreed that the prices reported by the non-government Japan Real Estate Institute are closer to market conditions. (see Stone and Ziemba [1993], Natacha Dubach [1991], Renard and Bourdier [1989]). Officially, the Tokyo region housing prices are estimated to have fallen by more than 40% in nominal terms in less than four years since September 1990; land prices have declined by at least 50%. [*Etudes Foncières*, Sept. 1994].

<sup>10</sup> The true extent of the bad loan problem throughout the Japanese banking system has been obscured by the reporting and restructuring policies followed by Japanese authorities. Japanese regulators use rules that are opaque in comparison to common international accounting rules. Some foreign analysts estimate that instead of the reported ¥ 13.6 trillion (\$ 143 billion) the true size of all types of bank problem loans is ¥ 30.0 trillion (\$315 billion) or 6 percent of the loan book, suggesting that the bad loan situation may take five years to clear. (*Financial Times*, July 28, 1994). Governor Mieno's decision on December 8, 1994 to close two credit unions with non-performing loans of about ¥100 billion (\$ 1 bn) may be marking a turn toward greater transparency away from the smoothing over of financial problems. (See *Financial Times*, December 8, 1994, p.4)

Simultaneously, the sharp 50% decline of equities through the year 1990 immediately affected the capital position of the banks. Under the Basle accord, banks are permitted to count 45 percent of the unrealized capital gains on securities (but not real estate) as Tier 2 capital. This decline in Tier 2 capital induces Japanese banks to restrain the growth of their assets, including the international markets. Other institutions such as pensions funds and insurance companies have also sharply curtailed their international portfolio investment.<sup>11</sup> At home, in 1993, the share of non-housing building in the Japanese GNP had fallen to 4.2 percent, its lowest level in 35 years.

## 2.6 Other Causes of Surges in Capital Inflows

Clearly, Japan has been the dominant source of international capital during this first global cycle. Yet, to model national real estate cycles and determine key volatility factors it will be necessary to sort out the importance of external versus domestic causes of surges in capital inflows. Surges of capital inflows tend to produce a predictable pattern of macroeconomic effects: an acceleration in domestic demand and activity, a deterioration in the external current account, pressures on the price of real estate, on financial assets, and on the price of goods. Schadler et al [1993] consider four basic categories of causes of inflows: external developments, policy changes affecting the real economy, credit policy changes, bandwagon effects. Among the six country cases they analyze, three are particularly illustrative of different causes of real estate booms: Thailand, Spain, and Mexico. These three cases illustrate well the magnitudes of the massive capital inflows that small and medium-size open economies can now face.

- *Thailand* is a middle-income developing country which illustrates well the impact of the Plaza currency realignment on South East Asian economies. The first year of the surge was 1988, the amplitude of the flows was very large, reaching a level of USD 11.8 bn i.e. 12.6 percent of GNP in the fourth years.<sup>12</sup>
- *Spain's* surge of capital inflows started in 1987. The triggers were a series of concurrent financial liberalization, fiscal, and labor market reforms designed to harmonize domestic policies with those of the European Union. Owing to the larger size of the Spanish economy, the inflows were larger in absolute amount than in Thailand (USD 14.6 bn at the peak) but represented a smaller share of GNP (3.8 percent). Japanese investment did not appear to play a very significant role. The real estate boom in the major markets of Madrid and Barcelona followed the European pattern. However the volatility of the office price cycle was more severe in Madrid than in any of the other cities tracked by the JLW data. The JLW index for office capital values in Madrid (1980= 100) exploded from 150 in early 1985 to 927 by the end of 1990. Its fall was even more brutal as this index was already down to 316 by mid-1993.<sup>13</sup>
- *Mexico* represents a different case again. Accelerated inflows started in 1989. They were affected by Japanese manufacturing investments but they were essentially motivated by the far reaching opening of the economy, trade liberalization, tax reforms, deregulation and privatization. These Mexican domestic structural reforms were leading up to the start of the NAFTA treaty negotiations of 1990. In

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<sup>11</sup> In 1987, Japanese financial institutions bought US \$137 bn of long-term securities. During the first half of 1994, that figure is down to a net amount of \$8 bn. (*Financial Times*, 22-23 October 1994).

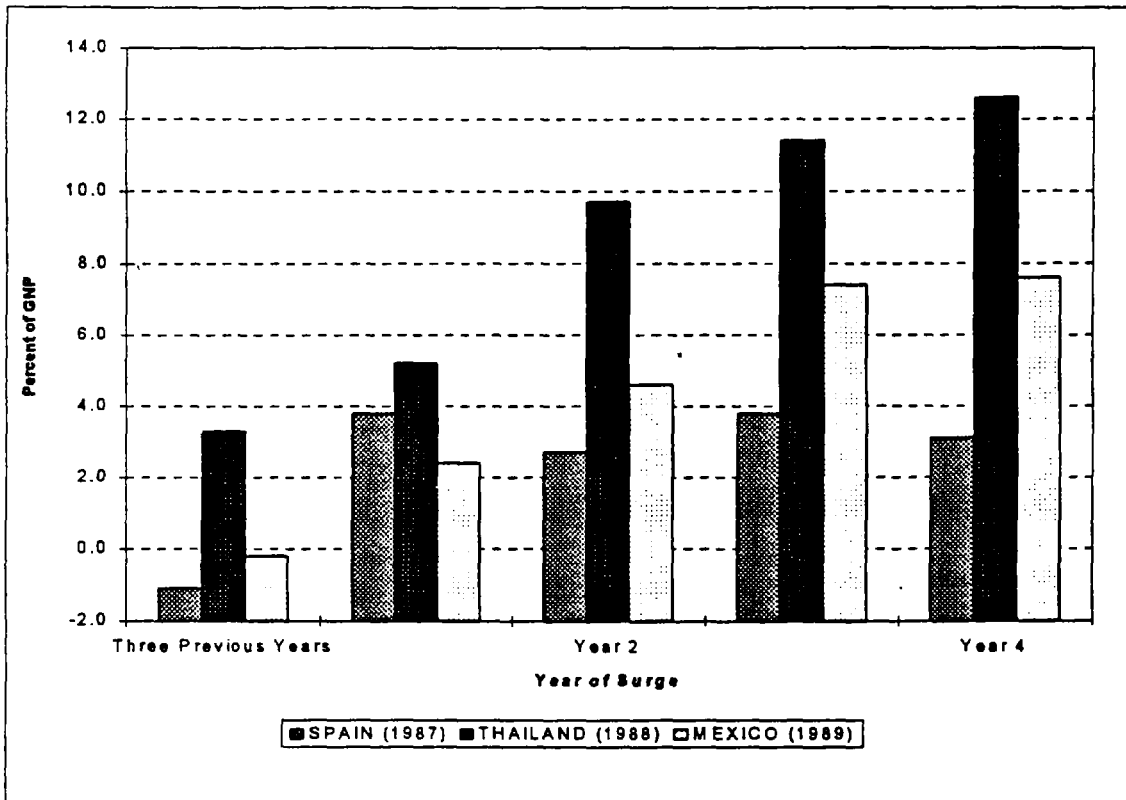
<sup>12</sup> Data on real estate volatility in Seoul, Korea and Taipei, Taiwan also show a relative peak in real estate prices in 1988. In these two cases, however, domestic policy factors should also be taken into account as they played a very significant role. See Renaud. [1993]), Chang et al. [1994].

<sup>13</sup> See "The Non-Residential Real Estate Market" *Argentaria Real Estate*, Issue 7, Oct. 1994, 31-4.



the peak year of 1993, inflows were very large: USD 24.7 bn representing 7.6 percent of GNP. No data on real estate prices were obtained on Mexico in this review.

Figure 5. Surges of Capital Inflows into Mexico, Spain and Thailand



Source: Schadler *et al* [1993]

Other cases of recent real estate booms like Colombia (1990-93) are coincidental to the global boom but have distinct causes. Like in many other cases, the surge of capital inflows into Colombia was associated with the opening of the economy 1990 and major domestic financial reforms starting the same year. However, Colombian authorities are much less concerned in such one-time adjustments than with permanent large capital inflows of the "Dutch Disease" variety caused by the opening of the large Cusiana oil fields and the attendant increase in permanent income and wealth. The new real estate price boom has been much sharper than any previous local cycle in the post W.W.II period. [Renaud, 1994].

### III. DOMESTIC FACTORS AFFECTING REAL ESTATE VOLATILITY

Differentiating the quantitative effects of international factors from domestic ones in the synchronous national real estate cycles which we observe in this first global real estate cycle could prove difficult. The explosive phase of international capital exports by Japan coincides in individual countries with major episode of capital market liberalization, financial deregulation, occasional macroeconomic errors induced by the stock market crash of October 1987, as well as instances of significant deregulation of the real estate market. Synchronism in office real estate cycles across countries may have been fed by

increases in the local demand for space for financial services, real estate, and other business services associated with the rapid expansion of financial services induced by financial deregulation.

The coincidence of national booms was certainly fed by cross-country real estate investment by banks, pension funds and insurance companies in search of better portfolio diversification, and higher returns. For instance, it is estimated that foreign investors – particularly Japanese and Swedish – made FF 12 billion (US 2 bn) of commitments in Paris in 1989; a figure which had dropped precipitously to FF 2 billion (S 0.35 bn) by 1992.<sup>14</sup> [Taffin, 1994]. In the UK, in 1993, “British banks hold only 57% of real estate loans, the remaining 43% are held by foreign banks, of which 12% are Japanese” (C. Johnson in *Rev.Econ.Fin.* [1994]).

A systematic cross-country tabulation of every significant domestic factor identified in the countries surveyed is beyond the scope of this paper. The required details are more relevant to the modeling of each country, and individual market cycle. However, there are major recurring themes. First, in most countries bank deregulation, fiscal policy, and tax policies have usually all been procyclical. Second, this real estate boom could not have taken place if financial institutions had not been lending so aggressively. Third, not all financial institutions were equally involved in real estate lending and risky banking. Finally, the competitive pressures on land supply generated by the boom have occasionally induced ill-timed pro-cyclical local deregulation.

### **3.1 Capital Markets Liberalization and Financial Deregulation**

Structural and technological shifts, international competition, the US experience, as well as the European Union target of the 1992 single market have stimulated financial deregulation of several kinds:

*capital market liberalization:*

- removal of exchange rate controls
- removal of restrictions on the establishment of foreign institutions

*financial deregulation:*

- abolition of interest-rate controls, or cartels that fixed these rates
- abolition of direct controls on credit expansion
- removal of regulation segmenting financial markets
- development and improvement of money, bond, and equity markets
- deregulation of fees and commissions in financial services

*lagging bank regulation and supervision:*

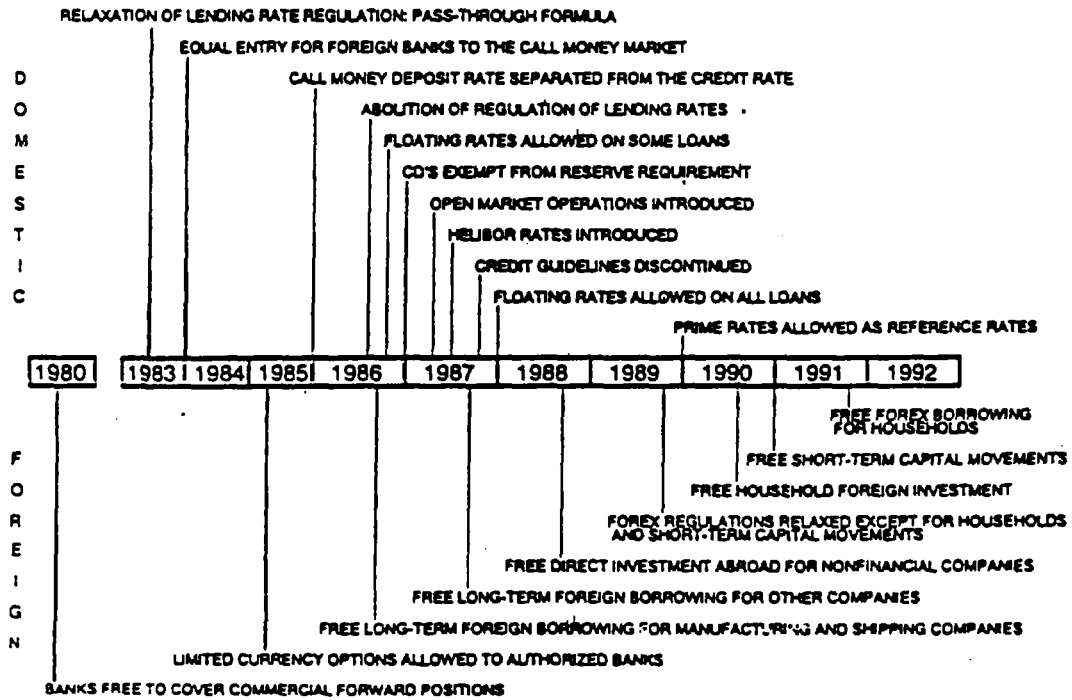
- shift from (quantitative) *structural* to (risk-based) *prudential* regulation of financial institutions
- tightening and international harmonization of prudential supervision

These major structural changes in OECD financial systems have resulted from a combination of market-driven and policy-determined reforms. There is a very direct correlation between the intensity of national real estate asset cycles, the speed and scope of financial liberalization and deregulation, and the extent of direct controls at the onset of liberalization. Scandinavian countries (Finland, Norway and Sweden) have had some of the most volatile real estate markets. They were previously among the most tightly regulated financial systems, and they moved through deregulation within the span of a few years. Not all Nordic countries suffered from extreme volatility. Denmark experienced a milder cycle with its distinctive financial system, its housing finance directly linked to capital markets, and conservative

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<sup>14</sup> It is appropriate to report financial flows in terms of domestic currency when considering each national cycle, especially given the role played by the Plaza accord. For instance, in this case of the Paris real estate cycle, the Franc appreciated from FF 7.56 per dollar at the end of 1985 start of the boom to FF 5.12 in 1990 start of the bust. This is an appreciation of 47%.

Figure 6: Domestic and Foreign Financial Market Liberalization in Finland, 1980-1992



Source: Nyberg et al. [1994]

underwriting for residential and business real estate loans (see for instance Diamond and Lea [1992]). Its monetary policies linked to the ERM was also a positive contributing factor. The UK abolished direct and indirect restrictions on credit and encouraged direct competition between building societies and banks. In addition, London as a major financial center saw its finance and business employment expand sharply with both the deregulation of its stock markets in 1986 (the "big bang") as well as the globalization of capital markets. France also deregulated its financial system with the new Banking Law of 1994. In great contrast, Germany did not significantly deregulate its financial structure. Its mortgage banks continued to operate under the same underwriting rules.<sup>15</sup> Neither did it experienced a major asset price inflation.

The US market has not been a bystander in this first global real estate cycle. However, what distinguishes the US experience from that of other countries is that it was the first financial system to deregulate in the late 1970s and early 1980s. The US real estate economy experienced a first volatile cycle in the early 1980s. The massive S&L debacle which ensued had effects which are still being worked out to this day by the RTC (Resolution Trust Corporation). This US cycle in the early 1980s is proof enough that domestic factors can play the major role in a real estate. At that time, the US real markets were still insulated from the international economy and analysts of the real estate economy could treat the US capital markets as closed. Regional real estate cycles were synchronized.

Underlying the 1985 Plaza currency realignment, by 1986 the US international capital position had shifted from net creditor to net debtor for the first time in seventy years. This new capital situation has transformed the US into another open economy sensitive to external influences. Given the very large size of the US economy, international capital flows have had a differentiated impact on regional real estate economies. As a result, during the first global real estate cycle, US regional cycles became asynchronous. California and the Northeast were prime targets for foreign investors, particularly the Japanese, and these two region's cycles moved in harmony with the global cycle.

The US experience remains central to the new international real estate environment. The fundamental US changes in finance and investment that took place in the 1970s and 1980s have ushered into the worldwide reforms of national economy and financial markets.<sup>16</sup> US financial liberalization has played a central role in influencing the domestic financial deregulation policies of most OECD countries. Yet the core lessons of the US S&L crisis were ignored abroad and seen as a purely domestic issue without systemic interest elsewhere. Monetary authorities, bank supervisors, financial managers, and industry people continued to behave as if their national real estate economy was still a local, non-traded sector, where foreign factors were of limited significance.

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<sup>15</sup> German lending for real estate is predominantly funded through the long-established mortgage bond or *Pfandbrief*. To insure safety and domestic as well as international marketability, the *Pfandbrief* is regulated by the Mortgage Banking Law. It is backed by mortgage loans of no more than 60% loan-to-value ratio with property value "conservatively appraised". Second mortgage loans such as *bauspar* are usual for residential loans. Being based on contract savings, these second mortgages are extremely safe for lenders, (see Lea and Renaud [1994]). Failure to require adequate investor equity contributions during the property boom is the prime cause of today's very large non-performing loan portfolios everywhere.

<sup>16</sup> Some of the landmark US tax and deregulation events have been: the "May Day" lifting of fixed commission rates on stock exchanges on May 1, 1975; the Tax Reform Act of 1976; the Depository Institutions Deregulation and Monetary Control Act of 1980; the Tax Equity and Fiscal Responsibility Act of 1982; the Economic Recovery Tax Act of 1984; the Tax Reform Act of 1986.

### **3.2 Fiscal Policies and Distorted Incentive Structures**

In most OECD countries, the effects of the rapid expansion of credit which followed the relaxation of lending constraints under financial deregulation have been accentuated by tax provisions which have encouraged indebtedness. Financial authorities typically failed to appreciate the potential full effects of pre-existing tax regulations under a liberalized regime, because these effects were previously blunted when restrictive credit controls were in place. These effects were also different for residential and commercial properties.

Policy-makers can usually be faulted for their inability to coordinate financial with fiscal reforms. For instance, in Britain, income and local taxation favored real estate investment.(see Hills [1991]). In Sweden, the real estate boom appears to have been amplified by the announcement effect of the removal of the large tax benefits previously given to home buyers.[Jaffee, 1994]. The United States experienced see-saw effects with first the highly stimulative impact of the 1981 ERTA on real estate, followed by the dampening of the tax-neutral 1986 TRA tax reforms, as is well-known.

In modeling the global cycle, comparable user-cost of capital series may prove difficult, or at least laborious to build. An alternative variable for cross-country modeling of the global cycle is the inflation-adjusted, after-tax cost of borrowing. Graphical cross-country comparisons of the time pattern of real after tax cost of borrowing already indicate the extent to which pre-existing tax regimes has tended to amplify the effect of financial liberalization on real estate volatility. (BIS [1993], p. 165).<sup>17</sup>

### **3.3 New Macroeconomic Policy Tools, Policy Errors, and a Puzzle**

The task of monetary authorities was rendered more difficult during the 1980s by the changing financial structure. Interest rates were replacing quantitative rationing as the mechanism regulating the supply of credit. Especially during the early stages of liberalization, traditional monetary aggregates gave less reliable signals of the tightness of credit, and so did interest rates. Surges in credit were also perceived as just transient consequences of deregulation. In the new environment of exchange rates deregulation, monetary authorities were reluctant to tighten credit and see an appreciating exchange rate for their economy. Such factors seem to explain some of the differences between the sharp asset inflation of the Nordic countries compared to EEC countries adhering closely to the discipline of the ERM.

In the UK, a major policy error directly linked to the real estate sector was the failure to take into account appreciating real estate assets in the hand of households after the 1987 stock market crash. (Muellbauer [1992]. Fearing the contraction effects of stock market wealth losses on consumption, monetary authorities considerably eased credit, thereby fueling the on-going real estate boom.

An interesting puzzle is how a sharp asset price boom of the period 1986-1990 could coincide in most countries with price stability in consumers goods, and positive real interest rates higher than in the early 1980's, and certainly higher than the negative real rates of the 1970's. Werner [1993] provides an

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<sup>17</sup> Usually, computation of real rates of interest adjust nominal rates by the CPI. To analyze investment behavior in a given segment of the real estate market, a better approximation of the true user cost of capital may be the difference between nominal rates and the rate of price appreciation in that particular market segment. See for instance Jaffee [1994]. This second measure better reflects the cost of holding a property, and its year to year changes.

analysis for Japan that can probably be extended to other countries like the UK.<sup>1</sup> In Japan, monetary expansion did not depress the yen, did not drive the current account into deficit and greatly reduced capital outflows, nor did it send the overall price level soaring. This analysis complements his other paper on why observed capital outflows of long-term capital greatly exceeded the current account surplus during the period 1985-90. The approach is to disaggregate money into two components: credit-money used for "real transactions" i.e. investment in productive activities or consumption, and credit-money used for asset transactions and speculative purposes. This two-part model proves very successful in explaining the low inflation in the price of goods and services and the sharp inflation in the price of assets. Implicitly, these findings point at inadequate or inappropriate monetary regulation and bank supervision during the period. This analysis could account for the UK experience, and also probably that of Finland and other countries. As discussed further on, the monitoring of asset price inflation has now become an explicit part of monetary policy in the UK and Nordic countries. (See Spolander [1994] and Koskenkylä [1994]).

### **3.4 Real Estate Contracts and Development Control Systems**

#### **Office rental contracts**

The impact of office rental contracts on upward price volatility because of their structure and length is an unsettled question. Following the last and very sharp London cycle, the issue has been raised explicitly by the Bank of England which has suggested a fundamental reforms of present UK contracts. In the UK office rental contracts are usually very long and up to 25 years. They contain ratchet clauses according to which nominal rents can only be adjusted upward. It is argued in the UK that prevailing rental contracts give commercial property a split personality as a financial asset: when rents are rising, property behaves like equity as rising rental values drive capital values higher. Thanks to the practice of long-term leases with upward only rent reviews, when rents are falling property behaves much more like bonds. When property yields fall in line with bonds, property values will rise even though rents are falling. In case of falling rents, the main mechanism for rent adjustment toward market levels is through tenant relocation but such moves involve significant transaction costs.

#### **Jurisdictional fragmentation and competitive local deregulation**

Does jurisdictional fragmentation significantly encourage office investment volatility through competitive behavior on the part of local jurisdictions? In some markets, the volatility already encouraged by procyclical policies and financial deregulation has been accentuated by specific supply side factors. For instance, development permits within the Paris region were deregulated to allow "speculative" office development in the US sense of a developer initiating a project prior to having signed up tenants. Developers of speculative offices projects (*bureaux en blancs*) were required since 1960 to obtain central administration clearance, in addition to the usual local permits.<sup>18</sup> Such clearances were eliminated in 1985 for several convergent reasons. First, with the general political devolution and legal decentralization of government including urban planning implemented by the law of 1982 local governments had their choices. At the Paris region level, deregulation was a response to the demand for

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<sup>18</sup> Originally, a development permit was required for speculative office projects over 500m<sup>2</sup>. In 1972 the limit was raised to 1,000m<sup>2</sup>. Development controls were reintroduced in January 1990 for the western parts of the Paris market to help areas most severely affected by the office glut, as well as to limit excessive office concentration. In 1994, regulations targeted at very large office employers and designed to encourage employment decentralization away from the Paris region were suspended to stabilize the Paris office market.

more office space. Expectations were also fed by the prospect of the 1992 single market, and the European competition for the position of leading business and financial center.<sup>19</sup>

#### IV. VOLATILITY IN INDIVIDUAL MARKET COMPONENTS

The massive Japanese land and equity asset inflation has triggered extensive discussions of the existence of a land bubble. Such discussions of the existence or non-existence of a "bubble" usually involve an element of definitional arbitrariness because of the implication of irrationality which bubbles carry.<sup>20</sup> (Stiglitz [1990], Flood and Hodrick [1990], Flood and Garber [1994]). For the improvement of sectoral policies and institutions, it is the issue of economic inefficiency of real estate markets which is the central problem. Economic inefficiency is reflected in volatile prices and investment rates; it relates to the leads and lags of real estate investment behavior compared to current market conditions. (Case and Shiller [1988],[1989], [1990], Muellbauer [1994]).

Residential and non-residential markets have performed quite differently in terms of rents, capital values, and investment rates. The inefficiency of property markets across the main sub-sectors (offices; manufacturing and warehousing; retailing; hotel, leisure and recreation) has been in evidence in every country. Short-term and long-term returns across sectors have varied considerably. The global cycle has also exposed the inadequate to poor quality of the monitoring of the various components of the real estate markets. Most countries are as not well monitored as the UK in terms of tracking rents, vacancy rates, and returns.<sup>21</sup> In the UK, the office sector has been the most volatile among the three main real estate segments of office, retail, and industrial property. The industrial property markets have been the least volatile, industrial development shows greater responsiveness to demand. With the evidence available, the following regularities can be reported for this first global cycle:

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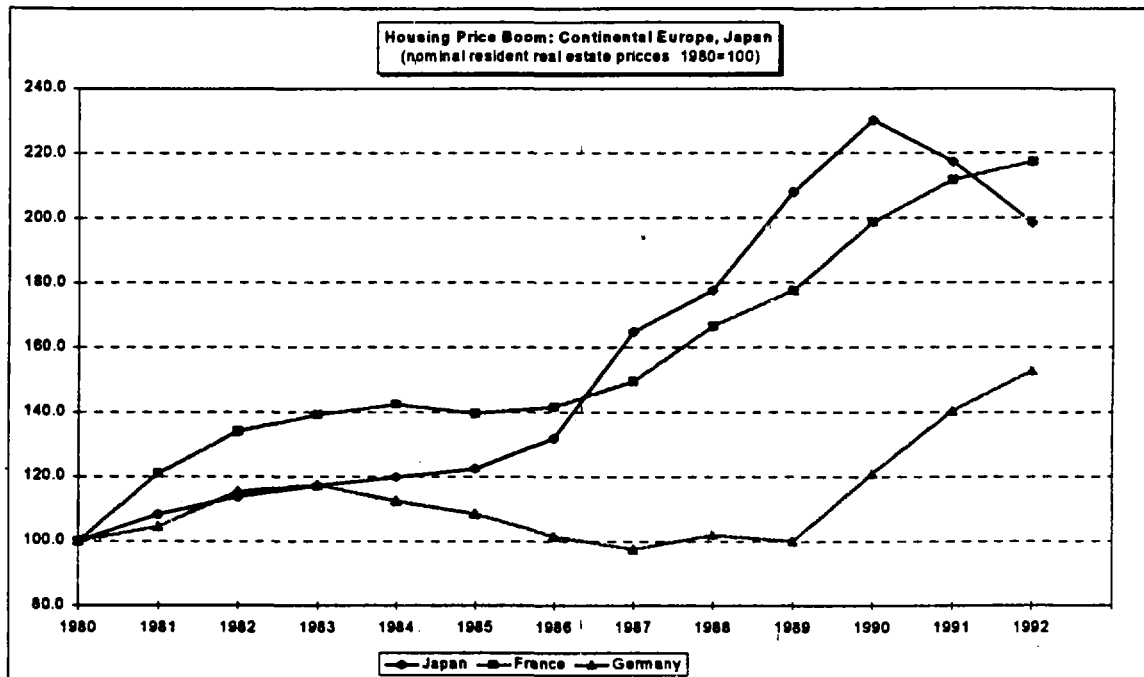
<sup>19</sup> At the beginning of the cycle, in 1985, the total office floor space of the Paris region (*Ile de France*) was 29 million of m<sup>2</sup>. Between 1986 and 1991 construction of 12 more million of square meters was started, that is a 40% increase. Some *départements* (comparable to counties) experienced a 90% increase in investment during the boom, such as *Hauts de Seine*, (Taffin [1994]). The JLW index of office capital values (1980=100) zoomed from 140 at the beginning of 1985 to 450 by the end of 1990. Correspondingly, the increase in office building permits within the Paris region was explosive: 1985: 1.285 million m<sup>2</sup>; 1986: 1.762 million m<sup>2</sup>; 1987: 2.289 million m<sup>2</sup>; 1988: 2.763 million m<sup>2</sup>; 1989: 2.564 million m<sup>2</sup>. On the basis of 20 m<sup>2</sup> per office worker the implied growth in service employment was 110,000 to 140,000 new jobs per year just in the region (Philippe Saint-Marc [1994]). The London data also shows a similar pattern.

<sup>20</sup> As Stone and Ziemba ([1993] point out, "On one hand, it would seem something of an artificial distinction to say that movements in interest rates are a fundamental factor, but the cycle of leverage these movements unleash are a speculative bubble. On the other hand, if the simple definition of a bubble is when investors are buying and selling on the basis that prices will rise further, then surely using the high price of previously purchased assets as collateral for loans to buy still more should qualify as a bubble".

<sup>21</sup> The IPD (Investment Property Databank) currently holds records of over 14,000 individual properties with a combined value of £ 42 billion, which is estimated to represent approximately three fourth of institutional property holdings (see Nabarro, in Cross and Whitehead eds. [1994]). By comparison, the Jones-Lang-Wooton International office property data is quite informative, but its coverage is limited to "prime quality office space of over 500 square meters in the primary office market of each of the [14] cities covered." Underlying the prevalent market segmentation, retail and industry markets are not covered.

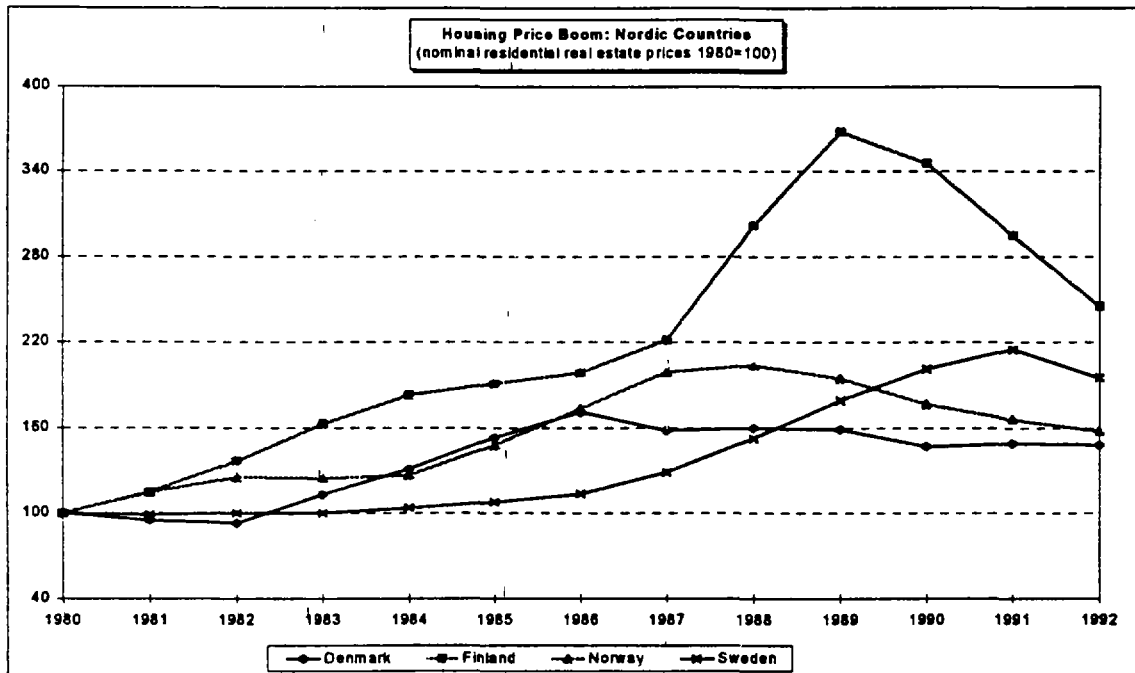
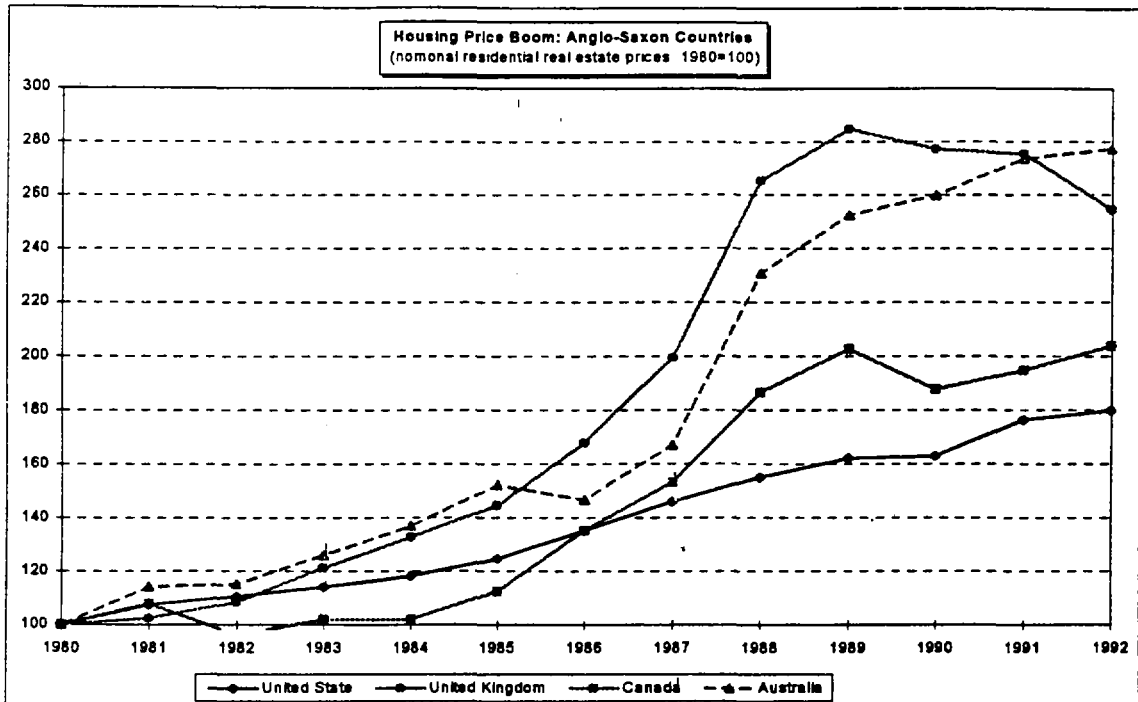
- Across national *residential markets*, three tiers of volatility seem to have been experienced. First, in the most volatile group one finds Australia, the UK and Finland, with Finland the worst case. In the second group of still strong to average volatility one finds Canada, Norway, Sweden, France and Japan. In the third category of countries one finds Germany and Denmark where the residential sector was clearly not in phase with the global cycle, nor was volatility significant. The mild German housing price boom starts in 1989 with reunification, and so does the office price boom in Berlin.

Figure 7 : Housing Price Boom in Selected OECD Countries



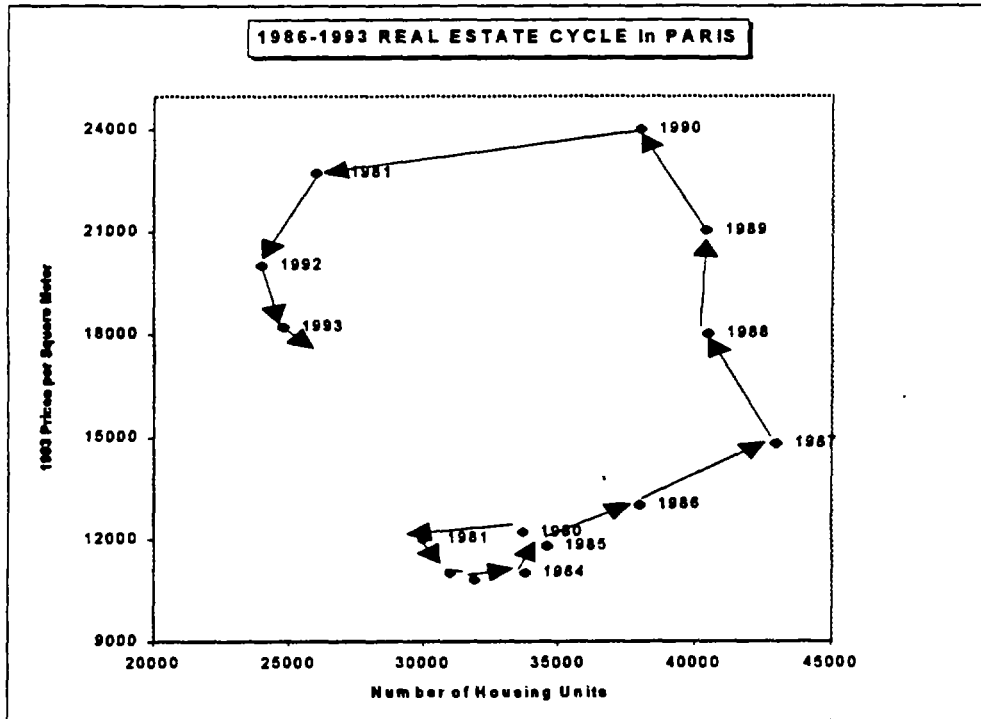
- Comparative data on volatility differences between the multi-unit residential sector and the detached housing sector was not obtained. In Sweden, Jaffee [1994] shows that the multi-unit sector was less volatile. But in that segment of that country, the state sector plays a very important role in the three strategic areas of financing mechanisms, access to land, and construction.
- The *office property market* was the real estate segment which experienced the greatest real estate price and investment volatility. National office cycles appear to have also been the most synchronous. Next comes the residential market. Among the office markets the most volatile by a wide margin appears to have been Spain, but it is not possible to ascertain whether the data available suffers from a particular sample bias in this case.
- National and/or local land use and development regulations appear to have played a significant role. The office market exhibit considerably more price volatility than other real estate segments. The data suggest that investment volatility while usually substantial remained less than price volatility. Markets in capital cities and other major centers have been more volatile than regional centers. A diffusion process has been at work and regional booms tend to lag being the capital markets.





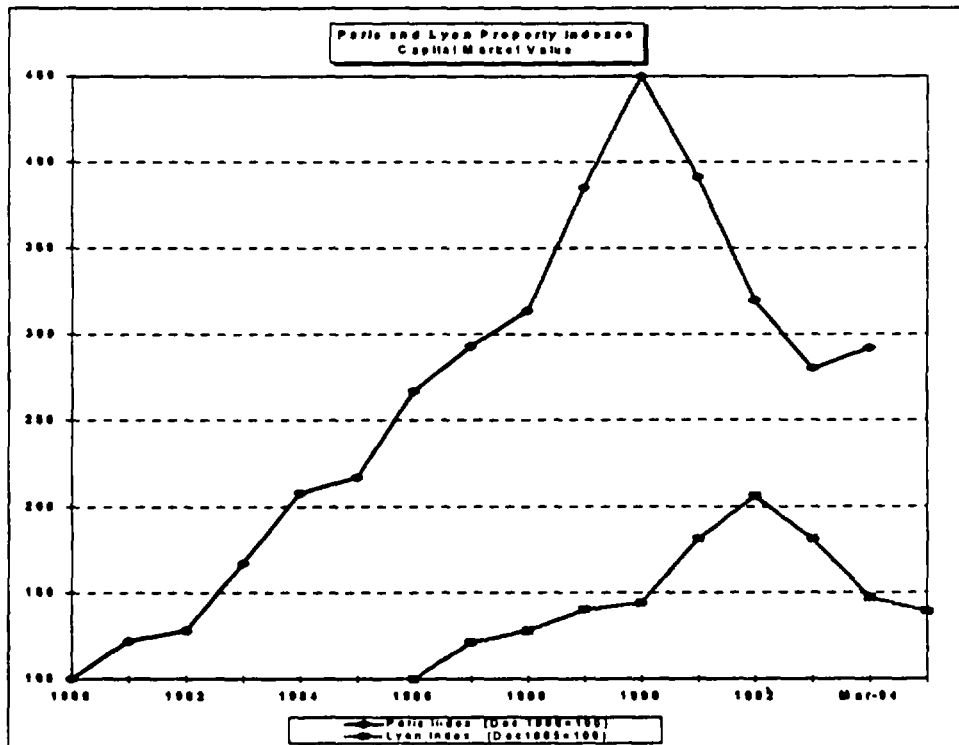
Source: BIS, Annual Report 1992/93

Figure 8: Residential Cobweb Cycle in Paris During the Global Boom



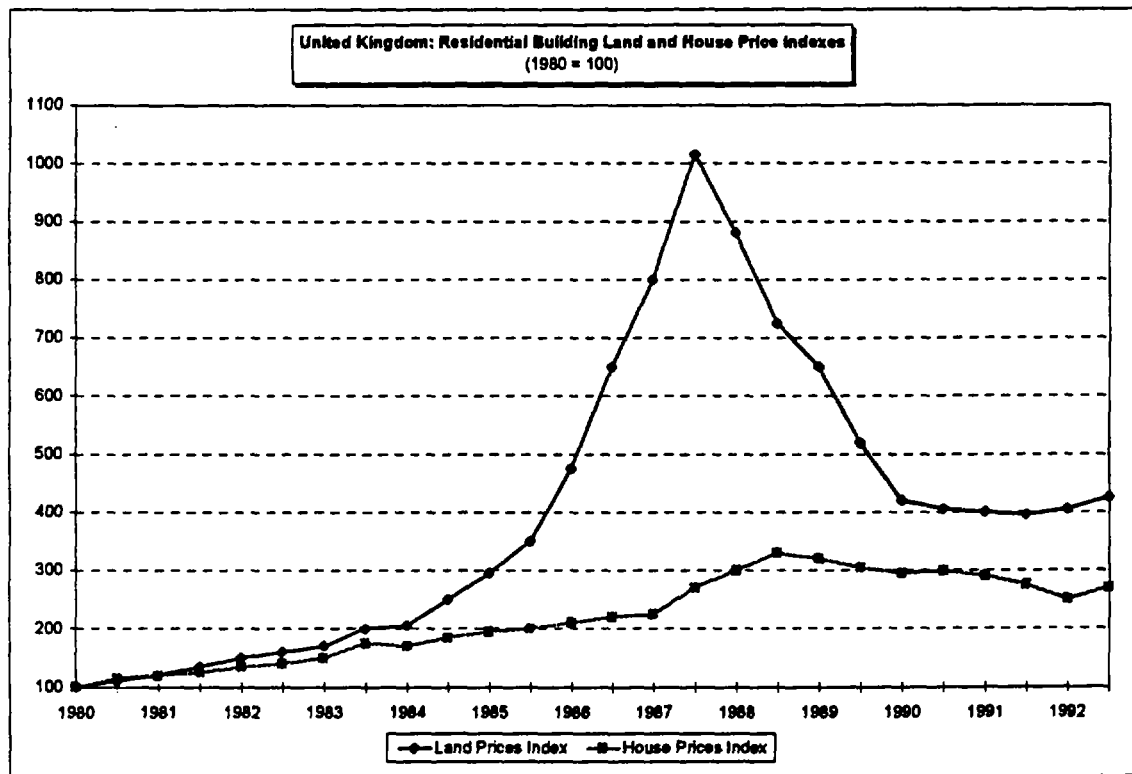
Source: Derived from Comby [1994]

Figure 9: Differences in Capital and Regional Office Cycles: Case of France



- Finance has been the driving force during the global cycle by inducing rapid shifts in effective demand. The supply response has been strongly affected by the extent and rigidity of land and development controls. Urbanized land being the most inelastic input is expected to show the greatest degree of volatility. An hypothesis that could not be explored is that *land price volatility* was particularly great in countries where pre-liberalization controls were the most rigid. This point has been extensively debated in the UK; and, as Figure 10 shows, its price volatility was very high and leading residential prices in terms of timing. Higher land supply inelasticity could also be the case for Finland compared to Norway. It must be noted that Germany which did not significantly deregulate its financial sector also relies on strict land use controls. (Seele [1982], Bulwien [1994]). The Netherlands also have some of the most systematic public land use controls anywhere. In that country, administered land prices are very uniform. (Needham [1992]). Dutch real estate volatility may have been low and paralleled the German experience, no data were obtained on that country.

Figure 10: High Volatility of Land Prices in the U.K.



Source: Savills, Financial Times, 1993.

## V. THE 1990 CRASH, ITS IMPACTS AND ITS HANDLING

"All happy families are the same, each unhappy family is unhappy in its own way."  
(Lev N. Tolstoy, *Anna Karenina*).

The euphoria that characterized the real estate sector for most of the period 1985-1989 vanished in 1990. It made way to a precipitous asset deflation which started in 1990 under a combination of external and internal factors specific to each country. Every one is now undergoing its own deflation and it is not possible to do justice in this overview to the rich body of experience which each individual country case represents. Yet it is from the different country problems and their resolution that we expect to gain the most valuable findings to adapt policies to the new global environment. Innovations are also likely to emerge from the constraints arising from current problems. This section highlights recurring issues in the financial sector, in the real estate industry, and for households.

### 5.1 Effects of Financial Liberalization on Bank Lending Behavior

Financial liberalization has brought to light a wide range of important issues regarding debt, financial fragility and systemic risk. We focus here on three questions: how financial liberalization has affected bank behavior and real estate lending; the role played by non-performing real estate loan in bank crises and their resolution; the impact of real estate price deflation on household negative equity and default.

#### Rapid Expansion of Bank Lending and Changing Loan Portfolio Composition

Financial innovation and deregulation during the 1980's has been accompanied by rapid credit expansion and a substantial increase in bank lending as a share of GNP in many countries. Not only did the relative volume of loans increase, but its composition changed significantly under the sharply increasing pressure of competition from non-bank lending institutions. Pressure on profitability and declining net interest margins triggered a shift in lending away from large corporate borrowers toward medium-size and small firms as well as households. Bank exposure to the commercial real estate sector in particular grew rapidly during the boom in most countries, sometimes very sharply in a few years.<sup>22</sup>

There are enough important similarities across country experiences to outline the stylized facts behind bank behavior during deregulation and the boom part of the global cycle. Prior to deregulation, banks were operating in cartelized markets and subject to detailed quantitative regulations which had for effect to restrict competition in the financial sector. While efficiency was not necessarily high, margins were often high, and profitability included an element of rent. Internal cross-subsidies between activities were not uncommon. Bank employment was often considered the next most secure after civil service. The burden of the regulatory rents enjoyed by banks was born by prime borrowers and depositors, mostly the latter. Given these rents, the franchise value of banks was high.

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<sup>22</sup> For instance, in France, the volume of real estate loans rose at an exceedingly high rate between 1986 and 1990. Outstanding loans by French institutions only exploded from FF 63.0 billion by the end of 1988, to FF 105.9 billion by 1989, to FF 172.7 billion by 1990 (Commission Bancaire [1991], p. 355); 82.2% of these loans were short-term, 13% medium-term, and 5% long-term. Foreign investors were also extremely active during that same period. For Japan, refer to the discussion in Part II and to Figure 3.

### **Increasingly Competitive Bank Lending Under Deregulation**

Following liberalization and deregulation, new markets and new institutions emerged. Prime borrowers found that they could meet their funding needs at lower cost on the commercial paper market and other parts of domestic and international capital markets. Depositors seeking higher yields found more and more alternatives to bank deposits. Faced with shrinking margins bank searched for better yields and moved to new categories of borrowers. Often they escaped existing regulations by booking loans in new affiliates with broad asset powers such as finance companies. Fresh out from their secure regulated environment, banks tended to underestimate the risks they faced with their new borrowers. Later entrants following the leads of earlier banks underpriced the risk of their loans to marginal borrowers and lowered lending margins for everyone. In most countries one find that solvency problems are concentrated in finance companies, leasing companies and specialist real estate lenders. Latecomer savings banks and cooperative banks in Nordic countries are also a large component of the solvency crisis. In most countries, especially the UK and Canada, insurance companies were also severely affected by the real estate crash.<sup>23</sup>

### **Differentiation Between Large and Small Financial Institutions and Elements of Bad Banking**

Lending errors were frequent. There were more or less always the same. They tended to be systematically related to the type of financial institutions. Large commercial banks, specialized lenders, and small banks tend to take different types of risks determined by the clientele they serve. The nature of the risks and returns changes with the type of clientele. Major banks finance major operators, others take the rest. In particular, small finance companies and latecomers to the real estate markets have tended to focus on the *trading of* existing real estate assets which was becoming increasingly volatile in prices. For them real estate development was often secondary.

There is an important element of bad banking during the real estate boom in every country for both real estate and other loans. Besides fraud cases, in the failures where they intervened, bank supervisors found that basic principles of sound banking were breached:

- Lending was exceedingly concentrated in a few activities, especially real estate.
- Even within the real estate sector, lending has been concentrated onto a few business groups or individuals.<sup>24</sup>
- Counterparty risk has been ignored. Such risk has been shown to be twice as great for real estate loans than for industrial or business loans. Yet lenders have usually not charged a risk premium for this risk. They have been satisfied with the buildings as collateral.
- Growing real estate portfolios were not monitored.

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<sup>23</sup> Confederation Life Insurance Co. was placed into liquidation in August 1994. It was Canada's fourth largest insurance with C\$19 billion assets and among the most aggressive property lenders and developers. Almost half of its investment was in commercial mortgages. In Canada also, the real estate company Olympia & York developer of Canary Wharf in London was estimated to carry a total debt between \$10 and \$20 billion held by Canadian (Imperial bank of Commerce), US (Citicorp), French (Credit Lyonnais), and UK banks.

<sup>24</sup> Probably the most egregious and most famous case of bad banking during this first global real estate cycle took place in Osaka. There, Mrs. Nui Onoue, a restaurant owner who engaged in real estate and other investment activities succeeded in borrowing the enormous sum of ¥ 240 billion (over \$2.0 billion at current rates) from the Industrial Bank of Japan. The fact that Mrs. Onoue was later indicted in connection with the issuing of ¥ 340 billion-worth of forged certificate of deposits does not lessen the case for knowing one's counterparty. Supervisor reports in every country mention comparable occurrences, if on a smaller scale.

- Cash flow was not correctly analyzed. Loans could appear to be current because of the existence and use of interest cash reserves --funded with debt -- hiding cash deficiencies to cover debt service.
- Assets and liabilities were mismatched.
- Attention was exclusively focused on the short-run fees and on maintaining activity in a market with excess capacity. Because of asset inflation, little concern was shown toward the risk that both the borrower and the collateral could be subject to the same shock.<sup>25</sup>
- Further real estate lending took place to assist large corporate clients in difficulty in unloading some of their real estate assets.

Bank supervision during this very sharp asset price cycle remained dominated by pre-deregulation norms and skills. It tended to perform rather poorly and late. Guidelines were lagging behind market trends and did not address the increased riskiness of new lending. In the case of real estate lending, a thorough review of prudential rules, lending regulations regarding loan underwriting, and property valuation is now in progress in most countries.

### Disproportionate Role of Real Estate in Banking Problems

Financial liberalization has led to poor lending to many sectors. However, non-performing real estate loans have been at the epicenter of banking problems in every country since 1990. The banking crisis in the Nordic countries, was particularly severe and extremely costly.<sup>26</sup> There, the total cost of support to the banking system over the period 1989-1993 as a percentage of GDP has been extremely high, as follows:<sup>27</sup>

#### Bank Support Cost as Percent of GNP

|          |       |
|----------|-------|
| Finland: | 14.7% |
| Sweden:  | 6.2%  |
| Norway:  | 4.5%  |
| US S&L:  | 3.2%  |

In comparison, the net present value of the costs of the US Savings and Loans debacle is estimated at \$180 billion which amounts to 3.2% of the 1992 US GNP. Finland was most severely affected by the insolvency of its savings bank system moving from a tightly regulated environment of lending to the

<sup>25</sup> France is a country where there has not been a systemic shock like in the Nordic countries. Published information gives much evidence that problems with non performing real estate loan portfolios in large banks as well as specialist banks were perfectly avoidable. They result from poor bank management often amplified by weak internal controls. The worst institutional problems have been concentrated in finance companies, specialist banks, and medium size banks. Most of the non-performing loans held by the "large banks" belong to subsidiaries of Credit Lyonnais. (See Assemblée Nationale [1994]). Other banks, fully aware of the volatility of the on-going cycle either diversified their risks or refrained from operating in the sector on a significant scale such as *Société Générale*. (See Immo Press [1994]).

<sup>26</sup> Only in Denmark has the required public support to banks been modest. It went to a few small and medium-sized banks; see Koskenkylä [1994].

<sup>27</sup> For the full details on the Nordic banking crisis in Finland, Sweden and Norway refer to Koskenkulä [1994], Koskenkulä and Vesala [1994], Nyberg and Vihriälä [1994], Llewellyn [1992], Finland Government Guarantee Fund [1994], Goldstein and Folkerts-Landau, [1993], and BIS [1993], [1994].

personal sector into commercial lending and foreign currency to the marginal customers of the banking system (Skopbank, Savings Bank of Finland). Given the systemic nature of the crisis in Nordic countries, financial authorities have had to resort to a wide variety of rescue instruments, regulatory actions, closures, and sanctions which do not need to be detailed. Loan losses as a percentage of total assets ranged between 3% and 4.5% in 1992. Excess capacity in the banking system is being reduced steadily, and so is the number of bank employees.

The role of real estate and construction loans in bank problems has been disproportionately high. This can be illustrated *de minimis* by the case of Finland where the macroeconomic collapse also severely affected the balance-sheets of a wide variety of corporations and the household sector as well. In Finland, the relative weight of real estate can be expected to smaller than in other countries. As seen in Table 1, by the end of 1992, real estate loans made up 5.7% of the total banking portfolio. They represented 16.4% of non-performing assets, and 20.5% of all loans and guarantees write-offs. The two other main components of non-performing assets are construction and household loans. Construction accounts for another 11.85 of write-offs which is not very surprising, especially in the Finnish context. More remarkable is the fact that household loans are the largest component of non-performing loans with a 21.1% share. Due to massive external shocks and the accelerator effect of the crash, GNP fell by 15% in two years and unemployment rose to 22% by the end of 1992. Because household loans are *recourse* loans in Finland only 6.6% were written-off.

**Table 1: FINLAND: Banking Groups Total Exposure as of 31 Dec 1992.**

| Sector                    | Total exposures FM bn | %     | Non-performing assets FM bn | %     | Write-offs on loans and guarantees FM bn | %     |
|---------------------------|-----------------------|-------|-----------------------------|-------|--|-------|
| Corporate                 | 268                   | 45.1  | 32                          | 58.9  | 17                                       | 71.8  |
| Manufacturing             | 89                    | 14.9  | 4                           | 7.5   | 2  | 8.8   |
| Construction              | 29                    | 5.0   | 6                           | 10.1  | 3  | 11.8  |
| Trade, restaurants, hotel | 58                    | 9.7   | 7                           | 13.4  | 3  | 14.2  |
| Real estate business      | 34                    | 5.7   | 9                           | 16.4  | 5  | 20.5  |
| Other                     | 58                    | 9.8   | 6                           | 11.5  | 4  | 16.5  |
| Households                | 192                   | 32.3  | 12                          | 21.1  | 1  | 6.6   |
| Other domestic 1/         | 57                    | 9.5   | 3                           | 6.1   | 2  | 10.6  |
| Foreign                   | 78                    | 13.1  | 8                           | 13.9  | 2  | 11.0  |
| All sectors               | 595                   | 100.0 | 55                          | 100.0 | 22                                       | 100.0 |

1/ Includes financial institutions, general government and non-profit institutions.  
Source: Bank of Finland

### Restructuring Vehicles, Transparency, and Asset Disposition

In addition to bank mergers and closures, supervisory authorities of many countries have followed a "good bank-bad bank" approach to solve the solvency problems of distressed financial institutions. They have created asset management companies to dispose of problem assets in the least disruptive way possible. A comparative analysis of the financial cost, corporate governance, transparency and effectiveness of real estate asset disposal policies of these different asset management will be very important for future reference. The most significant asset management companies for which data may be accessible for evaluation are:

|          |   |
|----------|---|
| Sweden:  | <i>Securum</i> for Nordbanken<br><i>Retriva</i> for Gotabank                          |
| Finland: | <i>Arsenal Ltd</i> for the Savings Bank of Finland<br><i>Siltapannki</i> for STS-Bank |
| Norway:  | No asset management company were used   |
| US:      | <i>Resolution Trust Corporation</i> (RTC)   |
| Japan:   | <i>Credit Cooperative Purchasing Corporation</i> (CCPC)                               |
| France:  | <i>Omnium Immobilier de Gestion</i> (OIG) for <i>Crédit Lyonnais</i> <sup>28</sup>    |

Some of these asset management companies, such as the Nordic ones, are expected to be effective. Others, like the Japanese CCPC, are considered as interim solutions which are only helping to dress up the balance sheets of participating banks. The CCPC may soon have to be replaced by a better institutional arrangement because the current CCPC structure and rules do really not permit a permanent disposal of the problem real estate assets.

The problem of asset disposition for this new cycle has become quite different from early real estate busts. The behavior of pension funds and insurance companies has changed and they are not playing the same role in the direct purchase of problem assets as in earlier cycles. For instance, in the UK pension funds had 21% of their assets in property in 1981, but only 8% in 1990. The securitization of commercial real estate assets which has been successfully developed by the RTC has become an effective route for asset disposition in the US, but the development of securitization is not yet advanced enough in most other countries to offer a significant link to more diverse investors.

Major banks with large property loan portfolios are very anxious to not dispose of their problem loans too quickly thereby incurring more losses. Some, like Barclays in the UK which has a portfolio of £4.2 billion (\$6.3 bn) are issuing derivatives to offset the risk of further losses and to hedge themselves. Without a hedge, Barclays management finds that it would face pressure to refuse new property loans, or would have to sell old ones at an inappropriate time.

### **Financial Accelerator, Debt-Deflation and Credit Crunch**

There has been considerable, sometimes passionate debate in the US about the existence of a "credit crunch" in the region of the US most affected by the real estate crash such as the North-East. The exact role of regulators who tightened their loan evaluation criteria thereby indirectly raising capital requirements has been questioned.<sup>29</sup> The notion of a credit crunch and of banks that would refuse to lend to credit worthy customers to such an extent that there would be a slowdown in loan growth seems

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<sup>28</sup> The OIG known generally as ("*structure de cantonnement d'actifs*") is only designed to handle FF 42.6 billion (\$8 Bn) worth of domestic problem loans. Write-offs for international loans include FF2.6 bn for Olympia & York, and FF 4.25 bn for Fiormi-Sasea. It is estimated that FF30 to FF40 billion of international real estate loans of *Crédit Lyonnais* and its subsidiaries were not placed into a specialized asset management structure and remain on the balance-sheet of the bank group. (See Peeme in *Assemblée Nationale* [1994], p. 590. The public cost of the OIG structure is capped at FF14.4 bn.

<sup>29</sup> See for instance Peek and Rosengren's "Crunching the Recovery", and Litan's "Banks and Real Estate; Regulating the Unholy Alliance" in Browne and Rosengren [1994].



to be a marginal issue at best. From an international perspective, there are three main factors which may explain why the real estate bust has been even sharper than the boom in the global cycle. First, there is the asymmetric impact of liquidity constraints for small and medium firms over the cycle. Second, the severe losses of the banks have temporarily impaired their ability to lend until they have rebuilt their capital base. Third, the shift from the old quantitative controls and "window guidance" to the Basle risk-based capital adequacy ratios happened to be taking effect at the time of the crash.

Bernanke, Gertler and Gilchrist [1989], [1994] have extensively studied the financial accelerator effects on bank lending throughout cycles and the impact of weak borrower balance sheets and bank flight to quality during business cycle downturns. They find considerable differences between the behavior of large and small firms over the business cycle. While large firms do not alter much their behavior over the cycle, there is evidence of asymmetries in small-firm inventory/sales dynamic over the cycle. Small firms shrink their balance-sheet during the cycle, large firms do not. Large firms obtain credit directly from the open market, small firms rely heavily on intermediate credit. Small firms are heavily concentrated in construction, retail and wholesale. In economies where the real estate sector is made up of small firms financed by small financial institutions downturns can therefore be particularly sharp. Calomiris et al [1994] provide similar findings and stress the impact of financial leverage on asymmetrical firm behavior. Highly leveraged firms suffer the most during bust. High leverage is a very common feature of real estate firms.

In most countries, the impact of bank losses has been so severe that the constraining effect on banks' ability to lend will be felt for an estimated three to five years. There is a concurrence of weak ability to borrow and weak ability to lend which is particularly marked in Japan (see earlier discussion). It has taken several years for the US banking system to rebuild its capital thanks to the sharply positive yield curve resulting from the Federal Reserve policies between 1990 and 1994. This rebuilding of bank balance-sheet has been slower in Western Europe where interest rates have remained higher than in the US for an extended period of time due to German anti-inflation policies linked to reunification.

There are reasons to believe that there will not be a repeat of the first global real estate crash of the same magnitude. One of them is that the transition to risk-based prudential supervision and the Basle solvency ratios has formally been completed in 1993. While not a perfect panacea against unsafe and unsound lending, the shift to such prudential ratios is part of the rapid shift to more accurate evaluation and pricing of risks by lenders.<sup>30</sup> Probably one of the most difficult problems remains the effective supervision of banks and bank holdings in the new global environment.<sup>31</sup> There remain, however, unresolved problems within the real estate industry itself.

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<sup>30</sup> The 1988 Basle Accord among the G-10 sets risk-weighted capital standards a floor total capitalization of 8% for Tier 1 plus eligible Tier 2 capital. Equity capital consists of perpetual preferred stock, common stock, surplus, undivided profits and capital reserves, and cumulative amounts of foreign currency reserve translation. Tier 1 differs from equity capital by also including the minority interest in equity accounts of consolidated subsidiaries. Tier 2 capital includes other types of preferred stock, subordinated debt, loan loss reserves (up to 1.25% of risk-based assets), and mandatory convertible debt. Eligible Tier 2 capital cannot exceed Tier 1 capital. Broadly the risk weighting of assets is as follows: zero weight is assigned to government securities or securities with full government guarantees; 20% weight to interbank securities, including mortgage-backed securities; 50% weight to qualifying conventional mortgages on one- to four-family homes; 100% weight to most other loans, including commercial and industrial, consumer and commercial real estate loans.

<sup>31</sup> Consider again the case of Credit Lyonnais which has been burdened with poor acquisitions of industrial assets, in addition to its troubled real estate portfolio most of it generated by subsidiaries. Credit Lyonnais has a balance-sheet of nearly FF 2,000 billion (about \$ 360 billion) with some 550 subsidiaries. To meet supervision needs, the French Banking Commission has a total of 350 staff to supervise all French financial institutions and bank holdings.

## **5.2 Adjustments in the Real Estate Industry**

### **The Valuation Problem**

Real estate values, especially for non-residential properties, are extremely sensitive to assumptions made about vacancy rates and rent levels. If the global real estate crash has publicized one thing, it is the poor quality of information on real estate markets. From the viewpoint of investors, there is a large credibility gap between property and other assets. The *Mallinson Report* on valuation published in the UK in 1994 underlines the weakness of real estate forecasting among other issues related to property valuation. Credible market statistics and analysis is sorely lacking for fund managers compared to the standards of information prevailing for fixed-income securities. Property valuations in corporate balance-sheets are often questionable and are finally being questioned. Real estate markets are cyclical in part because they are inefficient, and the current information gap accentuates this inefficiency.

### **Closer Links Between The Real Estate Industry and Capital Markets**

An unsettled question is whether this first global cycle has led to a permanent change in the structure of the real estate industry toward greater concentration into larger firms better able to access capital markets. There could be a lasting restructuring of the real estate industry along the line of what is evolving in the United States, i.e. much closer and direct links between the real estate industry and the capital markets. In the past, commercial property finance was the preserve of banks, S&Ls, and insurance companies. All these institutions are now withdrawing from property lending. Large-scale developers are moving from property finance provided by private investors to financing through capital markets vehicles. The two main vehicles are REITs and securitization. The new REITs, which have lost their former tax break offer an equity investment in real companies that often specialize in one type of property in one region. They offer institutional investors a liquid way to hold property. The correct value of better liquidity is not entirely clear but through these REITs investors have been prepared to hold property at yields lower than what individual property buyers demand. The supply of securitized commercial property mortgages is expanding steadily. In the wake of the RTC securities, an increasing volume of property loans is coming from banks, insurance companies, and a few property developers. There has even been some high yield securitization of "junk" property sold to specialist property funds and hedge funds looking for large total returns under the expectation that the worst of the bust is over.

## **5.3 Households: Price Deflation, Negative Housing Equity and Default**

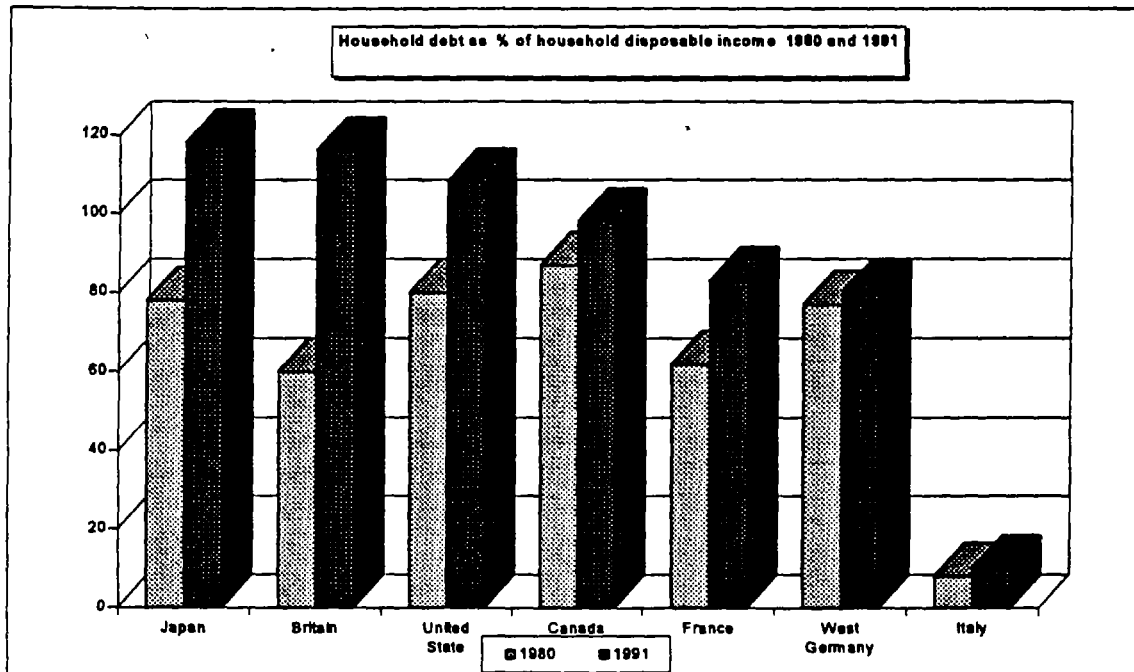
The impact of the global real estate cycle on the household sector differs greatly according to the strength of personal balance-sheets in every country. High housing price volatility of global cycle has often interacted with high and rising levels of indebtedness for large segments of population during the 1980s. These interactions have produced in turn rising levels of loan delinquency, defaults and personal bankruptcies. A significant portion of the gross assets of households may be very illiquid and of little use during financial distress, such as pension rights, consumer durables, and some forms of property. The underwriting rules for housing loans followed in the 1980s are under often under question, or should be.

### **Increasing Fragility of Personal Balance-Sheets During the 1980s**

There were considerable initial differences in the overall level of personal indebtedness in the personal sector across OECD countries at the beginning of the 1980s. There were for instance important differences in the level of indebtedness between Britain and Canada on one hand and France on the other. As a rule, levels of indebtedness were originally lower, personal balance-sheets stronger and personal

savings rate higher in the financial systems of Continental Europe and Japan (CEJ countries) than in those of Anglo-Saxon countries (AS countries). Figure 11 provides a partial picture of the debt-carrying capacity within the household sector. It shows that there was during the 1980s a general trend toward rising levels of aggregate personal debt compared to income. The competitive forces of financial liberalization and deregulation have led to the rapid development of retail banking and an apparent decline in credit rationing. There were rising levels of debt to income ratios, and to a lesser extent debt to asset ratios. Between 1981 and 1990, personal indebtedness rose particularly sharply in the US, Britain and Japan. Within the sample, Italy is very much the odd man out with a very low level of initial indebtedness, and little change during the decade.

**Figure 11: Household Debt as Percent of Household Disposable Income in Selected Countries**



Source: IMF; Salomon Brothers; OECD; BIS.

In addition to large country differences in overall indebtedness, there are major differences in debt, wealth and income across the population of the same country. Since 1980, there has been a rising levels of defaults in most countries, particularly during recessions. High rates of default have affected significant segments of the population in economies like the UK, Australia, and The Nordic Countries where volatility has been extreme and variable rate loans used. Price deflation and rising real interest rates have accentuated debtor problems in most other countries. The ability to rebuilt household balance-sheets rapidly has weakened as many OECD countries are experiencing a decline in their personal savings rate. This is especially the case in the US where the personal savings rate hit a historical low of 4.3% for the 12-month period ending in August 1994.

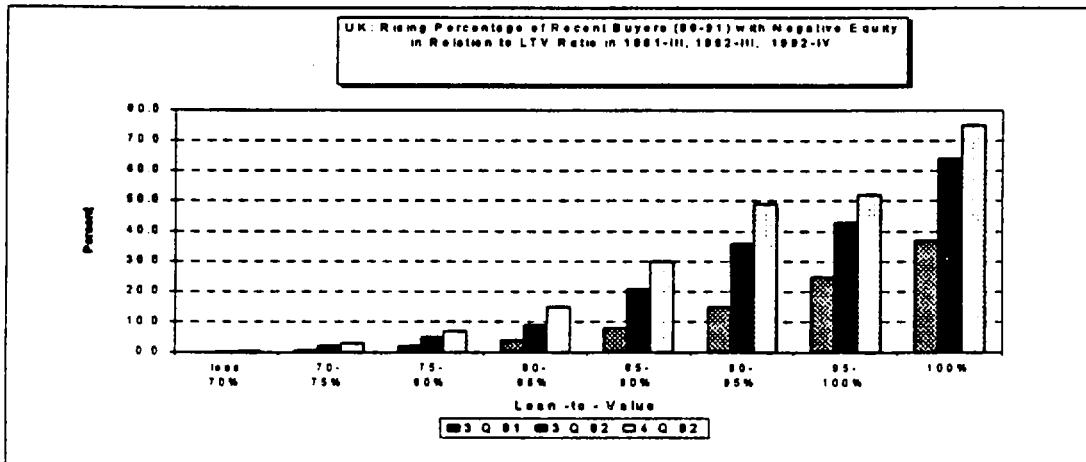
### **Debt deflation and Rising Negative Equity in Housing**

Tax policies have often induced households to assume excessive amounts of debt during the boom. In the Nordic countries in particular, high marginal income tax rates were coupled with very generous tax deduction making the real cost of borrowing for housing very low and typically negative for

most households until 1989 when interest rates rose.<sup>32</sup> The result has been a sharp increase in median LTV ratios within a very short period of time during the cycle, by some 10% over all outstanding loans in Sweden. Lagging expectations about the eroding impact of inflation on debt which happened in the 1970s also led to underestimating the burden of debt in the new environment of low inflation and high real interest rates since 1985.

Housing price deflation has had a disproportionate impact on first time home buyers and has produced significant cohorts of young households with negative housing equity. The problem has been particularly severe in the most volatile markets where actual defaults have become a serious banking as well as social problem (for the UK see Dorling [1994], Finland see Table 1 and Kosonen and Timonen [1994], and Norway see Nordvik [1994]). Figure 12 which is derived from Building Society Association data in Dorling shows how rapidly the group of households with negative equity in housing expanded in the UK within a short period of 15 months. This data covers people who bought housing during the three-year 1988-91. A high percentage of this group is technically insolvent. Anyone who bought housing at a loan-to-value ratio above 85% soon was facing severe negative equity problems as early as 1992. Of course, not all households with negative equity will default, many will be able to restore their solvency over time. Rising nominal property values may reverse the situation in due course. It is not clear how long it will take for the housing price level to rise sufficiently in the general environment of debt deflation. Meanwhile this important young population appears to be severely constrained in all its major investment and consumption decisions, including employment relocation if needed.

Figure 12: Sharp Increase in Recent Buyers With Negative Equity After 1991, UK.



Source: Derived from Building Society Association data and Dorling [1994]

Clearly, financial liberalization has played a role in stimulating excessive lending practices. If it is not an indictment of excessive emphasis on home ownership, the present UK situation and that of several other countries shows that the goal of home ownership is not compatible with high levels of debt in volatile housing markets.<sup>33</sup> The young UK population has been confronted simultaneously with an unusual collection of factors all leading toward greater financial fragility: the lack of an adequate private

<sup>32</sup> For a comparative analysis, see for instance BIS [1993], p. 165. Of course, during the boom phase the user cost of housing was even more favorable with rapidly rising housing prices.

<sup>33</sup> In addition to the UK and Nordic countries, similar conditions led to comparable outcomes in Australia. See Gavin Jones [1992] and Judith Yates [1994].

rental market which puts pressure on them to move into ownership very early in the life cycle, a highly volatile real estate market, a low and declining personal savings rate, very high LTV ratios, and loans carrying variable interest rates that are not easy to stabilize in an open economy. The full lessons for other countries of the convergence of these factors in the UK deserves more systematic review since financial liberalization seems to favor such trends elsewhere.

### Appropriate Levels of Consumer Protection

Taking as given that underwriting rules to qualify borrowers can be improved, what should be the appropriate levels of consumer protection in case of delinquency and default? How should contractual risks be shared between lender, borrower, and the state? Asset deflation has thrown light on different approaches. First, mortgage loans can be made by banks with total recourse as is the case in the Nordic countries. In such a case, the full cost of a default is carried by the borrower. With the systemic banking crisis they have undergone, Nordic countries are facing serious social problems with insolvent households whose future is gravely impaired. Alternatively, consumer protection may permit public authorities to participate in the renegotiation of loans in the case of overindebted households with the implication that part of the resolution cost will be borne by the lender. In France where personal bankruptcy laws are also severe the Scrivener Law on Consumer Protection creates such a process. Financial institutions have argued that the process creates uncertainty, raises costs and generates moral hazard. In the UK the cost of traditional unemployment insurance which protects a mortgage holder for two years has been questioned. The US personal bankruptcy laws are often considered unnecessarily lax and open to misuse. What should be the appropriate bankruptcy laws in a liberalized financial system deserves a closer look.

## CONCLUSION

“An increase in the ratio of Ponzi finance, so that it is no longer a rare event, is an indicator that the fragility of the financial structure is in a danger zone for debt-deflation”<sup>34</sup>  
(Hyman P. Minsky, *Stabilizing an Unstable Economy*, 1986)

An implicit question underlying this paper is whether the very sharp volatility in real estate prices and other assets during this first global cycle might become a recurrent feature of global capital markets. How can we avoid another wave of *Ponzi finance*? Was this first global cycle merely the high cost of adjustment to a new economic and financial environment marked by international financial liberalization and domestic deregulation? The composite evidence assembled only suggests that another global cycle of the amplitude of the 1985-94 cycle with its attending large economic costs is probably preventable. What we have is a rich research agenda for the design of policies and/or institutional arrangements that can reduce volatility in the real estate sector. The policy and research agenda is directly applicable to many middle-income and newly industrialized economies that are opening up to the global financial markets. Significant areas can be listed briefly:

- Macroeconomic policies to control surges of capital inflows while critical fall beyond the direct scope of this paper. On the other hand, monetary policy in some of the OECD countries (UK, Nordic countries) which suffered the greatest volatility now takes explicitly into consideration the effects of

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<sup>34</sup> “...*Ponzi finance* is evocative of fraud; the reference is usually to a scheme that fulfills promises of extravagant returns to investors who enter the scheme early by using the principal of funds committed by those who enter the scheme at a later date. However, Ponzi finance, simply defined as the payment of cash to debt holders with funds raised by either additional debt or decreasing cash kickers, is not an unusual event -- and it is not necessarily fraudulent.” [Minsky, p.340].

asset price volatility. Other countries do not. Considerable research may be needed to identify and quantify the links between credit expansion and asset price volatility.

- Careless lending by financial institutions has played a critical role in the global cycle. Presently, banking regulation and supervision continues to adapt to the changing financial market structure. Four areas have been shown deficient and are undergoing significant changes while the banking sector works itself from under its non-performing loans: (1) risk-based prudential rules regarding portfolio diversification, (2) underwriting rules regarding equity capital and counterparty risk in each lending operation, (3) the need for periodic and frequent property valuation. (4) Market intelligence and monitoring also remains a very weak area in many, if not most markets from a lenders point of view. The last two items are important yet typically underdeveloped areas for real estate research in most countries.
  - Regarding the resolution of banking problems, early and informal evidence suggests that banks in countries following more transparent approaches will recover better. (5) Since banking problems will continue to occur a comparative evaluation of restructuring vehicles and policies toward efficient asset disposition will be very useful. (6) Property loan securitization as a means of managing risk is one of the innovations which is making progress during the crisis.
  - The real estate industry has been undergoing major changes which are still evolving, and it is not always easy to differentiate what is cyclical what is structural in new forms of financing. (7) In an environment of asset deflation, lending has become quite different. Developers have lost the ability to appropriate much of the value of their projects. The financing of projects has shifted toward better risk sharing and much less leveraged financing. (8) There is a differentiation between the largest developers who are developing new forms of funding on the capital markets, and others who continue to rely on the banking sector. Large project and multi-family housing developers are much more dependent on public markets. (9) Investors relations have durably changed. On the other hand, improving the financial and economic efficiency of real estate markets through better information remains an open question. See also (3) and (4) above.
  - The ability of households -- first-time buyers in particular -- to carry debt in increasingly volatile interest rate environments has probably been reduced and needs to be better monitored. The rules of sound underwriting are well known, and the causes of mortgage default and foreclosure are well understood. (10) Countries where policies push toward very high housing loan-to-value ratios of 90% or more seem to be asking for more default problems in the global environment. (11) Acknowledging the important institutional differences across countries, can we identify the key features of housing finance systems that should be developed to achieve greater stability in open economies? For instance, the economies where households carry a high level of debt most of which is at variable rates are very sensitive to short-term rates adjustment. Such economies could become more difficult to manage in the new global environment: boom-bust cycles could be exacerbated as short-term interest rates cut are politically popular. To correct such tendencies, access to capital markets for funding and the development of mortgage bonds markets will make increasing volume of fixed-rate loans possible, contributing to less volatility.
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