Financial Crises: Plus ca change, plus c'est la meme chose

By

PJR Delargy and C. Goodhart

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Contents:

Abbreviations:

AIBR	Australian Insurance and Banking Review
BM	Bankers Magazine (published England)
BMSR	Bankers Magazine and Statistical Register (published USA)
HSUS	Historical Statistics of the United States
IFS	International Financial Statistics
IMF	International Monetary Fund

Charts

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Financial Crises: Plus ça change, plus c'est la même chose[1]

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Abstract

During recent decades most financial crises were caused by excessive public sector expansion. The current Asian crisis, however, had its roots in private sector over-expansion. In this respect it had more in common with the pre-1914 crises. In this paper we compare and contrast these two sets of financial crises. Many of their initial features - a toppling investment boom, widespread bank failures, financial dislocation and withdrawal of prior capital inflows - were common and prevalent in both eras. We focus here on the differences between the two cases and this centres on the external exchange rate regime. Prior to 1914, the regime encouraged large-scale gold inflows in the aftermath of crisis, a re-liquification of the economy and interest rates returning rapidly to low levels. Stabilising expectations are harder to encourage in current circumstances; in their absence the essential alternative is to reduce the burden of foreign debt.

1. Introduction

One of the surprising facets of the recent East Asian crisis has been that most people have found its onset so surprising. The Governor of the Bank of England, Mr. George, commented that

> "It is still not wholly clear - to me at least - quite why the storm suddenly struck. Most crises of this sort have their origins in some evident macro-economic policy failure. At least in hindsight there are usually fairly clear tell-tale signs of expanding fiscal deficits and/or lax monetary

[1] *The authors wish to express their thanks to Dr. W. P. Kennedy for the help and advise extended, and to the Librarian and staff of the Bank of England Library. This work was sponsored by the Financial Markets Group, LSE, and the ESRC Research Centre.*

> policies, classically accompanied by evidence of imbalance in the form of accelerating inflation or a rapidly deteriorating balance of payments. There were such signs, perhaps most notably in Thailand; but they were not for the most part particularly pronounced in Asia. In fact through the first half of the 1990's, and in some cases for much longer, the countries in question were remarkably successful. They attracted, by their very success, huge inflows of capital from the rest of the world in search of higher returns." Bank of England Quarterly Bulletin(1998)

The East Asian crisis has been one that originated in the private sector; the public sector was previously in balance or in surplus in most of the affected countries. The countries involved had been amongst the fastest growing and most successful in the world, the `tiger economies'. But most of the circumstances prominent in the Asian crash in 1997/98 were closely matched in the financial crises in the decades prior to 1914, the rapid growth in emerging countries, such as Argentina, Australia, USA, with capital inflows and a toppling asset price boom; the inter-connections between a property boom and a fragile banking system (with accusations of mishandling, or worse, in the relationships between Government and banks), in Australia, Argentina, Italy and the USA; and clear evidence of financial inter-linkages between countries amounting to contagion, as Morgenstern (1959) described earlier.

Let us start with three quotes, drawn from The Banker's Magazine in 1893 (Vol. 1, p. 884; Vol 2, pp 535, 537/8). These refer to the Australian crisis, but, whenever it did not spoil the sense, we have blocked out the Australian names, so the reader can imagine how closely this might have referred to Thailand, Indonesia or South Korea more recently.

> "The moment is thus opportune for some retrospective glance at the [ ] banking position, and at the events which have led up to it. It seems difficult to realize that less than two years ago the [ ] banks were at the zenith of their glory; money was rolling into their coffers in never-ceasing flow, their credit was unquestioned, their popularity among investors unbounded. The banks used these golden opportunities to build up a fabric which, at the first unfavourable breath of wind, collapsed like a house of cards. Many causes combined to produce the disasters [...] but the immediate factor was undoubtedly the failure of the [ ] Bank. It was a young concern, occupying third-rate rank, but brilliantly managed, and handicapped by powerful competition. Naturally the class of business it could attract was indifferent in quality. It obtained business which was not good enough for the other banks to take. Through some back-stairs influence, which will be more fully understood after a perusal of the Official Receiver's report, it also received a share of the banking account of the Government. When troublous times came, the banks, which were associated together for the purposes of the Government account entered into a mutual agreement to support each other in case of need, and the [ ] Bank was necessarily included in this compact."

> "The [ ] crisis has been through many phases. The first stage was one of pure distrust of certain institutions, believed to be mixed up with land and house property speculations. Down came the [ ] Bank, followed by one or two other banks whose position is believed to have been somewhat stronger than the first-named. Then ensued a period

of general distrust of all banks, during which cash was withdrawn, and notices of withdrawal were sent from abroad. The third stage was reached when the scarcity of cash so produced began to cause a run upon the admittedly sound banks remaining, for the purpose of obtaining currency, without reference to the stability of the banks who were called upon to supply cash."

"This brings us to the question of administration, and we are entitled to ask whether those entrusted with the management of banks can be considered free from blame in regard to these calamities. It may be alleged perhaps that some have been sacrificed through the follies of others, that more banks have succumbed as the result of unreasoning panic than from the effects of bad or reckless management. There are, we are willing to believe, yet some shining lights among bank officials, but, speaking generally, it must be allowed that these bankers have been weighed in the balance and found wanting. In the early days, land and property were constantly and continuously increasing in value, and thus bankers were always dealing with an improving security. If they made at any time too liberal an advance, they knew that the almost inevitable increment in value would after a short interval place their security on a more satisfactory footing. To this upward movement there was naturally a limit, which was in due course reached, but [ ] bankers have not been able to accommodate themselves to the altered condition of affairs. Hence the "land boom" appeared to them a healthy growth. A strong case has been made out in favour of sending here efficient banking men from this side, and we hope that no consideration of vested interests will interfere with this being done where necessary. The banks are at present largely manned by [locally born], and it is an open secret that [these] do not adapt themselves to banking pursuits. Nor is this surprising if the following faithful record of one of them is anything like a sample of the whole. It ran thus: "I was first on a sheep-station, afterwards cattle-droving for different people in Queensland, then bullock-driving for a carrier, and some time with a butcher. I then joined the staff of the ----- Bank." The subject of this record may have been an excellent and blameless individual, but he is not composed of the stuff which bank managers are made of.

> Government finance has always been an important factor in [ ] banking. It was the practice of the Colonial Governments to divide their favours among the banks which were "associated" for this purpose. In the event of liquidation, the respective Governments had a prior lien on the assets of the defaulter, so that the [ ] Treasurer did not require to be very particular as to the financial position of any bank to which he entrusted the public money, as there was sure to be sufficient left to repay him. On the other hand, depositors who were not acquainted with this arrangement regarded the connection of the bank with the Government as a certificate of solvency. The [ ] Bank, for instance, used to advertise itself as "joint bankers to the Government," in order to attract deposits and by way of saying, "See what a fine bank am I." Properly the announcement should have had the effect of frightening depositors away."

The similarities are now better appreciated, although the suddenness of the onset of the crisis found most relevant participants totally un-informed on the history of 19th century collapses. Thus, Witteveen, a former managing director of the IMF has stated:

> "My impression is that the IMF underestimated the recessionary effect of the liquidity and banking crisis that the turn around of capital flows brought about. The IMF had no experience of such a crisis. And the history of business cycles in the nineteenth century, which is very enlightening in this respect, was probably forgotten. In the beginning of the crisis the IMF therefore expected only a slight reduction of growth, while activity soon started to fall dramatically. In some countries the additional measures imposed by the IMF were in the event unnecessary." (Central Banking November 1998)

The purpose of this working paper is to present more detailed

evidence underpinning Goodhart and Delargy (1999), an associated paper emphasizing the policy relevant comparisons and contrasts, and seeking to draw lessons. For these exercises, we examine, for the pre-1914 examples:

1873	Austria, USA
1890/91	Argentina, USA
1893	Australia, Italy, USA
1907	Italy, USA

Some readers will not be familiar with the history of these pre-1914 crises. For those wishing to learn more, or to refresh their memory, we include a potted history of each of these pre-1914 crises in Appendix I.

In our comparison with the current Asian crisis, we have examined data and events for the following countries, Thailand, Indonesia, Malaysia, Philippines, Singapore, Hong Kong, and South Korea.[2]

[2] We had thought of including Japan amongst our Asian countries, but the form and time-scale of the economic problems in Japan have been very different from, even thought inter-acting with, those of the other Asian countries. Japan saw the bursting of the "bubble economy" there much earlier, at the start of the 1990s. By 1997/98 the Japanese economy had already been comparatively stagnant for some years. So in any data set of Asian

There are some who have seen in the collapse of the Asian countries, (with consequential doubts placed on `Asian virtues' and particular Asian approaches to economic management), a reaffirmation of the virtues of Anglo-Saxon capitalism and of the American approach to the economy. It is, therefore, salutary to recall that the USA played a leading role in almost every crisis episode in the period before 1914, (and, indeed, thereafter, in the inter-war slump).

We shall start in Section II by examining the pre-conditions for the crisis. Like most Asian countries, the countries involved in the pre-1914 crisis were primarily successful, fast-growing, capital-importing countries. This provides a fertile breeding-ground for an asset price boom, with an associated rapid expansion of bank lending, in some cases (e.g. Australia) partially financed by foreign deposits. Asset price booms (bubbles) come to an end, for a variety of reasons. The downturn places pressures on an over-extended banking system, and one failure leads to another.

Next, then, in Section III, we examine the details of the collapse itself, pre-1914 and in 1997/98. The initial failure either was in, or quickly involved, domestic financial markets and institutions in almost all cases. The main exception was in Australia where a strong cyclical peak, driven by high wool prices and property speculation, occurred in 1890. But there was no accompanying financial crisis in the same year. Instead, the downturn in the economy and in asset markets dragged on, (somewhat reminiscent of Japan in the 1990s) and worsened, leading in a collapse of building societies (primarily in Victoria) in 1892 and then to a monetary implosion in 1893 with the failure of a large part of the banking system.

Domestic financial difficulties then led, very quickly in many cases, to external nervousness, and the withdrawal of (short-term) liabilities and capital flight, (in those cases where capital could be withdrawn). The real economy declined very sharply, amidst considerable dislocation and disturbance (e.g. USA in 1907), and both exports and imports immediately fell back, but imports by much more than exports (e.g. Argentina in 1990/91).

The major difference, which we will emphasize, between the pre-1914

and the 1997/98 crises was on the external side. Like the Asian countries, most of our pre-1914 crisis countries were large net international debtors, (except for our European examples, Austria and Italy). In the case of the USA (in 1907, less so in the earlier cases because of the Silver question), and in Australia, there was confidence that these countries would maintain their (gold) exchange rate. So, when asset prices fell, the more so when gold went to a temporary premium, there was an immediate surge of capital and gold inflows to take advantage of temporary asset cheapness. In the main case where there was no confidence in the restoration of the prior gold exchange rate, i.e. in Argentina (1890), the pressure was taken off by a government moratorium on the payment of interest and principal on Argentinean debt. The crux is that pre-1914 the financial crisis and asset price collapse led, one way or another, to a large scale inflow of gold, which served to bolster the financial system and halt the downwards spiral. Interest rates rose temporarily during the crisis itself, but soon returned to levels even lower than in the previous cyclical upturn.

Compared with these outcomes, the combination of a downwardly

flexible exchange rate, (raising the domestic burden of $ debt), combined with efforts to keep the Asian countries from imposing moratoria on outward debt payments, plus high (often sky-high) domestic interest rates, has led to a cocktail of external/internal financial conditions far less conducive to rapid recovery than pre-1914. The working of the pre-1914 system, (stick to the gold standard if you can; repudiate foreign debt if you cannot) appears to have been much more benign than what has happened in Asia recently, (despite - some might say because of - the loans and ministrations of the IMF).

The financial nervousness and gold inflows to the afflicted countries, pre-1914, had international repercussions. First, there was a general increase in interest rates, and reduction in asset prices and activity, in the internationally connected, developed world, largely orchestrated via the central London markets and institutions, notably the Bank of England. Again Morgenstern (1959) is the main chronicler. Second, there was some tendency for contagious capital withdrawals from similar countries, especially in Latin America after 1890. We attempt to document the extent of contagion in Section II (d) pre-1914, and compare it with that in

1997/98. The telegraph cable, linking the USA to England in 1858, was the crucial invention linking the world's major economies; and by the Feldstein-Horioka criterion the world's economy was more unified in 1913 than in 1997.[3] Nevertheless there seems to have been more evidence of contagion now, than then. Whether this is because international investors are now less well informed of the countries in which they are investing than then, or whether it is due to greater `herding' pressures, or yet other causes, is almost impossible to determine.

Despite the more benign international framework, and inflows of gold helping to halt the crises, pre-1914, the recovery period was often quite long-drawn out, Australia requiring almost fourteen years, Austria seven years after 1873 and the USA seven years after

[3] The first Atlantic telegraph cable was commenced with trial laying of cable in August 1857 and completed in June 1858, under the direction of the engineer Charles Bright, using two ships to lay the cable - rightly judged an enormous achievement by contemporaries. It commenced a technological globalisation of financial information the impact of which was, if anything, greater than the computer based globalisation currently in development. For details of the development of the telegraph industry see Bright (1898), while its impact on the London to New York communications network is documented in Michie (1989). The impact on developing countries can be judged by usage in 1913. Australia possessed 133,000 telephones and dispatched 14 million telegrams (an increase of 6.7 million from 1893), while Argentina possessed 74,000 telephones and dispatched 11 million telegrams (an increase of 8.2

the 1890/93 decline, though there was a rapid bounce-back in some cases (e.g both USA and Italy in 1907). It is not easy to be confident about the determinants of the speed of recovery; and, of course, such recovery still lies in the future for the Asian countries. So, this Section, Section IV, on the recovery looks only at the pre-1914 episodes. Perhaps there is some Schumpeterian hint that the longer and more excessive the previous asset boom, the longer and deeper would be the post-crisis depression.

We end by asking what lessons can be learnt from such comparisons and contrasts, in Section V. The first lesson is that the form and nature of the Asian crisis is less special, and less particularly Asian in its characteristics, than many commentators have suggested. Asset price booms and busts, interacting with commercial bank febrile expansion and catastrophic collapse, have regularly affected all our countries, whether Anglo-Saxon or Asian; and there are a variety of lessons that need to be relearnt, or learned afresh.

What was different, pre-1914, from the present, was the way in which the international system mediated the crises. In a variety

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million from the nether of its depression in 1895).

of ways the pre-1914 system appears to have worked better. Are there lessons that we can learn about this aspect of the economic system, or are we inevitably and irretrievably stuck with the system that we have got?

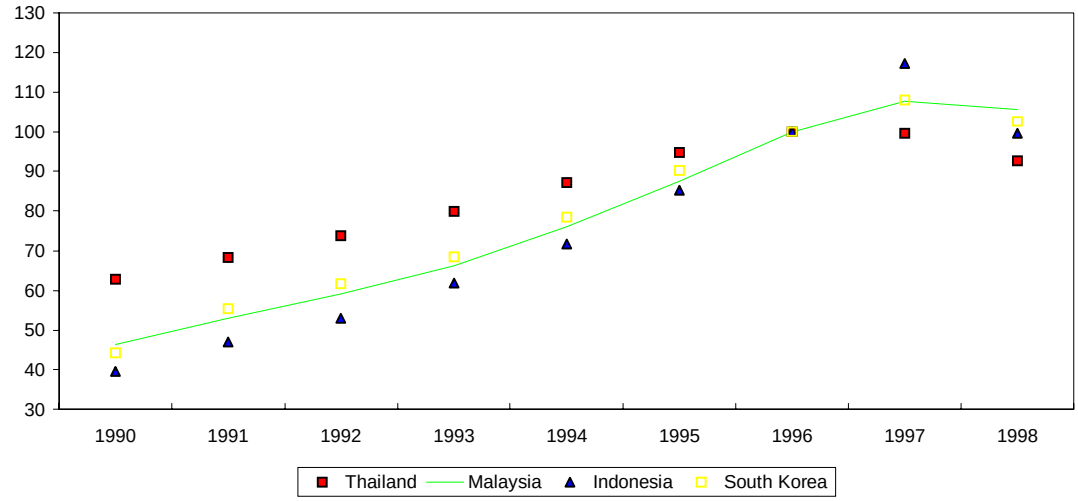
2. The Preconditions

2(a) Real Demand

In charts 1 and 2 we show the level of real GDP annually , as a % of the level in the year preceding the downturn for our seven Asian countries. In charts 3 to 6 we give the level of GDP annually, as a % of the level in the year preceding the downturn for our nine pre-1914 crises, covering the period from five years before that date to five years afterwards. Because the banking crisis in Australia occurred some three years after the cyclical peak, we show the Australian data (here and in several subsequent cases) in two versions, one dating the key event in 1890 and one dating it in 1893.

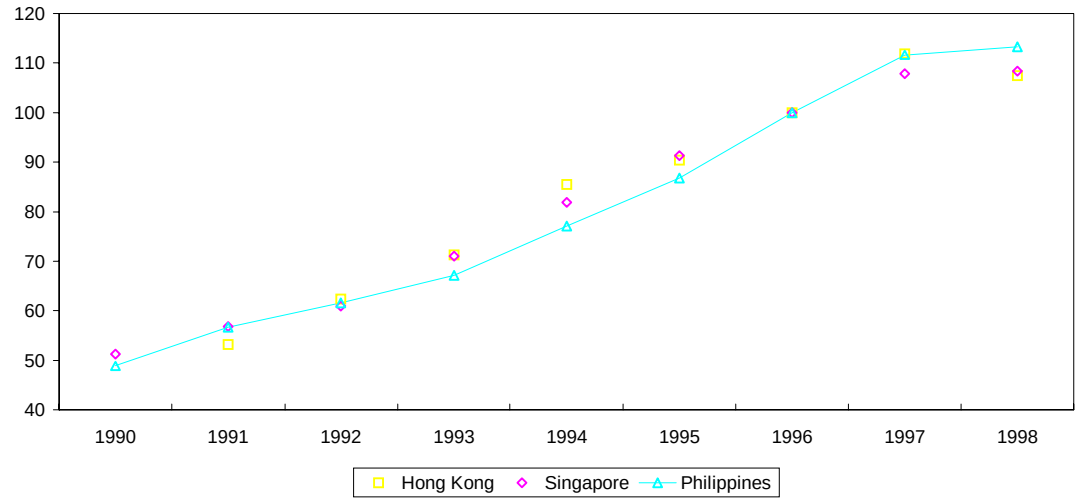
In neither Austria (1873), nor Argentina (1890), do we have available reliable data on real GDP. What we initially thought of using as a proxy was the number of kilometres of railroads in operation, (both countries being in a railroad building boom at the time of their crisis); but as these new railroads came into operation, despite the severe downturn, this metric showed a continuing rise throughout the worst years of the slump in those countries.

Chart 1 : GDP as a percentage of GDP in 1996



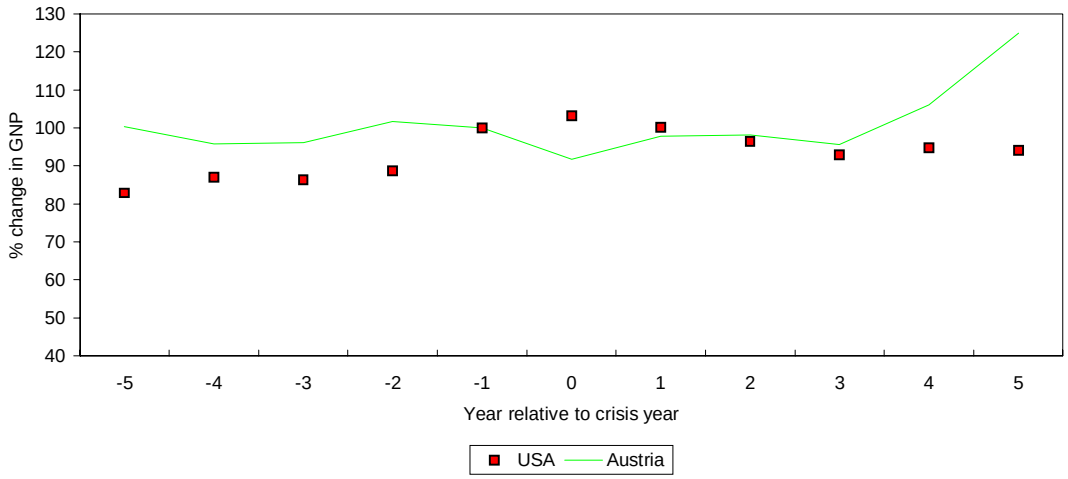
Sources: International Monetary Fund's International Financial Statistics (hereafter IMF IFS) and Datastream International. Estimates of Bank of America Asian Financial Outlook interpolated for 1998.

Chart 2 : GDP as a percentage of GDP in 1996



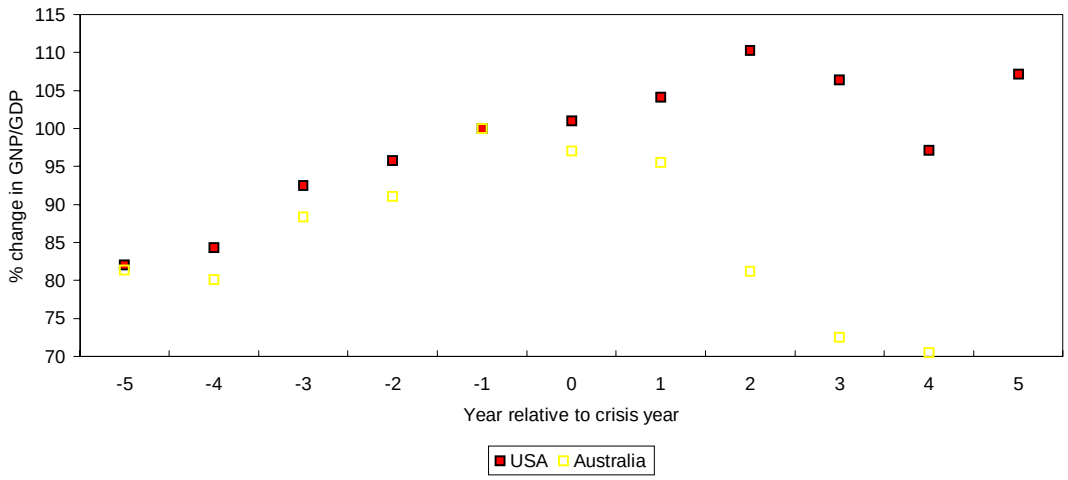
Sources: IMF IFS and Datastream International Estimates of Bank of America Asian Financial Outlook interpolated for 1998.

Chart 3: Measures of national output for participants in 1873 crisis
Crisis of 1873 including Austria and USA (base: year prior to crisis = 100)



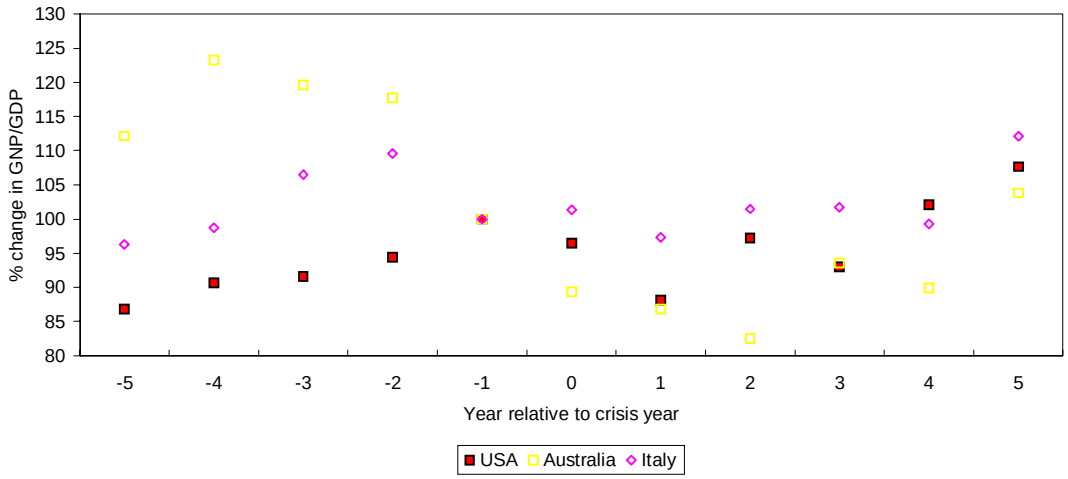
Sources : Komlos (1971), Mitchell (1981; 1983).

Chart 4 : Measures of national output for participants in 1890 crisis
Crisis of 1890 including Australia and USA (base: year prior to crisis = 100)



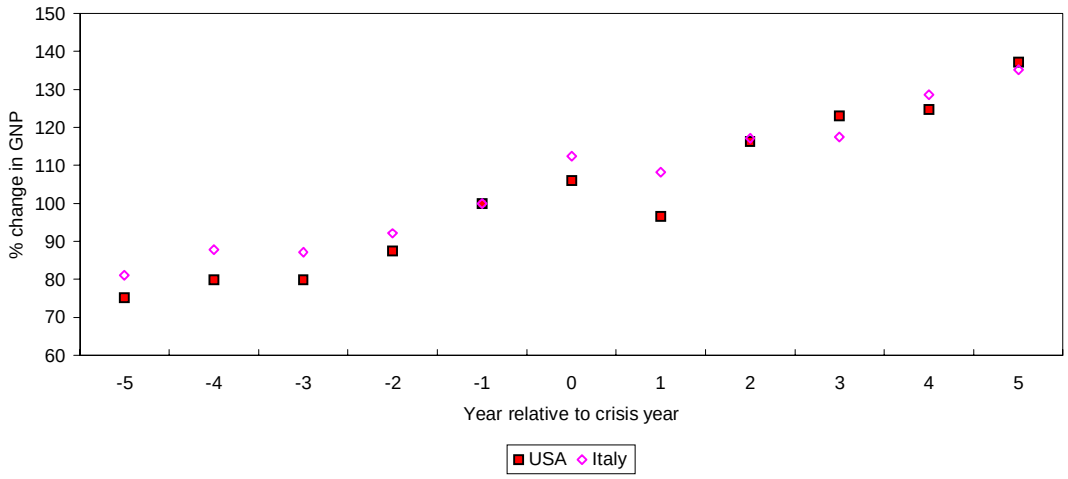
Sources: Mitchell (1981; 1983) Butlin (1961; Table 1).

Chart 5 : Measures of national output for participants in 1893 crisis
Crisis of 1893 including Australia, Italy and USA (base: year prior to crisis = 100)



Sources: Mitchell (1981; 1983) Butlin (1961; Table 1).

Chart 6 : Measures of national output for participants in 1907 crisis
Crisis of 1907 including Italy and USA (base: year prior to crisis = 100)



Sources: Mitchell (1981; 1983).

Even after adjusting for the above factors, the recent growth rates in Asia have been generally both higher and more uniform than in the pre-1914 crisis. The greater uniformity is partly due to the fact that growth in Argentina, Australia and the USA, pre-1914, was largely driven by expanding trade in primary agricultural products, subject to idiosyncratic supply shocks, and partly to the fact that the Asian crisis developed into an integrated regional crisis, whereas the pre-1914 crises are taken from a wider range of countries, years and specific histories. Moreover growth in most parts of the world, especially in Asia, has been on average much faster than in the 19th century.

What we can state is that growth in our pre-1914 crises countries was generally high on average in the five years preceding the crises, and that it fell fairly sharply in the five years following the crises. This is shown in Table 1. In addition, for Argentina Table 1 shows additional kilometres of railroad completed, (which is a somewhat lagging indicator since some lines begun before the crises are nevertheless finished thereafter).

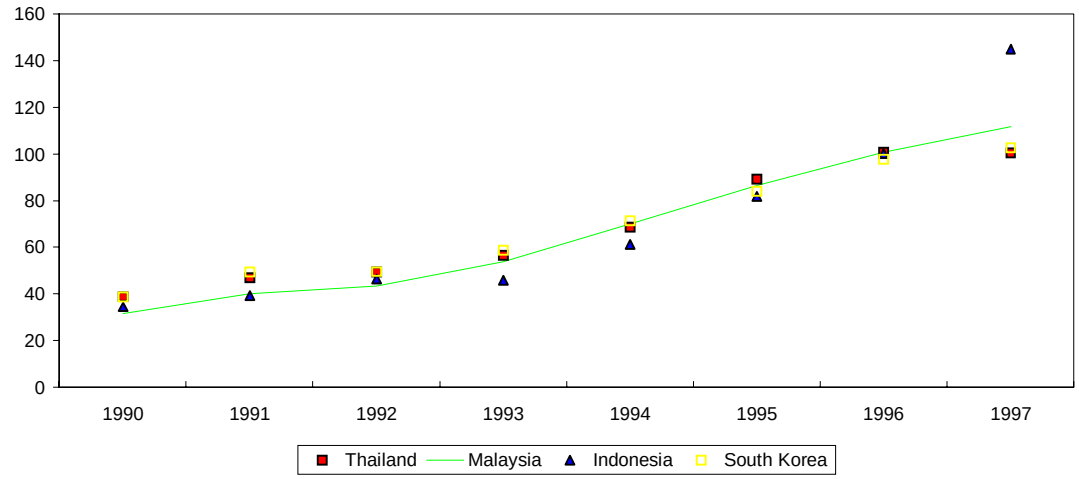
The exceptions to this are Australia (1893), since the downturn was in 1890; Italy, both in 1893 and 1907, since in both cases the crises there were driven by specific, and idiosyncratic financial failings, rather than by a toppling boom (interacting with financial weakness), and the economy recovered relatively quickly thereafter; and the USA in 1907 for which the same held true.

One of the features of (most of) the countries caught up in these crises was a prior investment boom, in several cases involving construction and real estate (housing and property), but in other pre-1914 cases railroads, as demonstrated by the data on railroad construction in Austria (1873) and Argentina. The data on Gross Fixed Capital Formation (Annually) both in real terms as a % of the level reached in the pre-crisis year, and as a % of GDP are shown for the seven Asian countries in Charts 7 - 10.

Data for the pre-1914 crisis countries are more disparate, and Australia also saw the peak of an investment boom in 1889 as outlined in Appendix 1. There was also a peak in investment in, or just prior to, each of the subsequent crisis years, 1890, 1893 and 1907, but long cycles in investment, as occurred in

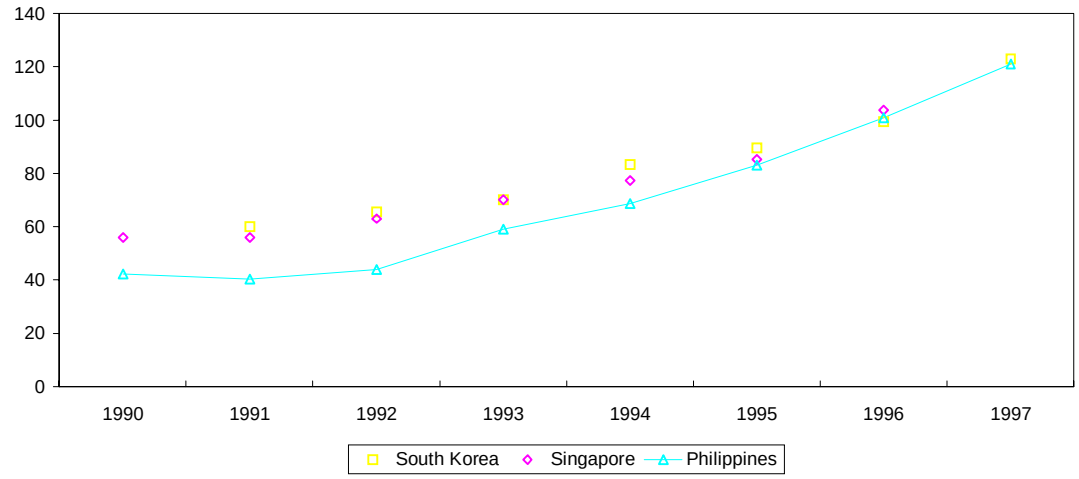
Asian countries now, do not really appear in the US data. The Italian data also show peaks in the crisis years (1893 and 1907), but no clear cyclical pattern (see charts 11 and 12).

Chart 7 : Gross Fixed Capital Formation as a percentage of 1996 value
Gross Fixed Capital Formation deflated by the wholesale price index rebased to 1996



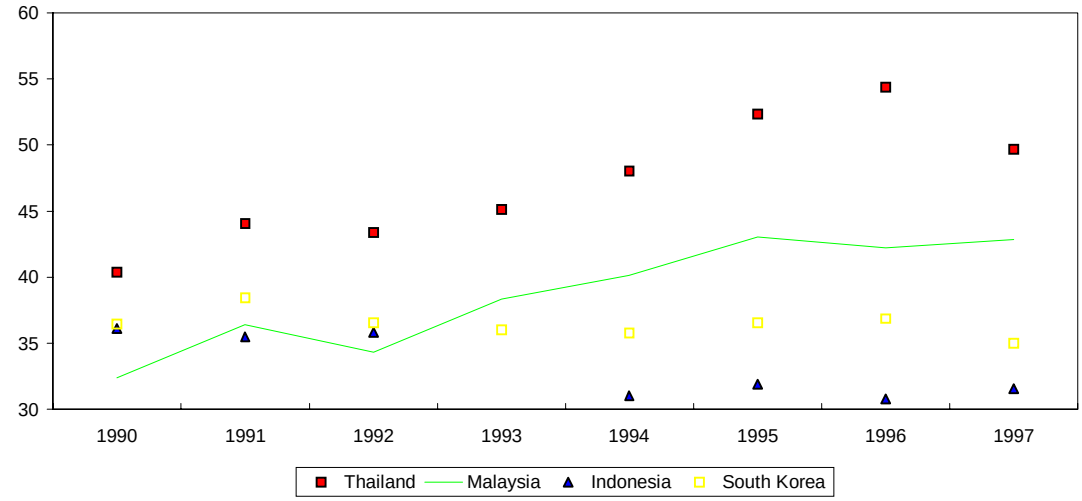
Sources: IMF IFS.

Chart 8 : Gross Fixed Capital Formation as a percentage of 1996 value
Gross Fixed Capital Formation deflated by wholesale price index rebased to 1996



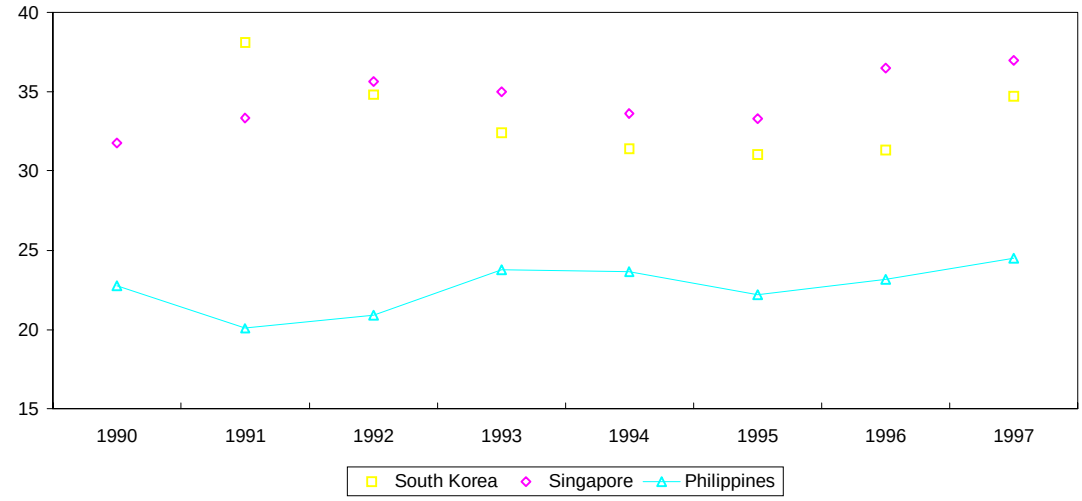
Sources: IMF IFS

Chart 9 : Gross Fixed Capital Formation as a percentage of GDP



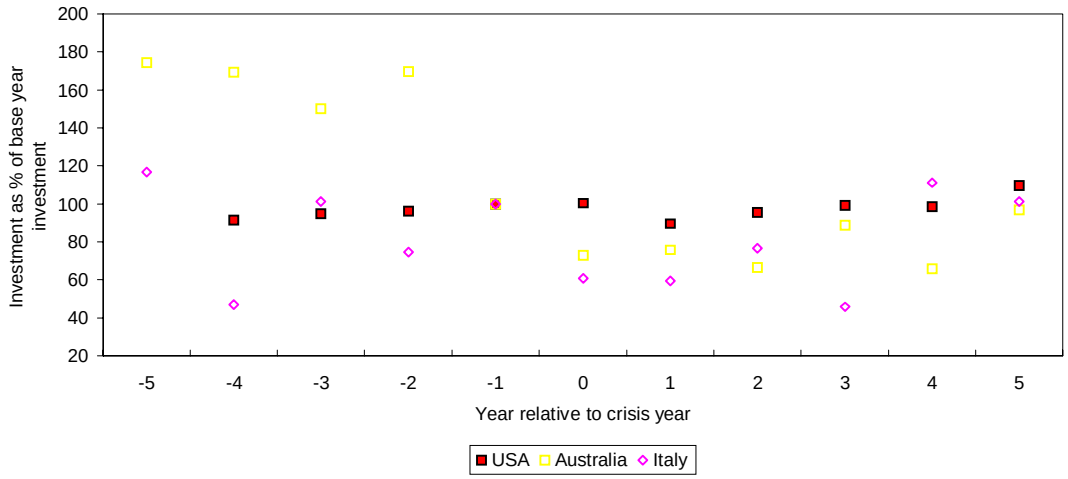
Sources: IMF IFS.

Chart 10 : Gross Fixed Capital Formation as a percentage of GDP



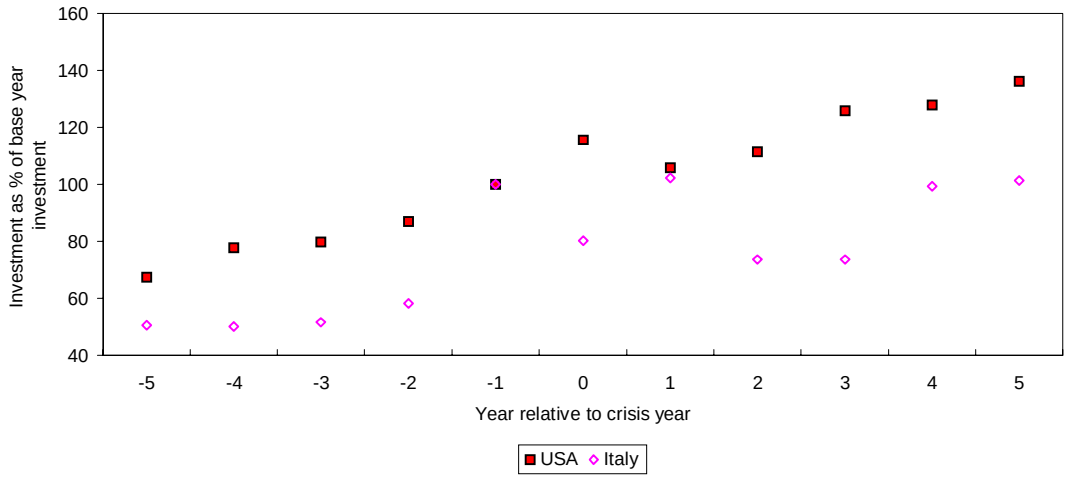
Sources: IMF IFS

Chart 11 : Investment of participants in 1893 crisis
Crisis of 1893 including Australia, Italy and USA (base: year prior to crisis = 100)



Sources: Mitchell (1981; 1983) Butlin (1963; Table 1).

Chart 12 : Investment of participants in 1907 crisis
Crisis of 1907 including Italy and USA (base: year prior to crisis = 100)



Sources: Mitchell (1981; 1983)

For the most part the investment and construction boom was a private sector phenomenon. The direct role of the government was quite small. The ratio of government expenditures to GDP, and the size of the Public Sector Borrowing Requirement, both pre-1914, and 1997/98, was quite slight, at least for those countries for which we have data, ie pre-1914 USA, Italy and Australia. In the USA public expenditure as a share of GDP was dropping from about 4% of GDP at the start of the decade to just under 2½% in the 1890s, and rose back to about 2½ in the early 1900s. The accompanying borrowing requirement fell from about 1% at the start of the 1870s to under 0.5% at the end of the decade, fell from nearly 1% in the 1880s to a small surplus in the 1890s and was broadly in balance in the 1900s. In Italy public sector expenditures were markedly higher, at about 10 - 12% of GDP throughout, though with no clear cyclical variation, and the overall Budget was in slight surplus in the 1890s, in slight deficit at the start of the 1900s and slight surplus again from 1906 onwards (see Table 2).

Similarly there were no apparent problems with the condition of public sector finances, at least prior to the crisis in the Asian countries. Public sector expenditures, as a % of GDP,

through much higher than in the 19th century, were still comparatively, eg in relationship to European countries, low and the PSBR was low, or even negative in several cases, as shown in the Tables 3A and 3B.

Nevertheless governments in both (most of) the pre-1914 crisis countries and in Asia were quite closely involved in encouraging and facilitating the continuation and extent of the investment boom, with a view to the rapid development of their economies. Particularly with the benefit of hindsight, such involvement was assessed as misguided, especially by critics in creditor countries (examples from Argentina, Australia and Italy are given in Appendix II). The role of the governments in the Asian countries in trying to stimulate rapid growth in countries such as Thailand, Indonesia, Malaysia and South Korea - in a variety of ways - is sufficiently well - known and fresh in the memory to need no extensive documentation here.

2(b) External Relationships

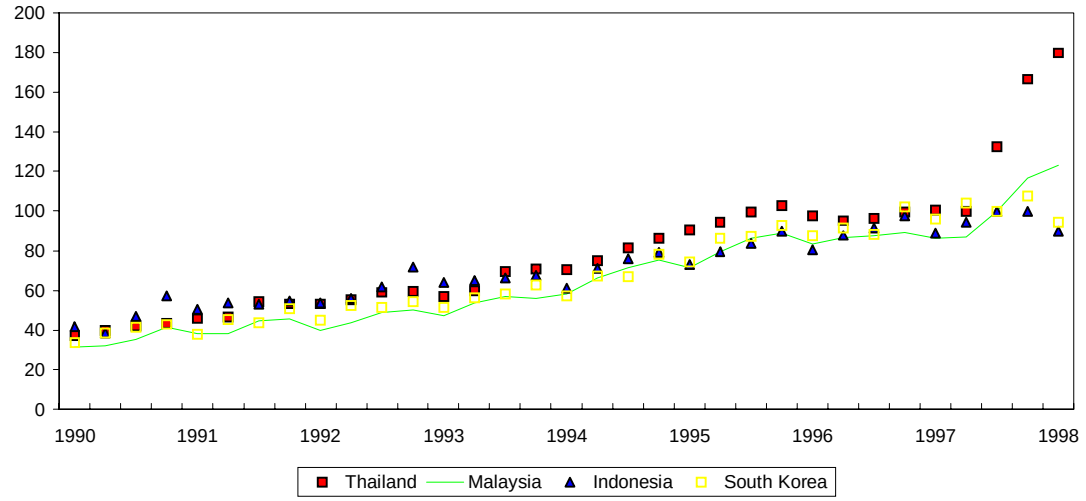
Successful developing economies are likely to exhibit fast growth in exports, and this was the case in virtually all our crisis countries, both pre-1914 and in Asia (see charts 13 to 18).

In a couple of cases, pre-1914, ie Argentina (1890) and Australia (1893), there are some indications that the crisis so dislocated the economy that export growth was subdued in the crisis and subsequent year, a feature which seems certain to recur for Indonesia, and may do so for some of the other Asian countries, but we do not have the data yet to find out whether this has occurred.

In general, however, the growth rate of exports in the five years following the pre-1914 crisis was as high, or higher, than

in the preceding five years, as shown in Table 4.

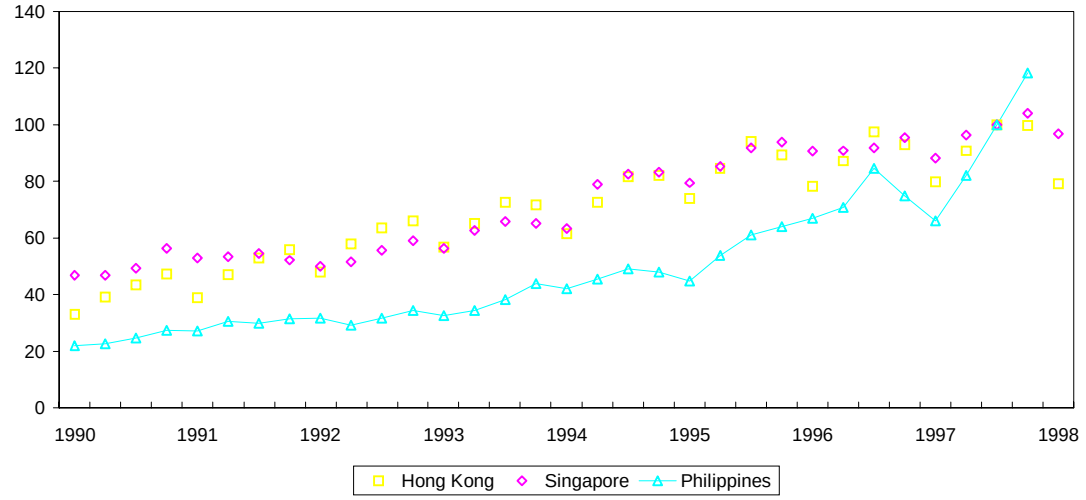
Chart 13 : Quarterly exports as a percentage of exports in pre-crisis quarter.



Notes: Pre crisis quarter is 1997: Q2 for Thailand and 1997: Q3 for other nations.

Sources: IMF IFS and Datastream International

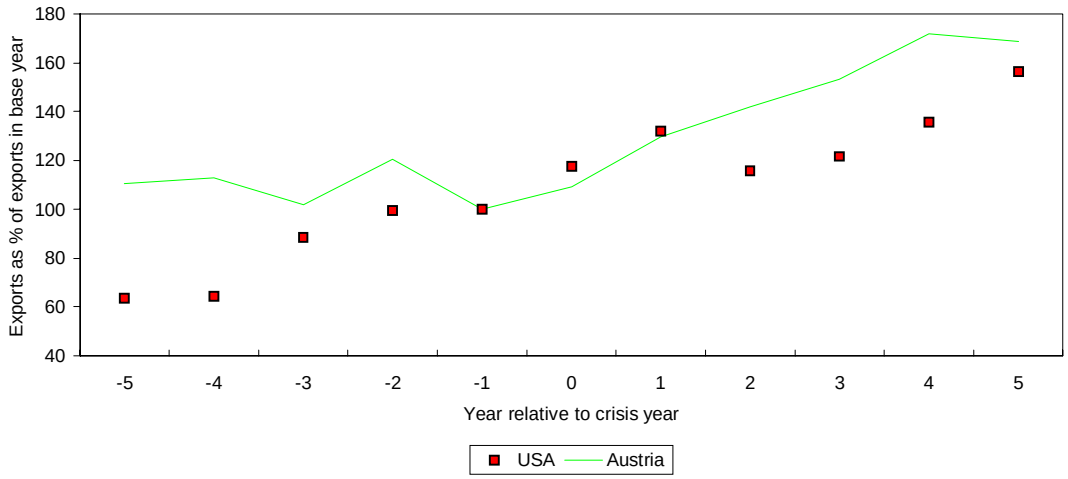
Chart 14 : Quarterly exports as a percentage of exports in pre-crisis quarter



Notes: Pre-crisis quarter is 1997: Q3.

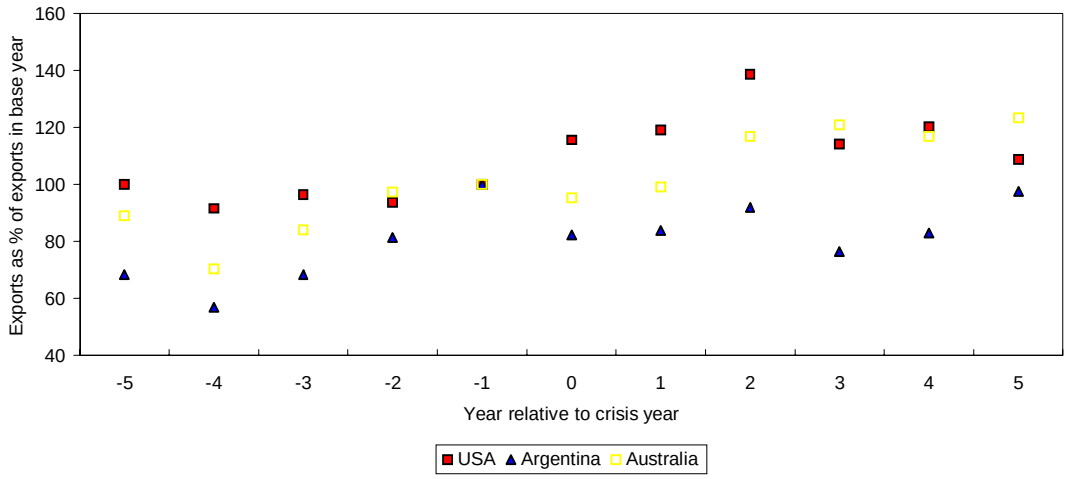
Sources: IMF IFS and Datastream International.

Chart 15 : Exports of participants in 1873 crisis.
Crisis of 1873 including Austria and USA (base: year prior to crisis = 100)



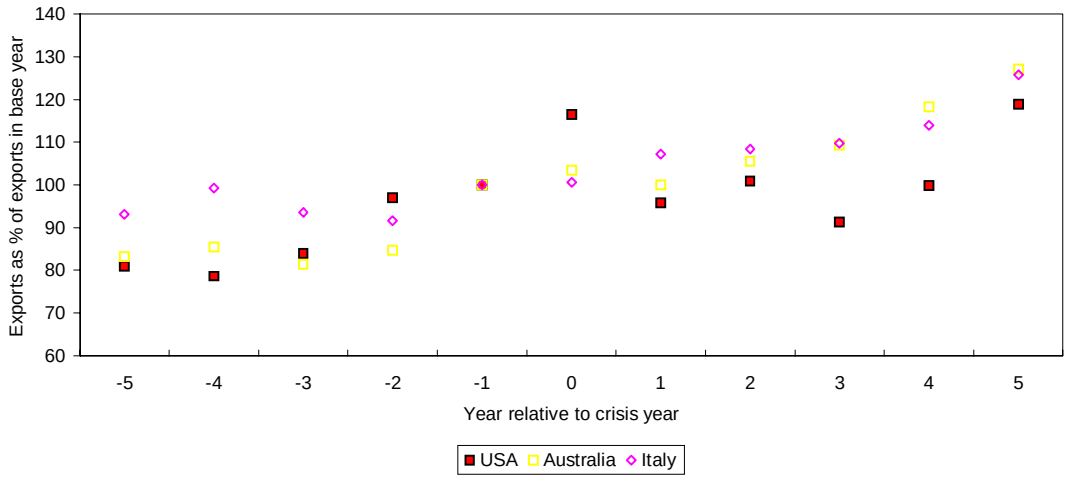
Sources: Mitchell (1981; 1983).

Chart 16 : Exports of participants in 1890 crisis.
Crisis of 1890 including Australia, Argentina and USA (base: year prior to crisis = 100)



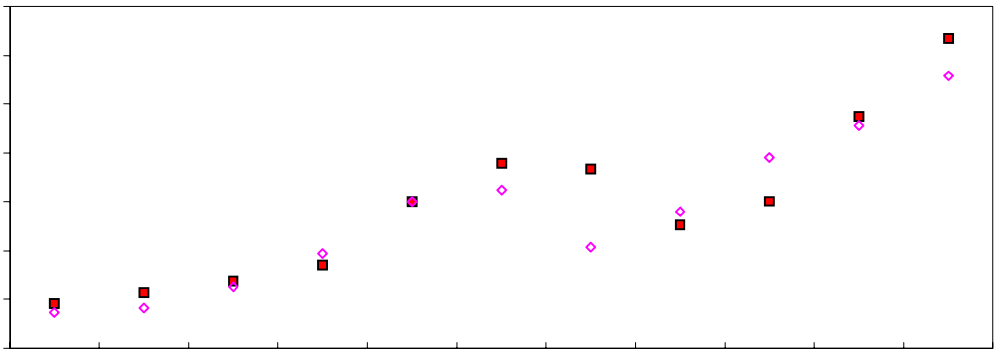
Sources: Mitchell (1981; 1983).

Chart 17 : Exports of participants in 1893 crisis
Crisis of 1893 including Australia, Italy and USA (base: year prior to crisis = 100)



Sources: Mitchell (1981; 1983).

Chart 18 : Exports of participants in 1907 crisis
Crisis of 1907 including Italy and USA (base: year prior to crisis = 100)



Sources: Mitchell (1981; 1983).

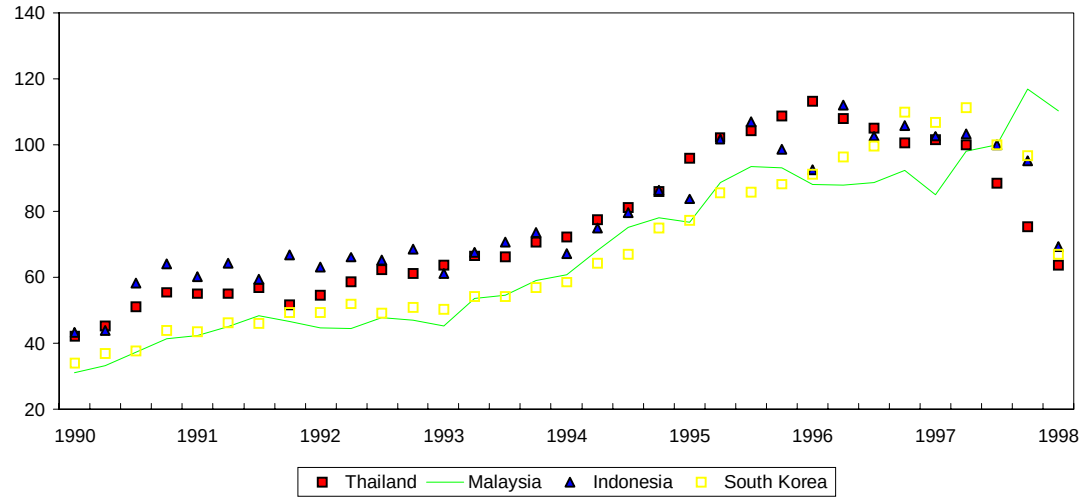
While successful developing countries are expanding their exports, they are at the same time likely to attract inward capital flows, so, almost by definition, during the period of rapid growth imports will exceed exports, and often be growing at an even more rapid rate. Charts 19 and 20 show the level of Asian imports as a % of the level in the quarter preceding the crisis, and Charts 21 to 24 show the same for the pre-1914 examples relative to the crisis year. For our seven Asian countries where quarterly data exists, Q2 1997 is the quarter preceding the crisis for Thailand, while Q3 1997 is the quarter preceding the crisis for the other six countries.

What these charts show is that the Asian crisis is bringing about a sharp turn - around (a decline) in imports from their previous high levels, with the possible exception of the Philippines. The same was true for most, but not all of the pre-1914 crises, with USA in 1907 and Italy (1893 and 1907) being the exceptions.

Consequently the tendency was for the trade account (of the pre-1914 crisis countries) to worsen in the years prior to the crisis, and to improve thereafter, though once again USA 1907

and Italy did not follow this pattern (see Table 5).

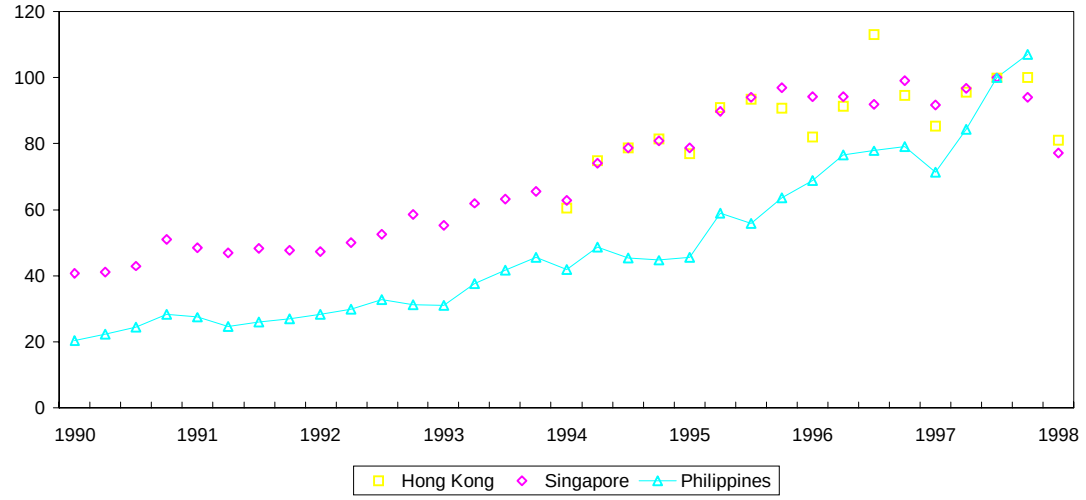
Chart 19 : Quarterly imports as a percentage of imports in pre-crisis quarter.



Notes: Pre-crisis quarter is 1997: Q2 for Thailand and 1997: Q3 ffor other nations.

Sources: IMF IFS and Datastream International.

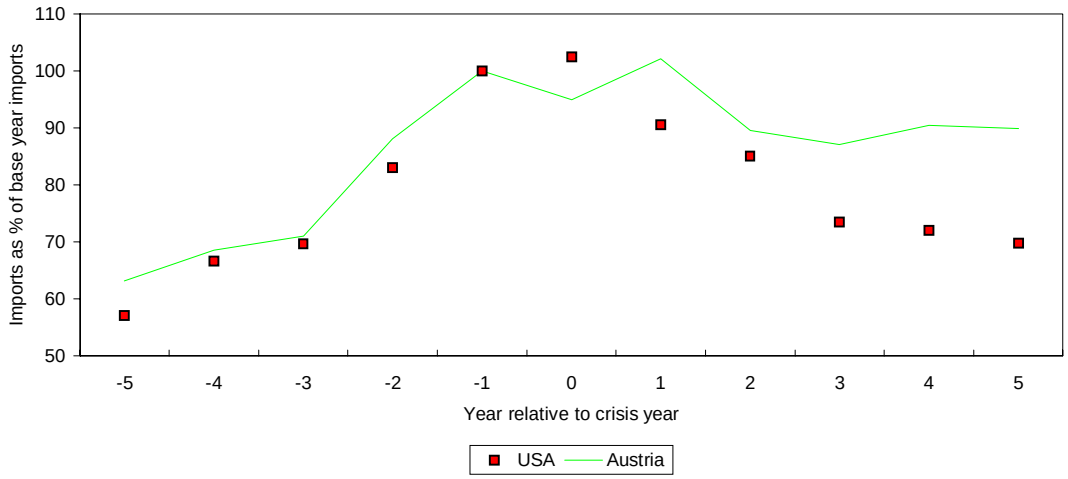
Chart 20 : Quarterly imports as a percentage of imports in per-crisis quarter.



Notes: Pre-crisis quarter is 1997: Q3.

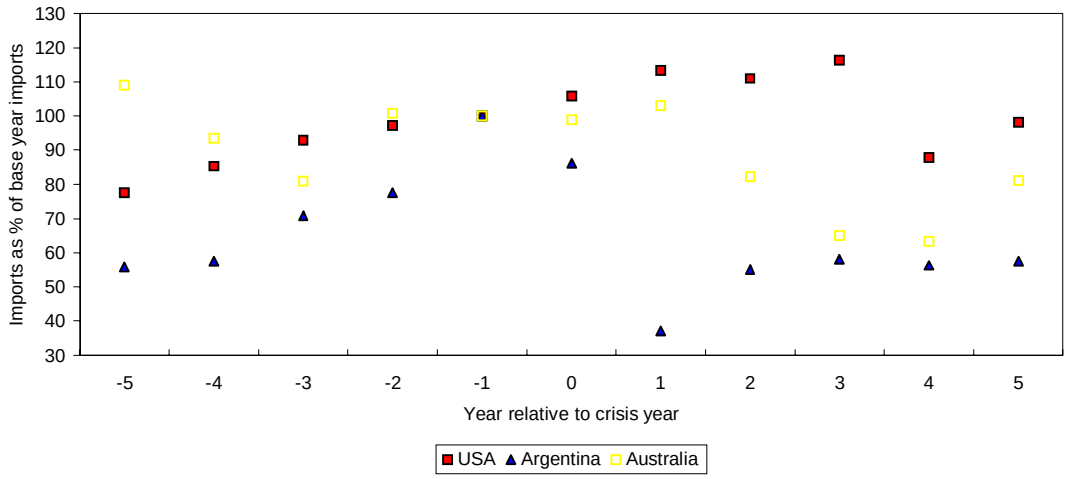
Surces: IMF IFS and Datastream International.

Chart 21 : Imports of participants in 1873 crisis
Crisis of 1873 including Austria and USA (base: year prior to crisis = 100)



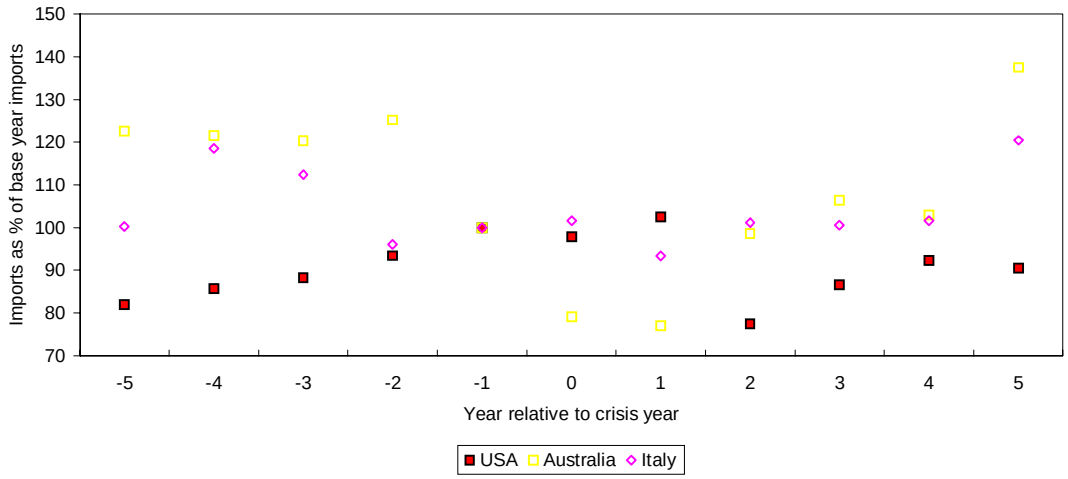
Sources: Mitchell (1981; 1983).

Chart 22 : Imports of participants in 1890 crisis
Crisis of 1890 including Australia, Argentina and USA (base: year prior to crisis = 100)



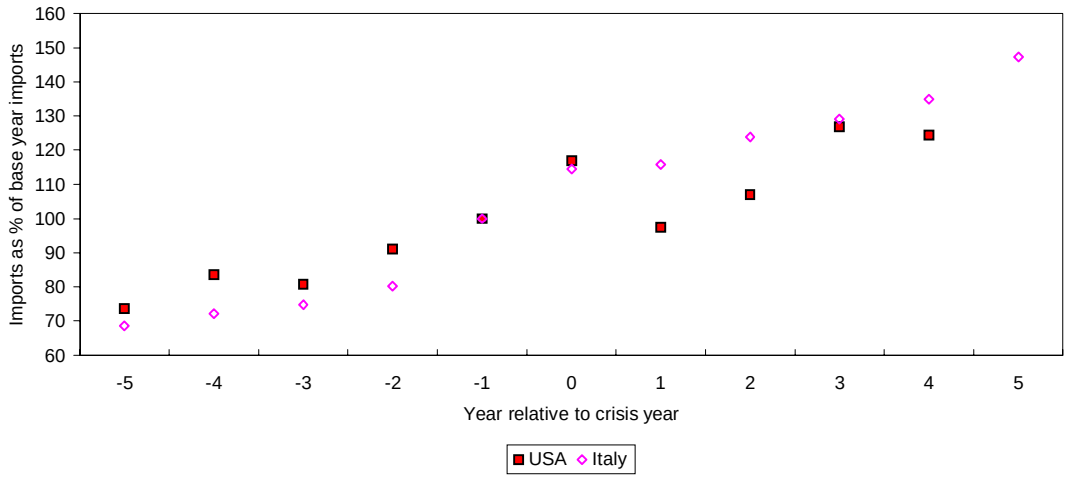
Sources: Mitchell (1981; 1983).

Chart 23 : Imports of participants in 1893 crisis
Crisis of 1893 including Australia, Italy and USA (base: year prior to crisis = 100)



Sources: Mitchell (1981; 1983)

Chart 24 : Imports of participants in 1907 crisis
Crisis of 1907 including Italy and USA (base: year prior to crisis = 100)

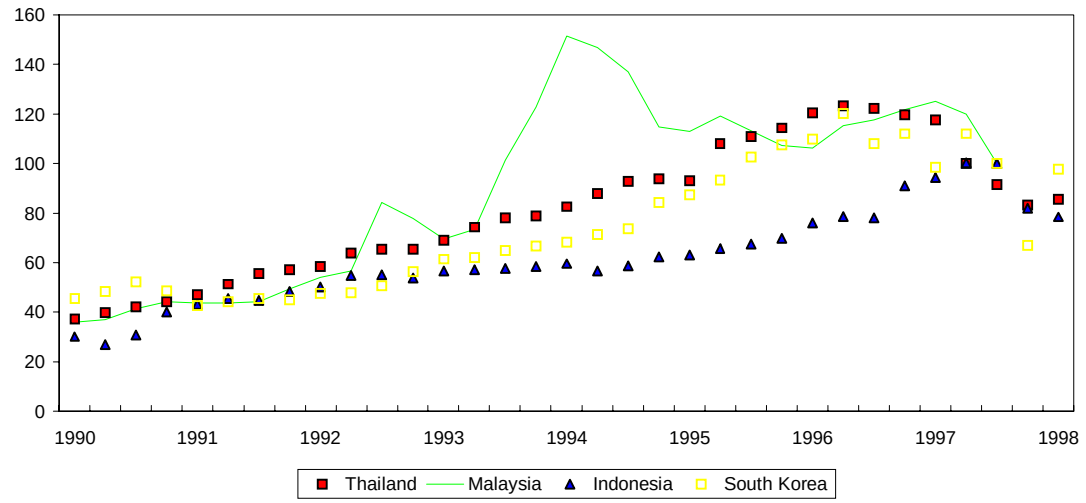


Sources: Mitchell (1981; 1983).

The current account balance of the Asian countries similarly tended to worsen in the five years up to the crisis, and will no doubt also improve, with the decline in imports and continuing rise in exports.

Despite the tendency towards a worsening trade (current) account in the years up to the crisis, the strength of capital inflows was such that there was no overall pattern of reserve outflows prior to the crisis, if anything the reverse. Table 6 gives data on capital inflows for the Asian countries, and Charts 25 and 26 show their reserves as a % of reserves in the pre-crisis quarter. We do not have reliable data on capital flows in the pre-1914 cases, but Table 7 shows gold flows in the three years prior to the crisis, in the crisis year itself, and the three years afterwards, and, as discussed in Section 3(b) below, it is very hard to see any pattern (see Section 3(b) also for a discussion of gold flows in the immediate aftermath of the crisis).

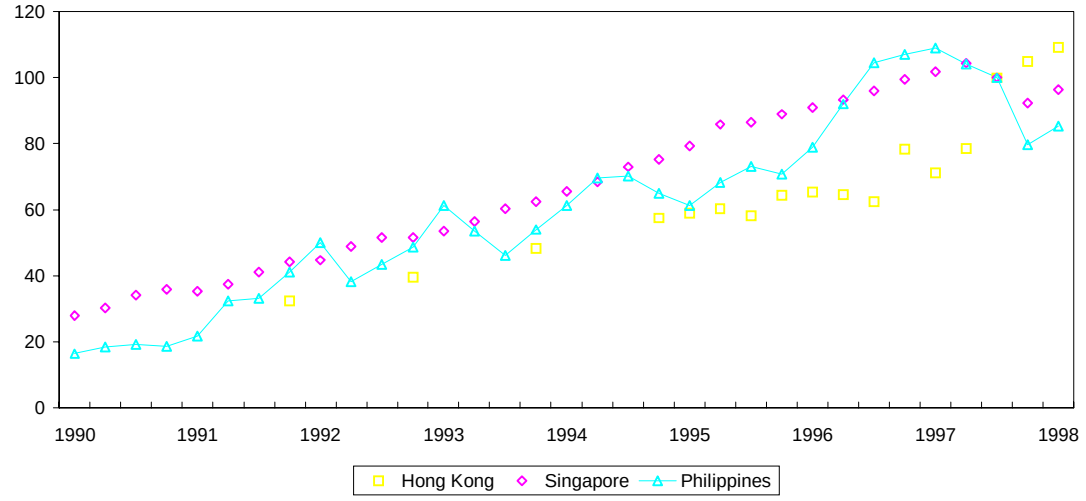
Chart 25 : Reserves as a percentage of reserves in pre-crisis quarter.



Notes: Pre-crisis quarter is 1997: Q2 for Thailand and 1997: Q3 for other nations.

Sources: IMF IFS and Datastream International.

Chart 26 : Reserves as a percentage of reserves in pre-crisis quarter



Notes: Pre-crisis quarter is 1997: Q3.

Sources: IMF IFS and Datastream International.

This suggests that the pre-1914 crisis countries were able, on balance, to offset the decline in capital inflows (that in several cases the crisis clearly engendered)[4] by the improvement in their current account balance, without having to face any major depletion of their gold reserves.

The reversal of capital inflows into the Asian countries has been both massive and abrupt. What has yet to be seen is exactly how this will be financed. As in the pre-1914 crisis countries the largest part will have to be achieved by means of a turn-around in the current account balance. But the economic dislocation caused by the crisis itself, the regional extent of the crisis, and the long drawn-out travails of Japan have meant that much, in some cases more-than-all, of the improvement has had to come, so far, from a fall in imports (associated with a decline in domestic incomes) rather than from a rise in exports. This was not the common experience pre-1914.

[4] While we do not have good statistical data on capital flows, we have collected some anecdotal evidence of the extent of pre - crisis capital flows and the subsequent effect of the crisis for Australia 1893 and Argentina 1890, and this is presented in Appendix III.

2(c) Domestic Financial Conditions

The strong expansion in investment and activity in (most of) our crisis countries was accompanied, and fuelled by, rapid monetary expansion and sharply rising asset prices, and these in turn were given further momentum by capital inflows. The rate of growth of the nominal money stock tended to accelerate in the years leading up to the crisis.

Charts 27 to 32 show the level of the money stock as a % of the level in the pre-crisis quarter for Asia (in both the narrow and broad definitions), and in the crisis year, pre-1914, (-5 to + 5 years). This shows relatively fast growth in all cases, except for Australia, where the cyclical peak was in 1890 - so we also show the Australian data centred on 1890; USA in 1873, and in 1890-93; and Italy in 1893.

Pre-1914 the only monetary data that we have are for the broad definition, including all deposits (i.e. we cannot distinguish sight and time deposits). In the aftermath of the pre-1914 crises the rate of growth of the broad money stock slowed, or even in a few cases fell, (with the 1907 US and Italian crises being a-typical), (see Table 8). In the Asian countries, in contrast, with the exception of Malaysia and Hong Kong, broad

money growth appears to have been rising in nominal terms as strongly as before. One reason for this is that, with the exception of Argentina, the pre-1914 countries remained on the gold standard (and Hong Kong held its peg), whereas most other Asian countries devalued sharply (see Charts 33 and 34).

This meant that, despite the fall in real output, income and expenditures, domestic prices have been rising rapidly, with worsening inflation, in most of the Asian countries (see Charts 35 and 36), apart from Hong Kong and Singapore.

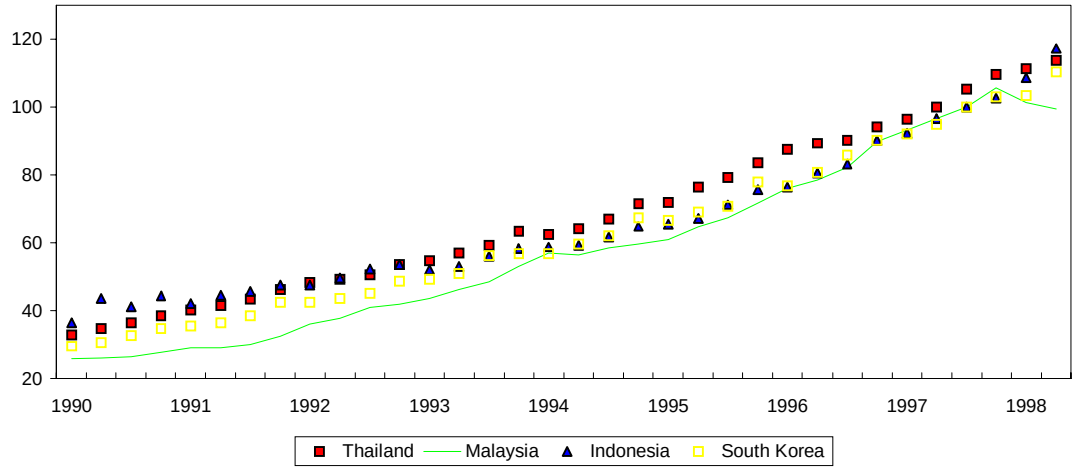
This was not so pre-1914, with the probable exception of Argentina for which we do not have good data on prices. Indeed, there may have been some tendency for the price level to decline following the crises (see Charts 37 to 40).

The time path of nominal money balances, on the narrow definition, in the Asian countries has recently diverged quite sharply from that of broad money. As we shall describe shortly, nominal interest rates have risen sharply, and remained high, in these countries. Since narrow money, (defined as currency plus sight deposits), is generally low or non-interest-bearing, the relative cost of holding such balances has risen steeply.

Consequently there has been a shift between deposits; not only Hong Kong and Singapore, but also Thailand, Malaysia and South Korea have experienced a decline in their narrowly-defined monetary aggregate in the quarters following the crisis, despite the devaluations and resultant inflation in the latter countries.

If, then, we take a narrow definition of the money stock the recent contraction in Asia has been far more drastic, especially in real terms, than pre-1914. But this has been largely due to the high interest rates causing a substitution out of narrow money. If we compare growth rates of broad money balances, nominal growth has been higher in Asia, but this has been associated with the major devaluations. Real broad money balances have grown little, if not declined as in the case of the Philippines after an initial rise in the last quarter of 1997, except for Indonesia, which is currently experiencing internal political unrest.

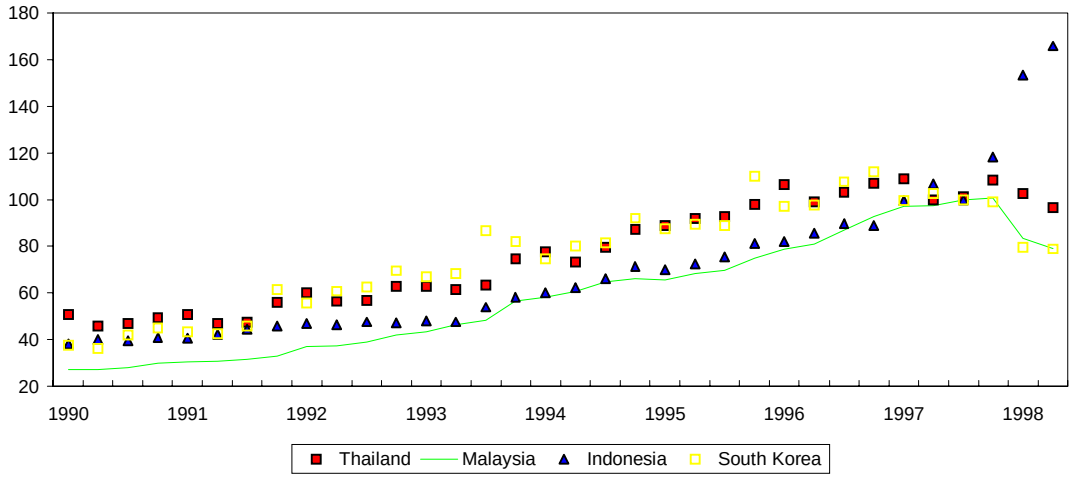
Chart 27A : Money stock as a percentage of money stock in pre-crisis quarter.
Money stock defined as Currency plus Demand Deposits plus Quasi-money



Notes: Pre-crisis quarter is 1997: Q2 for Thailand and 1997: Q3 for other nations. Quasi-money stock obtained for the Philippines for 1993:Q1 to 1993:q£ by averaging difference of 1993:Q1 and 1994:Q1.

Sources: IMF IFS and Datastream International.

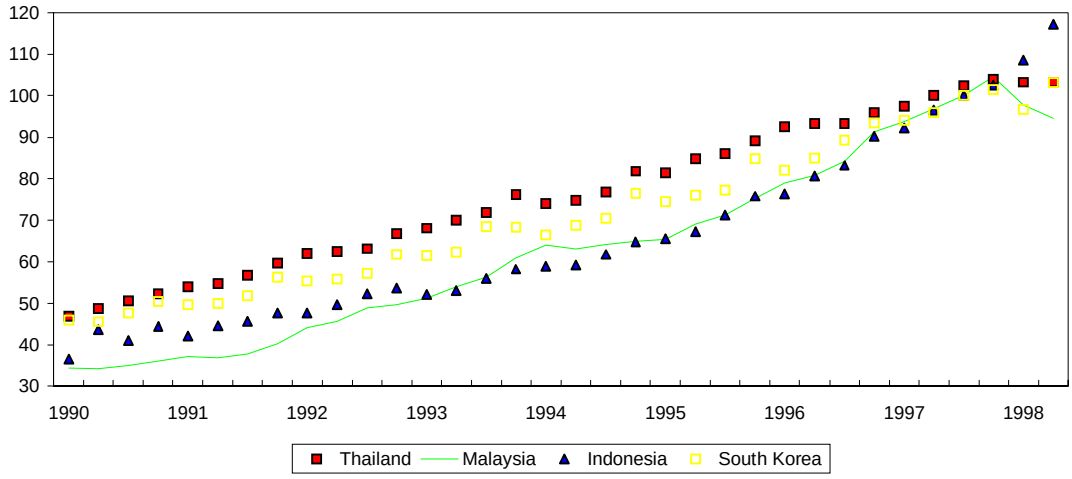
Chart 27B : Money stock as a percentage of money stock in pre-crisis quarter.
Money stock defined as Currency plus Demand Deposits



Notes: Pre-crisis quarter is 1997: Q2 for Thailand and 1997: Q3 for other nations.

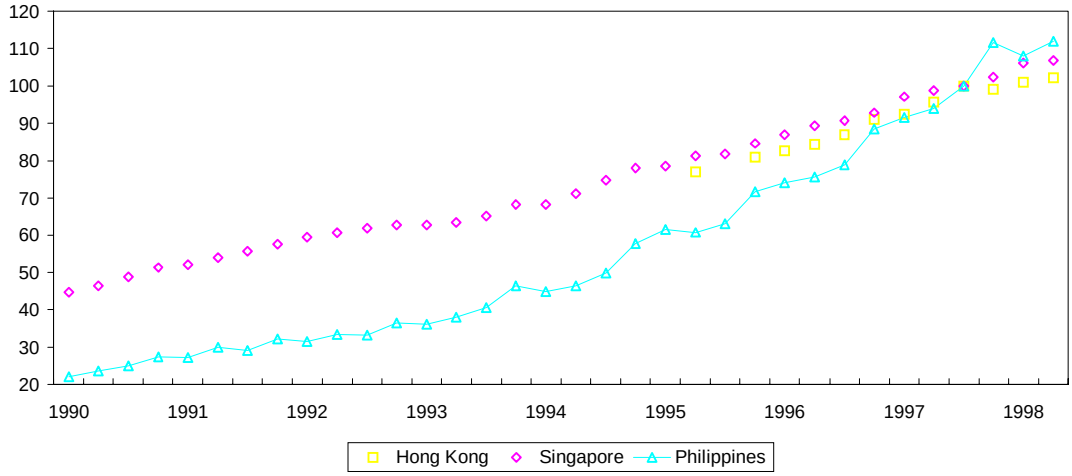
Sources: IMF IFS and Datastream International.

Chart 27C : Money stock as a percentage of money stock in pre-crisis quarter.
Deflated money stock defined as Currency plus Demand Deposits plus Quasi-money deflated by CPI



Notes: : Pre-crisis quarter is 1997: Q2 for Thailand and 1997: Q3 for other nations. Quasi-money stock obtained for the Philippines for 1993:Q1 to 1993:q£ by averaging difference of 1993:Q1 and 1994:Q1.

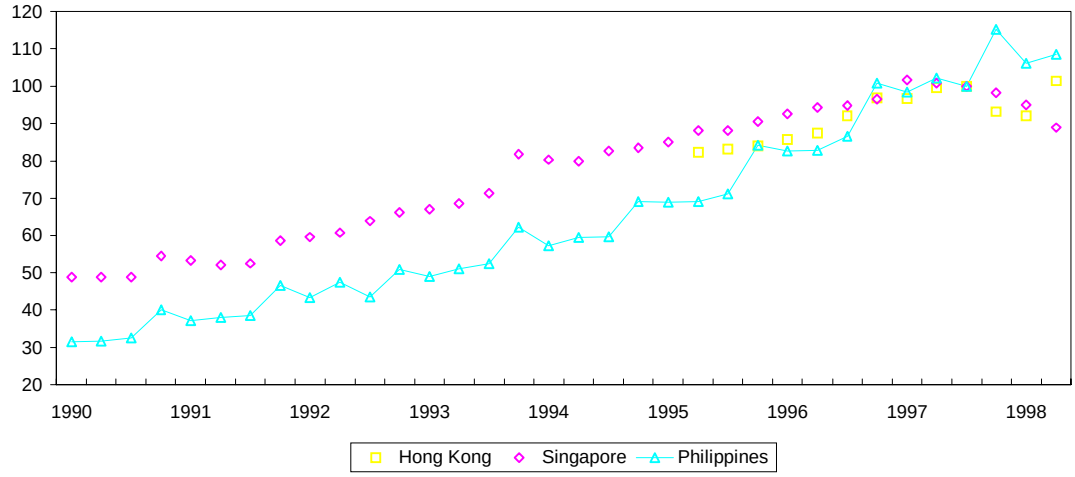
Chart 28A : Money stock as a percentage of money stock in pre-crisis quarter.
Money stock defined as Currency plus Demand Deposits plus Quasi-money



Notes: Pre-crisis quarter is 1997: Q3. Pre-1995 data is unavailable for Hong Kong.

Sources: IMF IFS and Datastream International.

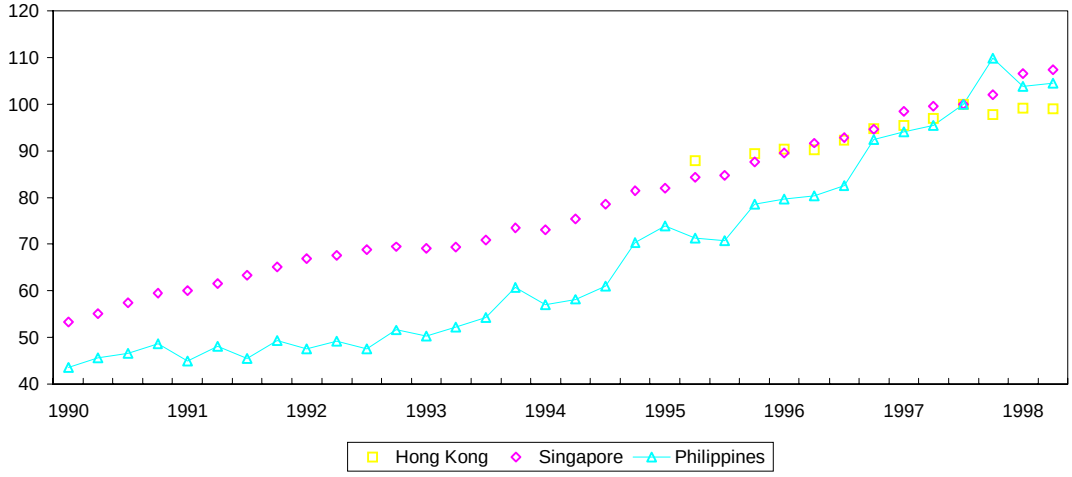
Chart 28B : Money stock as a percentage of money stock in pre-crisis quarter.
Money stock defined as Currency plus Demand Deposits



Notes: Pre-crisis quarter is 1997: Q3. Pre-1995 data is unavailable for Hong Kong.

Sources: IMF IFS and Datastream International.

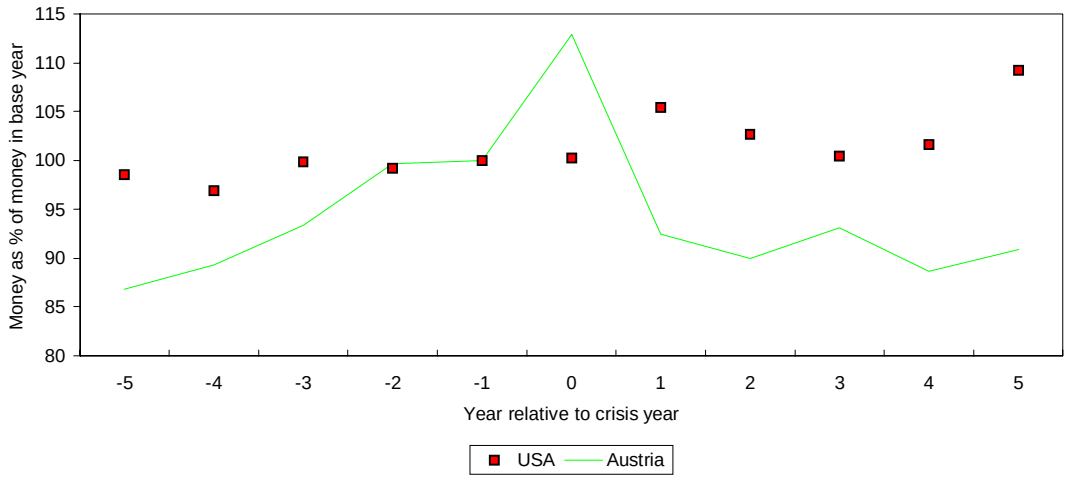
Chart 28C : Money stock as a percentage of money stock in pre-crisis quarter.
Deflated money stock defined as Currency plus Demand Deposits plus Quasi-money deflated by CPI



Notes: Pre-crisis quarter is 1997: Q3. Pre-1995 data is unavailable for Hong Kong.

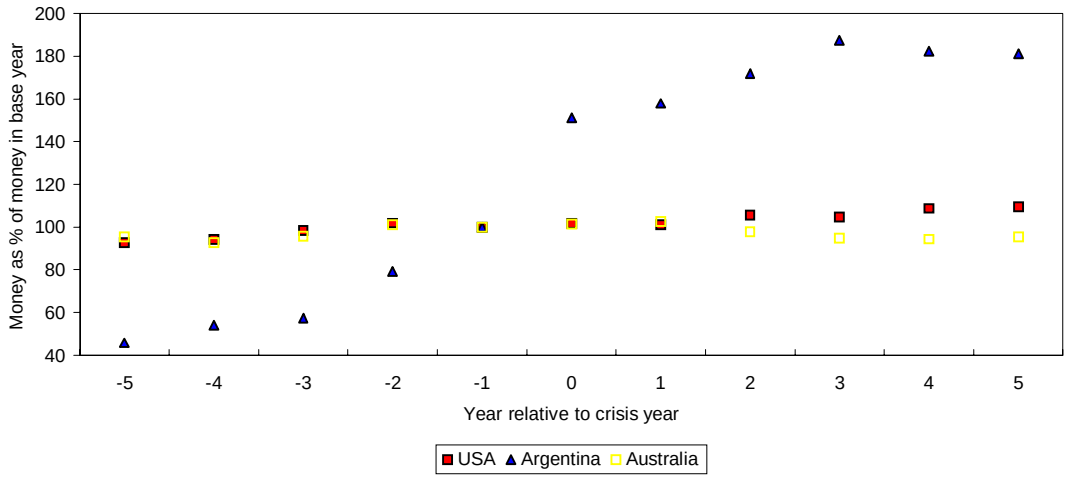
Sources: IMF IFS and Datastream International.

Chart 29 : Money supply growth of participants in 1873 crisis
Crisis of 1873 including Austria and USA (base: year prior to crisis = 100)



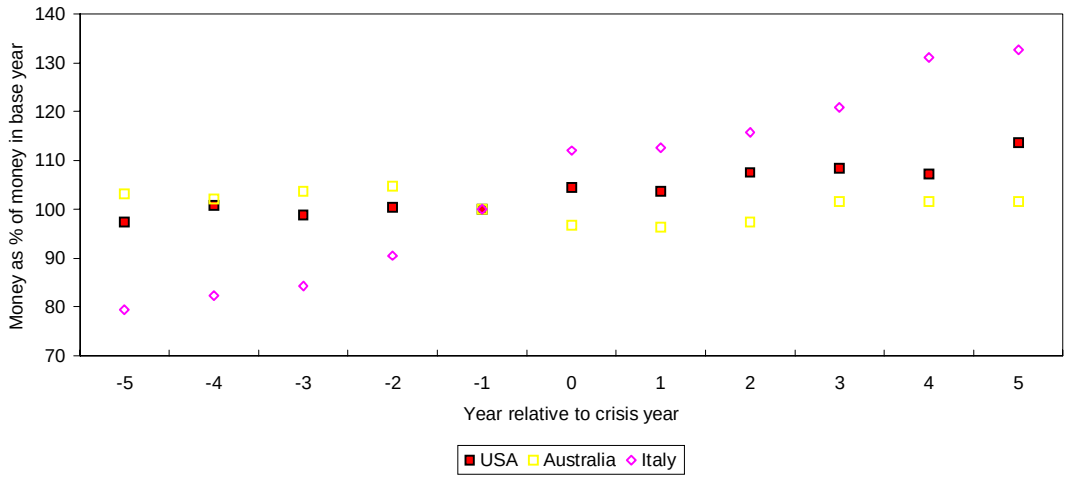
Sources: Mitchell (1981; 1983)

Chart 30 : Money supply of participants in 1890 crisis
Crisis of 1890 including Australia, Argentina and USA (base: year prior to crisis = 100)



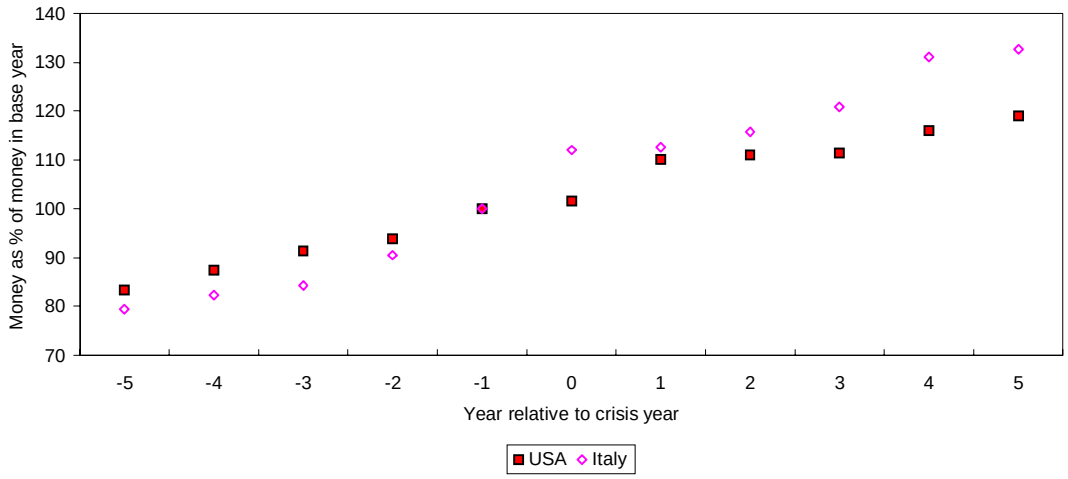
Sources: Mitchell (1981; 1983).

Chart 31 : Money supply of participants in 1893 crisis
Crisis of 1893 including Australia, Italy and USA (base: year prior to crisis = 100)



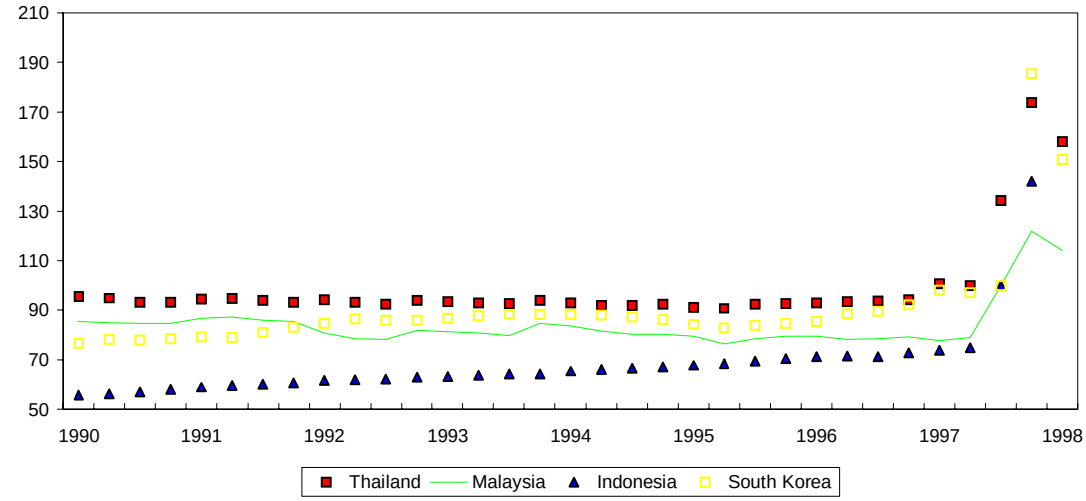
Sources: Mitchell (1981; 1983).

Chart 32 : Money supply of participants in 1907 crisis
Crisis of 1907 including Italy and USA (base: year prior to crisis = 100)



Sources: Mitchell (1981; 1983).

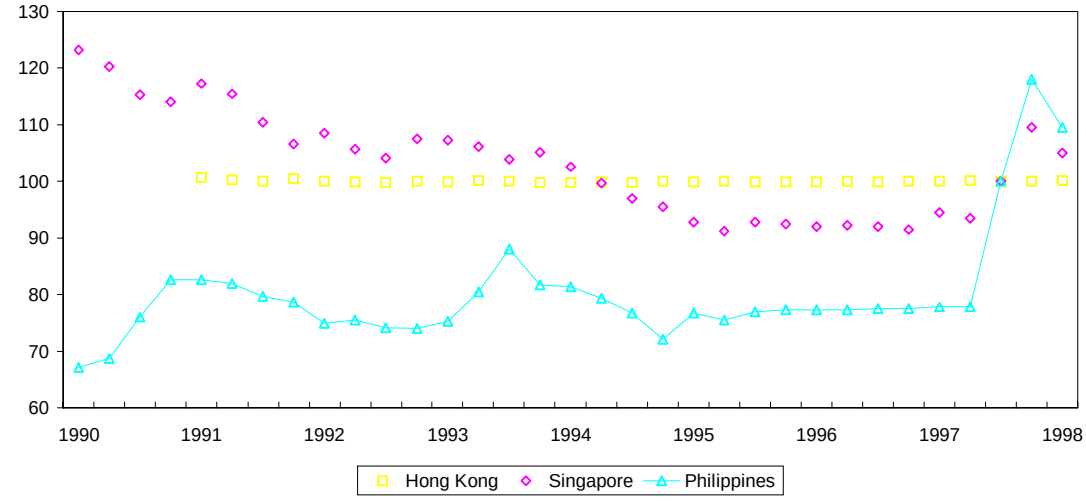
Chart 33 : Exchange rates to $US as a percentage of rate in pre-crisis quarter



Notes: Pre-crisis quarter is 1997: Q2 for Thailand and 1997: Q3 for other nations.

Sources: IMF IFS and Datastream International.

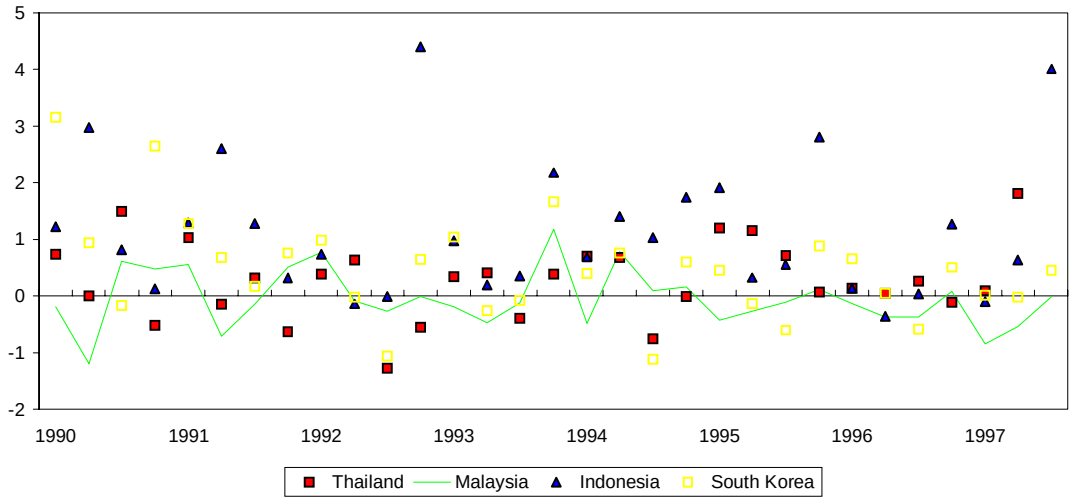
Chart 34 : Exchange rate to $US as a percentage of rate in pre-crisis quarter



Notes: Pre-crisis quarter is 1997: Q3.

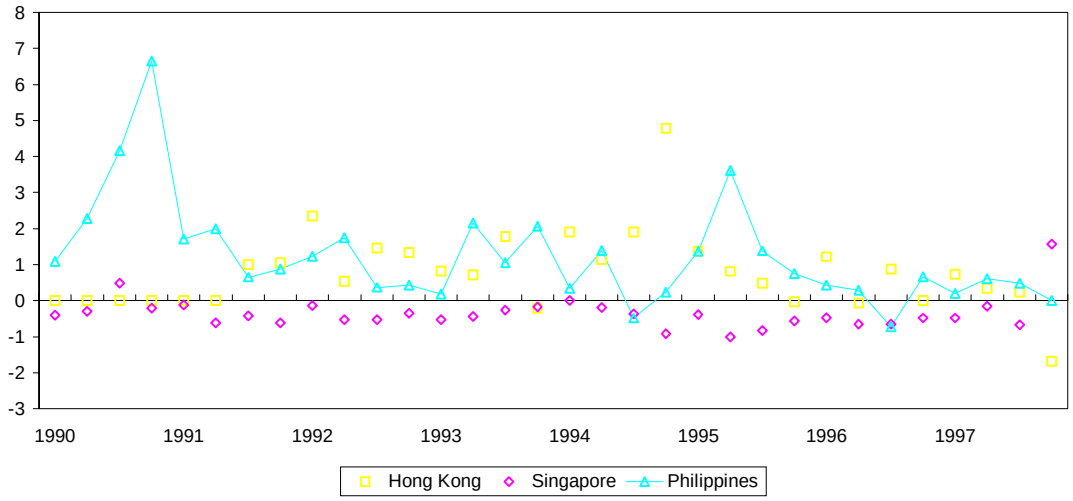
Sources: IMF IFS and Datastream International.

Chart 35 : Quarterly percentage rate of inflation



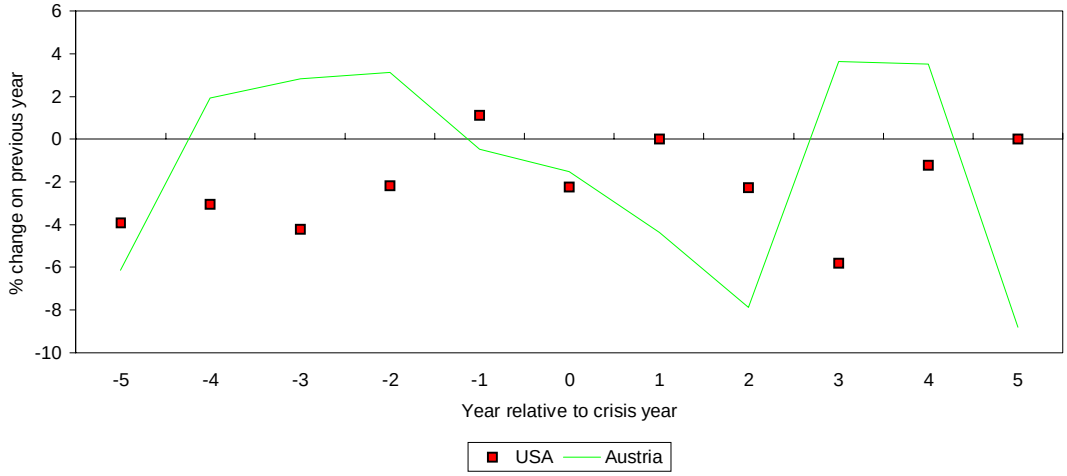
Sources: IMF IFS and Datastream International.

Chart 36 : Quarterly percentage of rate inflation



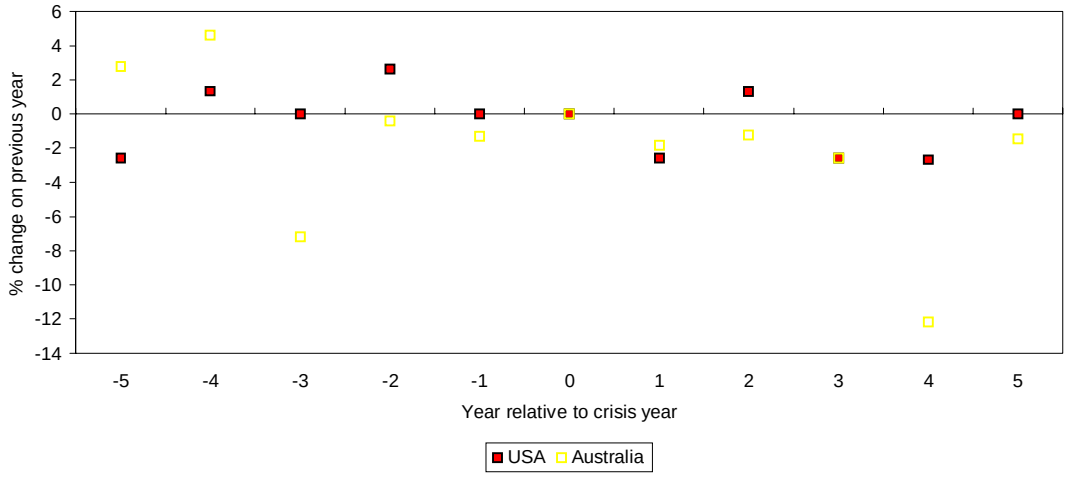
Sources: IMF IFS and Datastream International.

Chart 37 : Inflation rates of participants in 1873 crisis
Crisis of 1873 including Austria and USA



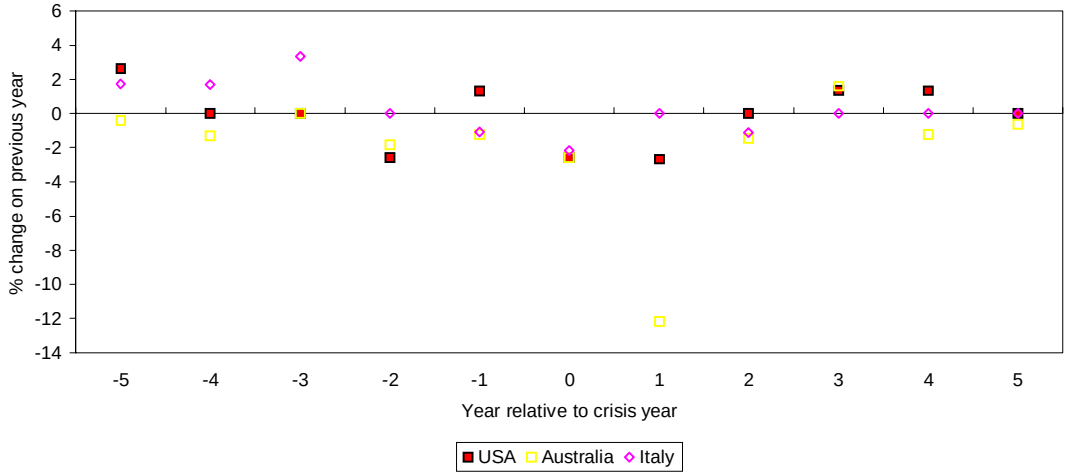
Sources: Mitchell (1981; 1983).

Chart 38 : Inflation rates of participants in 1890 crisis
Crisis of 1890 including Australia and USA



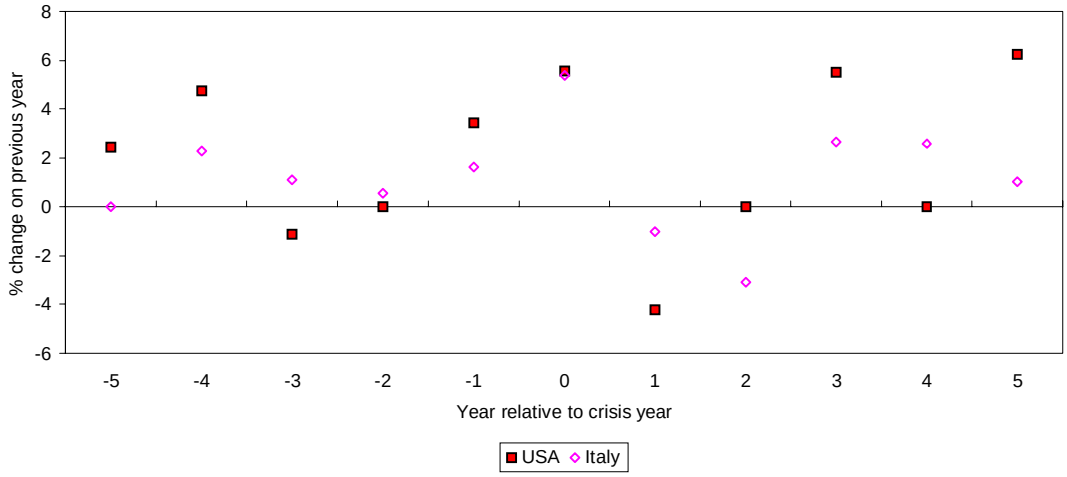
Sources: Mitchell (1981; 1983).

Chart 39 : Inflation rates of participants in 1893 crisis
Crisis of 1893 including Australia, Italy and USA



Sources: Mitchell (1981; 1983).

Chart 40 : Inflation rates of participants in 1907 crisis
Crisis of 1907 including Italy and USA



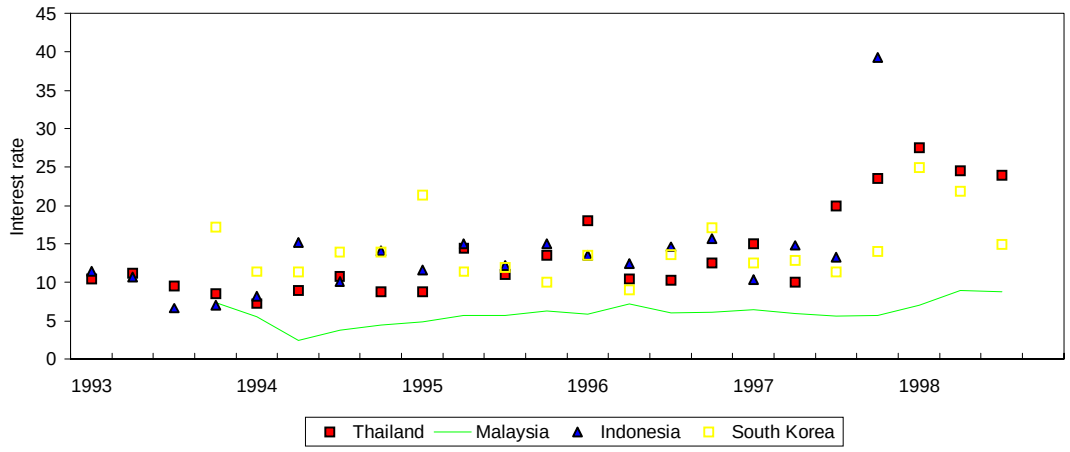
Sources: Mitchell (1981; 1983).

Only just before the start of the crisis was there much evidence of interest rates rising in these countries, either pre-1914 or Asian, relative to the international centre, London pre-1914, New York 1990s. Despite the domestic investment booms capital inflows helped, both in the 19th century and now, to hold interest rates in these successful developing countries to near the international norm. In Charts, 41 to 51, we show short and long rates for the five years (end quarter in Asia, end year for pre-1914) for the crisis countries up to the onset of the crisis, and in Tables 9A and 9B we translate this for the pre-1914 countries into a spread over the international centre. There was no evidence either for rates or spreads to rise significantly despite the domestic booms.

Under these circumstances, of an investment boom and fast growth combined with stable, low interest rates and rapid monetary expansion, one would expect the value of assets, equities, housing and land to rise rapidly. This was, indeed, generally the case. Charts 52 and 53 show the time path of the equity indices for our Asian countries using mainly monthly data, and, pre-1914, we can present a combination of individual share price analysis (for countries other than the USA) with the Cowells

Commission index for the USA, see Table 10.

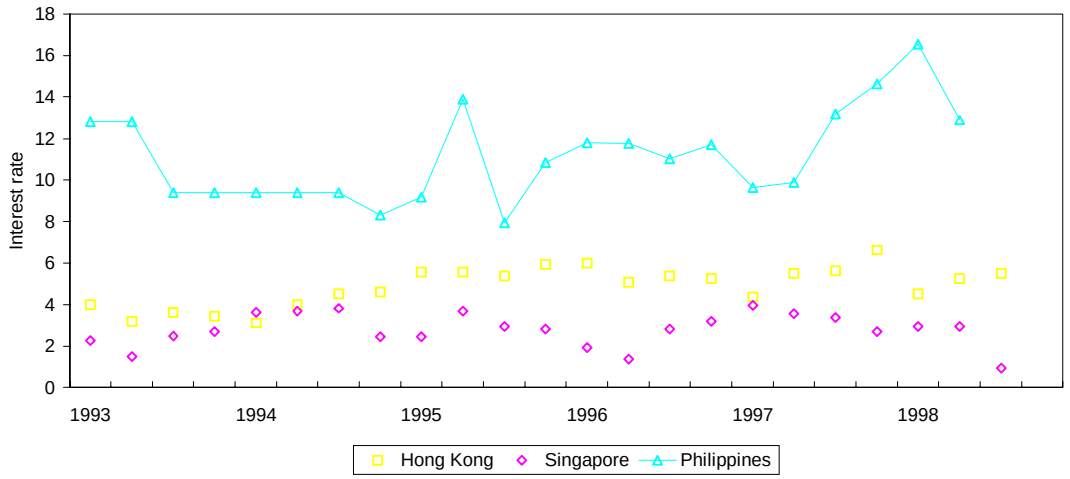
Chart 41 : Short run interest rates of Asian crisis participants
Short run rates illustrated are interbank rates for Thailand, Malaysia and Indonesia. Overnight call rate for Korea.



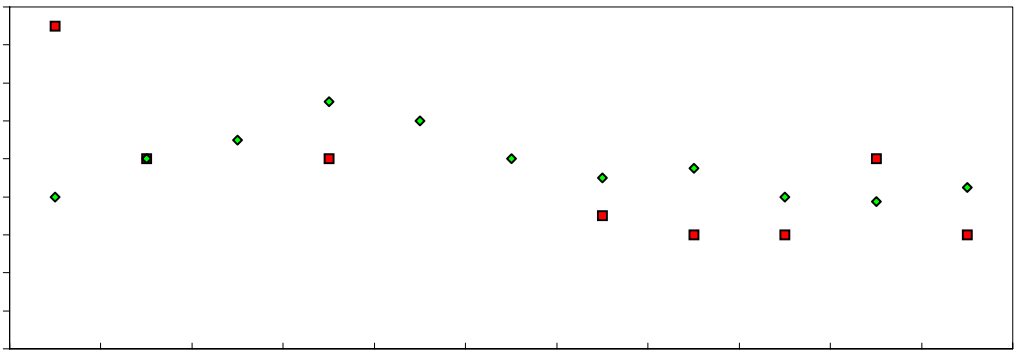
Notes: Indonesia is omitted as an extreme outlier in the first three quarters of 1998. Its values are, respectively, 44.16, 72.17 and 73.15 for Quarters 1 to 3.

Sources: IMF IFS and Datastream International.

Chart 42 : Short run interest rates of Asian crisis participants
Short run rates illustrated are interbank rates for Hong Kong and Singapore. Deposit rate for Philippines.



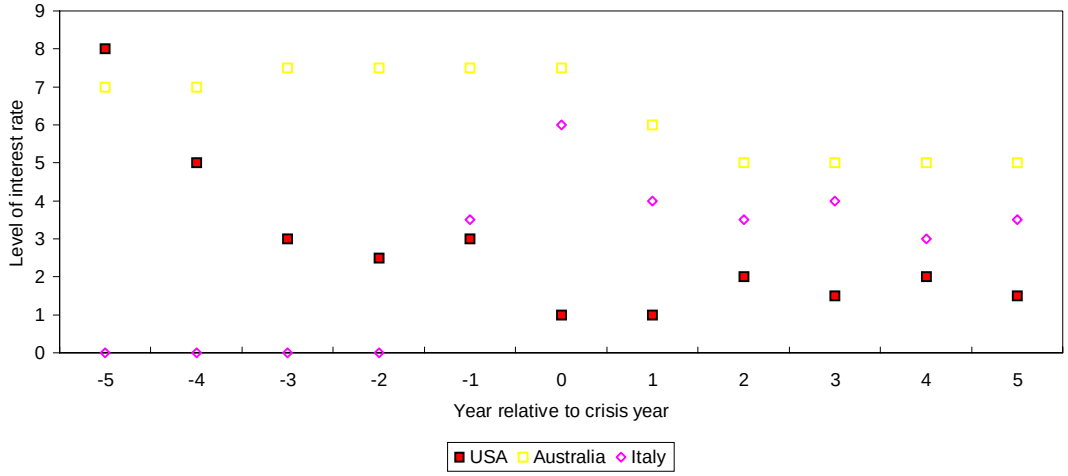
Sources: IMF IFS and Datastream International.



Sources: The Economist and the Financial and Commercial Chronicle.

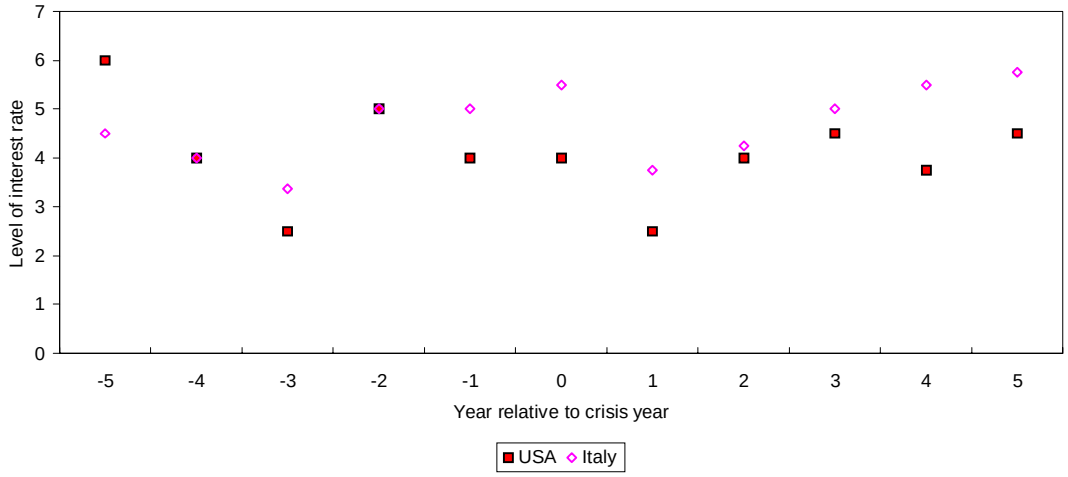
Sources: The Economist and the Financial and Commercial Chronicle.

Chart 45: Short run interest rates of participants in 1893 crisis
Crisis of 1893 including Australia, Italy and USA



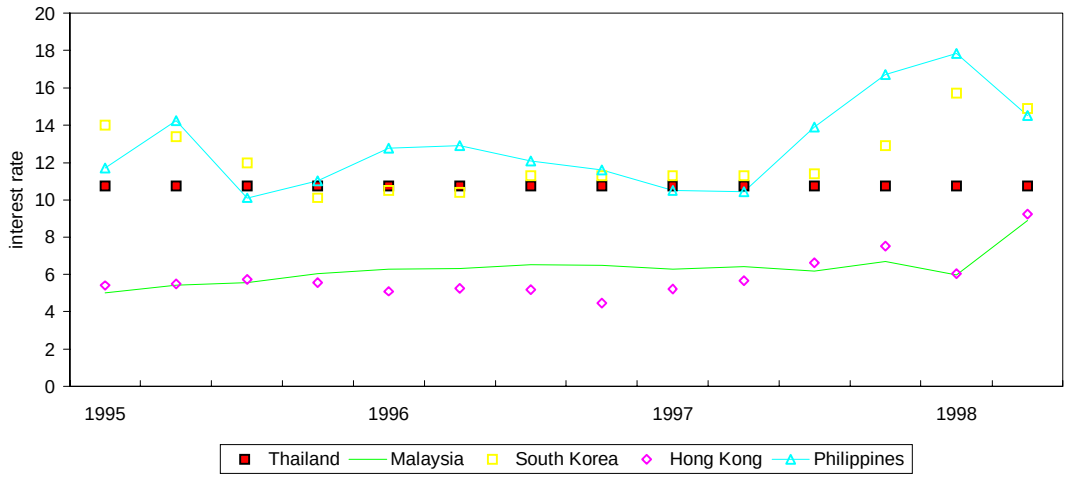
Sources: The Economist and the Financial and Commercial Chronicle.

Chart 46: Short run interest rates of participants in 1907 crisis
Crisis of 1907 including Italy and USA



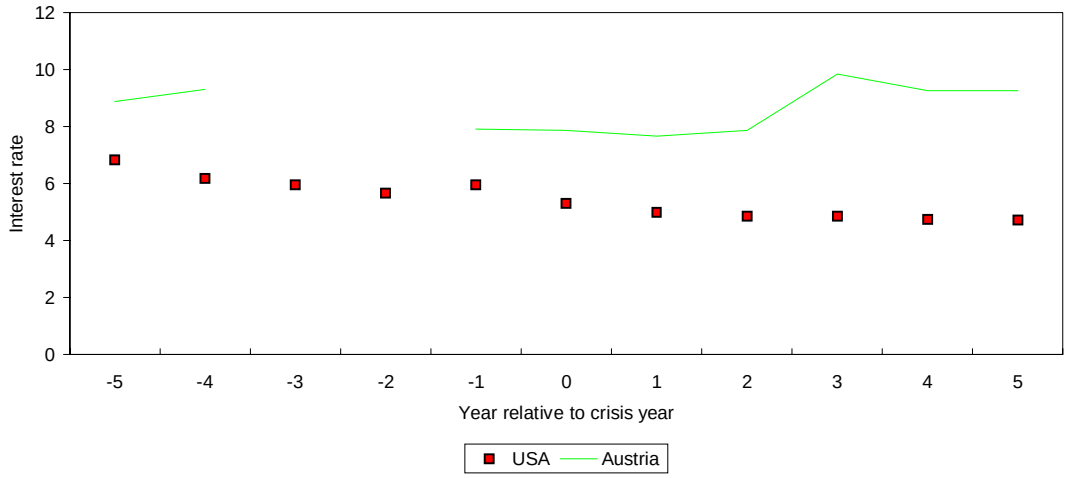
Sources: The Economist and the Financial and Commercial Chronicle.

Chart 47 : Long run interest rates of Asian crisis participants
Government bond yields are used for Thailand and Korea. Others are Treasury bill rates.



Sources: IMF ISF and Datastream International.

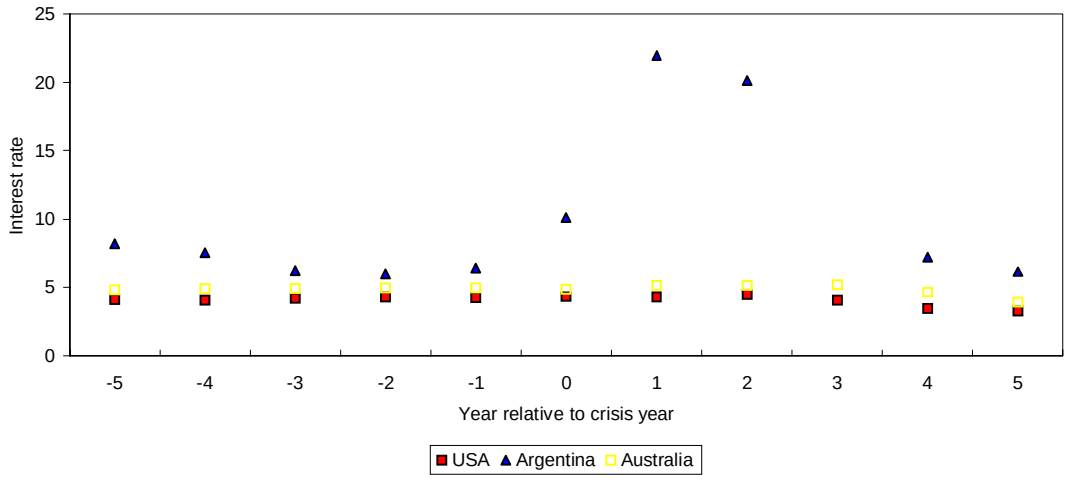
Chart 48: Long run interest rates of participants in 1873 crisis
Crisis of 1873 includes Austria and USA



Notes: Missing observations occur for Austria in years –1 and –2.

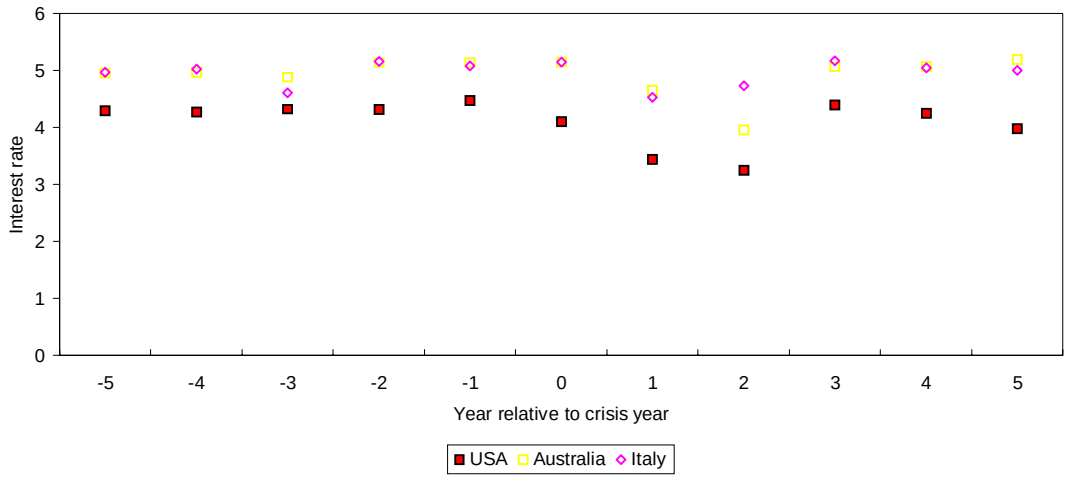
Sources: Averages of yields on selected government bonds in Investors Monthly Manual.

Chart 49: Long run interest rates of participants in 1890 crisis
Crisis of 1890 includes Australia, Argentina and USA



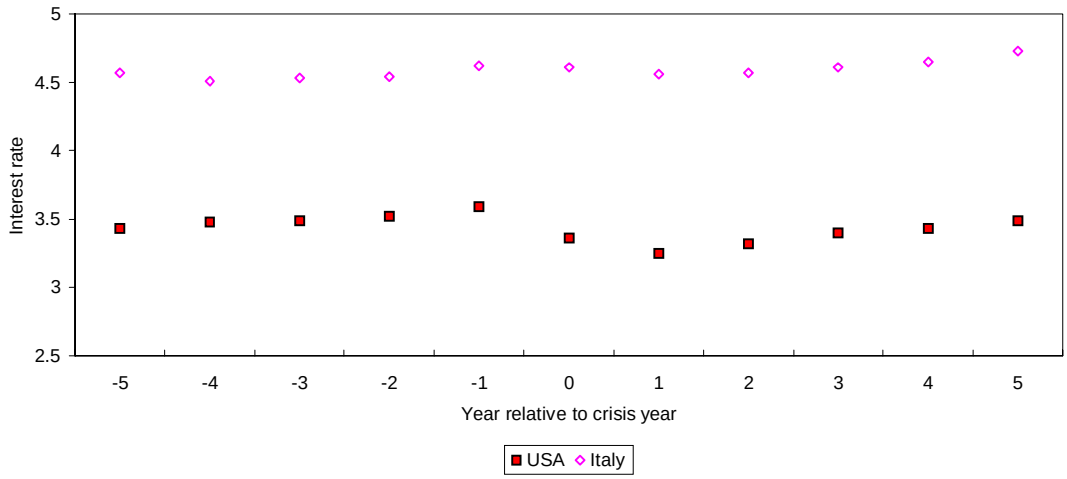
Sources: Averages of yields on selected government bonds quoted in the Investors Monthly Manual.

Chart 50: Long run interest rates of participants in 1893 crisis
Crisis of 1893 includes Australia, Italy and USA

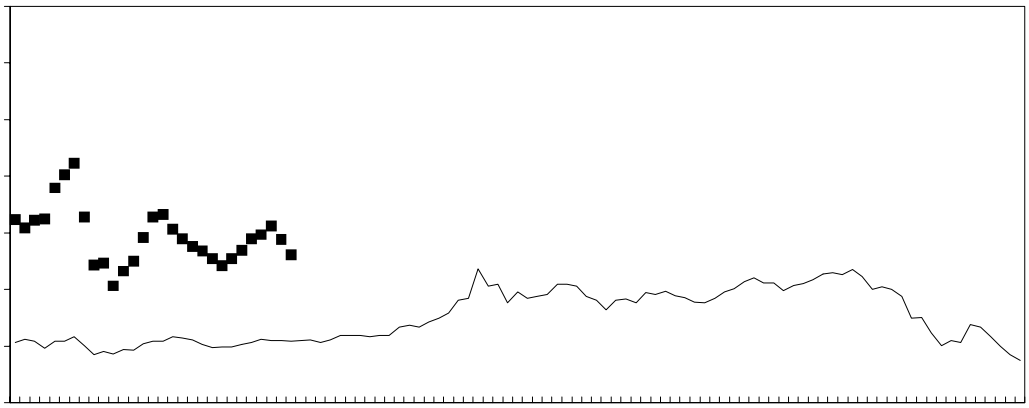


Sources: Averages of yields on selected government bonds quoted in the Investors Monthly Manual.

Chart 51: Long run interest rates of participants in 1907 crisis
Crisis of 1907 includes Italy and USA

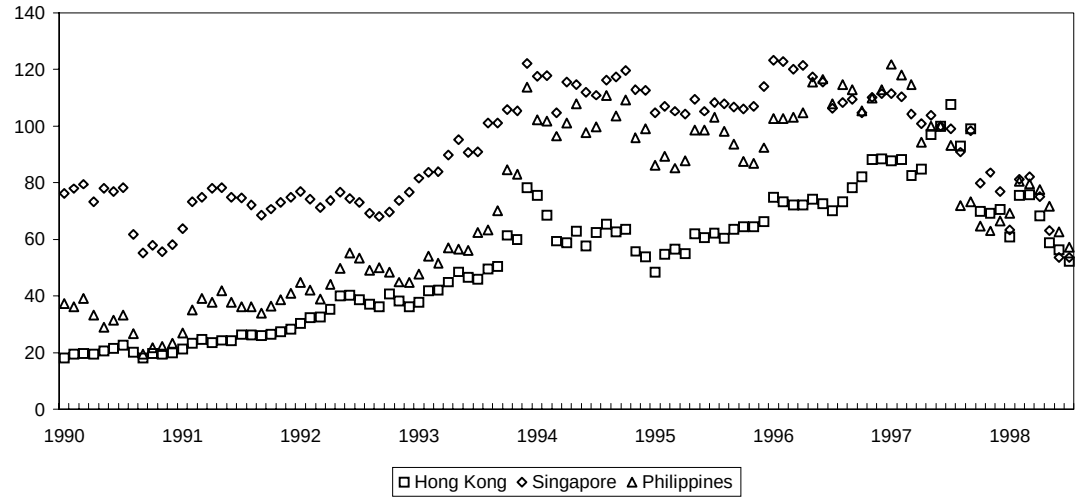


Sources: Averages of yields on selected government bonds quoted in the Investors Monthly Manual.



Sources: Bank of America Research Department in Hong Kong

Chart 53 : Asian stock market price indices as a percentage of index value at June 1997



Sources: Bank of America Research Department in Hong Kong

Investment booms cannot last forever. At some point the supply of capital, and of buildings, will outstrip demand. Equity markets are (meant to be) forward-looking and in most Asian cases the equity market peaked some time before the onset of the crisis - e.g. South Korea and Thailand at least one year previously and Philippines at least six months prior - but the length of the lead differs somewhat between the various countries.

Data on housing and land prices remain much harder to get. There are few usable time series for our pre-1914 crisis countries, other than that contained in Table 10 for the USA, that we have been able to unearth, and our information pre-1914 is primarily anecdotal. We have collected what we can in Appendix IV. What this indicates is that in some cases amongst our pre-1914 crises, notably in Australia 1893, Argentina 1890 and Italy 1893, a prior bubble, and subsequent collapse in property and housing prices, was a central feature of the crisis, and that in virtually all cases a prior sharp increase in asset prices generally, including housing and land, preceded the crisis and was followed by a sharp downturn in such asset

prices.

Prior to the recent Asian crisis there was also a sharp rise, perhaps a bubble, in property prices in many of the Asian capitals for which we have some data. Radelet & Sachs (1998: Table 9) present evidence that the price per square meter of "grade A" office space in Bangkok had, by the pre-crisis quarter of 1997:Q2, fallen to 43,000 baht, from 60,700 baht in 1996:Q2.[5] Shortly before the crisis struck, such prices began to fall quite sharply, with the extent of decline then further increasing in the aftermath of the crisis. A measure of the post-crisis fall in property values in Asia is given in Table 11, which shows that the decline was uniformly large for all types of property for which we have data on prices; vacancy rates have increased dramatically in Thailand, Malaysia,

[5] Similarly, Singapore office capital valuation remained high, but with an absence of growth during 1996 and 1997, while office rental values declined from a 1996 peak during 1997. The stagnation of office rental value and capital values commenced earlier for Malaysia with little movement in either during 1994 to 1997 following a decline from a 1992 peak. In contrast, Hong Kong and the Philippines maintained growth in both rental values and capital values of office space into the first quarter of 1997, although the Hong Kong market then experienced a sharp severe downturn. Indonesia, initially expected to weather the worst effects of the currency turmoil due to its managed floating exchange rate, experienced slow growth in office rental values and stagnant office capital values during 1995 to 1997, followed by declines with the onset of the crisis. Further information is available in Jones Lang Wootton (1998) from which these valuations are drawn.

Philippines and Hong Kong, and, except for Hong Kong, the impact is substantially greater if measured in US dollars.

3 The Collapse

3a The Domestic Financial Bubble Breaks

As noted at the end of the previous Section, investment booms cannot continue indefinitely. At some point, with the supply of fixed assets rising relative to demand, and with variable (labour) costs rising, the prospects for future earnings decline. At that point the equity market weakens.

In Charts 53 and 54 we show the time path of Asian equity prices. This shows that such indices had been weakening in most of these Asian countries, with the exception of Indonesia, for several months before the crisis occurred. By the same token property prices had also been generally weak (see Table 11).

It is more difficult to obtain reliable data from pre-1914 crisis countries, with the exception of the USA, which we document in Table 10, with supplementary anecdotal evidence presented in Box 1.

Weakening asset prices, for equities and property, (and also in most Asian cases rising interest rates in order to protect the external position), put pressure on an over-extended banking

system. It is difficult to get fully reliable data on the number and importance of banks in difficulties, since this is regarded as confidential. We, therefore, leave it to others to chronicle the history of bank collapses in the Asian crisis.

Box 1: Individual asset price fluctuations:

In the absence of representative indices, stock market fluctuations can only be gauged by the variability of prominent shares. This was occasionally undertaken by writers during periods of depression, such as the Banker's Magazine (1890: p.1804) analysis of the Italian building crisis. Examining 17 stocks prominently traded in Italy between 1888 and 1889, this article shows pervasive declines in all of them - and of up to 50% declines in some of them.

However, the choice of stocks, based on the subjective choice of the commentator, might be less representative than aggregate figures, such as Canovai presented for increases preceding the 1907 crisis:

> "The quotation on the stock exchange of these securities, which amounted in 1904 to 2,420,000,000 lire had risen in 1905 to 3,280,000,000 lire and in 1906 to 3,720,000,000 lire, an increase in the three years of 1,300,000,000 lire, or about 58 per cent, while the paid-up capital of the joint-stock companies had increased merely for the greater part by the formation of new companies by 753,000,000 lire, advancing from 1,585,000,000 to 2,338,000,000 lire." (Canovai 1911: p.173)

As outlined in Appendix I [C] (i), the declines were, in the post-crisis aftermath, of similar magnitude.

To gain some insight into the declines during other crises periods, we present, in Table B1, statistics on the price movements in the London market of selected companies which, albeit unadjusted for capital increases, show possible changes resulting from crisis conditions. In at least three of the nine cases presented the price collapse exceeds 50% - in line with many contemporary observations such as we show for Italy above. In one case, that of the London and River Plate Bank, an increase is shown - the result of good management and the consolidation of a strong market position against competitors.

Table B1: Statistical measures of share price movements for selected companies on the London market around crisis year (local currency).

Company	Crisis year	Share price movements						
		Average year -5 to -1	Average year -1	Crisis Year			Average year +1	Average years +1 to +5
				high	Low	Average		
Anglo-Austrian Bank	1873	21.60	28.96	29.00	12.00	19.75	13.15	9.08
Anglo-Hungarian Bank	1873	8.24	10.23	10.50	3.50	6.71	3.17	2.83
Erie Railroad	1873	29.10	43.19	51.75	36.75	46.35	32.31	17.92
Illinois Central Railroad	1873	102.68	106.25	97.00	82.00	87.58	89.54	79.92
London and Brazilian Bank	1890	18.51	20.46	20.00	18.00	18.83	18.77	17.08
London of Mexico and South America Bank	1890	5.17	6.71	8.50	6.50	7.69	6.36	4.49
London and River Plate Bank	1890	23.38	29.17	33.50	29.50	31.63	26.09	28.28
National Bank of Mexico	1890	9.82	11.35	13.50	11.00	12.33	12.04	9.64
Union Bank of Australia	1893	63.37	57.33	57.50	38.50	46.58	38.75	31.68

Notes: End year data.
Sources: December issues of the Investor's Monthly Manual "Latest Prices" column of the stock price section.

What we shall try to do here is to demonstrate that similar bank failings played an integral part in each of our pre-1914 crises - a theme we develop in Box 2.

In this context of financial panic and bank failures, the rate of growth of the money stock slowed sharply, pre-1914. In Asia, the rate of growth of real money balances also declined abruptly in the post-crisis aftermath. This was particularly marked in Malaysia, the Philippines and South Korea, these countries combining a fall in nominal money balances with the inflationary pressures arising from a sharp devaluation. Nevertheless, pre-1914, the crisis itself generally led to a considerable inflow of gold reserves, so with the volume of bank deposits cut back, the ratio of bank reserves to money stock, which (apart from the 1907 crises) tended to fall in the crisis year itself, soon rebounded strongly (see Table 12).

Consequently, with nominal incomes depressed by the crisis, in the pre-1914 crisis, the ratio of high-powered money to nominal incomes rose sharply in the years following the crisis(see Table 13).

Thus in the pre-1914 countries, the dynamic process of the crisis led to a considerable increase in liquidity in the

countries most affected. There is evidence that, at the onset of crisis pre-1914, short-term interest rates rose, sometimes very sharply as in the USA in October 1907, with everyone scrambling for liquidity, but such increases represented something of a temporary, and by modern standards small, spike (see Tables 14A and 14B).

Box 2: Banking failures accompanying pre-1914 crisis:

Bank failures occurred irrespective of whether the system was concentrated with few banks of issue, or decentralised and diffuse, such as the National Banking system in the US. If the system was concentrated, the collapse was often traceable to specific dereliction on the part of bank officers. Thus, a commission of enquiry in Argentina during June 1891 found embezzlement of almost the whole capital of the Banco Nacional. The suppression of a report by the Italian Government containing evidence of an illegal loan from the Banca Nazionale to the Banca Romana of 8 million lire merited the dismissal of that government, which happened when Maffeo Pantaleoni made the report public in 1892. Again, in 1907, the speculation on the Italian stock exchanges by the mixed banks[1] was often underhand, if not illegal (for details of events mentioned in this box consult Appendix I).

In all these cases, corruption within the banking system, though often serious and sometimes, as in Argentina, apparently widespread, was, however, only a layer upon real, and often intractable problems. In Argentina, excess speculation combined with governmental, as opposed to banking, corruption, gave rise to the failures. In Italy during the 1890s, political attempts to maintain prosperity by building expansion had their origins in the need to provide employment for excess labour in the stagnant agricultural sector. The absence of a desire by Italians to hold stock for investment purposes, combined with the need to launch stock of new companies, led to the pre-1907 embroilment of the mixed banks in contango operations.[2] Perhaps strangely, the resolution always appears to involve greater centralisation – the creation of the Banco de la Nacion Argentina and the Banca d'Italia.

Underlying institutional or economic problems become more apparent as causes of crises, the more decentralised and competitive is the banking system. In Australia, with a large and competitive banking system, constantly seeking profitable investment projects, corruption was demonstratably absent.

[1] Mixed banks perform all financial operations allowed to any type of bank - including stock market operations. For a full discussion see Collins (1998).

[2] Deferral of transaction completion to next settlement date for a percentage fee (Moles & Terry 1997: p.106-7)

Box 2: (continued)

The concentration of funding in Victoria, the expenditure on land, and the failures originating in the involvement of banks with building society's funding did not stem from corruption. A clear perception by the Australian bankers that new capital was necessary to avoid bankruptcy allowed both identification of, and action on, the underlying problem - excess foreign deposits underwriting temporary liquidity which could be easily removed. The recapitalisation of the banks to the extent of £49 million pounds, as shown in Table B2, made the problem tractable. Even after this recapitalisation term deposits of the reconstructed banks were estimated to be as high as £55 million with liability for repayment to depositors exceeding £10 million in each of the years 1898 to 1900 (Bankers Magazine [hereafter BM] 1893(2): p.886; 1894(1): p.869). The dangers inherent in foreign based liquidity would have been clear to the Asian nations with a study of Australia's history.

The most disaggregated banking system at this time was the United States National Banking System. Many National Banks were small. Table B3 shows clearly the concentration of bank failures in the years following the crises (with a period of delay in 1873 due to prolonged depression). In contrast to Australia, where each reconstructed bank consolidated its branches, in this system there was never any notable consolidation following a crises - the process of creation and failure of banks being continuous (BM 1893(2): p.530). In this disaggregate system we observe progress occurring through the introduction of financial innovations such as clearing certificates in 1873. Or, alternatively, reorganisations such as the establishment in May 1892 of a Stock Exchange Clearing House removing pressure from banks to clear certified cheques exchanged in the Stock Market (Sprague 1911: p.152).

Severe banking failures almost always accompanied financial crises, pre-1914, and in most of these cases aggravated them severely, but only, perhaps, in a couple of our case studies (i.e. Italy in 1893; USA in 1907), could such failures be described as primary causal factors.

Table B2: Recapitalisation of the Australian Banks.						
Bank	Deposits	Converted into				Period of Debentures etc
		Fixed Capital		Debentures or Stock Deposits		
		Amount (£)	Interest (%)	Amount (£)	Interest (%)	
Australian Joint Stock	10,035,000	1,435,000	5 to 7	8,600,000	4.5	Companies option
Bank of Victoria	6,000,000	1,200,000	5 to 7	4,800,000	4 to 4.5	15 years or 5 to 7 years
Commercial of Australia	9,000,000	3,000,000	5	6,000,000	4.5	Indefinite
Commercial of Sydney	10,000,000	Not converted to stock				1 to 8 years
City of Melbourne	4,000,000	800,000	5 to 7	3,200,000	4 to 4.5	10 years or less
English, Scottish and Australian	5,000,000	2,500,000	4.5	2,500,000	4	Indefinite
National of Australia	4,500,000	1,500,000	5 to 7	3,000,000	4.5	5 to 7 years
Standard of Australia	820,000	460,000	5 plus	360,000	4.5	5 years
Sources: BM 1893 p.886.						

Table B3: Bankruptcies in the US : 19th century crises.

Crisis year	1873			1890			1893			1907		
Firm type	All	Banks		All	Banks		All	Banks		All	Banks	
		Total	National		Total	National		Total	National		Total	National
Year relative to crisis												
-5	n/a	14.00	6	920.00	46.00	9	1046.70	33.00	12	1253.00	54.00	4
-4	n/a	7.00	1	969.80	20.00	6	1051.10	18.00	3	1281.00	52.00	13
-3	427.30	3.00	1	994.30	25.00	5	1110.60	37.00	6	1320.00	128.00	22
-2	456.90	10.00	0	1046.70	33.00	12	1143.00	62.00	16	1357.00	80.00	20
-1	500.10	19.00	6	1051.10	18.00	3	1172.70	83.00	12	1393.00	53.00	6
0	493.50	41.00	4	1110.60	37.00	6	1193.10	496.00	69	1418.00	91.00	12
1	558.50	57.00	10	1143.00	62.00	16	1114.20	89.00	23	1448.00	155.00	19
2	602.80	28.00	3	1172.70	83.00	12	1209.30	124.00	34	1486.00	79.00	8
3	639.30	59.00	8	1193.10	496.00	69	1151.60	155.00	34	1515.00	63.00	6
4	636.60	99.00	8	1114.20	89.00	23	1058.50	145.00	28	1525.00	87.00	5
5	661.40	140.00	10	1209.30	124.00	34	1105.80	67.00	11	1564.00	80.00	6

Notes: Bankruptcies of country and state banks are obtainable by subtraction of National from Total Banks column.

Sources: Historical Statistics of the US (hereafter HSUS); Series V 1-3, Series X 165-179

If one looks at interest rates over a somewhat longer horizon, in the pre-1914 crisis interest rates, both short and long-term, reverted quite quickly after the crisis to levels that were as low, or lower, than they had been previously, see earlier Charts 43-46, 48-51, and Tables 9A, 9B, 14A, 14B.

A major difference, therefore, between the pre-1914 crises and the 1997/98 crises was that, in the earlier crises, (after an initial period in which financial intermediaries ceased to provide new credit and, when credit if available at all, was only available at very high interest rates), domestic interest rates quite quickly subsided to levels generally somewhat below that ruling before the crisis. In contrast, domestic interest levels, though below their immediate crisis peak, have remained generally much higher than before the crisis in most Asian countries.

In most of the Asian countries, except for Hong Kong, the broad money supply has gone on rising in nominal terms, despite the earlier outflows of reserves, in some cases (more than) replaced by support from the IMF. But this continued rise in the money stock has in some cases only equalled the rise in the price level – most notably in Thailand. Real money balances have

fallen, or remained static, in several of these countries. Moreover, the public's demand for currency (at a time of weakened confidence in the banking system) and for non-interest bearing demand deposits has been greatly restrained by the very high level of interest rates, facilitating some nominal expansion in banks' balance sheets to continue despite the continuing tight liquidity position (see Table 15)

3 (b) International Reserve Flows

A major reason for this difference in outcomes for interest rates, as between the pre-1914 and the 1997/98 episodes, is that pre-1914 there were generally large inflows of gold in the immediate aftermath of the crisis, thereby expanding and restoring the monetary base. International gold flow data for Australia and the USA are shown in Table 16. These, the net balance of imports and exports, must be treated with great caution. For all countries gold imported was not equivalent to gold placed with the banking system. Moreover, both countries were also net producers of gold. For Australia, in particular, the net figures are taken from statistics for imports and exports at Melbourne and Sydney given in the Australian Insurance and Banking Review (hereafter AIBR) and there is every reason to believe these are incomplete.[6] Pre-1914 gold was the fundamental basis for the money stock and imports of gold were

[6] One facet of the 1893 crisis was that on May 14th and June 22nd there were extraordinary - sufficiently extraordinary for the AIBR (p.675) to record them individually - imports of gold specie via Melbourne of £600,000 and £325,000 respectively. These represented, respectively, 3% and 1.6% of the cash balances of £19,720,000 available (see Butlin et al. 1971: Table 1).

essential for rebuilding liquidity and financial confidence. Even when paper currency was acceptable to the public, the necessity of gold for reserve purposes was great.[7]

For example, in the USA in 1907 the gold inflows in the four months immediately following the crisis, November 1907 to February 1908, were by far the largest for any four month period in that decade.

It is, however, often difficult to trace precisely the flows of gold, despite their importance, see, for example, Morgenstern (1955). This, as well as the level of aggregation [yearly], explains the limitations of Table 7 - Net gold imports - where it is not possible to discern patterns for the USA although the average imports post-1873 and post-1893 become positive.

When Australian imports are added to Australian gold production, the net position (after deduction of recorded exports) shows a maximum positive balance of £4 million in 1893, the one year in

[7] For example, the position of the Australian banks were largely assessed on the basis of their holding of assets and deposits in England, which assets could be used to replenish gold holdings, as noted by contemporary historians such as Cork (1894: p. 192-4), who outlines how confidence in the Commercial Banking Company of Sydney depended on the anticipation that the ship H.M.S. Brittania was sailing to Australia with £1.5 million in gold.

which the exchange differential for Australia was high enough to compensate shipping costs (Butlin et al., 1972). Similarly, for Argentina, net gold imports are positive after the crisis.

What factors enabled the pre-1914 crisis countries to expand their monetary base in this manner in the aftermath of the crisis? The crisis led to a sharp reversal of the trade and current account deficits. The dislocation and disturbances engendered by the crisis led to a temporary decline in exports as a generality, both pre-1914 and in 1997/98, but this was more than matched by a precipitous fall in imports, as already described in Section 2. So, at least in qualitative terms, the improvement in the current account was on much the same scale pre-1914 at in 1997/98. For example, in Argentina, the sum of the trade account, plus measured international gold flows, was strongly negative pre-1890 (on account of capital inflows) and strongly positive in the next post-crisis years.

The main reason why such gold inflows occurred pre-1914 in the aftermath of crises was that there was confidence in most cases than that the gold standard would hold (Miller 1996; 1998). Such mean-reverting expectations were generally stabilizing. Under the conditions of the pre-war gold standard, the spot

exchange rate could hardly vary outside the gold import and export points.[8] Given such confidence that the pre-war gold standard would be maintained, it follows that the forward exchange rates would not fluctuate beyond the gold point (range) because speculation would prevent it. Thus, if an export surplus caused the spot rate to drop to the gold import point, the forward exchange rate could, at worst, be also at the import point and for obvious reasons would normally be above it.[9] This would cause a forward margin in favour of an outwards capital flow, thus tending to offset the export surplus. Equally if the spot rate hit the gold export point, the forward rate would lie below it, tending again to make offsetting capital inflows

[8] This is a much less exact statement than is often thought. First, a premium on currency as in the United States in the Autumn of 1907 will alter the de facto gold points. Second, the gold points could be and were manipulated quite frequently by Central Banks, see Bloomfield (1959). Third, the gold points were expressed in terms of the price of sight demand drafts on sterling. This rate was not a true spot rate (as was cable transfer) but rather a short forward rate (about 10 days, see Margraff [1903: p.49]). The profit on gold shipment depended not only then on the sight exchange rate but also on the two weeks forward t.t. rate, the spot t.t. rate and the very short term interest rates (call rates). Morgenstern (1959) gives the best available statistics on the normal range of the gold points, pp 177-179, but in fact the calculation on whether or not to export or import gold was extremely complicated and the export and import points changed continually. For a full and exhaustive description see York (1923: Chapters I-X, pp 3-109); and also Strauss (1908: p.66ff).

[9] After all there would then be no commercial cover of future exports, which would tend to raise the forward exchange rate.

profitable.[10]

Such stabilising mean-reverting tendencies were given a further boost when the pressures of demand for liquidity in a crisis caused the value of gold to go to a premium against the domestic currency. This, of course, shifted the gold points, since an import of gold could now buy additional domestic assets. For example, in November 1907 the value of the $ depreciated against the £, with its value ranging from a low of $4.8500 to a high of $4.8875, normally values triggering gold exports, but because of the gold premium there was a huge inflow of gold (Miller 1996; 1998).

A similar situation was apparent in several other of our crisis cases, as, for example, in the USA in 1893. Sprague reported on the reversal of gold flows during the 1893 crisis, with gold exports during the first five months giving way to large-scale imports in July and August (see Sprague (1911), p. 170, 180 including footnote 184 and 190). But was this inflow a response to the premium on gold, as high as 4% for August 8th to 10th,

[10] It might be noted, en passant, that the common proposals that the Government should 'support' forward exchange rates is not so unprecedented. For in many ways it is simply an attempt to recreate artificially the basic structure of the old gold standard. The problem is that such 'support' may face, and become overwhelmed by, private sector scepticism of the

which occurred in August 1893? Sprague (p. 191-5) argues that the premium on gold could not account for the large inflow of gold in August. The arguments are not really convincing for several reasons. First, Sprague does not advance any alternative overriding motive for the change in the direction of the gold flows. Secondly, Sprague examines the current situation - an examination which ignores expectations of speculators. But it is the anticipation of future premiums - an anticipation which speculators might reasonably have possessed since the political tendency of the US was to eliminate silver as evidenced by the election of Cleveland - that account for the speedy shipment of gold. Finally, the decisive intervention promised by President Cleveland against the silver faction was in his speech of August 8th - a speech dwelt on by Sprague as the turning point. But the gold imports would have been in transit already and the speech could not have been foreseen by speculators (BM 1893(2): p. 389-91).

To summarise, it was generally the case, pre-1914, that bank failures and panics led to a surge of demand for liquidity in the crisis countries, and in many cases then to gold going to a (temporary) premium, see Tables 17A and 17B. With the exception of Argentina, which went off gold in 1890, such a premium was,

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maintenance of the pegged rates.

and was perceived to be, temporary. With asset prices also being (temporarily) weak, the expectation that exchange rates (and asset prices) would revert to their fundamental equilibrium led in most of the cases to a quick inflow of gold.

In the case of Argentina, relief from capital outflows was provided by imposing a moratorium on the payment of principal and interest, as described in Appendix 5. Protected from capital outflows by this means, the swing of the Argentinean trade balance into surplus in 1891 and thereafter provided the wherewithal to rebuild the monetary base, despite the disappearance of "new money" capital inflows.

In contrast, the Asian countries have neither been able to generate confidence that their devaluations were only a temporary prelude to a return to a higher, prior level, nor have they been able to stem capital outflows sufficiently by imposing moratoria. Indeed the worsening domestic burden of the short-term foreign currency debt, as devaluation has proceeded, has served to destabilise their economies, and hence to put further pressure on the exchange rates of these economies.

3(c) The Economic Downturn

In all our cases of financial crisis, the economic downturn was initially swift and deep, to some extent more so in our pre-1914 crises than in 1997/98. In the earlier occasions there was no Central Bank, or other formal mechanisms, to curtail or mitigate the impact of bank failures, so the initial panic and dislocation was worse.

3(c) (i) The pre-1914 crises:

While Table 1 presents some measure of the long term impact of crisis the absence of quarterly data makes it hard to estimate the full scale of the immediate downturn; nevertheless we shall try to give a rough estimate of the size of the downturn. Without data for most aggregate variables we examine imports, the decline in which should, in some measure, approximate the decline in output and real incomes.

These declines were substantial, but in only the US 1890, 1893 and 1907 cases do we possess sufficiently disaggregate information to show the immediate impact. For other nations we

can give only the immediate yearly decline in imports - Austria -5.05%, Argentina -13.94%, and Australia in 1893 -20.93%. The crisis in Italy of 1893 developed throughout the year causing a decline of imports by 8.06%. In 1907 the potentially adverse effects were averted.

Between 1890 and 1891 US imports were affected more by the monetary expansion undertaken by the Treasury (see Appendix I), with imports in 1891 fluctuating between a monthly maximum of $81.2 and a minimum of $61.5 million, increased 4.8% and 1.3% respectively on the 1890 values. The monthly average increased 0.6% from $68.6 to $69.0 million. The increase, however, lay disproportionately in the first two quarters of 1891, with a year-on-year decline in the third quarter of 9.4% from $71.6 million in 1890 to $64.8 million in 1891.

By contrast, the downturn in 1894 was substantial, with a year-on-year decline in average monthly imports of 12.4%, from $64.7 to $56.7 million. The maximum monthly value imported (in March) of $66.0 million, showed a 23.9% decline on the 1893 maximum (also in March) of $86.7 million. Declines were concentrated in the first two quarters of the year with an increase in average monthly imports of 17.6% occurring in the fourth quarter.

Similar magnitudes were evident in 1908 imports, with a monthly average decline of 21.6%, from $118.6 to $93.0 million, again concentrated in the first quarters of the year (the fourth exhibiting a slight monthly average growth of 0.9%). The maximum monthly imports of $111.0 million (in December 1908) represented a 15.9% decline on the maximum 1907 monthly imports of $133.1 million (in March 1907).

Besides imports, industrial data which are often taken, for want of anything better, as a reasonable indication of aggregate output are railway earnings, pig iron production and, where available, Bessemer Steel production. We have such data for the USA in the crisis years, 1890, 1893 and 1907.[11]

Gross railway earnings show an increase in all months of 1891 over their values in 1890, with average monthly earnings being $58.0 million and $53.2 million respectively. The 1890 recession does provoke a downturn in the production of pig-iron during the first six months of 1891, with a decline of 26.15% from 5.1 million to 3.8 million tons. The final six months of 1891 saw a recovery with a 5.8% increase on the 5.2 million tons production of July to December 1890. The production of Bessemer

steel ingots saw a decline of 11.97% year-on-year in 1891, from 3.7 million to 3.2 million tons, while production of Bessemer steel rails, undoubtedly reflecting the slowed growth of railways, declined 32.13% from 1.8 million to 1.2 million. Both Bessemer steel ingot production and steel rail production increase slightly, to 4.2 and 1.5 million respectively, in 1892, supporting the presentation in Appendix I of a temporary recovery.

However, by 1893 a decline is evident in all measures compared to 1890. Railway earnings, never declining beneath $4.3 million per month in 1890 and 1891, fluctuate between $3.1 and $4.6 million monthly during 1894 with average monthly values for 1893 and 1894 of $42.7 million and $38.3 million respectively. The production of pig iron had declined to 7.2 million tons in 1893 and 6.7 million tons in 1894 - a decline of 35.42% on the 1890 production of 10.3 million tons. Bessemer steel ingot production, at 3.1 million in 1893, showed a decline of 15.32%, but with a recovery to 3.6 million by 1894. Bessemer steel rails were not the subject of a recovery with 1894 production declining to 0.9 million, a 50% decline on the 1890 value.

The 1907 USA crisis was transient as can be seen from the

Gale (1998) Table 1.

profile of railway earnings for 1908. Each of the months January to July 1908 had decreased year-on-year earnings while the months September to December 1908 saw year-on-year increases. However, the decreases were substantial with six monthly averages for the first half of each year, 1907 and 1908, $18.1 million and $15.2 million respectively. The impact on industry, as measured by pig iron production, may be exaggerated by the 48.67% January to June year-on-year decline, from 13.5 million tons in 1907, to 6.9 million tons in 1908.

Similar data are not available for other, less industrialised nations since there are few items of production that have the backward and forward linkages to the industrial sector's productivity that steel/iron production has. For Australia the work of Butlin (1962) can be consulted, but this predominantly rural nation had no single item of output which was connected to most other items produced. The best measure is perhaps Net National Capital Accumulation, (Butlin 1962: Table 1), which became negative, for the first time since 1862, at -£2.9 million in 1895 - a decline equal to 1.96% of GDP. Contrasted with an 1891 pre-1900 maximum Net National Capital Accumulation of £22.8 million (10.78% of GDP) this represents a dramatic drop.

These measures, partial as they are, show that the immediate impacts of the crises were substantial, with downturns in both economies and national industries often exceeding 10% or 20%. Financial adjustment, aided by inflows of gold easing liquidity, would often mitigate these disasters, but could not wholly undo the grave effects.

3 (c) (ii): The Asian crisis:

There have, of course, been other shocks to the world economy in the last couple of years besides the Asian crisis, especially the long-drawn-out agony in Japan and the financial disturbance following the Russian default and the near-collapse of Long Term Capital Management. Despite our inability to separate the effects of the Asian crisis from the impact of other world developments on these countries, we shall use projections of output in these countries as a shorthand metric for the scale of the crisis. Between May and October 1998 the output projections of the IMF (given in World Economic Outlook Table 2.1) for Asia were revised downwards from 4.4%, by 2.6%, to 1.8% for 1998, and from 5.9%, by 2.0%, to 3.9% for 1999. The ASEAN-4 received larger downgrades with 7.7% removed from the 1998 forecast of -2.3%, to give a decline of 10.4%, and 2.6% removed from the 1999

forecast of 2.5% growth to give -0.1% growth. (WEO October 1998: p.34; p.52). Some projections for GDP, Inflation and Current Account, drawn from the October 1998 Bank of America Asian Financial Outlook, are presented in Table 18.

Table 18 suggests that the downturns in GDP will only exceed 10% in the case of Indonesia, a nation undergoing civil unrest and, hence, capable of being regarded as an outlier. This limited immediate impact is supported by the presentation of Charts 19 and 20 (as shown earlier in Section 2 (b)) for post-crisis observations of imports in Malaysia, Hong Kong and the Philippines. Of course, definitive measurement of the impact is still uncertain, with estimates such as those given by the IMF above subject to revision, but the available data suggests that the immediate impact will, in most cases, be limited to single digit percentage downturns.

Nevertheless, the continuing domestic financial pressures and high interest rates in Asian countries (features rapidly reversed pre-1914), suggest that the impact could develop further in Asia through a slow decline in internal productive capacity. This might lead to a slower, but more extended and perhaps more serious, contraction for the nations involved in

the Asian crisis.

3(d) Contagion

When the 1997/98 crisis began with the Thai devaluation in July 1997, few, if any, commentators anticipated the speed of its spread, immediately to the ASEAN four, or the full scope of its extension, to Taiwan and Hong Kong in October, and to Korea in November, with some effects on countries as widely separate as Brazil, Russia, India and South Africa. There appears to have been a contagious element, largely driven by international forces, in the 1997/98 episode.

There were also some signs of contagion, though not quite so marked in the pre-1914 crises. Contagion pre-1914 had several features. First, the financial disturbances abroad (and the resulting gold flows to the crisis countries), led to increases in interest rates and tension in London and in other European countries. We show below a table for our four crisis years, taken from Morgenstern, indicating the pattern of international financial panics in the major countries (Table 19). Second the steep fall in activity and in imports in the immediately affected countries reduced activity and exports in Europe, just as the Asian crisis is currently doing for the USA and Europe.

Since the pre-1914 crisis effect on output was immediately more extreme than has been the case in Asia, and since North America, Argentina and Australia were at least as important outlets for exports from Europe then, than Asia (excluding Japan) has been for the USA and Europe now, the direct knock-on effect on other economies was even greater. On the other hand the high degree of interlinkage of the Asian economies has been a major contributory factor to the contagion occurring within the region. Third, the failures in a crisis country could lead to fears of like failures in potential similar countries abroad (for a discussion of this in the context of international capital flows see Box 3). There was some evidence of this in the Argentine case, where Uruguay was forced to suspend dealings on its exchange in Montevideo (BM 1890(1): p.1289; 1498), and capital inflows from the UK to Latin America fell quite sharply until the turn of the century.

The relative size of the participants can not be ignored in considering contagion effects. For example, faced with the Argentinean crisis, the government of Uruguay, which had adopted a banking system modelled on that of the USA, faced such drains in its banking resources that it was forced to suspend business in Montevideo from July 7th 1890 and paper money was not

normally accepted for business purposes till July 15th.[12] Longer term effects, difficult to trace, can be observed when examining the valuations and extent of credit available to smaller nations. Italy prior to 1893 was a case in point with substantial depreciation in the price of its Cedulas resulting from the risk aversion following the Barings crisis (see Appendix I).

Through a combination of these various channels, the 1873, and the 1890-93, crisis periods had marked effects on the world economy; we would suggest much more so than in the 1997/98 Asian crisis.[13] The effects on Britain during the 1873 crisis were

[12] The National Bank of Uruguay, founded 1887 with power to issue notes to the extent of four times its cash reserves, suspended non-gold dealings on July 5th 1890 when the Montevideo Bourse closed. This was made official by Government decree on the 7th together with the proclamation of a national holiday to deter the bank "runs" then commencing. Gold coin reached a premium of 22% by the 10th but dropped to 14% by the 15th as the panic abated. The premium remained high in the subsequent weeks reaching 34% on July 22nd and 43.5% on August 18th before starting to decline. Publication on August 18th of the National Bank balance sheet showed assets covering liabilities but that the entire capital of the Bank, £10 million, had been lost in the crisis (BM 1890: p.1289-92, 1497-8).

[13] One way of possibly avoiding contagious effects was actually to be in the undesirable position of already experiencing a depression. The economy of France, in 1873, already deflated by the payment of its indemnity to Germany for the Franco-Prussian War, escaped virtually untouched by the collapse which engulfed Austria. France's external trade fluctuated only slightly with exports declining only 2.27% from 3,787 million francs in 1873 to 3,701 million francs in 1874, reaching a low of 3,180 million francs in 1878, while industrial production (as measured by an

substantial decreases in exports, although frequent changes in the Bank of England discount rate, which rose as high as 7% in October 1873 from 3.5% in March, did not materially deter industrial production.[14] The exports of smaller European countries were also adversely affected though this effect was very short lived.[15]

Box 3: The Barings Crisis and British International Investment in Latin America.

In several industries a shrinkage of British investment in Latin America can be detected post-1890. Mining contracted from 150 companies, with £23.3 million nominal investment in 1890, to 121 companies with nominal investment of £12.27 million in 1900. Similarly, British investment in nitrate companies peaked in 1888-9 with 17 companies being formed in those years. In 1890-6 only 6 new companies were formed – while three existing firms were reorganised and three liquidated - with nominal capital increasing only from £10.08

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index base 1913) shows an increase from 43.8 to 47.7 between 1873 and 1876. Concurrently, Germany experienced a major deflation with banknote circulation declining from 1,378 million marks in 1872 to 988 million marks in 1878, a fall exceeded in magnitude by the decline in deposits from 716 million marks in 1873 to 385 million marks in 1877 (Mitchell 1980: series E1, F1, H1 and H2).

[14] Domestic exports declined 25% from a peak of £256 million in 1872 to £192 million in 1879 while re-exports fluctuated between £53 and £58 million. Industrial production as measured by an index base 1913, however, grew continuously from 40.2 in 1870 to 47.5 in 1876, but declined from this high to 45.6 in 1879 (Mitchell 1980: series E1 and F1).

[15] Belgium exports fell from 1,159 million francs in 1873 to 1,064 million francs in 1876. Swedish exports declined from 225 million kroner in 1874 to 204 million kroner in 1875 (Mitchell 1980: Series F1).

million to £12.44 million.

The impact on individual countries can also be traced in some instances, subject to the caveat that idiosyncratic characteristics of the nations might have more explanatory power than the influence of the Baring's crisis. Mexico's receipt of foreign investment grew only 12.71%, from £59.8 to £67.4 million in the decade following 1890 - compared with 82.87%, from £32.7 million, in the 1880s and 45.99%, to £98.4 million, in the decade following 1900. Uruguay experienced a similar shock. Pre-1890 British investment rose from £7.6 million, in 1880, to £27.7 million in 1890 - a total of 264%. Post-1890 the amount increased to £35.8 (+29.24%) million by 1900. The major portion of this was government loans which increased from £16.1 million in 1890 to £22.4 million in 1900. Investment in railroads increased from £2.4 million in 1880 to £9 million in 1890 - but only reached £11 million by 1900. Brazil experienced a smaller pre-1890 investment, with total nominal investment increasing 76.8%, from £38.8 million in 1880, to £68.6 million in 1890. The growth in the decade following Barings was 32% bringing investment to £90.6 million. Post-1900 growth once again accelerated with 67.11% over the next decade to give £151.4 million invested by 1910.

Box 3: (continued)

More than half of this investment was held in government securities. Rail investment increased from £11.6 million in 1880, to £26 million in 1890 and £33.6 million by 1900(See Rippy (1959) p.45, 51-2, 56, 60, 95, 142, 150-51 respectively).

The aftermath of Barings led to a repatriation of bonds (see Appendix I [B] (iii) below for measures of repatriation to America) and a fall in international investment:

> "From 1886 to 1890, some £130 million worth of calls for portfolio investment were recorded in the London market, while from 1891 to 1895, the total dropped to only £26 million." (Aggarwal 1996: p.28)

The effect of risk aversion was far reaching, but tended to be

combined with local events in its creation of economic contractions. Mexico, for example, experienced exceptionally bad harvests in 1891 and 1892 compounded with a drop in the value of silver, forcing debt renegotiation. Renegotiations, examined for Mexico in a game-theoretic context by Aggarwal (1996: p.176-87), introduce political factors and conflicts - e.g. between the newly emerging Germany and the older powers - which have been largely absent from the 1997 crisis. The expansion of German influence in Mexico, commencing with the sponsorship of a loan in 1888 by the House of Bleichroder, offset, in some measure, the vacuum caused by the withdrawal of British funding and permitted the consolidation of foreign debt into two bond issues in May 1893. Conflicts and disputes between the interests of French and English bondholders emerged in other areas of Latin America, for example over the exploitation of guano in Peru (Aggarwal 1996: p.197-234). Such factors allowed alternative, if limited, finance to emerge for other Latin American countries (except the Argentine).

Stability depended heavily on non-involvement with the banking system of the nation experiencing crisis conditions. New Zealand, whose banks had attempted to compensate for the lack of development opportunities in the depressed economy at home by investing in Australia, experienced a banking crisis in 1894 with the suspension of the New Zealand Loan and Mercantile Company.[16] However, New Zealand benefited by the swift action of its government which, on appeal for help from the Bank of New

[16] The New Zealand Loan and Mercantile Agency Company, formed 1865 to provide settlers with long term credit, was found, at a meeting of creditors on August 8th 1893, to have £3.6 million liabilities of which only £1.15 million were secured. The company was reconstituted, under the same name, with £3.9 million capital (Prichard 1970: p.175-8; BM 1893: p.432; 1894: p.229-30).

Zealand, passed Acts guaranteeing the banks shares and constituting bank notes as legal tender for twelve months.[17] "Runs" on the banks, while heavy, were not disastrous and confidence slowly returned.

Does this suggest that the international involvement of the Asian nations banking systems might contribute in a major way to the transmission of crisis conditions? A counter to this - possibly simplistic - proposition is the limited effect the 1893 Australian crash had on England - homeland of the major depositors, and often the management, of the failed banks.[18] Whether it was the presence of deposit insurance, the method by which bank reconstruction enabled a speedy debt renegotiation or, as Dowd (1992) argues, the use by healthy banks of reconstruction to enlarge their capital, the effects were not spread through the banking network which linked Australia and England.

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[17] The Bank of New Zealand and Share Guarantee Act extended a guarantee of £2 million to the preference capital of the Bank of New Zealand for 10 years. Further aid was extended in 1895 to the Bank of New Zealand by the constitution of an Assets Realisation Board, funded with £2.5 million, which assumed the obligations of the bank to the Estates Company, its real estate subsidiary (Prichard 1970: p.177).

[18] Industrial production (as measured by an index of production base 1913) rose consistently for the U.K. from a low of 60.0 in 1893 to 81.7 in 1902 (Mitchell 1980: series E1).

The one exception amongst the pre-1914 cases of crisis in a major nation not adversely affecting smaller nations was the 1907 US crisis. Whilst this caused tremors in European financial markets, the direct financial effect was reasonably well contained within the USA. Moreover, the recovery there was swift, so that by the end of 1908 it was hard to detect much impact either on its own rate of growth, or that of the major European countries.

4. The Recovery

4(a) External Developments

Since the recovery from the crisis has barely yet started in the Asian countries, in this Section we concentrate on our pre-1914 crisis countries. In all of them, except for the 1907 period, recovery was largely based on a continuing steady expansion of exports, in most cases as fast as, or faster than, the pre-crisis average growth rate, as already prefigured in Table 4 in Section 2.

The other main feature was a relative abundance of liquidity with a higher ratio of reserves, primarily gold reserves, to money stock, Table 12, and a high ratio of high-powered money to nominal income (Table 13). This enabled short-term interest rates to fall back quickly, relative both to the pre-crisis boom period and in some cases, though this is less marked, to the international financial centre (Tables 9a, 9b, 14a and 14b). A remarkable difference between the pre-1914 crises and the current Asian crisis is the comparative speed of decline of nominal (and presumably expected real) interest rate levels then, and compared with the continuing, persistent high level of

nominal, and in some cases real, interest rates now.

Given confidence in the maintenance of the Gold Standard (in most cases, though not in Argentina 1890 and uncertainty in the USA 1890/93), the crisis itself led to large gold imports, (to profit from the temporary gold premium). Thereafter, the rapid move into current account surplus, (and in the case of Argentina, its debt moratorium), counter-balanced the sharp reduction in capital inflows, allowing highly liquid financial conditions to continue.

Even so, with no Central Bank in many cases (or IMF) to check the initial collapse, the initial crisis-related decline in the (growth rate of the) money supply was much greater pre-1914 than in Asia, and the immediate dislocation to the economy in most cases also larger, (with the probable exception of Indonesia). The shock was larger, but the subsequent healing process also (with some exceptions, e.g. the long drawn-out agony in Australia) seemed to come into effect quicker and more reliably.

Even so, the effects of several, but not all of the pre-1914 crises, were substantial. The 1907 crisis in the USA (and

Italy), although initially extremely severe, was remarkably short-lived. In contrast it took several years for the economies to recover following the crises of 1873 and 1890/93. It is not straightforward to give a specific date for such recovery, but our study of the data, and of the various reports in the literature on these crises, leads us to date the recoveries as in Table 20.

5. Conclusion

In what respects did the pre-1914 crises differ from the recent Asian crisis?

First, in some respects the pre-1914 crises were worse than the Asian crisis, (apart from Indonesia). There were no Central Banks in the countries involved, no IMF, and not much deposit insurance, (indeed it was the unhappy experience of the 1907 crisis that led to the founding of the Federal Reserve System in 1913). The number and scale of bank failures, the sharp decline in financial wealth and the decline in the money supply were generally greater in our pre-1914 crises than now. Indeed, again with the exception of Indonesia, where the economic crisis has interacted with a political crisis (as is also now the case in Russia), the initial shock and economic dislocation was generally greater pre-1914 than in Asia.

But if the initial shock was greater, so also the healing process seems to have been both quicker and more reliable. The main difference lay in the external monetary regime. With a few exceptions, Argentina in 1890 and concerns about US policy in the early 1890s, in the decades pre-1914 it was generally assumed that the exchange rate would revert to its gold standard

parity, and that policies would be consistent with that.

The extreme pressures generated by the crises tended to cause a premium on gold, pre-1914, i.e. a devaluation of the domestic currency, but the expectations of mean reversion led to a quick and sizeable gold inflow to take advantage of a temporary depreciation. In contrast, in the Asian crisis expectations have often appeared to be extrapolative, that once the exchange rate depreciated, it was more likely than not that it would fall further. Consequently, apart from IMF and associated funds, there was no flow of reserves from the natural working of markets back into the Asian countries.

Moreover, in the pre-1914 crises, after a temporary small (by contemporary standards) spike in interest rates at the time of the crisis[19], interest rates retreated rapidly in a matter of months to lower levels than previously. With the Gold Standard stabilising price level expectations, this reduction in nominal interest rates also represented a fall in real interest rates.

The problem in Asia has been that devaluations have not been

[19] The leap in overnight call-money rates in New York to over 100% for a couple of days in October 1907 was a subject of much wonderment then. Compared to what we have seen recently, e.g. in Sweden in Autumn 1992, Hong Kong in October 1997, Russia in July/August 1998, the 1907 US experience was trifling.

perceived as either temporary, or naturally stabilising, or inherently successful. Consequently there is a hideous problem about the appropriate level for interest rates, too low and the exchange rate will collapse further, too high and the real economy will implode, which could also further weaken the exchange rate.

One of the reasons why the initial Asian devaluations were not successful was that so much of the private sector external (especially short-term) debt was denominated in foreign currencies (US$s). Pre-1914, so long as the Gold Standard was, and was expected to be, maintained, the currency in which the debt was denominated made no difference, though in practice much Australian and US indebtedness was in domestic currency form.

The one exception to the successful maintenance of the Gold Standard regime in our pre-1914 cases was, of course, Argentina, which had borrowed mostly in gold pesos or in sterling. Argentina resolved the problem of its incubus of indebtedness by imposing a moratorium, and only paying off its obligations to its creditors as and when its emerging current account surplus allowed it to do so.

Given the dislocation of a crisis, the shock to confidence, the existence of a J curve, the usual shortage of reserves in a devaluing country, and the inevitable limits to foreign assistance, is the true lesson that the foreign currency indebtedness of a devaluing country has got to be cut down to manageable size, by one route or another, before a devaluation can work? One lesson, then, is that in a system where confidence in the maintenance of a pegged/fixed exchange rate is potentially fragile, any country must closely monitor, and seek to control, the volume of the (short-term) foreign currency borrowing of its own private sector.

But if there does need to be a significant scaling down of private sector foreign currency indebtedness as a pre-condition for the success of a devaluation, then this puts the IMF in a horrible dilemma. First, anything that smacks of default is likely to provoke a contagious run out of similar countries. Second, any official encouragement by the Fund of such down-scaling will provoke screams about `moral hazard', whether, or not, with any justification. Third, the IMF is mainly financed by creditor countries, so actions whose main effect is to cause losses to creditors is not going to be widely popular with important players in the most powerful countries. On the other

hand, the more pressure that the IMF places on the crisis countries to meet their private sector foreign currency indebtedness, the less likely is the devaluation to succeed, the higher interest rates have to be, and the worse will become the macroeconomic situation. What conclusions does this train of thought lead us toward?

Appendix 1: Pre-1914 crises:

[A] The first international crises of 1873:

The 1873 crises, generally acknowledged to be the first truly international ones, were, like many later, crises of development. Prior to 1873 the USA experienced post-war fixed investment, in railway and associated construction boom as the newly explored western states were integrated into the existing economy. Austria experienced a similar development. Following the Franco-Prussian war Germany received an indemnity of which £119,600,000 had been paid by the end of 1872. The vast inflow of wealth triggered a fixed investment boom in Germany which spilled over into Austria, emerging in the dealings on the Austrian Bourse which in size and importance far exceeded the Bourses of the German states.[20]

[A] (i) The American crisis of 1873:

Following the Civil War the American states experienced a period of expansion based on the opportunities that railways provided in the opening of the western states. In particular, building booms occurred in Chicago, as a central conduit for the materials used to build the railways and the new towns they serviced, and New York, as the conduit for international finance and the centre of the National Banking system (Hoyt 1933: p.89 passim; Sprague 1910). Investors in central Europe, particularly the German states enriched by the Franco-Prussian War indemnity, provided a ready market for American railway bonds. A notable example of such flotations involved Jay Cooke, who, having marketed $500 million of US Treasury bonds during the Civil War, obtained the underwriting of $100 million of finance for the Northern Pacific Railroad in 1870.

[20] For discussions of the importance of the Vienna Bourse to Germany see the Economist of May 10th 1873 p.585-6, of May 24th p.626-7.

But by 1872 American rail investment had become extravagant with over-optimistic extension of lines to unprofitable regions. Furthermore, European investors became more cautious during 1873, especially after the initial Vienna stock market crash on the 8th May. This caution was supported by the early failures in the US of railways, and financial scandals involving the European flotations.[21] The resulting decrease in profits, in a climate of investment fund scarcity, causing the suspension of dividends by 83 railroads during 1873, led to failures. Those on 8th September, of the New York Warehouse and Security Company, involved in financing the Missouri, Kansas and Texas Railroad, and on 13th September, of Kenyon, Cox & Co., who had unwisely endorsed $1,500,000 of the paper of the Canada Southern Railroad, formed the prelude to the crash. The further failure, on the 18th September, of the Northern Pacific Railroad's financier, J. Cooke & Co., ensured widespread panic.

The National Bank System. as practised in the USA, consisted of National, state and private banks, who retained a minimum of 6% of assets as reserves and 6% as unissued notes in hand. The rest of their required reserve of 25% were held by National Banks in the Reserve cities, of which there were six in 1873, the principle being New York.[22] The practice of country banks placing their reserves, in excess of the 6% minimum requirement, on deposit with the New York National Banks for interest exposed the reserves of the New York banks to two seasonal drains - spring facilitation of crop sowing and autumn finance of farm produce movements. The stock market downturn, coinciding with the autumn drain on resources, exposed the fragility of the New York Banks reserve position. The first reaction was to curtail loans. However, banks had already begun to fail and a receiver

[21] A major financial scandal involved the issues in France of stock of the Memphis-el-Paso Transcontinental Railway Company which raised over 20 million francs before it was discovered its certificate of admission to the New York Stock Exchange was forged, the company was insolvent since 1869, only three miles of rail had actually been laid, and the permission of the French authorities to advertise for funds in France had been obtained by bribery (Economist March 8th 1873 p.280-1; March 15th p.311).

[22] While other cities became Reserve cities, no city or combination of cities ever rivalled New York in importance or in volume of business.

was appointed to the First National Bank on the 19th September.

On the 20th the stock exchange closed at 10 a.m. and Clearing House Certificates were introduced. These certificates, a financial innovation to be copied in each subsequent banking crisis in the USA prior to 1913, allowed a bank to meet payment to another bank of its cheques drawn without depleting reserves. Furthermore, the stock exchange transfers, which often were drawn on a bank during the day, but would not be balanced until the evening, could be liquidated with these certificates at the point where the bank receiving the draft presented it to the clearing house. This relieved substantial drains on actual cash holdings of the New York Banks. Two issues of $10,000,000 of Certificates, on the 22nd and 24th of September, were made but did not prove enough. A suspension of cheque payments from the 24th, combined with a contraction of loans of $94.9 million and a drop in legal-tender reserves to $5.8 million occurred before the danger of insolvency abated (Sprague 1910: p.36-62).

An agreement to allow banks to borrow reserves from other members of the Clearing House restored a measure of confidence and the Stock Market reopened on the 30th September with normal banking relations resuming during October. The economic effect was substantial with widespread bankruptcies, consistent railroad failure, a collapse in land prices and a general recession the effects of which were to persist till 1879.[23,24]

[A] (ii) The Austrian crisis of 1873:

Austria's location as a conduit to Europe for Eastern European cereals, together with supplying the post-Franco-Prussian war building boom occurring in Germany, lent substantial impetus to railway and building development, thereby increasing Austrian's

[23] For example, it was 1880 before the imports of the US again reached more than $60 million.

[24] See respectively, Bankers Magazine and Statistical Register (hereafter BMSR) 1874: p.429-31, BMSR 1874: p.453-461, and Hoyt 1933: p.117-25.

nominal wealth (Hyndman 1897: p.99-105).[25] Bailey (1876: p.785) estimates commerce increased 67% between 1865 and 1874 with total capital invested in railways increasing three-fold from 713 million florins in 1863 to 2,127 million florins in 1874. Of the increase 979 million consisted of debentures and 435 million of equity. The revenue from railroads, 152.8 million in 1871, rose to 160.8 million in 1872 and 185.8 million in 1873. American rail bonds, offered quite cheaply to German and Austrian investors attempting to diversify by buying foreign assets, were very actively purchased on the Vienna Bourse.[26] Financial intermediation, with a large increase in both deposits and loans, within a developing banking structure, was particularly characteristic, as contemporaries noted:

> "There were, at the end of 1873, 259 savings banks, against 211 in 1871. The number of depositors was 1,207,688 against 1,027,048 in 1871 and only 526,620 in 1865. The amount of the deposits in 1873 was 482,763,132 fl. against 341,137,380 fl. in 1871, and only 118,885,670 fl. in 1865. As to the growth of indebtedness, it is stated that between the years 1868 and 1874, the amount of mortgage debts increased by the sum of 526 millions of florins." (Bailey 1876: p.787).

Liabilities of deposits on call are estimated to have risen 133%, from 77 million florins in 1870, to 180 million in 1873 - discounts rising 20%, from 398.9 million in 1871, to 480.9 million florins in 1873, with only a slight decline to 472.8 million in 1874.

As the result of this expansion great strains were placed on the Austro-Hungarian Bank, which by May 13th 1873, on a reserve of 13.3 million florins, had built an issued amount of 329 million florins - 21.6 million below its statutory maximum of 143.2 million bullion held plus a permitted level of 200 million unsecured notes permitted. Statutory requirements curtailed

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[25] The intemperate funding can be gauged by the comments of some of more perceptive publications of the time e.g the Economist Commercial History and Review of 1872 March 1872 p.7.

[26] This relative cheapness was underpinned by a lower cost of construction per mile for rail track. McCartney (1935: p.124) estimates the cost of track for the USA at $49,492 per mile compared to $73,915 for Austria, $109,952 for Germany and $159,714 for France per mile.

this extravagance forcing the bank to refuse the discounting of bills on May 8th, a stringency which led to panic on the Vienna Bourse, forcing its closure.[27] By the 9th panic had spread to the Frankfurt Bourse and the National Bank of Italy was forced to raise its discount rate to 6%. Despite the formation of an Aid Committee by the Vienna Finance Ministry and bankers on the 10th, the stock market remained closed for several days, reopening on the 13th May, by which time panic had subsided.[28] To avoid the difficulties associated with the excess discounting of the Austro-Hungarian Bank the requirements of the Austrian Bank Act were suspended by Imperial decree on the 16th May until October 1874.[29]

The Austrian panic of May was generally ignored except for inducing caution in the European purchase of American rail shares (Hyndman 1893: p.105).[30] As the correspondent for the Economist wrote:

> "The general belief prevailing in Northern Germany seems to be that the suspension of the Austrian Bank Act may, at the best, have brought about an interruption, rather than any final discontinuance, in the natural progress of that gambling fever pervading so wide a range of Austrian society." (Economist May 24th 1873 p.627)

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[27] In this we follow the work of Professor Zuckerkandl. Bailey (1876) attributes the collapse to the failure of an un-named financial house but he is so distant from the scene of events that it is reasonable to suppose he is confusing cause with effect.

[28] See BM 1873: p.564; Zuckerkandi 1911: p.90-1; Hyndman 1897: p.105-10; Glasner 1997: p.132.

[29] Bailey (1876: p.791) describes the panic on the two settling days, Thursday 15th and Saturday 17th. This panic led to insolvencies of 120 firms (or 17.6% of the 682 companies commencing operations between 1867 and 1873) on the first and "about" 50 failures on the second day.

[30] Bailey (1876: p.792) attributes this to an absence of effects on non-speculative companies - but notes the depression of stock prices due to forced sales, a run on the Vienna Exchange Bank's 14-day notes in June with subsequent suspension, coupled with a general increase in circulation and advances/discounts to a November maximum of 373.1 million florins and 253.6 million florins respectively.

However the reverses of America were not without repercussions. From the sources available it has not been possible to trace the actually pathways by which the American panic caused disruption to the Vienna market, but it is generally agreed that the effect of the American downturn was contagious.[31] Additionally, bankruptcies occurred in Germany, particularly the respected Quistorp Bank, capitalised on the market at 4.5 million thalers, on October 9th (BM 1873: p.1052). Panic ensued in Austria, commencing on the 1st November, as the over-extended Austrian rail and building companies collapsed causing a depression in Austria that lasted throughout the 1870s (Hyndman 1897: p.121-2).[32]

[B] The crises of the 1890s:

The crises of the 1890s are similar to those of 1873, in fixed investment expansion to develop national resources, as well as possessing the peculiarity of all experiencing the contagion effects of the Barings crisis. Hence, we commence with the effects on the Argentine of that collapse, proceed to the similar collapse of Australia, then examine the monetary stringency of 1890 which led to the failures of 1893 in America and Italy.

[B] (i) The Argentine sovereign debt crisis of 1890:

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[31] McCartney (1935) attributes this to the simultaneous maturing of speculative liabilities but gives no details to substantiate the claim:

> "The panic of September 18, 1873, in New York, tended to create a greater stringency in the continental markets of Europe. This stringency, plus the maturing of a group of engagements which were an outgrowth of the bubble company mania, created a panic condition on the Bourse in Vienna during the last days of October. It was short lived in itself, but intensified the depression which followed." (McCartney 1935: p.87).

[32] Bailey (1876: p.792) describes a sudden decline of between 20 and 50% on Monday 3rd November.

Following the military conquest of its native indian population Argentina commenced a major colonisation of its interior regions requiring the establishment of both farming enterprises and an extensive rail network. This was performed mostly with fixed capital purchased abroad with borrowed funds. Its farm mortgages were financed by a series of land bonds, Cedulas, issued in its depreciated paper currency, while its rail development was undertaken with government guarantees of the interest payable.[33] The objectives pursued prior to 1886, by President Roca's administration, while funded by international loans, were always linked to maintaining the gold standard. This link ceased when, in 1886, the Roca administration was replaced by the expansionary administration of President Celman. By 1889 the borrowing from Europe was more to maintain an already debt-overhung position than for genuine investment.[34] Although there is much evidence of mis-spending, there is less evidence to suggest that the potential of investment in the Argentine had declined by 1890. A bad harvest in 1889 led to a decline in exports during 1890, but between 1891 and 1894 wheat exports alone rose by 250% (Ford 1962: p.141-2; Joslin 1963: p.114). This suggests the crisis was one of misallocation, corruption and mismanagement.[35]

Inflationary pressures, already evident in 1889 when the gold

[33] "Of the funds borrowed abroad between 1885 and 1890 (708 million gold pesos) public loans comprised 35%, railways 32%, land mortgage bonds (cedulas) 24%..." (Ford 1962: p.140).

[34] "By 1890 this borrowing had increased the annual foreign debt-service charges to 60 million gold pesos (or 60% of exports in 1890 - a very heavy charge)..." (Forde 1962: p.140-1).

[35] A view amply supported by the evidence. Legal restrictions on currency issue were consistently avoided culminating in such excess that the Bank of Cordova re-issued for the third time notes that had been retired from circulation (BM 1891: p.33-52). This laxity of supervision allowed the embezzlement of almost the whole capital of the Banco Nacional, as was discovered by a special investigating committee of the shareholders in June 1891. Laxity extended to the land banks with land being accepted at assessed values exceeding any possibility of its worth (Williams 1920: p.78-9 ; 120). Yet, conservatively managed banks could and did prosper e.g. the Bank of London and River Plate insisted on strict supervision of the collateral of loans and avoided excesses, thereby carrying on a prosperous business throughout the crisis years (Joslin 1963: p.133-30).

premium increased from 55% in February to 106% in September, were attributed to speculation and dealings in gold were prohibited from February to September. Of course this prohibition was futile. The inflationary pressures simply raised the premium through private dealings while imposing a shortage of paper peso currency - a shortage which made the excess currency issues most profitable for the banks (Williams 1920: p.114-5). This led to pressure, not only on the Argentine banks, but on the National Bank of neighbouring Uruguay.[36] In April announcement of the suspension of specie payment for six months by Uruguay led, by contagion, to the initial bank "run" of the Argentine banking crisis of 1890. This was circumvented by the *sub rosa* issue of $35,116,000 in excess of permitted issue with the connivance of the government.

The open denunciation of this in the Argentine Senate followed swiftly in June. This, coupled with the suspension from June by the national bank, the Banco Nacional, of quarterly dividends led to political crisis. Failure to obtain European loans from Barings Brothers, the European bank specialising in underwriting Argentine loans, meant the situation could not be eased. Open revolution in July, forced the replacement of President Celman by the Vice-President, which calmed the political revolution but solved nothing. The pressures on Barings Brothers to extend finance triggered its failure, which was mitigated in London by the famous "Guarantee" by other banks of its debts.

The committee appointed to resolve the difficulties of Barings Brothers reached an interim agreement with Argentina on January 24th 1891 whereby credit of £15 million was advanced to pay outstanding interest. But this did not prevent the Banco Nacional or its sister bank, the Bank of the Province of Buenos Aires, both being liquidated on 7th April 1891. The tortuous moratorium, initially for three years but extended to five years in 1893, is outlined in detail below (Appendix 4). The effects of the crisis on Argentina were lasting with recovery delayed until favourable terms-of-trade provided the boost that gave recovery in the post-1896 years and resumption of the gold standard in 1900.

[36] Uruguay had explicitly modeled its banking system on that of the USA - making it subject to similar seasonal strains as outlined above.

[B] (ii) The Australian building society crisis and the bank restructuring of 1893:

The Australian crisis originated in the development of the Australian interior but was compounded by a building boom in Melbourne financed indirectly by borrowing in England.[37] Like the 1873 crises, and unlike the Argentine crisis, the growth of the nation became less profitable - here, uniquely, coupling a decline in primary product prices with persistent drought. Australia had by 1885 many attractions for foreign investors including the Mount Morgan Gold mines and the Broken Hill silver finds. Between 1861 and 1892 flocks of sheep increased five-fold, numbers of cattle three-fold and the wool-clip, spurred by a decade long price of 12.25d pre-1886, seven fold. A major expansion of farming activity - the area under crop more than doubled in 10 years - was initially funded from Australian savings but was subsequently funded indirectly by reinvestment of the borrowings from England. Between 1881 and 1885 it is estimated £37.5 million was advanced from abroad on explicit loans, with private advances amounting to, perhaps, £30 million more (Shann 1930: p.304).

The re-emergence of drought in all of the states except Victoria, in 1886, coupled with a decline in primary products prices - wool falling to 9.25d from February 1886 - made rural investment less attractive. Inward investment continued, but now concentrated in drought-free Victoria, which received perhaps half the investment of 1887 (Shann 1930: p.307). This funding in excess induced a speculative land boom in Melbourne (see appendix 3). Caution, however, prevailed with the banks responsible for government transactions - designated the Associated Banks - who in October 1888 raised their 12 month deposit rate by 1% to 5% and halted speculative advances on real estate. This tended to concentrate money in their hands and eventually caused house prices to falter (Dowd 1992: P.59). The subsequent collapse in land prices led to the failure of the

[37] The degree to which economic historians such as N.G. Butlin and Edward Shann differ in their emphasis on local conditions as opposed to international developments as a cause of the 1893 crisis is discussed in Sinclair (1976: p.158-9).

Premier Permanent Building Society on December 20th 1889. However, much speculation still remained and by various devises, such as expanding overdrafts, which till then had never been large, and maintaining high interest rates (approximately 5%) compared to other investments, building societies postponed the inevitable (Shann 1930: p.312). Their difficulties were compounded in 1891 due to the necessity of agricultural savers to withdraw savings to meet excess commitments. At the same time, following the Barings crisis, British investors curtailed the flow of funds to Australia.

Following several notable failures, runs commenced, with subsequent failure on Wednesday 2nd December, on the Metropolitan Bank and the Standard Bank of Australasia, both building societies recently converted to bank status.[38] To preserve their own position banks, such as the Commercial Bank, that had provided overdraft facilities to the building societies, eliminated their credit (Dowd 1992: p.60). Between July 1891 and April 1892 twenty-one major building societies suspended payment (AIBR April 18th 1892; p.266). The minor societies that failed brought this total of land company failures to 41 by August 1892 locking up approximately £18 million of deposits (Shann 1930: p.328; Blainey 1958: p.147).

Confidence was temporarily restored with an announcement, in March, of mutual support, stating that they "...had agreed conditions on which they would help members..." but omitting to state "...conditions required borrowers to provide adequate security, and this requirement effectively nullified the support..." (Dowd 1992: p.61). This statement was supported by revised laws - governing voluntary liquidation in Victoria and of credit deferral in New South Wales.[39] Confidence only lasted

[38] The Imperial Banking Company, a Melbourne mortgage bank, failed July 1891, the Bank of Van Dieman's Land in August and, Monday November 30th 1891 the City of Melbourne Building Society.

[39] The N.S.W. Joint Stock Companies Act 1891, allowed deferral of claims on consent of holders of three quarters of a firms liabilities; and the Victoria Voluntary Liquidation Act 1891, refused winding up petitions for liquidated companies unless one third of the creditors holding more than one third of the assets voted for it, effectively preventing winding-up in most cases

till January 1893 when, after appealing for aid to the Associated Banks, the Federal Bank was permitted to fail. Runs on the Commercial Bank, known to be weakened by its associations with the building societies, soon occurred after this breach of confidence, removing £1 million in three months. Appeals for help only produced statements that aid would be provided, 'clarified' into insubstantiality by a statement of March 13th. This was because the stronger banks were the recipients of the withdrawals from the Commercial - a flight to quality was occurring.

The Commercial Bank was forced to liquidate and commence reconstruction on the 4th April 1893. A suspicion that this reconstruction, and many of those following, were to evade, under the new laws, obligations while increasing capital, is supported by the circumstantial evidence that many trust accounts were opened with the suspended banks. Often these were opened as little as four days after suspension and drew deposits away from banks not yet suspended, as depositors flew from the threat of future suspensions to banks that, having suspended, could not do so again.

The Commercial Bank was followed by twelve others - accounting for more than 56.2% of deposits and 61.3% of all notes issued - during April and May. Attempts in Victoria to declare a bank holiday for the five days following May day were rejected by some banks and those that closed lost the confidence of the public, being forced to remain closed (except for the Commercial Bank). Advocates in N.S.W. of extending note issue as a way to solve the crisis were forced to extend it to all banks since none would request it seeing such an action as an extremely negative signal to the market. Recovery was slow but over the next three months the rest of the suspended banks reopened. The economic effects were substantial with 17,000 houses empty and idle in Melbourne - the ultimate fruits of the boon - and a decline in GDP measured at factor cost from £212 million in 1889 so persistent that only in 1904 did it surpass that level with £220 million.[40] The wool clip, which stood at £20.6 million in

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(Dowd 1992: p.60-1).

[40] Dingle and Merrett (1976) show that building societies were forced by circumstances to become the landlords of most of Melbourne - thus enacting an internal debt liquidation.

1891 declined to £14.4 million in 1897 and, limited by further droughts, only surpassed its 1891 value with £21.2 million in 1905. However, innovations in markets such as the exploitation of frozen mutton sales by New South Wales and the development of international butter markets, both made possible by refrigeration, ensured that decline was mixed with local areas of prosperity.[41]

[B] (iii) Stringency to crisis - the USA in 1890 and 1893:

The crises of 1890 and 1893 in the USA are too close to separate. By 1890 prosperity had returned to the USA with a four year expansionary period combining rising profits with railway expansion, consolidation and reorganisation (Lauck 1907: p.1-16). This expansion led to country banks placing on deposit with New York banks only funds included in their required reserves. New York banks, in the absence of these deposits, were forced to shrink loan volume - in the early months of 1890 by $10 million - till reserves ratios again showed a surplus.[42] Additionally, this source of stringency imparted a bias, possibly unjustified, towards call loans.

The early 1890s were overshadowed by the "Silver Question" -to what extent should the US be bi-metallist?[43] The Bland-Allison

[41] See Shann (1930) pp. 328, 330, 341-3, 393; Butlin (1962) Table 1; and Sinclair (1976) p.151-5.

[42] For convenience we present the references to Sprague (1911) on loan contractions here: that of January-June 1890 p.129-30; mid-August 1890 p.135; three weeks prior to November 8th p.140; November 8th to 15th p.143; November 16th to 30th p.143; May 1892 to May 1893 p.164; May 4th to July 12th 1893 p.173-4; July 15th to 22nd p.175-6; final summation for 1893 p.208.

[43] Arguments against the "Silver Question" as a primary cause of instability are examined and dismissed by Friedman & Schwartz (1963: p.104-5 note 23) whose position can be summarised:

> "In short, two sets of forces were responsible for the two different drains: distrust of the Treasury's ability to maintain silver at parity with gold caused the external drain; distrust of the solvency of banks, particularly western institutions, caused the internal drain. The link between them was the effect on the solvency of banks of the

Act of 1878, a substantial concession to silver lobbyists, forced the purchase of $2 to $4 million dollars per month of silver. But silver could not be widely circulated except as silver certificates since silver was constantly depreciating in value relative to gold.[44] In 1890 the Sherman Silver Purchase Act, enacted July 14th, changed the required purchase to 4.5 million ounces. This was purchasable at market prices which were so low the Act effectively doubled the quantity purchased. This undermined confidence in existing and potential foreign investors.

Further pressure on the New York banks occurred as Britain engaged in selling US securities during 1890, partly to transfer to other investments and partly to ameliorate stringency in other areas e.g. deficits caused by the default of Argentina. This slowed stock exchange trading and foreign exchange rates were moved against the USA so much that from mid-June to mid-August 1890 $15,250,000 gold was exported.[45] Interest rates being higher in Britain anticipatory bills of exchange were not drawn (normally these would be met with cotton and grain bills when crop movement occurred). Unfortunately, low US interest rates for call loans persisted in July and early August providing the finance for the flow of securities to the US and limiting the scope for a counterflow to develop (Sprague 1911: p.129-34).

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additional deflation that was produced by a decline in capital inflow arising out of doubt about the maintenance of the gold standard." (Friedman & Schwartz 1963: p.109 note 28).

[44] An "ill-judged" suggestion, on February 21st 1884, that silver might be used in payment of government balances contributed to a downturn in May. In 1885 greenbacks of low denomination were discontinued, replaced, in 1886, by $1, $2 and $5 silver certificates. These were also issued in place of small denomination National Bank notes when, during 1886-90, raised interest rates led to banks decreasing their, relatively unprofitable, holdings of government bonds by $120 million - of which part of their note issue would be a multiple. Attempts also, e.g. by Secretary Sherman in September 1880, to circulate silver in the West and South were somewhat successful as these areas possessed a high transactions demand for small currency (Lauck 1907: p.16-34).

[45] This amount would constitute approximately one-seventh of the reserves of the New York banks (Sprague 1911: p.132).

To meet the autumn seasonal drain on reserves the banks resorted to call loan contraction of $8.5 million in mid-August.[46] To inject money, the Treasury, on August 18th, attempted to redeem $15 million bonds but holders did not accept the offer until the interest to maturity was also prepaid. But only $9 million were presented for payment by the end of August. More successful in increasing bank reserves was the September 17th purchase of $17 million of bonds at prices ranging from $124 to $126.75 per cent (Sprague 1911: p.137-9). The loan contraction and the high interest rates of late August worked havoc in the stock market during early September.

Attempts to facilitate the normal crop movements were limited by a tendency of the New York Banks, facing the drain of reserve deposits, to drop below reserve requirements. Of necessity, loan contraction of about $7 million occurred in late October and early November with rates quoted for call loans reaching 30%. This, together with rising sales of American securities by London investors, forced further declines to the stock market. Stringency was reinforced by the Bank of England advancing its discount rate to 6%. These acts led to failures, including a banking company and a stock exchange member on 11th November. Clearing house certificates issued on the 12th did not prevent further bankruptcies or a further contraction of loans by $5.5 million in the second week of November.[47] The Barings crisis proved the last straw and panic selling saw the exchange of 424,000 shares with several bankruptcies on the 17th to 20th. The crisis induced loan contraction by the banks of a further $8.7 million and call loan rates went to 186% but swiftly declined to between 2% and 5% as the seasonal drain to fund crop movement abated (Sprague 1911: p.140-7).

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[46] The extent to which the flow of funds from the New York banks was paramount in the operation of the National Bank system can be seen in that all but three banks in 1890 drew drafts of some amount on the New York banks and the total amount of such drafts comprised 61.31% of all drafts drawn in 1890 (Sprague 1911: p.126).

[47] The maximum amount of Clearing House Certificates issued at one time in 1890 was $15,205,000 on December 13th, declining to $12,995,000 by year end. The maximum authorised in Boston, on November 17th, was $5,065,000, and in Philadelphia, on November 18th, $8,870,000 (Lauck 1907: p.74).

The 1890 monetary stringency had effectively induced a downturn in the US economy while adding $100 million to the money supply. This induced an excess of imports of $14 million in the first half of 1891 leading to a corresponding drain on the gold supplies. The ample crop of 1891 reversed the gold flows but could not offset the anticipation that the USA would be forced to leave the gold standard. The Senate's approval of a free silver coinage bill in July 1892, although the bill failed to become law, undoubtedly increased tension. Return of American securities induced by these fears led to the export of $11 million gold in December 1892 and a net export of $14 million more by June 1893 resulting in loan contraction of $45 million between May 1892 and May 1893 (Sprague 1911: p.153-162).[48]

Once again economic downturn combined with loan contractions caused failures, commencing with that of the Philadelphia and Reading Railroad on February 26th. Credit contraction was blamed for the failure of the National Cordage Company in early May. A sharp fall in stock prices on, and after, May 4th, was combined with a severe contraction of deposits as runs occurred, placing 19 national banks in liquidation by the end of June. Failures of state and private banks compounded the slump and large recalls of reserve deposits were made by the country banks from the New York banks. By July reserves of the New York banks had fallen below minimum requirements, despite the issue of Clearing House Certificates on June 15th, and contraction of loans equivalent to 7% ($142 million) of those outstanding had occurred.[49]

The re-election of Cleveland as President, under a policy of rejecting bimetallism, was not sufficient to stem gold outflow

[48] Friedman & Schwartz (1963: p.107 note 26) quote estimates placing the return of securities from abroad during 1890-94 as $300 million - of $3 billion held abroad - which would change net annual average purchases from approximately $200 million previously sold abroad, 1885-89, to an average $60 million returned yearly 1890-94.

[49] Clearing House certificates were used to settle 78% of clearing transactions between banks during July and 95% during August 1993 (Sprague 1911: p.182).

since it took a year of debate and filibuster to pass the repeal of the Treasury Note Act. Further strains were placed on the system by the declaration of India, in early July, that it was suspending silver coinage (Economist 1893: p.848-9). Its immediate impact was a stock market decline including the suspension of the Erie Railroad in late July. Approximately half of Denver's banks were forced to suspend together with many in Chicago and other regions.[50] A combination of reserve deposit withdrawals by the country banks and hoarding by individuals forced a loan contraction of $4.3 million between July 15th and 22nd.

Suspensions of payment was the natural outcome and, while never complete, were widespread. This led to a currency premium in August, of as much as 4% between the 8th and 10th, attracting foreign gold which, combined with $14 million of prior European engagements for autumn exports, ameliorated the difficulties of the banks.[51] August saw no bankruptcies of importance but, so far as such things can be traced, hoarding of money by individuals continued till after the repeal of the Treasury Note Act on November 1st. During September normality was restored but the total contraction in loans, from May 4th to October 4th, of $318 million, 14.7% of all credit, had a devastating effect on the economy, inducing a four year recession.[52]

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[50] The precise effect on banking institutions of the 1893 crisis is summed up admirably by Friedman and Schwartz:

> "Out of 360 national and state banks suspended during 1893, with liabilities of $110 million, 343 suspensions with liabilities of $96 million occurred west or south of Pennsylvania. In addition, 250 private and savings banks with liabilities of $42 million suspended, 224 of them with liabilities of $36 million outside of New England and the Middle Atlantic States." (Friedman & Schwartz 1963: p.109 note 31).

[51] For a review of the movements of gold in 1893 see main text above and Sprague (1911) p.170, 180 including footnote, 184, 190 and 191-5.

[52] Hoffmann (1970: Figures 1-4) calculates GNP drops below 90% of capacity in 1894, while durable goods output drops below 80% capacity as does rail freight carried and buildings materials purchased.

[B] (iv) Validating a boom without a central bank - Italy 1893:

The agricultural sectors of Italy experienced similar employment effects as Australia from the late 1880s price depression but more directly since Italy's products were in competition with cheap American produce. This was intensified also by heavy competition with France. Unemployed agricultural labour from the southern provinces moved to the urbanised north. At the same time Rome and northern Italian cities commenced a building boom which was fostered by an institutional weakness in the banking hierarchy - banks of issue were also the major credit institutions (Fratianni & Spinelli 1997: p.87). Especially as in Italy this was combined with lax regulation, a spending spree was ensured. In the decade prior to 1893 there emerged six banks of issue, the principle ones being the Banca Romana and the Banca Nazionale nel regno d'Italia.[53] Within the banking community rivalry already existed with the Banca Nazionale attempting to increase its markets in the south of Italy, heartland of the Banca di Napoli, during the mid-1880s. For all the banks there was a substantial rise in discount operations, from 373 million lire in late 1883 to 673 million lire in 1886 (Canovai 1911: p.55-6). There was general argument for an increase in paper currency on the grounds that circulating medium was needed. By 1883-85 the circulation increased by 154 million lire while the bank's metallic reserve fell 23 million lire and the Treasury's metallic reserve fell from 727 to 274 million lire.

It was in this framework that competition spread to building enterprises when the Banca Nazionale founded a specialist realty credit department - authorised by royal decree April 5th 1885 - removing the burden of accounting for its illiquid mortgages as for convertible credit. The lending of this department rose from 62 million lire in 1886 to 181 million lire in 1888. Both the Banca di Napoli, under a law of June 14, 1866, and the Banca di Sicilia, under royal decree of May 1st 1870, were authorised to engage in realty operations. It is not known the extent to which the other five banks loaned on mortgage in competition but we surmise it was substantial (Canovai 1911: p.62-7).

[53] The others were the Banca Nazionale Tosacan, the Banca Toscana di Credito, the Banca di Sicilia and Banca di Napoli (Fratianni & Spinelli 1997: p.53-61).

The great growth in building activity could not be curtailed without political difficulties since the towns absorbed the unemployable population of the countryside. Unfortunately, defaulted properties which were unsaleable at auction became the liability of the foreclosing bank. As early as 1887, interventions to aid weak commercial banks, inspired by political pressures, were undertaken by the banks of issue.[54] For a time building activity was sustained by increasing discount operations, which reached 743 million lire in 1889, but a crisis situation eventually emerged in Turin. The Banca Nazionale, responding to pressure, entered an agreement with the government increasing its circulation by 50 million lire of which 40 million was given in subsidy to a local Turin bank, the Banca Tiberina (Canovai 1911: p.92). Currency inflation, once resorted to, increased. The Banca Romana carried this to excess and, with the aid of an illegal loan from the Banca Nazionale of 8 million lire, evaded government attempts at supervision. The government, to stabilise the political situation by sustaining building activity, also connived at expanded circulation by limiting the obligation of note redemption. By 1890 the Banca Nazionale was induced to withhold from redemption 15 million lire of the Banca Romana (authorised circulation 74 million lire). This situation was legalised by the decree of August 1st 1891 which removed the obligation of the bank to redeem its notes. Its circulation rose to 137 million lire by 1893 (Canovai 1911: p.77; p.83).

Unfortunately, the confidence in Italian Rentes received a blow when an unexpected Government deficit of 230 million lire was added to a 235 million shortfall occasioned by extraordinary provisions for railroad construction. This lack of confidence led to partial redemption of approximately 350 million lire of paper issued by the building firms abroad. This squeeze eventually led to the failure of the Banca Romana in 1893 and the exposure of its irregularities to the public. This failure shows the extent to which the government was attempting to influence the banking system, since the finance minister,

[54] Fratianni & Spinelli (1997: P.88) describe these rescue operations as "ad hoc" and, drawing on the work of Ripa di Meana and Sarcinelli (1990), suggest an 800% increase in bad loans for commercial banks over the period 1884-91. For Banca Nazionale bad loans increased from 0.5% of assets to 9% of assets.

Grimaldi, ignoring suggestions that Banca Romana be merged with another bank, supported the governor of the Banca Romana to the extent of obtaining a nomination for him to the Senate. Maffeo Pantaleoni, an italian economist and proponent of merging the bank to another, possessed a copy of the original audit of the Banca Romana, which had been suppressed, and this he made public in a non-partisan way, since he perceived the course of the government was destructive for Italian finance. This forced an investigation which exposed massive irregularities and led to the arrest of the bank's Governor on the 19th January. The administrative inquiry initiated by Pantaleoni's revelations was succeeded by a Parliamentary Committee following a debate on 20th March which eventually led to the establishment of the Bank d'Italia by the banking law of August 10th.

The law of August 10th merged Banca Nazionale, Banca Nazionale Toscana and Banca Toscana di Credito - while liquidating Banca Romano - with increases of currency permitted, to cover illegal issues, subject to 40% required reserves (33% to be in gold). It forbade the financing of farm land, discounting in excess of four months, foreign exchange trading in excess of three months and made uniform the discount rate - with stringent penalties for violation of any of these.[55] However, this first attempt by the government to put its transactions on a regular basis was largely a failure because, with the abatement of currency inflation, went an inability to pay the interest, due January 1894, on the outstanding Italian Rentes. A loan was obtained from Berlin to pay this but the security was more Rentes, so that speculators knew their future sale on the market, since Italy could not be expected to reimburse Berlin, would depress the value. The price of Rentes, facing speculation, fell on the Paris market to 73, from 92.23, while the gold premium rose to 15% (Frattianni & Spinelli 1997: P.92-6; Rozenraad *IB* [1895]: p.118-20).

[55] On 31st December 1893 the Banca Nazionale (now d'Italia) assumed a debt of 50 million lire from its realty department, covered by 17 million in real estate it received from the department, 30 million Banca Nazionale paid up capital and 2.8 million residual payments from holders of overdue bills. Loans still current from this liquidation in 1908 amounted to 112 million lire (Canovai 1911: p.69-70).

This created a stringency for any institution dependant on the issue of Rentes for finance. On the 30th November the Credit Mobilier Italian, capitalised at 60 million lire (paid up) failed, leading to general panic. This was made worse by the report of the Parliamentary Committee investigating the Banca Romana which exposed Ministerial level involvement in its corrupt dealings. The government was replaced by the administration of Francesco Crispi, but emergency measures were forced when the Banca Generale, with paid up capital of 30 million lire, failed on January 18th. Royal decree of 23rd January 1894 increased the note issue by 125 million lire, while another decree, of February 21st 1894, solved the difficulty of foreign payments by exchanging the gold reserves of the Banca d'Italia - 200 million lire of gold - for state notes. This was only enacted in law on July 22nd 1894, but from first announcement dissipated the speculation and ended the stringency (Rozenraad *IB* [1895]: p.118-20). However the economy, with its dependence on credit expansion to sustain growth, had received a major setback. It was not until the expansion of the tourist industry commenced in 1897 that the beneficial effects of the law of August 1893 became perceptible and an upturn in the economy commenced.

[C] Financial crisis of 1907:

The crises of 1907 differ in being concentrated in the financial sector both in their causes, which in both cases involved a crisis of confidence, and in their effects. The impact on the real economy was, in both Italy and the US slight, with little or no contagion occurring.

[C] (i) Italy (1907): Bad banking in a concentrated and centralised system.[56]

Prior to 1907 a liquidation of debt was combined with, and partly enabled, the development of two sources of foreign funds

[56] The following presentation follows Bonelli (1982) almost exclusively. A more detailed account is available in Bonelli (1971).

- migrants remittances and tourism. Budgets, with surpluses between 32 and 69 million lire in the years 1900-5, resulted in domestic ownership of Italian Rentes and metallic reserve increasing from 600 million lire in 1900 to 1,076 million lire in 1905.[57] The banking sector had become segmented with the introduction, slightly modified, of the German mixed-bank institution, of which two - Banca Commerciale Italiana and Credito Italiano - were sufficiently strong to dominate transactions not involving the money market. However, neither engaged in discounting to any degree so that Banca d'Italia was free to influence the money market.

Of two trends in banking during 1897-1906 the first was the economically aggressive mixed-bank lending to capital intensive sectors, sustained and impelled by the inflows of funds from abroad, combined with policies of stock market support and containment of domestic consumption. The other was the emergence of Banca d'Italia as a stabilising force granting rediscounts to weakened institutions in times of stringency - a role which developed gradually over time in dealing with periods of mildly adverse conditions by initiating liquidity expansion. As a result of this activity it controlled the "accommodation rates" of securities, which it changed in preference to changing a generalised rediscount rate, thereby "policing" the market by penalising high-risk operations.

The decade prior to 1907 saw bankers and government attempting to adopt European institutions to Italy. Importantly, the introduction of direct financing of industry, despite the aversion of the Italian middle class to long continued share ownership. While 70% of companies share capital was quoted, it "floated" between financial speculators using constantly renewed contango operations. The mixed banks were drawn into financing these contango operations over time, exposing them to the fluctuations of the markets. In particular, the development of industry, to which the banks were committed, depended on the successful flotation of new issues in these unstable markets.[58]

[57] The amounts necessary to cover sight liabilities were respectively 61 and 78 million lire. The ratio of metallic reserve to notes rose from 43% to 70% (Canovai 1911: p.168).

[58] Estimates of speculation are given in Canovai (1911 : p.173)

The increase in discount rates in the international markets during the Autumn of 1906 led to a decline in the stock market of Genoa which was remedied by injections of liquidity by Banca d'Italia. But confidence was damaged by this decline, a correction to speculative investment became anticipated, and the rise in discount rates by the Banca d'Italia, in April 1907, to match European raises, sparked a withdrawal from the stock market. In response to the market decline Bonaldo Stringher, director general of Banca d'Italia, proposed a consortium of the banks to support the stock market. The rejection of this proposal was followed in June by a crash on the Genoa stock exchange which occasioned such an outflow of liquidity that Banca d'Italia was forced to increase the discount rate on July 8th. The Societa Bancaria Italiana, the third largest of the mixed banks, rumoured to be weak because of the connections of its affairs with the Genoa stock exchange speculations, experienced an attack on its shares which spread to deposit withdrawals in September.

By this time the larger mixed banks were also becoming pressured and both Banca Commerciale Italiana and Credito Italiano constricted loans to commercial and industrial firms. Their example was soon followed by smaller finance companies leading to a credit squeeze and, late September, to a flood of requests from businesses to the Banca d'Italia for funds. At this point Banca d'Italia decisively acted in the manner of a central bank, to which it had been evolving over the previous decade, and supported business with unconstrained liquidity. In the face of this action, and with the publically concealed knowledge that they were, like Societa Bancaria Italiana, facing extreme difficulties, Banca Commerciale Italiana and Credito Italiano offered Banca d'Italia collaboration. A consortium, constructed on 12th October, began the salvage operation of Societa Bancaria Italiana but the funds initially given in aid were consumed within 10 days. A further agreement of November 7th effectively made Banca d'Italia the liquidator of the Societa Bancaria Italiana in all but name.[59]

[59] The conditions of finance included the assumption of personal liability by the administrators of the company, a reduction in capital from 50 to 20 million lire and an increase by calling 20 million lire new capital (giving 40 million lire in total). For

Further problems were emerging. Banks, anticipating runs, were struggling to become liquid but, having stopped lending, their discountable portfolio was decreased. Businesses, unable to obtain funds, were applying political pressure. To increase liquidity the Treasury secretly lent 40 million lire in gold to Banca d'Italia, which, together with an inflow of current account deposits from the public, enabled Banca d'Italia to continue operations in the money market. Liquidity was needed there due to the large rises in international interest rates - that of France increased from 4% to 7.5% during 1907 - and Banca d'Italia initially declared it would not raise the discount rate.

Yet difficulties did not abate on the stock market with bearish speculators forcing new insolvencies on the October settlement. Suspecting the involvement of the mixed banks in funding the "bears," early in November Banca d'Italia increased the discount rate to 5.5%. Following this Banca d'Italia was able to exert sufficient influence that the mixed banks promised full compliance. Announcement by the Banca Commerciale Italiana that it would act with Banca d'Italia in supporting stock market prices restored confidence. Confidence was further raised, and the crisis ended, when the Treasury, on the 19th November, pre-

sometime in the early summer of 1907,[60] was rather mild, while the shock that actually precipitated the crisis of October 1907 could not be termed a "slight agitation" by any standards.

The stock market declines of March 1907 led on to the beginning of a recession a few months later,[61] but this recession was quite gentle at the outset. Despite certain mercantile failures and a gold outflow, largely caused by the inability of the banks to raise finance bills in London, by August 1907 the banking system had pretty well weathered the crisis period connected with the cyclical downturn. Although the autumn of 1907 was likely to be difficult, the New York banks had a higher ratio of reserves to deposits at the early autumn "call" in 1907 than in either 1906, 1905, or even 1902.

Unlike the cyclical downturn earlier in the summer, the October crisis was not primarily caused by cyclical or other intrinsic market factors but was the culmination of an almost incredible series of deeds of peculation, speculation, or sheer stupidity.[62] It began with a scheme hatched by the directors of the fortunes of the Amalgamated Copper Company which controlled a majority (about 50-60 percent) of United States copper production. Ostensibly to maintain the price of copper at a more remunerative level in the face of a weak market, the Amalgamated Copper Company kept copper off the market during the months April-September 1907 by stockpiling it with a subsidiary, the United Metals Selling Company.[63] In this way the price of copper was kept artificially high.

Meanwhile a group of three men, connected by business deals, Morse, Heinze, and Thomas, had gained by certain devious means control over eight New York (including Brooklyn) banks.[64] Heinze was interested in copper. Starting in September, the price of

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[60] Mitchell (1913) p.524.
[61] Mitchell (1913) p. 549.
[62] For a different view, see Noyes (1909).
[63] Money Trust Investigation, pp. 717-740 (testimony of Tobias Wolfson, December 11, 1912), and pp. 1179-1182 (exhibits 110-112).
[64] Mitchell (1913) p. 515.

copper began to decline.[65] The United Metals Selling Company sold five and one-half million pounds of electrolytic copper in September and then unloaded ninety-three million pounds in October. The price of copper and copper shares naturally broke. Heinze had made the grave mistake, presumably in ignorance of what Amalgamated had planned, of trying to bull the copper market and he and his brother's stock brokerage firm went broke on October 16.

Heinze was using (or supposed to be using) funds obtained from Morse for his stock exchange deals, while Morse in his turn had illegally (or so it was said) obtained these funds from the banks that he controlled. In any case, Morse was later tried for such irregularities.[66] The depositors in the Morse banks became alarmed at the situation and the banks were forced to apply to the clearing house for aid. This was granted (on the expulsion of Morse, Heinze, and Thomas) and by October 20 a minor disturbance was thought to be over.

However, the President of the Knickerbocker Trust Company, the third largest trust company in New York, with deposits of over $62 million, was also supposed to have certain (vague) business connections with Morse.[67] On October 21 the National Bank of Commerce refused to clear for the Knickerbocker, an action which under the circumstances could only result in a run on it. One suggestion is that this move was a part of the internecine fight then being waged in New York between national banks and trust companies.[68] It is possible that the National Bank of Commerce may have merely seized a convenient pretext to eliminate a rival, or rather a set of rivals; for the run on the Knickerbocker immediately turned into a stampede of depositors onto all the trust companies and eventually back onto the

[65]The account of this in the review of the month of October in the Commercial and Financial Chronicle's annual review, January 4, 1908, is extremely lucid and interesting.

[66] Noyes (1909b: p.365).

[67] Commercial and Financial Chronicle's annual review, January 4, 1908, suggested that they were partners in certain real estate deals.

[68] See, among others, Sprague (1910: pp. 251-253); Noyes (1909b: pp.366-370); Prussing (1907: pp.462-471).

national banks themselves.[69]

The expected sequence of resort to clearing house loans and then suspension of cash payments followed inevitably.

In due course the panic conditions and the subsequent suspension of cash payments induced a flood of gold into New York from Europe, amounting to over $100 million of gold within two months. Its arrival was too late to stem the panic itself, though it aided substantially in shortening the period of suspension, in restoring the strength of the American banking system, and possibly in making the depression of 1907-1908, though it was extremely acute, one of the shortest on record. On the other hand, the export of such a considerable quantity of gold from Europe was partially responsible for the spread of what was originally a purely local New York panic into an international crisis.

[69] This was not, in fact, the last extraordinary occurrence during the panic in New York. The clearing house committee forced four banks (related in one way or another to Morse), the Oriental, the Mechanics and Traders, the National Bank of North America, and the New Amsterdam National Bank, to suspend at the end of January 1908, although some of them could certainly have been saved. Money Trust Investigation, testimony of R.W. Jones, W. Sherer, W. Frew, and A. Barton Hepburn, especially.

Appendix II: Government intervention:

Government intervention to stimulate, foster and prolong the boom which normally preceded a crisis occurred in most cases, though less so in the USA, with its laisser-faire anti-government traditions, than in other countries. The intervention of the German and Austrian governments in 1873 began with the repayment of government debt, thereby placing large amounts of cash in the hands of individuals in these nations. The resulting boom was fostered by government authorisation of the formation of 1005 companies, capitalised at £300 million, during the five years preceding 1873. In doing so it replaced the partnership/individual ownership form of business enterprise, till then prevalent in Austria-Hungary, with the company structure of enterprise. This resulted in an expansion of the numbers of companies quoted on the exchanges - 91 from Pesth alone. The expansion was aided also by the expansion of currency until 329 million florins circulation was supported only by a reserve of 13.3 millions.

Similar intervention occurred in Argentina, both in obtaining foreign funds and expanding currency beyond all reason. But these actions were compounded in Argentine's case with a series of Government guarantees. A detailed outline of the resulting collapse is contained in Appendix I section [B] (i), while the resulting moratorium is covered in Appendix V.

The Australian boom was fostered by, not one, but several state governments. The normal format was for the individual states to borrow in Britain and make the borrowings available to the banks holding government funds. These extended credit to Australians who drew bills on London to pay for imports. These imports swelled customs revenue enabling the states to finance the extensive public sector building programs of Victoria, Sydney and South Australia. The Bankers Magazine, in 1892, estimated the public debt of Australasia to be £180 million of which it estimated 75% was expended on public works. The resulting works, it found, gave low returns - e.g. 3.73% on the railways in Victoria. Further, the magazine exposes accounting conventions which underestimated government liabilities.[70]

Furthermore, it suggested unpledged collateral was at a minimum, which, it averred, accounted for the failure to float loans by Victoria, as well as the total purchase of the New South Wales January 1892 issue by insurance companies rather than private sources (BM 1892(1): p.222-8). Continuing in the same line of argument the Bankers Magazine enumerates several projects undertaken without security e.g. £150,000 lent to six irrigation trusts without collateral - even though collateral was required by law (BM 1892: p.380). The Gillies-Deakin government of Victoria fuelled the boom further, both in expenditure and in raised expectations, by planning a World's Fair in 1888. The expenditure for initial demonstrations of the project's viability, estimated at £25,000, over-ran budget to cost £278,000 (BM 1892: p.381).[71]

Undoubtedly, part of the misallocation of government funding in Australia occurred due to the inexperience of the ministers, many of whom lacked qualifications (BM 1892: p.382 note). This accounts for conflicting statements between London and Australian sources as to the extent to which loans advanced were to be devoted to productive uses.[72]

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[70] "It is now an open secret that her [Victoria's] Treasurers for a considerable time past have been accustomed to post to the new financial year liabilities connected with interest on loans payable in London, while crediting the old financial year with taxes collected and set apart expressly for the disbursement of that interest." (BM 1892(1): p.225)

[71] Booms are often associated with such spectacles. The stock markets of Vienna expected a substantial boost from the 1873 Viennese exhibition and Chicago's 1890s land speculation centered on areas near the World's Fair of that year. Needless to say, in all cases, the results were vastly disappointing.

[72] Such statements are recorded e.g.:

> "In proof of the unmitigated confusion in which the finances of New South Wales continue to exist, a suggestive incident occurred in connection with the issue of a £4,000,000 Government loan in 1891. In reply to criticisms on the uses to which the loan was to be applied, which appeared in the public prints, Sir Saul Samuel, the Agent-General for the Colony, stated through the London press that every penny of the loan would be spent on reproductive public works. But almost the immediately following mail from Australia brought reports of a speech of Mr. Dibbs,

The kind of expansionary measures undertaken by the Australian state governments, largely through lack of experience, were carried out by the Italian Government prior to 1893 with full knowledge. Motivated by the need to provide employment for agricultural labour migrating to the cities, it exerted every pressure on the banking system to fuel the building boom with the disastrous results outlined in Appendix I [B] (iv) above.[73]

In the USA, although government intervention in the economy, by today's standards, was slight, nevertheless most economists were strongly opposed to such minor interventions as did occur. In the 1907 crisis this had taken the form of shifts of official funds, by the US Treasurer of the day, L.M. Shaw, between the Treasury and the commercial banks.

Thus, in the words of one such economist, A.P. Andrews:[74]

> "Mr. Gage and Mr. Shaw had for the greater part of ten years resisted with all the vast resources of the government treasury the natural tendency of interest rates to follow the rising level of prices. They had, in fact, succeeded in keeping the money rate of interest below the rate which would have been 'normal' or 'natural' with a depreciating currency. They had kept alive a continuously excessive demand for credit by making it available at less than the normal cost. They had sown the wind and their successor was to reap the whirlwind. They had helped to

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> the Treasurer, delivered in the Legislative Assembly of New South Wales, lamenting that £3,500,000 of the total raised of the above loan would be required to meet deficits..." (BM 1892: p.385).

It is left to the imagination what effect this would have on the public's desire to purchase Australian bonds.

[73] Similar attempts to create employment in Australia were initiated but, perhaps because the banks, being many in number and connected to Britain's banking system, found it unprofitable and resisted pressure, few actual attempts were made. For an account of such an attempt see BM 1892 p.382 footnote.

[74] Economists who advocated a different approach were criticised - a prominent example of this being the criticism of Sprague (1911) by Kemmerer (1911b) in his review of that work.

> raise the tower of credit to a tottering height, and now the slightest agitation of any sort was sure to bring collapse." (Andrew 1907: p.228).

The extent of involvement of governments in their economies has varied both pre-1914, (compare Argentina and Italy with the USA), and in Asia (compare Indonesia and Malaysia with Hong Kong and Singapore). What remains the case throughout is that, ex post facto, both disgruntled investors and liberal economists have attacked such involvement as misguided and damaging.

Appendix III: Nineteenth century capital flows:

Capital flows, because they are normally private transfers, are often difficult to measure, so this Appendix dwells on such indications and estimates as can be found.

For Austria the best indication is actually the establishment of enterprises as described by a contemporary historian:

> "There were thus established 175 banks, 604 industrial undertakings, 34 railway companies, 39 insurance companies, 23 mining companies, 8 shipping companies, and 18 hotel companies. In 1866, the total paid up capital of the banks amounted to 190 millions of gulden, at the end of 1872 to 508 millions. In the first 3 months of 1873, 15 new banks were established, with a paid up capital of 72 millions of gulden. The share capital invested in railways nearly doubled in the same time, while the preference shares nearly trebled....In the year 1872 there were established in Prussia alone banks, building societies, mining companies, railway companies...with a capital of £76 million, while in the same year the total issues on the European Stock Exchanges reached the vast figure of £500 million,...following...issues...of over £600 million in 1871, without any estimate of premiums. In Prussia 259 companies were established in 1871, and 504 in 1872, as against 34 in 1870 and 225 since the beginning of the century. Even in the first 6 months of 1873, companies and loans were issued in Europe to the amount of fully £300 million, though the crash was then close at hand." (Hyndman 1893: p.99-105)

The warnings of cautious financiers and financial publications - e.g. the Economist (Review of 1872) were ignored in a wholesale rush to create, finance and enlarge the company form of enterprise in central Europe. Unfortunately, just as there is no precise measure of capital flowing into Austria prior to the crisis, there is little evidence, other than the manifest effects of the downturn, to illustrate its absence post-crisis.[75]

[75] The evidence of Hyndman on company creation is bourne out by that of Bailey (1876), who draws interesting comparisons:

"In this respect it resembled the English crisis of 1866.

Information on the USA is both greater and more reliable.[76] Wilkins (1989) estimates long term foreign investment in the United States rising from $600 million in 1866 to $1,390.5 million in 1869 and approximating $1.5 billion 1872-1874.[77] Of this railroad investment almost quadrupled from $100 million in 1866, to $243 million in 1869, with $390 billion in 1874. While the issues of railway stock were, initially, seldom offered on the London Exchange due to political disputes and distrust, particularly with respect to the post American Civil war status of Canada, by 1872 these difficulties were overcome, issues in London rising from £1 million in 1867, to approximately £14.3 million in 1873 and 1874 (forming 69%-70% of all railroad securities issued in London).[78] Issues of government securities in London also became substantial with federal issues of £40 million and £60 million in 1871 and 1873 respectively (both at £2.375 premium per cent). Investments in land and mortgages were encouraged by the formation of companies, in both the USA and Britain, such as the Oregon and Washington Trust Investment Company, formed 1873, and the Scottish American Mortgage Company, formed 1874 (Wilkins 1989: p.125). In Europe,

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> Between 1867 and May, 1873, concessions were granted for 1,005 companies, with share capital of 4,000 million florins, of which 323, or about one-third, with a share capital of 1,422 million florins, came to nothing, and 682, or about two-thirds, with a share capital of 2,577 millions, actually went into operation. The capital required to commence operations by all the companies was 1,284.1 million florins, and by the companies that actually ent into operation, 850.7 millions. Among these companies were 175 banks, of which 143 were actually set up." (Bailey 1876: p.787).

[76] While more reliable in the sense of the economists making the estimate being clearer and more rigourous, the actual estimates of different economists vary widely. Just how widely is discussed in the footnotes to Wilkin's (1989) Tables 4.1 and 5.4, to which the interested reader is referred.

[77] Wilkins (1989: Tables 4.1, 4.7, 4.8, 4.9, 4.11, 5.4).

[78] The predominance of USA railroad companies in the British market gave rise to several trusts being formed to invest in these issues. One such was the American Investment Trust formed March 1873 as a subsidiary of the Foreign and Colonial Government Trust. Banks also invested heavily, the City of Glasgow Bank placing $5 million in the Western Union Railroad (Wilkins 1989: p.115; 121).

securities quoted on the Amsterdam exchange increased in number fivefold, from 14 to 78, in the ten years 1865-1875, with railways quoted increasing from 7 to 26 in the same period. Dutch investors frequently absorbed large issues such as the $11 million flotation of the First Division of the St. Paul and Pacific Railroad (Wilkins 1989: p.117).

The crisis of 1873 formed a substantial setback for American investment with the best estimates placing the level of investment at $1.5 billion till 1876, with a subsequent decline to $975 by 1878. In general, Wilkins (1989: p.121,138,147) suggests that while investments were switched around, the net amount of investment remained substantially the same 1873-1876, with the newly formed investment trusts profiting from bargains. Presumably the defaulting railroads directed investors away from rail investment towards federal bond investment which retained creditworthiness.[79]

The nominal inflows of funds into Argentina by the end of 1890 are estimated in Rippy (1959: Tables 7, 8, 9 and 10) as £156,978,788, of which government securities comprised £72,000,000 with the residual, £84,978,788 being invested in 62 economic enterprises. Investment in railways comprised £64,617,926 nominal capital, placed in 22 enterprises, while utilities comprised £9,534,655 nominal capital in 13 enterprises and £360,869 nominal capital was held in 4 mining enterprises. Nominal capital in real estate investments, harder to trace, is estimated to consist of £2,852,464 in 11 enterprises. The growth of total nominal investment, approximately £50 million of which railway securities comprised £29 million, in the decade following Barings was small compared to the previous decade (Rippy 1959: p.41, 159-60). The major portion of the expansion between 1890 and 1913 occurred post-1900. Dividends were minimal in 1890.[80] While three-quarters of public utilities and

[79] The BMSR May 1876, estimated that the majority of the $148 million of railway defaults by December 1874 were held in Holland, Germany or France.

[80] "Only nine of the sixty-nine mining companies described in the Stock Exchange Year Book [operating in Latin America] paid dividends on their ordinary shares and only three of the twenty nitrate companies." (Rippy 1959: p.42). Latin America was not a profitable area of investment by this reckoning.

all seven commercial banks owned by British investors in Latin America paid dividends, utilities rarely rendered as much as 6% on nominal amounts invested while banks averaged just under 10% (as opposed to 15 to 20% on nominal offered by British banks). The highest dividend on manufacturing enterprises, 11.5% on nominal, was obtainable from Biechert's Brewery Company of Argentina (Rippy 1959: p.42-44).[81]

Australia possesses quite reliable measures of capital flows in the work of Butlin (1962: Table 250; Table 251) who used both indirect (from balance of payments data), and direct (from records of institutions), methods to estimate British investment. Using indirect measures, the current account balance reached a 19th century maximum of £23.6 million inflow in 1885, fluctuated between £20.3 and £21.1 million 1888 to 1890, declining to an outflow of £2.3 million in 1893, till the period 1895 to 1898 gave four years of rising inflows from £4.1 million to £12.9 million (averaging £7.6 million). [82] Long term

[81] Despite the crisis, as emphasized in Appendix I [B] (i), the profitable oportunities in Argentina never ceased. Rippy provides a good overview of these:

> "Between 1870, the year when the Argentine Central Land Company, Limited was established, and the end of the year 1912, when the last of the large British land companies was founded...British promoters organised some 30 big real-estate enterprises concerned exclusively with Argentina...Espartillar Estancia, organised in 1886, with a paid-up capital of £120,000 in ordinary shares and with never more than $30,000 in [5%] debentures...Las Cabezas Estancia Estancia Company, founded in 1876, recorded an average annual yield of 11.28% during...1882-1949...never skipping a dividend or paying one less than 4.5% (in 1906) [decade 1882-1892 returned a total of 125.25%]...Even more profitable than some of the land companies were the mortgage, loan and trust companies, particularly the four oldest..." (Rippy 1959: p.159-67)

[82] Short term bank obligations are the principle, but not the only, factor offsetting the current account inflows in the formation of long-term capital. Outflows due to these obligations - fluctuating between £5.7 million in 1882 and £0.3 million in 1884 - occurred in every year (except 1887) of the period 1881 to 1893, becoming inflows of capital - with a maximum of £8 milion in 1895 - for the rest of the century.

capital inflows rose from £5.7 million in 1880 to a 19th century maximum of £19.9 million in 1885, declining to approximately £15 million in 1887 and 1888, before increasing to £19.3 million in 1889 - averaging £13.8 million 1880-1889. Consistent decline to an outflow in 1893 of £4.3 million (the only year of outflow 1881-1900) is followed by seven years of inflows fluctuating between £0.8 million and £16.6 million - averaging £7.6 million 1890-1900. Direct estimates of total overseas borrowing follow similar patterns, rising from £5.7 million in 1881, to £22.4 million in 1883, thence declining to £15.2 million in 1887, followed by a sharp rise to approximately £22 million in both 1888 and 1889, with an average of £16.7 million 1880-1889. The decline from £15.6 million in 1890 to an outflow of £1 million in 1893 was rapid, with a period, 1895-1900, of fluctuation between £8.3 million (1895) and £2 million (1896) following - giving an average of £6.3 million 1890-1900.[83]

The capital flows into Italy prior to 1893 consisted largely of loans financing budget deficits which, as outlined in Appendix I, were then used to finance the expansionary monetary policy of the banks. Rozenraad (1895) estimates that the debt in 1888 amounted to 11,000 million lire or £440 million sterling. Disruption to those flows came from three sources:

(a) The general tendency of France and England to contract foreign loans following the Barings crisis.

(b) Several unexpectedly large budget deficits, such as the 1888-89 230 million lire deficit, undermining confidence.

(c) Political influences insofar as Italy became allied with Germany, deserting former alliances with France, which restricted access to French capital markets.[84]

Following the crisis of 1893 the nature of capital flows changed, with tourism and remittances from nationals working abroad funding the financial system directly. The 1907 crisis, primarily one of confidence, did not see any disruption of these.

[83] More detailed discussion of Australian investment is contained in Butlin (1964).

[84] For discussions of the impact of this switch in alliance see Rozenraad (1895; 1897) and Feis (1930; chapter 10).

Wilkins (1989: Tables 5.4, 5.8) provides estimates of the level of long term foreign investments in the US for both the 1890-93 and 1907 crises. The 1890-93 crisis is estimated to have caused a decline in long-term foreign investment from $3,000 million, in 1889, to $2,500 million in 1895. The 1889 level was not reached again till 1897. To place this 16% decline in context, while not suggesting direct, or traceable, relationships exist, consider the declines in investment as measured in Hoffmann (1970: Tables 14, 15, 16, 17). Comparison of the magnitudes of decline may give some "feeling" for the impact of falls in the level of long term foreign investment. New issues of stocks decline by 41% (from $164.5 million to $96.5 million) 1890 to 1891, and by 61% ($93.7 million to $36.6 million) from 1893 to 1894. The fall in new issues on the stock market was greater than the contraction of long term foreign investment. Producer durable output also contracted much more severely with a fall of 23% 1893 to 1894. Building activity declined by 23% 1892 to 1893, but only by 9.2% 1893 to 1894 (but see Appendix IV for house prices). Railroad construction declined by 39% (from 4,584 to 2,789 miles) during 1892 to 1893. These declines, insofar as they might be attributable to the decline in long term foreign investment, suggest some multiplier effects existed for this funding.

The 1907 crisis saw a stagnation over 1907 to 1908 at $6,000 million with somewhat slowed growth in long term foreign investment thereafter.[85] Wilkins (1989: Table 5.8) suggests there was also a redistribution, away from England, in the years 1907-8 with the share of other European nations, especially France, rising 8.5% to 41.83% of the total. The much slower growth in British investment accounted in large part for the slower growth in overall long term foreign investment 1908-14.[86]

The massive impact of adverse capital flows on the well-being of the Asian economies is shown by the above discussion to be typical also of pre-1914 financial crises.

[85] An increase of almost 50% from $3,145 million in 1899 to $6,000 million in 1907 contrasts with the rise to only $7,090 million by 1914 (Wilkins 1989: Table 5.4).

[86] For discussions of the estimates of British international investment see both Dunning (1970) and Edelstein (1982).

Appendix IV: House and Land Prices in the Pre-1914 cycles.

Land and property appear to be the assets most subject to price inflation, bubbles, in the course of the booms preceding private sector financial crises. Unfortunately, due to a total absence of official data, little or no quantitative information has been collected on land prices. The purpose of this appendix is to review such quantitative information as is available. For this reason we focus on crises in two nations where good quantitative information exists.

Land price inflation in Melbourne, Australia, is best documented, thanks to the work of Silberberg (1976). Examining 250 suburban land transaction at prices recorded in the Victorian Office of Titles a price history of 13,000 acres was constructed over the period 1880 to 1890. Augmenting this history using OLS techniques allowed the construction of average annual compound rates of growth over the period (Silberburg 1976; Table 1). The mean average price of land for Melbourne grew from £41 per acre in 1880 by 131%, to £95 per acre during 1880 to 1883. The growth from 1883 to a price of £258 in 1887 was 171% and the subsequent peak in 1889 of £375 represented a 145% growth over two years. The districts of Melbourne exhibited wide variation, the East advancing 241% from £224 per acre to £764 during 1887-9, while the Southeast declined 32.8% from £417 an acre to £280. Examining transactions by type of purchaser, in conjunction with information available on residential construction, Silberburg (1976; Table 3; Table A-1) demonstrates that the land price inflation was based on a residential property construction boom.

The central role of residential property construction in the boom is elaborated in greater detail by Butlin (1964) who estimates that gross residential private capital formation constituted between 4.8% and 6.6% of GDP between 1881 and 1890 (Butlin 1964: Table 9). This was dominated by urban investment, with public facilities remaining primitive prior to WWI and a limited development of private commercial or industrial outlets

(Butlin 1964: p.211-3). Residential investment in Victoria reached its pre-WWI peak of £4,879,000 in 1888, declining to £826,000 in 1893 (Butlin 1964: Table 51).[87] Using, as an example, the records of the Modern Permanent Building Society, Butlin attempts to illustrate that speculative activity peaked two years later. Those purchasing land for speculative activity in 1884 constituted 5% of the new borrowers from the society, by 1888 44%, reaching a peak of 45% in 1890 (Butlin 1964: Table 57).

The Melbourne building boom actually occurred during a slight contraction of the Australian economy leading Butlin to state:

> "...the flood of British capital which, during the 'eighties and particularly in the second half of the decade, was concentrated on and through Melbourne." (Butlin 1964: p.286)

Shann (1930: p.304; 312) elaborates on the financial mechanisms by which this capital flow funded residential property development. The Australian state governments, borrowing in Britain, issued drafts on London through their bankers - the Associated Banks - in Melbourne to importers. These funds swelled customs revenue giving an appearance of sound government, while the local funds given for the drafts on London were recycled through the Associated Banks. These funds were then invested in Building Societies, which offered attractive interest rates (usually 5% for money at call), and financed their speculative lending.[88]

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[87] In New South Wales investment fluctuated from £670,000 in 1879, to $6,130,000 in 1883, £1,323,000 in 1886, £3,405,000 in 1888, declining to £1,116,000 in 1892. Queensland fluctuated less than N.S.W. over the same period, varying from £257,000 in 1879, to £1,583,000 in 1884, ending at £134,000 in 1893. South Australia declined from £962,000 in 1880 to £232,000 in 1886, thence rising to £538,000 in 1892. As can be seen from a comparison of the figures, local conditions played a part in the development of investment patterns. For a discussion of these conditions see Butlin (1964) p.232-244 and p.274-287. An example of how local conditions played a role, is the 1884-5 drought in N.S.W. which brought the land boom then occurring in Sydney to an end (Shann 1930: p.313-4).

[88] Butlin (1964: Table 55) shows the deposits of the Victorian

The United States of America was a participant in all four crises but the nature of its land expansion makes tracing land prices difficult. Most fluctuations would have occurred in the price of agricultural land and would be difficult to compare over time due to an increasing number of facilities made available throughout the expanding nation by the railway network. One official index of one-family owner occupied houses spanning 1890-1934 exists and is presented in Table 10 below (HSUS series N 147-8). It is based on a sample of residential properties covering 22 cities and is biased downward due to use of different age structures of property in each year while being biased in the opposite direction by increased valuation from additions and alterations. In particular, it is not a very precise measure of the price effects of a boom since these can be very localised even within one city as the above discussion of Melbourne shows. Nevertheless, while it shows a rise after 1893, it does show a decline after the 1890 and 1907 crises.

One study, of Chicago, by Hoyt (1933), presents the detail and consistency of price information required. Chicago might possibly be representative of the business conditions throughout America because of its geographical location as the closest point between the St. Laurence River with its Great Lakes and the Mississippi with its natural network of tributaries. These waterways, after the Civil War augmented by an extensive rail network, formed the pathways for goods traded throughout the nation and between the Western United States and Europe. The development of Chicago gives insight only into land booms for the first three crises. The 1907 crisis coincided with depressed land prices in Chicago - a situation of depression which may, or may not, have been general (Hoyt 1933: p. 217-9).

The evolution of Chicago as a railway centre or "hub" shifted trade, as must have happened throughout America, from port facilities to land facilities. The value of lots on Washington Street, Chicago, its new dominant business district, increased

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building societies in the 1885 to 1892 period were often in excess of all other forms of funding combined and that overdrafts did not exceed £500,000 - in contrast to capital of £2.5 - £3.4 million and deposits of £2.4 - £5.2 million.

from $150 to $1,700 per front foot in the nine years prior to 1871 (Hoyt 1933: p. 89). Nor was this price increase orderly:

> "The removal of Marshall Field, the recognised leader of the merchants, from Lake Street to State Street was like a word of command to the smaller business men. The exodus from Lake Street was almost a rout. From 1869 to 1871 from thirty to forty marble-front buildings were erected on State Street. The effect of this shift was registered by the sales of land near the corner of State and Madison streets at $300 a front foot in 1860, $500 a front foot in 1866, and $2,000 a front foot in 1869,..." (Hoyt 1933 p. 90)

A building boom in the fashionable district around Ashland Avenue accompanied this, with prices of attractive lots rising from $50 to $450 a foot (Hoyt 1933: p.94-5). The great fire of 1871 expanded this building boom dramatically:

> "In a year of hectic building in which borrowed money from the East, lavishly supplied, enabled Chicago lot-owners to spend over $40,000,000 for new construction, most of which was in the downtown area alone, the retail and financial interests of Chicago were drawn back to the same locations in which they had established themselves shortly before the fire." (Hoyt 1933 p.102-3)

This suggests that the underlying structure of development was not influenced by the fire - only the speed of development and the replacement of wood dwellings with four to five story brick buildings. Outlying lands rose in price also, with prices per acre in the Stock Yards area progressing from $1,000 (1868), to $4,000 in 1872 (Hoyt 1933: p. 108).

The inflation in land values faltered in early 1873 with a decline in rents, a fall in funds available for purchase and a general decline in business profits. Hopes of an autumn revival were erased by the failure of Jay Cooke and Company in New York. However, deflation did not occur suddenly. The decline was slow, with land values about 20% below peak in early 1874. Further dwindling rents led to a barter situation where buildings were exchanged for farms or other property during 1875. Lack of new development led to lower costs of construction resulting in further declines - on average to 40% below peak values. By 1878 front footage in Ashland Avenue and similar districts had declined to between $8 and $12 (Hoyt 1933:

p.117-25).[89]

The crises of 1890 and 1893 are so intermingled in their causes and effects that they cannot be discerned as involving separate land price movements. Furthermore, Hoyt (1933: p.142-159) suggests that special conditions governed Chigago's development. There was an accelerated growth in Chicago railroads and manufactures. Advances in internal communications and transportation - including the introduction of cable cars - aided land speculation partially driven by expected improvements. The introduction of steel-framed skyscrapers, the extension of the city limits on June 29th 1889 by the annexation of 120 square miles - including several townships - and the competition to win siting of the World's Fair of 1892 also aided land speculation.

Once again the start of the boom was linked to expansion of the railroad system - especially the construction of the Wisconsin Central Railroad near Douglas Park, Chicago, and the development of the Santa Fe Railroad giving it direct access to Chicago. The boom, as it developed in 1889, was intimately connected with the sale of acre land tracts and their speculative purchase for later subdivision. Land that fetched $4,000 an acre in 1881 sold for the inflated value of $32,500 in 1892. Some sites selling for $1,000 an acre in 1886 fetched $15,880 in 1891 (Hoyt 1933: p 193). More generally, land values towards the business centres of Chicago advanced as much as 1,000% with tracts near the site proposed for the World's Fair increasing from $600 to as much as $15,000. The boom peaked in mid 1890, to be followed by the financial stringency of the autumn. The absurd idea that land values could not decline was put to rest by a 300% fall in land near the proposed World's Fair site. By December the real estate market was flat (Hoyt 1933: p. 159-73). When the World's Fair of 1893 failed to bring the business expected the flat market became a totally depressed market with the value of foreclosed land rising from £2.5 million in 1892 to $6.9 million in 1994 (Hoyt 1933: Table VIII).

[89] Hoyt (p.127), basing the suggestion on an article in the Chicago Tribune, but with no further evidence, suggests the fall in land values around the Central Park area of New York was even greater.

The crises in Italy, Austria and Argentina lack the documentation of land values available for Australia and the United States - but undoubtedly saw price movements of similar magnitude.[90]

[90] Scattered - and often imprecise - evidence does exist. For example Bailey (1876: p.789,793) recounts the creation of 33 building companies in Austria, with nominal capitalisation of 260 million florins. Post-crisis, 17 of these companies merged to form one entity with a capital of only 20 million florins. Bailey (1877) records the value of real estate sold in Austria rising from 306.8 million gulden in 1871, to a maximum of 573.7 million gulden in 1873, only to decline to 355.5 million gulden in 1875. The sales in Vienna rose from 51.5 million gulden in 1871, to 211.9 in 1873, before declining to 70.7 in 1875.

Appendix V: The Argentinean Debt Moratorium:

(i) Obligations and initial refusal:

The obligations facing the Argentine Government and its people in 1890 were a diverse set of bonds, cedulas, railway guarantees and interest payments. The external debt stood at £37,971,403 (BM 1893[1]:753).[91] This debt was denominated in gold so that depreciation of the currency could not affect its outstanding value. The security on loans differed between the Morgan Loan of 1886-7, for £7,755,000, secured on general and customs revenues, and all other loans, secured only on general revenues, bank dividends, rail receipts or other unspecified income sources.

Cedulas, or land bonds, were denominated in paper currency, normally payable to the bearer to facilitate transfer and were redeemable by a sinking fund.[92] Issued initially by the two land banks, the Banco Hipotecario de la Provincia de Buenos Aires - founded 1872 - and the Banco Hipotecario Nacional - founded 1886 - these funded loans to landowners. The banks gave the bonds to landowners, or prospective landowners, which the borrower then sold in the stock market. Since the bank gave the borrower, not cash, but a bond, there was an obligation on it to pay the fixed interest of that bond which was divorced from the obligation of the landowner to repay principle and interest of the loan. To give confidence to Cedula purchasers the law of September 24th 1886 establishing the Banco Hipotecario Nacional stated in its fifth article:

> "...the nation guarantees to the bearers the service of interest and amortization of the cedulas emitted by the bank." (Williams 1920; p.76)

The degree to which cedulas were exploited in the 1880s land

[91] As estimated in a memorandum from Baring's Brothers & Co. Limited, of April 18th 1893, circulated to interested parties by Lord Rothschild, Chairman of the Argentine Committee.

[92] The final $20,000,000, designated Gold Cedulas, were issued in a climate of such adverse opinion due to rising gold premiums, that they were linked to gold.

boom resulted in the emission of fantastic amounts - $402,000,000 in paper pesos. Most were purchased abroad for gold.[93]

The guarantees issued to the rail company share and bondholders were in theory, if not in practice, less onerous. Made under laws of 1872 and 1888 these were extended to companies on the understanding that the company would repay in prosperous years the shortfalls incurred in bad years. These laws limited the operating expenses, for purposes of calculating when repayment would occur, to 50% of receipts, with the residue defraying current interest payments first and previous government expenditure under the guarantees next (BM 1893[1]; p.422). Usually consisting of a guarantee of an annual rate of interest of between 6% to 7% on a loan linked to a clearly defined construction cost per kilometre, with the government only responsible for contributing the residue of any shortfall in the rail companies own earnings, guarantees to companies holding concessions to build railways were moderate. What was not moderate was the number of concessions granted. This resulted in a record annual guarantee of $7,513,500 gold being given to the builders of 6,460 kilometres of railway in 1887 and a further annual guarantee of $6,559,175 gold to the concession holders of 1889 for building 4,553 kilometres. It may have been to the advantage of the government that the collapse occurred as swiftly as 1890 since the majority of the rail companies suspended investment, curtailing government guarantees to the actual amounts built.[94]

These then constituted the outstanding obligations of Argentina in 1890. In that year the underwriting of further loans was refused to Argentina unless it complied with several conditions:

- strict limitation on government making any grant.
- no additional loans for 10 years

[93] Williams (1920; p.85) estimates 90% purchased abroad.

[94] The actual payments made by the government under the guarantees were $840,000 in 1887, $838,000 in 1888, $3,738,000 in 1889 and $2,919,000 in 1890. Guarantees were also extended to some shipping lines, sugar refineries and mining projects. They do not appear to be substantial (Williams 1920; p.88 note 2; p.90).

- no more issues of paper money

Negotiations for fresh finance were slow due to the reluctance of the Argentine government to be bound in this degree, and terminated when the finance minister, Senor Uriburo, resigned in June 1890 following criticism of his actions in the banking crisis of April 1890 (see appendix 1 section [B] (i)). The subsequent revolution of July replaced President Celman with the Vice-President Pellegrini and led to the appointment of Dr. Vicente Lopez as finance minister. The crushing weight of foreign debt, supported in the last years of Celman's regime by foreign borrowing left only a debt moratorium as a viable option. However, it was desired by all parties that the deferral of capital and interest payments be disguised as a new loan. Dr. Victorino de la Plaza was appointed to approach the London financiers to arrange this in the form of a loan of £4,000,000 in bonds secured by customs duties.

(ii) The default of Barings Brothers:

Barings Limited were the principle financiers specialising in Argentine loans so negotiations were entered into with them. In the past decade they had underwritten $101,093,800 in gold of Argentine bonds (Williams 1920; p.118). One loan, the Buenos Aires Water Supply and Drainage Loan, underwritten for $21,000,000 in gold had been exceptionally difficult to float and the obligation to meet the underwritten amount lay with Barings. It was their difficulties in floating the first tranche of this loan, underwritten for $7,000,000 that had led to the imposition of the above conditions on future underwriting of Argentine loans. The impossibility of either floating on the market or underwriting the second tranche of this loan, another $7,000,000, would lead to their bankruptcy.[95] Whether Dr. Plaza actually used the outstanding obligation as a threat in negotiations is unclear, but Barings failed.[96] The default of

[95] The difficulties of Barings were compounded by the unexpected withdrawal in June 1890 of £2 million by the Russian Government, who had withdrawn £3 million over the previous ten months decreasing an initial balance of £9.4 million to £2.4 million (Ziegler 1988; p.245-6).

[96] Dr. Lopez described Barings failure as "like a thunderbolt." (Williams 1920; p.118) The description of events in British

the Argentine national government on its commitments was swiftly followed by defaults of the provincial governments. Now the moratorium could no longer be disguised as a loan.

The swift action of the Bank of England in persuading the London Joint Stock Banks that it was in their interest to guarantee Barings offset the crisis in England. Meanwhile, Argentina had to cope as best it could. The 17th November saw the gold premium rise in hours from 216 to 250 and major fighting between the public and the stockbrokers in a riot at the Bolsa (the money market) of Buenos Ayres (BM 1891[1]; p.669). This was swiftly followed by a decree that all import duties be paid in gold (BM 1891[1]; p.461), and, an unprecedented step in Argentina, the dismissal of approximately 2,000 government officials and reduction of government ministers salaries by 20% (BM 1891[1]; p.832).

The initial Baring Guarantee set the maximum period over which the liquidation of Barings could be performed as 3 years from 15th November 1890 (BM 1891 (1); p.79). A new limited liability company was created on 25th November called Baring Brothers and Co Limited. The assets of Barings Brothers original company were, however, unrealisable in 1891 since the Argentine bonds and stock had fallen 60% by July 1891. Lord Rothschild was appointed chairman of an "Argentine Committee" to negotiate with the Argentine government and to liquidate Baring's assets.

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publications often approach a description of attempted financial blackmail (BM 1891 (1); p.464). In a more detailed piece the Banker's Magazine's description is even less flattering:

> "The immediate cause of the crisis was...the Argentine Government, through its representative, Dr. Plaza,...negotiate[d] for a new Argentine loan....he had a handle against Messrs. Baring Bros and Co in the shape of their liability to provide some £6,000,000, or a large share of that sum, for the prosecution of the Buenos Ayres Drainage and Water Works. The negotiations took the form of an offer...to compound for the liability, on condition...a new Argentine Government loan for the purpose of meeting Argentine liabilities in this country." (BM 1890 p.1933-8).

In Argentina attempts to improve finances by imposing further customs duties, reviving an export tax abolished in 1887, proved only a stop-gap measure. Furthermore, an internal "patriotic loan" for $100,000,000 proved a failure in March 1891, only $38,016,700 being taken by Argentine investors (Williams 1920; p.120). The bankruptcy of the state resulted in runs on the banks. First in April 1891 there was a run on the Bank of the Province of Buenos Aires which spread to the Banco Nacional.[97] On April 7th both entered liquidation. A subsequent investigation, reporting in June 1891, revealed widespread corruption. The official decree, The Law of July 18th 1890, forbidding the issue by any bank of notes, saw the final collapse of all the provincial banks and the Banco Nacional. Except for the British Bank of South America all of the foreign banks complied with this law, withdrawing their notes.[98]

(iii) The 1891 Funding Loan:

This formed the context in which Baron Rothchild's committee approached Dr. Plaza soon after the Barings collapse. Even as early as December 1890 there was dissension within this committee as to the proper course to take. German and French representatives advocated an interim loan to cover coupon interest on Argentine debt for 6 months. They felt Argentina would recover by then. When this scheme was rejected they withdrew (Williams 1920; p.125-6). The English bankers than formulated the January 24th 1891 Funding Loan Agreement. This allowed the Argentine government a three year suspension of remissions to Europe except for the 1886-7 5% Public Works Loan of $42,000,000 which, as mentioned above, was secured on customs revenue. It extended $75 million (£15 million) to pay the interest on Government loans and rail guarantees during the

[97] The Banco Nacional was not helped by the publication of its balance sheets which were summarised in the Bankers Magazine:

> "The discounts amount to about 7,000,000 gold dollars and 192,000,000 paper, part of which are, of course, bad debts. The admitted debts figure at 1,685,000 dollars gold and 29,510,000 dollars paper i.e. more than half the capital of the bank. The cash in hand amounts only to 214,000 dollars gold and 12,441,000 paper." (BM April 1891[1] p.664-5)

[98] The British Bank of South America still circulated $250,000 in 1900 (Williams 1920; p.130).

three years, provided in the form of coupons encashable, at gold valuation, in the payment of customs duties to Argentina. Remittances, $14,316,000 in 1890, were decreased substantially in 1891, to $3,461,000, due, for example, to the suspension of rail development. In the event only $38,458,561 of the Funding Loan were issued (Williams 1920; p.126-7; p.127 note 1).

In May 1891 an interim agreement by the Argentine Government to purchase, for £6,325,000 in 5% bonds, the Buenos Aires Water Supply, subject to the contractual agreements with the contractors being fulfilled, removed the difficulty of the flotation of the loan which had caused the Barings bankruptcy. Unfortunately, subsequent difficulties with the contractors caused this to remain a bone of contention until the 1893 agreement forced the Argentine Government to purchase the works outright.

The Funding Loan provided for the cancellation of 15,000,000 paper pesos during each year of the three years, subject to the gold premium exceeding 50%. There are several reasons why the gold premium would not decline within this period. The foremost was the enormous paper debt overhang created by the cedulas, by 1891 mostly held for speculative purposes.[99] Any decline in the premium provoked an inrush of paper offsetting the decline. Secondly, the periodic need of the Government for gold left it open to the manipulations of "rings" on the gold market designed to drive the gold premium higher at crucial periods. Finally, a sound money policy, which would have decreased the premium, was in direct conflict with the interests of the large landowning/farming classes, who, purchasing in pesos, increased their incomes when gold premia rose, since exports were paid for in gold (BM 1899; p.693).

As a desperate effort to curb what was regarded in Argentina as speculation on the Bolsa dealings in gold were suspended from July 4th to October 18th (Williams 1920; p.120). Unfortunately, this prevented nothing and drove the premium in gold to 364% on the reopening of the market. The banks that transacted their business in paper were not forced to close. For example, the

[99] The provincial cedulas, held in Argentina, became worthless since their coupon was never again paid.

Banco Hipotecario Nacional survived using two grants, a payment of $1,063,500 prior to the closure of the Banco Nacional and a special issue of government paper made on October 29th 1891 of 5,000,000 paper pesos. This survival was at a high cost to its debtors, however, 901 properties, on which $25,700,000 had been advanced, being sold for $2,000,000 following foreclosure (Williams 1920; p.121).

(iv) Rejuvenation of the finances:

An initial attempt to create a replacement for the Banco Nacional with the creation of the Banco de la Nacion Argentina proved disastrous since the 6% "Patriotic Internal Loan" of April 1891 which was to fund it, and whose script would be used by individuals to purchase the 500,000 100 peso shares, remained largely unsubscribed by June 1892. This failure, together with the vacuum left by the bank failures, created the pressure which subverted the *Caja de Conversion*, established by the law of October 7th 1890 in an attempt to raise the value of paper money, into an issuing house. Money issued after its establishment was frankly inconvertible, its original obligation to offer conversion to gold only applying when the gold premium was zero. The Banco de la Nacion Argentina was established with the provision of $50,000,000 from the *Caja de Conversion*, and further expanded by 1893 with $35,000,000 in notes and $122,000,000 in government inconvertible paper.

Thus, during the three years when the Argentine government had bound itself to decrease currency in circulation, there was a major increase in paper issued. This was not unobserved abroad and the posture of the Baring Committee, in approaching Argentina with a plan of reconstruction was criticised.[100] Doubts about the initial agreement were further compounded by over optimistic budgets presented by the Committee of the Chambers of Deputies of the Argentine Government (BM 1891; p.727: 1892; p.239: 1893; p.75). The shrinkage in imports, however, did

[100] "Argentina is trying to get her way in the matter of a conference of delegates from European creditors to consider a composition, Dr. Romero being astute enough to assume the position of a recipient of proposals rather than that of a postulant." (Banker 1893; p.435).

commence to give some relief by the end of 1891, the premium on gold declining from an average of 287 in 1891 to 224 in 1893. The change of Government in October 1892, with the accession to the presidency of Dr. M. Saenz Pena did not allay foreign doubts. Dr. Romero, reappointed for a second term of office, approached Barings Brothers directly in 1893 for an extension of the agreement period and a re-writing of the agreement conditions.[101] Basing his arguments on the decline in London markets of the Funding Loan bonds to 63% of their nominal worth, Romero suggested an arrangement, since called the "Arreglo Romero," whereby Argentina would for a time pay partial interest only on outstanding debt.

After much delay and many counter proposals by the English committee, now represented in Argentina by John Baring, attempting to raise the offered payments, the proposal of Dr. Romano was accepted. The English bankers gained by this agreement the resolution of the debt overhang, the final resolution of the problems surrounding the Buenos Ayres waterworks since the Argentine government had to purchase the works outright, and the freedom to dispose of assets remaining from the liquidation of Barings Brothers. Between July 12th 1893 and July 18th 1898, $7,887,000 annual interest was to be paid. The full interest on outstanding debt was to be paid thereafter, with amortisation commencing July 1901 (Williams 1920; p. 128). In fact, a combination of good management and, post-1896, increasing primary product prices, enabled the resumption of full payment from July 1897. The resumption of the gold standard followed in 1900.

[101] Ziegler (1988; p.259) suggests this approach was made as an acknowledgement of the intimate relations of Barings with the Argentine debt problem. However, there were some elements of dissension among the creditors over the priority given to the Morgan 1886-7 loan and there may have been an attempt to manipulate the situation underlying this move.

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TABLES

Table 1 : Average % annual changes in domestic output over selected periods about crisis year.

	Crisis year	Years relative to crisis year	
		-5 to -1	+1 to +5
Austria	1873	15.52	3.89
USA	1873	4.59	-1.79
USA	1890	3.49	1.42
Australia	1890	5.71	-7.01
Australia	1893	-1.33	3.43
Italy	1893	0.09	2.21
USA	1893	3.58	2.51
Italy	1907	3.65	3.91
USA	1907	6.86	5.77
Average % annual changes in rail construction about crisis year.			
Argentina	1890	17.15	9.36

Sources: Estimates of domestic output are based on Komlos (1983) page 137 for Austria-Hungary 1873; Butlin (1962) Table 1 and Table 247 for Australia 1893; Mitchell (1980) for Italy 1893 and 1907; Mitchell (1983)for Argentina 1890; Historical Statistics of the US (hereafter HSUS) for the USA all episodes.

Table 2: Public sector borrowing requirement as a percentage of national output.							
	USA	USA	Australia	Italy	USA	Italy	USA
Crisis year	1873	1890	1893	1893	1893	1907	1907
Year relative to crisis							
-5	0.401	0.596	0.443	-0.894	0.896	-0.437	0.358
-4	0.649	0.860	-0.248	-2.195	0.677	0.012	0.196
-3	1.382	0.862	-0.718	-0.862	0.649	0.069	-0.186
-2	1.207	0.896	-0.671	-0.867	0.199	0.195	-0.092
-1	1.134	0.677	-0.651	-0.690	0.069	-2.547	0.086
0	0.494	0.649	-0.879	-0.817	0.017	-0.606	0.285
1	0.027	0.199	-0.170	-1.886	-0.485	-1.173	-0.207
2	0.163	0.069	-0.059	-0.680	-0.226	-1.379	-0.268
3	0.367	0.017	-0.205	-0.750	-0.106	-0.978	-0.051
4	0.491	-0.485	-0.045	-0.303	-0.124	-1.046	0.030
5	0.255	-0.226	0.194	-0.138	-0.247	-1.473	0.261
Notes: Borrowing requirement is assumed equal to government surplus (+) or deficit (-).							
Sources : For USA Mitchell (1983) all episodes, for Australia 1893 Butlin (1964) Table 73, for Italy 1893 and 1907 Canovai (1911).							

Table 3A : Government expenditure as a percentage of GDP (nominal values)							
Country	Thailand	Malaysia	Indonesia	South Korea	Hong Kong	Singapore	Philippines
Year							
1990	13.95	28.49	18.36	19.97	ERR	19.53	20.04
1991	15.28	27.72	16.53	19.28	8.13	18.46	19.36
1992	17.18	27.40	18.48	19.53	8.64	18.29	19.65
1993	18.71	25.02	16.67	19.79	8.50	15.22	18.47
1994	19.15	23.67	16.19	17.25	8.21	14.44	18.31
1995	19.51	22.44	14.68	21.38	8.85	14.39	17.93
1996	23.58	22.61	14.64	22.71	8.90	15.59	18.26
Sources: International Monetary Fund’s International Financial Statistics (hereafter IMF IFS) on Datastream International.							

Table 3B: Public sector borrowing requirement as a percentage of GDP (nominal values)							
Country	Thailand	Malaysia	Indonesia	South Korea	Hong Kong	Singapore	Philippines
Year							
1990	4.28	-4.77	0.38	-0.70	n/a	10.60	-3.46
1991	5.00	-1.99	0.39	-1.62	4.91	10.09	-2.12
1992	3.13	-0.84	-0.39	-0.49	5.02	11.78	-1.18
1993	2.39	0.21	0.61	0.64	5.73	13.79	-1.48
1994	2.23	2.32	0.94	0.32	5.91	12.06	1.07
1995	3.66	0.85	2.22	0.29	n/a	13.11	0.58
1996	3.07	0.73	1.16	0.45	n/a	14.23	0.28
1997	-0.81	n/a	n/a	n/a	n/a	n/a	0.06
Sources: IMF IFS.							

Table 4: Average changes in growth rates of exports over selected periods about crisis year.

	Crisis year	Years spanned relative to crisis year	
		-5 to -1	+1 to +5
Austria	1873	-0.23	9.30
USA	1873	9.51	6.37
Argentina	1890	13.78	4.21
USA	1890	0.21	-0.47
Australia	1890	2.51	5.52
Australia	1893	7.14	4.30
Italy	1893	-0.61	4.60
USA	1893	5.58	1.28
Italy	1907	6.69	4.56
USA	1907	3.46	4.84

Sources: Butlin (1962) for Australia 1893; Mitchell (1981) for Argentina 1890 and USA all episodes; Mitchell (1983) for Italy 1893 and 1907 and for Austria 1873.

Table 5: Average Trade Account Balance as a Percentage of Income at Current Prices.

(income = GNP or GDP as noted) 5-Year span

	Crisis year	Income measure	Years spanned relative to crisis year	
			-5 to -1	+1 to +5
Austria	1873	Estimated GNP	-14.14	5.84
US	1873	GNP	-1.32	1.22
US	1890	GNP	0.38	0.80
Australia	1890	GDP	-4.94	3.58
Australia	1893	GDP	-2.47	4.57
Italy	1893	GNP	-2.57	-1.02
US	1893	GNP	0.15	0.94
Italy	1907	GNP	-2.21	-5.54
US	1907	GNP	1.88	1.36

Sources: Estimates of domestic output are based on Komlos (1983) page 137 for Austria-Hungary 1873; Butlin (1962) Table 1 and Table 247 for Australia 1893; Mitchell (1980) for Italy 1893 and 1907; Mitchell (1983) for Argentina 1893; HSUS for the USA all episodes.

Table 6 : Capital flows of the Asian nations as a percentage of domestic GDP.

	Thailand	Malaysia	Indonesia	South Korea	Singapore	Philippines
Net private direct investment capital flows						
1991	10.7	11.2	4.6	2.2	1.7	1.6
1992	8.7	15.1	2.5	2.4	-2.7	2.0
1993	8.4	17.4	3.1	1.6	9.4	2.6
1994	8.6	1.5	3.9	3.1	2.5	5.0
1995	12.7	8.8	6.2	3.9	1.3	4.6
1996	9.3	9.6	6.3	4.9	-10.1	9.8
1997	-10.9	4.7	1.6	2.8	-5.5	0.5
Net official flows						
1991	1.1	0.4	1.1	0.1	n/a	3.3
1992	0.1	-0.1	1.1	-0.2	n/a	1.9
1993	0.2	-0.6	0.9	-0.6	n/a	2.3
1994	0.1	0.2	0.1	-0.1	n/a	0.8
1995	0.7	-0.1	-0.2	-0.1	n/a	1.4
1996	0.7	-0.1	-0.7	-0.1	n/a	0.2
1997	4.9	-0.1	1	-0.1	n/a	0.8

Source: IFS statistics of GDP; Proceeding of the 1998 Milken Institute p.72.

Notes: Net capital flows comprise net direct investment, net portfolio investment and other long and short term net investment flows including official and private borrowing.

Minus denotes an outflow.

Table 7: Net gold inflows.

	USA	Argentina		USA	Australia	USA	USA
Crisis year (Value)	1873 ($M)	1890 (M. Pesos)		1890 ($M)	1893 ($M)	1893 ($M)	1907 ($M)
Year relative to crisis			(I+NI)-E[1]		(I+P)-E[2]		
-3	-21.58	-0.13	-33.40	33.21	1.70	-4.33	17.60
-2	-59.80	36.08	8.10	25.56	1.90	-68.13	-38.95
-1	-40.83	-16.68	-58.20	-49.67	2.40	-0.50	57.65
0	-36.17	1.87	-39.10	-4.33	4.00	-87.51	63.11
1	-14.54	7.70	49.70	-68.13	2.50	-4.53	75.90
2	-53.28	4.50	26.50	-0.50	2.70	-30.08	-47.53
3	-23.18	4.00	2.00	-87.51	1.90	-78.88	-75.22
Average over 5 years							
pre-crisis	-40.74	6.42	-27.83	3.33	2.00	-24.32	12.10
post-crisis	-30.33	5.40	26.07	-52.05	2.37	-37.83	-15.62

Notes: 1. (I+NI)-E denotes the imports of gold plus the imports of merchandise paid for in gold minus the exports of merchandise paid for in gold and may be a better measure for Argentina than the Net Gold Imports which are also given.

2. (I+P)-E denotes the imports of gold plus domestic production minus the exports of gold and may be a better measure for Australia, a major gold producer, than net gold flows which would be biased by exports.

Sources: Butlin (1962) Tables 247 and 248 for Australia 1893; Ford (1962) Table XXV for Argentina 1890; Statistical Yearbook of the US for USA all episodes.

Table 8: Changes in money supply over selected periods about crisis year.

	Crisis year	Years spanned relative to crisis year	
		-5 to -1	+1 to +5
Austria	1873	5.25	-3.92
USA	1873	-2.30	1.81
Argentina	1890	29.00	3.78
USA	1890	2.24	1.56
Australia	1890	1.89	-1.23
Australia	1893	0.48	0.98
Italy	1893	0.14	1.43
USA	1893	1.48	1.75
Italy	1907	4.99	3.48
USA	1907	4.37	3.27

Sources: Butlin (1951) for Australia 1893; Komlos (1983) for Austria 1873; Mitchell (1981) for Italy 1893 and 1907; Mitchell (1983) for Argentina 1890 and the USA all episodes.

Table 9A: Short run interest rate differentials (end year data) for 19th century crises.

Year	1873			1890			1893				1907		
	UK	Differential		UK	Differential		UK	Differential			UK	Differential	
		Austria	USA		Australia	USA		Australia	Italy	USA		Italy	USA
-5	2.88	1.13	5.63	5.00	1.00	-4.00	5.00	2.00	n/a	3.00	4.00	0.50	2.00
-4	2.50	2.50	n/a	5.00	2.00	-2.00	5.00	2.00	n/a	0.00	4.00	0.00	0.00
-3	2.38	3.13	n/a	4.00	2.00	-2.00	5.00	2.50	n/a	-2.00	3.00	0.38	-0.50
-2	3.00	3.50	2.00	5.00	2.00	3.00	3.50	4.00	n/a	-1.00	4.00	1.00	1.00
-1	5.00	1.00	n/a	5.00	2.00	0.00	3.00	4.50	0.50	0.00	6.00	-1.00	-2.00
0	4.50	0.50	n/a	5.00	2.50	-2.00	3.00	4.50	3.00	-2.00	7.00	-1.50	-3.00
1	6.00	-1.50	-2.50	3.50	4.00	-1.00	2.00	4.00	2.00	-1.00	2.50	1.25	0.00
2	3.00	1.75	0.00	3.00	4.50	0.00	2.00	3.00	1.50	0.00	4.50	-0.25	-0.50
3	2.00	2.00	1.00	3.00	4.50	-2.00	4.00	1.00	0.00	-2.50	4.50	0.50	0.00
4	4.00	-0.125	1.00	2.00	4.00	-1.00	5.00	0.00	-2.00	-3.00	4.00	1.50	-0.25
5	5.00	-0.75	-2.00	2.00	3.00	0.00	4.00	1.00	-0.50	-2.50	5.00	0.75	-0.50

Notes: Data is the end of year quotations.

Sources: For all items except US 1873 the open market rate discount quotations current in the chief continental cities contained in the 'Discount and Loan Market' subsection of the 'Bankers Gazette' section of The Economist (which usually followed the Correspondence section and preceding detailed market reports) were used. The section contains both a 'call money' and a 'endorsed bills' quotation, the 'call money' quotation being used here. US 1873 was drawn from McCartney's (1935) table of rates on prime commercial paper in New York (p.82).

Table 9B: Long term interest rates differentials with London (year end data) for 19th century crises.

	1873			1890				1893				1907		
Year	UK	Differential		UK	Differential			UK	Differential			UK	Differential	
		Austria	USA		Australia	Argentina	USA		Australia	Italy	USA		Italy	USA
-5	3.25	5.63	3.58	2.85	1.98	5.35	1.24	2.66	2.29	2.31	1.64	2.71	1.86	0.72
-4	3.26	6.03	2.93	2.84	2.06	4.67	1.24	2.67	2.30	2.35	1.60	2.85	1.66	0.63
-3	3.27	n/a	2.68	2.67	2.25	3.55	1.57	2.71	2.17	1.90	1.61	2.85	1.68	0.64
-2	3.24	n/a	2.41	2.66	2.29	3.33	1.64	2.71	2.43	2.45	1.60	2.83	1.72	0.70
-1	3.27	4.63	2.69	2.67	2.30	3.75	1.60	2.63	2.51	2.45	1.85	2.93	1.69	0.66
0	3.26	4.62	2.06	2.71	2.17	7.42	1.61	2.61	2.54	2.54	1.49	3.04	1.58	0.33
1	3.27	4.39	1.71	2.71	2.43	19.26	1.60	2.48	2.18	2.04	0.96	3.01	1.55	0.24
2	3.20	4.66	1.65	2.63	2.51	17.53	1.85	2.39	1.57	2.35	0.87	3.04	1.53	0.28
3	3.19	6.65	1.66	2.61	2.57	n/a	1.47	2.30	2.76	2.87	2.10	3.18	1.44	0.23
4	3.17	6.10	1.58	2.48	2.18	4.70	0.96	2.25	2.82	2.80	2.00	3.27	1.38	0.16
5	3.17	6.09	1.55	2.39	1.57	3.78	0.87	2.29	2.90	2.71	1.69	3.36	1.37	0.13

Notes: Data is the end of year constructed estimates.

Sources: The UK Consol Yield is derived from Klovland (1994). All other yields are derived from averaging selected government stocks' yields obtained from the Investors Monthly Manual December issues.

Table 10: US equity price indices and house price indices for 19th century crises.

	Stock Market Prices base = 1926				One family houses base = 1929		
	1873	1890	1893	1907	1890	1893	1907
-5	n/a	37.00	41.90	67.70	n/a	n/a	63.90
-4	n/a	43.20	42.80	58.10	n/a	n/a	64.90
-3	n/a	44.50	42.40	56.70	n/a	61.30	67.90
-2	37.80	41.90	40.50	72.30	n/a	55.30	59.50
-1	40.50	42.80	44.70	77.60	n/a	56.30	70.60
0	38.60	42.40	38.40	63.10	61.30	58.70	77.90
1	36.80	40.50	35.30	62.60	55.30	68.40	70.30
2	35.80	44.70	36.40	78.20	56.30	62.10	68.70
3	32.70	38.40	34.10	75.20	58.70	53.80	74.20
4	25.20	35.30	35.80	74.30	68.40	55.50	72.50
5	27.20	36.40	40.70	76.70	62.10	59.10	75.30

Sources: Cowells Commission (1938) p.66-7; HSUS Series N147-149.

Table 11: Asian Property values post-crisis						
	Thailand	Malaysia	Singapore	Indonesia	Philippines	HK
Office capital valuations - year-on-year movements to June 1998 (%).						
Local Currency	-37.2	-19.1	-22.5	n/a	-10.9	-46.4
US$	-60.5	-52.1	-35.2	-49.3	-41.1	-46.4
Retail capital valuations - year-on-year movement to June 1998 (%).						
Local Currency	-42.9	-12.5	-11	n/a	n/a	-45.8
US$	-64.1	-48.2	-25.7	-92.7	n/a	-45.8
Residential capital valuations - year-on-year movement to March 1998 (%).						
Local Currency	-18.1	-5	-11	n/a	-17	-19.9
US$	-42.8	-36.4	-20.4	-47.3	-28.1	-19.9
Office rental movements - year-on-year movements to June 1998 (%)						
Local Currency	-26.3	-22	-15.9	n/a	-2.3	-16.7
US$	-53.6	-53.8	-29.8	-74.3	-35.4	-16.7
Retail rental movements - year-on-year movements to June 1998 (%).						
Local Currency	-46.4	-14.1	-16.5	n/a	n/a	-34.8
US$	-66.2	-49.1	-30.3	-85.3	n/a	-34.8
Residential rental movements - year-on-year movements to March 1998 (%).						
Local Currency	-12.3	-10	-6.3	n/a	10	-7.5
US$	-38.7	-39.8	-16.2	-19.3	-19.6	-7.4
Office vacancy rates (%).						
June 1997	19.8	1.6	7.5	11.2	0.6	5.4

Table 12: Reserves as Percentage of the Money Stock Prior to and Post Crisis Year.

	US	US	Australia	Italy	US	Italy	US
Crisis year	1873	1890	1893	1893	1893	1907	1907
Year relative to crisis							
-1	15.161	14.084	17.824	1.346	13.423	1.648	9.591
0	14.242	12.231	21.990	1.231	12.631	1.988	9.625
1	17.274	12.739	24.623	1.309	16.241	2.009	12.137
2	15.162	13.423	25.699	1.154	13.871	1.992	11.578

Notes: Reserve amounts are not available for Argentina or Austria; Australian statistics must be viewed with caution since deposits and cash balances could be held in Britain and might not be available for local use at short notice.

Sources : Friedman & Schwartz (1963) Appendices A and B for the USA; Fratianni & Spinelli (1997) Data Appendix for Italy 1893 and 1907; Butlin (1971) Table 1 for Australia 1893.

Table 13: High Powered Money as a Percentage of Domestic Output.

	US	US	Australia	Italy	US	Italy	US
	1873	1890	1893	1893	1893	1907	1907
Year relative to crisis							
-1	9.178	10.162	12.492	25.556	10.692	23.338	9.157
0	8.908	10.427	14.686	25.596	10.971	23.224	9.260
1	9.379	10.615	15.828	26.479	12.452	24.136	11.123
2	9.526	10.692	17.606	25.037	10.806	22.714	9.410

Notes: Austria and Argentina have no reliable estimates of domestic output; Australian statistics must be viewed with caution since deposits and cash balances could be held in Britain and might not be available for local use at short notice. Italian data also includes postal deposits of the public.

Sources: Friedman & Schwartz (1963) Appendices A and B for the USA; Fratianni & Spinelli (1997) Data Appendix for Italy 1893 and 1907; Butlin (1962) Table 1. Butlin (1971) Table 1 for Australia 1893.

Table 14A: Short term interest rates during crisis year (monthly data) for 19th century crises.

Year	1873			1890		1893				1907		
Country												
month	UK	Austria	USA	UK	USA	UK	Australia	Italy	USA	UK	Italy	USA
1	4	6	9.4	6	3	2.5	7.5	5.5	2	5	4.75	2.5
2	3.5	6	9.2	5	3	2.5	7	5.5	3	5	4	3
3	4	5	10.1	4	3	2.5	7	5.5	2.5	5	4	2.5
4	4	5	10.8	3	6	2.5	7	5.5	4	4	3.75	3
5	6	5	8.2	3	5	4	7	5.5	3	4	3.75	2
6	6	6	6.8	4	5	2.5	7.5	5.5	6	4	4.5	6
7	3.5	5	6.5	5	3	2.5	7.5	5.5	6	4	4.75	2
8	3	4.5	7.2	4	4	5	7.5	5.5	3	4.5	4.875	2.25
9	4	5	12.5	5	4.5	3.5	7.5	5.5	2.5	4.5	5	2.5
10	7	5	17.0	5	3	3	7.5	5.5	2	5.5	5	5
11	6	5	13.9	6	3	3	8	6	1.5	7	5.5	3
12	4.5	5	10.2	5	3	3	8	6	1	7	5.5	8

Notes: Data for the USA is the highest interest rate applicable in a particular month. Data for Austria, Australia and Italy is end of month quotations. Months particularly associated with crisis denoted by heavy borders.

Sources: For all items except US 1873 the open market rate discount quotations current in the chief continental cities contained in the 'Discount and Loan Market' subsection of the 'Bankers Gazette' section of The Economist (which usually followed the Correspondence section and preceding detailed market reports) were used. The section contains both a 'call money' and a 'endorsed bills' quotation, the 'call money' quotation being used here. US 1873 was drawn from McCartney's (1935) table of rates on prime commercial paper in New York (p.82).

Table 14B: Short term interest rates during post-crisis year (monthly data) for 19th century crises.

Year / Country / month	1874			1891		1894				1908		
	UK	Austria	USA	UK	USA	UK	Australia	Italy	USA	UK	Italy	USA
1	3.5	5.0	7.4	3.5	2.5	2.5	8.0	6.0	1.0	4.0	4.75	2.0
2	3.5	5.0	6.0	3.0	2.5	2.0	7.0	5.0	1.0	4.0	4.0	1.75
3	3.5	5.0	6.2	3.0	3.0	2.0	6.5	6.0	1.5	3.0	4.0	1.75
4	4.0	5.0	6.3	3.5	3.0	2.0	6.5	4.0	1.0	3.0	3.875	1.75
5	3.5	5.0	5.6	5.0	3.0	2.0	6.5	4.0	1.0	2.5	3.625	1.75
6	2.5	5.0	5.7	3.0	2.5	2.0	6.5	5.5	1.0	2.5	3.75	1.5
7	2.5	5.0	5.9	2.5	2.0	2.0	6.5	4.0	1.0	2.5	3.5	1.25
8	3.5	5.0	5.5	2.5	2.5	2.0	6.5	3.25	1.0	2.5	3.25	1.25
9	3.0	5.0	6.3	3.0	8.0	2.0	6.0	3.5	1.0	2.5	3.5	1.5
10	4.0	4.5	5.8	3.0	3.0	2.0	6.0	4.0	1.0	2.5	3.75	1.3
11	5.0	4.5	5.6	4.0	3.0	2.0	6.0	3.75	1.0	2.5	3.625	1.75
12	6.5	4.5	6.0	3.5	3.0	2.0	6.0	4.0	1.5	2.5	3.75	3.0

Notes: Data for the US is the highest interest rate applicable in a particular month. Data for Austria, Australia and Italy is end of month quotations.

Sources: For all items except US 1873 the open market rate discount quotations current in the chief continental cities contained in the 'Discount and Loan Market' subsection of the 'Bankers Gazette' section of The Economist (which usually followed the Correspondence section and preceding detailed market reports) were used. The section contains both a 'call money' and a 'endorsed bills' quotation, the 'call money' quotation being used here. US 1873 was drawn from McCartney's (1935) table of rates on prime commercial paper in New York (p.82).

Table 15: Money supply and inflation rates post 1997 crisis.							
	Thailand	Malaysia	Indonesia	South Korea	Hong Kong	Singapore	Philippines
Money Supply							
September 1995 value	2,767.9	126,948	158,310	108,398	1,625.85	73,822	679.87
Latest data available on	June 1998	August 1998	August 1998	June 1998	June 1998	June 1998	June 1998
Percentage increase since 1995	48.88	67.92	177.88	75.67	33.56	40.65	83.40
Percentage growth over latest year	15.70	11.68	67.14	25.68	7.16	14.29	22.29
Consumer Price Index (base year 1990 equals 100)							
September 1995 value	127.90	124.00	154.7	136.00	101.1	113.6	167.6
Latest data available on	June 1998	August 1998	September 1998	September 1998	September 1998	June 1998	September 1998
Current value	153.00	138.8	324.5	159.6	116.4	116.9	206.80
Percentage increase since 1995	19.62	11.93	109.76	17.35	15.3	2.90	23.40
Percentage growth over latest year	10.31	5.63	82.30	6.90	2.37	0.0	9.24
Notes: Quantities of money in local currency. Thailand, Indonesia, Korea, Hong Kong, Philippines measured in Billions. Singapore and Malaysia measured in millions.							
Sources: Quasi-money supply and Consumer prices in IMF IFS.							

Table 16: Monthly gold flows.

	Australia (M£)			USA ($M)							
	1891	1892	1893	1890	1891	1892	1893	1894	1906	1907	1908
January	0.312	-0.116	0.171	-0.6	-0.6	-0.3	12.2	0.6	3.2	-.8	-10.4
February	0.250	-0.054	0.394	-0.3	3.4	3.7	13.0	1.1	6.4	-2.2	-10.8
March	-0.053	-0.037	0.253	-0.2	4.5	3.2	1.5	2.9	.3	-2.9	-2.2
April	0.170	0.341	0.670	0.6	13.9	7.0	18.3	9.4	-12.5	-2.8	11.9
May	0.683	0.625	0.227	0.0	30.4	3.3	15.2	23.1	-29.2	1.8	23.5
June	0.341	0.238	-0.889	3.3	15.5	16.6	1.7	22.4	.9	21.7	5.2
July	0.283	0.259	1.087	10.7	5.6	10.2	-5.8	12.8	-8.5	4.1	1.9
August	0.527	0.412	0.775	0.4	-1.2	5.7	-40.6	1.8	-7.4	1.4	2.3
September	0.229	0.215	0.903	-1.1	-7.1	2.3	-5.2	-0.5	-29.2	-1.3	-.8
October	0.213	0.796	-0.380	-2.2	-16.1	-2.6	-1.1	-0.6	-20.2	-.8	-1.8
November	0.468	0.129	0.111	-1.4	-8.5	-1.4	-4.1	-1.6	-7.0	-63.0	0.0
December	0.269	0.113	-0.035	-1.4	-5.8	11.3	1.9	9.6	-5.7	-43.4	2.2
Domestic Production	5.300	5.900	6.200	32.8	33.2	33.0	36.0	40.0	94.4	90.4	94.6

Notes: Gold Inflows - , Outflows + ; Australian figures indicative only (see text).

Sources: Butlin (1962) Table 247; AIBR 1890-94 monthly tables of gold exported and imported from Melbourne with occasional tables of gold imports and exports from Sydney; The Financial and Commercial Chronicle 1890-1894 and 1907-1909 monthly tables of gold imported and exported. Statistical Abstract of the US 1911 Tables 118 and 119.

Table 17A: Gold premia and/or year end exchange rates with £ sterling around pre-1914 crises.

Crisis year	Austria 1873 Exchange rate	USA 1873 Gold premia (December)	Argentina 1890 Gold premia (Average)	USA 1890 Exchange Rate	Australia 1893 Exchange rate	Italy 1893 Exchange rate	USA 1893 Exchange Rate	Italy 1907 Exchange rate	USA 1907 Exchange Rate
-6	n/a	n/a	100	4.855	1.00376	n/a	4.870	25.550	4.875
-5	12.250	36.750	137.00	4.895	1.00251	n/a	4.895	25.165	4.875
-4	12.650	24.000	139.00	4.855	1.00503	n/a	4.840	25.125	4.855
-3	11.950	11.375	135.00	4.870	1.00503	n/a	4.845	25.130	4.880
-2	11.950	10.375	148.00	4.895	1.00629	n/a	4.856	25.070	4.870
-1	11.375	13.500	191.00	4.840	1.00376	25.16	4.880	25.230	4.840
0	11.675	10.250	251.00	4.845	1.00376	28.30	4.875	25.225	4.870
0 high	11.850	19.125	320.00	4.900	1.03093	29.15	4.905	25.335	4.885
0 low	11.200	6.125	118.00	4.840	1.00251	25.15	4.830	25.060	4.845
1	11.375	11.750	387.00	4.856	1.00376	26.83	4.895	25.17(25.19)	4.880
2	11.600	12.625	332.00	4.880	1.00376	27.07	4.910	25.370	4.885
3	12.825	7.000	324.00	4.875	1.00503	26.43	4.880	25.350	4.865
4	12.325	2.500	357.00	4.895	1.00125	26.44	4.860	25.355	4.870
5	12.250	n/a	344.00	4.910	1.00376	27.26	4.855	25.315	4.850
6	11.925	n/a	296.00	4.880	1.01266	27.22	4.885	25.435	4.854

Notes:Data for Austria, Australia and Italy are end-year quotations; Data for Argentina yearly averages; data for the US gold premia are the highest observation of December; data for US exchange rate quotations are last quotation of December.

Sources: Exchange rate quotations are from the weekly table 'Foreign rates of exchange on London' in the 'Discount and Loan Market' subsection of the 'Bankers Gazette' section of The Economist (which usually followed the Correspondence section and preceding detailed market reports) for Austria and Italy; Butlin (1971) Table 52 for Australia; Williams (1920) for Argentine gold premia; the American BMSA monthly table of daily rates for gold premia in the US before 1878; the New York Financial and Commercial Chronicle 'Quotations of sterling exchange for every day of the year' (a table included yearly in the January issues) for US exchange rate quotations after 1878.

Table 17B: Gold premia and/or year end exchange rates with £ sterling during crisis year: pre-1914 crises.

Month	Austria 1873 Exchange rate	USA 1873 Gold premia	Argentina 1890 Gold premia	USA 1890 Exchange Rate (sight)	Australia 1893 Exchange rate	Italy 1893 Exchange rate	USA 1893 Exchange Rate (sight)	Italy 1907 Exchange rate	USA 1907 Exchange Rate (sight)
January	11.175	14.25 - 11.625	n/a	4.885	1.0038	25.15	4.89	25.235	4.885
February	11.175	15.125 - 12.875	n/a	4.885	1.0025	25.20	4.895	25.290	4.885
March	11.175	18.125 - 14.625	260	4.88	1.0025	26.23	4.89	25.320	4.88
April	11.175	19.125 - 16.75	n/a	4.88	1.0050	26.23	4.905	25.240	4.88
May	11.450	18.625 - 16.625	n/a	4.875	1.0309	26.52	4.905	25.205	4.875
June	11.450	18.25 - 15.00	148	4.885	1.0204	26.345	4.905	25.120	4.885
July	11.425	16.375 - 15.00	211	4.895	1.0101	27.21	4.84	25.135	4.895
August	11.350	16.25 - 14.375	165	4.90	1.0075	28.20	4.895	25.140	4.90
September	11.675	16.125 - 10.875	n/a	4.865	1.0063	28.51	4.89	25.095	4.865
October	11.650	11.25 - 7.625	n/a	4.88	1.0063	28.65	4.875	25.500	4.88
November	11.850	10.5 - 6.125	250	4.885	1.0075	29.06	4.875	25.238	4.885
December	11.625	12.625 - 8.625	320	4.88	1.0038	28.30	4.835	25.200	4.88

Notes: Data for Austria, Australia and Italy are end-month quotations; Data for Argentina are observed quotations within the month; data for the US gold premia are the highest and lowest observations of the month; data for US exchange rate quotations are highest quotation of the month.

Sources: Exchange rate quotations are from the weekly table 'Foreign rates of exchange on London' in the 'Discount and Loan Market' subsection of the 'Bankers Gazette' section of The Economist (which usually followed the Correspondence section and preceding detailed market reports) for Austria and Italy; Butlin (1971) Table 52 for Australia; BM 1890 pages 1288-92, 1496-98, 1891 page 669 for Argentine gold premia; the American Bankers Magazine and Statistical Abstract monthly table of daily rates for gold premia in the US before 1878; the New York Financial and Commercial Chronicle 'Quotations of sterling exchange for every day of the year' (a table included yearly in the January issues) for US exchange rate quotations after 1878.

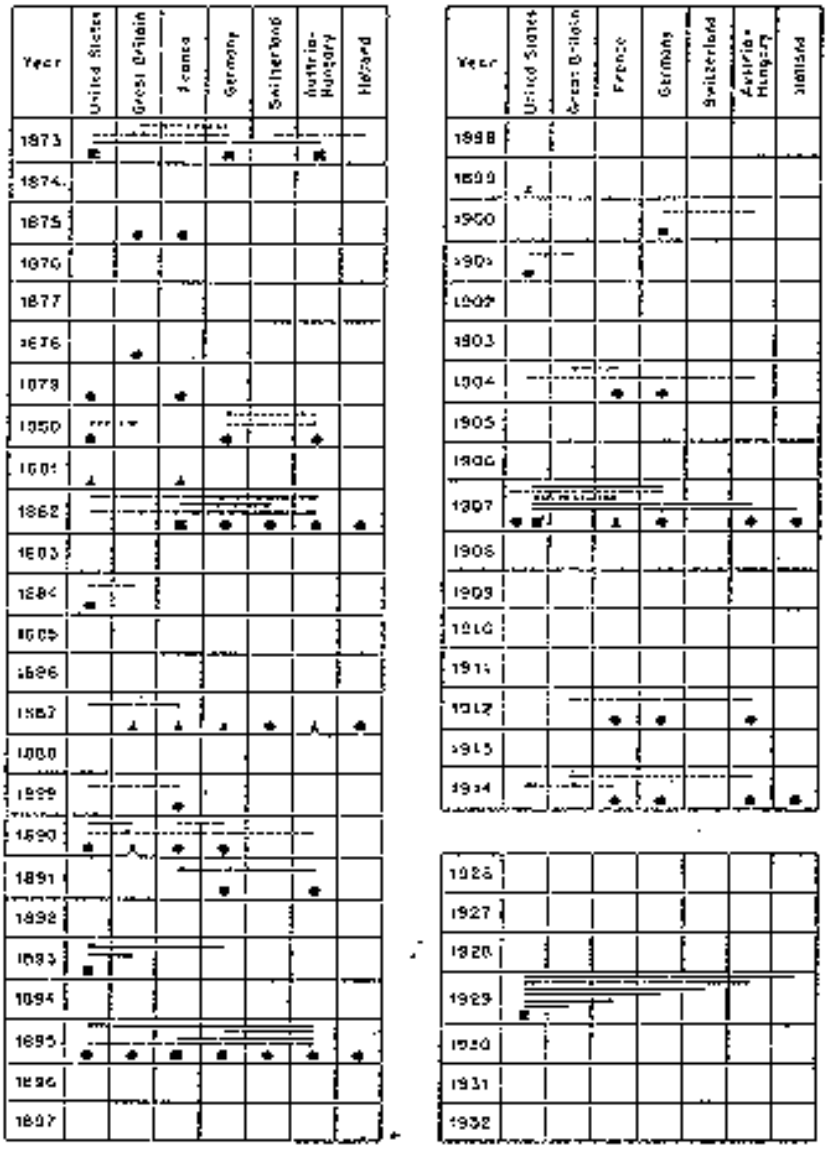
Table 18: Bank of America projections of percentage changes key economic variables for the Asian nations								
Country	GDP			Inflation			Current account (as % of GDP)	
	1997	1998	1999	1997	1998	1999	1997	1998
Thailand	-0.4	-7.0	1.5	5.6	8.0	7.0	-2.0	10.0
Malaysia	7.8	-2.0	2.0	2.7	5.5	5.0	-1.8	-1.1
Indonesia	4.9	-15.0	0.0	6.2	65.0	20.0	-2.4	1.0
Korea	5.5	-5.0	2.0	4.4	7.0	5.5	-2.9	12.0
Hong Kong	5.3	-4.0	2.0	5.7	3.5	4.5	-3.8	0.5
Singapore	7.8	0.5	2.5	2.0	0.0	1.5	15.0	12.0
Philippines	5.2	1.5	2.5	5.0	9.5	5.5	-6.6	-1.5
Sources: Bank of America Asian Financial Outlook October 1998.								

Table 19:

International Stock Exchange Panics, 1873–1932

■ First magnitude panic
● Second magnitude panic
▲ Third magnitude panic

—— Strong influence
------ Weaker influence



Source: Morgenstern (1959) Chart 72.

Table 20: Estimates of Recovery.						
	USA 1873	Austria 1873	Argentina 1890	USA 1890/93	Australia 1890/93	Italy 1893
Date of Recovery	1879	1880	1896	1897	1904	1897
Number of Years following crisis	6	7	6	7/4	14/9	4
Notes: Recovery estimates for the USA are based on GDP, for Italy on GNP and for Austria, Argentina and Australia on trade statistics.						