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Conventional and Insidious Macroeconomic Balance-Sheet Crises

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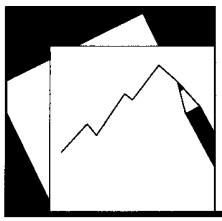

IMF Working Paper

Conventional and Insidious Macroeconomic Balance-Sheet Crises

Bas B. Bakker and Leslie Lipschitz

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Conventional and Insidious Macroeconomic Balance-Sheet Crises

Prepared by Bas B. Bakker and Leslie Lipschitz[1]

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Abstract

This paper describes the anatomy of two types of balance-sheet macroeconomic crises. Conventional balance-sheet crises are triggered by external imbalances and balance sheet vulnerabilities. They typically occur after capital inflows have led to a substantial build up of foreign currency exposure. Insidious crises are triggered by internal imbalances and balance sheet vulnerabilities. They occur in high-growth economies when an initially equilibrating shift in relative prices and resources and credit in favor of the nontraded sector overshoots equilibrium. The paper argues that policymakers are now better able to forestall conventional crises, but they are much less capable of early detection and avoidance of insidious crises.

JEL Classification Numbers: E2, E3, F2, F3,F4, F6

Keywords: crises, balance sheets, business cycles, capital flows

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EXECUTIVE SUMMARY

Until the 1990s balance-of-payments crises in emerging market economies (EMEs) were usually flow crises. They were characterized by current account deficits—usually induced by money-financed fiscal imbalances—and were precipitated by a sudden shift in assessments of sustainability when economic agents realized that the government's exchange rate policy was fundamentally inconsistent with fiscal and balance-of-payments flows.

Since the mid-1990s, however, crises originating in balance sheet vulnerabilities have been the center of attention, and this paper focuses on these crises and makes a distinction between *Conventional* and *Insidious balance-sheet crises.*

Conventional crises are triggered by external imbalances and balance sheet vulnerabilities. They typically occur after capital inflows have led to a substantial build up of foreign currency exposure that leaves domestic balance sheets highly vulnerable to shifts in risk premiums. When the risk premium jumps the authorities face a choice of (a) a depreciation to the point where an expected appreciation reflects the higher premium, (b) higher interest rates (to reflect the increased premium), or (c) some combination of the two. Option (a) is most directly detrimental to the balance sheets of the FX borrowers, but the other options may not succeed in staving off the balance-sheet distress that spreads to the banking system and then, almost inevitably, to the financial position of the government. The anatomy of conventional balance-sheet crises is discussed and illustrated with data from Thailand in the 1990s and Latvia between 2002 and 2011. It is argued that these crises are now well understood, and that governments and central banks have better instruments and buffers to avoid them.

Insidious crises, which are triggered by internal imbalances and balance sheet vulnerabilities, are more difficult to detect. They occur in high-growth economies when an initially equilibrating shift in relative prices and resources and credit in favor of the nontraded sector overshoots equilibrium. When the shift in relative prices is built into expectations and investment decisions it can lead to highly leveraged asset price booms and bubbles—usually in domestic real estate, the ultimate nontraded asset. Determining when an equilibrating relative price change is overshooting is extremely difficult. Bubbles are notoriously observable only after they have burst. And policy action to forestall this sort of crisis may be stymied by pressure to maintain growth when exports are no longer the principal driver, by the still strong external position and reserve buffer, and by relatively contained conventional price indices. *Insidious crises* are illustrated with data from Japan in the 1980s and 1990s and Ireland in the 2000s. Successful EMEs where the likelihood of a conventional crisis seems a rather remote contingency may not be immune to insidious crises. Data from China is used to make the case for a more subtle appreciation of potential vulnerabilities.

I. INTRODUCTION

When Michel Camdessus, then Managing Director of the IMF, referred in the mid-1990s to the new crises of the 21st century, he was referring to capital-account crises originating in asset markets and banking systems. By the mid-1990s, globally-integrated capital markets were forcing IMF economists to look at sets of interrelated balance sheets, with linkages between the domestic economy and external investors, and to assess the vulnerabilities in these accounts to shifts in risk premiums and asset allocation. These concerns were different from those modelled in the early generation currency crises models which began with current account imbalances—usually induced by money-financed government deficits—and were precipitated by a sudden shift in assessments of sustainability when economic agents realized that the government's exchange rate policy was fundamentally inconsistent with fiscal and balance-of-payments flows.[2]

The waves of subsequent crises have led to a much better understanding of the mechanics of cases where exposure to external financing is at the heart of the matter–what we would term *Conventional Capital Account/Balance-Sheet Crises*. These have usually entailed initial interest rate differentials between the crisis country and advanced capital markets, and substantial external borrowing to capitalize on the negative carry (or, from the other perspective, lending by foreigners for the positive carry). The capital inflow has usually led to a boom in domestic asset prices—chiefly real estate—occasioned by the (perception of) lower interest costs, a shift of resources out of traded goods into real estate and construction, a consequent current account deficit, and growing dependence on foreign capital. These developments have resulted in domestic balance sheets with substantial external exposure and a vulnerability to changes of sentiment in financial markets. Thus, a rise in risk premiums and a stop or reversal of capital flows causes acute balance sheet distress, requires massive flow adjustment (in domestic demand and the current account), and produces severe recessions.

It is a narrative that, by now, is well understood. Governments and central banks, therefore, should be able to forestall crises of this sort, even though it is not easy or popular to call the warning signals during the phase of lavish capital inflows, and then to adopt policies to dampen these inflows. Indeed, the policy options are often quite limited, may be controversial, and may face strong opposing lobbies.

It is possible, however, to outline the pathology of a second sort of balance-sheet crisis—what we call an *Insidious Crisis*—that is even more difficult to combat. This sort of crisis would usually be preceded by a long period of excellent economic results—rapid growth led

[2] See Krugman (1979), Flood and Garber (1984), and Obstfeld (1984). Krugman (1999) provides an elegant model of the new capital account crises with a focus on the role of moral hazard. The focus on capital accounts began with Calvo et al (1993) and Schadler et al (1993).

by exports, sound policies, and strong external accounts—that gives rise to an enduring positive perception of the economic prospects. The difficulties arise when a normal, equilibrating shift in relative prices—an increase in the prices of nontraded goods and assets relative to those of traded goods—gets built into investor expectations and elicits a rapid, and eventually excessive, reallocation of credit and domestic real resources.

The problem for policymakers is doubly difficult because, even if the risks are properly assessed, there is pressure to support bank lending and easier financial conditions to compensate for exports no longer being as strong an engine of growth. The result is often a surge in prices of domestic real estate (the ultimate nontraded asset), a rapid expansion of credit and thus substantial increases in leverage, a credit-financed boom in construction, and a concentration of the assets of the banking system. The crisis is precipitated by an eventual collapse of real estate prices when oversupply prompts a realization that the appreciation on which investment has been predicated is no longer credible. This constitutes a severe shock to this sector, to the equity value of the financial sector, and, almost certainly, to the government finances.

The distinction between the two types of crisis is less clean in reality than in our stylized descriptions; indeed it is impossible to point to a clear-cut case of an insidious crisis in an emerging market economy. Both types of crisis may exhibit some of the same characteristics, and certainly the crises in Asia in the late 1990s were a mix of the two cases. There are elements of the insidious pathology in many crises in advanced countries; but, with the exception of the two cases discussed below, these have generally started with cyclical upswings and leveraged real estate booms rather than a secular equilibrating shift in the relative price of nontraded goods and assets that then overshoots equilibrium. In any event, we believe that the distinction between the two types of crisis is worth making because the latter type of crisis is less well understood and more difficult to detect in its incipient stages, and because it is at the heart of much current discussion about vulnerabilities in some of the most successful emerging market economies.

The best example of how an *Insidious Crises* builds and unfolds is Japan between 1984 and the early 1990s. Ireland in the second half of the 2000s also exhibits the essential characteristics of this type of crisis even though it also had some elements of *Conventional Crisis* in the external wholesale funding of banks and the current account deficits in the period immediately preceding the crisis. Both are advanced countries, but both exhibited some of the characteristics of very successful emerging market economies in the history leading up to the crises. Today in China and in some other successful emerging market economies the strength of the external sector, the controls on capital flows, and the level of reserves would seem to indicate that a *Conventional Crisis* is a rather remote contingency. In some respects, however, developments do bear a resemblance to the growth miracles in Japan and Ireland with their attendant vulnerabilities.

II. Conventional Macroeconomic Balance-Sheet Crises

Conventional macroeconomic balance-sheet crises are crises that are triggered by *external* imbalances and balance sheet vulnerabilities. They typically occur with a capital account reversal after a long period of capital inflows and a substantial build up of foreign currency exposure.

Consider the characteristics and circumstances of a reasonably-well-governed emerging market economy (EME).

- First, real interest rates are likely to be higher than those in advanced countries for reasons that go beyond risk premiums.[3]

- Second, there is likely to be a trend real appreciation of the currency.[4]

Both high real returns and real appreciation produce capital inflows, and this is as it should be. But, especially in circumstances of very low interest rates in advanced countries, the hunt for yield will exacerbate inflows on the part of global investors and the low rates abroad will encourage foreign borrowing by domestic investors.

Substantial capital inflows continue for some time and risk premiums are slow to adjust to rising risk indicators. Given the difficulties in restraining inflows (even in cases where the authorities recognize the dangers early enough), it is likely that the balance sheets of the EME institutions end up with significant foreign exposure.

Ideally capital inflows would respond to risk premiums that adjust smoothly and continuously to risk indicators such as an erosion of competitiveness, a widening current account deficit, increased external debt and reduced reserve cover of maturing debt, a rapid expansion of credit, and emerging issues of financial sustainability.
In practice risk premiums are notoriously capricious. Capital account crises arise when there is a sudden reassessment of risk and a cessation or reversal of capital flows.

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[3] See Lipschitz, Lane and Mourmouras (2002b), and Bakker and Lipschitz (2011). The notion of the equilibrium real interest rate is somewhat problematic as there are two possible characterizations: the "open-economy-capital-account equilibrium"—that is, the rate at which there would be no incentive for international arbitrage because interest differentials fully incorporate risk premiums plus exchange rate expectations—and a "notional closed-economy real equilibrium" in which real interest rates reflected real rates of return. Here we are referring initially to the latter. It should be higher than advanced country rates because of relative capital scarcity provided there is rapid convergence of total factor productivity.

[4] Balassa-Samuelson effects rely on the differential in productivity gains between the traded and nontraded sectors in the EME being wider than that in advanced countries—a reasonable assumption given the rapid transfer of technology in traded goods as EMEs become a platform for manufacturing production for global or regional markets. But, given rapid growth of demand, one has merely to assume a highly elastic supply of traded goods and services coupled with a more inelastic supply of nontraded goods and services to conclude that a real appreciation is inevitable.

A capital account reversal will lead to a deterioration of balance sheets—either through depreciation (when a significant part of debt is denominated in foreign currency), or through sharply higher interest rates (required to stave off depreciation) and a corresponding drop in the value of assets. This will have ramifications across the economy.

The drop in capital inflows will also force a sharp adjustment in aggregate demand and thus GDP. Large capital inflows (and a concomitant current account deficit) mean that much of investment is financed by foreign resources. A cessation of inflows, therefore, requires a drop in investment (or a jump in saving).

An illustrative generic EME balance sheet in Table 1—taken from an Article in Finance and Development[5] shows only foreign-currency-denominated assets and liabilities.

Table 1. Generic EME Balance sheet
(billion dollars)

	Foreign exchange-denominated		
	Assets	Liabilities	Net assets
General government (to foreigners)	40	10	30
Short-term	40	2	38
Medium-and long-term	0	8	-8
Commercial banks	37	37	0
Short-term (to foreigners)	3	28	-25
Medium- and long-term	34	9	25
Domestic foreign currency position	30	0	30
Nonbank	1	75	-74
Short-term (to foreigners)	1	20	-19
Medium- and long-term	0	55	-55
Domestic foreign currency position	0	30	-30
Total	78	122	-44
Short-term (to foreigners)	44	50	-6
Medium- and long-term (to foreigners)	4	42	-38
Medium- and long-term (domestic)	30	30	0

In this balance sheet the official sector and the banking system are not themselves sources of concern. The official sector (chiefly the central bank) has foreign reserves of $40 billion to cover economy-wide short-term liabilities of $50 billion—this 80 percent cover is less than the ideal of 100 percent or more, but is not alarming. The balance sheet of the banking system shows two interesting characteristics. First, its FX liabilities are mostly short-term while its liabilities are longer-term, so it is engaged in substantial maturity transformation. This is the business of banks and, again, is not in itself cause for concern. Second, most of its FX assets are in fact FX-denominated loans to the *domestic* private sector.

The crux of the analysis lies in the nonbank private sector with its net FX liabilities of $74 billion. Consider the case of a sudden and sizable jump in the risk premium. The policy options are (a) to let the currency depreciate until the current interest rate plus the expected appreciation will cover the risk premium, or (b) to counter any incipient depreciation by raising interest rates to cover the additional perceived risk, or (c) some combination of the two. Option (a) will entail book losses for the nonbank private sector. But if the FX borrowers are exporters with FX revenues and thus a natural hedge, the problem is unlikely to be dire. The banks and domestic nonbank borrowers may face an FX liquidity problem, but the use of reserves—couple, perhaps, with an IMF program and other official support—should help to limit the damage.

[5] See Lipschitz (2007). The stylized table draws on the examples in Ghosh (2006).

If, on the other hand, the FX borrowers are all in the nontraded sector—for example, domestic real estate—with only local currency income and thus no hedge, depreciation could be crippling. Bankrupted domestic FX borrowers will affect the solvency of the banks as the quality of the $30 billion is FX loans to domestic borrowers on their books are undermined. And, given deposit guarantees and the potential for broader economic meltdown, the problems of the banks are highly likely to undermine the government's finances. Moreover, insofar as the authorities understand all this, they are likely to be in a fear-of-floating situation and, therefore, to shun any significant depreciation. Of course, the interest rate increases required by option (b) may also cripple the real estate sector with implications for both the banks and the public finances. Given the political imperatives of growth and the balance of payments, some version of option (c) may well be the eventual outcome, but it is unlikely to avoid seriously detrimental consequences for the economy.

The foregoing description is generic, but it is helpful to bear in mind when looking at specific actual country experiences. The crises in Thailand (1997–98) and Latvia (2008–09) are useful illustrations: they fit the generic narrative in essentials but differ in particulars.

A. Thailand

Concerns about capital account surges that had been voiced in the IMF since 1992, came home to roost in the case of Thailand.[6] At the time of the Thai crisis the boom and bust in capital flows and the resulting massive adjustment that was forced on the real economy and the current account seemed extreme. (As we shall see, they look less so by comparison with the flow imbalances and the required adjustments in the extraordinary case of Latvia—and those of the other Baltic States—about a decade later.)

In the five years through 1996, net capital flows into Thailand averaged about 10 percent of GDP. Much of this inflow consisted of short-term foreign currency loans, which were intermediated through the banking system, and onlent to the already highly leveraged corporate sector.[7] The authorities were loath to allow an appreciation of the baht—for fear of losing export competitiveness—and sought to contain the money and credit effects of intervention in the foreign exchanges through sterilization and, initially, fiscal austerity. This was only partly successful: inflation remained fairly stable but relatively accommodative financial conditions sustained high and rising private investment while domestic savings declined slightly. The current account deficit increased from around five percent of GDP to eight percent in 1995 and 1996. This was still modest relative to the capital inflows, but it meant that the economy was now dependent on a continuation of private inflows to finance

[6] See Schadler et al (1993), and Calvo et al (1993).

[7] For more details see IMF Occasional Paper 178 (1999).

the current account. Moreover, while capital inflows could stop almost instantly, containing current account flows would be a much slower and more painful adjustment.
The capital account reversal in 1997 was sudden and substantial: net inflows equivalent to 10 percent of GDP in 1996 gave way to net outflows of almost a similar magnitude in 1997 and even larger outflows in 1998 (Figure 1); substantial outflows continued in the following years. Despite a massive drawing on FX reserves and on IMF credit and other exceptional financing, the exchange rate depreciation required to solve the FX financing gap was very large (Figure 2)—this had a number of effects: external debt (denominated in US dollars and yen) rose sharply in domestic currency terms, domestic consumption was compressed and investment fell even more sharply owing to the balance sheet effects of the jump in debt, GDP dropped, and the current account adjusted from large deficit in 1996 to large surplus in 1998. Inflation spiked briefly in response to the depreciation of the baht, but then dropped because of the weakness of demand.

In some respects one may argue that the rapid and brutal adjustment in Thailand was the best way to restore equilibrium, after all, the depression was V-shaped and growth was back at 4½ percent in 1999. But the sorting out of the non-performing loans of the banking system and the restoration of the financial sector took much longer and required substantial fiscal commitments, the drop in investment was also of longer duration, and GDP remained well below the pre-crisis trend for many years (Cerra and Saxena, 2008).

Figure 1. Thailand: Boom-Bust, BOP Developments

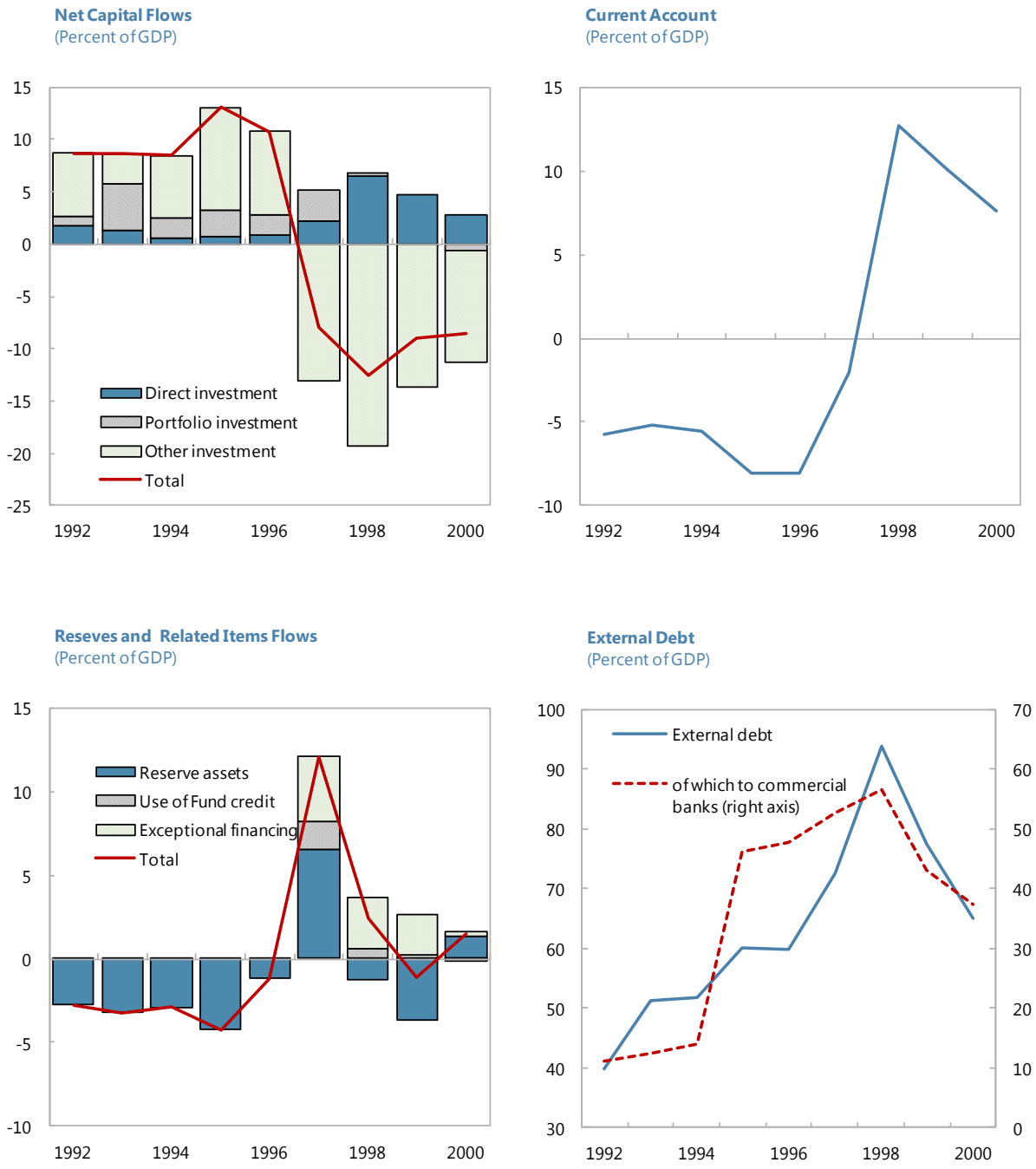
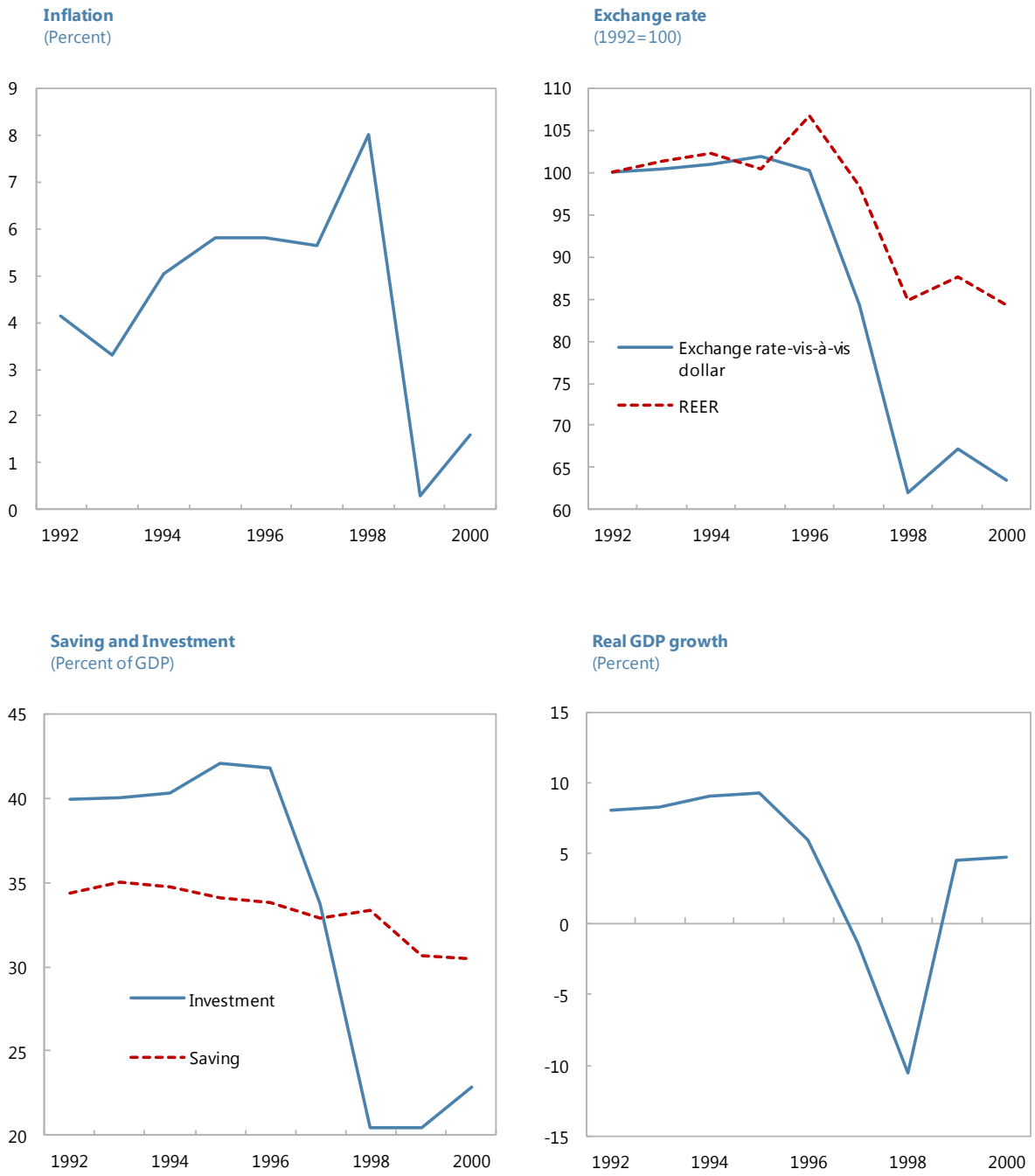


Figure 2. Thailand: Boom-Bust, Economic Indicators



B. Latvia

Latvia is an atypical case in many respects: it is a small country, a member of the European Union, and had an extraordinarily strong political commitment to a hard currency peg to the euro en route to adoption of the euro at the earliest possible date.[8] But it is so much a poster child of the conventional Emerging Market crisis—based in external vulnerabilities and triggered by a jump in the risk premium—that it is difficult to ignore. Figures 3 and.4 summarize the data described below.[9]

Default risk for the country as a whole had been reduced by the membership in the EU, and the exchange rate policy was tantamount to a government guaranty that borrowing in foreign currency at the prevailing low rate entailed no exchange risk.[10] Not surprisingly, therefore, capital inflows in the boom years—from 2002 through 2007—were huge in relation to the size of the economy. These flows were largely from Western European banks and were intermediated in euro through the Latvian banking system to final borrowers.

The capital inflows led to rapid credit growth mainly to borrowers without any foreign exchange hedge. The result was a domestic demand boom, which not only contributed to rapid GDP growth[11] but also led to a sharp increase in the current account deficit and an overheating of the economy. Wage growth accelerated from 9½ percent in 2004 to 32 percent in 2007. Inflation shot up—despite the currency peg—and there was a substantial and fast erosion of external competitiveness, as measured by the real effective exchange rate. At their peak in 2006 net capital inflows were equivalent to about 30 percent of GDP, and the current account deficit was well above 20 percent of GDP in 2007–2008.

The vulnerabilities in terms of flow imbalances, balance sheet risks, and external debt were massive. The authorities were in a classic fear-of-floating bind—a depreciation of the lat would have produced devastating balance-sheet losses—but equally important was the political commitment of the authorities to sustaining the currency peg.

The situation began to unravel in late 2007 when Swedish banks, who had become worried about their exposure to the Baltic countries, started to rein in credit.[12] By early 2008, the

[8] The Bank of Latvia maintained a peg to the euro within a narrow band of plus/minus one percent from a central rate until Latvia adopted the euro on January 1, 2014. Thus, although a full set of monetary policy instruments was technically available, in practice the peg operated similarly to a currency board.

[9] Bakker and Gulde (2010); Purfield and Rosenberg (2010); Aslund and Dombrovskis (2011); Bakker and Lipschitz (2011); Bakker and Klingen (2012); Griffiths (2012) provide additional detail.

[10] See Luengnaruemitchai and. Schadler (2007) on the effects of EU membership on risk premiums.

[11] Latvia's per capita GDP (in PPP terms) grew from 22.8 percent of the US in 2002 to 33.8 in 2007.

[12] The government also issued new regulations that entered into force in the summer of 2007, including that the LTV ratio for mortgage-backed loans must not exceed 90 percent.

economy was in recession. The financial situation was exacerbated by the shift in risk appetite following the default of Lehman Brothers and in the wake of the ensuing global economic and financial crisis. As capital inflows stopped and then turned negative, the investment boom ended and imports dropped sharply.

IMF and EU support helped to maintain the exchange rate peg, but the scale of internal real adjustment—demand compression forced by the financial constraints on the private sector—was dire: GDP fell by 25 percent from peak to bottom, a drop as large as that in the US during the great depression.[13] Even without any depreciation the plunging GDP produced a jump in the ratio of external debt to GDP.

The adjustment was brutal but reasonably rapid. By 2009 the domestic saving ratio had risen sharply and the current account was in substantial surplus; by the end of that year inflation was negative and competitiveness (as measured by the real effective exchange rate) was improving dramatically; in the course of 2010 reserves began to rise and the external debt ratio to decline; and growth resumed in 2011. GDP remains well below its (unsustainable) pre-crisis trend.

The lessons of the sorts of crises suffered by Thailand and Latvia, along with many other emerging market economies, have been well learned. Governments and central banks in most EMEs understand that risk premiums are capricious and that substantial balance-sheet exposure to foreign debt (especially when denominated in foreign currency) is a vulnerability waiting to become a crisis.

Large capital inflows and the corresponding current account deficits are thus a matter of concern. Policies to stem inflows—including capital controls and macroprudential measures—may be limited in their scope and efficacy, but they are now part of the conventional policy armory. The debate on fixed versus floating exchange rates has become focused more on moral hazard—that is, limits on exchange rate movements are seen as, in effect, a government assurance of limited exchange risk that encourages excessive exposure—than on conventional macroeconomic shock-absorbing mechanisms. Rapid credit expansion fueled by foreign capital inflows is seen as particularly problematic, especially when the credit flows are to the nontraded sector. There is now a clear understanding of the risks entailed in excessive FX borrowing, and EME central banks have also generally built up sizable foreign exchange reserves as a defense against erratic shifts in risk premiums.

But the next spate of crises may well be more insidious and less familiar even though there have already been some telling examples.

[13] The boom in Latvia, however, was much stronger than that in the US in the 1920s, which made the fall in real GDP relatively less significant. Between 2002 and 2007, real GDP in Latvia grew by 9½ percent annually, compared with 3½ percent in the US between 1924 and 1929.

Figure 3. Latvia: Boom-Bust, BOP Developments

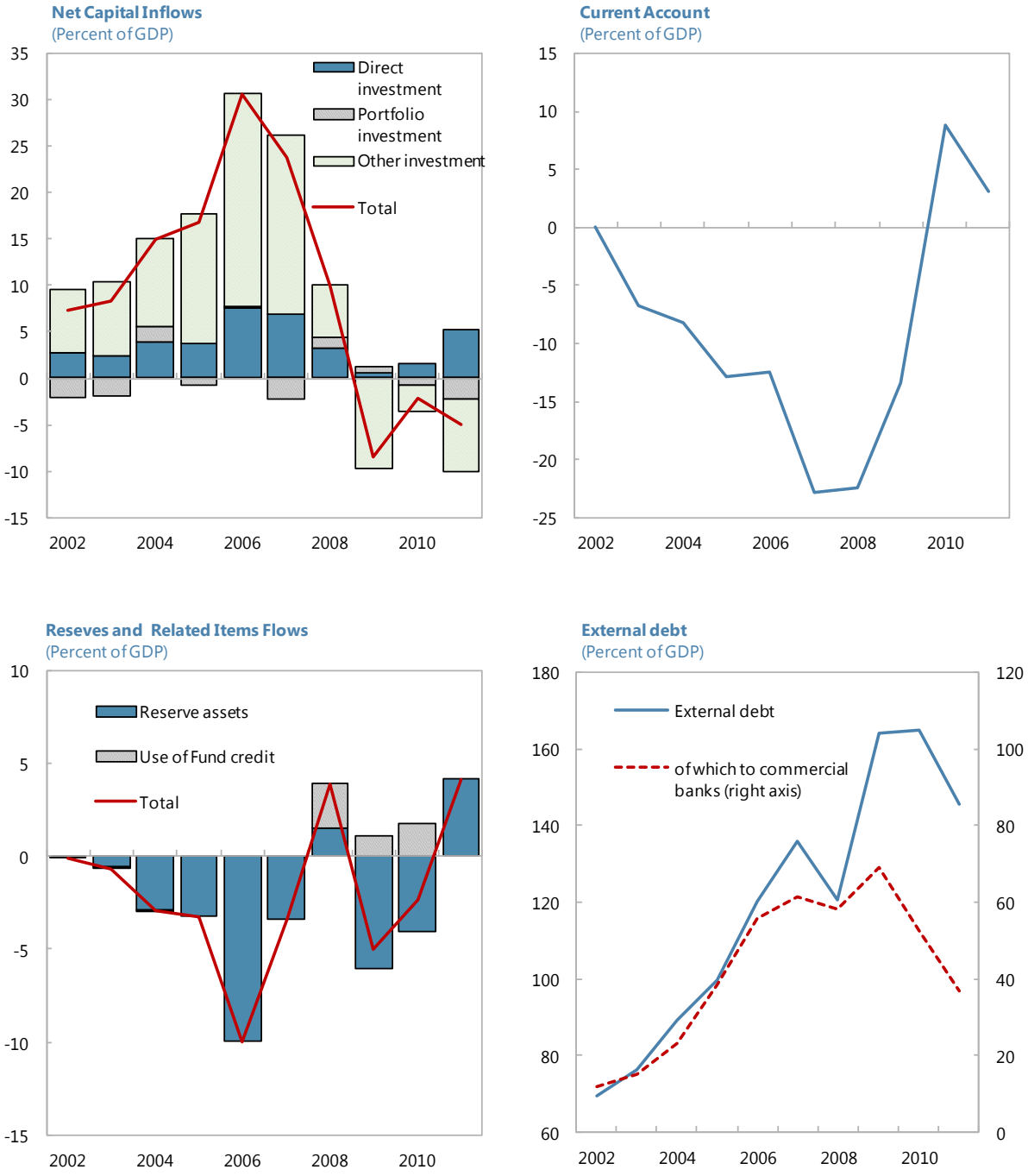
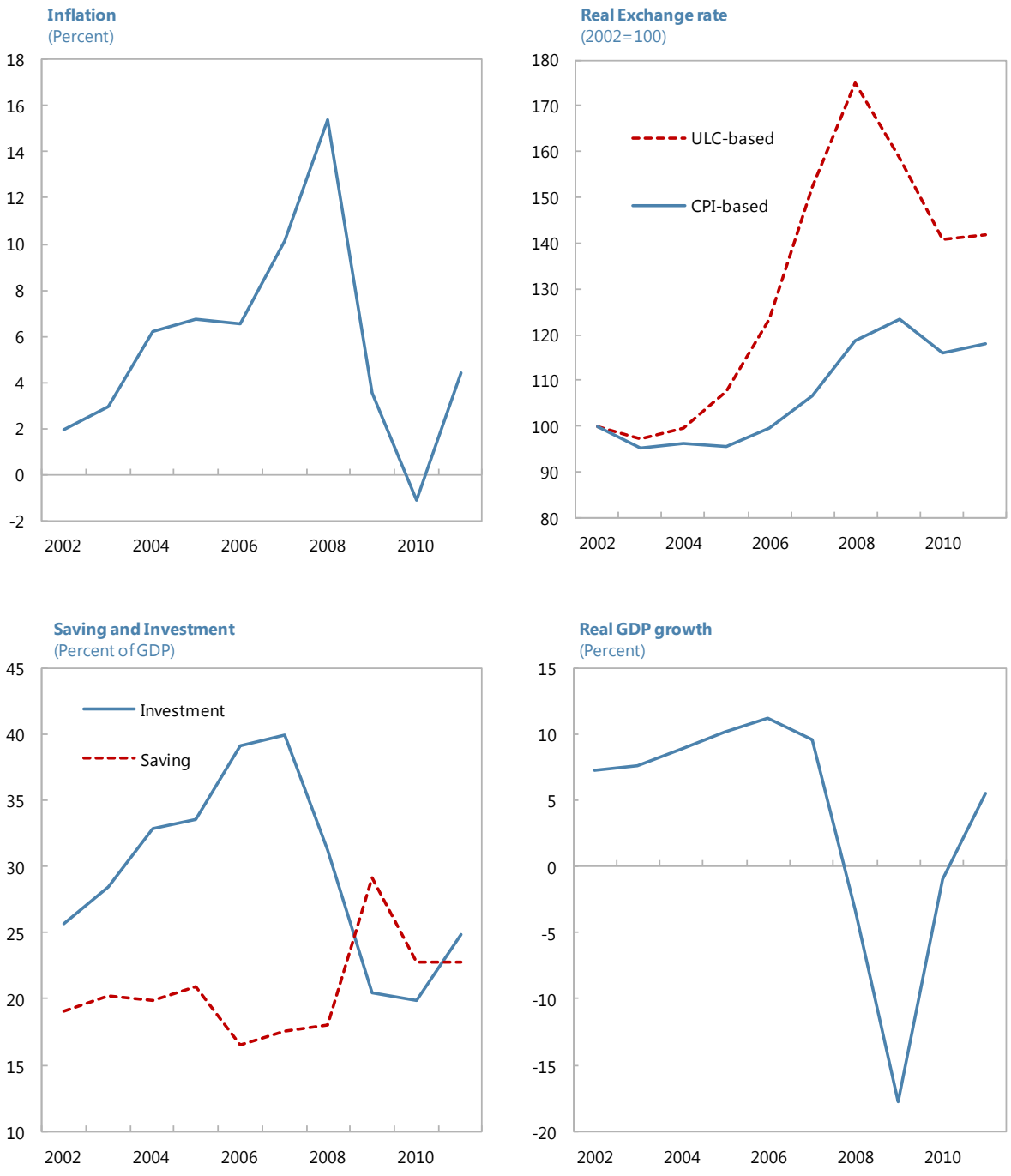


Figure 4. Latvia: Boom-Bust, Economic Indicators



C. Insidious Crises

Insidious crises are crises that are triggered by *internal* imbalances and balance sheet vulnerabilities. They typically occur when a long credit/asset-price/construction boom becomes unsustainable. As growth slows and asset prices decline, many loans granted during the boom period (and predicated on unrealistic growth and price expectations) become problematic. Nonperforming loans (NPLs) in the banking sector trigger a banking crisis. Given conventional bank leverage ratios, deposit protection, and political pressures, a widespread banking crisis almost inevitably elicits government direct intervention and a worsening of the fiscal accounts that is far larger than that due directly to the recessionary effects on government revenues.

Most interesting are the mechanics of how and why these crises occur. There may be a few generic characteristics:

They are most likely to occur in a country with a lengthy history of successful rapid growth and rising incomes. Investors, bankers, policymakers and commentators have thus become used to a positive narrative that dulls sensitivities to risks and vulnerabilities.

As income and demand increase rapidly there is an inevitable shift in relative prices: prices of traded goods need not rise rapidly as they are available in almost infinitely elastic supply on global markets; prices of nontraded goods and assets, however, have a much less elastic supply schedule and they rise more rapidly.

The relative price movements described above will likely suck resources out of the production of traded goods and into the nontraded sectors. This process may weaken the role of exports as an engine of growth without necessarily raising any concerns about external financial viability.

This relative price increase is part of the normal equilibrating mechanism, but when it becomes built into investor expectations it can elicit leverage-fueled speculation, an overshooting of equilibrium, and a price bubble.

Leverage is a critical component, and actual or implicit guarantees of banking liabilities coupled with soft macro-prudential regimes will contribute to the potential for crisis. Insofar as domestic real estate is the quintessential nontraded asset, a credit-fueled real estate boom is a warning sign. A concentration of bank credit in real estate financing should also be cause for concern.

The vulnerabilities that give rise to the crisis are difficult to detect, and policies could well accentuate them. As exports lose traction as a source of growth, the authorities will face pressures to ease policies to forestall a slowdown. More accommodative monetary policy

will increase leverage and exacerbate overinvestment.[14] A rise in government spending, may contribute to actual and expected real estate asset price inflation. Initially all looks well: growth continues to be strong, albeit driven more by domestic demand than by exports; unemployment remains low; public finances often improve with the rising tax base; and conventional measures of inflation (with only a small influence from real estate asset prices) may be well contained. As domestic demand accelerates, the current account balance may weaken, but this will not raise alarms especially if the country is starting from a position of significant surpluses and strong reserves.

Insidious crisis thus differ from traditional crisis in two important ways:

- They can occur even when external positions are strong.

- They do not necessarily involve foreign currency exposure or reliance on foreign borrowing.

The longer the excessive investment boom lasts, the more painful the later adjustment tends to be. A lengthy period will tend to concentrate banking assets in real estate and make continued GDP growth dependent on further increases in investment. Government policies will be pressured into trying to sustain growth. Eventually overinvestment (and excess capacity) in the real estate market will lead to a crash.

Vulnerabilities become crises when a development or an event triggers a sharp revision in the assessment of the price and growth projections on which investment is predicated. The trigger may be domestic or external in origin—for example, a bankruptcy of a major real estate development firm or a sudden tightening of wholesale funding for banks because of contagion from banking problems abroad.

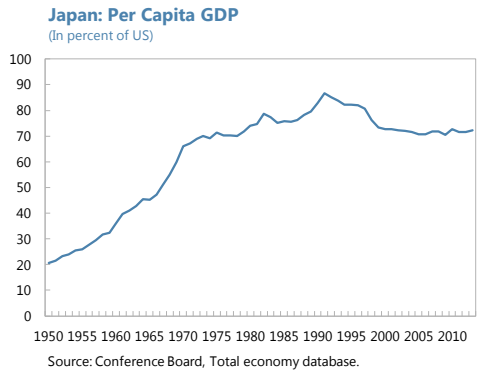
Many aspects of this generic description would seem to cover a large swath of crises in the history of the advanced countries. But the essential role of the relative price shift between traded goods and nontraded assets differentiates these cases from those that are less influenced by the interaction between trade and growth.

By way of illustration the sections below focus on the crisis in Japan in the early 1990s and Ireland in 2010.

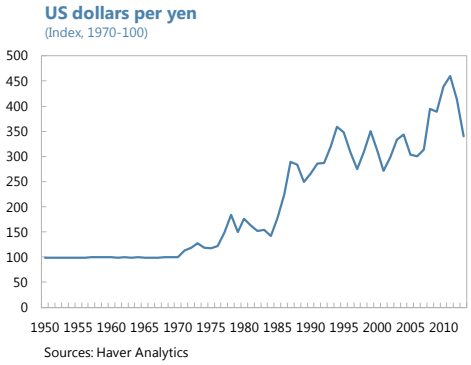
[14] In many cases a liberalization of financial policies may exacerbate the credit boom; in some cases, new housing finance institutions or mechanisms push the financial sector toward lower quality loans and less scrutiny of borrowers.

Japan

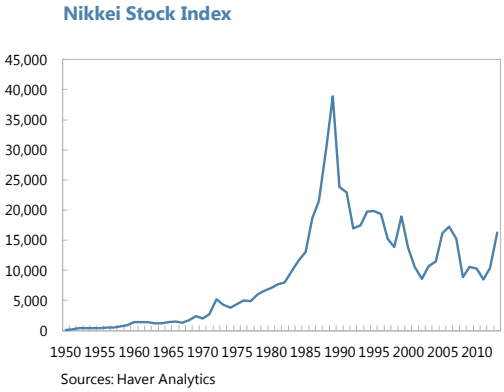
From the 1950s through the 1980s the Japanese economy was a model of how trade and global markets could be a force for growth and development (text figures and Figure 5). GDP per capita in PPP terms rose from 21 percent of the US level in 1950 to 83 percent in 1990 and growth was driven by an extraordinarily successful penetration of global markets in manufactured goods.



Much of this history was during the Bretton Woods period of fixed exchange rates, and the yen was certainly undervalued in the latter years of this system. Moreover, even after the world moved to a system of generalized floating in 1973 and despite the difficulty of containing money and credit growth, the Japanese authorities resisted a rapid appreciation of the yen for fear of undermining profits and investment in the large manufacturing sector.

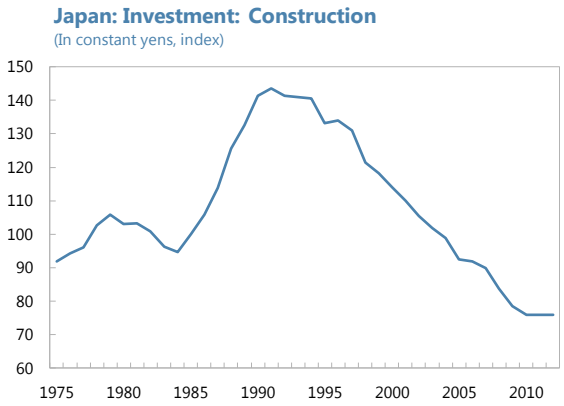


As incomes rose, demand for nontraded goods, assets, and services burgeoned: prices of equities and real estate rose rapidly, and, besides construction, financial and real resources were sucked increasingly into domestic distribution and services sectors. The latter part of the 1980s saw extreme movements in asset prices and related financial markets (text Figure and Figure 6). Housing prices increased sharply, construction investment boomed, bank financing accommodated these movements, and, at a macroeconomic level, investment increased significantly and the growth of domestic demand exceeded that of GDP.



However, growth of GDP in Japan in the 1980s was well above that of most other advanced countries and none of the conventional indicators of danger were apparent. Neither inflation nor labor market imbalances was problematic, the general government financial position was strong and improving, the external current account was in surplus, and there was no indication of any shock emanating from abroad (Figure 7).

Nevertheless, an appreciation of asset prices had elicited domestic spending that drove GDP to a level far above a sustainable level. When the Bank of Japan started to increase interest rates in the middle of 1989 the asset price bubble began to deflate with long-lived and deeply detrimental effects.[15] Equity prices dropped, and then real estate and land prices plummeted. The years of the early 1990s saw a sharp decline in growth to very low levels as demand by both corporations and households foundered on the rocks of asset price deflation and insurmountable balance sheet constraints.



The insidious crisis that crept up on Japan at the end of the 1980s was a turning point in Japan's recent economic history: the end of a growth miracle and the beginning of a period of low inflation and a prolonged rise in the government debt ratio. Following the asset price crash, it took many years and some false starts to restore any semblance of health to the financial sector (Figure 8). The real estate collateral backing bank loans proved an illusory safeguard, many bank loans became delinquent, and financial intermediation suffered. Clearly this financial failure played some role. But the lower growth trend since that turning point has been the subject of much debate in the economics literature that, fortunately, is beyond the scope of interest of this paper.[16]

[15] See Bayoumi and Collyns (2000).

[16] Some attribute the lackluster performance to delays in repairing the financial sector and the consequent dearth of financial intermediation (see, for example, Ogawa et al 1998), some to an inadequate fiscal response (see Posen 1998), some to monetary conditions and a liquidity trap (see Krugman 1998), and some to low rates of return on capital following the excessive investment in the boom years before the crisis (see Ando 1998).

Figure 5. Japan: Exports and Real Effective Exchange Rate

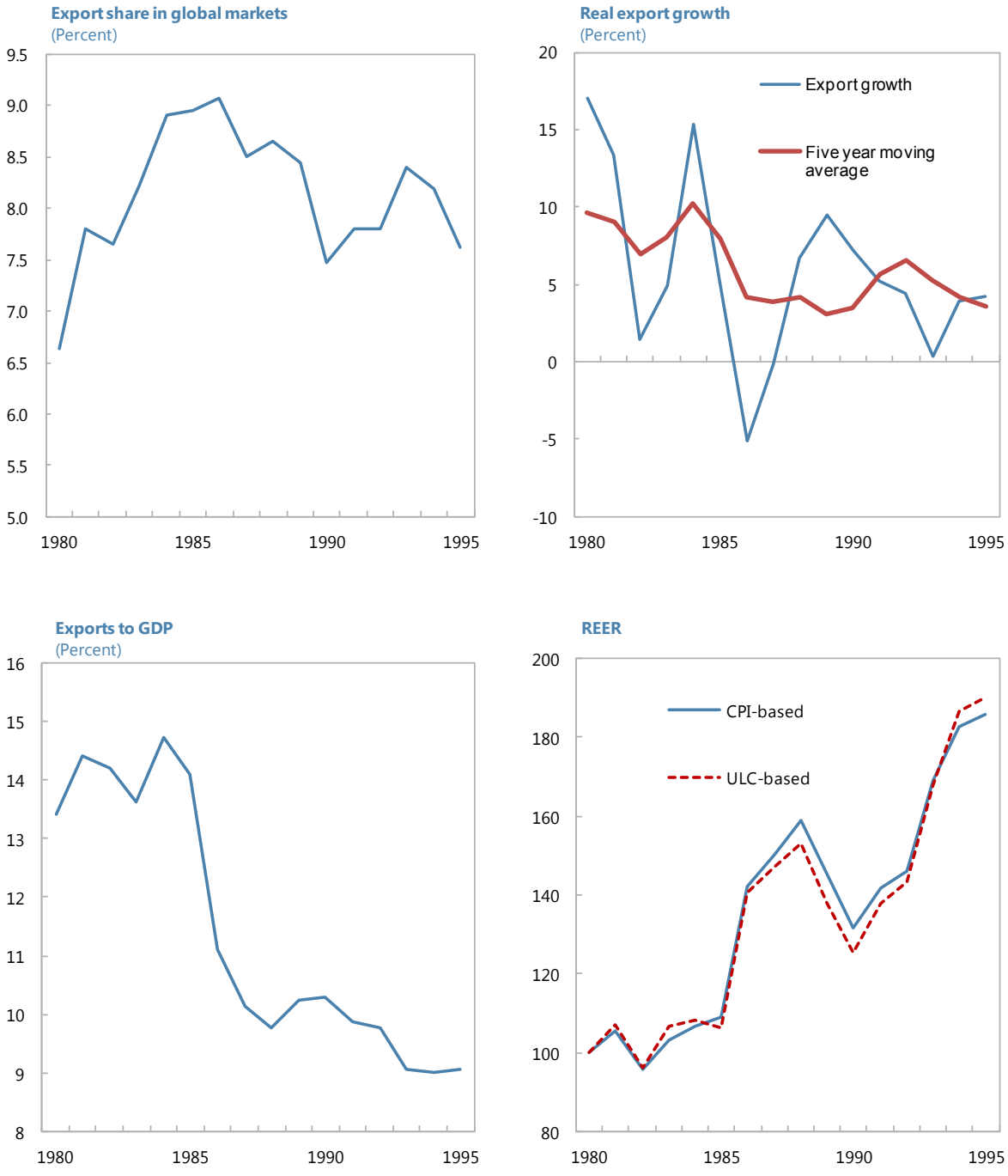


Figure 6. Japan: Domestic Demand Boom

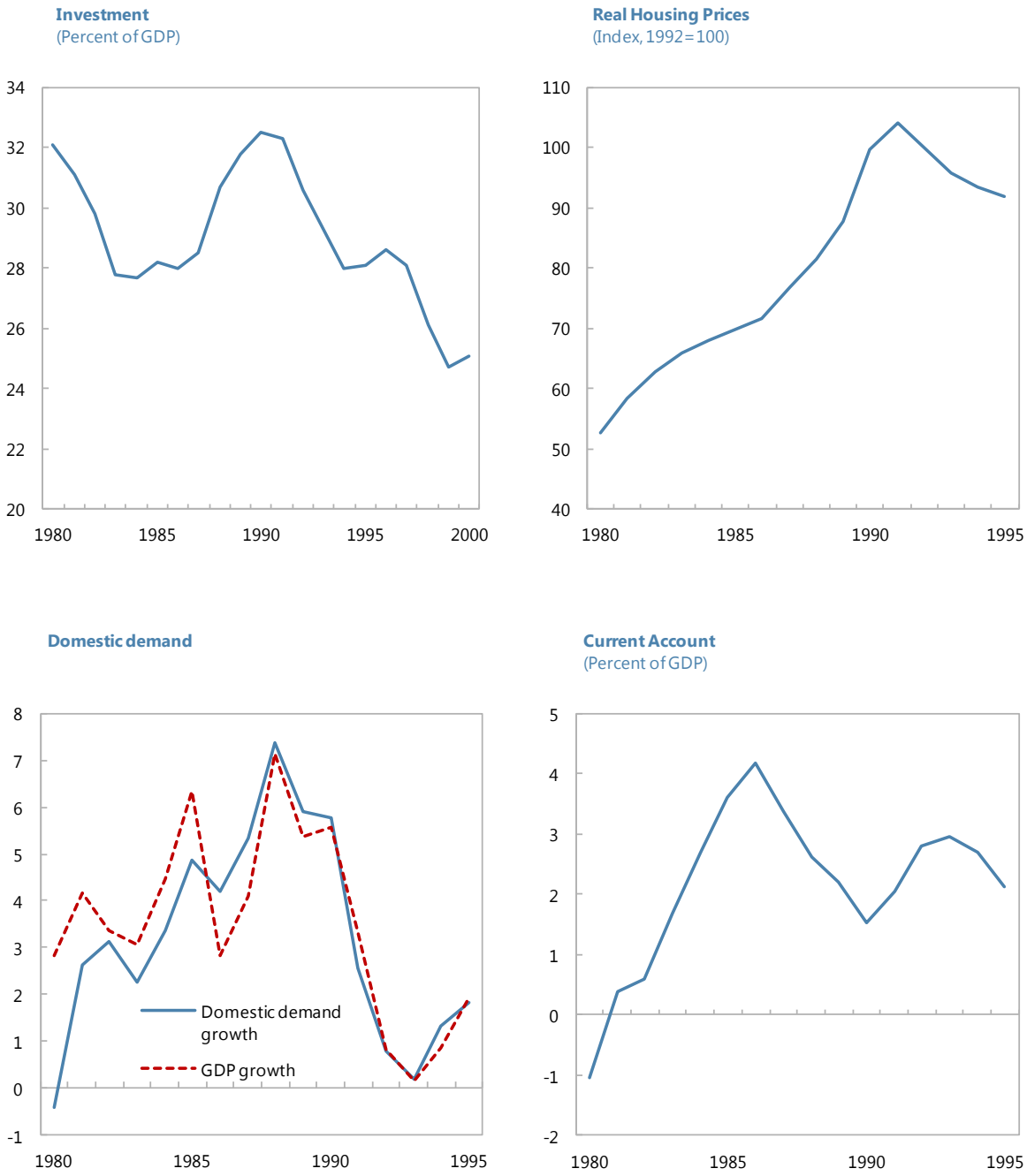
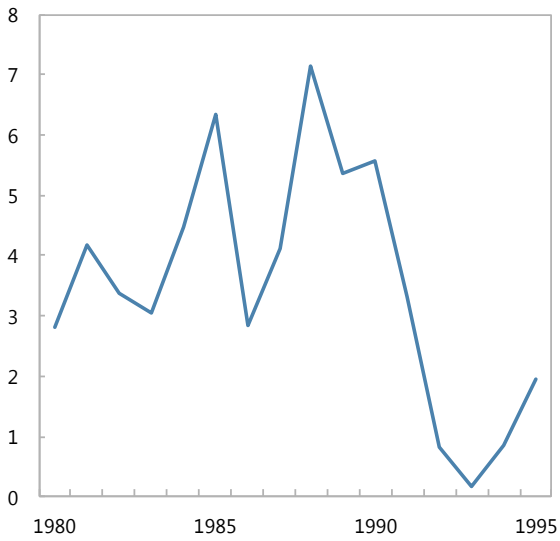
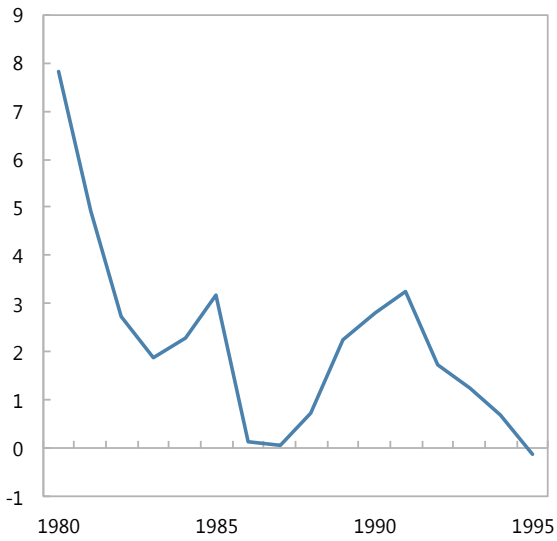


Figure 7. Japan: Economic Indicators

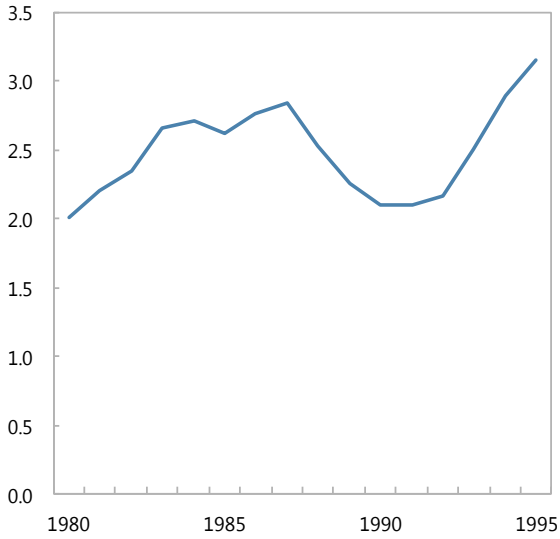
Real GDP growth
(Percent)



Inflation
(Percent)



Unemployment rate
(Percent)



General government balance
(Percent of GDP)

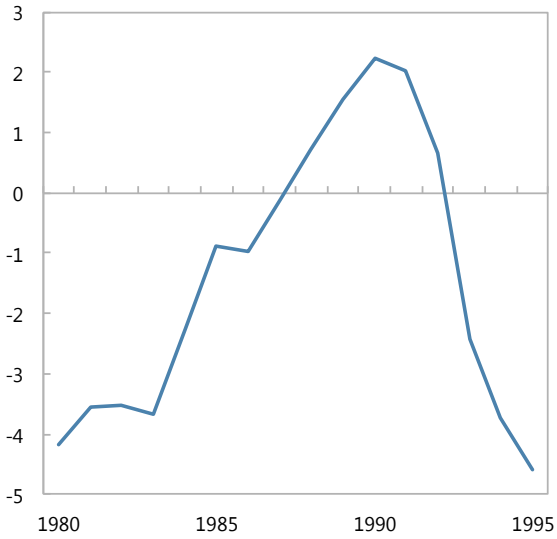
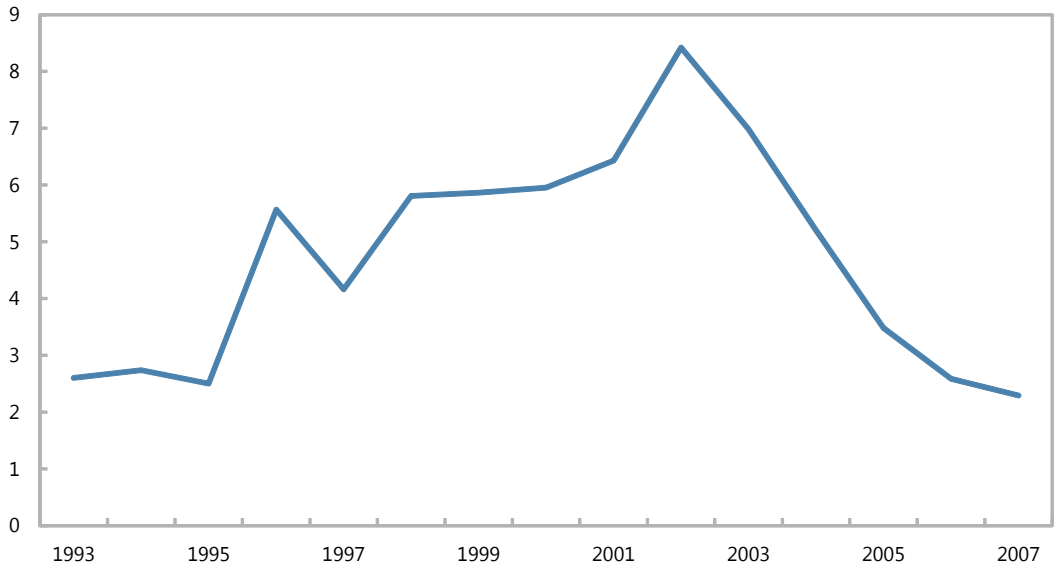
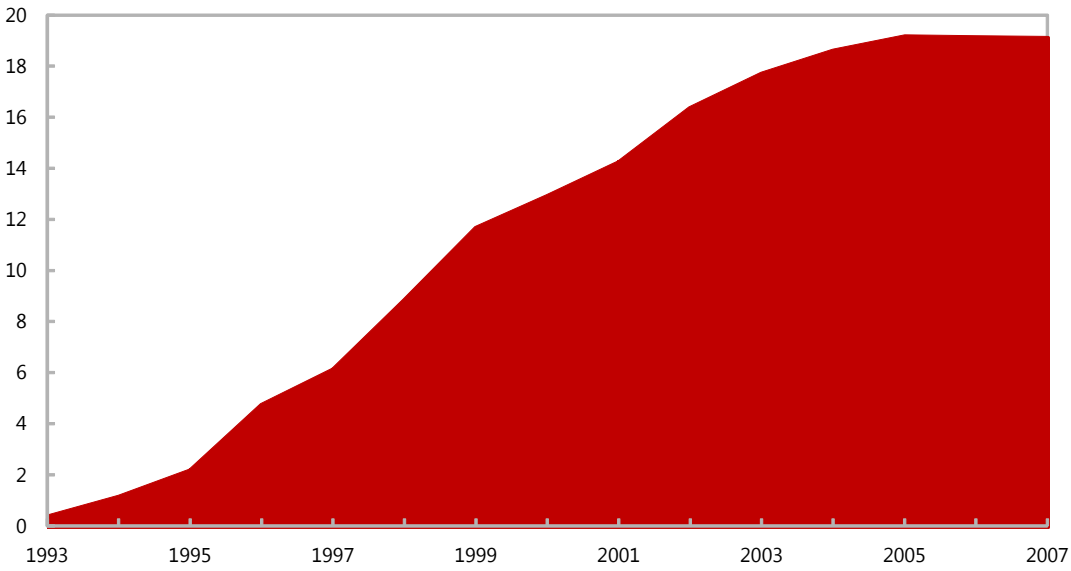


Figure 8. Japan: The NPL Problem

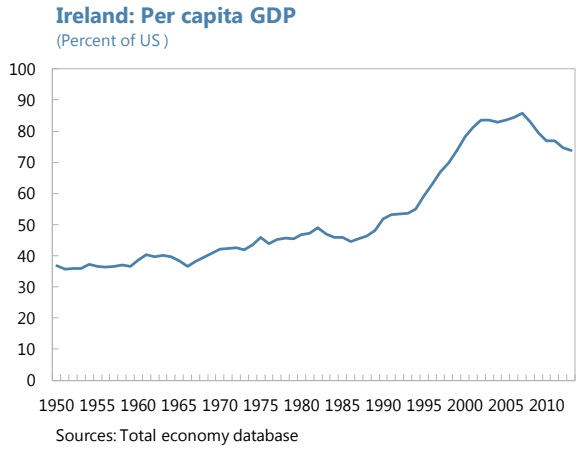
NPLs
(Risk management loans, percent of GDP)

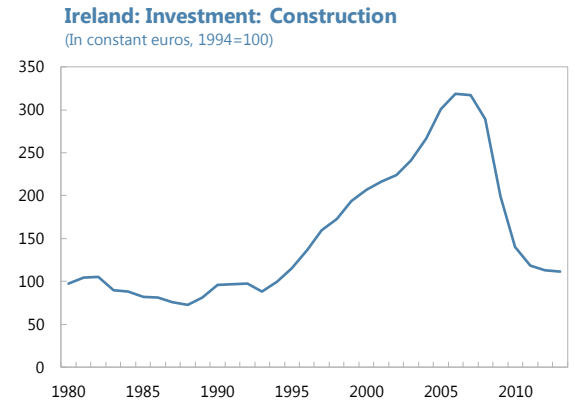


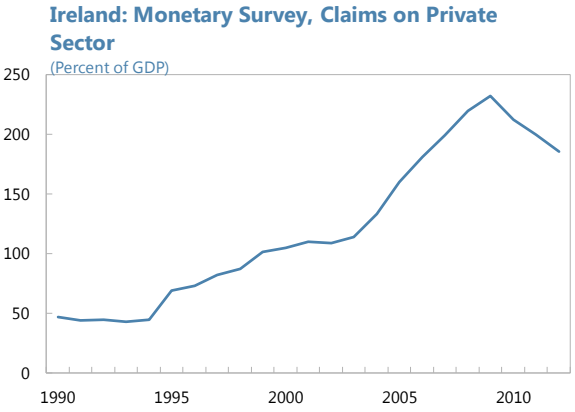
Japan: Cumulative Losses on Disposal of NPLs
(Percent of 2007 GDP)



D. Ireland







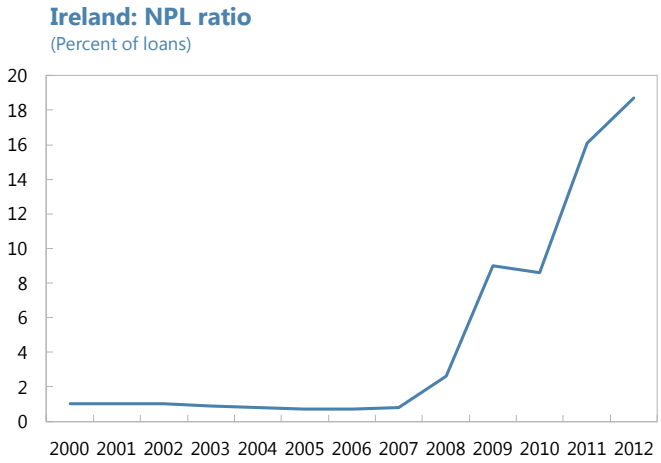
Until about 2008 Ireland was seen as a modern growth miracle. Its per capita GDP (in PPP terms) increased from 44 percent of the US level in 1984 to 86 percent in 2007. For much of this period exports of goods and services were a driving force and Irelands export shares in global markets rose sharply (Figure 9). Ireland was seen as an ideal production platform for a variety of traded goods and services because of its language advantage, its cost competitiveness, its favorable tax regime, and its membership in the European Union and, subsequently, the euro zone.[17]

From the mid-1990s investment as a share of GDP rose rapidly (Figure 10) and this increase was attributable entirely to construction. Housing prices relative to the overall CPI increased 360 percent between 1995 and 2007. Given the fortunes to be made in real estate investment it is not surprising that resources were increasingly sucked into this sector. Euro interest rates, set in Frankfurt for the currency area as a whole, were low for the booming economy of Ireland, and the enduring positive narrative on Ireland's miracle economy made it easy for banks to finance construction through wholesale funding in international markets. At the height of the boom, net wholesale funding of Irish banks amounted to some 236 percent of GDP. A large share of this funding came from nonresidents, and as the crisis neared it became increasingly short-term. By the end of 2008, the loan-to-deposit ratio had risen to almost 230 percent as cumulated loan growth greatly exceeded the expansion of private sector deposits.

[17] It is possible that Irish exports were overstated because of transfer pricing and the particularly favorable tax regime. Also, the substantial foreign inward investment and dividend payments abroad meant that for much of the period GDP overstated income and was far above GNP.

Unemployment had dropped precipitously from the middle of the 1990s and from the end of the decade unit labor costs rose much more rapidly than in trading-partner countries reducing Ireland's competitiveness in manufactures and traded services. From 2002 through the onset of the crisis, exports fell in relation to GDP, and export shares in global markets declined. In these circumstances the authorities saw the strength of domestic demand as helpful in sustaining growth.

All conventional indicators continued to show excellent performance (Figure 11). Growth was strong; inflation though somewhat elevated early in the 2000 decade was never alarming, the government's financial position was among the soundest in Europe through 2006, and the weakening of the current account from 2003 was initially seen as only a mild correction of past surpluses even though deficits had become substantial in the years immediately before the onset of the crisis. There was little appetite for a critical examination of the construction boom, its financing, and the robustness of banks' balance sheets. After all, in countries where living standards improve rapidly, it is natural for growth to become less reliant on exports and more on domestic demand, and for prices of relatively inelastic supplies of nontraded goods and services and assets to increase more quickly than any of the aggregate price indexes.



Contagion from the global financial crisis in 2008–09 forced a critical reevaluation of developments in Ireland. This coincided with a drop in housing prices domestically, the beginning of (what was to be) a sharp upturn in loan delinquencies, and mounting concerns about the value of the collateral supporting bank loans. The authorities saw the crisis initially as one of confidence and liquidity; accordingly they pledged to back bank liabilities with fiscal resources. The wisdom of fiscalizing the banking crisis—which is beyond the scope of this inquiry—has been much debated; certainly, however, the government's financial position deteriorated sharply and a greater degree of fiscal restraint was required.

Without contagion from the global financial crisis Ireland's economy probably could have continued on its growth path for a while longer; but, given the underlying vulnerabilities, some event would have sparked a crisis not much later. It is clear in retrospect that the relative price correction in favor of real estate and other nontraded sectors had overshot any plausible equilibrium, that this overshooting had been driven by speculation, leverage, and the easy availability of credit. Not only was the crisis insidious, but all the pressures on policy were to keep growth going and not to disturb an extraordinary history of income gains.

Figure 9. Ireland: Exports and Real Effective Exchange Rate

Figure 10. Ireland: Domestic Demand Boom

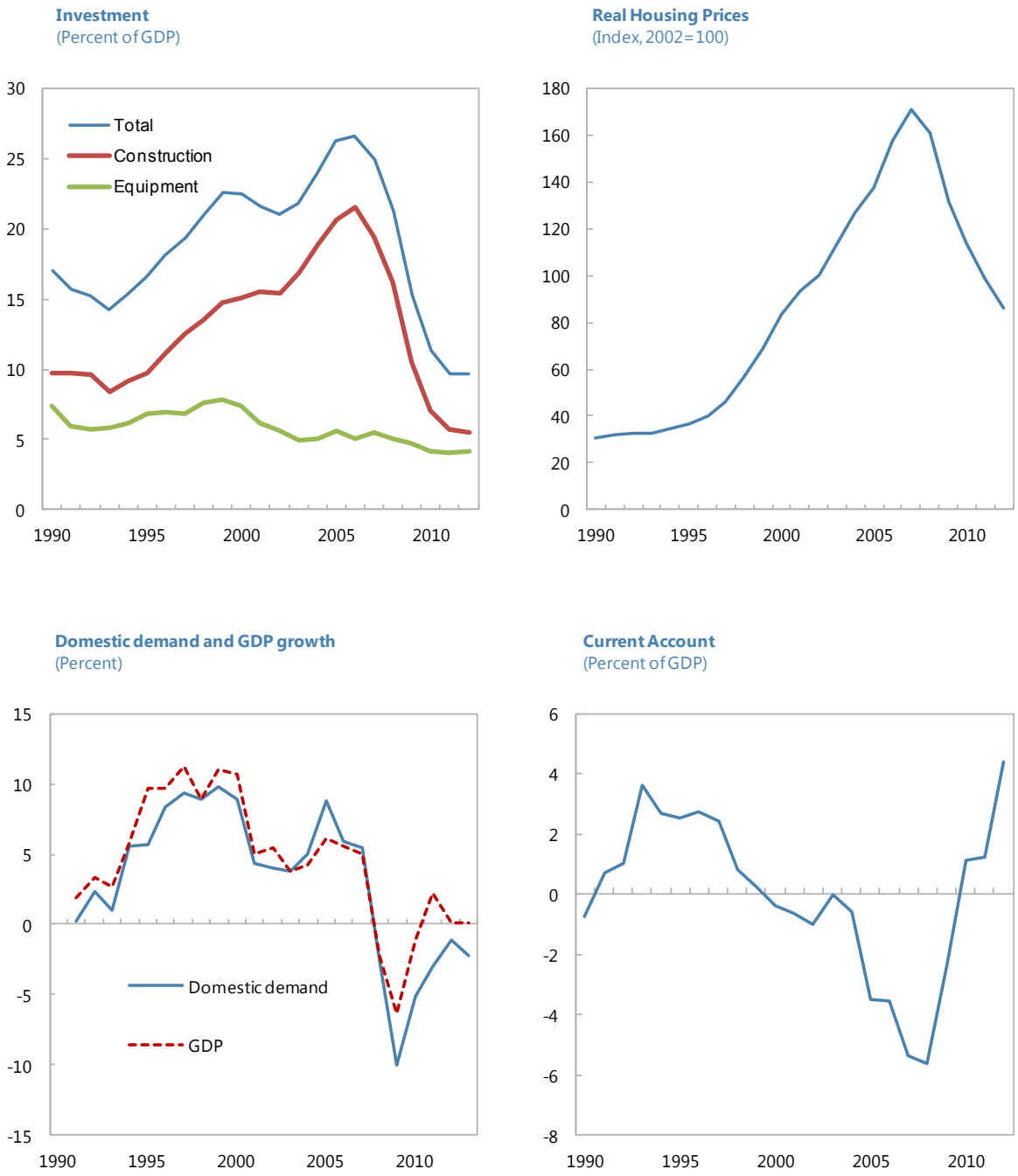
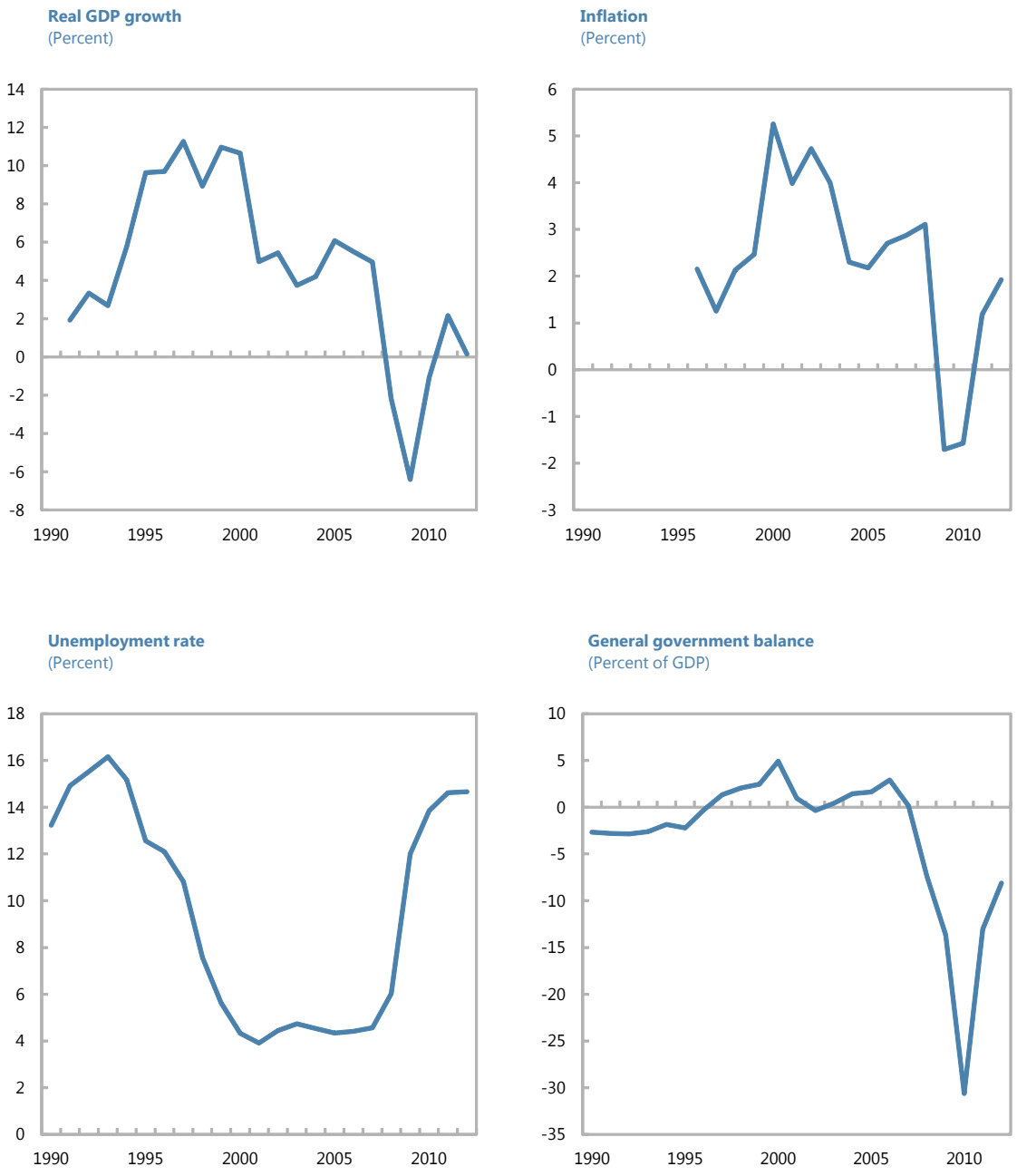


Figure 11. Ireland: Economic Indicators



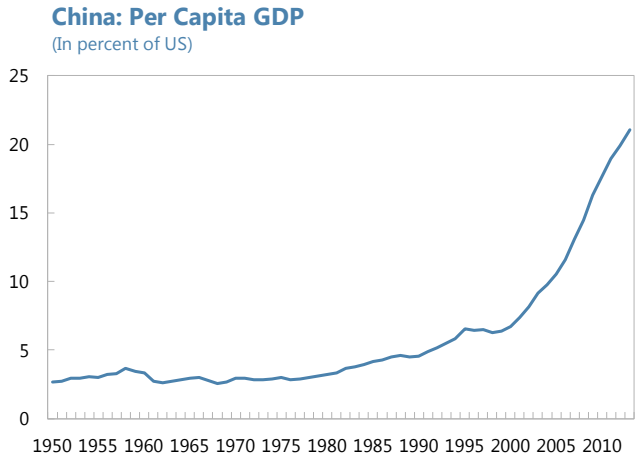
III. Can Governments Correct Vulnerabilities Before They Become Crises?

The governing authorities in emerging market countries have become acutely aware of conventional balance sheet vulnerabilities. They seek to limit surges in capital flows and credit through macroeconomic instruments (exchange rates, monetary, and fiscal policies), through their capital control and macro-prudential regimes, through a building up of defenses (reserve levels, swap agreements among central banks, and agreements with the IMF), and through careful monitoring of (and adjusting to) market perceptions. Even with all of these instruments the problem is difficult: global capital markets are huge relative to most economies and they move much more quickly than policies. It is clear, however, that much has been learned from the experiences of the last two decades.

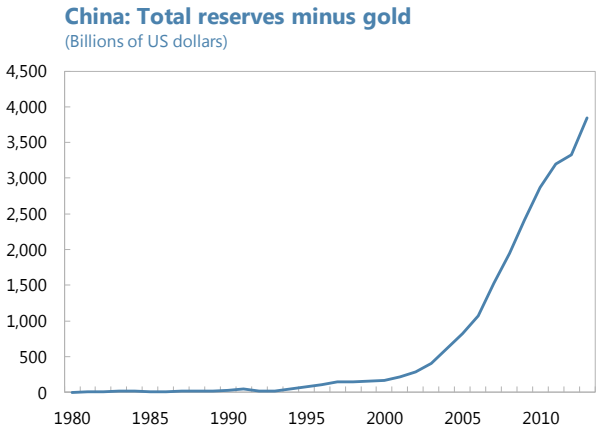
It is much less clear that governments have learned the lessons from *Insidious Crises.* Relative price shifts are normal equilibrating mechanisms in development, and overshooting of such changes and bubbles in asset prices are only evident in retrospect. Moreover, the pressure on government to avoid dampening a buoyant economy is usually considerable. Nevertheless there are lessons to be learned.

Developments in China merit examination. They bear a resemblance to the growth miracles in Japan and Ireland, but multiplied many fold by the size of the country.

China's GDP per capita in PPP terms rose from 5 percent of the US level in1990 to 21 percent in 2013.



For most of this period the authorities limited capital flows and intervened heavily to control the nominal exchange rate vis-à-vis the US dollar; foreign exchange reserves (excluding gold) rose from $168 billion to $3.8 trillion in 2013. Wage costs were held down by the labor surplus, as millions of workers migrated from the agrarian to the manufacturing economy. Income distribution was thus skewed toward capital, Chinese manufacturing competitiveness was very strong (that is, its unit labor costs in manufacturing were low by international



standards), and growth was driven by exports.[18] The distribution of income (among other forces) produced very high rates of saving and investment and a very low ratio of consumption to income**.**

For a country the size of China it is obvious that a growth model driven largely by exports is not sustainable in the long run: at some point self-sustaining growth based in part on domestic demand will be the way forward. A real appreciation of the renminbi and a shift in income distribution from capital to labor will likely increase consumption, reduce saving rates, and help balance the external current account. This process should be a natural concomitant of development: for years now observers have been waiting to see it occur. Some diminution of the process generating an excess supply of labor should begin to raise wages, more rapidly for skills in short supply. Higher household incomes should shift demand toward nontraded goods and services and especially housing. This shift in demand should elicit price signals—an increase in the relative price of nontraded goods and services and real estate—that influence the structure of production. Although the Peoples Bank of China has proved adept at sterilizing foreign exchange intervention, at some stage this intervention will probably produce an easing of credit to support investment in housing and real estate more generally. More generally, as exports become less of a driving force in growth, there will be pressure on fiscal and monetary policy for an easing to allow domestic demand to take up the slack and forestall a major slowdown.[19]

As in the cases of Japan and Ireland, the relative prices and shifts in production are part of an equilibrating process toward a more sustainable (and somewhat more subdued) growth model. But the tendency of relative price shifts—and particularly real estate price increases—to overshoot is evident from those examples. In domestic markets with investors as voracious as those in China the potential for credit driven bubbles is enormous. It is clear from Charts 3.8, 3.9, and 3.10 that a process similar to that described above has been underway now for some time in China.

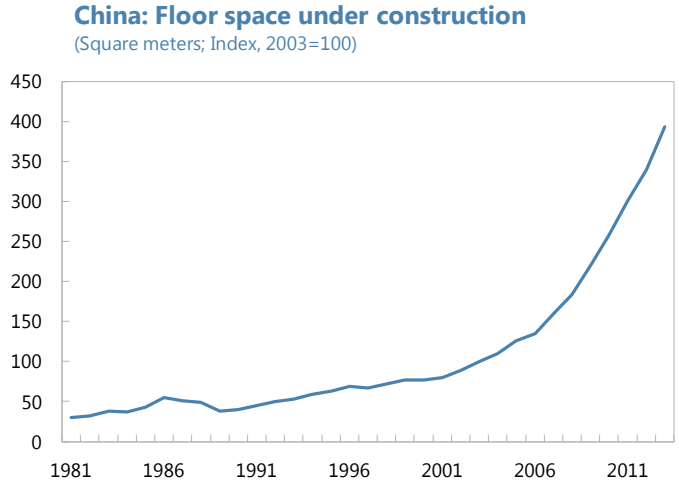
China's real exchange rate based on unit labor costs in production has been rising very rapidly for the last decade. Although it started from a very competitive position, at some stage the impact of these increases on the profitability of manufacturing exports must begin to have an effect. Export growth did start to slow after 2007; this was due in large part to the global recession and, indeed, China's share in global markets continued to increase. Nevertheless the authorities responded by boosting domestic investment. The investment

[18] Chinese consumption was weak while saving and investment ratios where extraordinarily high. For more on the Chinese growth model see Lipschitz, Rochon, and Verdier (2011).

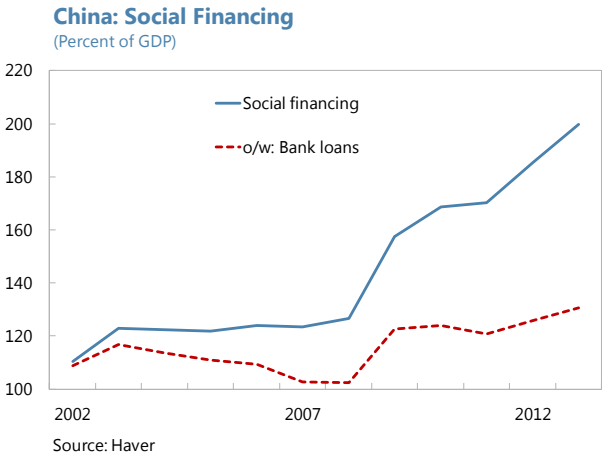
[19] This, of course, is a very stylized model of a probable growth path. The reality of the political economy will be much more complex as export producers will no doubt lobby hard against any real appreciation as other groups, real estate developers for example, lobby strongly for easier credit conditions. Policies will move between restrictiveness and ease as the situation changes and different concerns dominate.

ratio (including real estate of course) which was already high, rose even further, domestic demand increased more rapidly than GDP, real (that is, relative) housing prices, already on a steep upward path, surged further, and the current account surplus dropped.

The data on floor space under construction are particularly telling: they show an exponential increase. Between 2003 and 2012 construction has more than tripled, a rate of expansion far above that in Japan in the mid-1990s, and comparable with that in Ireland in the 2000s. Coupled with this construction boom has been an explosion of credit. Although bank credit has increased rapidly other mechanisms of lending have proved much more expansionary, and "social financing"—the total amount of financing that the real economy can access via the financial sector[20]—has increased from 127 percent of GDP in 2008 to 200 percent in 2013.



All of these developments are occurring in an economy that looks immune to a conventional emerging market crisis. The reserve level at US$ 4 trillion and the capital control regime preclude any concerns about the effects of a jump in risk premiums. Indeed the Chinese authorities would probably welcome reduced inflows—through the capital account which, despite controls, is somewhat porous—and two-way volatility in the exchange rate. Growth, though lower than in the heady period before the global recession, remains above seven percent. Inflation (conventionally measured with relatively little weight on asset



[20] Total social financing includes funding provided by financial institutions, such as banks, security firms, and insurance companies, and by markets, including the credit market, bond market, equity market, banks' off-balance sheet items, and other intermediary markets. To be more specific, it includes bank loans (both CNY and foreign currency loans), trust and entrust loans, bank acceptance bills, corporate bond financing, nonfinancial enterprise equity financing, and other funding sources (e.g., insurance, micro lending, industry funds). Source: JP Morgan (2013).

prices) and fiscal imbalances (which exclude implicit contingent liabilities in the banking and state enterprise sector) both appear to be well contained.

Perhaps China will be the first country to have fully absorbed the lessons of *Insidious Crises* in rapidly developing countries. But the political economy of adjusting policies to contain the pace of relative price adjustments and prevent overshooting, to moderate financial innovation and credit surges, and to generally stave off the threat of credit driven asset price bubbles will require adroit management.

Figure 12. China: Exports and Real Effective Exchange Rate

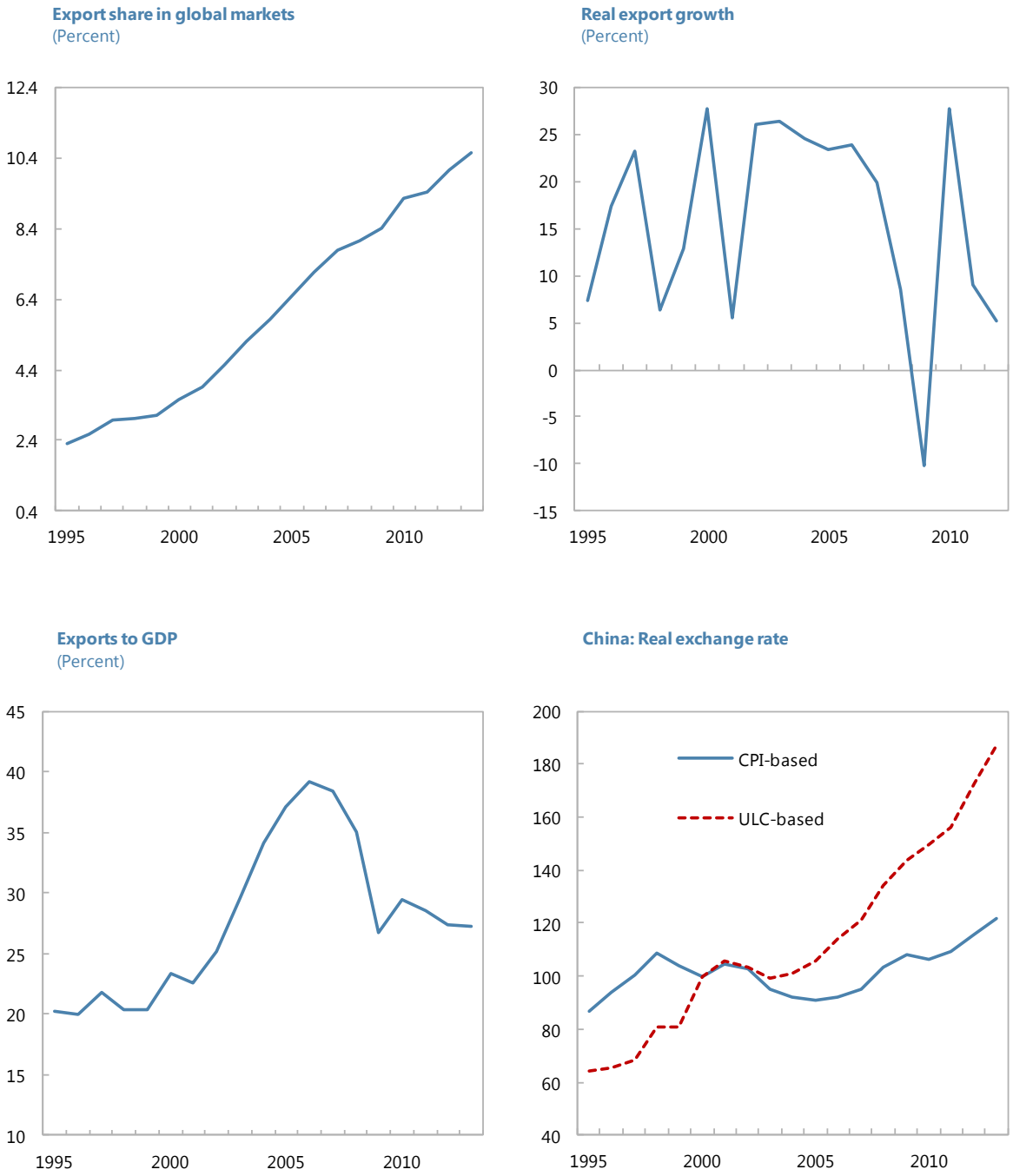


Figure 13. China: Domestic Demand Boom

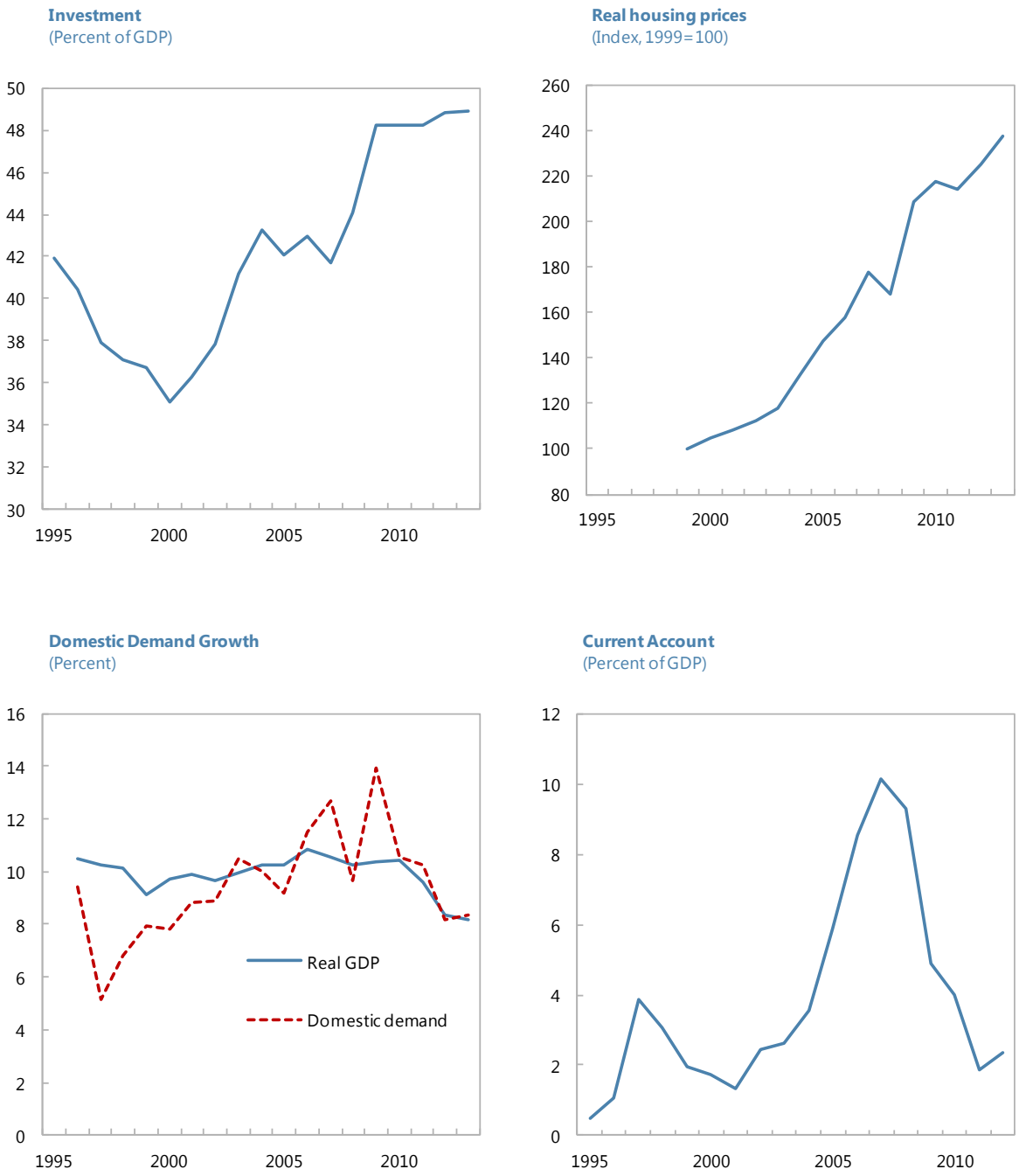


Figure 14. China: Economic Indicators

IV. Conclusion

Policymakers and market participants have become more adept at reading the warning signals on *Conventional Balance-Sheet Crises* in EMEs. It now is well understood that shifts in global portfolios can be massive and rapid relative to flows, and that such shifts can overwhelm policies.

It is relatively easy to monitor vulnerabilities, through a variety of risk indicators, but it is almost impossible to predict the timing of a crisis. This unpredictability is due to the seeming capriciousness of risk premiums which are influenced by a confluence of events across the world. Policies, therefore, are forced to focus on forestalling vulnerabilities; and policymakers are acutely aware that large capital account inflows can undermine monetary policy; that fixed exchange rates or one-way bets can constitute an inducement to excessive exposure; that substantial foreign-currency financing of investment in nontraded sectors is a dangerous development. It is not possible to eliminate vulnerability to shifts in global capital markets, but there is now a panoply of policies—conventional macroeconomic policies, macro-prudential measures, and capital controls—that can be used, and are widely being employed, to contain exposure.

Dealing with *Insidious Crises* is a more difficult proposition. How does one tell *ex ante* when an initially-equilibrating relative price change between traded goods and nontraded assets is overshooting? How does one make a case for tightening financial conditions when inflation of the goods and services in the conventional indices is muted and growth is slowing? A robust prudential regime in the financial sector and careful avoidance of even implicit guarantees—not that straightforward when banks are large—may be something of a safeguard, but the incentives for financial innovation around any regime increase in conditions of incipient crisis. Calling the timing of a crisis is impossible. Policymakers that tighten early will be accused of stifling the growth of output and employment. But waiting too late can have very high costs. There is no cookbook. In practice, these are all judgment calls that require frequent reassessments of the data and policymakers capable of hard decisions in the face of inevitable political pressures.

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