

Fiscal Consolidation, Depreciation, and Recovery

Joy A. Buchanan[†], Steven Gjerstad^{*}, and Vernon L. Smith^{*}

The U.S. economy is stuck in a painfully slow recovery. Neither the accommodative monetary policy nor the fiscal stimulus has catalyzed a strong recovery. In this article we examine comparable financial crises and balance sheet recessions in other countries. We present evidence that fiscal consolidation in other countries has triggered exchange rate depreciation, and that depreciation has generated export growth that fills the void left when a boom in fixed investment – such as residential and commercial real estate – collapses.

The usual impact of monetary policy

In a recent article in *The American Interest* we examined the usual impact of monetary policy.¹ In that article we showed that, under normal circumstances, monetary policy has its sharpest impact on output of residential structures and consumer durable goods. The reason that monetary policy works most prominently through these channels isn't too surprising. When the Federal Reserve increases its purchases of short-term Treasury securities, that pushes their price up, lowering short-term interest rates. This has two effects on depository institutions. It brings down their cost of funds: since Treasury bills – a close substitute for demand and time deposits – have a low yield, banks can pay a low interest rate and still attract deposits. At the same time, mortgage and other interest rates fall much more slowly, so open market purchases by the Federal Reserve widen the gap between the lending and borrowing rates of depository institutions. Consequently, open market purchases by the Federal Reserve encourage lending, primarily to households and to small businesses who rely on financial intermediaries for access to credit.² When mortgage lending increases, that immediately leads to sales of new homes, which in turn leads to construction of new homes to replenish the inventory that was depleted during the recession.

[†] Interdisciplinary Center for Economic Science, 4400 University Drive, MSN 1B2, Fairfax, VA 22030

^{*} Economic Science Institute, Chapman University, One University Drive, Orange, CA 92866

¹ See “Underwater Recession” in the May/June issue of *The American Interest*, pp. 20 – 28.

² While households and small businesses rely on financial intermediaries, large corporations typically have access to corporate bond markets especially for their long-term financing requirements. Consequently they are less affected by shifts in monetary policy that primarily affect the incentive of financial intermediaries to lend.

Limitations of monetary and fiscal policy in a balance sheet recession

The accommodative Federal Reserve monetary policy in 2008 combined with the bank bailouts probably prevented a collapse of the financial system like the one that occurred in the Great Depression. To that extent the monetary stimulus has been a success. But it has not generated a robust recovery. Since monetary policy typically has its most pronounced effect on construction of new homes and purchases of consumer durable goods, and since these are both unresponsive now due to households' excessive debt burdens and concerns about the prospect of further house price declines, monetary accommodation is unlikely to generate a quick recovery, in spite of its magnitude. Other direct evidence reinforces this view. Lending and economic performance changed little when the Federal Reserve embarked on its second quantitative easing program (QE2). Between November 17, 2010 and July 6, 2011 the Federal Reserve increased its holdings of U.S. Treasury securities by \$750.9 billion.³ We've argued that in past recessions, when the Federal Reserve drives down short-term interest rates, banks have an incentive to lend. But during the 7 ½ months of QE2, total lending of commercial banks in the U.S. declined from \$6.92 trillion to \$6.56 trillion.⁴ If, as we argued, it is the gap between lending rates and funding costs that create the incentive to lend, then the lack of response to QE2 is understandable: whatever problems restrained lending before QE2 remained during the QE2 program, because the QE2 program only drove the yield on short-term Treasury debt down from 0.2% to 0.1%. Although it's possible that bank lending would have fallen more without the QE2 program, its ineffectiveness strongly suggests that monetary policy alone cannot rekindle investment and growth in the current environment.

Neither fiscal stimulus nor exceptionally easy monetary policy has been effective in generating a robust recovery. We believe this poor performance relates directly to the severe household and bank balance sheet damage caused by the housing boom and bust. Until that damage is repaired we are unlikely to see robust economic growth. The challenge then is to determine what course of action promotes balance sheet repair. Our examination of past financial crises indicates that fiscal consolidation has triggered exchange rate depreciation in other countries, and depreciation has led to strong recoveries based on export growth.

Financial Inflows and Depreciation

In all of the economies we've examined that experienced a boom and collapse, with a financial crisis precipitated by the collapse, a rapid increase in fixed investment has been a

³ We calculate Treasury security acquisition by the Federal Reserve from the difference between line 3 in Table 1 of the July 7, 2011 and the Nov. 18, 2010 H.4.1 releases from the Federal Reserve.

⁴ The figures on bank lending come from line 9 on page 2 of the H.8 release from the Federal Reserve.

significant element of the boom.⁵ In most of these cases, substantial support for the boom has come from foreign investment. During a boom, most financial inflows find their way into private investments by either households or firms. After a fixed investment boom collapses, the demand for private investment instruments (such as mortgage-backed securities) diminishes sharply. If the supply of public investment instruments (i.e., sovereign debt) also declines, there are few instruments that foreign investors can obtain from a country that has been running a current account deficit. This necessitates a change. If foreign investors don't find appealing investment instruments, then financial inflows will cease or even switch direction. The immediate effect of the reduced foreign demand for investment instruments is a decline in the exchange rate. This currency depreciation immediately reduces the price of exports and raises the price of imports; exporters expand output in response to the surge in profit margins. Hence, the reversal of financial and capital account flows translate into a reversal of the current account deficit. And the shift toward exports also adds to total output and generates an added income stream for export-oriented firms, for their suppliers, and for the labor market.

Fiscal Consolidation, Depreciation and Recovery in Finland, Thailand, and Iceland

The course of the Finnish, Thai, and Icelandic collapses and their financial crises were similar in many ways to our own experience, although all had much more severe downturns than ours. In the U.S., from peak to trough, GDP fell 5.1% in the recent recession. In Finland GDP fell 12.6%, in Thailand the decline was 16.0%, and GDP fell 14.3% in Iceland.

In most of the countries that we've examined, the boom, collapse, and recovery followed a similar path. In each, much of the growth was in fixed investments financed largely by foreign investment. When the return on these investments grew uncertain, foreign investment slowed and then reversed suddenly causing a financial crisis. In all of these economies, the collapse of fixed investment was similar in magnitude to the total decline in economic output. By the time that these economies had recovered to the level of output that they first attained before the collapse, the decline of fixed investments was almost entirely compensated for by an increase in net exports. In other words, the economy had reoriented itself from a boom in fixed investments to an emphasis on export-led growth.

In addition to the depth of the collapses of fixed investments in these economies, the durations of the fixed investment collapses were remarkable. In Finland, fixed investment peaked in the last quarter of 1989 and fell 52.5% over the next four years; it was 17 ½ years before fixed investment reached its pre-crisis level again. In Thailand, fixed investment peaked

⁵ Fixed investments are primarily residential and commercial structures and firms' investments in plants and equipment.

15 years ago (in the fourth quarter of 1996) and then fell 58.9% over the next two years; real fixed investment was still 15.7% below that peak level in the fourth quarter of 2011. In Iceland, fixed investment fell 78.2% from its peak in the fourth quarter of 2006 to its trough in the first quarter of 2009. In the fourth quarter of 2011, real fixed investment in Iceland was 59.1% below its peak level. In the U.S., non-residential fixed investment plus investment in residential structures fell 32.5% between its peak in the first quarter of 2006 and its trough in the fourth quarter of 2009; it now stands 23.4% below its peak level. In all of these economies, for a recovery something needs to pick up the slack from the steep declines in fixed investment.

We've seen common patterns in Finland, Thailand, and Iceland. In each of these countries, when fixed investment collapsed, economic output contracted sharply. But in all three cases, capital inflows and the current account deficit continued until government expenditures were curtailed; once government expenditures fell, neither the private sector nor the public sector could absorb capital inflows from abroad. International capital inflows reversed direction, their currencies depreciated sharply, and net exports grew rapidly.

Following depreciation, when exports rapidly increase (and typically overtake imports as they did in Finland, Thailand, and Iceland), that addresses several problems. First, a current account surplus replaces the net capital inflows that existed when the country was running a current account deficit. That is, the income stream generated when exports exceed imports is a form of capital formation that can replace the financial inflows from abroad that prevailed before depreciation and the current account reversal. Second, the capital formation that results from a reversal of the current account can be used to repay the foreign debts accumulated during the period of current account deficits; far from "begging" their neighbors, they are paying them back. Third, export production becomes a source of growth in place of the growth of fixed investments that is so common during a boom. Finally, by raising the cost of imports and allowing for price increases in the domestic products that compete with imported goods, depreciation creates the inflationary pressure that domestic monetary policy was impotent to create, and typically overcomes the deflationary pressure that is so commonly a part of the collapse of an investment boom. These forces begin mending damaged balance sheets by reducing debt load relative to asset value, and rebuilding equity.

The fixed investment declines in Finland, Thailand, and Iceland were extremely deep, yet growth rates during the recovery periods in those countries have been considerably higher than in the U.S. since the second quarter of 2009. The annual growth rate in the U.S. in the ten quarters since the bottom of the recession has been 2.4%. In Finland, the annual growth rate over the first ten quarters after the recession was 3.4%, and in Thailand it was 5.0%. Iceland is only 6 quarters into its recovery but its growth rate over that period has been 5.5% per year. Our argument is that export driven growth is the most effective course when the collapse of a

fixed investment boom leads to losses on assets, a financial crisis, a severe downturn and damaged balance sheets.

The Finnish Crisis

The Finnish crisis was preceded by a long period with a high level of fixed investment that increased until it peaked at 30.4% of GDP. Fixed investment began to collapse in the first quarter of 1990. By the time of the banking crisis in the fall of 1991, fixed investment had fallen nearly 30%. For several years before the financial crisis and the balance-of-payments crisis, exports in Finland had been falling while capital inflows had been rising. In a typical pattern, some foreign investors must have detected the decline in exports, because capital inflows diminished before the crisis. Government expenditures continued to rise rapidly during the first six quarters of the downturn, but after the financial crisis, government expenditures leveled off in the last quarter of 1991 and began to fall early in 1992. The fiscal consolidation contributed to the sharp depreciation of the Finnish markka between August of 1992 and February of 1993. Exports, which had been fluctuating in a narrow range around 25% of the Finnish economy since the last quarter of 1985, began to surge immediately after the depreciation of the markka, reaching 35% of Finnish output two years after the depreciation began. In a pattern that we've seen following financial crises in many countries, when government expenditures were curtailed, the currency depreciated sharply and the growth rate of exports moved sharply ahead of the growth rate of imports. The reduction to government expenditures came at the middle of the depression, but even after the depression ended there was a modest decline in government expenditures that continued until the recovery was well underway.

Soon after government expenditures began to fall, the value of the Finnish markka fell 33.3%. By the time that the sharp depreciation ended, a gap had already opened up between exports and imports. That gap grew over time and by the end of 1993 Finland had entered a current account surplus. (The fact that net exports were almost 4% of GDP in the third quarter of 1993 and the current account was still negative indicates that service costs on external debt were large in Finland after the large capital inflows in the 1980s.)

When the economic cycle peaked in the first quarter of 1990, Finnish exports were 22.4% of GDP. By the time that GDP recovered to its peak level in the fourth quarter of 1996, exports had reached 37.5% of GDP. During the same period imports went from 23.1% of GDP to 31.1% of GDP. Pre-crisis, during the period when the current account is negative, imports typically grow faster than exports. Post-crisis that reverses. The reversal appears to be part of a natural process in which external creditors recognize that capital flows are out of balance and their

investments might not perform well. When the currency depreciates excessive inflows of capital decline and eventually reverse.

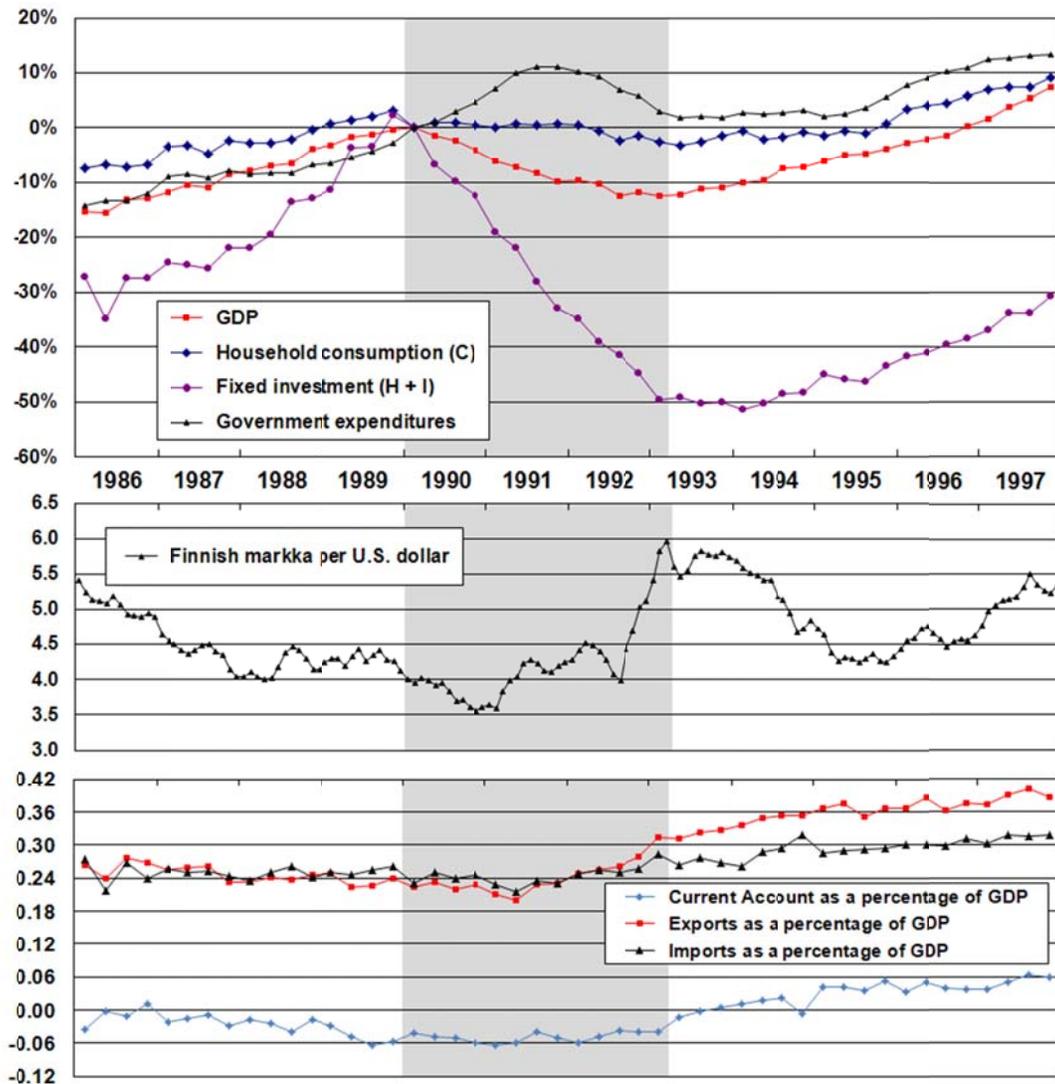


Figure 1: The Finnish depression in 1990-93. The top panel of the graph shows GDP in each quarter from 1986 to 1997 relative to its level at the peak of the economic cycle in Q1 1990. For example, GDP was 10.5% lower in Q2 1987 than it was in Q1 1990; it was 9.8% lower in Q3 1991 than it was in Q1 1990. The other three series are interpreted similarly. The Finnish downturn was nearly 2½ times as deep as the U.S. downturn and their fixed investment collapse, at 14.4% of GDP, was substantially larger than the maximum fixed investment decline of 4.9% of GDP in the U.S.

The fundamental dislocation during the crisis and depression was a collapse of fixed investment; the recovery consisted primarily in filling the gap from the reduction to fixed investment with export growth. Fixed investment was 29.7% of the Finnish economy at the

peak of the economic cycle in the first quarter of 1990. When the peak level of GDP was first reached again in the fourth quarter of 1996, fixed investment was 18.2% of GDP. Exports increased by 15.1% of GDP over that period, while imports increased by 8.0% of GDP. Net exports increased by 7.1% of GDP over that period while fixed investment declined by 11.5% of GDP. To a large extent the recovery consisted of a shift from fixed investment to production for export to the rest of the world.

One frequent objection to depreciation is that it will set off a series of competitive devaluations that essentially constitute a zero-sum game in which countries in succession follow a beggar-thy-neighbor strategy, taking export market share away from other countries. But this is not what happened in Finland: imports into Finland rose along with exports after the depreciation of the markka. In the eight years preceding devaluation, real imports in Finland grew 4.1% (only 0.5% per year); in the first four years after depreciation real imports grew 38.2% (8.4% per year) and in the first eight years after depreciation they grew 73.2% (7.1% per year). In most of the other serious downturns that we've examined, including Thailand, Korea, Malaysia, Argentina, and Mexico, imports have increased as a percentage of GDP following depreciation, so this objection to depreciation does not have empirical support in the crisis countries that we have evaluated.

The Thai Crisis

As in the U.S. over the decade from 1997 to 2006, Thailand went through a long period of large current account deficits. As in the U.S., as investment grew and current account deficits accumulated, investors eventually grew skittish and withdrew. The collapses of construction and fixed investment were very pronounced and appeared even before the financial crisis and the balance-of-payments crisis. After asset values fell and international financial inflows ceased, the financial crisis developed and International Monetary Fund (IMF) assistance was sought. Loan funds from the IMF were provided with the stipulation that government finances remain on a solid foundation. Restricted access to foreign capital meant that capital was scarce, and that a reversal of the current account from deficit to surplus was the only way to improve liquidity.

By mid-August, about six weeks after the collapse of the baht, the government had implemented tax increases and finalized spending cuts as the first steps in its fiscal consolidation plan. By the time of that the fiscal consolidation program was undertaken, the baht had fallen from 25 to the dollar to about 32 to the dollar. Over the next five months, it fell to about 52 to the dollar before improving over the course of 1998 and settling in a range around 40 to the dollar. We've described linkages from fiscal consolidation to currency

depreciation, and from depreciation to a shift toward export-led growth in Finland. In Thailand the same sequence played out.

Reversal of the current account deficit came quickly after depreciation in Thailand; the improvement was extremely rapid at first and then subsided. As in Finland in September, 1991, in Iceland in October, 2008 (and in the U.S. in September, 2008 for that matter), the financial crisis came in the middle of the downturn. As in Finland and Iceland, financial inflows were seriously impeded during the crisis, and rapid currency depreciation resulted. The impact of this on the export sector was almost immediate.

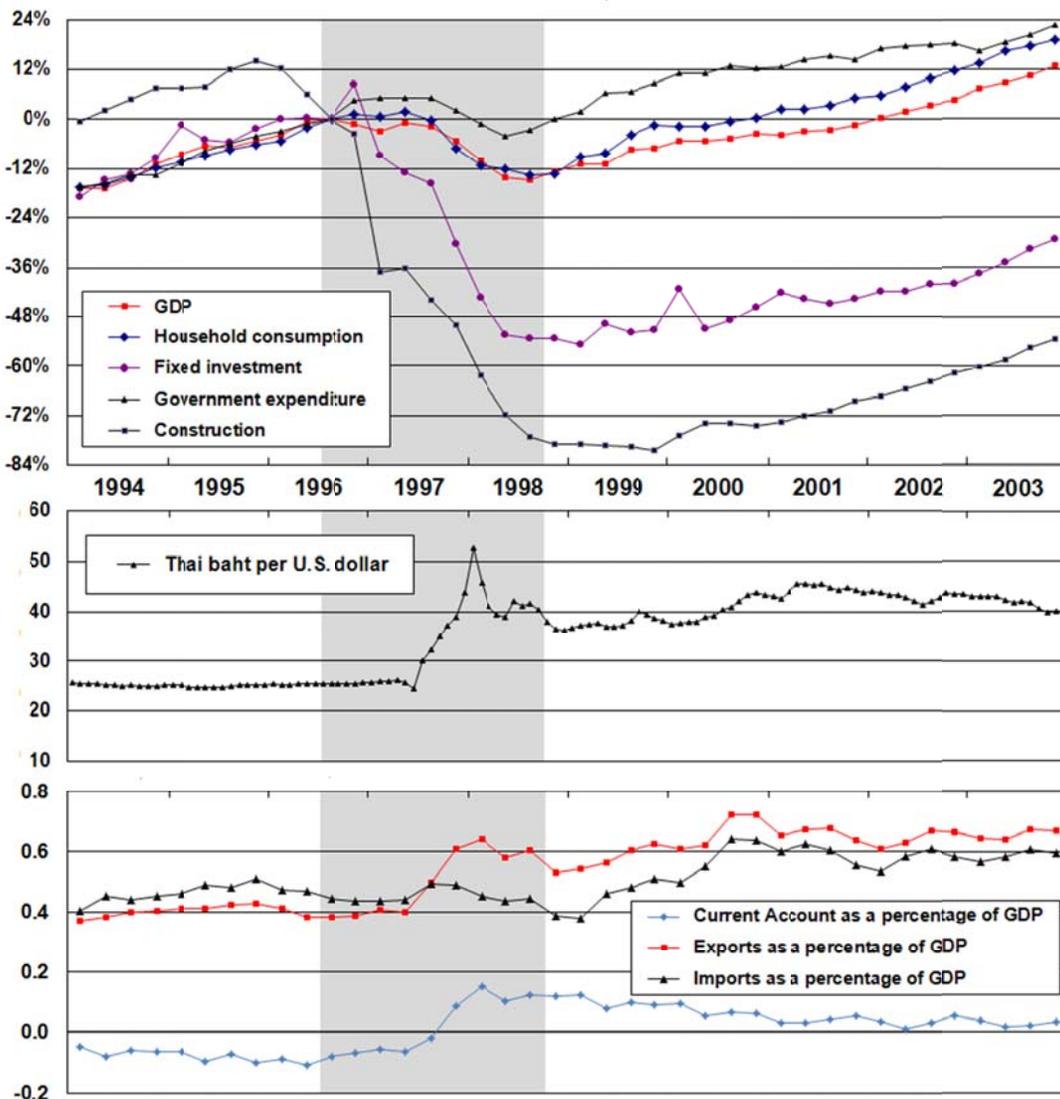


Figure 2: The Thai depression of 1996-98. The interpretation of the data series in the top panel is the same as in Figure 1. The Thai downturn was deep, but the quick recovery of their current account facilitated balance sheet repair. The lack of foreign capital investment after the crisis forced devaluation on Thailand because that was the only way to obtain needed funds.

If we examine the changes in output from the peak of the economic cycle in the third quarter of 1996 to output when the economy reached its peak output level again in the third quarter of 2002, we find that, as in Finland, the decline in fixed investment accounted for most of the fall in output, and the increase in net exports accounted for most of the recovery of output.

From the peak of the economic cycle in the third quarter of 1996 until that peak output level was finally reached again in the first quarter of 2002, fixed investment fell from 39.6% of GDP to 23.0% of GDP. During the same period, exports went from 37.8% of GDP to 61.7% of GDP, and imports increased from 43.7% of GDP to 54.3% of GDP. As in the Finnish depression, fixed investment fell substantially as a proportion of GDP, and net exports made up for much of the decline. In Thailand the decline in fixed investment was 16.6% of GDP and the increase in net exports was 13.3% of GDP. Clearly it was net exports that made up for most of the decline in fixed investment. Moreover, as in Finland, in Thailand depreciation led to an increase in imports. Between the peak of the economic cycle in the third quarter of 1996 and the recovery to the peak in the first quarter of 2002, Thai imports grew from 43.7% of GDP to 54.3% of GDP.

The Icelandic Crisis

The Icelandic crisis was preceded by several years of extraordinary capital inflows. At its maximum, the gap between imports and exports reached 22.0% of GDP in the fourth quarter of 2006. These capital inflows supported equally extraordinary growth of fixed investment. Between the first quarter of 2002 and the fourth quarter of 2006, the growth rate of private fixed investment in Iceland was 31.3% per year. For perspective, growth of fixed investment exceeded total growth of the Icelandic economy during that period. When the fixed investment bubble burst, the collapse was even faster than the expansion had been – real private fixed capital formation fell 78.3% in only 9 quarters – and it fell to a level below its level when the rapid expansion began.

The rapid expansion of fixed investment was fueled by the large increase in the deposits in the Icelandic banking system. According to the Central Bank of Iceland, the liabilities of the Icelandic Banking system reached 12.9 times GDP on the eve of the financial crisis. The U.S. has a large banking system, but the liabilities of our financial sector in the third quarter of 2008 when the financial crisis struck were 1.18 times GDP.

Soon after the financial crisis entered its final stage in the U.S., conditions deteriorated sharply in Iceland. The assets of the Icelandic banking system were illiquid and their value fell sharply in the last quarter of 2008. Iceland turned to the IMF for loans, and the IMF required fiscal consolidation as a condition of the loans. The krona began to depreciate just before fiscal consolidation was undertaken, and Icelandic exports quickly overtook imports. As in Finland

and Thailand, the improvement in net exports has been the major contributor to the recovery up to this point. Over the five years since fixed investment peaked in the fourth quarter of 2006, private fixed investment has fallen from 35.5% of GDP to 11.1% of GDP – a decline of 24.4% of GDP. In that same period, exports have increased by 22.7% of GDP and imports have fallen by 4.8% of GDP, so net exports have increased by 27.5% of GDP. In only seven quarters of recovery, the Icelandic economy has now recovered 62.2% of the total decline in output suffered during the depression. The improvement in net exports can account for the entire recovery of Icelandic output to a level that it first attained just four quarters before the peak of the economic cycle.

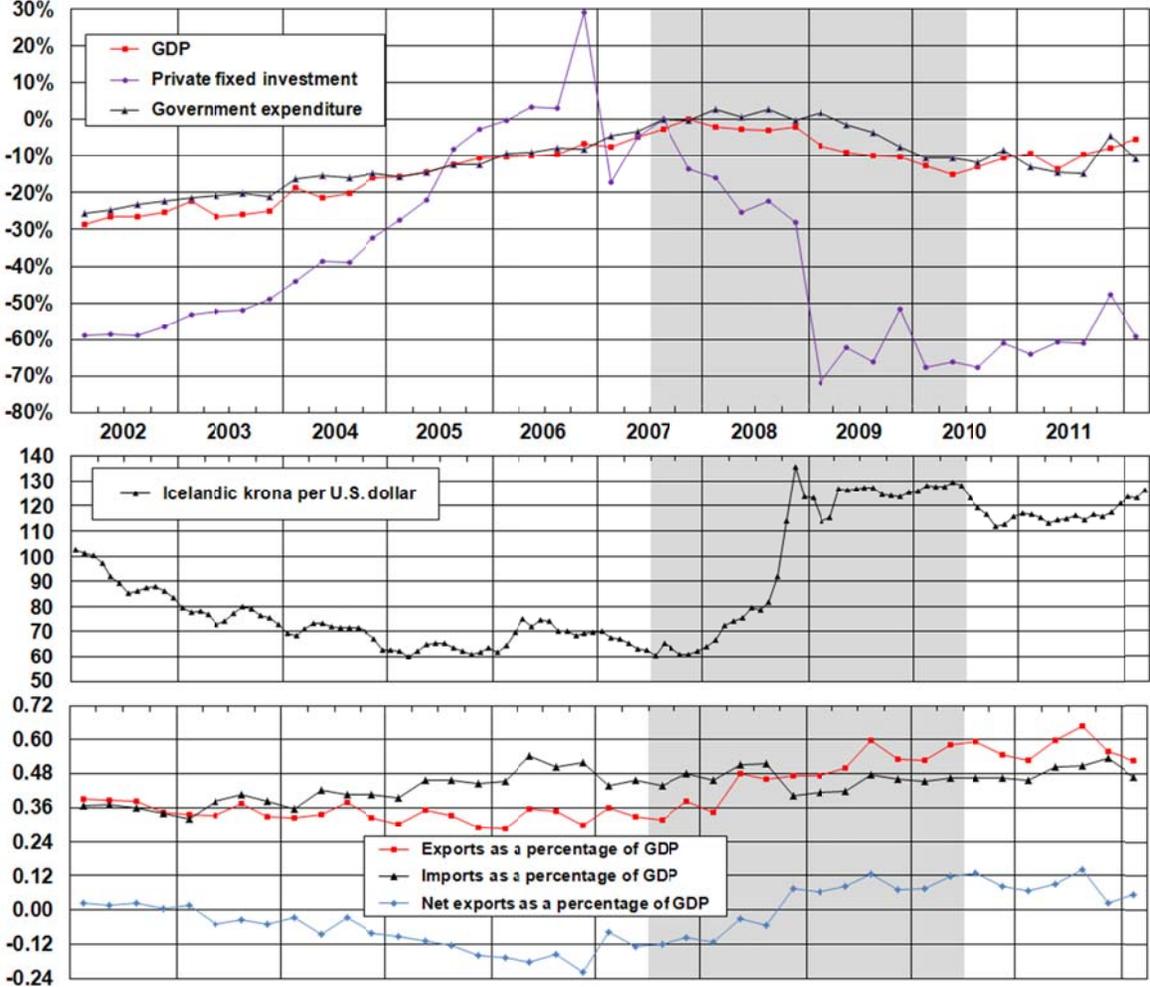


Figure 3: The Icelandic depression of 2007-10. The interpretation of the data series in the top panel is the same as in Figure 1. The Icelandic depression was nearly 2% times as deep as the U.S. downturn and their fixed investment collapse, at 24.4% of GDP, was 5 times larger than the maximum fixed investment decline of 4.9% of GDP in the U.S. Nevertheless, their growth rate during their recovery has exceeded the growth rate in the U.S. since our recovery began.

Conclusions

When households and banks suffer from pronounced and widespread balance sheet damage, the economy's response to both monetary and fiscal stimulus is severely muted compared with what would normally be expected if the household and bank equity positions were strong. The experience of other countries strongly suggests that in these circumstances fiscal consolidation triggers a mechanism – currency depreciation – that supports recovery of aggregate output.

The fiscal consolidation-currency depreciation mechanism is remarkable⁶; it offers a subtle end-run around the failure of monetary ease to stimulate the supply of credit to households for their purchases of housing and durable goods via the normal route of increasing lenders' profit margins on loans. The effect of depreciation is to immediately increase the solvency and improve the balance sheets in export related industries. It will also tend to be inflationary and this serves to initiate a mechanism for reducing the burden of debt and improving balance sheets generally in the economy.

Although the export increases in Finland, Thailand, and Iceland were very large, comparable increases are not required in the U.S. for at least two reasons. In Finland, fixed investment fell from 30.4% of GDP just before the peak of their economic cycle to only 16.0% four years later. In the U.S., fixed investment (including residential construction) fell from a peak of 15.0% of GDP to 10.1% of GDP. The fixed investment decline in Finland was over 2¾ times as large relative to GDP as it was in the U.S. In the fourth quarter of 2011, investment in the U.S. is \$435.6 billion below its peak level. In Finland most of the adjustment took the form of a shift from fixed investment toward a greater emphasis on exports. For the U.S. to replace that investment gap with exports, we would need to see an increase in exports from 13.8% of GDP to 17.1% of GDP. An increase in exports of this magnitude is feasible. In fact, such an increase would still leave us with a small trade deficit. Even if the effect is not that large, it would work the right direction, aiding recovery.

Fiscal stimulus may partially prop up GDP in the short run, but it extends a current account deficit from the pre-crash period into the post-crash period, pushing up the value of the dollar, making our exports less competitive on world markets. We've shown three countries that all cut their government expenditures and quickly experienced a sharp depreciation, rapid export growth, and then a robust recovery. All three of these countries experienced a reduction in fixed investment during their crash that was much more severe than our own. In one of these cases, Finland, it took 17 ½ years before real fixed investment recovered to its pre-crisis level;

⁶ We saw its opposite occur in the aftermath of the stimulus of 2008-9 which ushered in an increase in the US current account deficit, and worked against an increase in domestic production and employment.

even after it had recovered, fixed investment remained a much smaller part of the economy. At the peak of the investment boom in the last quarter of 1989 fixed investment was 30.4% of the Finnish economy; in the second quarter of 2011 twenty-one and a half years after the collapse began it was 19.0% of their economy. Two decades after the collapse fixed investment has not recovered the role that it had in the Finnish economy before the collapse, and probably never will. Proponents of fiscal stimulus suggest that government expenditures should fill the gap from declining private investment, but this is an enormous gap to fill, and past experience suggests that it would need to be filled for a long time. No government could persist in such a program and remain solvent, nor is there any need to do so. The growth and recovery in Finland, as in Thailand and Iceland, came in net exports. Fortunately for the U.S., we had a much smaller decline in fixed investment, from 15.0% of GDP to 10.1% of GDP, so we need a much smaller increase in exports to compensate for the investment decline. But there is good reason to believe that we'll need the growth in exports to compensate for the decline in fixed investment: in the year and a half since fixed investment bottomed out at 10.1% of GDP, it has only risen to 11.1% of GDP. We've only recovered one fifth of the way to the peak of fixed investment when it reached 15.0% of GDP five and a half years ago. Based on our own slow recovery, and on the decade and a half that it has taken other countries to regain declines in fixed investment after fixed investment booms end, it seems clear that something else needs to fill the gap: export-led growth has filled that role in all of the other comparable crashes that we've examined.