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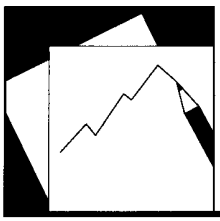

# IMF Working Paper

# Cross-Country Experience in Reducing Net Foreign Liabilities: Lessons for New Zealand

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# Cross-Country Experience in Reducing Net Foreign Liabilities: Lessons for New Zealand

**Prepared by Ding Ding, Werner Schule and Yan Sun**[1]

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## Abstract

This paper studies the dynamics of net foreign liabilities across a number of countries. Our historical analysis suggests that an orderly reduction in a country's net foreign liabilities has mostly occurred when there was significant improvement in gross public savings through deliberate fiscal consolidation measures. Simulations of a dynamic general equilibrium model calibrated for New Zealand indicates that sustained government deficit reduction could improve the country's net foreign assets by about half of the accumulated public savings. However, given New Zealand's relatively strong fiscal positions and previous work noting structurally low household savings, an orderly improvement in New Zealand's external position in the medium term will depend on a structural improvement in private savings.

JEL Classification Numbers: E62; F32; F41

Keywords: Net foreign liabilities, Current account balance, Public savings, Fiscal consolidation

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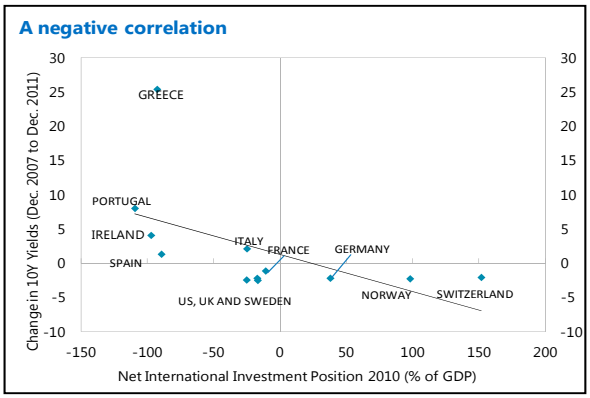
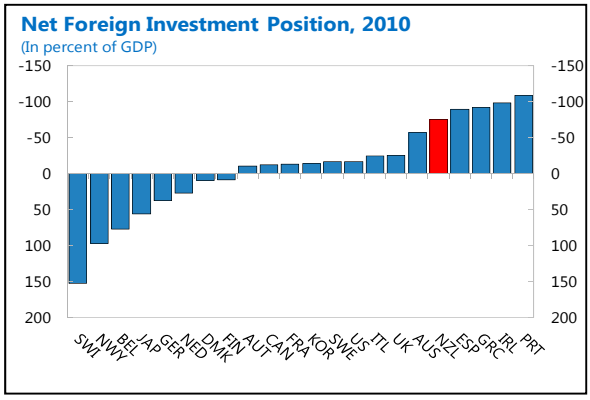
# I. INTRODUCTION

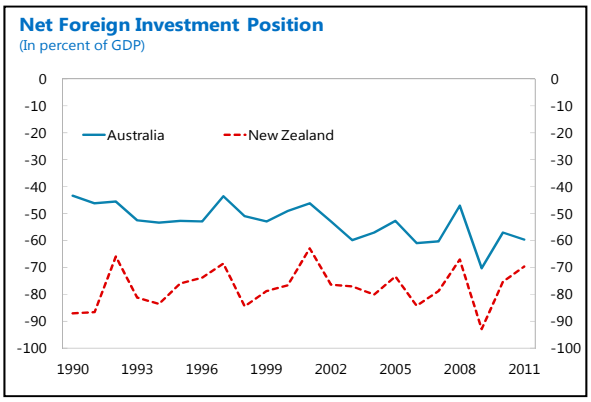
The consolidated financial position of a country has proven to be an important indicator of vulnerability to stress. As evidenced by the recent Euro area debt crisis, the rise in a country's sovereign bond yields is positively correlated with its net foreign liabilities (NFL), a measure of overall indebtedness relative to the rest of the world. Catao and Milesi-Ferretti (2013) also find that steeper crisis risks tend to arise when a country's net foreign liabilities exceeds certain thresholds.



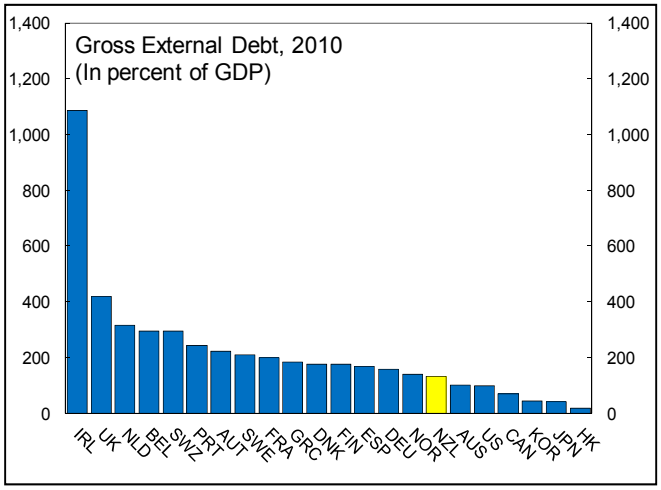

This paper analyzes cross-country experience in reducing NFL, with a focus on the relative contributions from private and public sectors. We examine the countries that have managed to reduce their NFL and sustain the reduction over time. We are particularly interested in orderly adjustments that are not triggered by crises. By analyzing these unforced adjustments, we attempt to draw lessons that may be relevant for New Zealand in reducing its large external indebtedness.

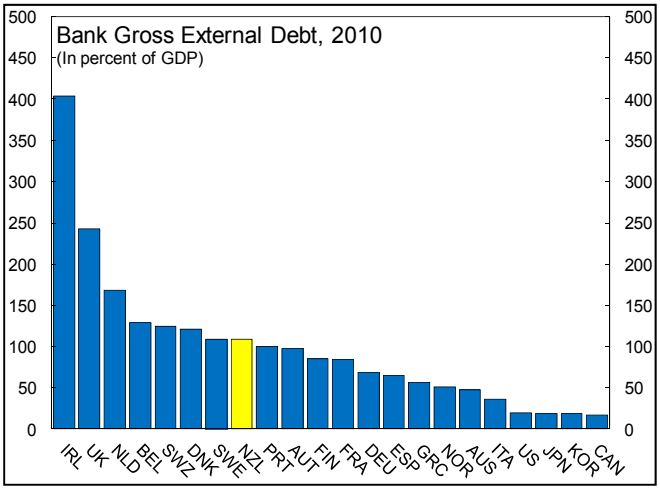
New Zealand's current level of NFL, around 70 percent of GDP, is high by advanced country standards. But its gross external asset and liability positions are lower than in many other advanced economies.[2] New Zealand's sizable external imbalances largely reflect the indebtedness of its private sector, particularly banks. The large NFL matter for public policies because private debt, in particular as it is intermediated by the banking system, may become a fiscal liability in the event of large negative shocks to bank balance sheets. On the other hand, New Zealand's flexible exchange rate serves as an important buffer against external shocks, and the widespread hedging by the New Zealand banks helps mitigate potential exchange rate risks.




[2] Obstfeld (2012) suggests that gross positions better reflect the impact on national balance sheets of economic shocks.




A caveat is warranted here. This paper does not assess what a country's optimal level of NFL should be. Although we focus on episodes of sustained reductions in NFL, by no means do we suggest that such reductions are always desirable. At times, an increase in NFL may be desirable as it reflects better international risks sharing to help finance needed domestic investment. That said, it is critically important for policymakers to monitor the evolution and underlying factors of external indebtedness on both a net and a gross basis.

The main conclusions are:

- If history provides any guide, a country can reduce its net foreign liabilities smoothly over time.

- Orderly reductions in NFL have been mostly associated with large improvement in gross public savings, often led by deliberate fiscal consolidation measures.

## II. Selection of Episodes

We use the annual net foreign asset database developed by Lane and Milesi-Ferretti (2010a) and updated by Catao and Milesi-Ferretti (2013). Our analysis covers 55 advanced and emerging market economies over the period of 1970–2011.[3]

Movements in net foreign liabilities (in percent of GDP) can reflect both cyclical and structural factors. We focus on reductions in NFL that are sustained over the business cycle, as relatively short-lived reductions may well reflect cyclical rather than structural and policy factors. An episode of "sustained" reduction is defined as a period of 8 years or more during which a country's net foreign assets (liabilities) display a clear upward (downward) trend. We exclude six economies (Hong Kong, Japan, Germany, Singapore, Switzerland, and Taiwan POC) from our study because their net foreign assets either show a clear upward trend or have never been

[3] See the Appendix for country coverage.

negative for the entire sample period. Norway is also excluded from the sample as it has accumulated large net foreign assets over time through oil exports.

Our selection approach is straightforward. We identify 23 episodes, including 10 in advanced countries and 13 in emerging market economies, where there has been a clear and marked decline in NFL (Table 1). The beginning and ending years of an episode are years with the highest and lowest levels of NFL during that period. We also use the Hodrick–Prescott filter to identify episodes of trend reduction in NFL, which confirms the results of our simple plotting approach. The text chart uses Canada to illustrate our episode selection.

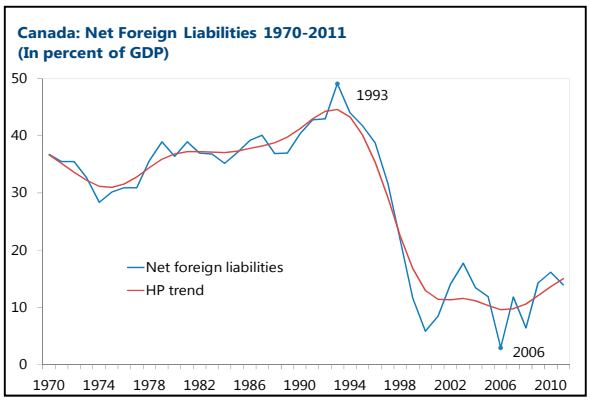



**Table 1. Episodes of Reduction in Net Foreign Liabilities 1/**
(In percent of GDP unless otherwise indicated)

| Country | Period | Initial NFA | Final NFA | Decrease in net foreign liabilities | Crisis during beginning years | Currency crisis | Inflation crisis | Debt crisis | Banking crisis | Improvement competely reversed in following years |
|---|---|---|---|---|---|---|---|---|---|---|
| **Advanced (10)** | | | | | | | | | | |
| Austria 2/ | 2001-2011 | -26.3 | -4.5 | 21.8 | | | | | | |
| | 2001-2007 | -26.3 | -21.5 | 4.8 | | | | | | |
| Belgium | 1985-2000 | -12.9 | 60.0 | 73.0 | | | | | | |
| Canada | 1993-2006 | -49.1 | -2.9 | 46.2 | | | | | | |
| Denmark | 1985-2005 | -52.2 | 3.3 | 55.5 | Y | | | | 1987-92 | |
| France | 1993-2000 | -9.9 | 16.7 | 26.6 | | | | | | Y |
| Ireland | 1984-1999 | -70.1 | 47.4 | 117.5 | | | | | | Y |
| Netherlands 2/ | 2002-2011 | -29.1 | 29.1 | 58.2 | | | | | | |
| | 2002-2007 | -29.1 | -8.6 | 20.5 | | | | | | |
| Portugal 3/ | 1984-1992 | -65.3 | -9.5 | 55.8 | Y | | | 1982-84 | | Y |
| Sweden | 1994-2007 | -44.3 | -2.4 | 41.8 | Y | | | | 1991-94 | |
| UK | 1975-1986 | 0.3 | 24.5 | 24.2 | Y | 1975-76 | | | 1974-76 | Y |
| **Emerging (13)** | | | | | | | | | | |
| Argentina | 2002-2010 | -70.3 | 3.1 | 73.4 | Y | 2002 | 2002 | 2001-05 | 2001-03 | |
| Brazil | 1986-1995 | -38.2 | -15.9 | 22.3 | Y | 1986-95 | 1986-95 | 1983-94 | 1985, 1990 | |
| Chile | 1985-1995 | -95.5 | -29.3 | 66.2 | Y | 1982-85 | | | 1982-84 | |
| China | 1995-2008 | -8.6 | 31.9 | 40.5 | Y | | | | 1992-99 | |
| India | 1993-2003 | -29.7 | -12.2 | 17.5 | Y | 1991-93 | | | | Y |
| Indonesia | 1998-2008 | -154.9 | -28.6 | 126.3 | Y | 1997-98 | 1998-99 | 1997-2000 | 1997-2002 | |
| Korea | 1985-1994 | -46.5 | -7.6 | 38.9 | Y | | | | 1985-88 | |
| Malaysia | 1996-2010 | -46.3 | 1.0 | 47.3 | Y | 1997 | | | 1997-2001 | |
| Peru | 1999-2008 | -52.1 | -24.6 | 27.5 | | | | | | |
| Philippines | 1998-2011 | -60.1 | -9.2 | 50.9 | Y | 1997 | | | 1997-99 | |
| Poland | 1990-1997 | -61.1 | -20.1 | 41.0 | Y | | 1991 | 1991 | | Y |
| Thailand | 1998-2009 | -81.3 | -2.9 | 78.4 | Y | 1996 | | | 1997-2001 | |
| Vietnam 4/ | 1998-2006 | -81.0 | -40.2 | 40.8 | Y | | | | | Y |

Source: External Wealth of Nations Mark II database (see Lane and Milesi-Ferretti 2007 and Catao and Milesi-Ferretti 2013); Reinhart and Rogoff (2009); and authors' estimates. Although the External Wealth of Nationas Mark II database relies on information published by individual countries and international organizations (such as the IMF, the World Bank, and the Bank for International Settlements), they should not be considered estimates by official IMF or country data.

1/ Excluding gold holdings.

2/ Net foreign assets data prior to the 2008 global financial crisis also reported.

3/ The Reinhart and Rogoff (2009) crisis data for Portugal are not available. Portugal experiened an external debt crisis in the early 1980s and requested an IMF stand-by arrangement in 1983 (Lopes 1983).

3/ Vietnam was not included in the Reinhart and Rogoff (2009) crisis database. It was affected by the 1997 Asian crisis.

In most of the 23 episodes, economic and financial crises are a prominent feature in early years, suggesting that crises may have prompted adjustments including fiscal consolidation and private sector deleveraging. To control for this impact, we use the crisis database created by Reinhart and Rogoff (2009) to select episodes of "orderly reductions in NFL".[4] If no crisis is recorded during the two years prior to and the two years after the beginning of an episode (that is 5 years altogether), we treat this episode as one with an orderly reduction.[5] Take Austria (2001–2011) as an example. Since the Reinhart and Rogoff database does not indicate any crisis for 1999–2003, we define this episode as one with an orderly reduction in NFL. Applying this approach to all 23 episodes in our sample, we identify seven episodes with an orderly reduction (Figure 1): Austria (2001–2011), Belgium (1985–2000), Canada (1993–2006), France (1993–2000), Ireland (1984–1999), Netherlands (2002–2011), and Peru (1999–2008).

## III. Dynamics of Net Foreign Liabilities

Before focusing on the seven selected episodes with orderly reductions in NFL, we explore the dynamics of the NFL for all 23 episodes. We first review how gross foreign assets and liabilities evolved during these episodes. Is the reduction in net foreign liabilities associated with an increase in gross assets or a decrease in gross liabilities or both? Are there any differences between advanced and emerging market economies? We then use a simple accounting framework (Lane and Milesi-Ferretti 2005) to relate the dynamics of NFL to underlying factors such as trade balance and real growth.

### Dynamics of Gross External Assets and Liabilities

Table 2 decomposes changes in NFL to changes in gross foreign assets and liabilities. There are significant differences between the advanced and the emerging market economies in their experiences of reducing NFL.

- Likely reflecting their more advanced financial development and stronger economic and financial integration within the region (Europe) and with the rest of the world, advanced economies generally experienced an increase in both gross foreign assets and liabilities.[6] The reduction in their net foreign liabilities reflects a higher increase in gross foreign assets than in liabilities. Ireland stands out in the magnitude of the net increases. From 1985 to 1999, Ireland's gross foreign assets increased by 525 percent of GDP and

[4] The database includes currency, inflation, debt, and banking crises.

[5] Changing the criteria to 1 year would add Denmark (1985–2010) to our selection of orderly episode. However, since Denmark had a prolonged banking crisis during 1987–92 according to the crisis database, we exclude it from our analysis.

[6] Lane and Milesi-Ferretti (2007) document the differing pace of financial integration between advanced and developing economies.

liabilities by 407 percent of GDP, with about a half of the increases taking place over the last two years (1998–99).[7]

- Most of the emerging market economies managed to reduce their net foreign liabilities through sizeable reductions in their gross foreign liabilities. The increases in their gross foreign assets are moderate compared to those of the advanced countries.

**Table 2. Dynamics of Gross Foreign Assets and Liabilities**
(In percent of GDP)

| Country | Period | Decrease in net foreign liabilities | Increase in gross foreign assets | Increase in gross foreign liabilities |
|---|---|---|---|---|
| **Advanced (10)** | | | | |
| Austria 1/ | 2001-2011 | 22 | 109 | 87 |
| | 2001-2007 | 5 | 150 | 145 |
| Belgium | 1985-2000 | 73 | 147 | 74 |
| Canada | 1993-2006 | 46 | 71 | 25 |
| Denmark | 1985-2005 | 56 | 135 | 80 |
| France | 1993-2000 | 27 | 95 | 69 |
| Ireland | 1984-1999 | 117 | 525 | 407 |
| Netherlands 1/ | 2002-2011 | 58 | 113 | 55 |
| | 2002-2007 | 21 | 144 | 123 |
| Portugal | 1984-1992 | 56 | 8 | -48 |
| Sweden | 1994-2007 | 42 | 176 | 135 |
| UK | 1975-1986 | 24 | 102 | 78 |
| **Emerging (13)** | | | | |
| Argentina | 2002-2010 | 73 | -61 | -135 |
| Brazil | 1986-1995 | 22 | 4 | -19 |
| Chile | 1985-1995 | 66 | -3 | -69 |
| China | 1995-2008 | 41 | 44 | 4 |
| India | 1993-2003 | 18 | 15 | -3 |
| Indonesia | 1998-2008 | 126 | -22 | -148 |
| Korea | 1985-1994 | 39 | 6 | -33 |
| Malaysia | 1996-2010 | 47 | 59 | 12 |
| Peru | 1999-2008 | 28 | 10 | -18 |
| Philippines | 1998-2011 | 51 | 12 | -39 |
| Poland | 1990-1997 | 41 | -7 | -48 |
| Thailand | 1998-2009 | 78 | 40 | -38 |
| Vietnam 2/ | 1998-2006 | 41 | 20 | -21 |

Source: External Wealth of Nations Mark II database; and authors' estimates.
1/ Data prior to the 2008 global financial crisis also reported.

[7] Ireland experienced strong growth in this period following the structural reforms in the late 1980s including lowering corporate profit tax rates which attracted large FDI inflows, especially by multinational companies (MNCs). The expansion of the International Financial Services Sector (IFSC) also contributed to the large expansion of gross assets and liabilities.

## An Accounting Framework of Decomposition

We use the accounting framework in Lane and Milesi-Ferretti (2005) to study the underlying factors of the dynamics in NFL. The change in net foreign assets *B* can be decomposed as follows:

$$B_t - B_{t-1} = CA_t - KG_t + E_t$$

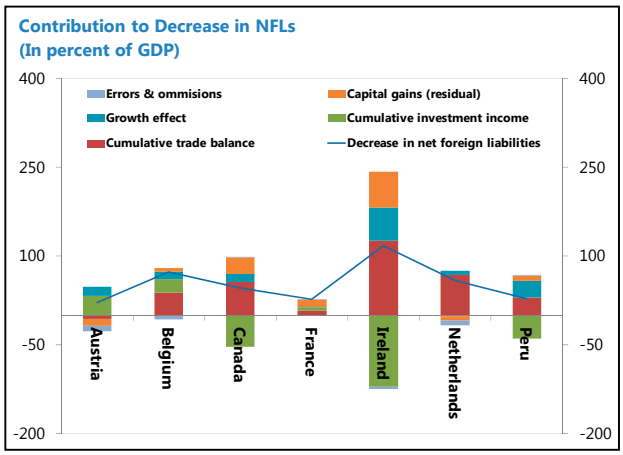
where *B* is the net foreign assets, *CA* the current account balance, *KG* the capital gains on net foreign assets, and *E* the sum of capital account balance and errors and omissions. The current account balance *CA* equals to the sum of the trade balance (including current transfers) and the investment income balance. Expressing the above equation in percent of GDP, we can decompose the reduction in net foreign liabilities to trade balance, investment income, growth effect, errors and omissions and capital account transfers, and capital gains. Since capital gains are derived as a residual, they may also reflect under-recording of financial flows and other balance of payments items.

**Table 3. Decomposition of Decreases in Net Foreign Liabilities**
(In percent of GDP)

| Country | Period | Decrease in net foreign liabilities | Cumulative trade balance | Cumulative investment income | Cumulative current account balance | Growth effect | Capital gains (residual) | Errors & ommisions and capital account transfers |
|---|---|---|---|---|---|---|---|---|
| Austria 1/ | 2001-2011 | 22 | -7 | 33 | 27 | 15 | -11 | -9 |
| | 2001-2007 | 5 | -2 | 16 | 14 | 14 | -15 | -8 |
| Belgium | 1985-2000 | 73 | 38 | 23 | 61 | 12 | 7 | -7 |
| Canada | 1993-2006 | 46 | 56 | -53 | 4 | 13 | 28 | 2 |
| France | 1993-2000 | 27 | 7 | 6 | 13 | 0.5 | 13 | 0 |
| Ireland | 1984-1999 | 117 | 126 | -122 | 5 | 56 | 61 | -3 |
| Netherlands 1/ | 2002-2011 | 58 | 68 | -2 | 67 | 7 | -7 | -9 |
| | 2002-2007 | 21 | 40 | -1 | 39 | 7 | -20 | -6 |
| Peru | 1999-2008 | 28 | 30 | -40 | -9 | 28 | 9 | 0 |

Source: External Wealth of Nations Mark II database; and authors' estimates.
1/ Data prior to the 2008 global financial crisis also reported.

Our decomposition results are summarized in Table 3. For the seven selected episodes, there is overwhelming evidence that trade balance improvement and GDP growth contributed most to the reductions in NFL, with Austria being the only exception. In most of the episodes, the trade balance improvement more than offsets the net investment income account outflows, resulting in an improvement in the overall current account balance.



## Orderly Reduction: Fiscal Consolidation vs. Private Deleveraging

Several facts are worth noting regarding the seven episodes with orderly reductions in NFL. First, the reductions by Ireland and France were undone during subsequent years, while Belgium was able to hold on to the improvement. Second, four countries (Austria, Belgium, France, and the Netherlands) had initial net foreign liabilities below 30 percent of GDP, which is relatively low compared to the current level of New Zealand's NFL (about 70 percent of GDP). Only Canada, Ireland, and Peru had initial NFL at a level similar to New Zealand's. Third, Peru had continuous IMF programs during 1993–2009, although the programs since 1999 were precautionary and no Fund financial resources were drawn. Lastly, in both Austria and the Netherlands, net foreign liabilities were already on downward trends well before the 2008 global financial crisis. It is therefore appropriate for us to focus on the dynamics of their NFL prior to 2008, as the global financial crisis may have brought a structural change in the underlying factors of the NFL.

**Table 4. Public and Private Savings**
(In percent of GDP)

| Country | Period | Decrease in net foreign liabilities | Initial gross government debt | Decrease in government debt | Increase in public saving | Fiscal consolidation periods 1/ | Initial private sector debt | Decrease in private sector debt | Increase in private sector saving |
|---|---|---|---|---|---|---|---|---|---|
| Austria 2/ | 2001-2011 | 21.8 | 66.8 | -5.6 | -2.4 | 2001-02 | 130.8 | -44.0 | 3.1 |
| | 2001-2007 | 4.8 | 66.8 | 6.6 | -0.6 | | 130.8 | -35.6 | 4.1 |
| Belgium | 1985-2000 | 73.0 | 118.4 | 10.6 | 8.9 | 1985,1987,1990,1992-94,1996-97 | ... | ... | -0.1 |
| Canada | 1993-2006 | 46.2 | 96.3 | 26.1 | 11.3 | 1993-97 | 57.4 | -15.0 | 0.3 |
| France | 1993-2000 | 26.6 | 46.0 | -11.4 | 0.5 | 1995-97,1999,2000 | 40.4 | -1.4 | 0.1 |
| Ireland | 1984-1999 | 117.5 | 92.0 | 45.1 | 41.1 | 1985-88 | ... | ... | -32.1 |
| Netherlands 2/ | 2002-2011 | 58.2 | 50.5 | -15.0 | -2.9 | 2004-05 | 227.2 | -26.6 | 8.4 |
| | 2002-2007 | 20.5 | 50.5 | 5.2 | 1.9 | | 227.2 | -11.7 | 3.0 |
| Peru | 1999-2008 | 27.5 | 42.4 | 17.4 | 5.0 | | ... | ... | -0.7 |

Source: External Wealth of Nations Mark II database; authors' calculations; OECD Private Sector Debt; Haver.
1/ Based on the fiscal policy database by Devries et al (2011).
2/ Data prior to the 2008 global financial crisis also reported.

The key question is what contributed to these countries' improved trade balances during the selected episodes, which seems to be the most important factor behind the orderly reductions in NFL. This may be associated with improvement in gross national savings through fiscal consolidation and/or private sector deleveraging. Event analysis cannot determine the direction of causality because it does not control for endogeneity. Nevertheless, it could shed some light on the linkages between fiscal consolidation, private sector deleveraging, and reductions in NFL. The main findings are as follows.

- In six out of the seven episodes (except Austria 2001–2007), reductions in NFL were clearly associated with increases in gross public savings. To the contrary, private sector did not seem to contribute to the increase in gross national savings except for Austria and the Netherlands (discussed below). Again, Ireland's episode stands out in its large magnitude of private sector leveraging during the sample period, which can be associated with the large expansion in Ireland's gross foreign assets and liabilities during the 1990s.

- The public debt reductions in Belgium (1985–2000), France (1993–2000) and Ireland (1984–1999) can be attributed at least in part to the "convergence criteria" (or

"Maastricht criteria") that were agreed by the EU member states in 1991 as part of the preparations for introduction of the euro. The convergence criteria include the soundness and sustainability of public finances, through limits on government borrowing (not more than 3 percent of GDP) and national debt (not more than 60 percent of GDP).

- For Austria (2001–2007) and the Netherlands (2002–2007), the reductions in NFL were associated with some increase in private sector savings, although gross private sector debt continued its increasing trend during the sample periods. In the case of the Netherlands, both public and private savings contributed to the decrease in NFL. Austria is the only case where the reduction in NFL was associated with private sector deleveraging, not fiscal consolidation.

- In theory fiscal consolidation would have contractionary impact on output, which could lead to exchange rate depreciation as observed in France 1993-2000 and Ireland 1984-1999 (Table 5). This may not be the only driving force in the identified episodes. Other factors such as the structural changes related to the Euro convergence may be at play, offsetting the contractionary impact of fiscal consolidation. Nevertheless, a flexible exchange rate could serve as an important policy tool to smooth fluctuations and buffer against external shocks. A depreciation of the exchange rate triggered by contractionary policies could help improve a country's trade balances and reduce its foreign liabilities. In the next section we use a dynamic general equilibrium model to illustrate the impact of fiscal consolidation on NFL in a flexible exchange rate regime.

**Table 5. Exchange Rate and Output Gap**

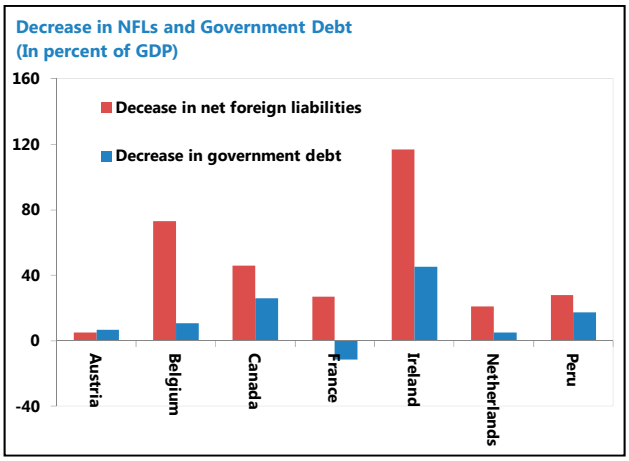
| Country | Period | REER appreciation (in %) | Average output gap (in %) |
|---|---|---|---|
| Austria | 2001-2011 | 4.2 | 0.1 |
| | 2001-2007 | 5.1 | 0.3 |
| Belgium | 1985-2000 | -3.5 | 0.3 |
| Canada | 1993-2006 | 4.9 | 0.3 |
| France | 1993-2000 | -11.0 | -0.5 |
| Ireland | 1984-1999 | -6.7 | -0.6 |
| Netherlands | 2002-2011 | 4.5 | -0.2 |
| | 2002-2007 | 5.6 | 0.1 |
| Peru | 1999-2008 | 0.1 | -0.1 |

Source: WEO.

The event analysis above is not sufficient to prove that fiscal consolidations led to the orderly reductions in NFL. The causality relationship could work the other way: a reduction in NFL could lead to lower sovereign borrowing costs and interest rates, thereby raising real growth and improving public gross savings. To get around this issue, we look at whether there are

announced fiscal consolidation plans for the seven episodes. If a planned fiscal consolidation marks the beginning years of an episode, one could argue that fiscal improvement contributed to the reduction in NFL and not the other way around.

An action-based database of fiscal consolidation compiled by Devries et al (2011) confirms that six out of the seven episodes identified above have planned fiscal consolidation, with the exception of Peru which was not included in the database (Table 4). It is worth noting that the database focuses on fiscal changes motivated by a desire to reduce the budget deficit and *not* by a response to prospective economic conditions such as domestic demand. Mauro (2011) also documented that Canada and France both had a successful fiscal consolidation plan covering 1994–97, which marked the beginning of the reductions in NFL – Canada (1993–2006) and France (1993–2000).[8] All of these evidence points to conclusion that successful fiscal consolidations have contributed to the orderly reductions in NFL.




Having established discretionary fiscal consolidation policy as a contributor to orderly reductions in NFL, we examine the relative magnitudes of the changes in public savings and net external positions for the sample episodes. It is clear that the increases in public savings alone cannot explain the full improvement in these countries' net foreign assets. First, fiscal consolidation could reduce demand for imports, but the net impact on trade balance would depend on how the private sector reacts to the consolidation measures. Second, improvements in the trade balance can only explain partially the reductions in NFL. Other factors are at play including the behavior of the income account and capital flows. In the next section we attempt to shed some light on the quantitative impact of fiscal consolidation on external positions using a dynamic general equilibrium model.

## IV. Model Simulations

Cross-country evidence presented in the previous sections suggests that successful fiscal consolidations could contribute to an orderly reduction in a country's net foreign liabilities. To complete the empirical analysis, we use the Global Integrated Monetary and Fiscal Model (GIMF), a multi-region dynamic general equilibrium model, to assess the quantitative impact of fiscal consolidations on external positions.[9] This exercise is similar to the recent literature on the connections between fiscal policy and current account balance. For example, Kumhof and Laxton (2009) show that a permanent increase in fiscal deficits equal to 1 percent of GDP, if not

[8] Details of the two consolidation plans can be found in "Chipping Away at Public Debt", edited by Paolo Mauro.

[9] For a description of the theoretical structure of the GIMF, see Kumhof and others (2010).

accompanied by equal fiscal deficit increases in the rest of the world, leads to a current account deterioration of around 0.5 percent of GDP in the short run, and to a long-run deterioration of 1 percent for a small open economy. Abiad et al (2011) found that cutting the budget deficit by 1 percent of GDP improves an economy's current account balance by over half a percent of GDP within two years, with the improvement persisting into the medium term.
The model is calibrated to fit the main features of New Zealand, including its share in the global economy, compositions of trade, the size of the government and others. (The calibrations are similar to Schule 2010.) The fiscal adjustment considered here is a deficit reduction path equivalent to 1 percent of GDP a year for five consecutive years, composed entirely of government consumption cuts.[10] The model simulation results are presented in Figure 5. Some key implications are:

- Government consumption cuts would have contractionary impact on output. Real output would decline by about 0.5 percent initially, implying a fiscal multiplier around 0.5, and recover quickly once the fiscal consolidation unwinds.

- The net impact on aggregate demand and gross national savings depends on how the private sector reacts to the consolidation measures. As the GIMF model allows for non-Ricardian household and firm behaviors, the response of private saving to fiscal policy changes is relatively muted. There is a small decline in private savings as a share of GDP, partially offsetting the rise in public savings. Gross national savings would increase accordingly.

- The decrease in domestic aggregate demand would lead to a nominal depreciation, which in turn would have positive impact on exports and partly offset the contractionary impact of the fiscal consolidation on output.[11]

- As a result of the reduced aggregate domestic demand and currency depreciation, the current account balance as a share of GDP would improve by about 0.6 percent, similar to the empirical estimates in Abiad et al (2011). Net foreign assets as a share of GDP would improve by 2.5 percentage points by the end of the fiscal consolidation, mostly through an improvement in current account balance.

Because the GIMF model is calibrated around a steady state with zero net foreign assets, the model could not capture the impact of valuation changes. In practice, a nominal deprecation would increase the value of foreign liabilities in domestic currency and lead to a rise in NFL as percent of GDP if the country has a negative international investment position (IIP). The GIMF

[10] In the GIMF model fiscal policy is conducted using a variety of instruments related to spending and taxation. Government spending may take the form of consumption or investment or lump-sum transfers. For simplicity, in this exercise we only consider cuts to government consumption spending.

[11] New Zealand's foreign liabilities are largely hedged against currency risks. The well-hedged nature of New Zealand's financial liabilities implies that there are no material adverse economic or financial effects from large depreciation of the New Zealand dollar (Munro and Reddell 2013).

model also suggests that fiscal consolidation would have contractionary impact on the economy, while the cross-country evidence presented in the previous section clearly suggests that output growth has helped reduce NFL as percent of GDP. In this regard, it is important for a country to mitigate the contraction impact of fiscal consolidation by other measures such as boosting productivity growth to further strengthen its external positions.

## V. CONCLUSIONS

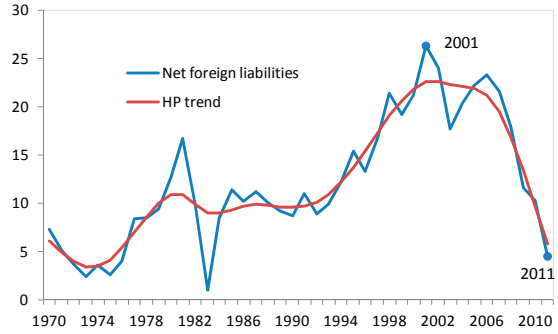
In this paper we identified and analyzed historical episodes of sustained reductions in NFL. Cross-country evidence suggests that an orderly reduction in a country's NFL has mostly occurred when there was improvement in public savings. Moreover, in most of the identified episodes with an orderly reduction in NFL, deliberate fiscal consolidation measures seem to be an important driver of the increase in gross national savings and the strengthening in external positions. This historical evidence is consistent with the results of the theoretical GIMF model, where a sustained fiscal deficit reduction would generate current account improvement and lead to an increase in net foreign assets as a share of output.

New Zealand has run persistent current account deficit in the last decades, resulting in a high level of net foreign liabilities. As a country's consolidated financial position has proven to be an important indicator of vulnerability to stress, it would be prudent to reduce New Zealand's foreign indebtedness in an orderly manner. To this end, as suggested by the cross-country evidence and model simulation results, the government's current plan to gradually reduce fiscal deficit and return the operating balance to surplus in the medium term should help raise New Zealand's national savings and strengthen its external positions.

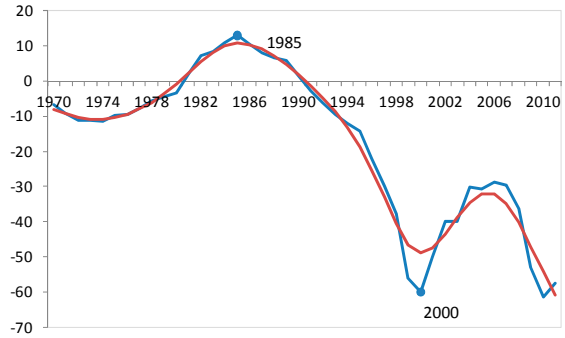
It is also noteworthy that New Zealand's gross public debt is low compared to its peers, reflecting its relatively strong fiscal positions over the years. This also implies that fiscal policy has a relatively limited role to play in raising New Zealand's national savings. As discussed in Aitken and Ding (2013), structurally low household savings is likely the main reason for New Zealand's persistent current account deficit and the resulting stock of net foreign liabilities. In this regard, much of an orderly improvement in New Zealand's net external positions will depend on whether the increased household saving rate in the past few years represents a structural shift from previous household saving behaviors.

**Figure 1. Net Foreign Liabilities, 1970–2011**
(In percent of GDP)

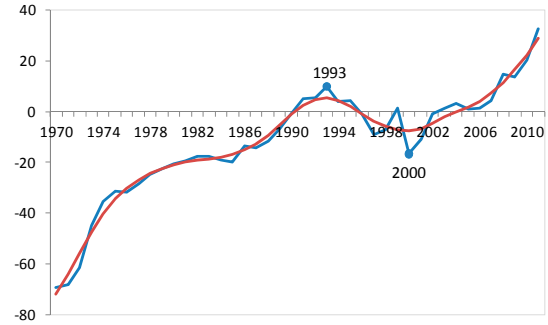
Austria



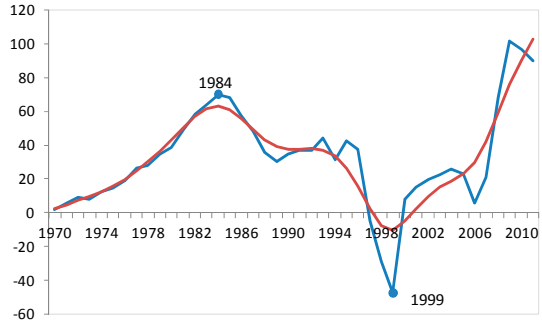

Belgium



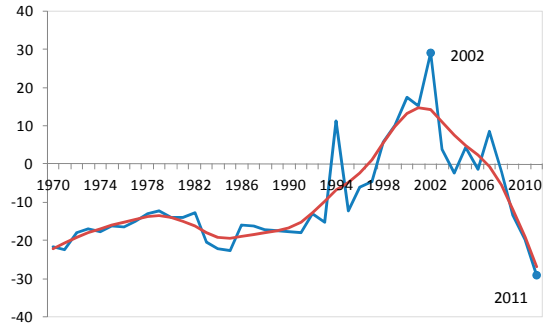

France




Ireland




Netherlands




Peru

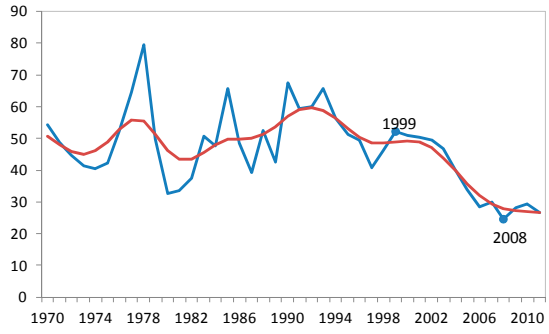
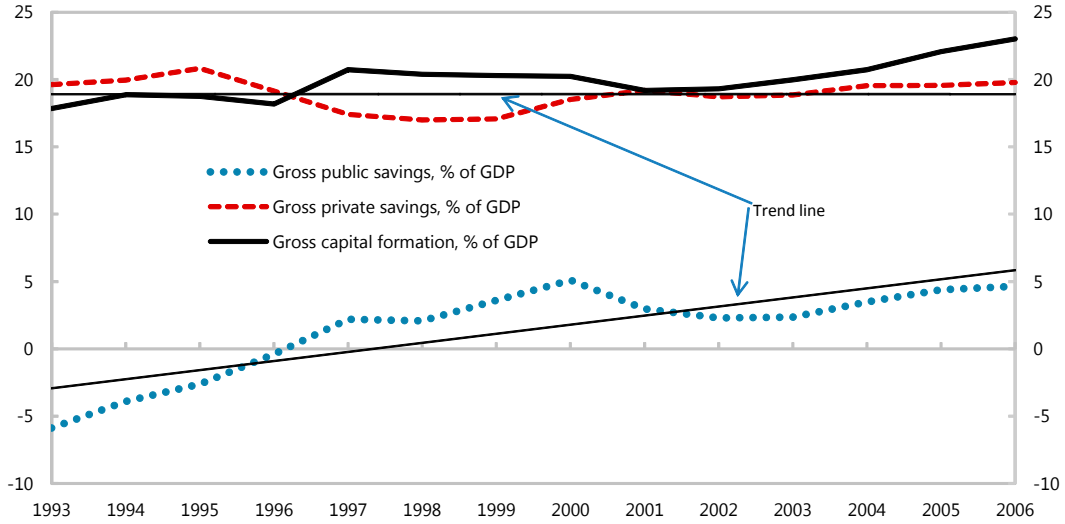
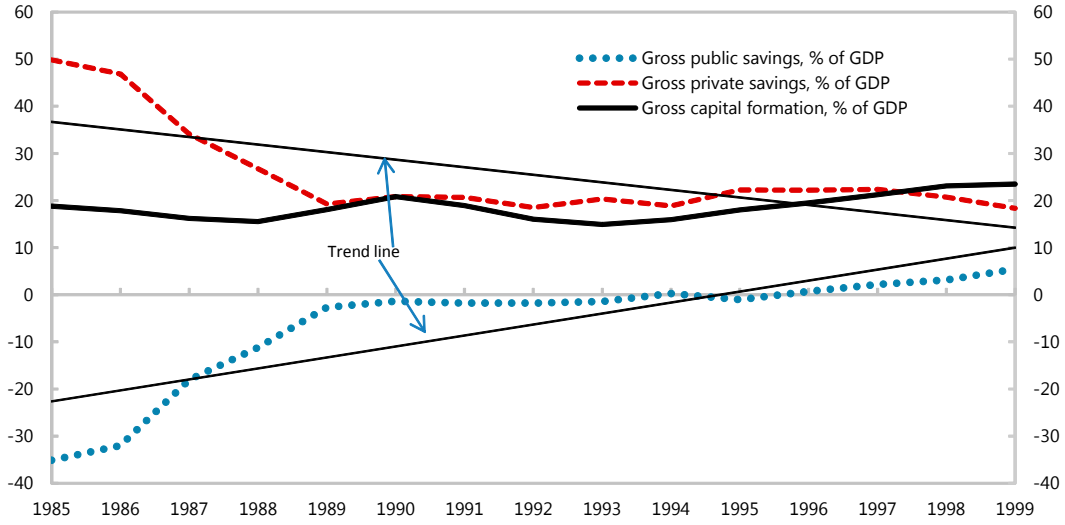


Figure 2. Canada and Ireland

**Canada: Public and Private Savings**
(In percent of GDP)

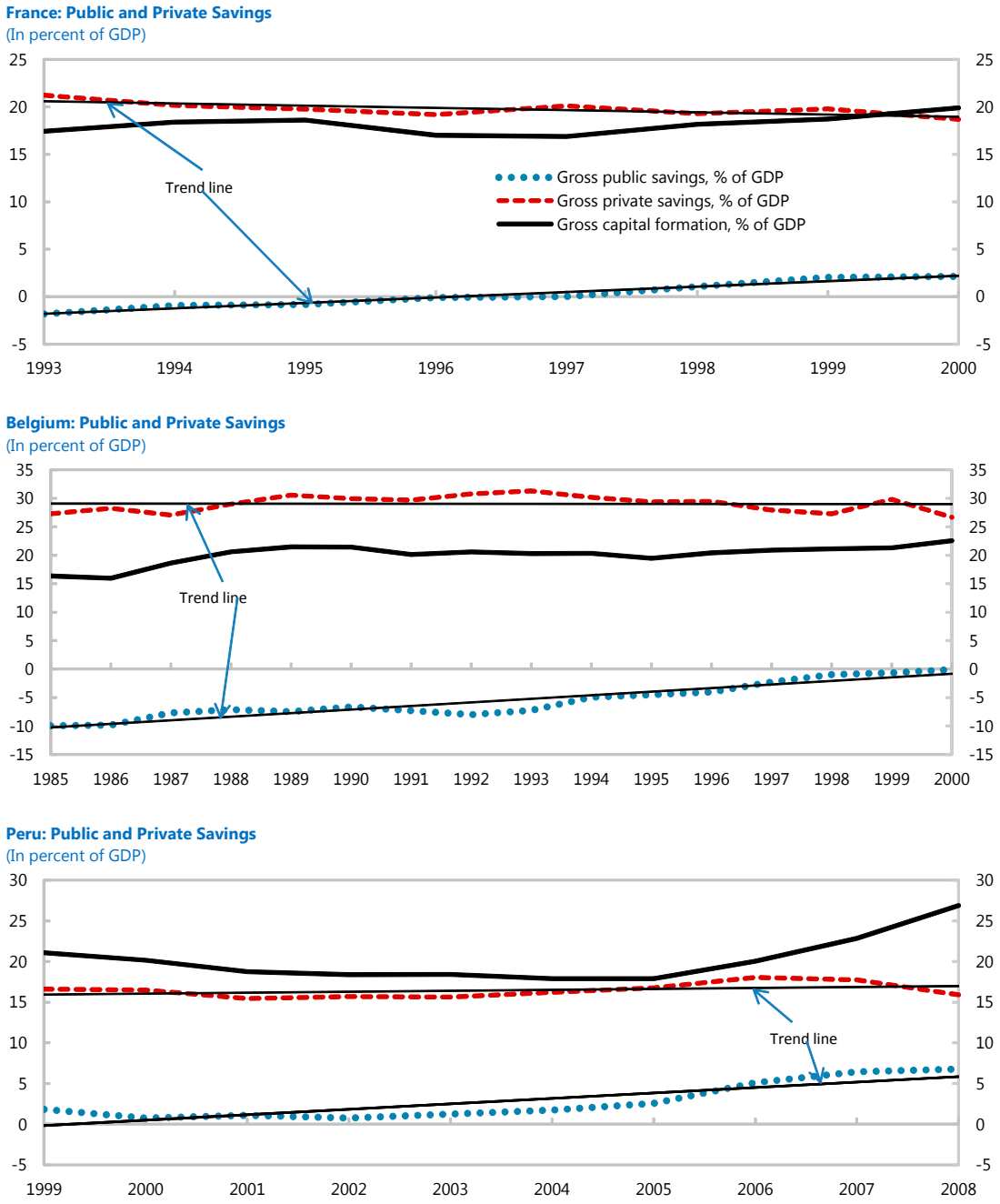



**Ireland: Public and Private Savings**
(In percent of GDP)



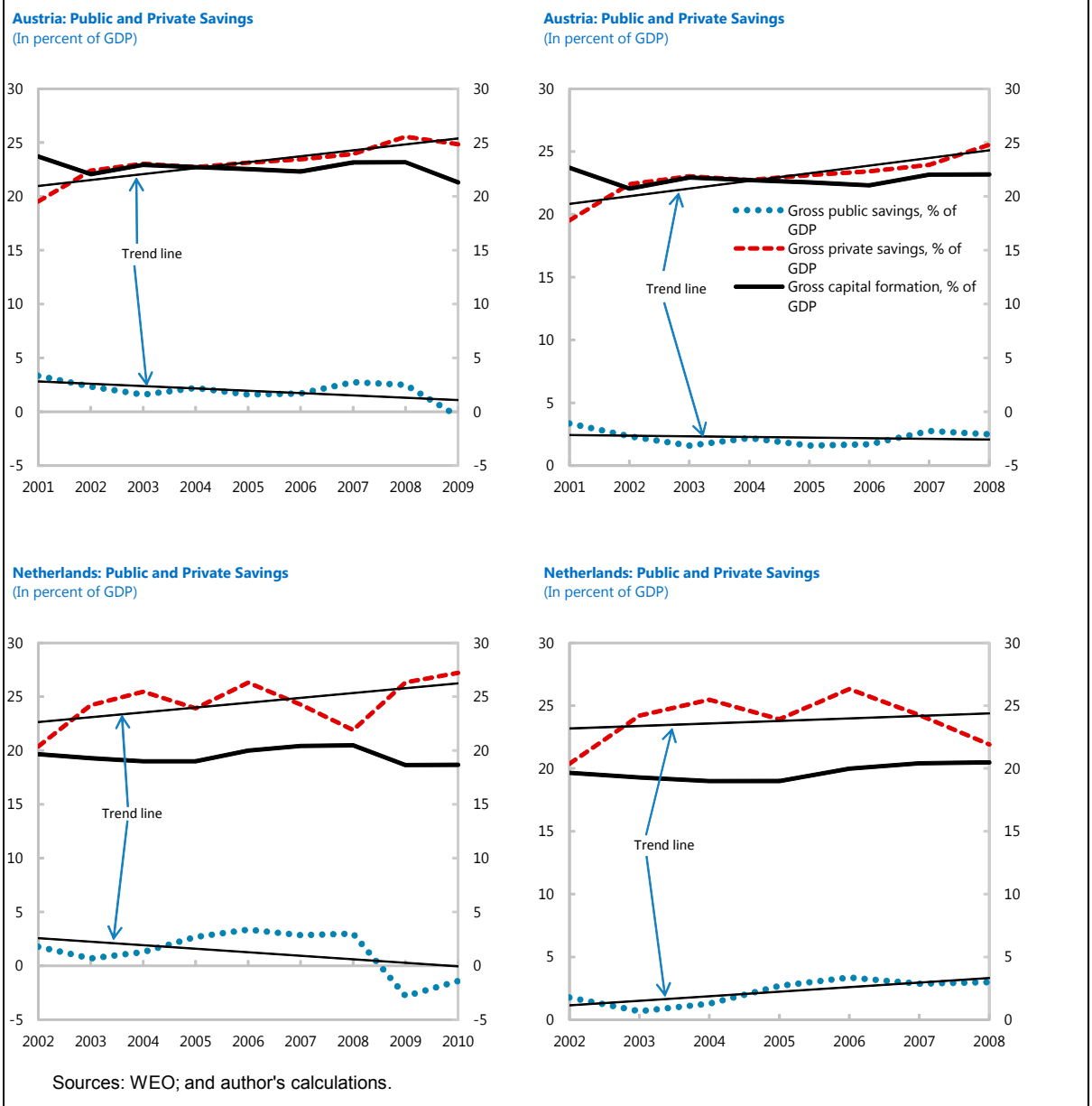

Sources:WEO; and author's calcuations.

Figure 3. France, Belgium, and Peru



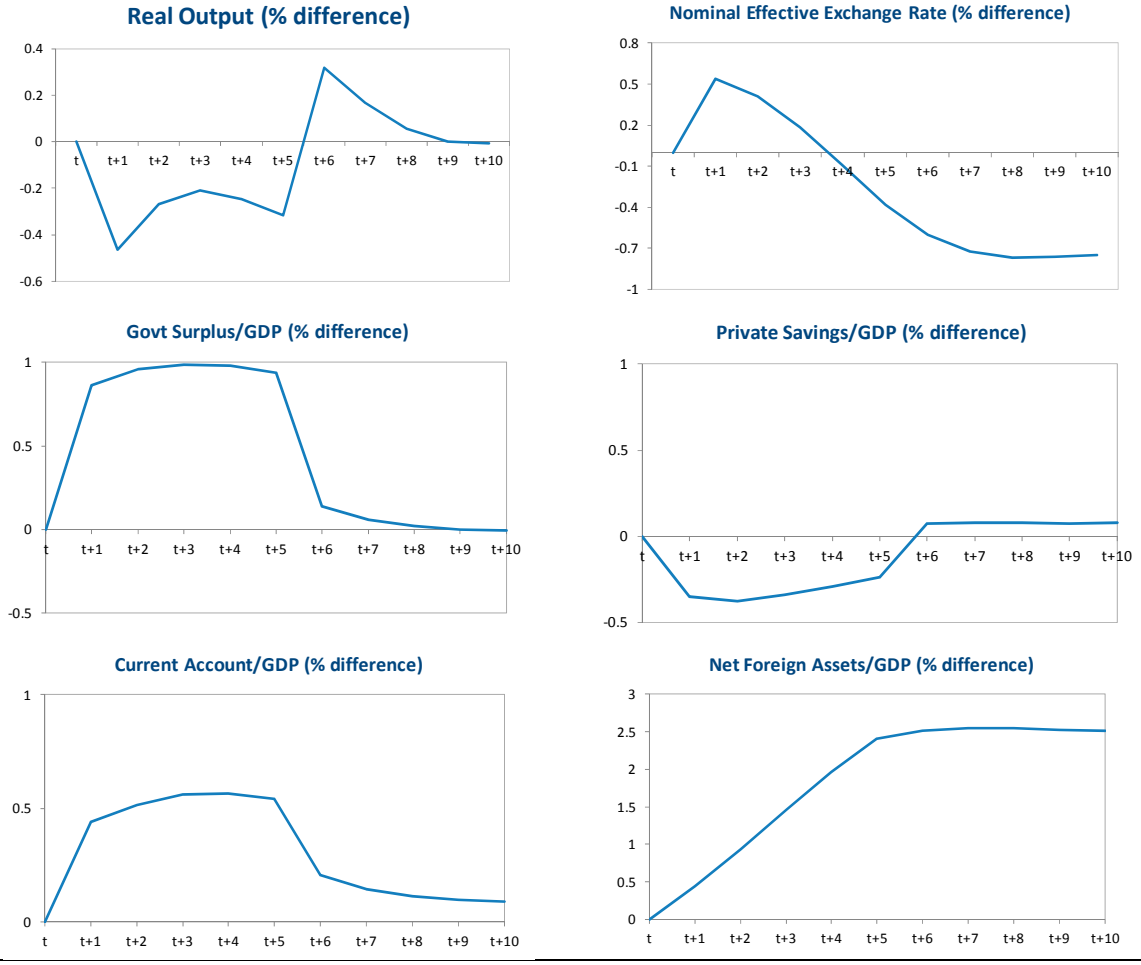

Sources: WEO; and author's calculations.

Figure 4. Austria and Netherlands




Sources: WEO; and author's calculations.

## Figure 5. GIMF Model Simulations



## Appendix. Country Coverage

Advanced countries (24): Austria, Australia, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States

Emerging market economies (30): Argentina, Brazil, Bulgaria, Chile, China, Croatia, Czech Republic, Estonia, Hong Kong, Hungary, India, Indonesia, Korea, Latvia, Lithuania, Malaysia, Mexico, Peru, Philippines, Poland, Romania, Russia, Slovak Republic, Slovenia, Singapore, Taiwan POC, Thailand, Turkey, Ukraine, Vietnam

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