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**Abstract**

This paper explores the contribution of international financial flows to the boom-bust-recovery cycle in Ireland. It finds that a nuanced interpretation is required, in that bank-intermediated debt inflows certainly contributed to the amplification of the property boom during 2003-2007 but that other types of international flows have played a stabilising role through a variety of mechanisms, with a new wave of inflows a key component of the current recovery phase.

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# 1 Introduction

A central analytical issue in the study of Ireland's boom-bust-recovery cycle is how to interpret the precise role played by cross-border financial flows. The dynamics of international capital flows have been widely studied in the research literature on economic crises. In particular, high levels of external debt and large and persistent current account deficits can raise vulnerability to adverse shocks (Gourinchas and Obstfeld 2012, Catao and Milesi-Ferretti 2013). One particular mechanism (which is especially relevant for Ireland) by which foreign debt inflows can contribute to domestic financial instability is by fuelling domestic credit booms (Lane and McQuade 2014). Moreover, once a crisis takes hold, capital flight by foreign investors and domestic investors can amplify crisis dynamics, with the draining of funding putting a liquidity squeeze on the banking system and an increase in risk premia resulting in the loss of bond market access for banks and the sovereign.

At the same time, international financial integration can also help to buffer a crisis, since part of the crisis-related losses may be shared by foreign investors and the repatriation of foreign assets by domestic investors can offset the exit of foreign investors from the domestic sector. In addition, the post-crisis recovery process can be accelerated by a new wave of international financial inflows that is attracted by the reduction in domestic asset values, improved competitiveness and the implementation of a post-crisis macro-financial stabilisation programme that successfully brings down risk premia.

In examining the inter-relations between boom-bust cycles and international financial flows, Ireland is a special case for several reasons. First, it is a major international financial centre and a major location for multinational production activity, such that the scale of cross-border flows is very high compared to most other economies. Second, as a member of the euro area, cross-border eurosystem liquidity flows have been an important buffer during the crisis: this mechanism is not available to countries that are not members of a multi-country monetary union. Similarly, the absence of the currency adjustment option (short

of exiting the euro area) makes the Irish crisis fundamentally different relative to earlier crises. While the euro area dimension is of course also shared by some other countries embroiled in the current wave of crises (Cyprus, Greece, Portugal, Spain), Ireland's role as an international financial centre marks its as a distinct case.[1]

In what follows, I analyse a selection of issues that are relevant in working out the myriad contributions of international financial flows to the Irish crisis. As a starting point, Section 2 outlines the extreme level of international financial integration exhibited by the Irish economy and the implications for interpreting its external balance sheet. Section 3 turns to the net external position of Ireland, both in terms of flows (current account balance) and stocks (net international investment position). I describe the different ways in which gross international financial flows have been important in the Irish crisis in Section 4. Finally, I offer some concluding comments in Section 5.

# 2 Ireland and Financial Globalisation

In understanding the role of international financial flows in the specific context of Ireland, it is imperative to take into account Ireland's status as a major international financial centre. To illustrate this point, Figure 1 plots the ratio of foreign assets and foreign liabilities to GDP for Ireland over 1990-2012. This IFI ("international financial integration") ratio is a commonly-used summary index for the extent of cross-border financial trade (Lane and Milesi-Ferretti 2007). Figure 1 vividly illustrates the extreme level of financial globalisation exhibited by the Irish economy, with the IFI ratio reaching 3,600 percent of GDP by 2012 (constituting foreign assets of 1,767 percent of GDP and foreign liabilities of 1,883 percent of GDP). This very high level of international financial integration underscores Ireland's prominent role as an international financial centre, with a significant international

[1] To some extent, Cyprus also qualifies as an international financial centre, but the scale and breadth of financial activities in Ireland is much larger than in Cyprus.

market share in the administration of mutual funds, insurance, leasing, special purpose vehicles and some types of international banking. These international financial services are predominantly produced by global financial firms, with their pure intermediation role implying a generally-balanced position between foreign assets and foreign liabilities.

In addition to wholesale financial intermediation, Ireland is also exceptional in relation to the high representation of multinational firms in the production of tradables (typically, high-value goods and services). As reported by the Central Statistics Office (2012), sectors dominated by foreign-owned multinationals accounted for about a quarter of total gross value added in 2011. These multinational firms are highly active in cross-border financial trade, both in terms of the funding of Irish-located production activities and in the treasury management of intra-firm cash and debt pools. Along another dimension, foreign portfolio investors are highly active in the Irish stockmarket, while domestic institutions (pension funds, insurance firms) predominantly hold foreign securities.

During 2001-2008, the Irish sovereign wealth fund (the National Pension Reserve Fund or NPRF) was also a major outward investor in global securities markets.[2] During this period, another source of large-scale private capital flows was the decision by the domestic banking system to fund rapid domestic credit growth through an expansion in foreign liabilities (Honohan 2006, Lane 2010, Kelly 2010, Whelan 2014a).[3] These foreign liabilities were obtained through international bond issues, the gathering of foreign corporate deposits and cross-border inter-bank positions. Albeit to a lesser extent, the domestic banks also expanded foreign asset positions through an increase in the scale of foreign lending.

[2]Since 2008, the NPRF was primarily redirected to holding domestic assets, including shares in domestic banks.

[3]Since the standard banking datasets focus on the aggregate banking system, the cross-border activities of domestically-orientated banks were obscured by the much larger positions of the offshore banking sector. Since 2010, the Central Bank of Ireland publishes more disaggregated data for the different groups: the total banking system, the domestic market group (including the affiliates of foreign-headquartered banks) and the Irish-headquartered group.

Of course, since 2008, foreign official funding has been an important component in Ireland's external balance sheet. The provision of liquidity by the European System of Central Banks has provided a key source of alternative funding for the domestic banking system, while the Irish government has borrowed heavily from the International Monetary and Fund, European institutions (EFSM, EFSF, ESM) and bilateral official loans (Denmark, Sweden and the United Kingdom).

Taken together, these characteristics of Ireland's external balance sheet mean that it is not very informative to examine the overall scale of foreign assets and foreign liabilities. Rather, more detailed analysis is required which takes into account the sectoral and ownership structure of cross-border positions. The lack of sufficiently-detailed disaggregated data is a major analytical problem in understanding the risk exposures in international balance sheets (see also Lane 2013a). In the next section, we turn to the analysis of the net external position.

# 3 Ireland's Net External Position: Stock and Flow Imbalances

The net international investment position (NIIP) is a key state variable in open-economy macroeconomic models. In particular, a highly-negative NIIP is associated with projections of a sequence of future trade surpluses (to finance net investment income outflows to foreign investors) and an increase in risk premia (with a high external debt burden giving rise to fears of elevated default risk). The NIIP reflects the cumulative sum of historical current account imbalances, adjusted for the contribution of valuation effects by which shifts in asset prices and exchange rates alter the value of outstanding foreign assets and foreign liabilities (Lane and Milesi-Ferretti 2007, Gourinchas and Rey 2014).

In a given period $t$, the measured change in the net international investment position

can be written as

$$NIIP_t - NIIP_{t-1} = CAB_t + SFA_t \tag{1}$$

where $CAB_t$ is the current account balance and $SFA_t$ is the stock-flow adjustment term that reconciles the change in the stock of net foreign assets and net financial outflows. The current account balance should equal the net financial outflow (that is, the net acquisition of foreign assets or net issuance of foreign liabilities), although measurement problems mean that the two concepts are not perfectly aligned in the data, with the "net erro ±rs and omissions" term in the balance of payments bridging the gap.

In principle, the $SFA_t$ term can be decomposed as

$$SFA_t = NET\_VAL_t + NET\_OTH_t \tag{2}$$

where $NET\_VAL_t$ are net valuation effects (net capital gains or losses on the existing stock of foreign asset and foreign liabilities) and $NET\_OTH_t$ are net other adjustments (due to data revisions and changes in data collection methods). However, many countries (including Ireland) do not report this decomposition, so that is not straightforward to interpret the behaviour of the $SFA_t$ term.

Figure 2 shows the net international investment position and the cumulative current account balance for Ireland over 2006-2012. Over this period, the net international investment position deteriorated very sharply from a net liability position of 5.3 percent of GDP in 2006 to 112 percent of GDP in 2012. This decline is mostly attributable to the stock-flow adjustment term, since the current account deficit peaked at 5.6 percent in 2008 and improved significantly since the onset of the crisis.[4]

[4] As noted by Fitzgerald (2013), the current account surplus in recent years is overstated by a quirk in the rules of balance of payments accounting. Since 2008, a popular tax-planning strategy for multinational corporations was to redomicile in Ireland even if no substantive economic activity took place in Ireland. Since these redomiciled firms earn considerable global income, the FDI investment income credits for Ireland sharply increased. Since these firms are virtually 100 percent owned by foreign portfolio investors, these

What might explain this remarkable adverse movement in the net international investment position? It is all the more surprising since it might be expected that a country in crisis should experience positive net valuation gains, since foreign equity investors in the domestic economy would incur crisis-related declines in asset values (such that the value of external liabilities should decline). Indeed, the stock-flow adjustment term has been positive for other European peripheral countries during the crisis (Lane 2013b).

While foreign equity investors in Ireland certainly have suffered valuation losses due to the crisis, this may have been overwhelmed by the losses by Irish investors on foreign equity assets such that the net valuation term may have been negative for Ireland. In turn, this can be related to the "long equity, short debt" international strategy of Irish national investors, with foreign debt liabilities in part used to fund foreign equity assets (the foreign equity portfolios held by Irish investment funds, foreign property assets held by Irish speculators and households). This type of strategy provided poor insulation in the event of an international financial crisis, with a steep decline in global equity and property values occurring simultaneously with a funding squeeze in debt markets.[5]

However, it is also plausible that measurement error can help to account for this large

profits ultimately accrue to the non-Irish investors. However, if the redomiciled firm retain earnings rather than pay out dividends, there is no corresponding contemporaneous investment income outflow, thereby distorting the measurement of national income and the current account. By the same token, undistributed earnings that will ultimately accrue to foreign investors should add to the valuation of foreign liabilities - this can help explain some of the decline in the net international investment position over 2010-2012 but played a minor role during the main phase of the decline during 2008-2009.

[5]The sharp depreciation of Sterling also played a role since Irish investors were heavily exposed to the UK property market. Debt-related valuation effects played a bigger role in some other countries. Most obviously, various types of private and/or public debt default and restructuring have generated reductions in the scale of foreign liabilities for Cyprus, Greece and Iceland. This also occurred in the Irish case to a limited extent in relation to subordinated bank bonds. Since Ireland opts to value its sovereign debt liabilities at book value rather than market value, it did not incorporate fluctuations in the market value of the sovereign bonds held by foreign investors into its measurement of the stock of foreign liabilities.

shift in the NIIP/GDP ratio (see also Lane 2012). Since foreign assets and foreign liabilities are in the range of 1,700 to 1,800 percent of GDP, relatively-small measurement errors can generate large movements relative to GDP. The complexity of the corporate structures used to facilitate international financial intermediation means that it can be difficult to track shifts in the values of inter-related assets and liabilities, especially during periods of market turmoil and if these cross over between different categories in the balance of payments (for example, ensuring the consistent valuation of a foreign-owned bank that is engaged in proprietory trading of portfolios of foreign asset-backed securities and illiquid over-the-counter foreign derivative positions).

Moreover, an additional type of measurement problem has been the growing cumulative gap between the current account balance and measured net financial flows. Historically, the cumulative value of the "net errors and omissions" term has been low (positive values soon followed by offsetting negative values) but the cumulative value over 2008.Q1-2013.Q3 has been 16.6 percent of GDP. One possible explanation is unrecorded capital flight (unrecorded accumulation of foreign assets), which is a not-unexpected pattern during a financial crisis.

Establishing the sources of the measured decline in Ireland's net international investment position is a high priority. If the measured decline is accurate, it provides a dramatic illustration of the importance of international valuation effects in driving national wealth dynamics. If, alternatively, much of the decline reflects measurement error, it calls into question the capabilities of analysts and policymakers to properly interpret the evolution of balance sheets for countries that are heavily involved in international financial trade.

# 4 International Financial Flows and the Crisis

How should we think about the role of international financial flows in the Irish crisis? In relation to the pre-crisis period, there can be little doubt that the scale of the domestic

credit boom and the associated property boom was amplified by the large-scale foreign funding raised by the domestic banking system. While the current account deficit did expand, its peak value at 5.6 percent of GDP in 2008 was relatively small compared to the double-digit levels reached in some other peripheral European economies. An important contributory factor in reconciling the large debt inflows into the banking system and the limited current account deficit is that the debt inflows were not just used to finance domestic property investment but also aggressive foreign asset acquisitions by Irish residents.

The increasing difficulties encountered by Irish banks in rolling over foreign liabilities during 2007-2008 was an important early warning indicator of crisis vulnerability. Once the international crisis took hold in September 2008, the scale of private capital outflows was mitigated by the liability guarantee provided by the AAA-rated Irish government and the availability of liquidity support from the ESCB. However, the sharp deterioration in Irish economic performance, property prices and the fiscal position during 2009-2010 saw a sustained funding drain from the domestic banking system, resulting in increasing reliance on central bank liquidity, including the Emergency Liquidity Assistance (ELA) provided by the Central Bank of Ireland. Ultimately, concerns about the sustainability of the liquidity funding, under-capitalisation of the banking system and the adverse fiscal situation saw a twin sovereign-banking crisis in Autumn 2010 and the negotiation of the EU-IMF programme, with €67.5 billion of official external funding to be provided over 2010-2013 (corresponding to 42.7 percent of 2010 GDP).

Relative to "sudden stop" episodes experienced by emerging market economies, the cross-border provision of central bank liquidity was an important source of alternative funding that moderated the impact of private-sector financial outflows on the domestic banking system, domestic asset prices and the speed of current account adjustment (see, amongst others, Sinn and Wolthauser 2012, Lane and Milesi-Ferretti 2012, Alcidi and Gros 2013, Auer 2014, Whelan 2014b, Fagan and McNelis 2014).[6] The Target 2 liabilities for

[6] A key issue in evaluating the role of liquidity flows is to specify the counterfactual that would have

Ireland peaked at 91 percent of GDP in December 2010.[7] The subsequent stabilisation and restructuring of the banking system has generated a sustained decline in scale of the Target 2 liabilities, which had declined to 32 percent of GDP by December 2013.

Some types of private-sector international financial flows have played a countervailing stabilising role during the crisis. The adverse wealth effects from the severe loan losses incurred in Ireland were partially transferred overseas, since foreign investors held a substantial proportion of the portfolio equity issued by the Irish-headquartered banks, while investors in the parent banks absorbed the losses generated by the Irish affiliates of foreign-owned operations. In related fashion, the aggressive restructuring of subordinated bank bonds (mostly held by foreign investors) has also been an significant contributor to recapitalisation, with a cumulative value of about 10 percent of GDP.

The sale of foreign assets by the banks has contributed to the deleveraging of the banking system, with foreign loan books less troubled and more liquid than the domestic counterparts.[8] In addition, the booking of capital gains on the profitable disposal of foreign affiliates by Irish banks has added to the recapitalisation of the system. Finally, the parent banks of domestically-active foreign affiliates have been an important source of replenished capital and intra-group cross-border liquidity during the crisis.

At the sovereign level, the sale of foreign securities by the NPRF was a major source of funding for the publicly-funded component of the recapitalisation of the banking system.

occurred in the absence of these flows. In particular, the non-availability of such flows would have resulted in different adjustment pressures on private-sector flows and stocks of external liabilities (through declines in asset values and debt restructuring).

[7] Whelan (2014) and the Euro Crisis Monitor dataset (www.eurocrisismonitor.com) report similar estimates for Ireland's Target 2 balances.

[8] As discussed by the Committee on Global Financial Stability (2010), the acquisition of foreign assets by banks during the boom period was partly motivated by diversification but also partly by incentives to expand the size of bank balance sheets. If diversification is achieved at the cost of over-leveraging the banking system to fund the expansion, the overall level of risk exposure may have been increased by internationalisation rather than reduced.

Since the NPRF was designed as a long-term fund rather than a "rainy day" fund, it primarily held a global equities portfolio, such that the timing of its liquidation was poorly timed in view of the large declines in equity values during the most intense phase of the global financial crisis.[9]

Furthermore, an important element in the recovery phase has been the resumption of private-sector capital inflows. In combination with the fiscal adjustment programme, the recapitalisation and restructuring of the banking system has induced growth in the deposit base of the domestic Irish banks and reduced reliance on central bank liquidity flows. In the property sector, global institutional investors have been major purchasers of commercial property assets sold as part of the deleveraging process by banks and the National Asset Management Agency (NAMA). In the residential housing market, the substantial appreciation in Dublin house prices since 2012 has been in part driven by foreign investors (primarily, non-resident Irish investors) that are not dependent on Irish banks for mortgage finance.

In terms of the real economy, an important driver of recovery has been Ireland's success in attracting new FDI projects. In Ireland, multinational firms predominantly rely on external sources (such as intra-firm financial flows) to fund activities, such that the distressed state of the domestic banking system has not directly damaged funding mechanisms for this sector. The decline in commercial property rents (in conjunction with lower hiring costs in the labour market) has improved Ireland's attractiveness as a location for multinational activities, which had been undermined by the overheating associated with the construction boom in the mid-2000s. In tandem with the decline in sovereign default risk and the improvement in global economic prospects, this has resulted in a significant surge in FDI activity since 2012.

[9]Lane (1998) advocated the establishment of a liquid "rainy day" fund to help absorb the fiscal costs of future banking crises under EMU.

# 5 Conclusions

The Irish crisis has multiple lessons for researchers and policymakers in relation to the properties of international financial flows. On the negative side, the scale and persistence of the Irish credit and property boom was surely fuelled by the large-scale external funding that was raised by the Irish banking system. In turn, the sharp reversal of these debt-related inflows help to explain the severity of the Irish banking/property crash, even if partial cushioning was provided by cross-border eurosystem liquidity flows.

On the positive side, the stock of foreign equity liabilities (especially vis-a-vis the banking system) meant that the crisis costs were partly shared with foreign investors, which also took a hit through the restructuring of the subordinated bonds issued by banks. In addition, an important contributor to the post-crisis adjustment process has been the ability of Ireland to attract a new wave of foreign financial inflows, which facilitates recovery in the real economy through the expansion of FDI projects and the reconstruction of the domestic banking system and in asset values through the activities of foreign investors in the domestic property market, domestic stockmarket and the sovereign debt market.

In terms of the future research agenda, much remains to be worked out in terms of understanding the evolution of international financial flows in the Irish case. In relation to the boom phase, the relative roles played by domestic banks, foreign lenders and regulatory systems in driving the rapid growth in the external debt of the banking system remains unclear. In relation to crisis dynamics, modelling plausible counterfactuals is important in understanding the contributions of official flows (eurosystem funding of the banks, EU-IMF funding of the sovereign). In relation to the recovery phase, it is essential to identify the key reforms and policy measures that built confidence among international investors and fostered the resumption in private-sector international financial inflows.

At a policy level, it is also important to develop policy instruments that may be deployed to avert excessive debt inflows. While the new European "macroeconomic imbalances

procedure" appropriately identifies external debt flows and external debt stocks as risk factors, the selection of the appropriate mix of fiscal and macroprudential instruments to manage such risks remains an important challenge for policymakers.

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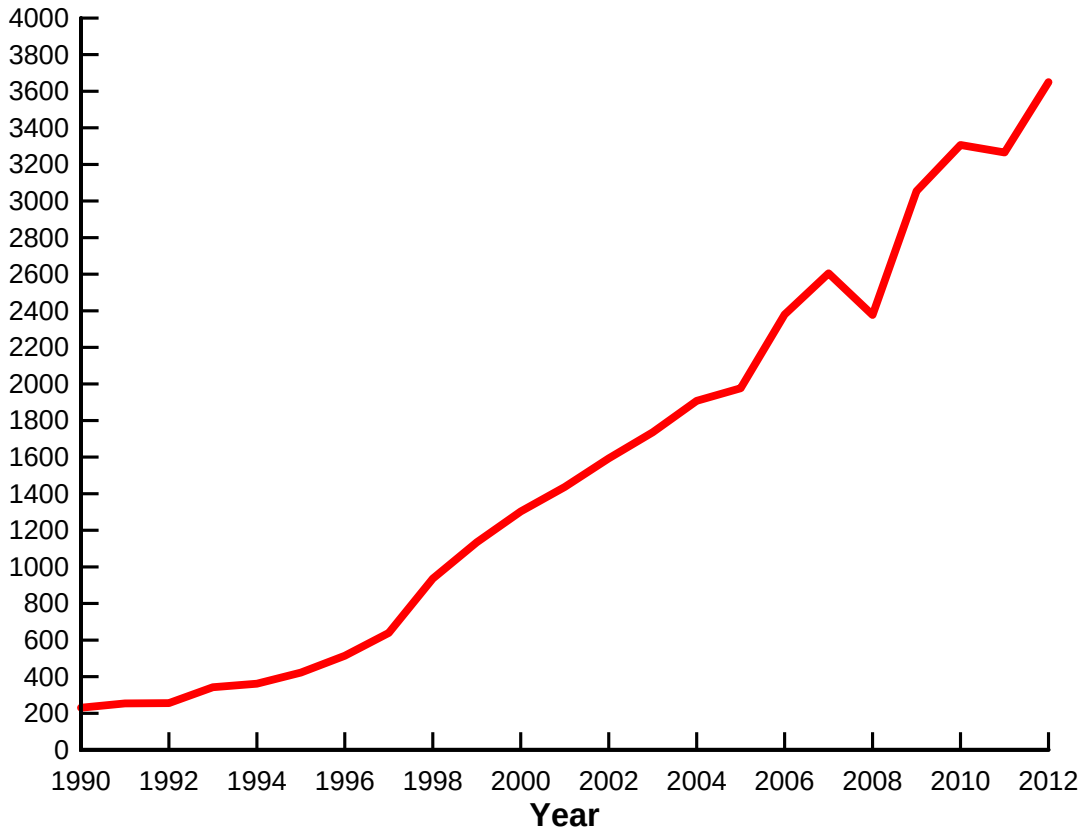


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Figure 1: Ireland: International Financial Integration Ratio, 1990-2012. Note: Based on dataset described in Lane and Milesi-Ferretti (2007); sum of foreign assets and foreign liabilities, expressed as a ratio to GDP.

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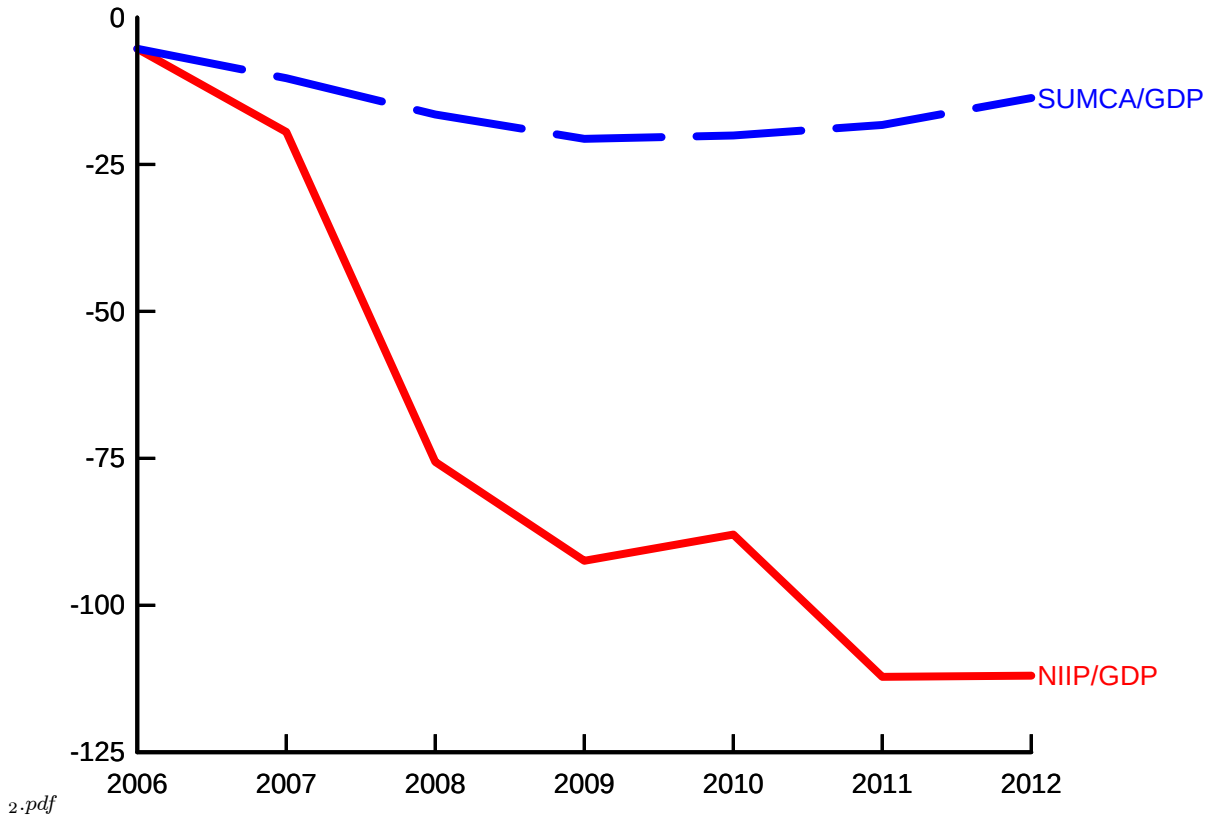


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Figure 2: Net International Investment Position and Cumulative Current Account, 2006-2012. Note: NIIP/GDP is ratio of net international investment position to GDP; SUMCA/GDP is the ratio of cumulative current account to GDP, normalised to equal NIIP/GDP in 2006.

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