The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970–2004

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Abstract

We construct estimates of external assets and liabilities for 145 countries for 1970–2004. We describe our estimation methods and key features of the data at the country and global level. We focus on trends in net and gross external positions, and the composition of international portfolios. We document the increasing importance of equity financing and the improvement in the external position for emerging markets, and the differing pace of financial integration between advanced and developing economies. We also show the existence of a global discrepancy between estimated foreign assets and liabilities, and identify the asset categories accounting for this discrepancy.
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1. Introduction

The dramatic increase in international financial integration has been one of the salient global economic developments in recent years. Countries have accumulated substantial cross-border holdings, and there have been sizable shifts in the composition of asset and liability positions,

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with attendant revisions in the risk profiles of individual economies. In particular, the size of countries' external portfolios is now such that fluctuations in exchange rates and asset prices cause very significant reallocations of wealth across countries. And the emergence of large external imbalances—itself made easier by the decline in home bias—has led to renewed interest in the international adjustment mechanism and the dual role played by exchange rates in influencing both net capital flows and net capital gains on external holdings.[2]

To improve our understanding of these phenomena, we assembled a comprehensive and up-to-date dataset on the foreign assets and liabilities of advanced, emerging, and developing countries for the period 1970–2004. This updates and extends our earlier work (Lane and Milesi-Ferretti, 2001a), which included estimates for external holdings of 67 countries over 1970–1998. The new *External Wealth of Nations Mark II* (EWN II) dataset covers over twice as many countries (145 in total), incorporates an extensively revised methodology, and draws upon a richer range of data sources.

In this paper, we describe the construction of the dataset and provide illustrative stylized facts. The virtually global coverage allows us to define "world" trends and investigate the 'global discrepancy' between foreign asset and liability positions. Among key stylized facts, we highlight the further increase in financial globalization during the past decade for both industrial and developing countries, despite the several financial crises and the reversal in global stock market values in 2001–2002. Marked shifts in the composition of external balance sheets are also noteworthy: major debtors (most notably, the United States) have increasingly relied on debt as a source of external finance, whereas emerging markets have increased the equity component in their external liabilities and accumulated significant official reserves.

In terms of net foreign asset positions, the cross-sectional distribution among industrial countries has changed little: with the exception of the increased US indebtedness, major creditors and debtors in 2004 are the same as in 1996. Countries in emerging Europe, the Commonwealth of Independent States (CIS), and Latin America have experienced a large increase in net external liabilities, while Africa, emerging Asia, and the Middle East have seen significant improvements in their net external positions.

We also highlight differences in the composition of countries' external portfolios. At end-2004, many industrial countries—such as the United Kingdom and the United States—are "short debt, long equity." In contrast, emerging markets and developing countries are typically "short equity," with many having net liabilities in both debt and equity categories. Finally, we emphasize the importance of the valuation channel—changes in net foreign assets are significantly more volatile than the current account. Differences between changes in net foreign assets and the current account balance are quite persistent in many countries and represent an important source of long-term shifts in net external positions.

The rest of the paper is structured as follows. Section 2 presents the estimation methodology. The scale and scope of the data are described in Section 3 and selected empirical findings in Section 4, with concluding remarks provided in Section 5. A Web Appendix provides detailed country data notes.[3]

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[2] On shifts in portfolio composition, see Lane and Milesi-Ferretti (in press-a). On the adjustment mechanism and valuation changes, see Lane and Milesi-Ferretti (2001a, 2003, 2005), Tille (2003), and Gourinchas and Rey (2006).

[3] The data and appendix are available at: http://www.imf.org/external/pubs/ft/wp/2006/data/wp0669.zip.

2. Methodology

In the Mark I version of this dataset, we employed a broadly uniform methodology to construct estimates of foreign asset and liability positions for 67 countries over 1970–1998, which relied extensively on cumulative flow data with valuation adjustments. Since then, a much broader group of countries has begun to publish estimates of external assets and liabilities—the so-called International Investment Position (IIP)—following the methodology described in International Monetary Fund (IMF), 1993.

We take these developments into account by incorporating national estimates of IIPs into our estimation methodology. For most countries, we use as a benchmark the official IIP estimates for recent years.[4] We then work backward with data on capital flows and calculations for capital gains and losses to generate estimates for stock positions for earlier years, back to 1970 in most cases. Since there is much cross-country variation in the reliability of the data on capital flows and estimated stock positions, we employ a range of valuation techniques to obtain the most appropriate series for each country.

To start, it is useful to clarify the nature of the balance of payments and international investment position (IIP) data which form the backbone of our database. The 5th revision of the *Balance of Payments Manual* (IMF, 1993) works on the basis of the residence principle—hence external assets and liabilities, as well as capital inflows and outflows, are claims and transactions between a country's residents and nonresidents. International holdings and transactions are classified in the following broad categories:

- Portfolio investment, subdivided into equity securities and debt securities;
- Foreign direct investment, which refers to equity participations above 10%;[5]
- Other investment (which includes debt instruments such as loans, deposits, and trade credits);
- Financial derivatives; and
- Reserve assets.

For each of these categories, balance of payments data measure net capital inflows and outflows during a recording period, and the IIP data measure the stocks of external assets and liabilities at the end of the recording period. More specifically, *capital inflows* measure net purchases or sales by nonresidents of domestic assets, while *outflows* measure net purchases or sales of foreign assets by residents. Hence both capital inflows and capital outflows can also take negative values—for example, if nonresidents are net sellers of domestic shares in a given year, portfolio equity inflows will be negative, and if a government repays part of its external debt, the reduction in nonresidents' claims on the country is a negative inflow.

Stocks of external assets and liabilities are generally positive. Among the few exceptions, the most common one relates to foreign direct investment. For example, if a company invests $100 in equity of a firm overseas and borrows $110 from that firm via an intracompany loan, the stock of FDI abroad would be −$10 (see *BPM5* and IMF, 2003a). Also, domestic residents may "short" equities in a foreign country, in which case equity assets would be negative. However, these are rare occurrences in our data.

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[4] When the reported IIP has only partial coverage, we use alternative methods and sources to form our estimates.

[5] Once an FDI investment is established, all subsequent financial transactions between the parent and affiliate are classified under FDI, including intrafirm debt assets and liabilities.

Our data presentation groups together portfolio debt and other investment, reporting total external debt assets and liabilities. The decomposition between bonds and other investment is only available for countries that report the IIP—typically for a shorter period than the time span of our database.

Our methodology relies both on direct measures of stocks and on cumulative flows with valuation adjustments, which are constructed as follows. Let D be the stock of holdings at the end of year t and d net purchases during year t. Let p_t be the US dollar price of asset D at the end of t (for example, the end-of-year stock market price index in dollars), and $\bar{p}_t$ the average price of asset D during year t. Then

$$D_t = \frac{p_t}{p_{t-1}} D_{t-1} + \frac{p_t}{\bar{p}_t} d_t. \tag{1}$$

That is, holdings at the end of period t are the sum of holdings at the end of $t-1$, adjusted for valuation changes, and net purchases during t, evaluated at end-of-year prices. This formula can be used to obtain holdings D_t given an estimate of D_{t-1}, flows d_t, and prices p, or to back out D_{t-1} given D_t, d_t, and p.

When series are constructed cumulating flows forward, we need initial values for 1970 (or later starting years). Our main source for this purpose is the pioneering work of Sinn (1990) who estimated external asset and liabilities for 145 countries over 1970–1987. For countries where we construct data by cumulating flows backward, the Sinn data provide a useful check on the reliability of the estimates.

The following sub-sections explain in more detail the construction of the data. Details on individual country estimates are provided in the Web Appendix.

2.1. Portfolio equity assets and liabilities

Portfolio equity holdings measure ownership of shares of companies and mutual funds below the 10% threshold that distinguishes portfolio from direct investment. Our three primary data sources are:

- Stock estimates as reported in the IIP section of the IMF's *International Financial Statistics* (IFS) and *Balance of Payments Statistics* (BOPS), mostly reported at market value;
- the IMF's *Coordinated Portfolio Investment Survey* (CPIS), covering the geographical allocation of portfolio investment of over 60 investor countries in over 220 destination territories;
- Bilateral estimates on foreign holdings of US portfolio equity and US holdings of portfolio equity overseas, constructed by Frank Warnock on the basis of US Treasury data.[6]

For each country, equity liabilities derived from the *CPIS* provide a lower bound on total equity liabilities, and holdings in the United States provide a lower bound on total equity asset holdings. Only very few countries have reported their IIP over the whole period (the majority of countries started to report after 1990). As in Lane and Milesi-Ferretti (2001a), we therefore integrate these measures with market-value estimates of portfolio equity assets and liabilities constructed by

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[6] See Chinn et al. (2006) and Warnock and Warnock (2005) for data on US equity liabilities and Thomas et al. (2004) for US equity assets.

cumulating outflows (for assets) and inflows (for liabilities), adjusted for changes in stock prices. These prices are measured with domestic and international stock market indices, implicitly assuming that a country invests its foreign equity holdings in a "world" portfolio with weights identical to the Morgan Stanley Capital International's world index.[7]For countries with large stock markets, we use the world index excluding the home country. Lane and Milesi-Ferretti (in press-b) show that the composition of foreign equity portfolios is affected by bilateral factors such as trade linkages and gravity-type variables; however, the global index is a broadly appropriate valuation benchmark. For portfolio equity liabilities, we assume that foreign investors hold a broadly-based index of domestic shares, so that their value moves in line with the domestic stock market.

In this paper we construct estimates using cumulative flows not only forward from an initial value, as in Lane and Milesi-Ferretti (2001a), but also backward from a recent estimate. In some cases, cumulating flows forward yields estimates in line with the reported stock. In other cases, however, the reported stock is much larger than cumulative flows, suggesting an underreporting of past capital flows. Calculating past holdings using cumulative flows backward would imply implausibly large initial stocks. In these cases, we assume that the growth rate of the stock can be proxied by the percentage change in adjusted cumulative flows or, in some cases, in holdings vis-à-vis the United States.

For countries that do not publish IIP data, we can proxy the stock of portfolio equity liabilities for 2001–2004 with the holdings in that country reported by participants to the CPIS. Those holdings can then be extended backwards using adjusted flows or the percentage change in the adjusted cumulative flow series. For portfolio equity assets, we can use estimated holdings in the United States as a lower bound.

2.2. Direct investment assets and liabilities

The FDI category includes controlling stakes in acquired foreign firms (at least 10% of an entity's equity—in practice, however, most FDI holdings reflect majority control), as well as greenfield investments. In addition, at least for some countries, an increasingly important component of FDI is foreign property investment. Our main data sources for the stocks of foreign direct investment are IIP estimates, and estimates reported by UNCTAD's *World Investment Report*.

The majority of countries provide book-value estimates of FDI assets and liabilities, with only a small number reporting market-value estimates. We complement existing stock estimates with cumulative flow measures, with valuation changes designed to capture shifts in relative prices across countries.

- For market-value series, we adjust positions for shifts in stock market price indices, similar to our method for portfolio equity holdings.[8]

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[7] For countries with large stock markets, we use the world index excluding the home country. Lane and Milesi-Ferretti (in press-b) show that the composition of foreign equity portfolios is affected by bilateral factors such as trade linkages and gravity-type variables; however, the global index is a broadly appropriate valuation benchmark.

[8] This correction is subject to several caveats. First, if a country's FDI liabilities take the form of greenfield investments, these may bear little relation to the activities represented by the firms on the domestic stock market. Second, some proportion of FDI is attributable to investment in residential and commercial properties. Third, the value of FDI includes the value of accumulated cash and liquid assets held by an affiliate—the value of such treasury holdings again will not have a direct relationship with the stock market.

- For book-value series, we use two alternative methods: either cumulative US dollar flows (for countries with either very volatile real exchange rate measures or FDI concentrated in commodity-producing sectors or extractive industries); or cumulative flows adjusting outstanding holdings for fluctuations in real exchange rates (as in Lane and Milesi-Ferretti, 2001a). For example, if the real exchange rate of a country appreciates relative to the US dollar we assume that the US dollar value of FDI holdings in the country correspondingly increases.

As in Lane and Milesi-Ferretti (2001a), our initial values are based on estimates by Sinn (1990) or, for several emerging markets, on their 1967 position derived from OECD (1972) and flows between 1967 and 1970. Data on FDI flows are from the IMF's Balance of Payments Statistics or, in a few cases, from UNCTAD. For a few countries we extrapolate the evolution of FDI flows and stocks from their bilateral positions and transactions vis-à-vis the United States, reported by the Bureau of Economic Analysis.

2.3. Debt assets and liabilities

The debt category offers the greatest data challenges, particularly in the measurement of foreign debt assets. This category includes portfolio debt securities, plus bank loans and deposits and other debt instruments. Our main data sources are:

- The country's reported IIP;
- The World Bank's Global Development Finance database (only for external debt liabilities of developing countries and emerging markets);
- The IMF's *World Economic Outlook* (WEO) database (only for external debt liabilities of developing countries and emerging markets);
- The Quarterly External Debt Database (QEDS), jointly developed by the World Bank and the IMF, and available at the link http://www.jedh.org/jedh_dbase.html;
- The IMF's CPIS (for portfolio debt assets and, indirectly, portfolio debt liabilities);
- The Bank of International Settlements (BIS) data on a country's assets and liabilities vis-à-vis BIS-reporting banks;
- Data on foreign assets and liabilities of banks and other banking institutions reported by IFS (lines 7a.d, 7b.d, 7e.d, 7f.d, 7k.d, 7m.d);
- National sources.

For industrial countries, our previous work did not provide direct estimates of gross debt positions. In this paper, we use existing estimates of debt holdings overseas, extended backward with capital flows with valuation adjustments, often complemented with data from national sources. The valuation adjustment is based on available information on the currency composition of debt assets and liabilities. For example, if a country's debt holdings are estimated to be entirely denominated in euros, the value of holdings is estimated adjusting the past (or subsequent) holdings for changes in the end-of-year exchange rate between the euro and the US dollar, and adding (or subtracting) the flows occurring during the year.

For emerging markets and developing countries, data on external debt liabilities are typically available from the World Bank and/or the WEO for most of the entire sample period. When necessary, these series are extended with cumulative flows, with valuation adjustments to reflect the currency composition of debt. Especially in recent years, these series may include FDI-related intercompany debt (which in the IIP and in our data is classified as FDI) and it is hence important to net such holdings out.

Measuring debt assets is, however, much more complex.[9] The only comprehensive series of domestic holdings of debt assets overseas is the IIP; while it is now reported by around 100 countries, it is often available only for recent years. In addition, historical capital outflows data are often incomplete-indeed, some countries only report data on "net" other investment flows for most of the sample period. To address these shortcomings, we again use a variety of methods. For several countries we estimate debt assets as the sum of claims by nonbank domestic residents on BIS-reporting banks (available from 1977 onward) plus foreign assets by commercial banks and other banking institutions (reported by IFS). The BIS series in particular may contain holdings accumulated through unrecorded financial flows (for example, capital flight). We also construct series based on cumulative capital outflows backward, in cases when the country starts reporting its IIP late in the sample, and forward (when no IIP data on debt assets are reported or such value appears too low relative to underlying capital outflows), and make use of data on errors and omissions for countries with significant unrecorded outflows. Finally, in some cases we estimate debt assets combining holdings data from IFS, BIS, and national sources with capital flow data.

2.4. Financial derivatives

The stock of financial derivatives corresponds to the market value of the outstanding derivatives' contracts. Only a few countries report separately data on the value of the outstanding stock of financial derivatives. Whenever such data are available, we include them in our dataset.

2.5. Official reserves

As in our previous work, we use IMF data on total reserves minus gold (which include foreign exchange, SDR holdings, and the reserve position in the IMF), supplemented by data from national sources. Gold holdings are excluded, since they do not constitute a liability of another country.

2.6. Measurement error

Clearly measurement error in our dataset is substantial, for two main reasons. The first is the incomplete reporting of balance of payments and especially IIP data, and the second is the difficulty of tracking increasingly complex international financial transactions. The first problem is particularly acute for countries in the Middle East, sub-Saharan Africa, and small financial centers (for which small measurement errors in gross positions translate into large measurement errors in net positions). An additional source of error arises because of the discrepancy between current account transactions and financial flows (the so-called net errors and omissions), an issue discussed at length in Lane and Milesi-Ferretti (2001a). In this dataset we do not make systematic use of net errors and omissions in calculating a country's net external position, but report their cumulative value separately. In some cases, our alternative data sources (such as holdings by a country's residents in BIS-reporting banks for unrecorded outflows, or a country's survey of its liabilities for unrecorded inflows) may capture part of these holdings.

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[9] The extensive literature on capital flight (required Cuddington, 1986; Dooley, 1988; Claessens, 1997) constitutes an early attempt to provide estimates of foreign asset holdings by domestic residents, particularly for developing countries.

The second problem is due to the increased complexity of financial instruments and the financial structure of companies, and the growing integration of international financial markets, which complicate the measurement of external positions. In some cases, the increase in cross-border transactions may overstate the extent of international financial interdependence. For example, a US financial institution can set up a mutual fund in an offshore center, which in turn buys US assets, and whose shares are purchased by, say, euro area residents. Rather than simply measuring an equity inflow in the United States from the euro area, the data will record an equity inflow in the offshore center from the euro area, and a corresponding outflow from the offshore center to the United States. These developments are reminiscent of trends in goods' trade, where the ratio of value added to total exports may be very small.

While these problems need to be taken into account when interpreting the data, understanding recent trends in global financial integration and international borrowing and lending requires a global perspective. In that light, we view the construction of (albeit imperfect) estimates of external positions for all major "players" in the international financial system as a crucial first step.

3. The dataset: A global overview

Our dataset covers 145 countries over 1970–2004, plus the euro area as a whole. We include all countries with income above US$1 billion in 2000 or US$2 billion in 2004. The only exceptions are 3 small financial centers—the Bahamas, Barbados, and the Netherlands Antilles—plus Iraq and Afghanistan.[10] We report aggregate foreign assets and liabilities, and the breakdown between direct investment, portfolio equity, and debt. We provide a complete span of data over 1970–2004 for 91 countries. For a further 54, we report data for shorter periods. All data are in millions of US dollars, as in the IMF's Balance of Payments Statistics. Holdings are measured at year-end, and hence converted in US dollars at the year-end exchange rate. GDP—like all flow variables—is instead converted in dollars at the average exchange rate for the year. As a result, the ratios of external assets and liabilities to GDP we present can differ from those measured in domestic currency, with the difference proportional to the size of the ratio and to the difference between the year-end and period-average exchange rate vis-à-vis the dollar for a given year.

3.1. Differences with respect to EWN1

Differences relative to our earlier dataset on external assets and liabilities (Lane and Milesi-Ferretti, 2001a—henceforth EWN1) are in terms of country coverage, time period, and data construction.

In terms of *country coverage*, EWN1 covered 67 countries for the period 1970–1998. EWN2 covers over twice as many countries (145). The extended coverage reflects the inclusion of 27 countries in emerging Europe and the former Soviet Union (not included in EWN1), more extensive coverage of sub-Saharan Africa (35 countries versus 7 in EWN1), as well as 7 additional Middle-Eastern and 8 Asian countries. The extension allows us to include two of the largest 6 creditors in absolute terms (Hong Kong and the U.A.E.) and two of the largest 14 debtors

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[10] For the former, we can construct gross external position estimates using the data sources discussed in the previous section. However, the substantial margin of error around these estimates and their large size relative to domestic economic activity makes it very difficult to construct a reasonably consistent series for the net external position.

(Hungary and Poland), as well as 6 out of the 10 largest creditors and 9 of the largest 10 debtors in relation to GDP that were absent from EWN1.

In terms of *time coverage*, EWN1 covered the period 1970–1998. EWN2 extends the coverage to 2004. During these 6 additional years, international financial integration (measured by the sum of countries' external assets and liabilities, scaled by world GDP) increased by close to 50%.

As for *data construction*, only around 20 countries in our sample were publishing IIP data when EWN1 was constructed—hence, our estimates were based on cumulative flows adjusted for valuation effects. Currently, around 80 countries in our database provide IIP estimates and their number is growing rapidly. This allows us to use flows to extend the time series backwards, rather than having to rely only on cumulative flows going forward. In addition, the availability of alternative data sources—such as the CPIS—allows us to estimate a country's external position more accurately than previously possible.

A couple of examples illustrate the improvements in data coverage. First, EWN2 reports debt assets and liabilities of advanced economies, rather than the net debt position, as in EWN1. This reflects both increased availability of IIP estimates and careful estimation work using a variety of data sources, explained in the Web Appendix. Second, the availability of data from the CPIS—as well as of bilateral US holdings of foreign equities and foreign holdings of US equities—have improved our estimates of portfolio equity holdings. For example, Ireland started to report data on equity inflows and outflows with the year 1998 (and hence EWN1 did not contain data for the underlying stocks). Our current estimates of the stocks of portfolio equity assets and liabilities for 1997, based on the CPIS and data from the Irish Central Statistical Office, are 45% of GDP and 78% of GDP, respectively.

3.2. The world NFA discrepancy

Given the global coverage of the data, we can document not only regional and country trends, but also address for the first time consistency issues between the world data on foreign assets and liabilities. While the existence of a world current account discrepancy is well known (see the IMF's *Balance of Payments Statistics Yearbook* and Marquez and Workman, 2001), lack of data has so far prevented a similar analysis for external assets and liabilities.[11] The world current account discrepancy, the systematically negative difference between world investment income earnings and payments, and anecdotal evidence of underreporting of foreign assets suggest that measured world external liabilities will exceed assets.

Fig. 1 shows that this is indeed the case. The figure plots the cumulative value of the world current account discrepancy, together with the difference between total external assets and liabilities measured in our dataset, scaling both series by world GDP. The co-movement between the two series is striking, all the more so in light of the fact that, as described in the previous section, the new version of our dataset is based to a much weaker extent on cumulative capital flows than the previous one. The figure also includes the cumulative value of the financial account, with a minus sign. As a measure of cumulative net capital outflows this is the closest

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[11] Some offshore centers not included in the dataset hold large assets and liabilities, but are *de facto* pure intermediaries, with trivial net positions. Therefore they would not alter the picture with regard to differences between "global" assets and liabilities, although they may affect the breakdown between equity and debt.
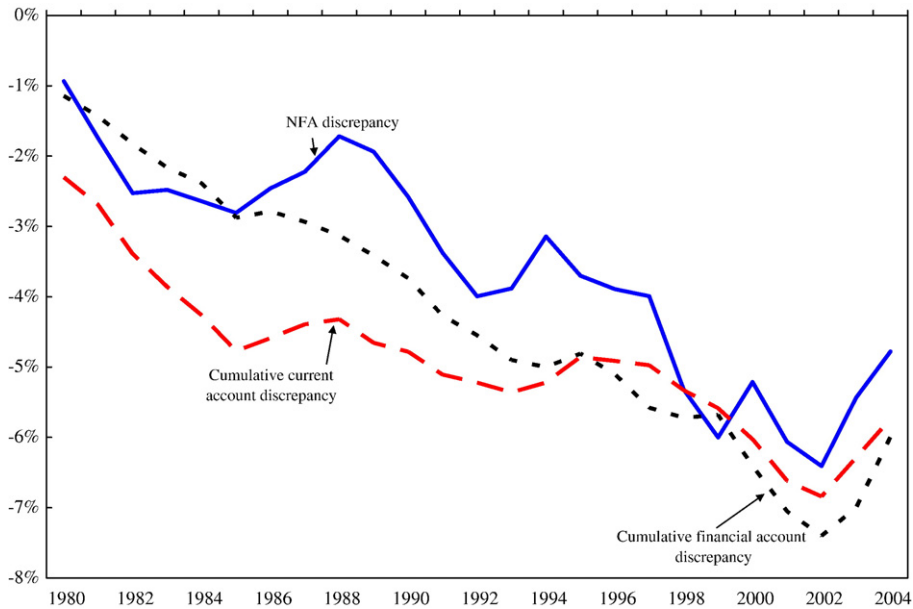
Fig. 1. World NFA Discrepancy and Cumulative Current Account Discrepancy, 1980–2004 (Share of world GDP). Note: the cumulative current account discrepancy is the cumulative sum of the world current account "residual," given by the sum of current accounts of all countries (from the World Economic Outlook database). The NFA discrepancy is given by the difference between total assets and total liabilities of the 145 countries in the sample. The cumulative financial account discrepancy variable is the cumulative sum of net capital outflows, where capital outflows are defined as the sum of the current account, capital transfers, and errors and omissions. All variables are scaled by world GDP.
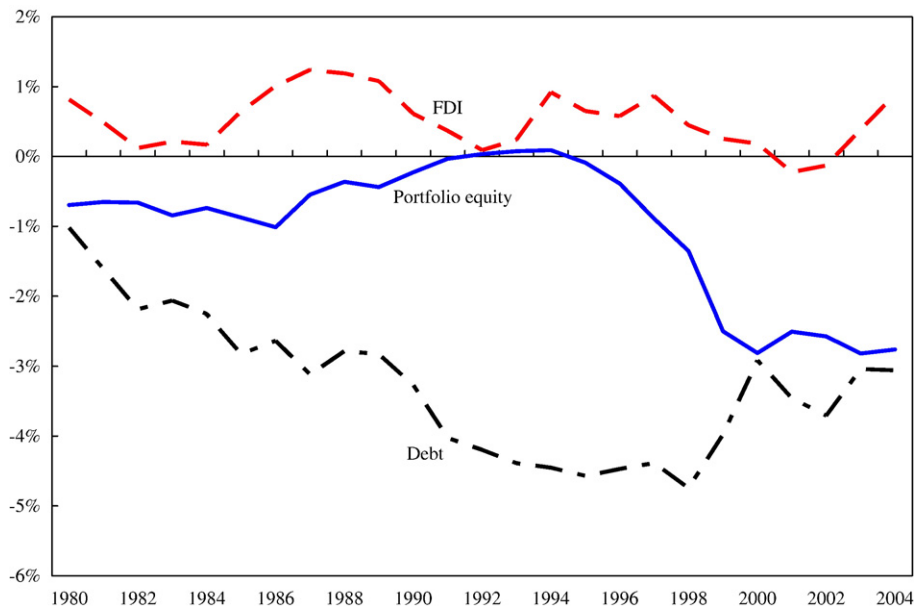

Fig. 2. Composition of The World NFA Discrepancy, 1980–2004 (share of world GDP). Note: All plotted series are the difference between world assets and world liabilities in the specific categories, scaled by world GDP.

Table 1
Portfolio Equity Liabilities Reported By Destination And Investor Countries, 2004 (Aggregate data, billions US$)

	Reported by destination country	Reported by investor countries
Ireland	614	210
Luxembourg	1436	820
United States	2123	1484

Note: reported portfolio equity liabilities are those that countries report in their International Investment Position. Derived liabilities are the sum of portfolio equity assets that participants to the CPIS report to be holding in the given country.

proxy to a flow-based measure of the NFA discrepancy. The difference with the cumulative current account reflects primarily net errors and omissions.

In Fig. 2 we decompose the global stock gap between the underlying asset categories, showing that portfolio equity holdings account for almost half of the world NFA discrepancy, with the remainder accounted for by the debt category.[12] Thanks to the results of the CPIS, we can shed some more light on the equity discrepancy by comparing total liabilities reported by a country with the assets that other countries claim to be holding in that location (derived from the CPIS). This is done in Table 1, which highlights how the portfolio equity liabilities reported by Ireland, Luxembourg, and the United States are much higher than the reported portfolio equity holdings in these economies by CPIS-reporting countries.

This suggests that the source of the problem is the under-reporting of claims on these countries. For Ireland and the United States, additional evidence can be obtained by comparing their surveys on foreign holders of domestic equities with the CPIS. As shown in Table 2, US-reported data on holders of US equities are much higher for financial centers (such as Singapore, Switzerland, and the United Kingdom) than holdings reported by these centers.[13] This is to be expected—these shares may be held by custodians in these countries on behalf of nonresidents—as such, they would not be considered domestic holdings of foreign equities by the financial center's asset surveys. There is also a large discrepancy between Canadian holdings reported by the United States and by Canada. As for Ireland, the largest discrepancies are those with the United Kingdom and the United States, which total over US$200 billion.

In sum, while some progress can be made in determining where some of the underreported external assets are held, it is much more difficult to establish which countries' residents hold such claims. Looking forward, increased availability of bilateral data should allow countries to refine and widen the scope of their estimates, particularly for assets held overseas.

4. Selected empirical findings

In this section, we present evidence on indicators of financial globalization; the composition of external balance sheets; the evolution of net foreign asset positions; and the role of valuation changes in explaining net foreign assets. We divide countries into two groups: long-standing OECD countries, which we denote as "industrial," and the remaining countries, which we denote as 'emerging' and developing (Appendix A). The separation does not always reflect the current

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[12] Foreign direct investment is the most problematic series from the point of view of measurement, given that some countries report it at book value and others at market value.

[13] The large difference for holdings in Caribbean offshore centers is explained by the partial participation of these centers to the CPIS. For example, the survey for the Cayman Islands did not cover mutual funds.

Table 2
Portfolio equity liabilities reported by destination and investor countries, 2004 (bilateral data, billions US$)

	Reported by destination country	Reported by investor countries
Holdings in the United States		
Canada	218	167
Caribbean financial centers	203	23
Singapore	72	10
Switzerland	123	55
United Kingdom	295	214
Holdings in Ireland		
Japan	17	3
United Kingdom	232	25
United States	112	22

Source: IMF, *Coordinated Portfolio Investment Survey* (CPIS); Ireland: Central Statistics Office; United States, Department of the Treasury: *Foreign Portfolio Holdings of U.S. Securities*; and Chinn, Rogers, and Warnock (2006).

level of development—for example, Hong Kong S.A.R. and Singapore have considerably higher GDP per capita than several of the "industrial" countries.

4.1. The scale of international financial integration

In Lane and Milesi-Ferretti (2003), we constructed a measure of international financial integration, defined as $IFIGDP_{it} = \frac{(FA_{it}+FL_{it})}{GDP_{it}}$ where FA(FL) denotes the stock of external assets (liabilities). Fig. 3 plots this ratio for both industrial and developing countries over 1970–2004.[14] During this period, the ratio has increased by a factor of 7, from 45% in 1970 to over 300% in 2004. During the 1970s and 1980s, the increase was fairly gradual (IFIGDP reached 100% only in 1987), but then accelerated in the mid-1990s: IFIGDP passed 200% in 1998 and 300% in 2004.[15]

International financial integration for the emerging markets/developing countries group has also increased steadily over time, closely tracking trends for industrial countries until the early 1990s.[16] From then on, however, the acceleration in cross-border asset trade by industrial countries was not matched by the emerging markets and developing country group, where the pace has been much more gradual.

The difference between the two country groups is even starker when international financial integration is compared with trade integration. Fig. 4 displays the sum of external assets and liabilities scaled by the sum of imports and exports of goods and services. For both country groups, the growth of asset trade outstripped the growth of product trade from the mid-1970s to the late 1980s. From then onward the increase in the ratio for industrial countries accelerated, with the spectacular increase in asset trade outpacing the expansion in goods' trade. For emerging markets trade in goods increased much more rapidly than for industrial countries during this

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[14] Excluding Luxembourg (where data are available only from 2000 onwards) lowers IFIGDP for industrial countries over the past 5 years by 15–20 percentage points, without altering the trend. Similarly, excluding Hong Kong S.A.R. (data available since 1989) lowers IFIGDP for emerging markets, without altering the trend.

[15] A test for a trend break is significant, starting in 1994. If a single trend break is permitted over 1970–2004, the statistical test identifies 1998 as the most significant year.

[16] The sample composition changes over time, since some country data are missing for the early years of the sample.
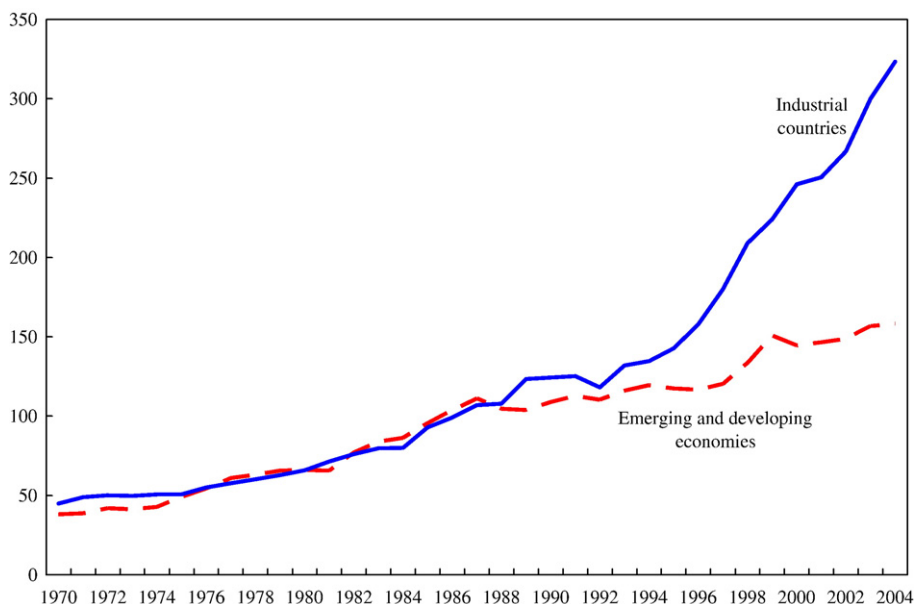
Fig. 3. International financial integration, 1970–2004. Note: Ratio of sum of foreign assets and liabilities to GDP, 1970–2004.

period, but the growth in asset trade was instead much slower, and therefore the ratio has remained broadly stable over the past 20 years.

To explore whether these stylized facts hold for equity instruments as well, we report a second financial integration measure based on portfolio equity and FDI stocks (Lane and Milesi-Ferretti, 2003):

$$GEQY_{it} = \frac{(PEQA_{it} + FDIA_{it} + PEQL_{it} + FDIL_{it})}{GDP_{it}}, \tag{2}$$

where PEQA(PEQL) denotes the stock of portfolio equity assets and FDIA(FDIL) denotes the stock of direct investment assets (liabilities). Fig. 5 shows the evolution of GEQY for both country groups. For the industrial group, the figure shows three phases—until 1985, the GEQY ratio was broadly stable; from 1985 to 1995, it gradually increased; since 1996, it increased much more rapidly, save for the 2001–2002 reversal in global equity valuations. The trend has been reasonably similar for emerging markets and developing countries, with cross-border equity positions growing strongly during the 1990s. Indeed, equity integration for these countries has grown not only with respect to their GDP, but also with respect to trade (graph not shown), unlike their total financial assets and liabilities. This suggests a significant shift in the structure of these countries' external portfolios, an issue we take up in the next subsection.

4.2. Trends in external capital structure

The composition of international balance sheets has been widely discussed in recent years, with an excessive reliance on debt finance perceived as increasing vulnerability and an equity-based financing promoted as improving international risk sharing (Rogoff, 1999; Lane and
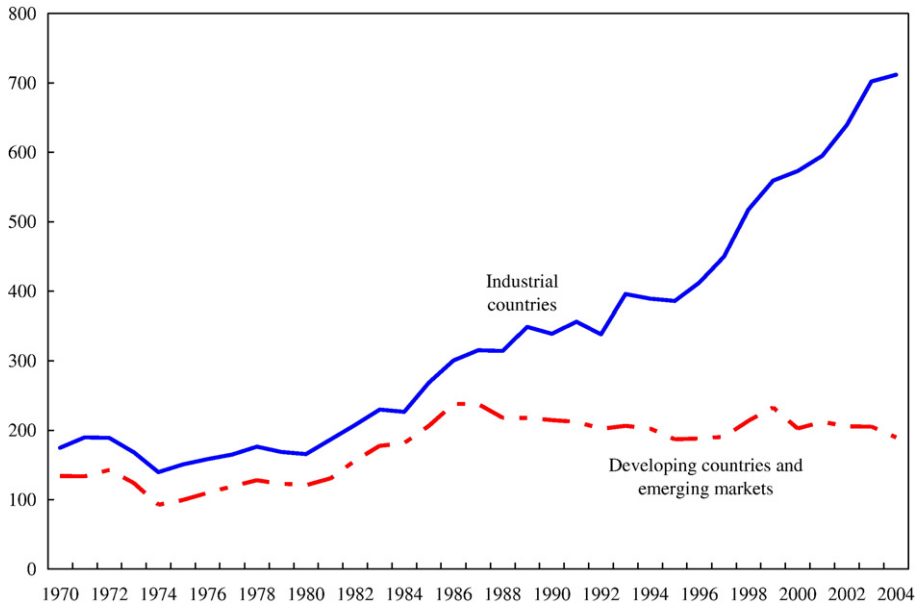
Fig. 4. Financial integration versus trade integration, 1970–2004. Note: Sum of external assets and liabilities in percent of sum of exports and imports.

Milesi-Ferretti, 2001b). We first consider the share of equity (portfolio and FDI) liabilities in total liabilities

$$\text{EQSH}_{it}^{L} = \frac{(\text{PEQL}_{it} + \text{FDIL}_{it})}{\text{FL}_{it}}, \tag{3}$$

Fig. 6 shows the dynamics of EQSH_{it}^{L} for the two country groups. The trends are broadly similar—a decline during the 1970s (the flip-side of the explosion in international debt flows during that decade), and an increase in the 1980s and especially the 1990s. For industrial countries, the past 5 years have seen a partial reversal in this ratio. As explained in Lane and Milesi-Ferretti (in press-a), this reflects not only the decline in stock prices during 2000–2002, but also the increased importance of debt flows in recent years. Equity liabilities have instead continued to grow in importance in developing countries, and in 2004 accounted for half of their total external liabilities. Underlying this trend is a steady increase in the share of FDI, now accounting for about 3/4 of equity liabilities, as well as a sharp increase in portfolio equity liabilities, particularly during the past decade, in line with local financial market development.[17]

The decline in the relative weight of debt in the external portfolio of developing countries and emerging markets has been accompanied on the asset side by rapid accumulation of official reserves. Fig. 7, which reports the ratio of external debt and official reserves to exports for the entire group of emerging and developing economies, highlights these trends. The dramatic decline in the aggregate ratio of debt to exports since the late 1980s is remarkable, and holds also

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[17] The share of portfolio equity liabilities may be overstated in part because many countries report FDI liabilities at book value rather than at market value (IMF, 2003a).
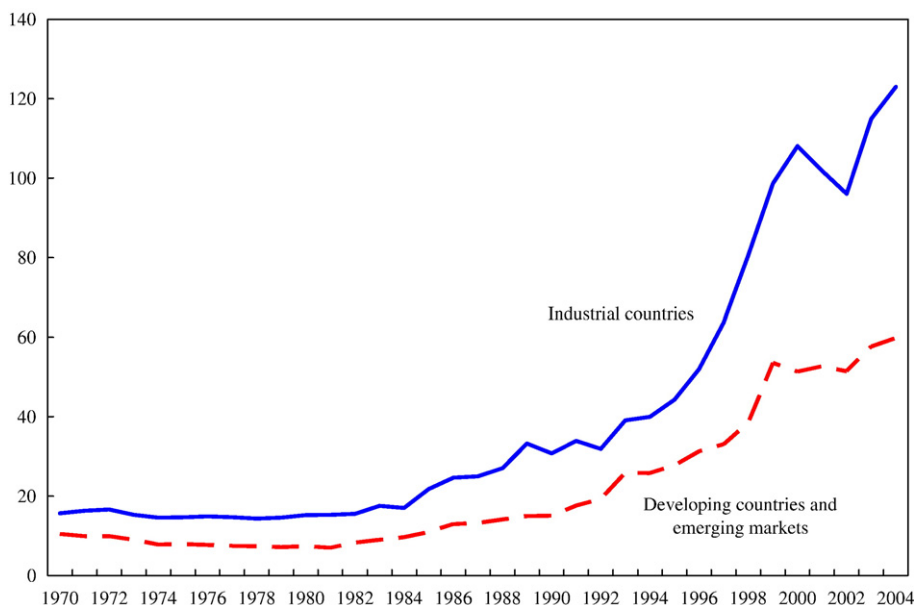
Fig. 5. International equity integration, 1970–2004. Note: Ratio of sum of foreign portfolio equity and FDI assets and liabilities to GDP.

if we take the average or the median external debt-to-export ratio, rather than the aggregate one. As a result of these developments, the ratio of official reserves to total debt liabilities has increased from 29% in 1998 to 64% in 2004. The growth in reserve holdings by emerging markets and developing countries stands out also when compared with developments in industrial countries: while total holdings of reserves by both country groups were virtually the same in 1995 (over $700 billion), by 2004 total reserve holdings by emerging markets and developing countries (just under $2.5 trillion) exceed holdings in industrial countries by $900 billion.

4.3. Net foreign asset positions

Fig. 8 characterizes the distribution of net external positions at end-2004 by plotting the ratio of net foreign assets to GDP against (log) GDP per capita. The correlation is significantly positive at 0.45, but there is considerable variation in positions at all levels of development, particularly for high-income countries. The variation of GDP per capita explains over 40% of the cross-sectional variance for industrial countries, and less than 30% for developing countries. Among the latter, the largest creditor positions are disproportionately identified with oil producers and richer Asian countries.

In Fig. 9, we examine the evolution of net external positions over time, separating out the United States from other industrial countries.[18] In addition to the worsening in the US position, the chart also highlights the dramatic improvement in the external position of developing countries since the late 1990s. The upward trend in net foreign assets of other industrial countries

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[18] Broad trends are analogous if we scale net foreign assets by world GDP (net positions do not sum to zero because of the global discrepancy). The US and emerging markets' positions are scaled down relative to other industrial countries, since the latter group is larger. Lane and Milesi-Ferretti (in press-a) discuss recent trends in global imbalances.
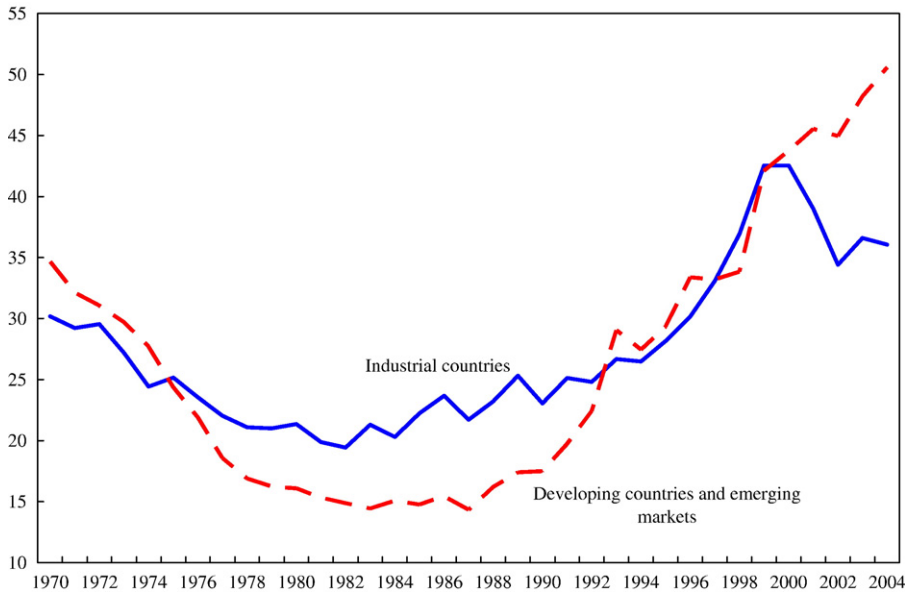
Fig. 6. Equity share in external liabilities, 1970–2004. Note: Ratio of portfolio equity and FDI liabilities to total liabilities.
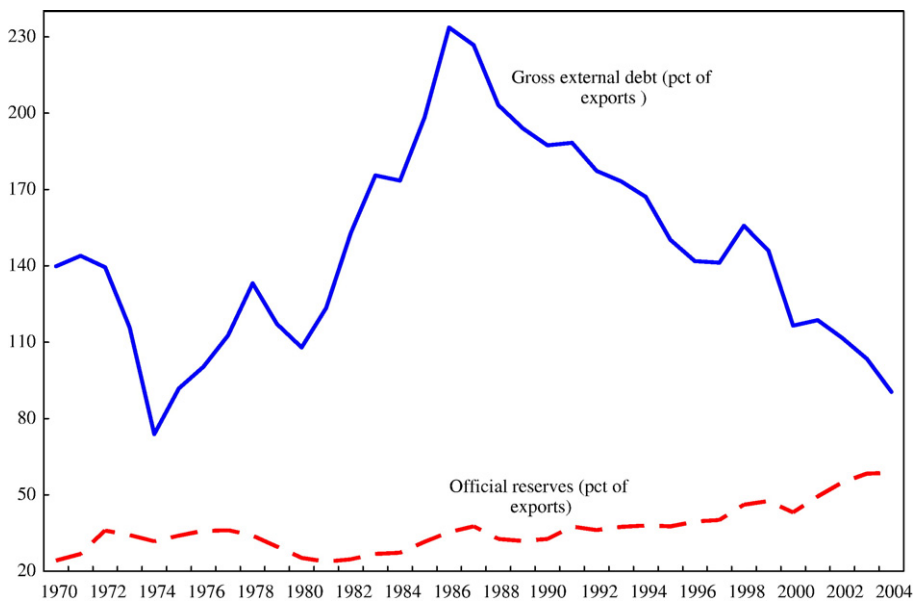

Fig. 7. External debt and official reserves, emerging markets and developing group, 1970–2004. Note: The series "gross external debt" is the sum of external debt liabilities for the entire emerging market and developing country group as percent of the sum of total exports of goods and services. The series "official reserves" is the sum of official reserves for all countries of the group as a percent of the sum of total exports of goods and services.
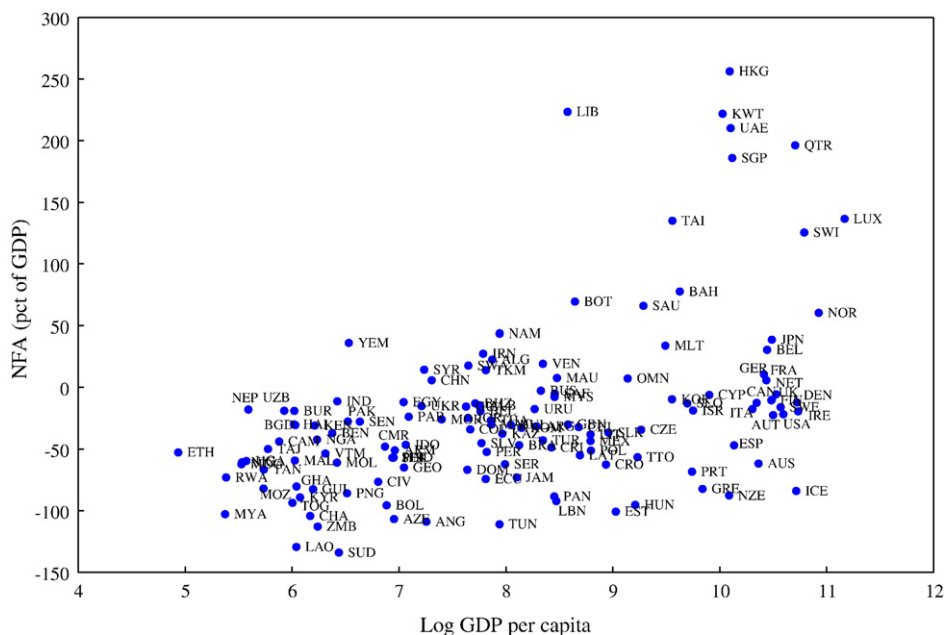
Fig. 8. Net foreign assets and GDP per capita: All countries, 2004. Note: log GDP per capita (current US dollars) on horizontal axis, NFA/GDP ratio on vertical axis. Correlation is 0.43. Graph excludes Brunei Darussalam (estimated net foreign assets of over 600% of GDP).
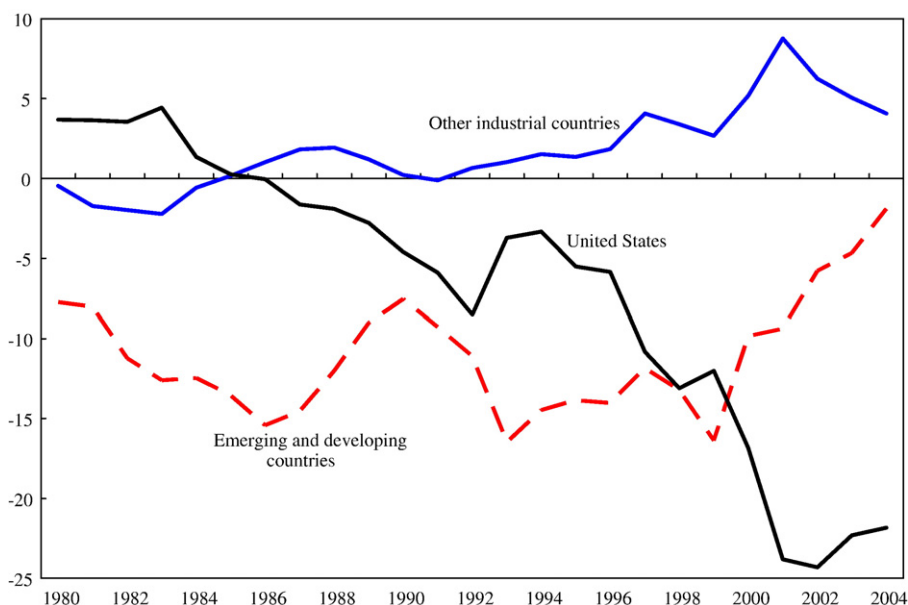

Fig. 9. Net foreign assets by country group (percent of group GDP), 1980–2004. Note: The chart plots aggregate net foreign assets for the two country groups and the United States, divided by each group/country's GDP. The group "other industrial countries" includes all industrial countries except the United States.

was reversed since 2001, primarily because of a deterioration in Spain, Italy, Australia, and the United Kingdom.

Fig. 10 shows the evolution of net foreign assets between 1996 and 2004. There was relatively little change on average for industrial countries–no country switched between creditor and debtor status, with the most remarkable shift being the increased US indebtedness. Elsewhere, emerging Europe, the CIS, and several Latin American countries experienced an expansion in net external
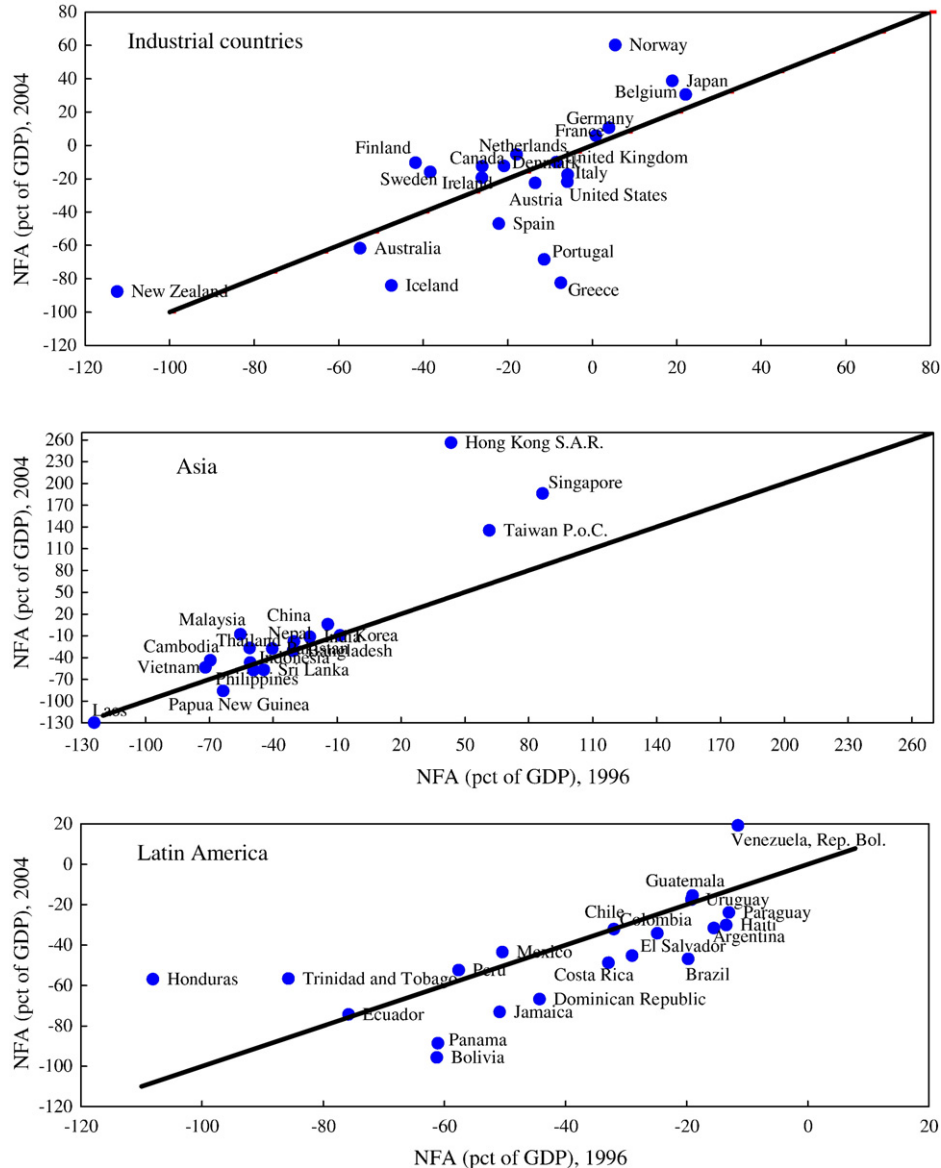

Fig. 10. NFA to GDP ratio, 1996 and 2004. Note: Switzerland is not displayed (NFA of 108% of GDP in 1996 and 125% of GDP in 2004). Figure for Latin America excludes Nicaragua (NFA of −172% of GDP in 1996 and −164% in 2004). NFA/GDP ratio, 1996/97 and 2003/2004.
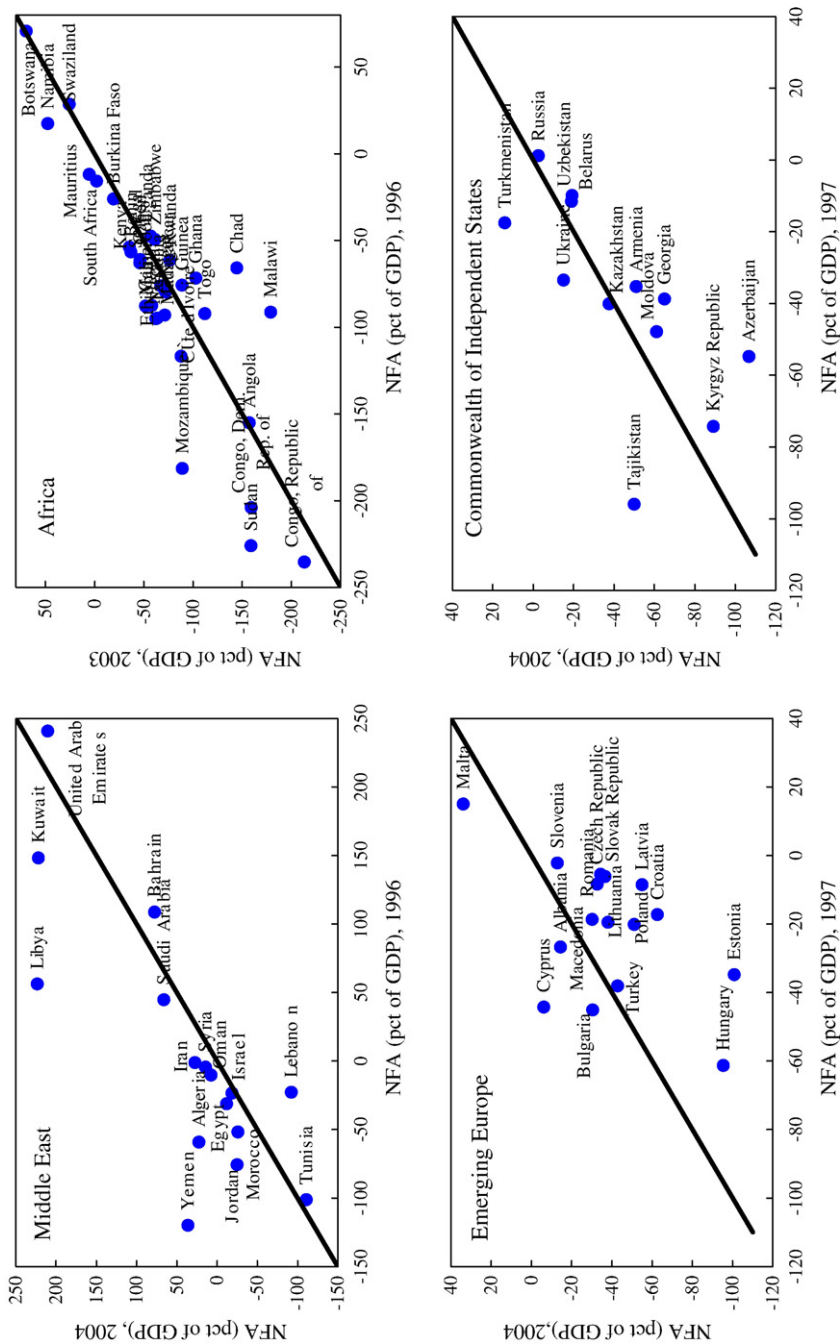
Fig. 10 (*continued*).

liabilities over 1996–2004. However, other regions underwent a significant improvement in their net positions—the Middle East experienced the most dramatic gain, followed by emerging Asia and Africa. While the recent increase in oil prices is certainly important for the Middle East group, the main factor for emerging Asia has been the focus on improving the external balance sheet in the wake of the 1997–1998 financial crisis.

We conclude the discussion of net external positions by returning to the issue of measurement error (see Section 2.6). Table 3 provides data on the cumulative value of net errors and omissions as of the end of 2004. For the purpose of this discussion, we will refer to positive (negative) net errors and omissions as unrecorded capital inflows (outflows). On the one side, Switzerland is by far the largest receiver of unrecorded capital inflows. On the other side, a number of countries— Russia, Norway, and Kuwait—have experienced unrecorded outflows of 20% of GDP or more. While for Switzerland this does not necessarily bias its IIP estimate, since unrecorded inflows may well be captured by the survey data used to calculate the IIP, for countries experiencing unrecorded outflows their cumulative value is unlikely to be captured in estimates of external assets. For example, Russian outflows attributed to "nonrepatriated export proceeds" are not included in the estimates of Russian external holdings. More generally, these figures provide a sense of the margins of uncertainty surrounding external accounts.

The composition of the external portfolio is an important factor determining the average returns and risk profile associated with a given net foreign asset position. In Fig. 11a, we plot the net equity and net debt positions for industrial countries. Ireland and Luxembourg are excluded as extreme outliers—both have very high positive net debt and negative net equity positions.[19] This figure shows that there is no systemic cross-sectional relation between net debt and net equity (the correlation is 0.02). Several industrial countries (such as the United States and the United Kingdom) are long in foreign equity and short in foreign debt, while Japan, plus Ireland and Luxembourg, display the opposite pattern.

Fig. 11b shows that for emerging markets and developing countries there is a typically a positive relation between net debt and net equity (the correlation is 0.35).[20] No country exhibits the "short debt, long equity" profile: 72 developing countries have net liabilities in both categories. An interesting feature is that 36 of the 44 countries with positive net debt positions have negative net equity liabilities—largely reflecting the large official reserves of the major recipients of FDI and portfolio equity inflows.

4.4. The valuation channel

Cross-country differences in portfolio structure, and the importance of equity holdings in particular, suggest that changes in the valuation of assets and liabilities can play an important role in driving net foreign assets, in addition to net borrowing or lending.[21] Table 4 shows the decline in the correlation between these variables over time, from 0.71 in 1971–1981 to 0.33 in 1993–

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[19] Financial centers with a large mutual fund industry (like Ireland and Luxembourg) are long in foreign debt and short in foreign equity, because foreign-owned shares in mutual funds are recorded as portfolio equity liabilities, even though some of the assets of the mutual funds are invested in bonds.

[20] For countries such as Kuwait, Qatar, and Saudi Arabia, portfolio equity holdings are substantially underestimated: these countries do not report data on equity outflows or holdings, and partner-country data is incomplete (for example, the US only reports aggregate equity holdings of Middle East oil exporters in the US). Any reasonable assumption about diversification of external holdings implies that these countries have a positive net equity position.

[21] As discussed further below, capital transfers (such as debt forgiveness) and errors and omissions can also drive a wedge between the current account and the change in net foreign assets. See also Lane and Milesi-Ferretti (2001a).

Table 3
Cumulative value of net errors and omissions, selected countries (1970–2004)

| | Cumulative net errors and omissions | |
	Billions US$	pct of GDP
Switzerland	140.8	39.2
Mauritius	1.5	25.5
Nepal	1.7	25.0
Albania	1.5	19.8
Bahrain	2.2	19.7
United Kingdom	133.8	6.3
Germany	150.6	5.5
United States	295.1	2.5
China, P.R.: Mainland	−97.3	−5.0
Italy	−135.7	−7.9
Venezuela, Rep. Bol.	−21.2	−19.2
Nicaragua	−0.9	−19.5
Dominican Republic	−3.6	−19.8
Lebanon	−5.9	−27.3
Zambia	−1.5	−27.6
Norway	−72.3	−28.4
Russia	−193.2	−32.7
Ethiopia	−3.4	−34.9
Bolivia	−3.4	−39.1
Mozambique	−2.6	−43.9
Kuwait	−59.5	−106.8

Note: The table reports the cumulative value of net errors and omissions. A positive value of net errors and omissions can indicate unrecorded net capital inflows or unrecorded net exports, and a negative value unrecorded capital outflows or net imports. For Russia, the data on net errors and omissions is augmented to include "nonrepatriation of export proceeds" which are classified as other investment outflows but are not used in the calculation of the stock of other investment holdings.
Source: authors' calculations based on IMF, *Balance of Payments Statistics*, and Bank of Russia, Balance of Payments.

2004 for industrial countries and from 0.7 to 0.46 for a group of emerging markets. The weakening of the correlation is the counterpart to the accumulation of larger gross external holdings—the importance of valuation effects is generally proportional to the scale of international balance sheets. Table 5 shows that valuation effects typically implies larger short-term volatility of changes in net foreign assets relative to the current account balance.

However, it is also important to know whether the valuation channel merely raises volatility or also influences the long-term evolution of net foreign assets. There is a strong correlation between the cumulative current account balance and the change in net foreign assets over long time periods for both industrial countries and emerging markets. However, the cumulative divergence over time can be substantial, as shown in Table 6, which presents data on changes in net foreign assets and the cumulative current account, capital transfers, and errors and omissions. To understand the link between these variables, it is useful to abstract initially from capital gains and losses. If errors and omissions reflect unrecorded capital flows not captured by stock data, or if they reflect mismeasured trade flows, the sum of current account, capital transfers, and errors and omissions should be close to the change in net foreign assets. If instead errors and omissions reflect unrecorded capital flows that are captured by stock data (something more likely to occur with unrecorded inflows than unrecorded outflows) then the sum of the current account and capital transfers would be close to the change in net foreign assets.
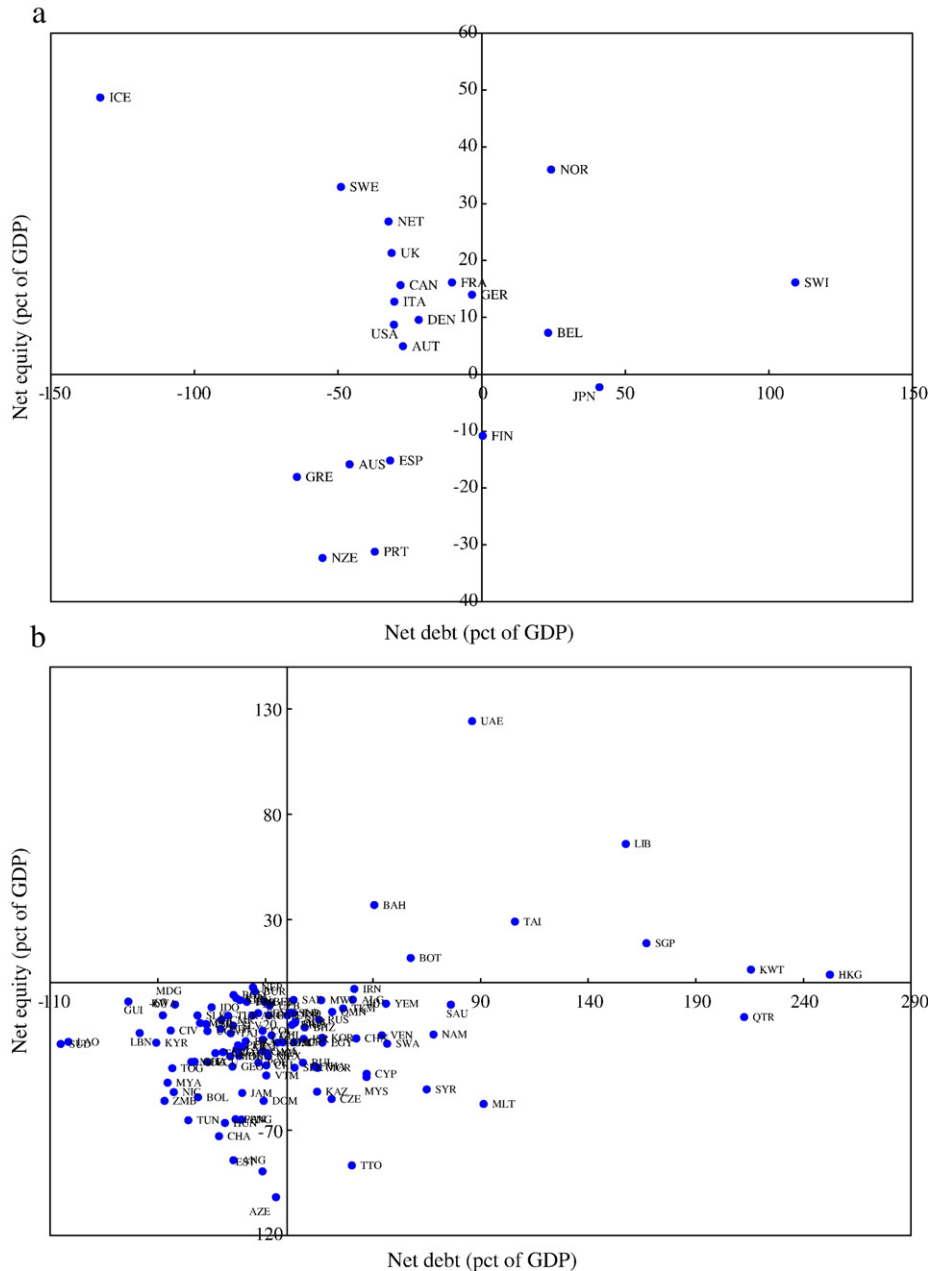
a

b

Fig. 11. a. Net equity position versus net debt position: industrial group, 2004. b. Net equity and net debt position: emerging markets and developing countries, 2004. Note: Ireland and Luxembourg excluded from a due to extreme values (in both cases, very high positive net debt and negative net equity).

Within the "industrial" group, there are a number of countries where the difference between the change in net foreign assets and the cumulative current account is substantially positive (primarily Switzerland, but also the United States, Canada, and the United Kingdom). While capital transfers

Table 4

Correlation between current account and change in net foreign assets: industrial countries and emerging markets, annual data, 1971–2004

	Industrial countries	Emerging markets
1971–2004	0.39	0.58
1971–1981	0.71	0.70
1982–1992	0.63	0.65
1993–2004	0.33	0.46

Note: Correlation of CA/GDP ratio and D(NFA)/GDP ratio for industrial countries and selected major emerging markets (Israel, Turkey, South Africa, Argentina, Brazil, Chile, Colombia, Mexico, Venezuela, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Thailand, China).

explain the divergence for Canada (linked to the move to Canada of wealthy immigrants during the 1990s, as discussed in Lane and Milesi-Ferretti, 2001a), the data suggest substantial cumulative capital gains for the United States and the United Kingdom. In contrast, the difference between changes in net foreign assets and the cumulative current account is substantially negative

Table 5

Standard deviation of current account and change in net foreign assets, 1982–2004

	Current account (percent of GDP)	Change in NFA (percent of GDP)
A. Industrial countries		
Australia	1.1	6.6
Canada	2.2	3.5
Finland	4.5	27.3
France	1.3	4.3
Germany	2.2	3.1
Ireland	3.1	16.7
Italy	1.5	2.8
Japan	0.9	2.6
Netherlands	1.8	10.6
Spain	1.9	4.6
Sweden	3.1	10.6
Switzerland	3.9	13.8
United Kingdom	1.7	4.9
United States	1.5	2.5
B. Selected emerging and developing countries		
Turkey	2.0	4.4
South Africa	2.5	6.6
Argentina	3.4	13.1
Brazil	2.7	4.3
Chile	2.9	5.4
Colombia	3.5	4.8
Mexico	2.7	3.4
India	1.0	1.7
Indonesia	3.6	6.6
Korea	3.9	4.0
Malaysia	8.8	11.4
Philippines	4.9	3.7
Thailand	6.3	7.9
China	2.1	3.6

Source: IMF, Balance of Payments' Statistics and EWN2 database.

Table 6
Cumulative Current Account and Change in Net Foreign Asset Position, 1982–2004

	(1)	(2)	(3)	(4)	(5)
	Change in NFA	Cumulative current account	Difference	Cumulative cap. transfers or debt forgiveness	Cumulative errors and omissions
A. Selected industrial countries					
Switzerland	102.7	113.5	−10.9	−2.0	18.7
Japan	38.5	45.1	−6.6	−1.6	−0.4
Germany	9.2	8.8	0.4	−0.6	5.2
France	5.0	9.0	−4.0	−0.4	1.7
Canada	−1.2	−9.8	8.6	9.1	−1.4
Finland	−5.8	23.7	−29.5	0.5	−1.3
United Kingdom	−12.6	−18.8	6.2	1.1	5.6
Italy	−16.7	−0.5	−16.2	1.5	−7.7
United States	−22.8	−38.4	15.6	−0.3	1.8
Spain	−44.8	−26.1	−18.7	8.0	−2.7
Australia	−54.8	−53.6	−1.1	2.9	−0.6
Portugal	−62.0	−50.7	−11.2	11.5	0.1
Iceland	−77.1	−43.1	−33.9	0.0	−6.4
B. Selected emerging markets and developing countries					
Venezuela	27.9	60.6	−32.8	−3.2	−21.9
South Africa	6.0	−1.1	7.1	−0.4	2.5
China	5.2	15.5	−10.3	0.0	−5.0
Malaysia	−0.8	29.5	−30.3	−0.5	−1.4
Korea	−5.5	14.9	−20.4	−1.6	−2.1
India	−9.5	−11.9	2.4	0.9	0.2
Chile	−15.7	−31.2	15.5	−5.4	−2.5
Argentina	−15.8	−54.0	38.2	−9.9	−12.4
Thailand	−20.9	−9.1	−11.9	0.0	−3.5
Mexico	−32.9	−30.4	−2.5	−2.4	−4.4
Brazil	−34.0	−32.4	−1.7	−1.3	−2.2
Turkey	−37.5	−16.7	−20.8	0.0	2.1
Philippines	−38.5	−38.7	0.1	−2.9	−11.5
Indonesia	−40.6	−6.1	−34.5	0.0	−5.0

Note: All variables are scaled by 2004 GDP. The cumulative current account balance, capital account transfers, and net errors and omissions are calculated over 1982–2004 (1989–2003 for debt forgiveness), while the change in NFA is the change in the net foreign asset position between end-1981 and 2004. Column (3) is the difference between columns (1) and (2). Positive net errors and omissions can indicate unrecorded capital inflows or unrecorded net exports, while negative errors and omissions can indicate unrecorded outflows or unrecorded net imports.

for the Iceland, Finland, New Zealand, and Spain, and does not appear to be explained by capital transfers or errors and omissions.

Table 6 shows that differences between cumulative current account balances and changes in net foreign assets in emerging markets and developing countries can be substantial even over a protracted period of time.[22] As discussed in Lane and Milesi-Ferretti (2005), these differences can often be attributed to negative cumulative valuation effects. These result from a combination of exchange rate depreciation (when debt liabilities are disproportionately in foreign currency) or rising domestic asset prices (with equity and FDI liabilities rising in value over time). The table also

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[22] Table 6b also shows the impact of debt-reduction schemes, which can drive a wedge between the cumulative current account and changes in net foreign assets.

highlights the large net errors and omissions, likely capturing unrecorded capital outflows, particularly in the Philippines and Venezuela.

Following Lane and Milesi-Ferretti (in press-a), we can quantify the contributions of the trade balance and returns to the dynamics of NFA by expressing the change in the ratio of NFA to GDP as

$$b_t - b_{t-1} \equiv bgst_t + \frac{i_t^A A_{t-1} - i_t^L L_{t-1} + kg_t^A A_{t-1} - kg_t^L L_{t-1}}{Y_t} - \frac{g_t + \pi_t}{(1+g_t)(1+\pi_t)} b_{t-1} + \varepsilon_t$$

(4)

where b is the ratio of net foreign assets to GDP, $bgst_t$ is the ratio of the balance on goods, services, and transfers to GDP, the second term measures net asset returns (the sum of net investment income and net capital gains, where $i_t^A, kg_t^A, i_t^L, kg_t^L$ are the yield and capital gain rates on foreign assets and liabilities), g_t is the growth rate of real GDP, π_t is the inflation rate, and ε includes the ratio of capital transfers and errors and omissions to GDP. This expression highlights that the relative importance of net returns depends on the ratios of foreign assets and liabilities to GDP, the returns achieved on both sides of the balance sheet, and the net external position. Returns on assets and liabilities depend on an array of factors, including the equity–debt mix on each side of the balance sheet, currency of denomination and exchange rate fluctuations, and the global and country-specific factors driving asset valuations.

Table 7 provides the decomposition given in Eq. (4) for some industrial and emerging market economies over 1996–2004. At one extreme, in the United States significantly positive net returns have partly compensated the large trade deficit. These reflect a combination of low-yield debt liabilities, a long equity position giving the United States net gains from strong global equity returns, and a short dollar position which means that unexpected dollar depreciation generates net capital gains on its external position (see Tille, 2003; Gourinchas and Rey, 2006; Lane and Milesi-Ferretti, 2005, in press-a).

In contrast, countries such as Finland and the emerging market economies show the opposite pattern. For Finland, its net capital losses can be attributed to the Nokia-driven boom in the value of its portfolio equity liabilities, underlining that external capital losses are not a welfare indicator and

Table 7
Decomposition of net foreign asset position dynamics, 1996–2004

	Initial NFA	Change in NFA	Trade balance	Net returns			Other factors
				Total	Invest. income	Capital gains	
United States	−5.5	−16.3	−29.6	10.6	1.9	8.7	2.7
Japan	15.5	23.3	9.8	11.8	12.6	−0.7	1.7
United Kingdom	−2.4	−7.6	−17.8	6.2	8.2	−2.0	4.1
Germany	5.1	5.5	5.7	−3.3	−2.3	−1.0	3.1
Switzerland	92.5	32.9	18.0	20.5	60.3	−39.9	−5.6
Finland	−41.5	31.1	49.1	−30.1	−10.6	−19.4	12.0
Norway	5.9	59.3	67.3	15.7	−0.9	16.5	−21.2
Spain	−22.0	−25.0	−9.1	−31.1	−8.6	−22.6	15.2
Argentina	−15.0	−16.5	18.6	−18.1	−43.5	25.4	−17.0
Mexico	−56.8	13.3	1.9	−20.8	−17.4	−3.4	32.2
Korea	−7.0	−2.6	17.8	−19.9	−3.2	−16.6	−0.5
Malaysia	−55.0	47.2	96.1	−59.4	−43.0	−16.5	10.5

Note: All variables expressed as ratios to GDP. Trade balance is balance on goods, services, and transfers. Net returns are the sum of investment income and capital gains. the term 'other factors' is the sum of the growth term, capital account and errors and omissions.

may simply reflect an efficient international risk-sharing mechanism. In related fashion, the net capital losses of emerging economies in Asia are influenced by the skewed composition of their external balance sheet (significant equity liabilities, large reserve assets)—the strong performance of their equity markets since the Asian crisis has raised the value of foreign equity holdings. Finally, the capital gains experienced by Argentina reflect the capital loss on foreign investors imposed by the debt default, as well as the substantial decline in the value of FDI holdings in Argentina resulting from the 2001 financial crisis.

In sum, the past decade has witnessed significant changes in net external positions across the globe. Emerging markets and developing countries—particularly emerging Asia and the Middle East—have substantially improved their aggregate external positions. Other regions, such as emerging Europe, have accumulated large liabilities. In industrial countries, external positions have generally become larger, with debtors (such as Australia, Spain, and the United States) accumulating more liabilities and creditors (such as Japan and Switzerland) more assets. With the increase in gross assets and liabilities, the valuation effects induced by changes in exchange rates and asset prices have become an important source of fluctuations in the value of countries' external portfolios, often swamping the effects of capital flows.

5. Concluding remarks

The stylized facts we described illustrate the usefulness of the EWNII dataset as a comprehensive source of information on gross and net international investment positions, despite severe measurement problems. Relative to the previous state of knowledge, the greatly-increased country coverage of the dataset is an important advance that will enable researchers to take a truly global view of developments in international financial trade. This feature is especially important in understanding the dynamics of external imbalances. Furthermore, the extension of the dataset to include 1999–2004 provides important information on the financial globalization process, in view of the ongoing increase in the scale of gross asset trade, accompanied by substantial shifts in the composition of international balance sheets, during this period.

An important contribution of this paper is to highlight the shift in the structure of the external portfolio for emerging market economies. Taken collectively, these countries have sharply improved their net foreign positions over the past decade. Moreover, the risk profile of their external balance sheets has been substantially changed by the growth in the share of equity liabilities in total liabilities and the rapid growth in the accumulation of foreign reserves. However, this aggregate performance masks differences in trends, particularly between emerging Europe and emerging Asia plus the Middle East: the former has been rapidly accumulating net liabilities, while the latter regions have been running large surpluses.

In terms of financial integration, the developing world has lagged behind the industrial countries in terms of the scale of cross-border asset trade (especially in the debt category). We may expect some catch-up by these countries, in line with further progress in domestic financial development and external capital account liberalization. That said, the increasing prominence of the major emerging market economies as international investors is already reshaping the nature of international asset trade.

There is a rich set of potential applications of this dataset. For instance, in combination with data on investment income and capital flows, it makes it possible to study rates of return on foreign assets and liabilities on a much broader scale than previously feasible. This can shed more light on the role played by the valuation channel in external adjustment.

In terms of the research agenda, there is clearly scope for a two-pronged strategy. In one direction, more work is needed to understand the determinants of gross and net external positions over time and

across countries. In the other direction, our estimates of foreign asset and liabilities can be used to investigate a wide range of hypotheses about the impact of international financial integration on macroeconomic performance. We expect the EWNII dataset to stimulate research on these questions.

Acknowledgements

Appendix A. Country list

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

Other countries: Albania, Algeria, Angola, Argentina, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Benin, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Cambodia, Cameroon, Chad, Chile, China, Colombia, Dem. Rep. of Congo, Rep. of Congo, Costa Rica, Côte d'Ivoire, Croatia, Cyprus, Czech Republic, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Estonia, Ethiopia, Fiji, Gabon, Georgia, Ghana, Guatemala, Guinea, Haiti, Honduras, Hong Kong S.A.R., Hungary, India, Indonesia, Iran, Islamic Republic of, Israel, Jamaica, Jordan, Kazakhstan, Kenya, Korea, Kuwait, Kyrgyz Republic, Laos, Latvia, Lebanon, Libya, Lithuania, Macedonia, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritius, Mexico, Moldova, Morocco, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Niger, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Qatar, Romania, Russia, Rwanda, Saudi Arabia, Senegal, Serbia and Montenegro, Singapore, Slovak Republic, Slovenia, South Africa, Sri Lanka, Sudan, Swaziland, Syrian Arab Republic, Taiwan Province of China, Tajikistan, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, Uruguay, Uzbekistan, Venezuela, Rep. Bol., Vietnam, Yemen, Zambia, Zimbabwe.

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