Twenty-Eighth Meeting of the
IMF Committee on Balance of Payments Statistics

Rio de Janeiro, Brazil
October 27–29, 2015

BOPCOM—15/13.a

The Trend to Improved IIP Measures at Statistics Canada

Prepared by the Statistics Canada

The Trend to Improved IIP Measures at Statistics Canada

Patrick O'Hagan
Director, International Accounts and Trade Division

1. Introduction

Statistics Canada has, for the past 12 years, embarked upon a program of extending the relevance of its International Investment Position (IIP). These changes have involved enhanced frequency, improved valuation of assets-liabilities, and expanding the details released to the public. By extension, these changes have led to improvements in accuracy-reliability of the IIP.

2. The period from 2002-2012

The quarterly IIP

The move to quarterly frequency in 2003 for the IIP was a major improvement, in that it allowed for a link to the quarterly balance of payments (BOP). It was evident that exchange rate fluctuations played a major part in the evolution of the net external position, in relation the BOP surplus-deficit.
This work was taken on in the context of an integrated statistical system, such that a joint project with the compilers of the sectoral balance sheet accounts (National Balance Sheet Accounts – NBSA) was launched in 2002. The close relationship between the IIP and NBSA (of which the non-resident sector is the IIP), ensured that data were developed in a coherent manner.

Many components of the collection system that supported the BOP-IIP were already at quarterly frequency. The project then involved (i) leveraging these existing sources (reserves, banking data, securities transactions and partial positions for foreign direct investment), (ii) estimating positions (including foreign currency re-statement on a quarterly basis) where required, and (iii) extensive data confrontation – including with various components of the NBSA.

While this represented a major improvement, it also underlined a pressing need to convert all relevant assets-liabilities to market valuation in quarterly space.

Market values for portfolio investment positions

The move to market valuation IIP for securities in 2004 was another major improvement, especially in the context of significant Canadian holdings of equity securities abroad whose values have fluctuated significantly superimposed on an upward trend over the last 25 years. The impact was somewhat smaller on the other side of the ledger, where the majority of foreign investment into Canada is in form of debt securities.

For outward investment, the market value micro data collected from the Coordinated Portfolio Investment Survey (CPIS) was the basis of annual estimates from 1997 forward. These were interpolated and projected beyond survey years using (i) information from the monthly program of cross-border trade in securities and (ii) relevant market prices and exchange rates in the context of a securities-by-securities' database that allows for the calculation of current values by type of security (debt or equity).

For inward investment, all new issues, transactions, retirements and characteristics of debt securities are compiled such that book and market values (among other measures, such as income) are derived on a quarterly basis using the existing functionality of the securities' database. This functionality is being strengthened as part of a re-design of the database, in order to generate measures such as remaining term to maturity for debt instruments and outstanding amounts by major currency of issue.

For equities, the micro data collected from the annual survey Foreign Investment in Canada (BP-FIC) formed the basis of annual estimates at book value. Market capitalization ratios, at firm level, were then used to generate annual market value estimates. These were interpolated and projected beyond survey years using (i) information from the monthly program of cross-border trade in securities and (ii) Canadian stock market indices. As part of the re-design of the database, this approach will be strengthened to generate quarterly market value estimates of Canadian equities held by non-residents on a security by security basis.

Again this work reflected the integrated nature of the macroeconomic accounts. For the sectoral balance sheet estimates book-to-market ratios derived from the securities' database were used in conjunction with institutional sectors' survey data to derive market values. This program also benchmarks to the annual CPIS by institutional sector.

Despite the resulting availability of high quality estimates of the market value of cross-border holdings of asset-liability securities, it was decided to temporarily retain the book (nominal) value estimates for securities as the main measure for the quarterly IIP. That said, the market values for securities were released and referenced in the quarterly analytical IIP texts. This was the case as market values for foreign direct investment (FDI) were not yet available, and it was felt that *all relevant assets* should be stated at market value in the quarterly IIP. Work on FDI became a priority in the years that followed.

FDI re-design project

Foreign direct investment is a major component of the international investment position, currently comprising 39.7% of assets and 32.2% of liabilities. As a result, content, collection and methodology have to be periodically reviewed. Work was initiated and completed on the re-design of the FDI surveys, as a 5 year-project in 2008. This project included a link to the Statistics Canada centralized business register and the introduction of a stratified sampling methodology, a corresponding systems upgrade that integrated the various components of the FDI program, as well as a content review.

The latter involved principally a revamping of the annual surveys, with the objective of focussing on key areas while reducing respondent burden. Two content changes are worth noting. First, the FDI survey was adapted for (optional) IFRS reporting, as firms move to adopt new "current value" accounting standards. This could eventually provide a good estimate of *own funds at book value*[1], as opposed to historical cost FDI equity. That said there has been very little change in reporting to date. Second, the annual outward FDI survey was modified to integrate the outward foreign affiliate statistics survey[2] (FATS) as a module, in an attempt to improve response rates. This effort has paid some dividends.

However, given the move to a quarterly IIP, emphasis was also put on improving the quarterly results. The focus was an enlarged quarterly sample, which also improved the quality of the BOP.

3. Comprehensive revision 2012[3]

Market values for foreign direct investment positions

In 2006, a provisional methodology was developed to convert largely historical cost (book) value estimates of FDI to market value, with initial estimates released in the form of a paper. The actual release of these estimates in 2012 was an extension and refinement of this work, for which it should be noted that all calculations are undertaken at the micro or firm level. This allows for a simple extension of this into the annual geographical-industry detail release as well as CDIS, and this improvement is planned to be implemented over the next few years[4].

Essentially, the work was in two parts. First, market valuations were used for listed companies. Second, for unlisted companies, the most widely-accepted methodology in the international standards – the market capitalization approach – was used. This amounts to using capitalization ratios (market value / book value) derived from listed companies and applying these to the book value equity estimates of unlisted companies in the same industries, with exceptions for specific cases (e.g., small companies, specific sectors). The issue of a size cut-off (or threshold) warrants further explanation. It is based on the argument that relatively large listed and unlisted companies

---

[1] That term is arguably somewhat of a misnomer, since what is meant is own funds with assets-liabilities at some measure of current value.

[2] Inward foreign affiliate statistics (FATS) are generated as a record linkage exercise, with good quality results at zero response burden and minimal cost.

[3] Most of the other 2012 comprehensive revisions were focussed on the current account.

[4] However, CDIS prefers market values for listed companies and book values for unlisted companies.

face similar economic realities, and therefore one would expect their equity values should move more or less in tandem. The approach was to determine whether the investment level for an unlisted company is above a certain threshold and then apply an appropriate industry average market-to-book ratio and/or reference recent mergers and acquisitions activity; if it is not then the market value will be set equal to the existing book value.

For inward FDI, Canadian stock market data are readily available to apply with the above noted summary methodology. For outward FDI, this is less straightforward. Given that approximately 50% Canadian direct investment abroad is in the US and other large portions in a few other developed countries, stock market data were relatively easy to obtain and employ. For smaller segments of outward FDI, a mixed approach was used: Either an aggregate foreign stock index; or, if the FDI was industry-specific, industry foreign stock index; or, some mixture of Canadian and foreign details.

Once again, given the integrated nature of the macroeconomic accounts, the sectoral balance sheet used the same approach as for FDI when re-valuing domestic inter-company investment in the 2012 comprehensive revision.

Other IIP comprehensive revision improvements

There were a number of improvements to the IIP at the time of the comprehensive revision, but only the major ones are noted here. In terms of structural revisions, the IIP adopted the new BPM6 presentation/terminology. This was fully in line with the corresponding changes to the BOP financial account.

In terms of statistical revisions, there was an assessment and improvement of the geographical breakdown of portfolio equity liabilities, notably through the use of the IMF-CPIS. In addition, allowances netted from loan assets (government and banking sectors) for the whole time series. This treatment is not in line with BPM6, and requires a brief explanation. In terms of putting IIP assets-liabilities on a current value basis, it was decided that loan assets were in scope – essentially, at least adjusting for credit risk (not market risk) in the implicit other changes in the volume of assets account. This puts the accounting for foreign loan assets on an accrual basis, by adjusting in each period[5], as opposed to the SNA08-BPM6 treatment of only recording write-offs when they occur[6]. That said this adjustment is reversed in data submissions to international agencies in order to follow BPM6 and to be consistent internationally.

[5] The allowance account generates the credit risk adjustment that is deducted from loan assets on the balance sheet in each period. It has an opening stock, which is modified to account for new provisions, recoveries and write-offs in order to generate a closing account for the current period.

[6] This treatment is consistent with that of the sectoral balance sheet accounts.

4. Comprehensive revision 2015

The 2015 comprehensive revision is smaller in scope that its predecessor in 2012. Estimates will be released in November-December of 2015. Aside from the usual statistical revisions from more complete or altered source data, there will be a number of structural changes and new details that will affect the IIP and its related outputs and bring these closer to the BPM6 international standard.

- The IIP and BOP will move to an asset-liability presentation for FDI. This will make for a better link with the quarterly sectoral balance sheets and flow of funds accounts. However, the annual detailed release of FDI (the basis for the CDIS) will retain the FDI directional principle presentation
- FDI will be split between equity and debt in the quarterly IIP.
- Official International Reserves will also add additional detail, with securities shown separately from deposits
- Reclassification of Canadian covered bonds (bonds secured by mortgages) and issued by deposit-taking institutions from other investment (currency and deposits) to portfolio investment
- Other investment will be broken down into trade credit and advances and other assets-liabilities

The Gross External Debt submission, which is part of the IIP, will also be re-structured. With respect to the Prescribed components table: Include reverse FDI debt instruments. With respect to the Encouraged/supplementary tables: Include GED by currency and GED by market and nominal value.

Lastly, the international accounts are also moving toward a more integrated IIP-BOP presentation, via an aggregated other changes in assets account table. There will be limited details on other changes between opening and closing balance sheets. It should be noted that this is a first step. A fully articulated other changes in assets account, with a split of exchange rate and other revaluations from volume changes, is planned for 2018. Given the importance of the exchange rate effect on the IIP (discussed below), however, the revaluation account will be comprised of details on both exchange rate adjustments and other unrealized gains-losses on assets-liabilities.

5. Securities redesign project (completion 2018)

Securities are a major component of the international investment position that expanded rapidly from the early 1990’s (reflecting the growth of pension funds and mutual funds from that period), currently comprising 41.2% of assets and 46.6% of liabilities. These are derived from various sources and integrated into the securities databases. At the same time as systems upgrades were being planned new demands for securities statistics emerged. These stemmed largely from the G-20 data gaps initiative and related to interconnectedness, cross-border financial linkages, and financial sector risk.

One key feature of the securities' database is coverage. The CPIS (survey large end-investors) covers domestic as well as foreign security assets in a Security-by-Security framework (administrative electronic file transfers). Trade in securities (survey of brokers) also covers Canadian as well as foreign security assets exchanged both domestically and internationally (administrative electronic file transfers); and, all domestic security liabilities are captured. As a result, the securities' database will form the basis of the G-20 Data Gaps required *to-whom-from-whom* instrument detail in the sectoral balance sheet and flow of funds accounts (likely by 2018).

Despite the strengths of the securities' program at Statistics Canada, a redesign was required to fully integrate these databases and add functionality in order to produce additional details as required by new data demands by the user community, including the IMF. The following are some of the expected quality improvements and new outputs planned to be published at the time of the comprehensive revisions 2015 and 2018:

- Improved methodology to generate quarterly market value estimates of debt and equity securities, both liabilities and assets, essentially via more detailed calculations
- Development of a complete *Other Changes in Asset Accounts* for portfolio investment by instruments, with separate estimates for revaluations (prices and exchange rates) and other changes in volume produced in a time series dimension
- Improved coverage (mainly domestic) and separate identification of asset-backed securities as part of the portfolio investment aggregates published
- New published details on debt securities covering various dimensions such as sector of issuer, currency of issue, remaining term to maturity new issues and trade in outstanding securities
- Improved CPIS details such as sector of foreign issuer of debt securities and currency of issue
- To-whom-from-whom sectoral details
- Higher frequency CPIS

The last item in the above list illustrates the benefits of occasional systems upgrades, as in the case of the securities' project. The increased functionality in the more integrated database has already paid some dividends. In particular, it has allowed us to meet the IMF deadline for improved timeliness and semi-annual frequency for the CPIS. The annual CPIS was estimated semi-annually for submission to the IMF, by leveraging the SBS trade in securities data (as opposed to increasing respondent burden). However this approach actually allowed for the generation of a quarterly CPIS, which will be released for the first time in December of 2015 coinciding with the IIP release within 75 days after the end of the reference period.

6. Foreign exposures and market fluctuations in the IIP

A few preliminaries

The quarterly change in the net IIP has generally been led by revaluations over the last 25 years. These are comprised of both the effects of fluctuations in market prices for securities and the impacts exchange rate movements for foreign currency denominated assets-liabilities. In other words, for Canada, these factors typically more than offset the quarterly flow of funds recorded in the financial account in relation to the current account balance. This underlines the need for market valuation and an appropriate methodology to adjust foreign currency denominated items.

Over the quarters of the last 25 years the relative shares of gains/losses on securities, exchange rate adjustments and transactions have varied. These in turn depend on economic conditions (BOP), the current state and perceived outlook in domestic and foreign markets for securities (especially equities) and international currency movements in relation to the Canadian dollar.

Two further factors that related to the composition of Canada’s IIP are also at play: First, Most of Canada's international assets are denominated in foreign currencies, while less than half of Canada's international liabilities are in foreign currencies, mainly in US dollars; and, second, the bulk of Canadian portfolio investment abroad is in the form of equities.

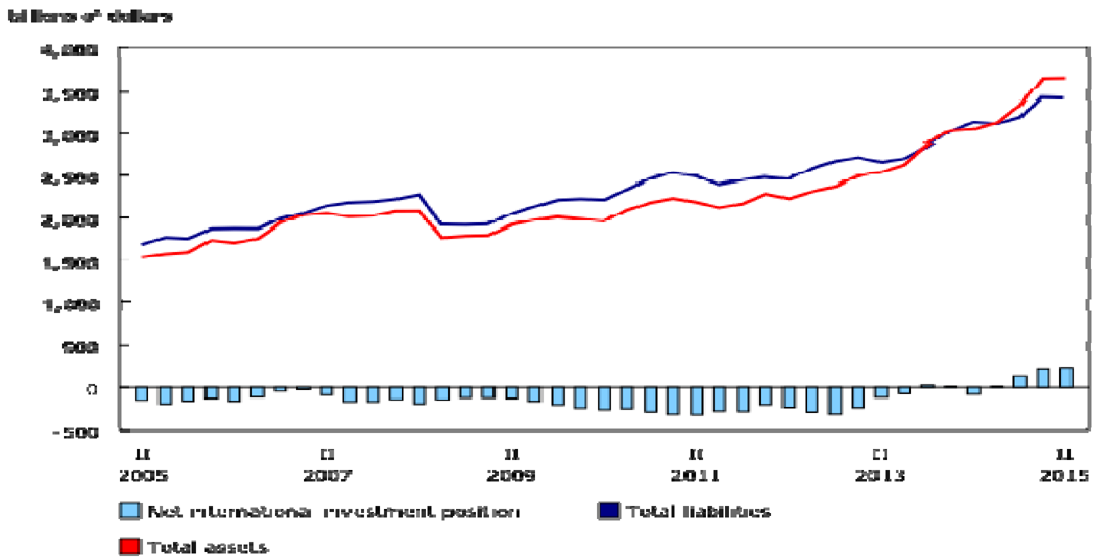
It is illustrative to look at the IIP, first, in terms of the most recent quarterly results; and, second, in terms of recent years in relation to the contributions to change in the net IIP.

Second quarter 2015 (released September 10th, 2015)

Canada's net international investment position edged up $10.4 billion in the second quarter to reach a net asset position of $231.7 billion (Chart 1). This was the fourth consecutive quarterly increase in the net asset position, despite ongoing balance of payments current account deficits.

The advance in the net asset position in the second quarter reflected a slight increase in international assets combined with a slight decrease in international liabilities. Overall, strong cross-border investment activities for both assets and liabilities were largely offset by the downward effect of generally weaker world equity market prices and the appreciation of the Canadian dollar against the US dollar during the quarter. The Canadian dollar appreciated 1.4% against the US dollar and 3.5% against the Japanese yen, but lost 4.2% against the British pound and 2.2% against the Euro.

Chart 1: Canada's international investment position



Canada's international assets increased $4.2 billion to reach $3,660.2 billion at the end of the second quarter. Acquisitions of foreign assets were $58.9 billion in the quarter, but were almost completely offset by revaluation effects. The effect of a stronger Canadian dollar against the US dollar contributed to the decline, reflecting the fact that over 50% of foreign assets held by Canadian investors were in the United States. The weakening of most major global stock markets was also a contributing factor.

Canada's international liabilities edged down $6.2 billion to $3,428.5 billion. The loss mainly reflected a decline in both Canadian stock and bond prices. The Standard and Poor's / Toronto Stock Exchange composite index was down by 2.3% over the quarter. The appreciation of the Canadian dollar against the US dollar also contributed to the reduction in overall international liabilities. Together, these revaluation effects more than offset the $71.5 billion inflows recorded in the quarter.

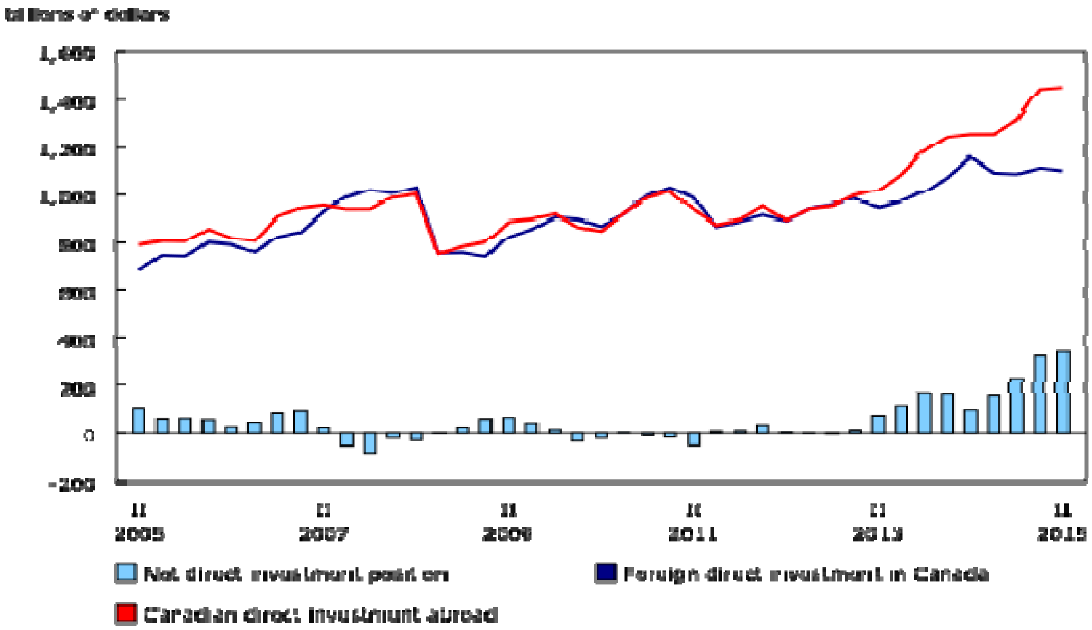
A. Net direct investment asset position widens, in 2Q15

Canada's net direct investment asset position was up $18.4 billion to $347.0 billion in the second quarter (Chart 2). The net asset position has increased for a fourth straight quarter.

Canadian direct investment abroad increased $7.8 billion to $1,452.0 billion. Strong outflows in the quarter were moderated by the downward effect of an appreciating Canadian dollar against the US dollar and lower foreign equity prices. The United States is the major destination for Canadian direct investment abroad, accounting for 47% of the total.

B. Foreign direct investment in Canada decreased $10.7 billion to $1,105.0 billion. Relatively strong foreign investment in the quarter was more than offset by lower Canadian equity prices.

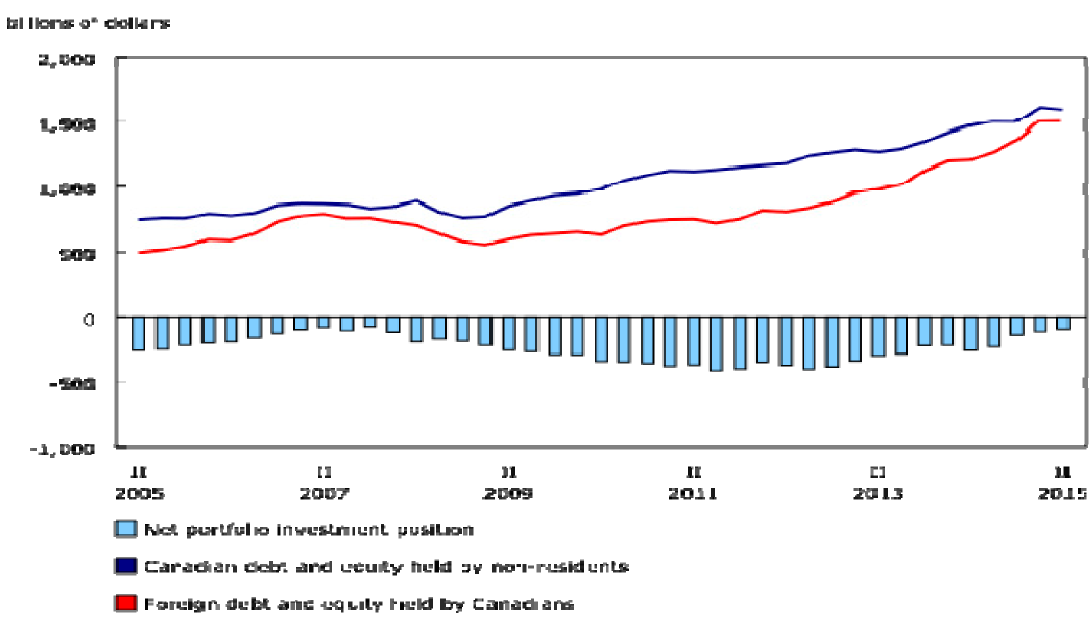
Chart 2: Foreign direct investment positions



C. ***Net foreign liability position on portfolio investment narrows, in 2Q15***

Canada's net foreign liability position on portfolio investment was down $20.2 billion to $91.4 billion (Chart 3). The value of foreign securities held by Canadians edged up $3.3 billion while foreign holdings of Canadian securities declined by $17.0 billion.

Chart 3: Portfolio investment positions



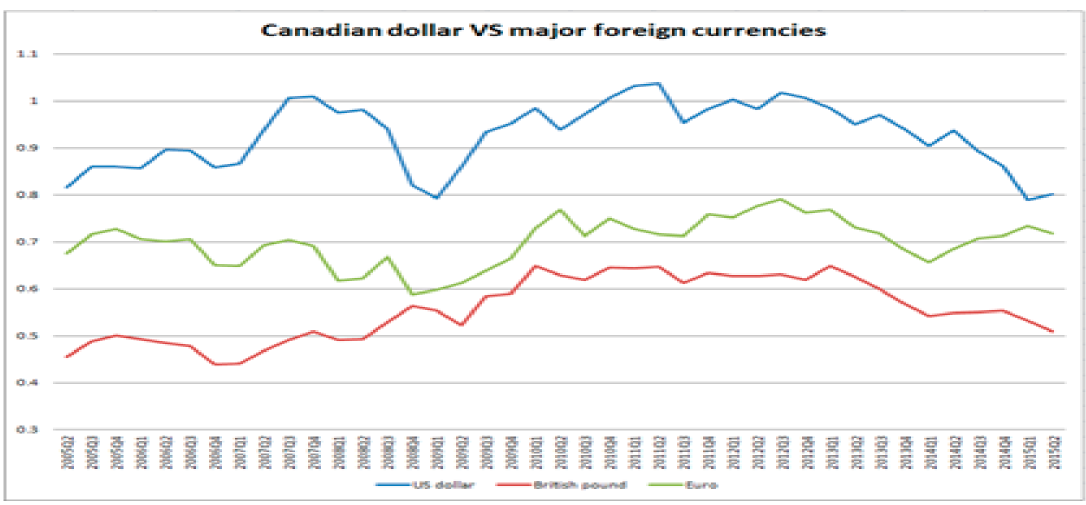
The slight increase in Canadian holdings of foreign securities was all in non-US foreign instruments as holdings of US securities edged down, mainly equities. Canadian investors' exposure to foreign securities was mainly in the form of equities (80%) as opposed to debt securities (20%)[7].

The decline in foreign holdings of Canadian securities was mostly in Canadian bonds, down $26.7 billion to $949.7 billion. Non-resident holdings of Canadian stocks declined to $558.6 billion, down $9.5 billion on lower market prices. Record foreign investment in Canadian money market instruments in the quarter, all from US investors, moderated the overall decline.

Contributions to change in the IIP

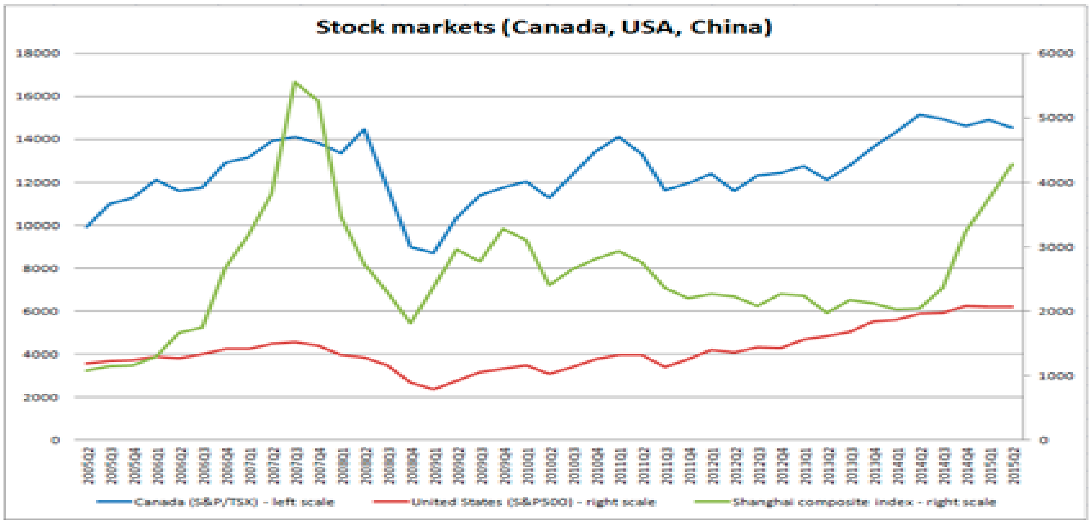
Another way of looking at the IIP is to de-compose the contributions to change. Turning to the more recent period, the change in the net international investment position has been led (especially since 2013) by exchange rate movements and fluctuations in market prices (Charts 4 and 5). The second quarter of 2015 was a bit of an exception. Generally, these factors more than offset the net inflows of funds recorded in the financial account to finance the current account deficit.

Chart 4: Selected Canadian dollar exchange rates



[7] This is also an investment pattern observed in the United States and Australia. In contrast, most other major investing countries such as the United Kingdom, Germany, France and Japan had a higher share of their portfolio assets held in the form of debt securities.

Chart 5: Selected stock market indicators



Recent quarters

At the time of the first quarter of 2015, the main effect was from exchange rates. Canada's net international investment position increased by about $90 billion, despite an expanded balance of payments current account deficit. This growth was mainly explained by the larger revaluation effect of a weaker Canadian dollar on international assets than liabilities. The Canadian dollar lost 8.4% against the US dollar, 3.8% against the British pound and 8.4% against the Japanese yen, while it gained 3.1% against the euro.

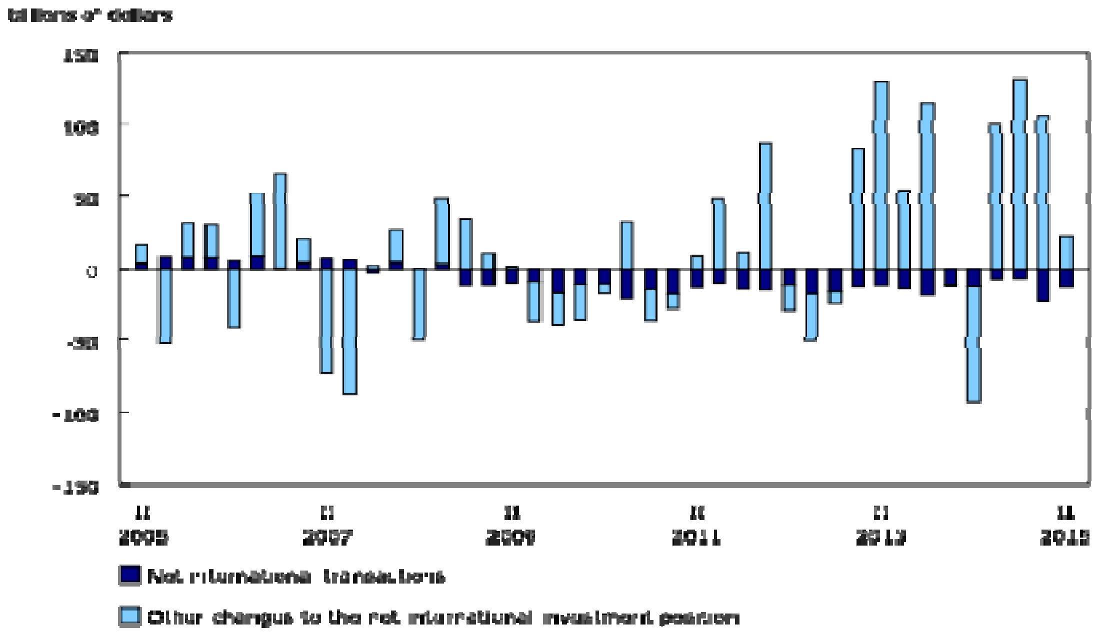
At the time of the fourth quarter 2014, the main effect was foreign equity prices. The strong advance in the net asset position mainly reflected revaluations resulting from higher foreign equity prices on international assets and lower Canadian equity prices on international liabilities. On a geographical basis, most of the change in the quarter reflected a lower net foreign debt position with the United States. Over the last two years, the net foreign debt position with the United States was reduced by more than half. At the same time, Canada recorded a net foreign asset position with the sum of all other countries, which was largely unchanged in the fourth quarter.

Recent years

Since the economic downturn of 2008, both international assets and international liabilities have been on an upward trend. In the last two years, the weakening of the Canadian dollar, combined with generally higher equity prices in the United States than in Canada, resulted in international assets increasing by more than international liabilities. Canadian holdings of foreign assets have recovered since the financial crisis, which led to sell-offs (beginning in 2007) and capital losses (in 2008). Holdings have doubled since 2008, mainly on the strength of portfolio equities, attributable to both investment and foreign stock market gains. Canada has correspondingly shifted from a net debtor to a net creditor nation. Revaluations have played an important role in this shift.

It is evident that other changes in assets – specifically, foreign currency adjustments and other revaluations – have accounted for the majority contribution to the changes in the net IIP in most quarters since 2005 (Chart 6).

Chart 6: Contributors to the change in the net IIP



7. Future IIP challenges (2018 and beyond)

It is fair to say that meeting international standards is an ongoing process to which compilers work toward. It is equally fair to say that relevance is a moving target, particularly as a more integrated global economy continues to evolve and impact on domestic economies. In this context, the International Accounts and Trade Division at Statistics Canada is working in different areas to meet these demands (e.g, improved FATS data, global production measures).

With respect to the IIP, there are three major thrusts. First, as the section directly above underlined, there is a clear need to generate a quarterly and detailed ***Revaluation account*** and, to a lesser extent, an ***Other changes in the volume of assets account***. In this way, users will have a better understanding of the factors that are driving the change in the Canadian IIP. Progress has been made toward this objective.

Second, additional work needs to be undertaken on instrument detail, in particular, on financial derivatives. We have some new financial derivatives data on the updated banking schedules and may also be able to leverage some institutional sector survey data (through the sectoral balance sheet account). As a last resort, modifications to existing surveys might be required.

Third, additional details are required in the quarterly IIP in the form of increased currency, sectoral and geographical breakdowns.

There are plans in the works to meet these data gaps in the not-too-distant future.