

## B.4 Reconciliation Between Flows and Stocks



## B.4 Reconciliation Between Flows and Stocks<sup>1</sup>

### SECTION I: THE ISSUE

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#### BACKGROUND

1. **The importance of reconciliation between flows from the balance of payments' financial account and stocks from the international investment position (IIP) for analytical and policy purposes has increased significantly in recent years.** This issue has gained particular importance with the increase to record levels in stocks<sup>2</sup> of external assets and liabilities for many countries over the last decade and widening gaps between the changes in positions and cumulative financial transactions for many of them. External assets and liabilities as a share of GDP have more than tripled from the early 1990s to the years preceding the COVID-19 crisis. As a result, returns on assets and liabilities play a significantly larger role in driving external flow and stock imbalances.<sup>3</sup>

2. **IMF's surveys show how scarce data on stock-flow reconciliation is—imposing severe limitations on studies in this area.** The survey shows that out of 52 countries,<sup>4</sup> the compilation systems of only around 10 economies would support the production of a complete set of integrated international accounts with the full reconciliation between stocks and flows. These economies predominantly include advanced economies of the European Union.<sup>5</sup> An additional 20 economies present stock-flow reconciliation and metadata details in a varying degree of completeness.<sup>6</sup> Thus, in the absence of stock-flow reconciliation data, most studies rely on the numerical discrepancy between changes in the IIP and financial transactions to estimate revaluation components, disregarding market volatilities and statistical changes (e.g., discovery of new assets and liabilities) potentially polluting such measures. Therefore, lack of stock-flow reconciliation data precludes a greater understating of the role of exchange rate valuation changes, asset price valuation changes, and other changes (e.g., like debt write-offs) which have very different implications for external stability.

3. **The integrated IIP presentation and its analytical relevance warrants greater importance in the updated Manual (BPM7).** As a first measure, the presentation of stock-flow reconciliation should be elevated by presenting external statistics framework as being composed of three major intertwined

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<sup>1</sup> Prepared by Bureau of Economic Analysis US, Deutsche Bundesbank, European Central Bank, International Monetary Fund, and Statistics Canada. This updated version incorporates the suggestions on a previous version of the guidance note (GN) presented and agreed at the thirty-fourth Meeting of the IMF Committee on Balance of Payments Statistics (the Committee) in October 2020 (see [BOPCOM paper 20/02](#)).

<sup>2</sup> In the context of international accounts, stocks are called positions.

<sup>3</sup> See IMF. 2020. "External Sector Report". See Annex I for references to studies on the impact of other flows on the net IIP.

<sup>4</sup> Include systemic economies representing over 90 percent of global GDP representing the External Balance Assessment methodology and the external sector report countries of the IMF.

<sup>5</sup> Euro-area (EA) member states report detailed quarterly data on other flows (revaluations and other changes in volume) to the ECB. These data are disseminated through the [ECB's Statistics Bulletin](#) and quarterly press releases.

<sup>6</sup> For additional details, refer to the [BOPCOM paper 19/09](#)

elements: (i) the balance of payments, (ii) the IIP, and (iii) accumulation accounts<sup>7</sup>, which explain changes of the IIP between two points in time with transactions from the balance of payments' financial account, revaluations, and other changes in volume. This new emphasis complements and equally supports the importance of the current account as a core element of external statistics. It will help broaden reporting of granular data, facilitating analysis on the role of valuation changes (and financial returns more broadly) in net IIP dynamics, a key element of the IMF's "External Sector Report" (ESR). Especially so, when in addition—as a second measure—the analytical power of revaluations and other changes in volume is explained in an applicable way to support economic analyses at the national level, thus providing incentive for countries to compile such data to facilitate a deeper understanding of financial interconnectedness, external vulnerabilities and external sustainability. The new analytical section also highlights the relevance of the current account for the discussion of these topics, since current account data is necessary (i.e., to explain IIP dynamics and to calculate rates of return on both, net and gross IIP). Thus, with the current account remaining key element, a new framework presenting external statistics with three intertwined elements is established. This goal is the next logical step after *Balance of Payments and International Investment Position Manual, sixth edition (BPM6)* enhanced the importance given to the IIP—last, but not least, amending the Manual by adding the IIP to its title.<sup>8</sup>

#### **Current State of Stock-Flow Reconciliation in the International Statistical Standards**

#### **4. The BPM6 discusses the concept of stock-flow reconciliation in Chapters 2, 3, 7, 8, and 9:**

Giving an overview of the framework, **Chapter 2**, paragraph 2.10 explains the concept of an integrated IIP presentation briefly, and connects with the discussion in Chapters 7, 8, and 9 on this topic as follows:

*"The integrated IIP statement reconciles the opening and closing values of the IIP through the financial account (flows arising from transactions) and the other changes in financial assets and liabilities account (other volume changes and revaluation). The integrated IIP statement consists of the accounts explained in Chapters 7–9 (i.e., the IIP, the financial account, and the other changes in financial assets and liabilities account, respectively)."*

**Chapter 3** sets out the accounting principles, and thus in paragraph 3.19 defines other flows: *"Other flows are changes in the volume, value, or classification of an asset or liability that do not result from a transaction between a resident and a nonresident."* Paragraphs 3.20–3.21 provide further elaboration: *"Other flows cover [...] two broad types: (a) other changes in volume [...] (b) revaluations."*

**Chapter 7** is the central chapter titled "International Investment Position". It includes an example of an integrated IIP presentation (table 7.1) and a short reference/description of this presentation in paragraph 7.5 although without explicitly highlighting the benefits of such a presentation. Increasing emphasis on the IIP in understanding sustainability and vulnerability is mentioned shortly in paragraphs 7.7, 7.8, and 7.13.

**Chapter 8**, paragraph 8.5 points to the contribution of the financial account (transactions) within the framework of the integrated IIP.

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<sup>7</sup> For terminology, see paragraph 8. Bringing the integrated presentation of flows and stocks to the forefront of *BPM7* requires to agree on a strong and concise term for the envisioned new central piece of the updated manual.

<sup>8</sup> The IIP was only included with the publication of *BPM5* in 1993.

**Chapter 9** focuses on changes to financial positions other than transactions, with connections to stocks and transactions in paragraph 9.2, which touches on analytical aspect of other flows, and paragraph 9.6, which stresses the importance of consistent classifications between positions, transactions, and other flows for analytical purposes. Table 9.1 includes an overview of the Other Changes in Financial Assets and Liabilities Account (OCA), expository related to merely the functional categories but with reference to the standard components of the BOP and IIP in Appendix 9.

5. **The BPM6 covers selected issues in BOP and IIP analysis in chapter 14**, but the focus throughout the chapter is on the BOP issues such as current account imbalances. Only Section G on the balance sheet approach puts a special emphasis on IIP data.

#### **Concerns/Shortcomings in the Current Standards**

6. **The integrated IIP with a full reconciliation is not a Standard Component in Appendix 9.** The integrated IIP with a full reconciliation is presented in table 7.1 and the OCA in table 9.1, with footnotes pointing out, that the tables are expository and should be applied to Standard Components in Appendix 9. Nevertheless, they are not explicitly covered in Appendix 9, which recommends standard items for presenting and reporting the BOP and IIP. This may have contributed to the fact that so far the majority of countries—even with well-established and advanced compilation systems—do not report stock-flow reconciliation information.

7. **The breakdown within the OCA is not sufficient for a thorough analysis.** The framework presented in Tables 7.1 and 9.1 of the *BPM6* adequately includes a breakdown of “Other changes in Financial Asset and Liability Accounts” into “Exchange Rates Changes”, “Other Price Changes”, and “Other Changes in Volumes”. However, the latter component can encompass changes to stock positions of very different nature, like statistical reclassifications that result in additions/subtractions of assets and liabilities versus debt cancellation and write-offs, with only the latter having a clear economic impact on external sustainability.

8. **Terminology is not clear cut and differs from the System of National Accounts 2008 (2008 SNA).** To underline the prominence given to the full reconciliation and tie the integrated IIP to the *2008 SNA* the term “Accumulation Accounts” is introduced. As defined in *2008 SNA* paragraph 1.20, it consists of those flow accounts, which entirely account for the differences between the values in the opening and closing positions. These components for the IIP are (i) transactions from the balance of payments’ financial account, (ii) revaluations, and (iii) other changes in volume (see Annex II, Table No.1). Thus, the accumulation accounts fully cover changes in assets and liabilities and net worth between two points in time. This terminology is consistent with *2008 SNA*.<sup>9</sup> Consequently, the term integrated IIP refers to the statement showing opening and closing values as well as the accumulation accounts.

9. **The BPM6 does not sufficiently elaborate on the analytical value of an integrated view of flows and stocks.** It only touches on the importance of stock-flow-reconciliation for external sustainability, external vulnerability, and financial interconnectedness but does not offer a more exhaustive analytical section explaining how these data may help understand economic developments in

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<sup>9</sup> This is the main reason, why the alternative term “reconciliation account” was rejected.

an economy. Explaining this analytical value further might pave the way for more countries being willing to compile and supply the relevant data. Risk-measurement and revaluation issues as well as the links between current account and IIP or the impact of rates of return on the allocation of capital are just some examples of important analytical dimensions that are not properly covered in the current manual.

10. **Risk measurement: The *BPM6* lacks considerations on how the IIP and the revaluations account might be used for the risk analysis.** Balance of payments was developed as a statistical tool to measure countries' external imbalances (backward looking) by providing a detailed overview of the economic transactions of residents vis-à-vis the rest-of-the-world. It was only with the fifth edition of the Balance of Payments Manual that the IIP was added to the overall framework and the analysis of vulnerabilities (forward looking) became possible. The last edition of the IMF Balance of Payments Manual (*BPM6*) developed further the IIP making it a truly analytical tool, particularly by providing an integrated view of flows and stocks. Paragraphs should be added providing some considerations on how to develop the IIP and the revaluation account to increase its analytical value for risk analysis.

11. **Valuation paradox:**<sup>10</sup> **The *BPM6* gives little guidance on how to interpret changes caused by revaluations, even though the interpretation of valuation effects is not always straightforward.** Market prices are the basis for valuation in the international accounts.<sup>11</sup> Thus, when market prices change, revaluations become necessary.<sup>12</sup> For example, a valuation paradox arises as a result of marking sovereign bonds to market.<sup>13</sup> The more critical the economic or political situation of a country becomes, possibly followed by downgrading, the better its reported net external position becomes: Given that prices for government bonds in the event of growing solvency concerns fall, these liabilities are assigned a lower valuation in the IIP, notwithstanding the fact that the crisis country's payment obligations remain unchanged. Thus, a country's net IIP may improve as it approaches insolvency.

12. **Nexus between current account and IIP: Even though the *BPM6* mentions the nexus between the current account and the IIP,<sup>14</sup> it does not contain a dedicated section on this important topic summarizing the different aspects and elaborating further on their analytical value.** In general, IIP stock data are reconciled with flows from the balance of payments' financial account. However, insights can also be gained from reconciliation with flows from the balance of payments' current account, thus putting further emphasis on the integrated view of accounts. Accounting identities can be used to show how the current account balance not only is a relevant determinant of the change in the IIP, but also how the IIP—through the investment income—affects the current account itself. An alternative data presentation scheme is useful for visualizing the nexus between the current account and the IIP. Under this approach, three different accounts show the change in the net IIP in a given period, each capturing a specific aspect. At an aggregated level, data requirements for this alternative presentation scheme are rather basic.<sup>15</sup>

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<sup>10</sup> This topic relates to FITT/F.8 "Valuation of Debt Securities at Both Market and Nominal Value".

<sup>11</sup> See *BPM6*, Chapter 3.E. for the valuation of positions of financial assets and liabilities.

<sup>12</sup> See *BPM6*, Chapter 9.C., paragraph 9.25 on revaluations.

<sup>13</sup> *BPM6*, paragraph 3.84: "Debt securities have a current market value as well as a nominal value, and for some purposes, supplementary data on the nominal values of positions of debt securities may be useful."

<sup>14</sup> See *BPM6*, paragraphs 2.18, 14.12, 14.13, 14.27, 14.35, 14.48.

<sup>15</sup> For supplementary information see Annex I.

13. **Calculating and using rates of returns: Even though the *BPM6* mentions rates of return in several places, it does not contain a dedicated section on this important topic.** Rates of return are important for understanding the allocation of capital between economies, differences in the sustainability of current account deficits, and the interrelated behavior over time of the current account, the financial account, and the IIP. The income rate of return is the ratio of investment income to the corresponding average asset or liability position in the IIP. The revaluation rate of return is the ratio of revaluations, which are holding gains and losses, to the corresponding average asset or liability position. The total rate of return is the sum of the income rate of return and the revaluation rate of return.

#### ISSUES FOR DISCUSSION

14. **The Task Team (TT) recommends giving greater prominence to the integrated IIP presentation and its analytical value in the next version of the Manual.** At the same time, the TT also considers that such a move should carefully balance the policy needs as well as countries' capacity to compile such data. In this regard, the TT considered two options for incorporating the integrated IIP presentation and analysis in the update of *BPM6*.

15. **Option 1:** Highlight the importance of the integrated presentation throughout the manual where relevant, add an analytical section on selected IIP issues to chapter 14, and add the integrated IIP statement in Appendix 9C as additional analytical position data.

16. **Option 2:** Put the integrated presentation at the center of the new version of the Manual, by presenting the external statistics framework as being composed of three major intertwined elements: (i) the balance of payments, (ii) the IIP, and (iii) the accumulation accounts, which explain changes in the IIP between two points in time with transactions from the balance of payments' financial account, revaluations, and other changes in volume. In this regard, the integrated IIP statement, with the same line items as the existing standard components in Appendix 9B, would be included as an additional standard component in *BPM*, Appendix 9. Further, the "Other Changes in Volume" should be presented with a total, and with two encouraged "of which" categories – "Reclassifications" and "Debt Cancellation and Write-offs". Also, adding an analytical section on selected IIP issues to Chapter 14 explaining the relevance of the current account within the new framework of three intertwined accounts as well as the analytical power of revaluations and other changes in volume would provide incentive to countries for compiling the requested data.

#### SECTION II: OUTCOMES

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17. **Option 2 is recommended and was approved by BOPCOM (Committee) at the meeting, October 26–29, 2020:** Underscoring the sizable contribution of other flows (valuations and other changes in volume of assets) to net changes in external positions of many countries and the analytical importance of stock-flow reconciliation, the Guidance Note (GN) recommends this option, to give more prominence to the integrated IIP presentation in the next update. The recommended approach will bring the integrated presentation of flows and stocks to the forefront of *BPM7*, making it a central piece of the new manual. This approach could be considered as a next step to the enhanced prominence given to the IIP in the *BPM6*. From this perspective, the GN considers that option 2, which proposes to include the integrated IIP under standard components (similar to balance of payments and IIP), provides a stronger message on its importance than option 1. Moreover, having the integrated IIP as part of the standard

components will aid the compilers in convincing their policy makers on the need for compiling these data regularly.

18. **The TT understands that to start compiling this information is a big endeavor, which may take a significant amount of time and resources for many countries and should be seen as a medium-term aspiration.** In this context, it is clarified that reporting of data on tables included under this option are not mandatory and therefore, no immediate burden on resources is envisaged for countries.<sup>16</sup> Further, separate reporting of data on debt cancellation and write-offs, and reclassifications under “Other Changes in Volumes” is encouraged to support the external sustainability analysis. Along the same lines, the sectoral presentation of the stock-flow reconciliation for different financial instruments is included under encouraged items of reporting, which should give compilers a certain order of priorities. Overall, regular availability of these data would boost the quality of surveillance undertaken by International Financial Institutions such as the IMF through its ESR.

19. **The Committee discussed but rejected the option that the integrated IIP template includes an item called “unallocated”.**<sup>17</sup> Following the discussion at the Committee meeting, October 26–29, 2020, it was decided not to pursue the proposal to introduce a new category called “unallocated” any further. The arguments against—especially inconsistency with the *2008 SNA* categories—outweigh the advantages. The major potential advantage (i.e., make the reporting of an integrated IIP more feasible for countries with limited statistical capacity) might be achieved without the need for a new category “unallocated”.

20. **While bearing in mind that many countries have limited resources and low statistical capacity** the TT considers this option as forward looking in the sense that it will come into effect when the *BPM7* will be launched five years from now, in 2025. Including this under standard components indicates the direction in which external sector accounts are likely to evolve in the next 20 years. Besides, with technical assistance efforts of international agencies, the number of countries that compile and report balance of payments and IIP data to IMF has significantly increased over the last decade. Currently, 197 countries report balance of payments<sup>18</sup> and 172 countries report IIP<sup>19</sup> to the IMF. In addition, around 12 countries report the currency composition of IIP data to IMF (which compilation is a necessary first step to be able to produce a full reconciliation between stocks and flows), and this number is gradually increasing, thus putting in place key inputs and methods feeding into the calculation of OCA components. Similar efforts could be taken up to enhance the compilation of integrated IIP data subsequent to the launch of *BPM7*. The IMF should play a key role in developing a detailed guidance and establishing a medium to long-term implementation strategy focusing on technical assistance/training with flexibility on reporting the detailed components on a best effort basis. Such guidance should cover issues such as: the compilation of the currency composition of IIP including specify a minimum set of currencies to be

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<sup>16</sup> Countries report data to IMF STA on a voluntary basis. However, if a country agrees to report to IMF, the framework for reporting the standard and memorandum items is mandatory.

<sup>17</sup> For an explanation on the “unallocated”, refer to an earlier version of this GN ([BOPCOM 20/02](#)).

<sup>18</sup> Of which, 175 countries compile on a *BPM6* basis (i.e., close to 90% of the countries producing a BOP), which gives an idea about the important uptake of the new methodology by countries.

<sup>19</sup> Of which, 158 countries—or close to 92%—compile on a *BPM6* basis.

considered; the compilation of other changes (e.g., in the case of direct investment); amending the reporting requirements; and templates for banking and securities holding statistics, etc.

21. Furthermore, option 2 would **enhance the consistency with the 2008 SNA**, which assigned the same level of importance to the integrated balance sheets as other accounts in the presentation of the sequence of accounts of institutional sectors. Such approach would be consistent with the ongoing efforts to closely align the updated manuals on balance of payments (*BPM7*) and national accounts (*2025 SNA*), and equally strengthen the balance of payments/IIP and the rest of the world sector account. Finally, the TT should also consider that some advanced economies, including the Euro Area member states, already compile integrated IIP data regularly<sup>20</sup> and some others are moving towards it. Without standardized guidelines, the content and format may differ between countries, and between national accounts and balance of payments publications. This will have implications for the consistency and comparability of these data across countries. A proposed template for implementation of this option are included in the Annex II.

22. **Option 1 is rejected:** Given the importance of stock flow reconciliation in enhancing the overall quality of external sector statistics, this option is rejected in favor of option 2. The updated manual (*BPM7*) is expected to have quite a number of additional supplementary tables (under additional analytical positions, Appendix 9C). Therefore, including an integrated IIP in that large basket would lower its prominence and the aim of making it a central piece of the new manual may not be achieved.

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<sup>20</sup> See the IMF BOPCOM paper *Policy Needs for Reconciling Cross-Border Flows and Stocks, and Currency Composition* (<https://www.imf.org/external/pubs/ft/bop/2019/pdf/19-09.pdf>) for additional details.

## Annex I. Supplementary Information

### TITLE OF REFERENCED DOCUMENT

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#### References for Section I / Background

Several studies analyzed the impact of transactions and other flows on the net international investment position (NIIP) and highlighted the increased importance of revaluations and other changes in volume in recent years (ONS, 2020). Bergant (2014) shows that stock-flow adjustment<sup>21</sup> moved in a stabilizing direction in the post-crisis period and countries with lowest NIIP experienced the most positive changes in valuation. Adler and Garcia-Macia (2018) point to the general role of returns on net foreign assets, including revaluation components, in stabilizing the NIIP. Further, Bergant (2014) also notes that Balli et al. (2011), and Lane and Milesi-Ferretti (2001, 2007) show that the importance of stock-flow adjustment has grown tremendously in importance since 1980 and in some cases, valuation changes significantly dominated capital flows.

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Cubeddu, Luis, Signe Krogstrup, Gustavo Adler, Pau Rabanal, Mai Chi Dao, Swarnali Ahmed Hannan, Luciana Juvenal, Nan Li, Carolina Osorio Buitron, Cyril Rebillard, Daniel Garcia-Macia, Callum Jones, Jair Rodriguez, Kyun Suk Chang, Deepali Gautam, and Zijiao Wang. 2019. "The External Balance

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<sup>21</sup> The difference between the change in NIIP and financial transactions is popularly known as stock-flow adjustment in economic literature.

Assessment Methodology: 2018 Update.” IMF Working Paper No 19/65, International Monetary Fund, Washington, DC.

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Lane, Phillip R., and Gian Maria Milesi-Ferretti. 2014. “Global Imbalances and External Adjustment after the Crisis.” IMF Working Paper. WP/14/151.

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## Annex II. List of Chapters to Update

### BPM6 – CHAPTER 2, 3, 7, AND 9, APPENDIX 9, ADD TABLE FOR INTEGRATED IIP

Table No. 1

<b>Table: Integrated International Investment Position Statement</b>						
<b>Beginning of period IIP</b>	<b>Accumulation accounts</b>				<b>End of period IIP</b>	
	Transactions from BOP's financial account	Revaluations		Other changes in volume		
		due to exchange rate changes	due to other price changes	of which: write-offs and cancelations*		of which: reclassifications*
Standard components listen in Appendix 9						
<p>* Encouraged items                      Note: This table will be adjusted depending on changes resulting from FITT.</p>						

### Nexus Between Current Account and IIP

**14.14** The accounting identity between the current account and capital account balances in relation to the IIP can be derived by taking the accumulation accounts of the integrated IIP statement as a starting point. According to paragraphs 2.10 and 9.5 as well as table 7.1., the change in the net IIP ( $\Delta IIP$ ) between two points in time can be expressed as:

$$\Delta IIP = NFA + VAL + OC \quad (13)$$

where

NFA = net financial account entries

VAL = net revaluation

OC = net other changes in volume

Substituting identity (12) in (13),

$$\Delta IIP = CAB + KAB + VAL + OC \quad (14)$$

That is, the change in the net IIP equals the current account and capital account balances plus valuation effects and other changes in volume, each of which might take a positive or negative value.<sup>22</sup>

**14.15** Explicitly linking net IIP changes to the current account balances offers better insights into the dynamics driving IIP developments. It highlights that the size of an economy's net IIP should not be interpreted as an independent investment decision to prefer financial assets abroad over domestic ones. Due to the accounting identities (14), the change in an economy's net IIP ultimately hinges on the country's current account balance. This is all the more true since the current account balance usually has the highest volume and does not fluctuate as much as valuation and other changes in volume tend to do. However, an economy might experience periods in which revaluations and other changes in volume dominate the current account balance. For example, the net IIP might fall in spite of a positive current and capital account balance if negative valuation effects and other changes are higher.

**14.16** If an IIP is deemed to be out of balance with economic fundamentals,<sup>23</sup> an adjustment requires a change in the current account balance. Therefore, policy measures must aim at the corresponding current account imbalance as an intermediate target. As discussed in Section E, paragraph 14.43, a country's response in the face of an unsustainable current account deficit and looming negative net IIP might be a depreciation of the exchange rate of the domestic currency. Such a depreciation may help to lift the balance on the trade in goods by encouraging exports and making imports relatively more expensive and

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<sup>22</sup> To balance this account in practice, errors and omissions (EO) of the balance of payments have to enter equation (12) and consequently equation (14) as an additional term. Equation (14) would thus change into  $\Delta IIP = CAB + KAB + VAL + OC + EO$ .

<sup>23</sup> One approach to identify an IIP that is not sustainable can be based on the current version of the IMF EBA method (Cubeddu et al. (2019), pages 29-31), which includes an external sustainability approach.

through this increase the current account balance.<sup>24</sup> Improvement in current account balance will result in a higher IIP over time. However, the valuation effects on the change of the IIP position have to be taken into account as well. Revaluations may support the adjustment or may have adverse effects, depending on the currency composition of the country's balance sheet. From the domestic economy's perspective, financial assets and liabilities denominated in foreign currency in the IIP gain value. If foreign-currency-denominated assets have a larger volume than their counterparts on the liabilities side of the balance sheet, the net IIP will register a positive valuation change, or vice versa.

**14.17** On the other hand, the current account balance itself depends partly on the existing IIP stock. This feedback loop exists because investment income—being part of the current account—is determined by the size and structure of the existing IIP stock. The same applies to revaluations and other changes in volume. Their net effect likewise depends on the volume and composition of external assets of liabilities. Thus, equation (14) can be rewritten to differentiate between IIP changes dependent on the current IIP stock on the one hand, and those independent thereof on the other.

$$\Delta IIP = (CAB - II + KAB) + (II + VAL) + OC \quad (15)$$

where,

II = investment income balance

The first term might be labelled external primary balance<sup>25</sup> encompassing the capital account balance and the current account balance less investment income. The second term represents the net total return on a country's net external position. The total rate of return is the sum of the income rate of return and the revaluation rate of return. The income rate of return is the ratio of investment income to the corresponding average asset or liability position in the IIP. The revaluation rate of return is the ratio of revaluations, which are holding gains and losses, to the corresponding average asset or liability position. The nexus between the current account and the IIP is the pivotal point for assessing external sustainability and for calculating rates of return on IIP positions treated in 14.XX and 14.XX.

**14.18** The three-dimensional account system presenting changes in the net IIP visualizes the nexus between the current account and the IIP in its first pillar, which breaks down the total net IIP change into components according to (15). The two other accounts simply reuse data from the standard IIP presentation. The instrument account shows how changes in the net IIP are reflected in the various functional categories. The sector account allocates these to the domestic sectors involved. Thus, each of the three different accounts captures a specific aspect of the change in the net IIP in a given period. The first pillar shows the origin/source of the change in the IIP, while the second and third illustrate the allocation of the change to functional categories and sectors. For example, the net IIP in Figure 14.1 has increased in any given period—which might be a quarter, a year, or even a three- or ten-year period—by 40 billion units. The generation account documents that approx. 45 billion units originate from the current account balance, whereas valuation effects and other changes have a negative impact. The instruments account identifies that the functional category that profits most is portfolio investment, with an increase of

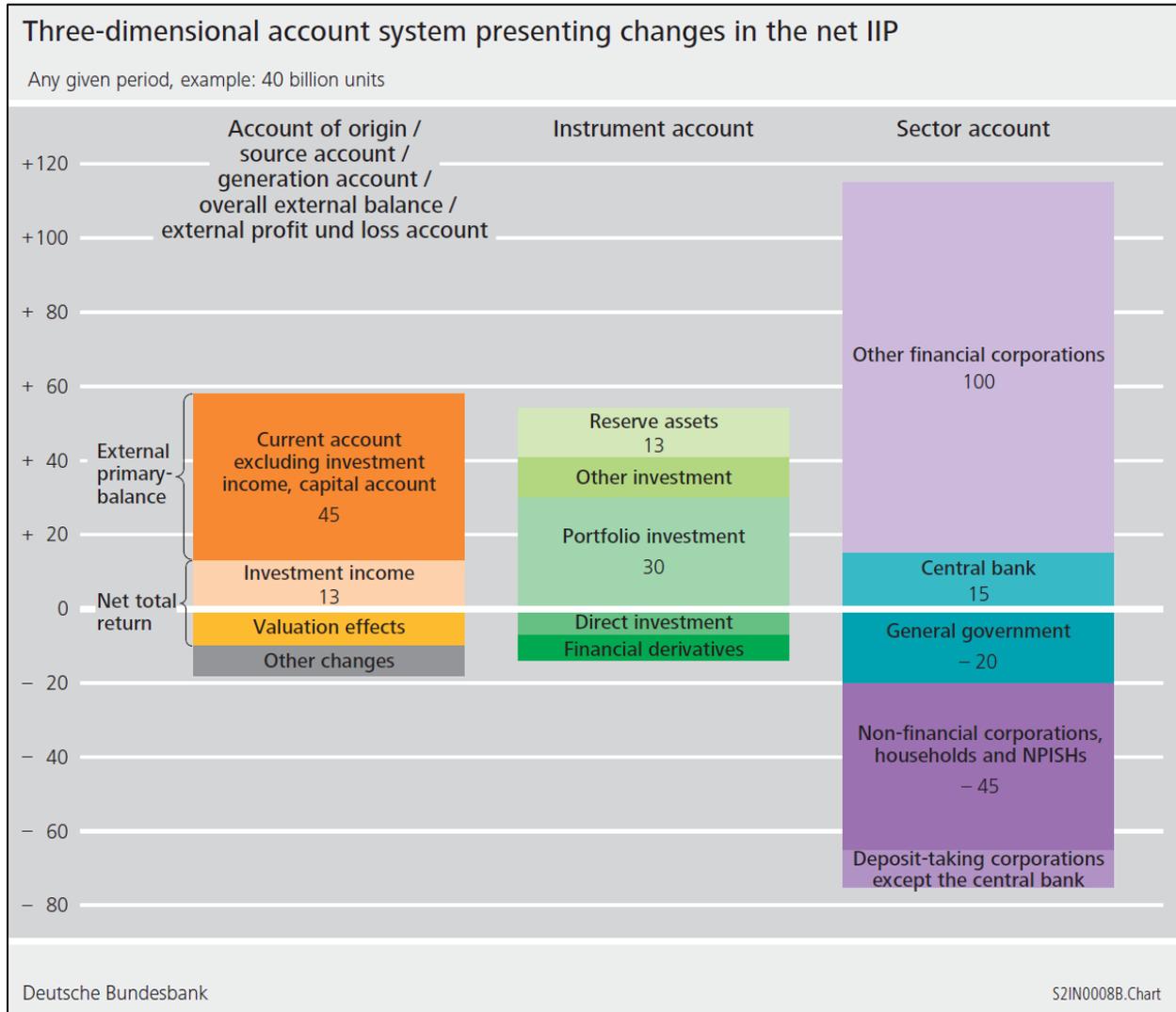
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<sup>24</sup> As pointed out in Section E, paragraph 14.43, how trade flows respond to a country's exchange rate movements differs and depends on a variety of factors, one of them being the invoicing currency for imports and exports, which might be the domestic currency or a prevailing dominant currency. See Adler et al. (2020).

<sup>25</sup> In reference to public finances, where the term "primary balance" is defined as government's net borrowing/lending excluding interest payments.

approx. 30 billion units. The sector account, meanwhile, visualizes the marked switch in positions across sectors. On the one hand, it can be seen that the external positions of the government sector and the non-financial corporations, households and NPISHs sector in particular deteriorate, while on the other hand, the other financial corporations sector record a strong increase in net IIP.

Figure 14.1



## **IIP and Risk Analysis**

**14.XX** Balance of payments was developed as a statistical tool to measure countries' external imbalances (backward looking) by providing a detailed overview of the economic transactions of residents vis-à-vis the rest-of-the-world. It was only with the fifth edition of the Balance of Payments Manual that the international investment position (IIP) was added to the overall framework and the analysis of vulnerabilities (forward looking) became possible. The last edition of the IMF Balance of Payments Manual (*BPM6*) developed further the IIP making it a truly analytical tool, particularly by providing an integrated view of flows and stocks. The current review focuses on the link between transactions and positions and in understanding the analytical power of revaluations and other changes in volume. The next paragraphs provide some considerations on how to develop the IIP and the revaluation account to increase its analytical value for risk analysis.

## **Liquidity and Interest Rate Risk**

**14.XX** Liquidity is one of the dimensions used in the international statistical standards to cluster financial instruments/assets. This is for example visible in the distinction between listed and unlisted equity or in the breakdown of deposits between overnight and other deposits. Moreover, the breakdown by original maturity for debt instruments (e.g., loans and debt securities) provides an additional liquidity dimension but does not completely capture the liquidity needs by maturity. This can only be comprehensively captured when residual/remaining maturity information is collected to show the full picture of financing needs due (e.g., within the year). A classification by remaining maturity is already encouraged in the current statistical standards for debt liabilities and a request for short-term remaining maturity of debt liabilities by sector is requested in Table A9-IV of *BPM6*.

**14.XX** Yet another complementary approach to liquidity risk is to collect the “duration” of assets and liabilities. Duration is defined as the weighted average term to maturity of a financial instrument and can be used as a measure of the sensitivity of the value of the instrument to changes in interest rates.<sup>26</sup> Therefore, price revaluations (i.e., holding gains and losses) are intrinsically related to the duration of the portfolio; the sign of this relationship depends on the slope of the yield curve. However, the longer the duration of a portfolio, the greater the gains (or losses) for any given change in interest rates. Therefore, despite the matching of the maturities of financial assets and liabilities, if the timing of the cash flows on assets and liabilities is not perfectly matched—that is, the duration of assets and liabilities differs—corporations can be open to gains (or losses) as interest rates change.

## **Currency Risk**

**14.XX** Currency mismatches (i.e., differences in the currency composition of financial assets and liabilities vis-à-vis the rest-of-the-world) are frequently a source of macroeconomic risk, particularly for emerging market and developing economies with less sophisticated and deep financial systems. The build-up of large positions in debt denominated in foreign currency may pose substantial risks in case

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<sup>26</sup> For fixed-rate instruments, the time period until the receipt/payment of each cash flow, such as six months, is weighted by the present value of that cash flow as a proportion of the present value of total cash flows over the life of the instrument. So, the more cash flows are concentrated toward the early part of an instrument's life, the shorter the duration relative to maturity. Duration equals remaining maturity only for zero coupon instruments.

foreign currency inflows diminish and fixed debt payments schedules are due. This may exacerbate ongoing currency pressures and hence an in-depth knowledge of currency risk is a crucial macroeconomic policy tool. Obtaining information on the currency-breakdown of debt liabilities is also crucial for financial investors, since it increases transparency and improves the risk-assessment of the creditor. On the other side, detail on the currency composition of financial portfolios would support a sound macroprudential analysis and the identification of potential sources of risk arising from over-exposure to idiosyncratic shocks to certain currencies.

**14.XX** The IMF financial soundness indicators (FSI) encompass several currency related indicators for deposit taking corporations, namely foreign-currency-denominated loans and liabilities, respectively to total loans and total liabilities. Also, the risk dashboard of the European Systemic Risk Board's (ESRB) reports on currency risk by looking into the percentage of total loans denominated in foreign currency. In the context of the G-20 Data Gaps Initiative, also the IMF/FSB/BIS are looking into the availability of a comprehensive data set on foreign currency exposures by sponsoring the collection of the data defined in Table A9-I of *BPM6*. Table A9-I requests data for assets and liabilities broken down by sector and original maturity. It also requests information on foreign currency derivatives (notional amounts) to "adjust" for those exposures being hedged. This is a rough proxy as information broken down by the underlying purpose (hedging or speculation) of the derivative contract is not available.

**14.XX** While the IIP broken down by currency of denomination, in combination with information on foreign currency derivatives, provides a good picture of the structural currency exposures of an economy it does not provide for an immediate assessment of the impact of these exposures to changes to net external position of a country. This analysis is supported by looking into price revaluations of foreign currency derivatives and the net impact of revaluations due to exchange rate changes. The impact of currency-driven revaluations is in general negative for economies characterized by a net liability position in foreign currency and relative inflationary processes contributing to the depreciation of the domestic currency. For other economies, the expectation is not as clear and depends very much on the whether the country has a net asset or liability position in foreign currency and on the stability of domestic currency.

### **Credit Risk**

**14.XX** Credit risk, defined as the possibility of loss resulting from a borrower's failure to meet a debt obligation, arises from several dimensions, including liquidity and currency considerations, already dissected in the previous paragraphs. IIP statistics by counterpart area or geographical detail are frequently available and can provide useful information to assess counterparty country risk. The so-called "country" risk encompasses information on aspects such as political and social stability, rule of law, corruption, etc. It is historically one of the dimensions better covered in national balance of payments/IIP statistics, particularly relevant in the context of monetary or currency unions or vis-à-vis main trading partners.

**14.XX** Data broken down by counterpart sector are also gaining importance, particularly sponsored by the IMF Coordinated Portfolio Investment Survey (CPIS). Indeed, for the time being counterpart sector information is generally available only for portfolio investment. In some jurisdictions it may also be available for direct investment (SPEs versus non SPEs) and other investment. The cross-classification of IIP data by instrument, counterpart country and sector is a rather powerful tool to assess portfolio or credit risk.

**14.XX** However, there are other aspects of relevance to make a comprehensive credit risk assessment. In particular, the existence of credit derivatives (e.g., credit default swaps) or guarantees may change the risk level of a portfolio. For derivatives, information on notional amounts would be necessary, preferably broken down by counterpart area and sector. As to guarantees, depending on their nature, they may be captured by the balance of payments/IIP framework (standardized guarantees) or not. In any case, for credit risk analysis the relevant piece of information is not the market value of these guarantees, but instead the underlying (notional) value of the debt being guaranteed. Additionally, rating information would also have strong analytical value. In this context, a breakdown of portfolio investment by rating grade would better qualify the creditworthiness of the portfolio; this information is in general missing in IIP statistics.

**14.XX** Price revaluations provide information on the impact of all credit dimensions on the value of the tradable portfolio. Therefore, relatively high(/low) price revaluations would correspond to high(/low) risk portfolios. This relative analysis could be done by comparing the “revaluation return” of the portfolio with benchmark equity (e.g., Dow Jones) and/or debt securities portfolios. For non-tradable instruments, particularly loans, the historical analysis of write-offs and write-downs (other changes in volume account) would provide a good indication of the credit risk of a certain loan portfolio.

## VALUATION PARADOX

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**14.XX** As a rule, revaluation effects should be interpreted with a degree of caution when used as a measure for an economy’s or sector’s gains and losses. Valuations are adjusted to comply with the accounting convention requiring IIP stocks to be reported at market values, wherever possible. Thus, the values recorded in the IIP do not necessarily reflect actual realized gains or losses. It should also be noted, especially from a sectoral perspective, that the IIP captures only the external part of a sector’s financial balance sheet. Losses recorded here might, therefore, be offset by gains on domestic positions. In addition, hedging operations which investors may have used to fully or partially eliminate valuation risks, which have the effect of transferring open positions to other domestic or foreign sectors, are likewise not always taken into account.

**14.XX** Certain issues may arise as a result of marking bonds to market.<sup>27</sup> The valuation paradox refers to the fact that a country’s net IIP might improve, even though it is on the verge of insolvency. Given that prices for government bonds at risk of default fall, the corresponding liabilities in the IIP are assigned a lower valuation, notwithstanding the fact that the crisis country’s payment obligations remain unchanged. Box 14.X provides a numerical example. The situation might be more pronounced in countries within a currency union, which restricts the extent to which exchange rate changes can reflect the relative creditworthiness of a country. On the other hand, a currency union might dampen bond price responses for a member country facing solvency problems if market participants expect the currency union’s other members to bail out the distressed country. Even though the focus is on government bonds, the same mechanism is at play for other bond liabilities. The valuation paradox works in the opposite direction as

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<sup>27</sup> Reference to results of FITT GN F.8 “Valuation of debt securities at both market and nominal value. FITT GN F.8 proposes to adopt a presentation table (could be a supplementary table that will be added to Appendix 9C) that provides a framework for reconciling nominal and market valuation of debt securities liabilities, similar to that in the 2013 *External Debt Statistics: Guide for Compilers and Users*. Such a table could help understanding the paradox.

well when rising bond prices—for example, due to a better rating—translate into higher liabilities, thus showing a lower net IIP, even though the payment obligations have not changed.

#### Box 14.X

<b>Valuation paradox: numerical example</b>			
Let us assume for the sake of simplicity that the countries' IIPs contain only two positions and that asset values are constant.			
Liabilities exist in the form of a government bond which responds in example 1 by falling in market price due to mounting solvency problems, and in example 2 by increasing in market price due to a rating upgrade.			
<b>EXAMPLE 1: Country A faces mounting solvency problems</b>			
Country IIP			
	Assets	Liabilities	Net IIP
End of period t-1	250	100	150
End of period t	250	50	200
Bond price at the end of period t-1 = 100			
Bond price at the end of period t = 50			
<b>EXAMPLE 2: Country B's rating is upgraded, driving interest rates down and bond prices up</b>			
Country IIP			
	Assets	Liabilities	Net IIP
End of period t-1	250	100	150
End of period t	250	110	140
Bond price at the end of period t-1 = 100			
Bond price at the end of period t = 110			

## **BPM6 – CHAPTER 14, ADD NEW SECTIONS ON LINKAGES BETWEEN BALANCE OF PAYMENTS/IIP AND NATIONAL ACCOUNTS: CONSISTENCY**

### **Consistency between Balance of Payments / IIP and National Accounts**

**14.XX** The rest of the world sector in national accounts (RoW) and the balance of payments/international investment position (IIP) are statistical constructs that portray the same economic reality: the economic flows and balance-sheets between residents and non-residents in an economic territory. The efforts to develop common statistical approaches in the two domains, initiated during the preparation of the *BPM6* and the *2008 SNA* and reinforced for this review round, recognize this fact and have resulted in valuable analytical benefits to the user of macroeconomic statistics. Thus, cross-border flows and positions can now easier, consistently be integrated with their domestic counterparts to gain insights into issues such as the interactions between sector and geographical imbalances, propagation of international shocks to domestic agents or cross-border second and higher order exposures and interdependencies. Moreover, the consistency achieved between the two methodological frameworks has brought clarity to overall economic statistics, easing communication vis-a-vis policy makers and the public at large, and

contributed to the quality of both statistics by favoring the development of common data sources and methods and institutional arrangements that have resulted in enhanced data accuracy and reliability and, naturally so, data consistency, thus contributing to their combined analytical value.

**14.XX** The national accounts framework provides a detailed representation of changes in balance-sheets through the so-called accumulation accounts, whereby flows (changes in stocks) are broken down into transactions, revaluations and other changes in volume of assets, also allowing for further details within each of the categories. This allows for a detailed analysis of the accumulation of value in assets and the various determinants of net worth and facilitates the monitoring of feedback links between balance-sheets and non-financial transactions by separating the various sources for asset change.

**14.XX** The development of a similar framework for position accumulation in the BOP context would deepen the analytical synergies between the two statistical areas. For instance, the monitoring of financial risk exposures would benefit from a smoother integration of cross-border assets/liabilities and sources for their changes with the same elements of the domestic sectors, including to unveil intricate vulnerability linkages working across sectors and geographies. Similarly, the analysis of household wealth would take advantage of a horizontal integration of its determinants not only circumscribed to the links between savings and the current account, but also including the direct and indirect effects on asset prices originated and linked by/to external positions. To provide a third example, similar RoW and balance of payments frameworks for asset accumulation and their translation into numerical consistent data would shed light on the so-called “valuation paradox”, by virtue of which reductions in external debt prices improve the net external position, just by complementing the analysis with information on the dynamics of all assets, in particular of non-financial assets.

**14.XX** To the extent possible, the enhancement of the balance of payments stock/flow reconciliation tools should aim at broad consistency with the existing SNA framework, so that numerical consistency is facilitated, and the analytical synergies mentioned above can be fully exploited between the two domains.

## **BPM6 – CHAPTER 14, ADD NEW SECTION ON RATES OF RETURN**

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### **Calculating and Using Rates of Returns**

**14.XX** Rates of return are important for understanding the allocation of capital between economies, differences in the sustainability of current account deficits, and the behavior over time of the current account, the financial account, and the IIP. Current-account investment income transactions, financial-account transactions, and other changes in volume of financial assets and liabilities are all interrelated with important consequences for national economies. Because of their potential to influence investment and income, rates of return also influence economic outcomes. Suggestions for presenting the integrated IIP, investment income, and rates of return are shown in Table 14.X.<sup>28</sup>

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<sup>28</sup> For additional practical guidance, refer to the [updated] *BPM Compilation Guide*.

**Table 14.X. Integrated International Investment Position Statement, Investment Income, and Rates of Return**

	Integrated international investment position statement						Current account investment income on financial assets and liabilities <sup>1</sup>	Rates of return		
	Beginning of period position	Financial account	Other changes in financial assets and liabilities account			End of period position		Income rate of return	Revaluation rate of return	Total rate of return
		Trans-actions in financial assets and liabilities	Other changes in volume	Revaluations						
				Exchange rate changes	Other price changes					
Assets excluding financial derivatives										
Direct investment										
Equity and investment fund shares										
Debt securities										
Portfolio investment										
Equity and investment fund shares										
Debt securities										
Short term										
Long term										
Other investment										
Other equity										
Currency and deposits										
Loans										
Insurance, pension, and standardized guarantee schemes										
Trade credit and advances										
Other accounts receivable										
Reserve assets										
Monetary gold										
Special drawing rights										
Reserve position in the IMF										
Other reserve assets										
Liabilities excluding financial derivatives										
Direct investment										
Equity and investment fund shares										
Debt securities										
Portfolio investment										
Equity and investment fund shares										
Debt securities										
Short term										
Long term										
Other investment										
Other equity										
Currency and deposits										
Loans										
Insurance, pension, and standardized guarantee schemes										
Trade credit and advances										
Other accounts payable - other										
Special drawing rights (net incurrence of liabilities)										
Memoranda										
Other investment assets and interest income before FISIM (actual interest)										
Other investment liabilities and interest income before FISIM (actual interest)										

<sup>1</sup> Includes pure interest on other investment loans and deposits after removal of financial intermediation services indirectly measured (FISIM) from actual interest.

**14.XX** The income rate of return is the ratio of investment income to the corresponding average asset or liability position in the IIP. Table 5.2 in *BPM6* shows the link between financial instruments and their corresponding income. The revaluation rate of return is the ratio of revaluations to the corresponding

average asset or liability position.<sup>29</sup> Revaluations are holding gains and losses arising from changes in financial instrument prices including exchange rates. The total rate of return is the sum of the income rate of return and the revaluation rate of return. Rates of return can be computed for assets excluding financial derivatives and for liabilities excluding financial derivatives.

**14.XX** The estimation of pure interest on loans and deposits when financial intermediation services indirectly measured (FISIM) are excluded from investment income will cause rates of return on loans and deposits to differ from rates of return estimated from actual interest. The estimation of rates of return using both pure interest and actual interest (interest before FISIM) would provide a more complete picture for analysis.

**14.XX** The systematic estimation of rates of return across the IIP can shed light on how the characteristics of investment across functional categories can differ. Functional categories reflect the differences in economic motivations and patterns of behavior exhibited by investors in these categories. Consequently, instruments such as equity and debt that are included in portfolio investment and direct investment can have different rates of return when compared across functional categories.

**14.XX** Income and revaluation rates of return are important tools for many different types of analyses. *BPM6* focused primarily on income rates of return. However, revaluation rates of return are also important for many analyses. For example, proposed new paragraphs 14.14–14.17 and 14.XX on the valuation paradox in this guidance note rely heavily on the effect of revaluations on positions that are marked to market in the IIP. Another example is the effect of revaluations on direct investment positions. Direct investment positions that are marked to market in the IIP (using various methods) potentially generate much larger revaluations than positions that are recorded at book value (or current cost).

**14.XX** Rate of return differentials can be computed by subtracting the rate of return on liabilities from the corresponding rate of return on assets. The income rate of return differential is relevant to a possibly destabilizing feedback loop between the current account and the financial account as described in *BPM6*, paragraph 14.35. A current account deficit must be financed by a decrease in net foreign assets, and the decrease in net foreign assets has the potential to increase the current account deficit through a reduction in net investment income, inducing a destabilizing feedback loop. The impact of a decrease in net foreign assets on net investment income depends on the income rate of return differential. A positive differential will reduce the impact on net investment income, a neutral differential means the change in net investment income will be proportional to the change in net foreign assets, and a negative differential will increase the impact on net investment income. Thus, the income rate of return differential can moderate or exacerbate this potential source of instability.

**14.XX** Rates of return and their impact on financial flows are an important factor in a comprehensive analysis of the sustainability of a current account deficit as described in *BPM6*, paragraph 14.36. Income and revaluation rates of return along with factors such as tax rates and expected future changes in prices play a role determining the expected real after-tax total rates of return on foreign assets and liabilities.

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<sup>29</sup> Because financial derivatives do not pay interest income and the capital gains are difficult to relate to an original principle investment, rates of return on financial derivatives would not be reliable if computed using the framework suggested here for estimating rates of return for other types of assets, so they are omitted from Table 14.X. Revaluation rates of return on financial derivatives could be a topic of additional research.