Transaction and valuation effects on Germany's international investment position (IIP) – new statistical approaches and IIP trends

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Abstract

Germany's cross-border investments and liabilities as reflected in its international investment position (IIP) have increased considerably over the past decade and have thus become more significant in macroeconomic terms. Changes in the IIP are driven by the current account balance, as well as by price movements in the foreign exchange and securities markets. These valuation effects are now being systematically calculated for the first time and can therefore be integrated into the balancing items of the System of National Accounts (SNA) and into the IIP's equation of motion. In addition, the various analytical dimensions of the IIP's dynamics are presented and illustrated by empirical evidence for Germany in a three-tier accounts system.

Keywords: International investment position (IIP), external position, balance of payments (BOP), financial account

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1. Macroeconomic significance and analytical value of the IIP

The IIP shows at a point in time the value and composition of financial assets and liabilities of a country's residents vis-à-vis its non-residents; individual assets and liabilities are valued at the applicable exchange rates and market prices at the end of the reporting period. This makes the IIP a stock account, for which the balance of payments (BOP) – broken down into the current, capital and financial account – provides the corresponding flow account (for further details, see Deutsche Bundesbank, 2013). The international financial and sovereign debt crisis has demonstrated that the stocks recorded in the IIP serve as an important indicator of dependencies and potential contagion channels, particularly since they have risen sharply worldwide over the past decade. For example, Germany's net IIP as a percentage of gross domestic product (GDP) reached a new record high of 36% at the end of 2014 (see Figure 1, data as reported by the end of March 2015).

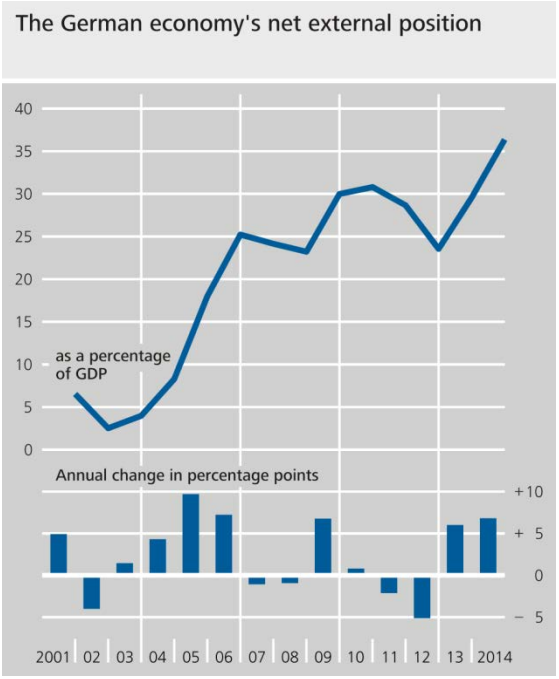

Figure 1

A significant drop in a major current account deficit – that is to say, a reduced flow imbalance – can, nevertheless, coincide with the continued growth of a net debtor position, ie an increased stock imbalance. This “phenomenon” was observed in several crisis countries when analysing external imbalances within the euro area (see IMF, 2014; Lane *et al*, 2014). The recommendations made in 2009 by G20 central bank governors and finance ministers to close the statistical information gaps that were identified during the last financial crisis therefore also attach greater importance to the IIP (see Financial Stability Board and IMF, 2013).

The growing significance of external stocks is also reflected in econometric analyses of the determinants of real exchange rates and within the scope of the intertemporal approach to the BOP (see Harms, 2008). Information on not only the amount but also the composition of financial assets and liabilities included in the IIP are also essential for the IMF's balance sheet approach (see IMF, 2009,

chapter 14), which is used to examine the balance sheets of the total economy and individual sectors within it for asymmetries in capital structure, maturities or currencies. Under the EU's Macroeconomic Imbalance Procedure (MIP), there is an indicative threshold for not only the current account balance but also the net IIP; in the event of an imbalance, it becomes the subject of an in-depth review (see European Commission, 2012).

In line with the IIP's growing importance for economic policy, the IMF's revised Balance of Payments and International Investment Position Manual (BPM6) contains a set of specific definitions in which the presentation of the IIP in one integrated statement is defined as the new global standard. An ambitious new concept is the separate listing of valuation effects. The statistics´ users thus profit from important additional information (see IMF, 2009; Deutsche Bundesbank, 2014a, 2014b).

In the new integrated IIP statement, changes in the stocks of individual asset and liability positions recorded in the IIP between reporting periods are broken down into transaction-related changes arising from the financial account, valuation-related changes caused by market price or exchange rate fluctuations and “other changes” resulting, for instance, from write-downs on uncollectible credit claims (see Figure 2).

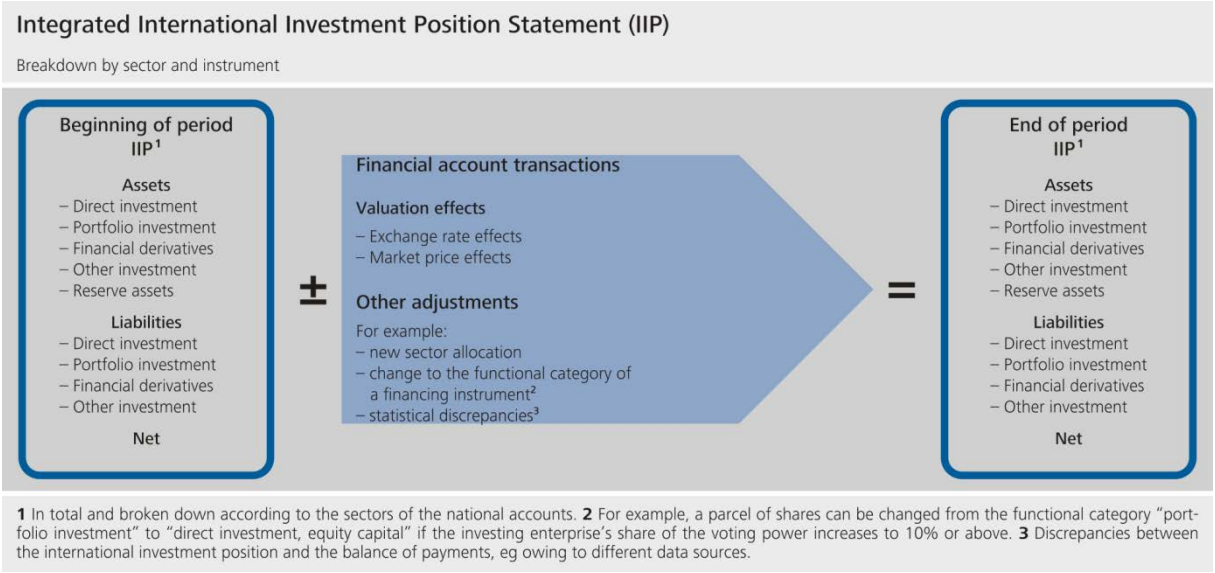

Figure 2, Deutsche Bundesbank (2014a).

This paper systematically outlines the various potential uses of these new statistical data. First, valuation effects are integrated into the balancing items of the SNA. The subsequent introduction of an equation of motion incorporates valuation effects as a major determinant of changes in an economy's IIP, thus opening up new perspectives for the analysis. Finally, an empirical section based on this presents a three-tier accounts system describing the various analytical dimensions of the IIP for Germany.

2 Valuation effects in the IIP as a new component in the balancing items of the SNA

Up to now, changes in the net IIP (ΔIIP) have often been determined in a simplified manner by only considering the transaction-related financial account balance (FA); the remaining (valuation) difference being provisionally identified as a statistical residual between flows and stocks. In practice, however, this simplified presentation is problematic in cases where valuation losses and gains do not offset. Henceforth, valuation effects (VE) and other changes (OC) can be explicitly recorded. The former are broken down into exchange rate effects (ER) and other market price effects (MP), while the latter are grouped into a collective item for all other non-transaction-related stock changes (eg write-downs on credit claims).

This translates into the following initial equation for stock changes in the IIP:

(1) $\Delta IIP = FAB + VE + OC$

where

(2) $VE = ER + MP$

This equation can also be directly integrated into the balance sheet for the total economy of a country or currency area. In simplified terms, the **consolidated net assets** (V) of domestic sectors comprise domestic non-financial assets, ie primarily net capital stock (K), and the net IIP:

(3) $V = K + IIP$

Thus, new national wealth (ΔV) can be created by either investing in domestic non-financial assets (fixed assets, in particular) or accumulating net IIP (ΔIIP):

(4) $\Delta V = \Delta K + \Delta IIP$

The **increase in wealth** held by residents therefore manifests itself in the modernisation and expansion of domestic industrial production facilities and public infrastructure (ΔK), as well as in the investment of savings abroad (ΔIIP). Major changes in the IIP can be caused by very different factors, however. For example, they can reflect low domestic investment levels or high yield prospects abroad. Additionally, in many cases, changes in the net IIP are also based on the market-related valuation effects stated or on other changes, as can be derived from equations (1) and (4):

(5) $\Delta V = \Delta K + FA + VE + OC$

The financial account balance is largely determined by the current account transactions and capital transfers that are effected between residents and non-residents within a given period. The following relationship should be noted **between the financial account balance flows, on the one hand**, and the balances on the current account (CA) and capital account (KA), on the other:

(6) $FA = CA + KA$

In BOP statistics, the “errors and omissions” item is also positioned on the right-hand side of equation (6); this provides a summary of transactions that cannot be allocated to the statistics (eg incomplete reports by economic agents, difficulties to attribute the recorded payments to the correct time period). Since it is not needed in the methodological argumentation that follows it may be neglected for the sake of simplicity.

The current account balance, in turn, comprises the external balance of goods and services (Ex-Im) and the respective balances on investment income (II), compensation of employees (CO) and current unrequited transfers (received and made) (CT):

(7) CA= (Ex-Im) + II + CO + CT

As the combination of equations (1), (6) and (7) shows, the current account indicates which transactions in the real economy (as viewed from the supply side) have contributed to changes in the net IIP. In addition to purely portfolio reallocations, the financial account contains the corresponding financial transactions that arise from the transaction-related changes in individual asset and liability positions recorded in the IIP.

Relationship between the BOP and the national accounts

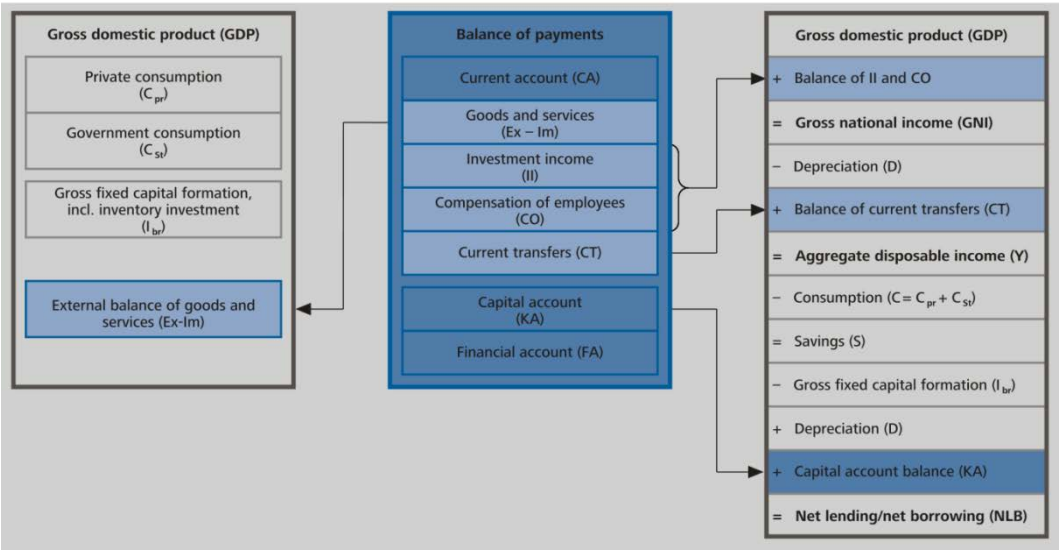

Figure 3

Furthermore, viewing the BOP and the national accounts together, the major accounts can be expressed as accounting identities, (see Figure 3) that allow for further relevant derivations of changes in a country's net IIP. In this way, aggregate disposable income (Y) is derived from the sum of GDP less depreciations (D) and the respective balances on investment income (II), compensation of employees (CO) and current transfers (CT).

(8) Y = GDP – D + II + CO + CT

The disposable income thus defined (Y) can be used for either consumption (C) or savings (S):

(9) $Y = C + S$

If equations (8) and (9) are combined the current account balance can also be seen as the gap between aggregate saving and aggregate net investment (I_n), when the GDP is rewritten according to the expenditure approach as the sum of consumption (C), gross investment (I_{gr}) and the external balance of goods and services (Ex-Im), and when taking into account the current account balance as noted in equation (7) and depreciations (D) on the domestic capital stock:

(10) $S = I_n + CA$ or $S - I_n = CA$

If an economy saves more than it invests, this will result in a positive current account balance (the reverse also applies). With respect to net lending/net borrowing (NLB), the capital account balance should also be taken into account:

(11) $NLB = S - I_n + KA$

Combining equations (10) and (11) and taking into account equation (6) results in the following:

(12) $NLB = CA + KA = FA$

Net lending/net borrowing, which captures the transaction-related changes in an economy's net financial assets, thus corresponds to the balances on the current account and capital account, which correspond, in turn, to the financial account balance.

Taking explicit account of valuation effects and other changes, a country's change in net wealth as presented in equation (4) now takes the following basic form in equation (5):

(13) $\Delta V = I_n + NLB + VE + OC$

Changes in residents' wealth are therefore derived from their net investment, net lending/net borrowing and the valuation effects of as well as other changes in the IIP. The share attributable to changes in the net IIP amounts to the following:

(14) $\Delta IIP = NLB + VE + OC$

Based on the accounting identities and valuation effects described above, the next section focuses on an equation of motion which explains changes of the IIP by integrating the aforementioned determinants in multiple expansionary steps.

3. The equation of motion for the IIP as an analytical frame of reference

3.1 Deriving the basic equation

Corresponding to equations (1), (7) and (12), changes in the net IIP can be broken down into the following components: A primary account balance (PA), which is made up of net lending/net borrowing (NLB) less the now expressly recorded investment income balance (II), and valuation effects (VE and OC):

(15) $\Delta IIP = PA + II + VE + OC, \qquad \text{with } PA = NLB - II = (CA - II) + KA$

This presentation allows for the analytically important differentiation between the contribution attributable to the primary account balance and the contribution calculated as the total return on the net external position. The primary account balance therefore encompasses the current account balance – less investment income – and the capital account balance. The total return on the IIP is a net variable encompassing the investment income received from abroad less the property income send abroad, as well as the net effect of all valuations. In turn, these are determined by the current return, exchange gains or losses, other market price gains or losses and other possible valuation changes. If this total return is compared with the net external position, this yields the overall rate of return($\tilde{\imath}_n$), which consolidates the return-relevant variables (PI, VE and OC) for all asset and liability positions. Equation (15) can therefore be formulated as follows:

(16) $\Delta IIP_t = PAB_t + \tilde{\imath}_n \; IIP_{t-1}$

The following applies by definition:

(17) $\tilde{\imath}_n = (II + VE + OC)_t / IIP_{t-1}$

Changes in the net external position can also be expressed as percentage of GDP; this reveals analytically significant insights into its dynamics, which play a key role in assessing the sustainability of external positions, for instance. The net IIP to GDP ratio (iip) is derived from net IIP as a percentage of GDP. The applicable basic equation for changes in the net IIP to GDP ratio can be expressed in the following compact format (for a similar approach, see Harms, 2008).

(18) $\Delta iip_t = pab_t + (\tilde{\imath}_n - g)/(1+g) \; iip_{t-1}$

To simplify the presentation, the GDP growth factor (1+g) will be disregarded, and the following approximation for little growth rate will be used instead:

(19) $\Delta iip_t \approx pab_t + (\tilde{\imath}_n - g) \; iip_{t-1}$

where

iip = net IIP as a percentage of GDP
Δiip_t = change (in percentage points) in the net IIP to GDP ratio in period t
pab_t = primary account balance as a percentage of GDP in period t
$\tilde{\imath}_n$ = overall rate of return (including valuation effects) on the net external position
g = nominal GDP growth rate ($\Delta GDP_t/GDP_{t-1}$)
iip_{t-1} = net IIP at the end of period t-1 as a percentage of GDP of period t-1

The change in the net IIP to GDP ratio (Δiip_t) thus comprises the sum of the primary account balance (as a percentage of GDP) as defined above and the net external assets ratio at the end of the preceding period weighted with the time-dependent interest-rate growth rate differential ($\tilde{\imath}_n - g$). The key variable for the further expansionary stages of the equation of motion is therefore the overall rate of return ($\tilde{\imath}_n$) as introduced in its basic form in equation (17), which now needs to be progressively expanded into its constitutive determinants.

3.2 Differences between returns on asset and liability positions in the IIP

The first step in enlarging the model is to present the overall rate of return ($\tilde{\imath}_n$) as the difference between the rate of return on assets ($\tilde{\imath}_a$) and the rate of return on liabilities ($\tilde{\imath}_l$). First, this accounts for the fact that – contrary to the simplified assumptions of the uncovered interest rate parity theory – securities denominated in different currencies are not perfect substitutes and market participants often behave in a manner that is not risk-neutral, which is interesting from an analytical perspective as well as important in empirical terms. Second, in addition to the pure generation of returns, there are other motives for forming external assets and liabilities (eg as part of direct investment), meaning that if valuation effects are factored in, the average effective interest rate ($\tilde{\imath}_a$) on external assets (A) usually differs from the average effective interest rate ($\tilde{\imath}_l$) on external liabilities (L). It is therefore generally the case that

(20) $\tilde{\imath}_n = (\tilde{\imath}_a A - \tilde{\imath}_l L) / IIP$

In an explicit analysis, the effective average overall return on the net external assets (IIP = A – L) can thus be broken down according to the following defining equation:

(21) $\tilde{\imath}_n = \tilde{\imath}_l + (\tilde{\imath}_a - \tilde{\imath}_l)\,\lambda$ where $\lambda = (A / IIP)$

By integrating equation (21) into equation (19) and through the elementary transformation, the following central relationship emerges as an important interim result, in which a_{t-1} symbolises the external assets at the end of the period t-1 in relation to the gross domestic product of the previous period:

(22) $\Delta iip_t \approx pab_t + (\tilde{\imath}_p - g)\, iip_{t-1} + (\tilde{\imath}_a - \tilde{\imath}_l)\, a_{t-1}$

Equation (22) shows that, in addition to an interest-growth differential which has now been modified compared to (19), the difference between the returns on external assets and external liabilities also play an independent role as a factor driving the IIP ratio. In this context, the respective interest rates ($\tilde{\imath}_a$ and $\tilde{\imath}_l$) represent weighted effective returns in the sense of overall rates of return. The valuation effects can thus be integrated into this approach since in an economic reading they can be interpreted as changes in the volume of assets that affect the rate of return.

3.3 Recognition of exchange rate changes

We will now enhance the rates of return on assets and liabilities as defined in section 3.2 ($\tilde{\imath}_a$ and $\tilde{\imath}_l$) by explicitly including exchange rate changes. A foreign-currency position produces two return-relevant valuation effects in the event of an exchange rate change. The first relates to the interest revenue or expenditure converted into the domestic currency (transaction-related part) while the second comprises the corresponding external asset or external liability (pure stock effect). Using the example of an asset position in the form of a foreign currency bond that is assumed to have a fixed nominal interest rate (i_f), the following overall return (i_a) applies to a domestic monetary unit and a particular period when a relative exchange rate change (direct quotation) equivalent to $\hat{e}$ is taken into account:

(23) $i_a = (1 + \hat{e})\, i_f + \hat{e}$

By itself, a depreciation in the domestic currency (ie $\hat{e} > 0$) thus leads to a higher effective interest rate on foreign currency claims on non-resident borrowers.

In a simple two-asset model consisting of a bond denominated in domestic currency with a weight of h and an interest rate of $i_€$ as well as a foreign currency bond with the weight of 1-h and an interest rate of i_f, the overall return for the asset portfolio consists of a pure weighted interest rate component [$i_€\ h + i_f\,(1 - h)$] and a weighted exchange rate effect [$(1+i_f)\,(1 - h)\,\hat{e}$]. An equivalent formula describes the overall rate of return on the external liabilities ($\tilde{\imath}_l$):

(24) $\tilde{\imath}_a = i_€\ h + i_f\,(1 - h) + (1 + i_f)\,(1 - h)\,\hat{e}$

As shown by equation (24), the effect of exchange rate changes on the net external assets is heavily influenced by the currency composition of the asset and liability positions. If, for example, as in Germany, there is a clear surplus of foreign currency on the asset side of the IIP, ie a higher proportion of claims than liabilities are denominated in foreign currencies, a general nominal depreciation of the domestic currency causes a valuation-related rise in the net external assets. In isolation, this leads to an increase in the overall rate of return ($\tilde{\imath}_n$).

A comprehensive and systemic integration of exchange rate changes into the overall rates of return $\tilde{\imath}_a$ and $\tilde{\imath}_l$ could be achieved by using an effective exchange rate weighted with the external assets or liabilities. The Bundesbank is currently developing an effective exchange rate weighted with external positions. This involves establishing a system of effective exchange rates, with a breakdown of Germany's foreign assets and liabilities by currency, sector and instrument. As well as providing information on the impact of exchange rate changes on the asset and liability positions in the IIP, this could also be applied to the area of sensitivity calculations.

3.4 Recognition of market price changes

As stated earlier, the IIP overall rates of return ($\tilde{\imath}_a$, $\tilde{\imath}_l$) also include changes to financial market prices. These market price effects (MP), which are the result of price gains or losses, often play an important role, especially for portfolio investment. For instance, the interest rate (i_f) in equation (24) is composed of a

cash-flow return (current return, i_{cf}) and a valuation component caused by market price changes (price-related return, $\Delta P/P$):

(25) $i_f = i_{cf} + \Delta P/P$

For the sake of simplicity, we now assume a general interest rate shock that causes a one-off parallel shift of a flat yield curve. The resulting relative market price change ($\Delta P/P$) of a financial instrument can be approximated fairly well using the duration approach (for the derivation and discussion of the duration approach, see *Albrecht/Maurer*, 2008, pp 442). In its variant as the modified duration (D_m), which can also be calculated for complex portfolios, it measures the relative market price change ($\Delta P/P$) triggered by a given market interest rate change (Δi_k), eg the price sensitivity of fixed-income securities. The following therefore applies to the price-related return of a security:

(26) $\Delta P/P \approx - D_m \Delta i_k$

Assuming a given change in the market interest rate, the price of a financial instrument reacts more strongly the higher the modified duration (D_m). In turn, the modified duration is larger the lower the market interest rate and the smaller the coupon, and the longer the residual maturity (and vice versa). This implies that, depending on the relevant cash-flow return (i_{cf}) and residual maturity, the market prices of financial instruments react with varying degrees of sensitivity to market interest rate changes and that the duration of a bond or portfolio of financial instruments changes constantly over time, even if market interest rate levels remain constant.

Applying the duration approach and the previous findings on the exchange rate effect, equation (23) can now be written as follows:

(27) $\tilde{\imath}_a \approx i_{cf} + [-D_m \Delta i_k + (1 + i_{cf} - D_m \Delta i_k) \hat{e}]$

The expression in square brackets captures the two valuation effects based on market price and exchange rate changes. An equvilant formula applies for the overall return on the liabilities side ($\tilde{\imath}_l$). For presentation reasons and for the sake of simplicity, we have assumed here that all investments are made in foreign currency.

The impact of market interest rate changes on a country's net external assets is contingent on their **net effects**; ie their impact on the overall rate of return ($\tilde{\imath}_n$). Because the value of the portfolio duration for the assets usually differs from that for the liabilities and because the IIP is not balanced, ie a country typically has a positive or negative net external asset position, the **duration gap** determines the market price-related net wealth effects.

Applying the duration gap approach and focusing solely on the market price effect, a homogeneous shock shifting the overall interest rate level results in the following formula for the market price-related impact (partial effect) on the net interest rate:

(28) $\tilde{\imath}_n (MP) \approx - DG \lambda \Delta i_k$

With the duration gap:

(29) $DG = D_A - (1 - ß)\, D_P$

in which:

λ	=	External assets over net IIP (A/IIP)
ß	=	Net IIP over external assets (IIP/A)
D_A	=	(portfolio-weighted) modified duration of the assets portfolio
D_P	=	(portfolio-weighted) modified duration of the liabilities portfolio
DG	=	Duration gap
Δi_k	=	Change in capital market interest rate level (in percentage points)

The condition for a positive duration gap (DG > 0), ie relatively stronger interest rate elasticity for the external assets, can be taken directly from (29): ($D_A/D_P > (1-ß)$).

Which constellation prevails depends on the terms of issue of the financial or investment instruments as well as the particular external portfolio structure during the observation period. Here, the larger the ratio of external assets to the net IIP (λ), the stronger the response of the net interest rate on the net IIP to an interest rate shock leveraged via the duration gap (and vice versa).

The calculation of duration figures requires a considerable degree of detail and processing of the necessary statistical information; so far, the available data has fallen short of these requirements. Furthermore, simple measures of duration only model first-order effects; if market conditions change significantly, return-related effects may also occur owing to the convexity of the underlying present value model. In addition, non-parallel shifts in the yield curve require more complex methods (for a discussion of these concepts, see *Albrecht/Maurer*, 2008).

4. A three-dimensional accounts system as an approach to present the IIP

If the previous model outputs are joined together and if the various assets and liabilities are also broken down by instrument and sector according to the IMF's guidelines, the calculations made in the context of the IIP can be performed using a three-dimensional accounts system. This produces an income, an instrument, and a sector account for the IIP, each of which captures specific aspects and which together present a multi-facetted picture of the net external asset position and its changes (see Figure 4, data as reported by the end of September 2014).

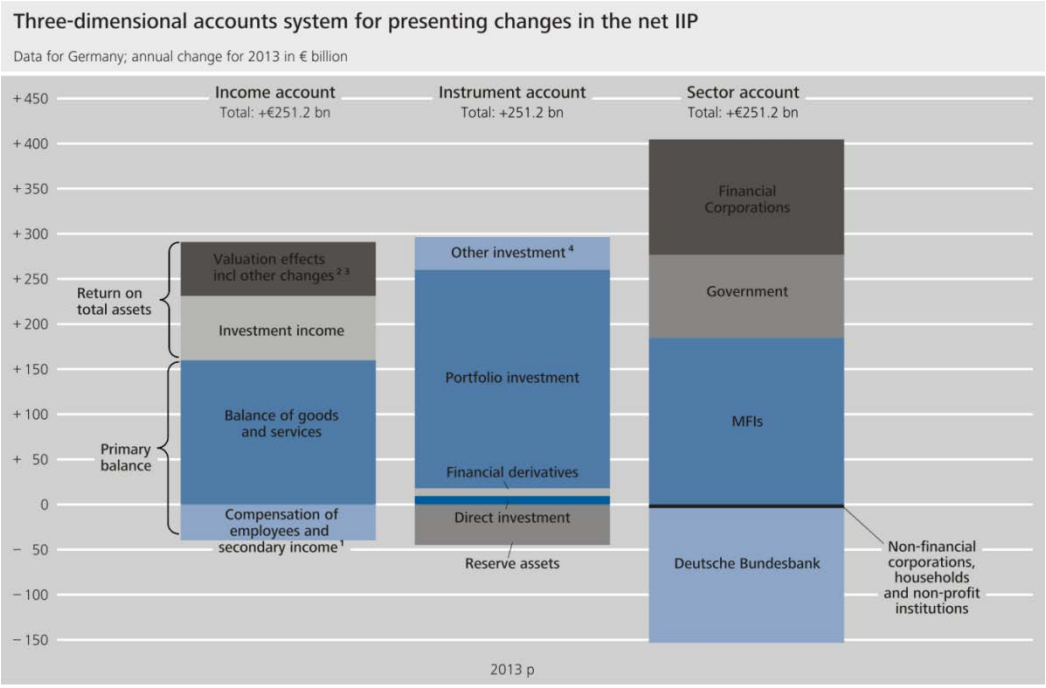

Figure 4

The function of the IIP´s income account is to record the analytical breakdown of the change in the IIP, presented in basic equation (15), into the primary account balance and the return on total assets, the latter consisting of the balance of investment income, the valuation effects and other changes. This also allows the various determinants according to equation (17) to be quantified more precisely, especially the complex role of the effective returns on external assets and external liabilities and therefore also the impact of the international yield spreads. In this context, the different valuation effects can also be broken down further and their respective contributions be determined (see Figure 5).

In 2013, for example, year-on-year growth in net external assets was unusually strong at over €250 billion. As shown by the income account for the IIP, this is the result of the persistently high primary balance surplus. The surplus in the balance of goods and services, which benefited not least from favourable terms of trade, contrasted in 2013 with the negative structural balances from the compensation of employees and transfers. The investment income (including valuation effects and other changes) increased the net external asset position by around €130 billion.

This primarily reflects the fact that, owing to Germany's net creditor position, which amounted to approximately 45% of GDP at the end of 2013, its investment income surpluses have been increasing for around a decade (see also *Deutsche Bundesbank*, 2015). Likewise in 2013, the balance of investment income, which amounted to €71 billion when viewed in isolation, contributed to the increase in the IIP; however, this value remained lower than in the previous year despite rising net external assets. Even so, the weighted interest rates in the IIP have probably not yet reacted fully to the international low-interest-rate environment,

and in the case of direct investment, the profitability of the non-financial corporate sector had a stabilising effect on the aggregate return ratios.

As a general rule, in the longer term, the IIP accounts also show the typical positive feedback effect between the financial stocks and the resulting revenue. The valuation effects in the net IIP, which consisted of market price effects to the value of +€40 billion and countervailing exchange rate effects amounting to -€47 billion, balanced out at a comparatively low figure of -€7 billion in 2013.

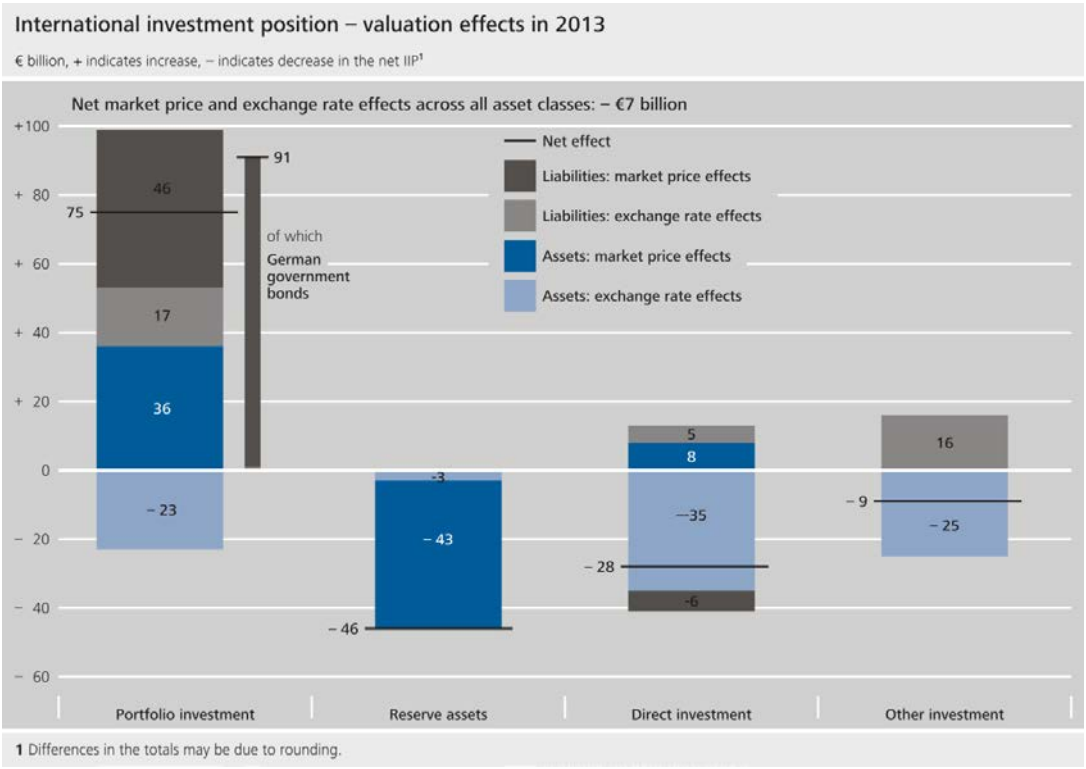

Figure 5, Deutsche Bundesbank, 2014b.

The IIP´s instrument account focuses on the investment and financing instruments, broken down into various functional categories (direct investment, portfolio investment, other investment and reserve assets). It reveals that significant market price movements have taken place, especially in the securities markets. A marked rise in prices took place in the equity markets, in particular, with the calming of the European financial markets, and owing to the search for high-yielding forms of investment. In the new IIP accounting system, this had a positive impact on the price-related return of equity investment as well as portfolio investment. In addition, over the course of 2013, price decreases which diminished returns were recorded on the liabilities side, most notably for long-dated domestic government bonds. In terms of the overall rate of return, this had a greater impact than the decline in interest rates on new investments.

The IIP´s sector account, which takes the sectoral picture of domestic and non-resident creditors and debtors and breaks it down into the domestic key sectors of an economy, also showed significant position changes in 2013. Sectoral portfolio

shifts can also be used to assess changes in aggregate return sizes (see Deutsche Bundesbank, 2015).

It was typical of developments in 2013 that, as market participants' confidence returned, there was a clear decline in the Deutsche Bundesbank's external assets from the euro area´s payment system (Target balances), meaning that the Bundesbank was able to reduce its net creditor position, which had increased rapidly in the wake of the financial and sovereign debt crisis, for the first time. Including the write-downs of the gold reserves owing to the sharp fall in the price of gold, the Bundesbank's share of the net external assets went down from 75% to 50%. Overall, lending to non-residents has tended to shift from the public back to the private sector. Monetary financial institutions, whose net external position decreased further in 2012, more than doubled their net creditor position in 2013.

An analysis over a longer period, where the short-term volatility determined by the financial markets in a given year has a significantly smaller impact on yield size, shows a more balanced ratio between the rates of return on the assets and liabilities side of the IIP. Over the crisis period from 2007 to 2013, the overall returns on the external assets can be estimated at an annual average of 3.2%, compared with 3.3% on the liability side (see Frey et al, 2014). During this period, then, at a nominal GDP growth rate of 2% pa, in addition to the positive primary balance, the weighted interest rate-growth differential played a large part in shaping the dynamics of the net external assets ratio.

5. Conclusion

Given persistent global imbalances and high structural heterogeneities in the euro area, the statistical accounts system for the international investment position (IIP) is attracting increasing attention from both analysts and policymakers. A broad-based and deeply disaggregated internationally harmonised data set is an essential prerequisite for the ongoing monitoring and surveillance of key external variables. The systematic recording of valuation effects, which has now been made possible, therefore constitutes an important step forward. In a disaggregated framework, valuation effects can be viewed as yield-determining factors and analytically integrated into the IIP equation of motion. In line with this, a three-dimensional accounts system is now available that captures the external generation, use and distribution of the IIP´s changes and also dovetails with the macroeconomic statistics comprising the national accounts and the financial accounts.

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