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The case of Italy's net international investment position

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UNWINDING EXTERNAL STOCK IMBALANCES?
THE CASE OF ITALY'S NET INTERNATIONAL INVESTMENT POSITION

by Valerio Della Corte*, Stefano Federico* and Enrico Tosti*

Abstract

This paper is a case study of an (almost complete) adjustment of Italy's external stock imbalance. After reaching a peak of around 25 per cent of GDP in early 2014, Italy's net external debtor position has steadily decreased, reaching less than 7 per cent of GDP at the end of 2017. The contribution of this work is twofold. First, it reviews the main developments in Italy's net international investment position (NIIP) since 1999. Second, it reports a baseline projection of Italy's NIIP over a medium-term horizon, as implied by current account balance forecasts. Since this projection ignores the role of valuation adjustments, the study also provides an analysis of their sensitivity to a set of potential movements in exchange rates and equity or bond markets.

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1. Introduction[*]

The sequence of current account deficits in several euro area countries since the late 1990s led to the build-up of large net foreign liabilities (i.e. negative net international investment positions: NIIP)[1] at the onset of the global financial crisis. In recent years a significant adjustment of external "flow imbalances" has been observed, with countries shifting from a deficit to a surplus in the current account; the correction of "stock imbalances" has instead been more gradual, and many economies still exhibit relatively large net debtor positions.

Italy did manage to almost complete the adjustment of its stock imbalances. Its net foreign liabilities had reached a peak of around 25 per cent of GDP in early 2014. While much lower than the extraordinary levels recorded in other euro area countries such as Greece, Portugal and Spain (with peaks between 95 and 140 per cent[2]), they were a source of concern among official institutions and market participants. According to the European Commission (2014), "*Italy's experience in 2011-2012 showed that even a moderately negative NIIP can make a country vulnerable to a reversal of foreign capital inflows*". Since early 2014 Italy's NIIP has improved by more than €280 billion, reducing the debtor position to less than 7 per cent of GDP at end-2017.

We start with an overview of the main developments in Italy's NIIP. The contributions of the current account balance and of valuation adjustments (e.g. changes in the value of external assets and liabilities due to movements in exchange rates or market prices) are examined. Recent developments in the NIIP are also compared with data for earlier years, in the context of a long-run analysis covering the period 1947-2017.

We then compute a baseline projection for the NIIP over a medium-term horizon, as implied by the latest IMF forecasts of the current account balance and nominal GDP growth. As such a projection ignores the role of valuation adjustments, we also consider a set of hypothetical scenarios (which include adverse shocks to equity prices, a rise in interest rates and an appreciation of the euro) and estimate their direct, one-off impact on valuation adjustments to the NIIP. This enables us to assess the sensitivity of Italy's NIIP to potential movements in exchange rates and equity or bond markets.

Our work is motivated by the relevance of external stock imbalances for policy purposes. While imbalances may be the outcome of an optimal intertemporal allocation of resources

[1] The net international investment position (NIIP) of a country is given by the difference between the value of financial claims held by residents vis-à-vis non-residents (including gold reserves) and the value of the residents' liabilities vis-à-vis non-residents. It provides an aggregated view of the overall net financial position of the economy vis-à-vis the rest of the world. A country which runs deficits in the current account needs to finance them either increasing its external liabilities or reducing its external assets.
[2] The NIIP reached even more negative values in Ireland (almost -200 per cent of GDP in 2015). However, the activity of multinational groups operating in Ireland blurs the interpretation of several macroeconomic aggregates of the country, including the NIIP/GDP ratio (ESRG 2016, Federico, Semeraro and Tedeschi 2016). For this reason, we will omit Ireland from cross-country comparisons throughout the rest of the paper.

between a country and the rest of the world and, therefore, should not always be viewed in an unfavorable way, they may also raise serious concerns for policy-makers.

First, large net external liabilities might be difficult to finance in a sustainable way and are indeed associated with a higher risk of "sudden stops" in capital flows, possibly leading to external crises (i.e. external defaults, debt rescheduling events, recourse to multilateral financial support): specifically, the risk of an external crisis is found to increase sharply when net external liabilities exceed 50 per cent of GDP and when their composition is biased towards debt instruments (Catão and Milesi-Ferretti 2014). Second, large negative debtor positions have feedback effects on the current account via the investment income balance: the higher payments to the rest of the world in the form of interests or dividends associated to the negative external position lower the current account balance and are a drag on produced resources available for domestic consumption and investment.[3]

For these reasons, the NIIP is one of the 14 indicators in the Macroeconomic Imbalance Procedure (MIP) Scoreboard that are used to identify emerging or persistent macroeconomic imbalances in EU countries (European Commission 2012, 2017). The indicative alarm threshold has been set at -35 per cent of GDP, with no symmetric threshold in case of large net creditor positions.

The structure of this work is as follows. Section 2 provides a summary of the related literature. The main developments in Italy's NIIP are reported in Section 3, while Section 4 disentangles the contribution of the current account balance and that of valuation adjustments to NIIP changes. Section 5 reports a baseline NIIP projection over the medium term, while Section 6 discusses various alternative scenarios entailing shocks to exchange rates or market prices. Section 7 concludes. The appendix A1 examines the effects on the NIIP deriving from methodological changes that led to data revisions.

2. Related literature

The contribution of our paper is related to three strands of literature. The first focuses on the developments and implications of external stock imbalances from either a global or a regional perspective. Recent studies point to a widening trend of global stock imbalances, which reflect the increase in the creditor positions of Germany, Netherlands and other advanced economies (Hong Kong, Korea, Singapore, Sweden) and the corresponding rise in the net debtor position of the United States (IMF 2017). Alberola et al. (2018) find evidence of an asymmetry between creditor and debtor countries: the NIIP is associated with lower current account deficits in the latter, but with higher current account surpluses in the former, potentially leading to destabilizing dynamics in wealth accumulation. Focusing on the European Union, Zorell (2017) shows that countries that were subject to a financial assistance programme (Ireland, Greece, Spain, Cyprus and Portugal) still display very large net foreign liabilities (between -85 and -185 per cent of GDP in 2016), which are likely to remain at a high level also in the medium term; however, it is argued that the usual risks associated with large debtor positions are mitigated by various factors, including the long maturity of public external debt (often owed to official

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[3] For an overview of Italy's primary income balance, see Oddo and Tosti (2017).

creditors) and the low level of yields. Our paper contributes to this literature by focusing on a euro area country which, starting from a more moderate, yet significant, debtor position, managed to almost entirely unwind it over a relatively short period.

The second line of research focuses on the relationship between NIIP and valuation adjustments. Gourinchas et al. (2012) show that the massive shocks to asset prices during the global financial crisis of 2007-2009 implied significant wealth transfers across countries via valuation effects. Specifically, advanced countries with long equity or direct investment positions and short debt positions suffered large losses on their risky assets. This behavior is consistent with countries acting as global (United States) or regional (Switzerland, euro area) "insurers" in favor of the rest of the world. In a sample of advanced economies with flexible exchange rates, Forbes et al. (2017) show that the role of valuation effects in explaining the change in the NIIP has increased over time, reflecting the sharp rise in gross international asset and liability positions. They also find that the NIIP reaction to global or domestic risk shocks is heterogeneous across countries, as it depends on the external portfolio's composition and currency denomination. For instance, currency movements generally facilitate the international sharing of idiosyncratic risks, as the currency of a country hit by a negative shock usually tends to depreciate, increasing foreign-denominated assets when evaluated in domestic currency. Using a larger sample of countries, IMF (2017) confirms that valuation adjustments played a stabilizing role since the global financial crisis: countries with persistent current account deficits recorded valuation gains (e.g. Brazil, Canada, South Africa, the United Kingdom), while countries with persistent current account surpluses recorded valuation losses (e.g. China, Germany, Japan).[4] The present work takes valuation effects into serious consideration, not only by discussing their contribution to changes in Italy's NIIP over time, but also by assessing their possible future impact in a set of hypothetical market scenarios.

A third strand of literature relates to the currency composition of external balance sheets. Lane and Shambaugh (2010a, 2010b) and Bénétrix et al. (2015) find evidence of significant heterogeneity in foreign currency exposures across countries. High-income economies tend to record long net foreign-currency positions, while developing countries historically issued dollar-denominated debt instruments so that they displayed short net foreign-currency positions. However, many developing countries have shifted toward a less skewed currency position over the last decade. In addition, the exponential increase in gross international assets and liabilities (especially for advanced economies) means that the impact of exchange rate movements on GDP is now much larger than in the past. With respect to this line of research, our paper provides a detailed analysis of the currency composition of Italy's foreign assets and liabilities; owing to the availability of new data, we are able to point out a significant change in the country's foreign currency exposure in recent years.

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[4] The case of Germany has been object of discussion, due to the large negative discrepancy between NIIP changes and the cumulated current account surplus (the "missing €500 billion"). According to some commentators this discrepancy is an indicator of significant losses in Germany's external assets. Bundesbank (2014) argues instead that it mainly reflects statistical factors as well as the revaluation of Germany's debt liabilities (due to the safe-haven status).

3. Main developments in Italy's NIIP

Overall trends - Figure 1 reports the evolution of Italy's NIIP since 1999, the starting year for data revised according to the latest international standards (6th Balance of Payments Manual – BPM6; see Box A for a long-run perspective). Three distinct phases can be identified. The first was characterized by a gradual widening of the net debtor position, from -3.3 per cent of GDP in 1999Q1 to -24.3 per cent in 2007Q3. The second phase, from 2007Q3 to 2014Q1, was instead characterized by a broad stability: despite the large financial turmoil during the global financial and the sovereign debt crises, the NIIP displayed limited oscillations, ranging between -20 and -25 per cent of GDP. During the third phase there was a marked reduction of the negative balance, from a trough of -24.6 per cent in 2014Q1 to -6.7 per cent in 2017Q4.[5]

Figure 1 – Italy's NIIP: 1999-2017
(percentage of GDP)
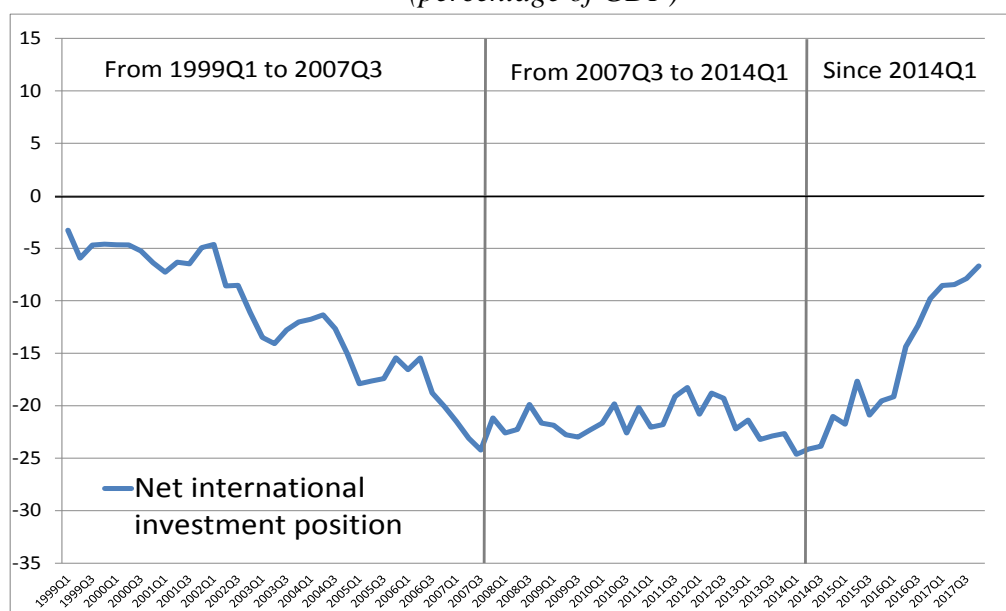
Source: Bank of Italy and Istat.

The increase in Italy's net foreign liabilities during the first phase was significantly milder than that of the other euro area economies characterized by net debtor positions (Figure 2). The net foreign liabilities of Greece, Portugal and Spain, which were already significantly larger at the end of the 1990s (between 30 and 35 per cent of GDP), recorded a rapid increase as a consequence of massive net capital inflows, reaching levels between 80 and 95 per cent of GDP at the onset of the global financial crisis. Unlike Italy, their net debtor positions continued to widen throughout the global financial crisis and the sovereign debt crisis, showing a gradual narrowing only since 2015.

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[5] The latest figures for NIIP differ to some extent from earlier data vintages, owing to a set of methodological and data changes that led to significant revisions of external statistics. Time series were revised to ensure continuity; for more details, see Appendix A1 (Recent revisions of Italy's IIP statistics).

Figure 2 – NIIP in selected euro area countries: 1999-2017

(percentage of GDP)

| a) Creditor countries (1) | b) Debtor countries (1) |
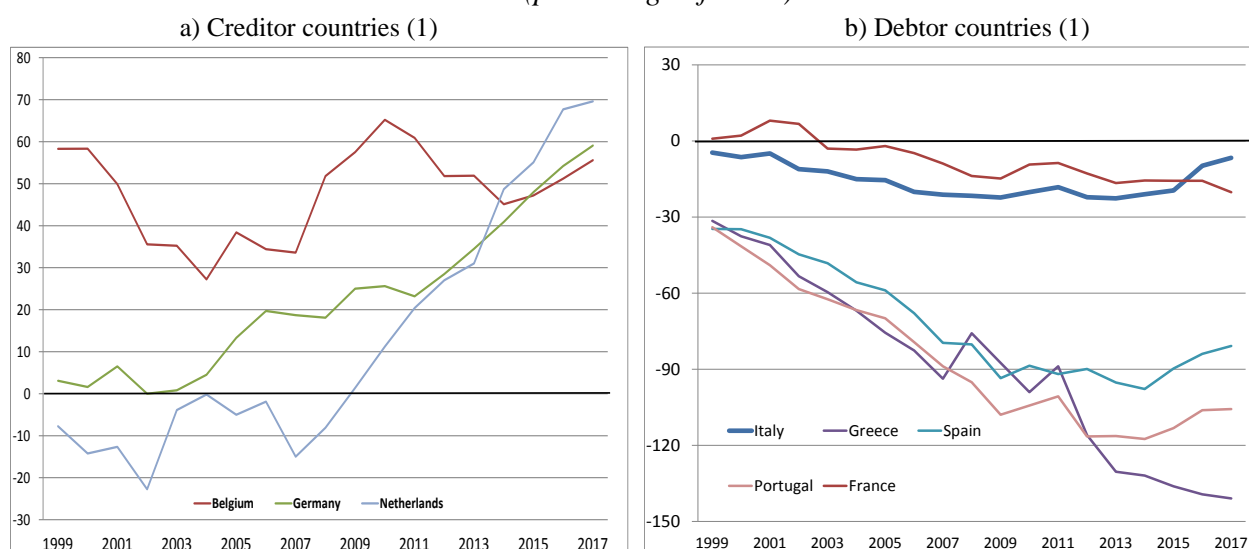
Source: Eurostat and Lane and Milesi-Ferretti (2018). (1) Countries are classified as creditor or debtor countries based on their NIIP at end-2017. Data relative to end-year positions.

NIIP by institutional sector - Italy's NIIP is the result of markedly different net external positions across institutional sectors (Table 1).

Table 1 – Italy's NIIP by institutional sector in sub-periods

(percentage of GDP)

		Total economy	General Government	Central Bank	Banks	Other sectors					
						total	of which:				
							insurance corp. & pension funds	households	non money market inv.funds	other fin.interm.	non-financial comp.
Net	1999Q1	**-3.3**	**-30.3**	**3.4**	**-5.0**	**28.6**	*n.a*	*n.a*	*n.a*	*n.a*	*n.a*
	2007Q3	**-24.2**	**-42.0**	**6.4**	**-24.2**	**35.6**	*n.a*	*n.a*	*n.a*	*n.a*	*n.a*
	2014Q1	**-24.6**	**-41.4**	**-0.9**	**-16.5**	**34.1**	*12.8*	*25.3*	*7.7*	*-0.9*	*-10.9*
	2017Q4	**-6.7**	**-39.9**	**-12.6**	**-10.0**	**55.9**	*23.2*	*28.6*	*9.1*	*7.8*	*-12.9*
Assets	1999Q1	82.9	2.2	4.4	17.6	58.8	n.a	n.a	n.a	n.a	n.a
	2007Q3	120.2	2.6	7.3	27.5	82.8	n.a	n.a	n.a	n.a	n.a
	2014Q1	132.1	7.9	12.2	24.1	87.9	15.3	26.2	7.8	11.6	27.0
	2017Q4	156.8	8.2	13.6	24.9	110.0	26.0	29.9	9.2	17.2	27.7
Liabilities	1999Q1	86.2	32.4	1.0	22.6	30.2	n.a	n.a	n.a	n.a	n.a
	2007Q3	144.4	44.7	0.9	51.7	47.1	n.a	n.a	n.a	n.a	n.a
	2014Q1	156.7	49.2	13.1	40.6	53.8	2.5	0.9	0.1	12.5	37.9
	2017Q4	163.5	48.2	26.2	35.0	54.1	2.7	1.3	0.1	9.4	40.6

Source: Bank of Italy and Istat.

At the end of 2017Q4 the net debtor positions of the government, of the central bank and of banks (-40.0, -12.6 and -10.0 per cent of GDP, respectively) were almost entirely offset by the large creditor position of the "other sectors" (55.9 per cent), which include households, non-financial corporations, insurance companies and other non-bank financial intermediaries. Among them, the largest creditor positions were due to households and to insurance companies

and pension funds (28.6 and 23.2 per cent of GDP at the end of 2017Q4, respectively). Smaller creditor positions were recorded for non-money market investment funds and other financial intermediaries, while non-financial companies showed instead a net debtor position.

The dynamics of the NIIP over time was also significantly heterogeneous across sectors. The initial widening of the net debtor position between 1999 and 2007 was concentrated in two sectors: the banking sector – which shifted from an almost balanced to a negative net external position of almost 25 per cent of GDP – and the government – whose net debtor position widened by more than 10 percentage points of GDP. These developments reflected the capital inflows associated with the increase in euro area financial integration since the onset of the monetary union.

The broad stability of the NIIP between 2008 and 2013 masked in fact a sectoral shift. On the one hand, banks' net foreign liabilities fell: after a mild decrease during the global financial crisis, a much sharper contraction was observed during the sovereign debt crisis, reflecting the freeze of the interbank market. On the other hand, the creditor position of the Bank of Italy fell abruptly in mid-2011, as a result of the shift to a negative TARGET2 balance (Bank of Italy 2015, Cour-Thimann 2013). The net positions of the government and that of the other sectors did not change significantly, despite some oscillations especially for the former.

The adjustment recorded since 2014 was instead mainly due to the "other sectors", in relation to the large purchases of foreign portfolio assets by insurance companies, other financial non-bank intermediaries and households.[6] The abundant liquidity injections of the Eurosystem via Targeted Longer-Term Refinancing Operations (TLTROs) and the Asset Purchase Programme (APP) contributed to the decrease in banks' funding needs and therefore to the narrowing of their net foreign liabilities. A significant widening of the Bank of Italy's debtor position was also observed, in relation to the increase of its negative TARGET2 balance, in the context of the APP (Bank of Italy 2017b, Eisenschmidt et al. 2017). The government's net position was again mostly unchanged, although with some oscillations.[7]

NIIP by functional category - Similarly to the breakdown by sector, Italy's NIIP is the result of marked differences across financial instruments (Figure 3). At the end of 2017Q4, Italy recorded a net creditor position in direct investment, in portfolio investment and in reserve assets, while net debtor positions in the "other investment" item (which includes loans, deposits and other minor instruments) and, to a lesser extent, in financial derivatives.

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[6] The purchases of foreign securities since 2014 reflected the rebalancing of resident investors' portfolio away from government and bank bonds towards asset management and insurance products, which are typically characterized by a more pronounced geographic diversification of risk. This process was influenced, among other factors, also by the monetary policy measures implemented since 2015, which contributed to lower the weight of certain assets (government and bank bonds) in Italian households' portfolio. For more details, see Bank of Italy (2017a) and Coletta and Santioni (2016).

[7] The recent narrowing of the government's external liabilities is related to net sales of government bonds by foreign investors, in line with developments observed in other euro area countries and for the euro area as a whole, in the context of a portfolio rebalancing of foreign investors (Koijen et al. 2017).

Figure 3 – Italy's NIIP by functional category: 1999-2017

(percentage of GDP)
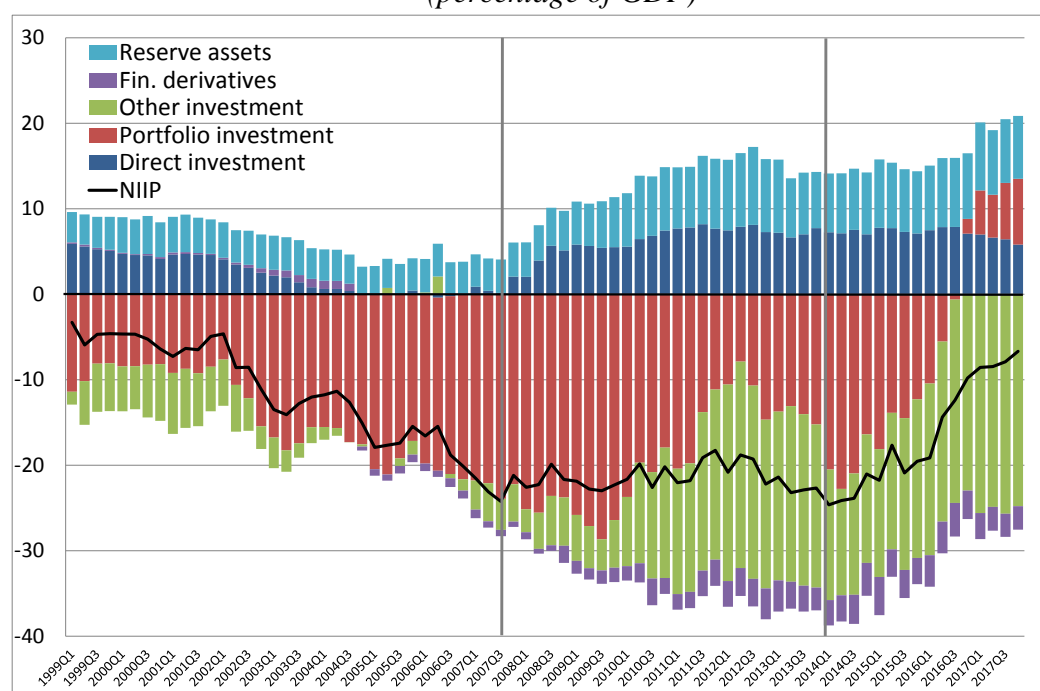

Source: Bank of Italy and Istat.

The fluctuations in the NIIP over time were mainly driven by portfolio investment and by "other investment". More specifically, the widening of the net debtor position in the first phase was almost entirely due to portfolio investment. In the second phase, in a context of an overall stability, the net portfolio investment position improved on the back of net sales of domestic securities by foreign investors as well as net sales of foreign securities by domestic investors; this increase was counterbalanced by a widening of net liabilities in "other investment", mainly due to the TARGET2 balance. The sharp increase in the NIIP since 2014 was instead driven by an even more pronounced increase of the net portfolio investment position, which changed sign and moved from -20 per cent of GDP in early 2014 to almost +8 per cent at the end of 2017. The rebalancing of residents' portfolio towards foreign securities has contributed to portfolio assets more than offsetting the corresponding liabilities related to the still significant share of government and other sectors' bonds held by foreign investors. Conversely, in the same period the debtor position in "other investment" widened, reflecting again the increase of TARGET2 liabilities.

Fluctuations in other functional categories were more limited. The net position in direct investment has been almost always positive, with a rise in 2007-2008, following a string of large acquisitions of foreign corporations by Italian companies (mainly in the energy and banking sectors). The net debtor position in financial derivatives has gradually increased over time, as the market value of derivatives held by the government vis-à-vis foreign counterparts has fallen because of the decline in interest rates (see Section 6 for more details). Finally, the creditor position in reserve assets has slowly increased, owing to the rise in the price of gold.

A long-run overview of Italy's net external position is provided in Figure A1, which reports the NIIP/GDP ratio since 1947. Before presenting the main highlights, two caveats are necessary. The first is that data since end-1998 onwards are based on the latest international statistical standards (BPM6), whereas those for earlier years are drawn from Biagioli (1995) and Committeri (1999) and are therefore not fully comparable.[1] A second caveat is related to the issue of undeclared assets held abroad, which are quite significant for Italy's external statistics, especially in specific phases of the period under review. Although we focus on the "official" unadjusted NIIP, we also report the corresponding figures adjusted so as to include estimated undeclared assets. The latter are drawn from Committeri (1999) for the period 1959-1994 and from Pellegrini, Sanelli and Tosti (2016, henceforth PST), for 2001-2013; as the two sets of estimates refer to different periods and are based on very different approaches (the former using inflows of lira banknotes from foreign banks, the latter exploiting the statistical discrepancy between global assets and liabilities for securities and bank deposits and estimating the portion of assets held by Italian investors), they are not strictly comparable. The size of undeclared assets has fluctuated over time, reflecting several factors (country risk, tax laws, etc.); to give a sense of the magnitude, they were estimated to be on average around 9 per cent of GDP over the period 2001-2013.

**Figure A1 – Italy's NIIP since 1947**
(percentage of GDP)
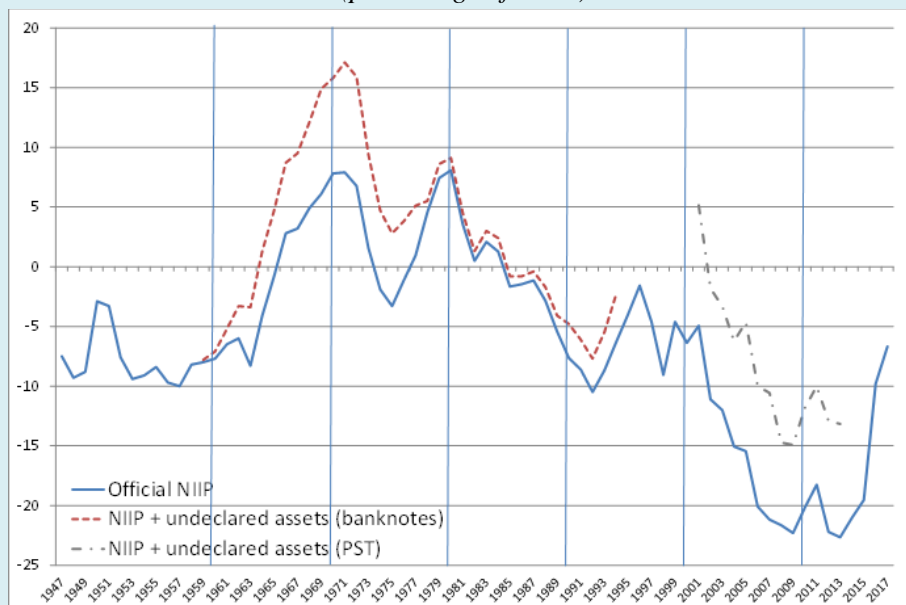
Source: Official NIIP – Committeri (1999) and Biagioli (1995) from 1947 to 1970, BPM4 data from 1970 to 1987, BPM5 data from 1988 to 1997 and BPM6 data from 1998. GDP: Committeri (1999) from 1947 to 1969, SEC95 data from 1970 to 1997, SEC2010 data from 1998 (source: Istat)."NIIP + undeclared assets (banknotes)": Committeri (1999) and Biagioli (1995). "NIIP + undeclared estimates (PST): Pellegrini et al. (2016).

In the aftermath of World War II Italy showed a negative NIIP which remained broadly stable in the range between -5 and -10 per cent of GDP till the beginning of the 1960s. Since then, it registered a constant increase reaching a positive balance amounting to about 8 per cent of GDP in 1971, thanks to the persistent current account surpluses (Figure A2). After the first oil shock in 1973-1974, which led to an all-time high current account deficit, the net position rapidly worsened, to -3.5 per cent in 1975; it turned positive again afterwards, owing to the significant depreciation of the exchange rate and to the switch into surplus of the current account balance, reaching a peak of 8.3 per cent in 1980. The second oil shock in 1979 and the appreciation of the exchange rate in the late 1980s contributed to protracted

current account deficits, which translated into a gradual but significant NIIP worsening (mainly financed by increasing net foreign liabilities of the banking sector). A trough (-10.9 per cent of GDP) was reached in 1992, when the downward trend was abruptly interrupted by the significant devaluation of the lira, with a subsequent improvement of the NIIP until -1.6 per cent in 1996.

Figure A2 – Italy's current and capital account balance since 1947[1]
(percentage of GDP)
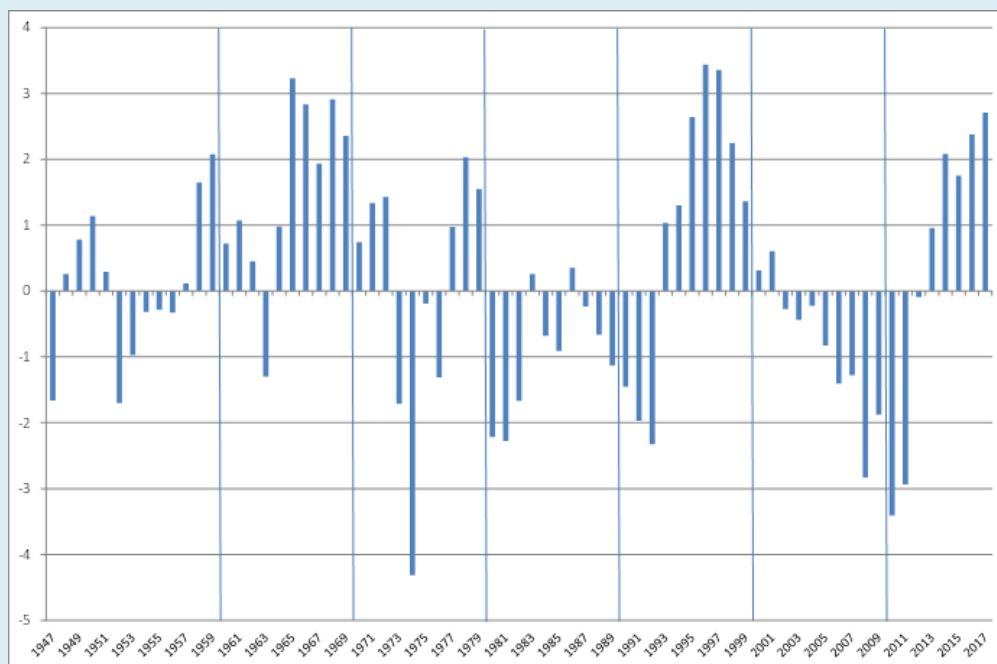
Note (1): Current account balance from 1947 to 1969, current and capital account balance since 1970.

Source. Balance of payments data: Masera (1973) from 1947 to 1969, BPM4 data from 1970 to 1987, BPM5 data from 1988 to 1997 and BPM6 data from 1998. For GDP: Baffigi (2011) from 1947 to 1969, Istat official data from 1970 (SEC95 data from 1970 to 1997, SEC2010 data since 1998).

Overall, this long-run perspective highlights two main differences between the recent dynamics of Italy's NIIP and that observed in the past. First, the interval within which the NIIP fluctuated until the late 1990s was narrower (between -10 and 10 per cent of GDP) than since 2000. This is in line with the experience recorded by other advanced economies and reflects the incomplete development of financial markets and the limitations to capital movements in the earlier period, which hindered the financing of large imbalances. Exchange rate movements, due either to flexible exchange rate systems or to the breakdown of fixed exchange rate regimes, also importantly contributed to mitigating large external creditor or debtor positions.

Second, the relationship between the dynamics of the NIIP and that of the current account balance has become considerably weaker in recent years: for instance, on a 20-year window the correlation between annual changes in NIIP and the current account balance was around 0.70 until the early 1990s and has fallen to much lower values afterwards (0.27 in 2017). This decline reflects the sharp rise of gross external assets and liabilities (also relative to GDP) since the start of the liberalization of capital flows in 1990, which amplified the role of valuation adjustments due to market price or exchange rate shifts.

(1) As highlighted in the two cited works, various estimates and assumptions were needed to derive a long time series of the external position; this reflects the fact that only starting with the 1993 IMF BPM5 manual the data related to the international investment position have been systematically included in the official international standards for external statistics.

4. The NIIP, the current account balance and valuation adjustments

The NIIP law of motion implied by the balance of payments accounting identities is the following:

$$NIIP_t = NIIP_{t-1} + FA_t + VAL_t + OTH_t \tag{1}$$

where $NIIP_t$ denotes the net international investment position at time t, FA_t the financial account balance, VAL_t the valuation adjustment (changes in prices and exchange rates) occurred between t-1 and t, and OTH_t are other non-flow changes (for example, due to changes in reporting methods and statistical reclassifications). Notice that the financial account balance is equal to the sum of the current account and capital account balances (CKA_t) and errors and omissions (EO_t). Recursively:

$$NIIP_t = NIIP_{t0} + \sum_{s=0}^{t}(CKA_s + EO_s + VAL_s + OTH_s) \tag{2}$$

Notice that if $\sum_{s=0}^{t}(EO_s + VAL_s + OTH_s)$ tend to zero for very large t (the long run), then the NIIP must be close to the sum of the initial value of the NIIP and of the cumulative current and capital account balance. Regarding the EO_s terms, it is worth to mention that statistical offices regularly monitor whether the time series average converges to zero, that being a key quality indicator for external statistics data; as for the OTH_s terms, for most countries they usually take relatively low values when compared to the other variables.

The left panel of Figure 4 compares the NIIP (blue line) with the cumulative current and capital account balances since 1999 (i.e. cumulating flows starting from the initial NIIP in 1999Q1; green line). The cumulative financial account balance, which differs from the cumulative current account balance only due to errors and omissions, is also reported (red line). A significant discrepancy between the dynamics of the NIIP and that of the cumulative current account can be observed: in contrast to the NIIP, the cumulative current account balance started deteriorating only in the mid-2000s, with an acceleration between 2009 and 2012 when the NIIP was instead fairly stable. Moreover, the improvement of the cumulative current account balance began slightly earlier (the turning point being in 2013Q1) and was more gradual than the correction of the NIIP, which accelerated in 2016. Despite such different trends, the two series ended on a very close level at the end of 2017.

The evolution of the cumulative financial account balance is broadly similar to that of the cumulative current account balance, although with an initial widening due to negative errors and omissions until late 2000s, and a subsequent closing of the gap in relation to mostly positive errors and omissions in recent years (Figure 4, left panel). Valuation and other adjustments instead explain the remaining, and more substantial, portion of the discrepancy between the NIIP and the cumulative current account balance over an extended period of time. Given the relevant role of valuation and other adjustments over the last two decades, it might be useful to analyze their developments across the various functional categories. Figure 4 (right panel) breaks down by functional category the cumulative difference between the actual NIIP and the NIIP implied by the current and capital account balances. As the distinction between valuation adjustments (VAL_t) and other non-flow changes (OTH_t) is available only from 2013, we report the overall adjustments for each functional category (for simplicity we will use the term

"valuation adjustments").[8] In the period from 1999 to 2007 valuation adjustment on the whole gave a negative contribution to the NIIP, mainly due to portfolio instruments; in particular, the fall in equity prices in 2001-2002 was more prominent on the asset side. From 2008 to 2013 the effect of valuation adjustments was instead mostly positive, particularly in 2010-11 due to the fall in government bond prices, which affected liabilities much more than assets. Another positive contribution derived by reserve assets, owing to the increase in the price of gold, while financial derivatives (government sector) had a negative valuation effect.

Figure 4 – Italy's NIIP, flows and valuation adjustments

NIIP and cumulative flows since 1999
(GDP percentage points)

Decomposition of the difference between NIIP and cumulative current and capital account balance
(EUR billion)
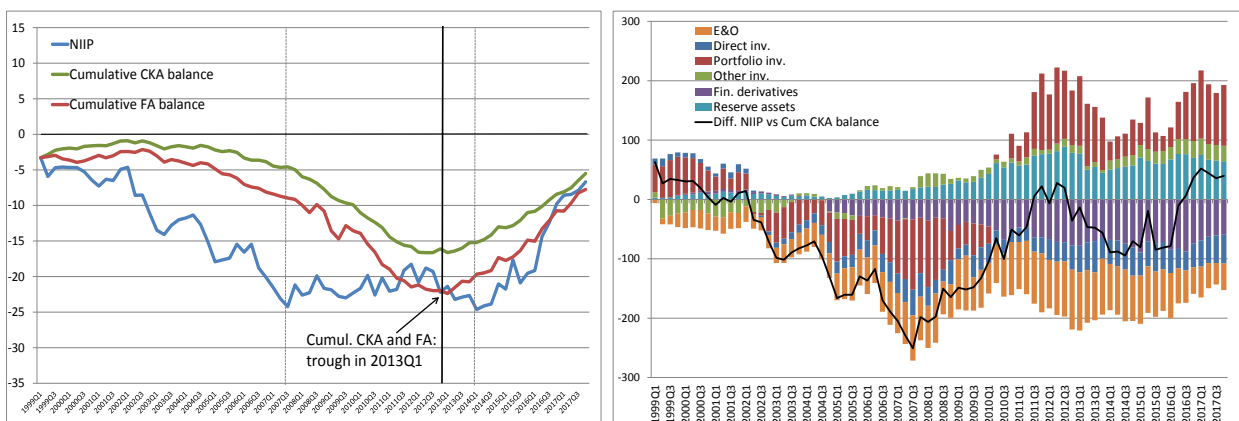
Source: Bank of Italy (Istat for GDP).

Focusing on the recent adjustment of the NIIP, between 2014 and 2017 the impact of valuation adjustments was not negligible and it varied over time (Figure 5).

Figure 5 – Decomposition of changes in NIIP: 2014-2017
(EUR billion)
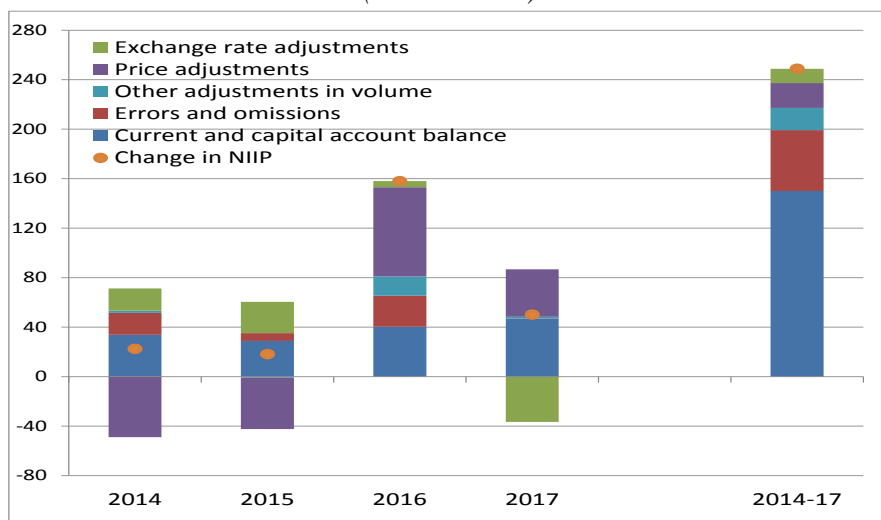
Source: Bank of Italy.

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[8] An example of other changes in volume is reported by Federico, Marocchi and Sabatini (2018), who focus on the corporate restructuring of EXOR-FCA between 2014 (Fiat-Chrysler merger) and 2016-2017 (redomiciliation of the group's main financial holdings to the Netherlands) and assess their impact on Italy's external statistics.

In 2014-2015 net valuation losses partly offset the contribution of the current and capital account surpluses, while in 2016 net valuation gains were observed; they were mainly due to an increase in the value of portfolio equity assets and to a fall in the value of portfolio liabilities (equities, especially those issued by the banking sector, and, to a lesser extent, bonds). Negative contributions came from valuation adjustments of direct investment. The contribution of valuation adjustments was more limited in 2017, with further price gains offset by exchange rates losses, owing to the depreciation of the US dollar. Overall, in the last four years the largest contribution to the increase in the NIIP came from the balance of the current and capital account (around 60 per cent), followed by the statistical discrepancy due to errors and omissions and, to a lower extent, net valuation gains and other adjustments.

Before moving to the next section, it is informative to compare the magnitude of valuation adjustments in Italy's NIIP to that recorded in other advanced economies. Figure 6 looks at a sample of 30 countries, which include euro area members and the set of advanced countries with flexible currencies used by Forbes et al. (2017); for each of them we compute the mean (left panel) and the absolute mean (right panel) of valuation adjustments over the period 2000-2016. In most countries the mean is negligible, suggesting that over a long period adjustments tend to compensate and have a small impact on the NIIP; there are however exceptions, often related to financial centers (Ireland, Luxembourg, United Kingdom, Switzerland).

Despite the tendency to cancel out over a long time period, however, valuation adjustments are quite significant on a yearly basis, as suggested by the absolute mean, which in the majority of countries is equal or larger than 5 per cent of GDP. Compared to the other economies in the sample, Italy displays a smaller relevance of valuation adjustments on GDP, owing to both lower external assets and liabilities as a proportion of GDP and to a much larger share of assets and liabilities denominated in the domestic currency.

Figure 6 – Ratio of valuation adjustments to GDP (1999-2016)
(percentage of GDP)
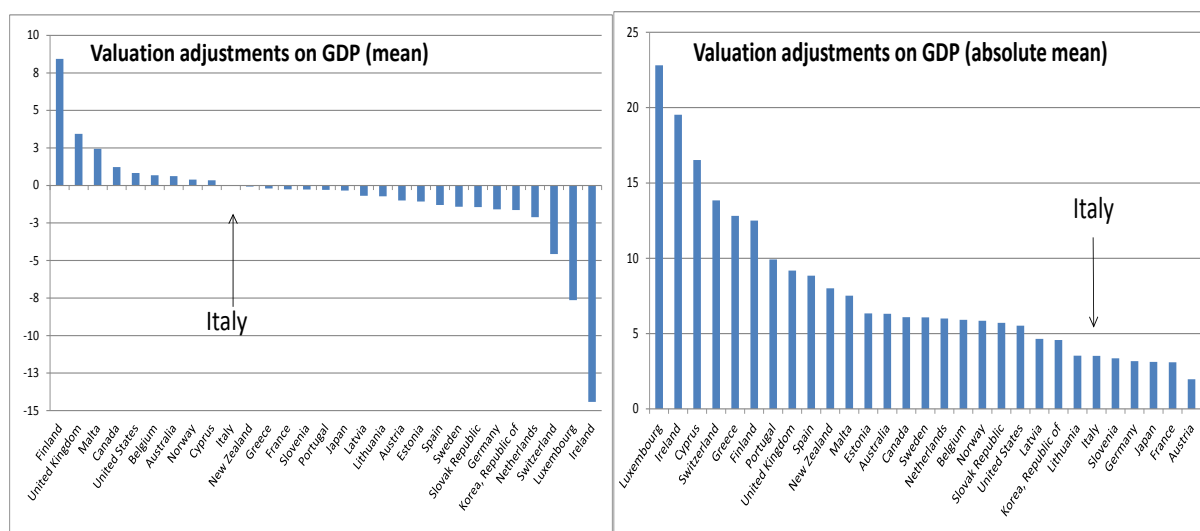
Source: IMF, Lane and Milesi-Ferretti (2018).

5. Baseline projection for the NIIP

With a view to assessing the likely path of Italy's NIIP in the medium term, we follow Zorell (2017) and report the results of a projection exercise, based on the IMF forecasts for the current account balance and nominal GDP growth (published in the April 2018 edition of the World Economic Outlook, henceforth WEO). Recalling equation (1) and assuming that EO_t and OTH_t cancel out over the forecast horizon, the equation rewrites as follows (where small letters indicate variables in GDP terms):

$$niip_t = niip_{t-1}\left(\frac{1+v_t}{1+g_t}\right) + ca_t \qquad (3)$$

where g_t is the growth rate of nominal GDP and v_t is the rate of capital gains. We impose the further assumption that v_t is zero, in line with Zorell (2017), so that the only innovations in $niip_t$ are given by the current account balance (relative to GDP) and by nominal GDP growth (which contributes to reducing the ratio of net foreign liabilities to GDP). The assumption of no valuation gains can be justified by two arguments: they tend to even out for most countries (at least in the long run; see figure 7) and their contribution would be in any case difficult to fully anticipate (given for example that asset prices and exchange rates movements are known to be hard to predict). We will relax this assumption in the following section. Evidently, this simple projection does not consider feedback effects of the NIIP on the current account balance itself (for instance via the income account) and on other relevant variables except for those already embedded in the current account balance forecasts.

Figure 7 reports the WEO-based projection (red dotted line) until 2023 (the latest year for which WEO forecasts are currently available). It points to a gradual increase over the medium term in Italy's net external position: the NIIP is indeed expected to turn positive in 2020, reaching 4 per cent of GDP at the end of 2023. This development reflects the relatively persistent current account surplus, which is projected to amount to 1.8 per cent of GDP on average over 2018-2023 (although with a gradual decrease until 0.9 per cent in the final year of the projection).[9]

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[9] The WEO-based projection is consistent with the one available, although for a more limited time horizon (until 2020), in the Bank of Italy Quarterly Model (BIQM) as published in the January 2018 edition of the Bank of Italy Economic Bulletin. The BIQM directly estimates both the future path of the NIIP and of gross external liabilities and that of the NIIP, while gross external assets are residually derived using the identity of the NIIP (Bulligan et al. 2017). Specifically, the NIIP forecast takes into account the cumulated sum of the predicted current account balances as well as valuation adjustments due to exchange rate movements; the latter channel is however usually "shut down" in the baseline forecasting exercise, as exchange rates are assumed to be constant over the projection horizon. Valuation adjustments due to other market price changes are instead not explicitly considered in the NIIP equation. Gross external liabilities are directly estimated as a function of a set of financial and real variables. In contrast to our WEO-based projection exercise, by estimating gross external positions the BIQM allows them to have an indirect impact on the NIIP projection as they contribute to the current account balances via the investment income item.

Figure 7 – Baseline projection for Italy's NIIP

(percentage of GDP)
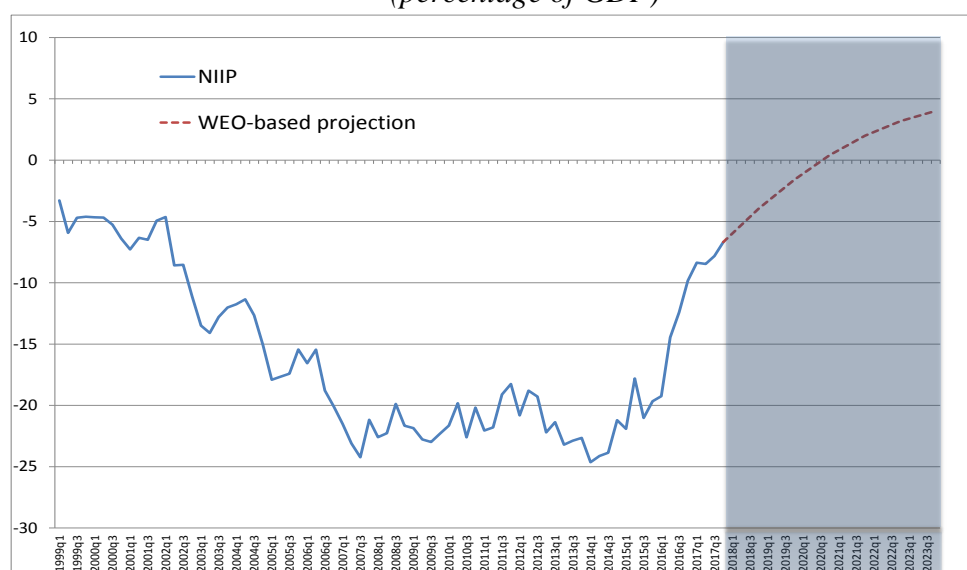
Source: authors' calculations based on Bank of Italy, Istat and IMF (WEO – April 2018).

Table 2 reports projections for the other main euro area countries' NIIP, based on the latest WEO forecasts of the current account balance and of nominal GDP growth. The creditor position of Germany is expected to increase from 59 to more than 90 per cent of GDP between 2017 and 2023, reflecting its very large current account surpluses. The external position of France is instead projected to remain unchanged at -20 per cent, as modest current account deficits are offset by the effect of nominal GDP growth. Spain is expected to record a significant contraction of its net foreign liabilities, which would however remain still high in relation to GDP (55 per cent in 2023). While displaying a similar current account surplus, Spain is projected to increase its external position by a significantly larger amount than Italy (25 percentage points of GDP versus 11), owing to the faster growth rate of nominal GDP. Overall, these projections suggest that, in contrast to Italy's balanced NIIP, large external stock imbalances in some of the other main euro area countries are likely to persist over the medium term.

Table 2 – Projections for the main euro area countries' NIIP

(percentage of GDP)

	Italy	France	Germany	Spain
NIIP at end-2017	-6.7	-20.2	59.1	-80.8
NIIP at end-2023 (projection)	4.0	-19.8	91.1	-55.4
memo: current account balance (avg. 2018-2023)	*1.8*	*-0.6*	*8.0*	*1.7*
memo: nominal GDP growth (avg. 2018-2023)	*2.4*	*3.3*	*3.8*	*3.8*

Source: authors' calculations based on IMF (WEO – April 2018) and ECB.

6. Sensitivity of valuation adjustments to hypothetical changes in market prices

Our baseline projection is based on the assumption that valuation adjustments are either negligible or will cancel out over the forecast horizon. However, the evidence reported in Section 4 clearly suggests that while this may be regarded as a reasonable simplifying assumption over a long time span, valuation adjustments do matter in the short-medium term, as highlighted by the significant divergence between Italy's NIIP and its cumulated current account balance over more than a decade. We therefore reconsider the assumption of no valuation adjustments and move to a "scenario analysis" in which we assess the impact that hypothetical, one-off movements in market prices would have on the NIIP through the channel of valuation adjustments.

We take into account three categories of shocks: exchange rates, equity prices and bond prices. For equity and bond prices, we consider both a "global risk shock" (where shifts in prices apply similarly to all countries) and a "domestic risk shock" (where only prices of assets issued in Italy are affected), in line with Forbes et al. (2017).

Two main caveats apply to our scenario analysis. The first is that it is a partial equilibrium exercise. This is justified by our goal, which is neither to forecast future valuation adjustments nor to forecast the underlying shifts in security prices and exchange rates. Our analysis aims instead to estimate the likely order of magnitude of the impact of each shock on valuation adjustments, on the basis of hard data on the composition of Italy's external assets and liabilities. The second caveat is that, while shifts in exchange rates, equity or bond prices are typically correlated[10] (Lane and Shambaugh 2010a), we ignore such correlations and examine the sensitivity of valuation adjustment to each type of shock separately.

Before moving to the scenario exercise, we first need to address a peculiar feature of Italy's portfolio investment which is especially relevant for our analysis, i.e. its large positions in foreign investment funds. At the end of 2017 this financial category accounted for more than half of total foreign portfolio assets, by far the highest value among all EU countries. Large cross-border positions in investment funds add layers of opacity to the composition of a country's external assets, thus hindering the analysis of the country's exposure to specific external shocks (Felettigh and Monti 2008). To remove this statistical veil, we draw from the results in Della Corte, Federico and Felettigh (2018), who estimate the "ultimate" composition, by instrument and by issuer country, of Italy's portfolio assets after "looking through" cross-border positions in investment funds.

Exchange rates – The first scenario exercise looks at exchange rate movements. In general, the valuation impact on a country's net external position of a shift in the bilateral exchange rate with country *j* can be simply calculated as the country's net position in the currency issued by *j* times the percentage change in the bilateral exchange rates. Therefore, the net foreign currency position (NETFX) of a country's external financial position provides a synthetic measure of its

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[10] In the Italian case, over the period from 2008Q4 to 2017Q4 there was a slightly negative correlation (-0.19) between revaluations due to exchange rates and revaluations due to other price movements.

overall quantitative exposure to a uniform shift in the value of the domestic currency against all foreign currencies (Lane and Shambaugh 2010a, 2010b).[11]

According to Bank of Italy data on the currency composition of Italy's IIP, 74 per cent of the country's external assets and 94 per cent of the liabilities are denominated in euro at the end of 2017[12] (Table 3; for a more detailed breakdown by currency and functional category, see Appendix A2, Table A2.1). The larger share of foreign currencies on the asset side translates into a net long foreign currency position, amounting to 29.5 per cent of GDP (see Box B for an overview of recent trends). The net position in US dollars amounted for about half of the NETFX at the end of 2017 and for this reason, the movements in the USD/EUR exchange rate are those which matter the most.

In our scenario, we assume a 20 per cent appreciation of the euro against all partner currencies, relative to the exchange rate at end-2017.[13] Given Italy's net foreign currency exposure this shock implies negative valuation adjustments to Italy's NIIP by 5.9 per cent of GDP. While an exchange rate shock has an immediate and mechanical impact on the NIIP via valuation adjustments, it is worth recalling that it will also have an effect via the current account balance. According to the BIQM a 20 per cent sustained appreciation of the euro exchange rates versus all currencies would lower the current account balance by up to 1.5 percentage points of GDP after 5 years, relative to the baseline (Bulligan et al. 2017), with a yearly average decrease of some 0.7 percentage points of GDP. The two effects (via the current account balance and via valuation adjustments) would thus cumulate in lowering the path of the NIIP.

Table 3 – Currency composition of Italy's external assets and liabilities at end-2017 (1)
(percentage values and percentage of GDP)

| | % composition | | % of GDP | | |
	Assets	Liabilities	Assets	Liabilities	Net position
Euro	74.5	94.3	113.1	154.2	-41.1
US Dollar	14.2	4.2	21.5	6.9	14.6
British Pound	2.3	0.8	3.5	1.3	2.2
Yen	0.7	0.1	1.0	0.2	0.8
Renminbi	0.4	0.0	0.6	0.1	0.5
Other currencies	8.0	0.5	12.2	0.8	11.4
Total (2)	100.0	100.0	153.0	164.7	-11.7
of which: total foreign currency	25.5	5.7	38.7	9.3	29.5
memo : Total IIP (including gold)	-	-	156.8	163.5	-6.7

Source: Bank of Italy. Notes (1): IIP data for the end of 2017 are still provisional. (2) Excluding gold.

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[11] The main limitations of this synthetic measure are that currency positions held by residents via the intermediation of foreign affiliates are not included and that, conversely, currency positions held by foreign-owned affiliates are included even if the ultimate owner (who bears the risks of a given position) is non-resident (McGuire and von Peter 2012).

[12] Based on provisional data for the end of 2017.

[13] This scenario is far from unrealistic, also considering that various episodes of appreciations of the euro relative to the US dollar of a similar order of magnitude have been recorded (for instance, in 2002-2003, 2008-2009 and more recently in 2017-2018). Our scenario is also consistent with a sensitivity analysis in the March 2018 ECB staff macroeconomic projections for the euro area (ECB 2018), which assumes a further strengthening of the exchange rate of the euro up to USD 1.42 per euro in 2020 (about 15 per cent above the baseline assumption for that year).

Box B. Trends in Italy's net foreign currency position

Italy's net foreign currency position (NETFX), which was roughly balanced in 2000 and was still limited (around 5 per cent of GDP) in 2008, has since increased by more than 20 percentage points of GDP (Figure B). This tendency is not an Italian peculiarity: Bénétrix et al. (2015) show that, as a result of the rapid growth in their external balance sheets, the net foreign currency exposure climbed for advanced economies in general. Given these larger net foreign currency positions, the valuation effect of shifts in exchange rates on the NIIP is significantly larger than it used to be in the past.

Figure B – Italy's net foreign currency position
(percentage of GDP)
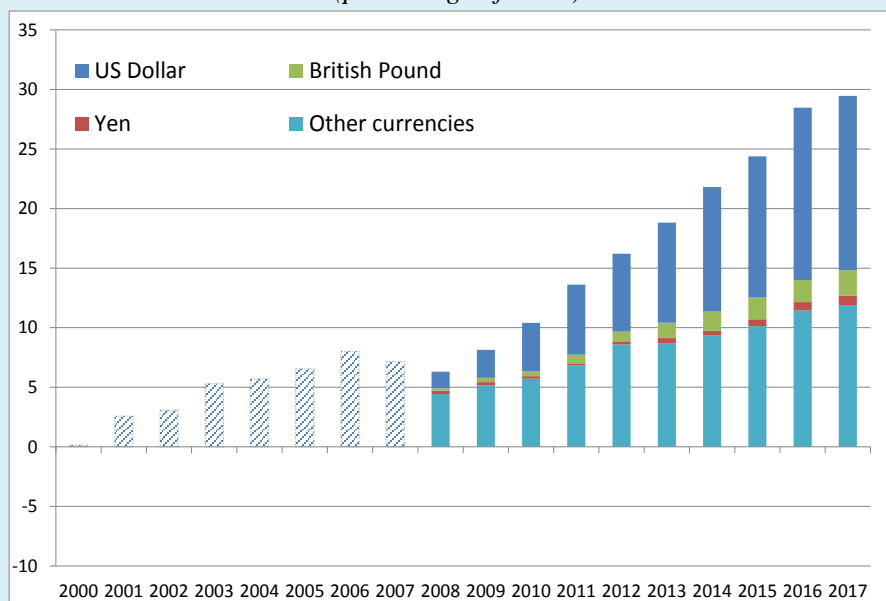
Source: Bank of Italy for 2008-2016 (Istat for GDP); Bénétrix et al. (2015) for 2000-2008.
Notes: (1) data for 2017 are provisional.

A major factor behind the increase in Italy's NETFX is the accumulation of assets denominated in foreign currency (from 17.2 per cent to 38.7 percent of GDP between 2008 and 2017), while liabilities denominated in foreign currency declined only slightly as a share of GDP. By far the largest contribution came from the net position in US dollars, which rose from 1.4 to 14.6 per cent of GDP. Another important contribution to the NETFX derived from the position in non-reserve currencies which reached 11.4 per cent of GDP at the end of 2017 (Table 3), almost entirely driven by FDI outflows toward selected extra-EU countries.

The increase in the net long USD position since 2008 is largely explained by the accumulation of portfolio assets, especially investment funds (from 1.1 percent to 7.2 per cent of GDP[2]) and debt securities (from 1.7 to 4.8 per cent). Smaller contributions came from "other investment" (owing to the increased USD-denominated assets held by banks) and from FDI.

(1) Bank of Italy data on the currency composition of Italy's IIP are available starting from 2008. For earlier years, Figure B reports estimates by Bénétrix et al. (2015); the two series yield very similar values for the period in which they are both available (2008-2012), with the mean absolute difference being less than one per cent of GDP.

(2) We consider here the currency of denomination of the investment fund. Because euro-denominated investment funds also purchase USD denominated securities (and viceversa), this may hide a larger exposure to USD currency. We do not explore this difference here.

Equity prices – The second scenario we consider for our sensitivity analysis of the NIIP projection is based on a shock to equity prices. This exercise is motivated by the historically high valuations reached by some of the main stock markets in the world. Specifically, we consider two alternative types of shocks: first, a "global shock", with a 30 per cent fall in listed equity prices worldwide; second, a purely "domestic shock", in which only domestic companies suffer a 30 per cent loss in their market capitalization. The magnitude of these shocks is roughly comparable with that of previous stock market crashes (e.g. in 2001-2002, in 2008, and, for Italy, 2011). It is also very close to the scenario used for the latest EU-wide banking sector stress test, which assumes declines in equity prices by around 30 per cent in the euro area and 40 per cent in the United States (ESRB 2018).

To assess the impact of a shock to equity prices on Italy's valuation adjustments, we build a measure of the country's overall net position in listed equity at the end of 2017. On the asset side, this measure is the sum of three items: a) foreign listed equity directly held as portfolio investment (e.g. shares of a foreign company held by a portfolio investor); b) foreign listed equity held as direct investment (e.g. shares of a foreign affiliate that is listed on the stock market); c) the indirect exposure to foreign listed equity due to holdings of foreign investment funds (corresponding to roughly one third of foreign funds' total assets; Della Corte et al., 2018). Notice that, for a country with large holdings of foreign investment fund shares, ignoring the third component (which weighs more than double the first two items combined) would lead to a significant underestimate of the actual exposure of Italian investors to foreign stock markets. A similar calculation is made on the liabilities side, although in this case the third component is negligible.

As a result of a 30 per cent fall in global equity prices, we estimate negative valuation adjustments of 1.7 percentage points of GDP (Table 4). This reflects a net long equity position of Italy vis-à-vis the rest of the world, which amounted to 6.8 per cent of GDP at the end of 2017. Conversely, a fall in equity prices limited to the domestic market would imply a positive valuation adjustment of about 4.8 percentage points of GDP, due to the fall in the value of Italy's equity liabilities vis-à-vis the rest of the world.

Table 4 – Impact on valuation adjustments of a 30 per cent fall in equity prices (1)
(percentage points of GDP)

	Assets	Liabilities	Net
Global shock	-6.6	-4.9	-1.7
Domestic shock	-0.1*	-4.9	4.8
memo: positions	21.9	15.1	6.8

Source: authors' calculations based on Bank of Italy IIP data, Datastream and Della Corte et al. (2018). Notes: (1) The impact on cross-border positions in financial derivatives is not considered. (*) Due to investment in Italian equity shares via foreign investment funds.

Bond prices – The third market scenario that we consider is related to a shock to bond prices. In particular, we estimate the valuation adjustment impact via bond prices of three types of interest rate shocks: a "global yield shock", which we define as an upward shift by 100 basis points of the yield curve worldwide; a "euro area yield shock" in which the shift is limited to euro area bonds; a "domestic yield shock" in which only domestic bonds are affected, with no changes in foreign bond prices.

Although these scenarios are meant to be only illustrative, movements of this magnitude are largely justified by the recent past. In fact, they are even rather mild when compared to the abrupt shifts in the term structure observed during the global financial crisis and during the euro area sovereign debt crisis. Rising yields of this scale are also consistent with a scenario of gradual monetary policy normalization worldwide and with the adverse macro-financial scenario for the 2018 EU-wide banking sector stress test (ESRB 2018), which considers an increase in long-term rates over 2018-2019 of a comparable magnitude in the euro area.[14]

An assessment of the valuation adjustments due to yield changes is more complex than for equities as we first need to map shifts in the yield curve to changes in bond prices. This mapping is done applying the *duration/convexity* approach[15,16], which uses the following approximation:

$$\Delta P_\% = (-MD)(\Delta y) + \frac{CV}{2}(\Delta y)^2 \qquad [2]$$

where: $\Delta P_\%$ is the percentage change in the bond value; Δy is the change in yields we considered (i.e. 1 per cent in our case); MD is the *modified duration* of the bond; CV is the *convexity measure* of the bond.

Ideally we would compute the duration and convexity of each foreign bond held by Italian investors (and each Italian bond held by foreigners) and then derive the total valuation adjustment as the product of the value of each bond position and the corresponding price change. This is unfeasible in practice, as it would require detailed data on each security position; we thus use, as an alternative, data on the composition by maturity, issuer country and issuer sector of debt securities in portfolio assets and liabilities at the end of 2017 (e.g. debt securities issued by the U.S. public sector in the maturity bracket 5-7 years). To each of these positions we assign the modified duration and convexity measure values of a bond index tracking the

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[14] The adverse scenario assumes instead a much swifter increase for US bonds in 2018, which would be however largely offset in the following two years.

[15] See Fabozzi (2005). The *duration* (and the related concept of modified duration) provides a first (linear) approximation of the percentage price change of a bond (or a portfolio of bonds) to a small level shift in the yield curve. The duration can be interpreted as the maturity (in numbers of years) of a zero coupon bond with the same price sensitivity to yields. The approximation can be improved using the *convexity* measure of the bond, which summarizes the curvature of the price/yield relationship.

[16] A simpler type of approach would be using past data on debt securities valuation adjustments and yield rates to come out with an elasticity of the former variable to the latter. However, the reliability of this approach requires the maturity structure of the cross-border portfolio of debt to remain stable over time, which is disputable. For instance, the average residual maturity of Italy's total government debt securities held by non-residents decreased from about 9 years at the end of 2008 to 6 years at the end of 2017.

corresponding market segment (in our example U.S. government bonds) and maturity horizon (5-7 years), and we assume the two to be close to each other.[17]

As we have done for the exercise on equity prices, we also consider the indirect exposure to debt instruments via foreign investment funds purchased by resident investors. The size of this indirect exposure is quite large, accounting for almost half of the overall bond exposure.[18] Given the higher degree of uncertainty of the estimates for this component,[19] we report them separately in Table 5.

Following this approach, the impact of a generalized worldwide 100 basis points upward shift in interest rates (relative to the levels at the end of 2017) would translate in a relatively mild negative valuation adjustment: the decrease in the value of the asset side would be only slightly larger than that on the liabilities side (-3.3 and -2.9 percentage points of GDP, respectively). In case of a shock in the yield curve limited to euro area bonds, the valuation adjustments would instead be positive by about 1.2 percentage points of GDP, as on the asset side only euro area bonds would record a fall in prices. Notice that having included the impact via foreign investment funds is key to both these two results; had we considered only the exposure through direct holdings of global bonds, the valuation adjustments would have been positive by more than one percentage point of GDP in the first case, while only half a point in the second case.

The last case we consider is the one in which only Italian debt liabilities are hit by a uniform shock in the yield curve. This would determine a positive valuation adjustment of 2.9 percentage points of GDP, 2.0 of which due to the loss in the market value of government debt securities[20]. On the face of it, this result may seem counter-intuitive as it points toward an increase in the NIIP precisely under an adverse scenario. In fact, this is a typical example of the apparent stabilizing role of valuation adjustments, and it is precisely what happened in 2011 during the sovereign debt crisis, when Italian NIIP improved despite a deficit in the current account balance. Of course, as debt reimbursements will still have to be met in full, increases in the NIIP as such are by no means indications of a reduction in the country's debt burden; in fact, the rolling-over of maturing debt will weigh negatively on the investment income balance.

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[17] Data on bond indexes are from Datastream and are related to market conditions prevailing at the end of 2017. Whenever the convexity and the yield-to-redemption (needed to derive the modified duration) of the relevant bond index are not available, we only use the duration.

[18] Specifically, we start from the "ultimate" issuer country of destination estimated as in Della Corte et al. (2018), which we further break down as follows: the issuer sector composition (for each issuer country) is assumed to be the same as the bond holdings by Luxembourg investment funds (which account for about three quarters of the whole cross-border investment funds held by Italian residents); the maturity composition of each country-sector is assumed to be the same of the corresponding investment by Italian investment funds.

[19] Another caveat is due to the fact that about a quarter of the foreign investment funds held by Italian investors have a flexible mandate in terms of their allocation between debt and equity securities ("flexible funds"). Therefore, the overall size of valuation adjustments due to foreign investment funds may be overestimated if flexible funds quickly scale down their allocation to debt in response to signs of rising yields. Results in Della Corte et al. (2018), however, suggest that the allocation by this type of funds, on the whole, remained fairly stable from 2009 onwards, even in a context of rapidly changing yields.

[20] We also assumed a more dramatic upward shift in the yields of domestic bonds (+300 basis points). Under this severe scenario, the revaluation gains would amount to about 8 percentage points of GDP, of which little less than 6 due to government debt securities. Being based on a Taylor approximation, our method might be less reliable in case of large shifts in the yield curve. The exercise was carried out using data on positions and market conditions at the end of 2017, so it does not take into account the significant market developments recorded at the end of May 2018.

Table 5 – Impact on valuation adjustments of a 100 bp interest rate shock (1)

(percentage points of GDP)

	Assets		Liabilities		Net
	Total	*of which:* via foreign inv.funds	Total	*of which:* gov. debt	
Global shock	-3.3	*-1.6*	-2.9	*-2.0*	-0.4
Euro area shock	-1.7	*-0.6*	-2.9	*-2.0*	1.2
Domestic shock	-0.1*	*-0.1**	-2.9	*-2.0*	2.9
Memo: positions	*61.9*	*30.4*	*60.9*	*43.7*	*1.0*

Source: authors' calculations based on Bank of Italy IIP data, investment funds statistics from Banque Centrale du Luxembourg, Datastream at the end of 2017 and results in Della Corte et al. (2018). Notes: (1) The impact on cross-border positions in financial derivatives is not considered. (*) Due to investment in Italian debt securities via foreign investment funds.

These estimates only consider portfolio investment positions in debt instruments. However, external positions in financial derivatives could also have a significant impact on the NIIP via valuation adjustments under these different scenarios. It is especially relevant to note here that the Italian public sector holds a sizable net position in financial derivative vis-à-vis the rest of the world. With a negative net market value of about 2 percentage point of GDP at the end of 2017, the public sector accounts for more than half of the net (negative) position in financial derivatives of the country. The exact impact of interest rate shocks on the market value of financial derivatives between the government and foreign counterparts is difficult to assess, but it is possible nonetheless to draw inference on the likely direction. Most of these contracts were indeed entered to hedge against interest rate risk arising from the need to roll-over government debt;[21] therefore, the market value of these contracts will co-move with the market value of government debt liabilities.[22] The correlation coefficient between the valuation adjustments of the two types of liabilities is indeed very high (about 0.85 for 2013Q1-2017Q4). Financial derivatives held by the government will therefore lead to an improvement in the NIIP in case of an interest rate upward movement, while partially offsetting the negative impact of the latter on the investment income balance.

The impact of different shocks: a recap – Table 6 provides a summary of the impact on Italy's NIIP, via valuation adjustments, of the various alternative scenarios. An appreciation of the euro would have a significantly negative impact on the NIIP: not only it would be a brake on the current account, but it would also bring about substantial valuation losses due to residents'

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21 Data made publicly available from the Treasury indicates that at the end of 2017 over 90 per cent of these contracts served such purpose:
http://www.dt.tesoro.it/export/sites/sitodt/modules/documenti_en/debito_pubblico/dati_statistici/Financial_derivatives_IV_quarter_2017.pdf

[22] To see this, let us assume that interest rates go up. As already seen, this depresses the value of government liabilities and determines valuation gains in the portfolio account. But the market value of financial derivatives held by the government, which is currently negative, will increase, leading to additional positive valuation adjustments.

net long position in foreign currency. Because of the combination of these two effects, this scenario appears to be the one more likely to endanger the Italian IIP current trajectory.

The impact of a negative shock to market prices of securities crucially depends on whether the shock is a global or purely domestic one. In the former case, the net impact is negative, although very mild, given the roughly balanced positions in debt and equity. In the latter case, the impact would be positive (as a shock to the price of domestic securities depresses the market value of Italy's external liabilities) and quantitatively more significant. It would become even more sizeable in case of a combined shock to the domestic equity and bond markets, as often happens following an increase in a risk-off scenario.

Table 6 – Impact on NIIP, via valuation adjustments, of alternative scenarios (1)
(percentage points of GDP)

Scenarios	Impact on Italian NIIP		
	Global shock	Euro-area shock	Domestic shock
1° Scenario: 20% appreciation of the euro	-5.9	n.a.	n.a.
2° Scenario: 30% fall in equity prices	-1.7	n.a.	4.8
3° Scenario: 100 bp increase in the yield curve	-0.4	1.2	2.9

Source: authors' calculations based on Bank of Italy IIP data, investment funds statistics from Banque Centrale du Luxembourg, Datastream at the end of 2017 and results in Della Corte et al. (2018). Notes: (1) The exercise only considers the one-off impact on NIIP via valuation adjustments; the impact on cross-border positions in financial derivatives is not considered.

7. Concluding remarks

This paper discusses the case of an (almost complete) adjustment of a country's external stock imbalance. After reaching a trough of about -25 per cent of GDP, since 2014 Italy's NIIP has shown a remarkable improvement. Given the latest forecasts of the current account balance and assuming no valuation adjustments, it is expected to turn positive in 2020. Risks to the NIIP are, by definition, closely correlated with the risks to the current account balance, such as an appreciation of the exchange rate, an adverse shock to commodity prices, or higher interest rates on the country's liabilities.

While a comprehensive assessment of such risks is beyond the scope of this paper, our analysis points to the role of valuation adjustments as a further factor, other than the current account balance, which contributes to determine the path of the NIIP. To this end, we assess the sensitivity of the NIIP, via the channel of valuation adjustments, to possible (although not necessarily likely) scenarios with adverse shocks to exchange rates, to equity prices and to interest rates.

Among the set of market scenarios that we have considered, the main risk seems to be associated with a sizeable appreciation of the euro. This would not only worsen the current account balance via the usual channels of the trade and investment income balances, but would also simultaneously imply significant valuation losses to Italy's NIIP. We estimate that a 20 per cent appreciation of the euro against all other currencies would bring about negative valuation adjustments on Italy's external position by about 6 percentage points of GDP. The sensitivity of

the NIIP to the exchange rate has significantly increased in the last decade, mainly reflecting the accumulation of portfolio assets denominated in US dollars.

A more limited impact on the NIIP, at least via the valuation adjustments channel, is associated instead with two other market scenarios, i.e. a fall in global equity prices and an upward shift in interest rates. Regarding the latter scenario, we have pointed out a significant change in the country's external balance sheet: while Italy traditionally recorded a short position in debt instruments (as many advanced economies), the recent large purchases of portfolio assets have led to an almost balanced position in portfolio debt securities (once debt securities held indirectly via investment fund vehicles are taken into account), thus muting the impact of symmetric (i.e. global) shocks to interest rates on the NIIP. Clearly, the effects of shocks to interest rates may be significant for the income balance and especially for certain institutional sectors characterized by a large short position in debt instruments.

Overall, even in a scenario characterized by a combination of adverse shocks, in the medium term the NIIP is likely to remain at some distance from the thresholds that are usually associated with the risk of external crisis.

At a more general level of discussion, despite the clear recent improvement in Italy's NIIP, two sources of concern can however still be identified. First, a balanced NIIP might not necessarily coincide with the medium-term "equilibrium" value consistent with fundamentals: for example, according to some views a country with unfavorable demographic trends and low growth prospects such as Italy might need to accumulate a creditor position over time, with a view to forming a stock of external assets from which to draw income in the future (IMF 2017). It should be observed, however, that an assessment of "equilibrium" values for the external position is fraught with uncertainty.

A second issue is related to the recent divergence in the external positions of the various institutional sectors. Specifically, the increase in the NIIP was concentrated in the private sector, while the government's net external liabilities remained high and an increase in the Bank of Italy's intra-Eurosystem liabilities has also been observed. These developments are to some extent related to the implementation of monetary policy in the euro area (i.e. the large-scale asset program and its portfolio rebalancing effects). As TARGET2 balances are an essential part of the functioning of a monetary union, this phenomenon reveals positive side effects of monetary policy to the adjustment of "stock imbalances" in the euro area. At the same time, a combination of private assets and public liabilities might not be always desirable from a policy perspective.

Finally, Italy's almost balanced NIIP looks more like an exception than the rule among euro area countries. For example, the debtor position of Spain is projected to only gradually decrease over the next five years, remaining high at the end of the forecast horizon (55 per cent of GDP), while the creditor position of Germany is expected to increase above 90 per cent of GDP. While Italy's external position is comparatively reassuring, the persistence of large external imbalances within the euro area, together with an increased concentration of imbalances in few systemic economies at the global level, might raise the risk of disruptive adjustments.

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Appendix

A1 - Recent revisions of Italy's IIP statistics

Three important revisions have affected the statistics underlying Italy's international investment position in the last few years.[1]

The first relates to the <u>treatment of cross-border movements of euro banknotes</u>. Euro banknotes in circulation are claims of the economic agent who holds them and liabilities of the Eurosystem (ECB and all the euro area national central banks, NCBs). Until 2015 euro banknotes in circulation were neutral from the point of view of NIIP. Following a methodological change that was agreed in 2015, two new items were included in external statistics: the NCB's claims (liabilities) vis-à-vis the Eurosystem related to the allocation of euro banknotes, and the value of currency in the hands of residents in excess of the country's NCB capital key allocation. The methodological change was implemented in September 2015 and the time series involved were revised backwards until 2002 (the year in which euro banknotes were introduced). The inclusion of positions related to the allocation of euro banknotes led to an increase in Italy's NIIP at the end of 2014 by €32 billion.[2] The new statistical treatment of cross-border movements of euro banknotes had a significant impact also in other euro area countries' IIP statistics.[3]

The second revision derived from the reporting of previously undeclared foreign assets under the <u>voluntary disclosure</u> (VD) scheme introduced by Law 186/2014. The scheme allowed Italian resident taxpayers (natural persons, simple partnerships and non-commercial undertakings) to declare, between January and November 2015, any unreported foreign financial and non-financial assets (property, etc.) held either directly or through trusts or other agencies at the end of 2013. Such assets were included in external statistics in September 2016 and the time series were revised backwards up to 1999.[4] The inclusion of the emerged foreign assets led to an improvement of Italy's NIIP from €4.2 billion in 1999 to €51.0 billion at the end of 2014, owing also to valuation effects. The estimated amount of previously undeclared assets held abroad fell to €45.0 billion at the end of 2015 as a result of the repatriation of part of them. A second edition of the voluntary disclosure scheme was carried out in 2017, although it involved significantly lower assets (less than €5 billion); they will be included in IIP statistics in September 2018.

The third revision was due to an update of the estimation of <u>foreign mutual funds held by Italian investors and in custody abroad</u>. In contrast to assets held with domestic custodians, for which detailed statistical reports are regularly collected, the information on foreign funds in custody abroad is much scarcer, thus requiring an estimation approach. Before the revision, the latter was

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[1] For an overview of previous revisions to IIP statistics, see Cappariello et al. (2012).

[2] Notice that in the absence of cross-border movements of euro banknotes the inclusion of such methodological revision would be neutral from the point of view of NIIP, because the NCB liabilities vis-à-vis the Eurosystem would be exactly offset by claims toward the Eurosystem by residents.

[3] For instance, in Germany it implied a downward revision of the NIIP by €357 billion (Bundesbank 2015).

[4] Unlike the previous tax shields of 2001-2003 and 2009-2010, the VD scheme was based on direct reporting of taxpayers to the tax authority, without the intermediation of financial intermediaries. As a consequence, the information available for statistical purposes was much more limited and a number of assumptions were needed in order to revise the IIP statistics: for instance, information on the value of non-financial assets (personal property, jewelry, paintings), which were included among the instruments in the VD scheme but are not to be considered for the IIP statistics, and on the distribution by type of financial assets was not available and had to be estimated on the basis of the previous tax shield. For further details, see Bank of Italy (2016).

based on an *ad hoc* survey conducted in 2009 among several fund managers, with reference to end-2008 positions. Thanks to a new survey conducted in 2016 and to data published by Assogestioni on foreign mutual fund shares placed on the Italian market, updated estimates became available, suggesting an increasing share of foreign funds in custody abroad in recent years.[5] These assets were included in external statistics as of September 2017 and the time series were revised backwards up to 2009 (the first year not covered by the previous survey). The revision led to an increase (about €68 billion at the end of 2016) of foreign mutual fund shares held by residents and to a corresponding improvement of Italy's NIIP.

The quantitative impact of the three revisions (until the respective year of introduction) is reported in Figure A1.1. The voluntary disclosure since 1999 and the new treatment of euro banknotes since 2002 determined a gradually increasing contribution to Italy's NIIP: their combined effect amounted to more than 5 percentage points of GDP at the end of 2014. The impact of the revised estimate of foreign funds in custody abroad, concentrated in a shorter period of time (since 2010), amounted to 4 percentage points of GDP in 2016. Figure A1.2 reports the NIIP before revisions (i.e. the figures that were available in September 2015, right before the first of the three revisions) as compared to the revised time series.

Figure A1.1 – Impact of recent revisions on Italy's NIIP
(percentage of GDP)
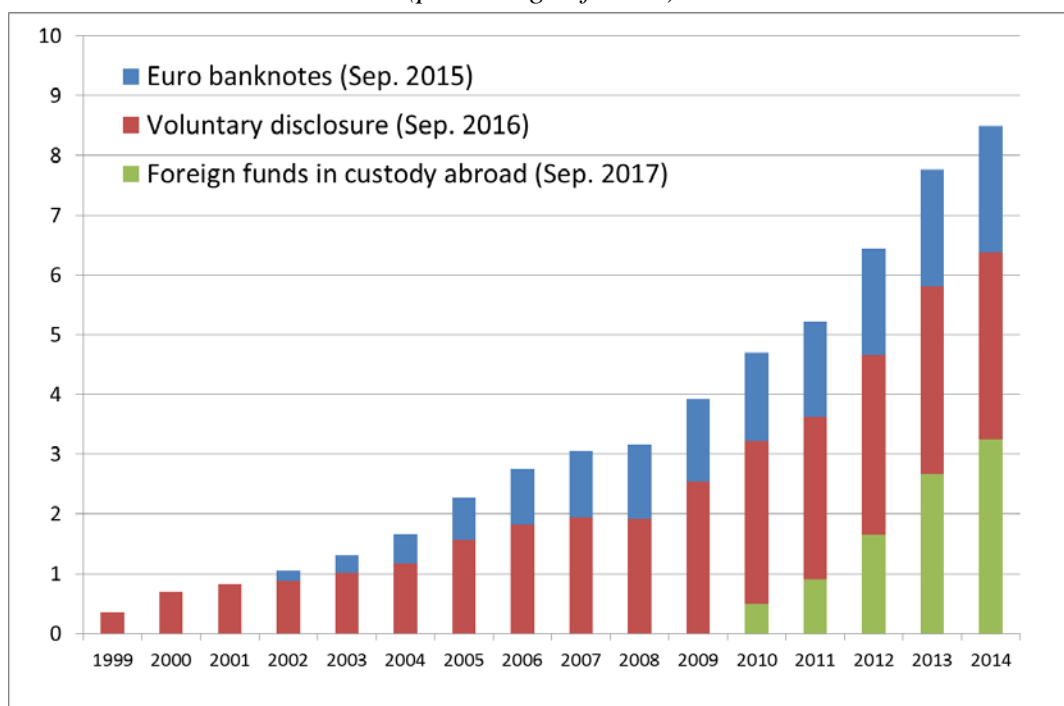
Source: Bank of Italy.

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[5] The aim of the original 2009 survey was to estimate the total amount of foreign mutual fund shares sold to Italian residents, regardless of the country in which they were deposited. The ratio between this total amount and the share of funds deposited in Italy only, computed on data provided by resident depositaries, yielded a grossing-up factor to be used for estimating the total amount of foreign mutual fund shares held by residents. In 2016 a new survey was conducted in order to update the grossing-up factor; ten large foreign fund managers operating in Italy, with a combined 50 per cent market share, were interviewed. Based on the new survey and data from Assogestioni, the grossing-up factor was revised upwards relative to 2009, reflecting the growing share of foreign mutual funds deposited abroad in recent years (from 38 per cent at the end of 2008 to 44 per cent at the end of 2015). For further details, see Bank of Italy (2017c).

Figure A1.2 – Italy's NIIP before and after revisions (1)
(percentage of GDP)
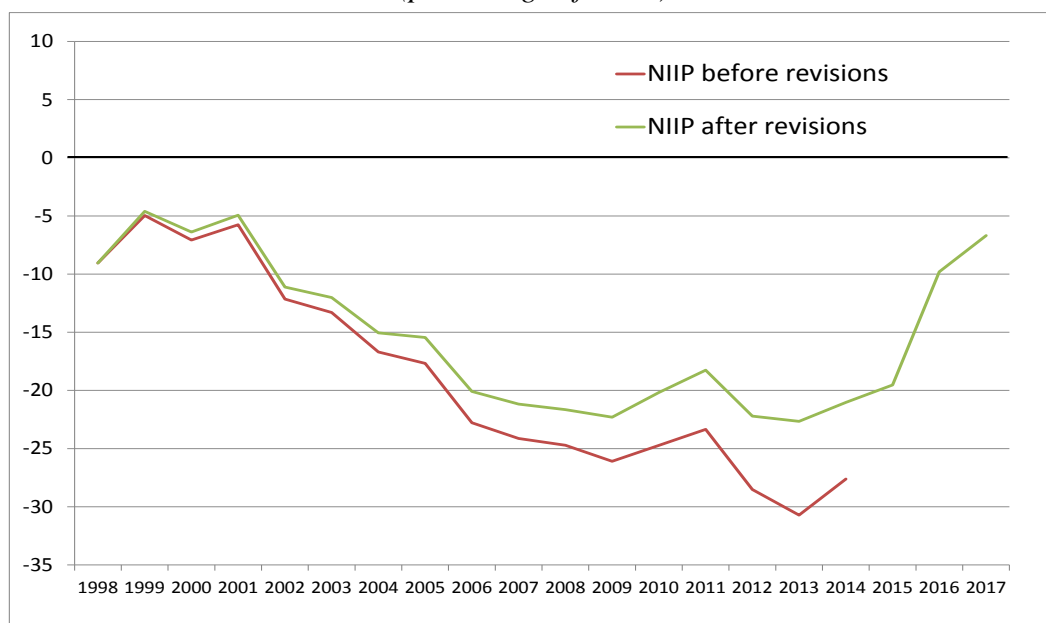
Source: Bank of Italy. Notes: (1) NIIP before methodological changes corresponds to the figures that were available in September 2015, right before the first of the three revisions. The discrepancy between the two NIIP series incorporates not only the three methodological changes but also regular data revisions (e.g. annual survey based on companies' direct reporting of their external assets and liabilities, etc.).

A2 - Currency composition of the IIP by functional category

Table A2.1 – Currency composition of Italy's external assets and liabilities at end-2017 (1)
(percentage of GDP)

		Assets	Liabilities	Net position
Foreign Direct Investment	Euro	19.6	25.8	-6.2
	US Dollar	2.4	0.7	1.8
	British Pound	1.1	0.2	1.0
	Other currencies	9.4	0.2	9.3
Portfolio investment - *equity and investment funds units*	Euro	40.1	14.6	25.5
	US Dollar	9.1	0.0	9.1
	British Pound	1.2	0.0	1.2
	Other currencies	1.3	0.0	1.3
Portfolio investment - *debt securities*	Euro	24.9	58.6	-33.6
	US Dollar	4.8	1.6	3.2
	British Pound	0.5	0.5	0.0
	Other currencies	1.3	0.2	1.1
Financial Derivatives	Total	4.3	7.0	-2.8
Other investment	Euro	24.9	49.2	-24.3
	US Dollar	3.4	4.0	-0.5
	British Pound	0.4	0.4	0.0
	Other currencies	0.7	0.6	0.0
Reserve Assets (2)	Total	2.4	-	2.4
memo : All functional categories (2)	Euro	113.1	154.2	-41.1
	US Dollar	21.5	6.9	14.6
	British Pound	3.5	1.3	2.2
	Other currencies	13.7	1.1	12.7

Source: Bank of Italy. Notes (1): IIP data for the end of 2017 are still provisional. (2) Excluding gold.