

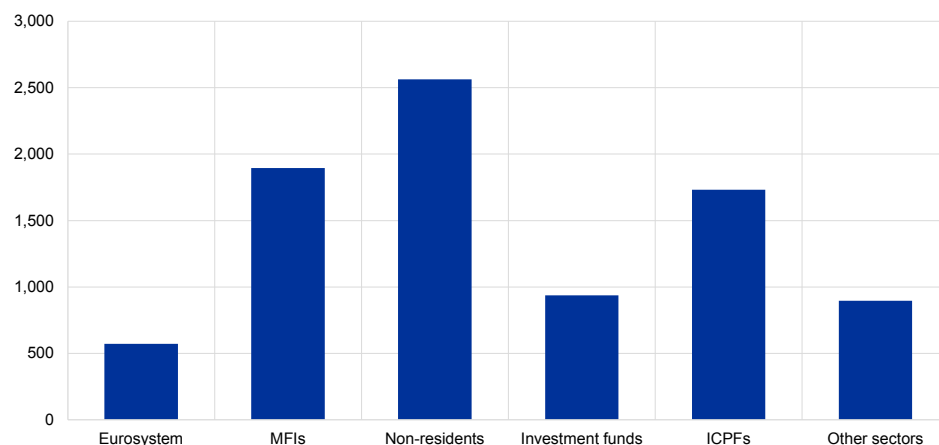
Which sectors sold the government securities purchased by the Eurosystem?

At the end of 2014, immediately prior to the start of the public sector purchase programme (PSPP), three sectors held almost three-quarters of all debt securities issued by euro area governments. The non-euro area residents sector, a heterogeneous sector mainly comprising large institutional investors (both private and public), but also including very active market participants, held the largest share, accounting for 30% of the total outstanding amounts. Monetary financial institutions (MFIs) other than the Eurosystem (henceforth simply MFIs) held 22%. Insurance corporations and pension funds (ICPFs), typically characterised as long-term investors with strong preferences for specific maturity brackets, held 20%. Among the remaining sectors, investment funds other than money-market funds had the largest holding, amounting to 11% of outstanding euro area government securities. The remainder was distributed between the Eurosystem (7%) and all other sectors as a whole (households, non-financial corporations and financial intermediaries not classified in any of the above sectors), which together accounted for the final 10% of the total (see Chart A).

Chart A

Holdings of euro area government debt securities by sector prior to the PSPP (fourth quarter of 2014)

(outstanding amounts in EUR billions)



Source: ECB, based on the quarterly sector accounts.

Note: At the end of the fourth quarter of 2014 the total outstanding amount of debt securities issued by the euro area general government sector was €8.6 trillion.

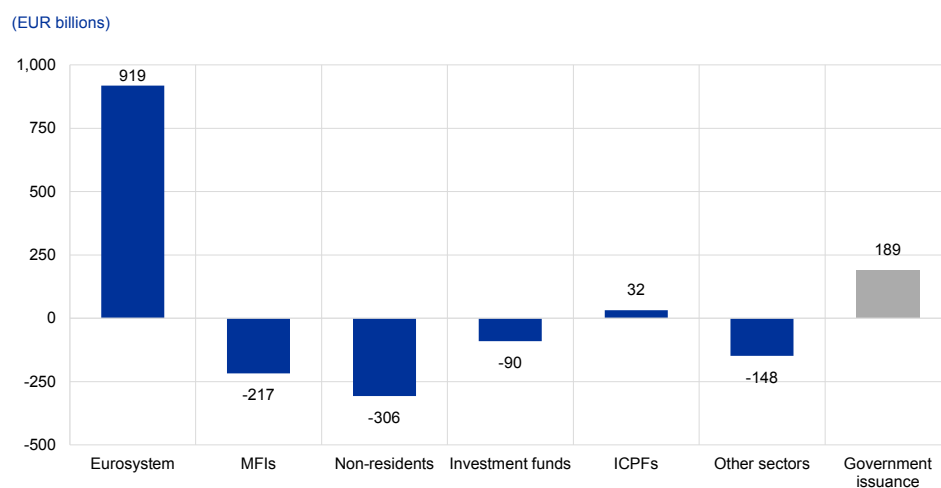
Net of valuation and reclassification effects, the largest declines in holdings of euro area government securities since the start of the PSPP correspond to the non-resident and MFI sectors. Between the second quarter of 2015 and the fourth quarter of 2016 the Eurosystem purchased a net amount of €919 billion.²⁴ Practically

²⁴ Net purchases of government securities by the Eurosystem also include redemptions under the Securities Markets Programme and net purchases under the Agreement on Net Financial Assets. In addition, PSPP purchases include some securities not reported within the statistical classification of government securities. These factors explain the discrepancy between the figures reported in this box and the data on actual PSPP purchases published on the ECB's website.

all other sectors recorded negative flows, with non-residents (–€306 billion) and MFIs (–€217 billion) recording the largest negative flows (see Chart B). However, the analysis of actual flows does not provide an accurate picture of how the Eurosystem purchases have affected the behaviour of each sector with respect to euro area government securities. For instance, ICPFs acquired a net amount of €32 billion in the period from the second quarter of 2015 to the fourth quarter of 2016. This does not mean that the PSPP had no impact on ICPFs’ purchasing of government securities, as the effect can only be calculated relative to the purchases that each sector would have carried out, and how the issuance of new debt securities would have been distributed across sectors, in the absence of the PSPP.

Chart B

Net flows of euro area government debt securities by sector between the second quarter of 2015 and the fourth quarter of 2016



Source: ECB, based on the quarterly sector accounts.

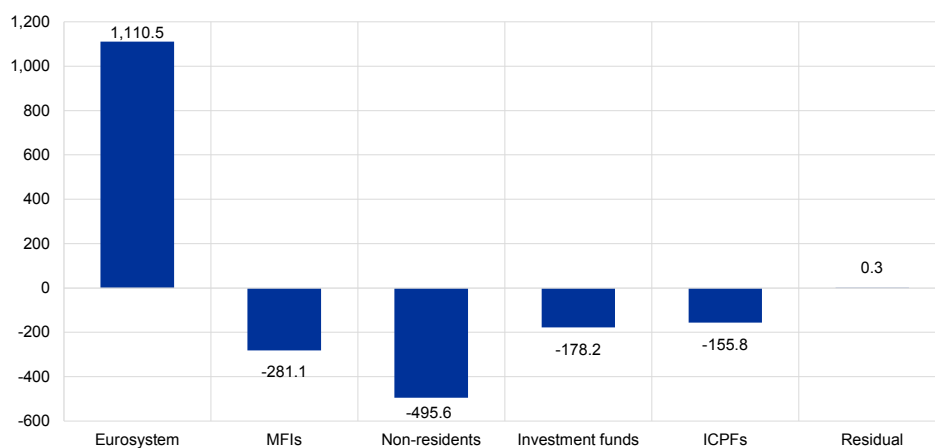
Non-residents and, to a lesser extent, MFIs are estimated to have reduced their holdings of government securities the most in absolute terms since the launch of the PSPP. To analyse each sector’s response to the purchases of government bonds by the Eurosystem, it is first necessary to estimate the net flows that would have occurred in the absence of the PSPP (i.e. the counterfactual flows). This is achieved by using variables that typically determine the purchasing behaviour of each sector but which are not affected by the PSPP.²⁵ The impact of the PSPP on each sector’s holdings of government securities is computed as the difference between actual and counterfactual flows.

²⁵ The estimates follow the approach used by Joyce et al. (Joyce, M., Liu, Z. and Tonks, I., “Institutional investors and the QE portfolio balance channel”, *Journal of Money, Credit & Banking*, forthcoming). For MFIs and non-residents, the regressors are the net issuance of government securities, net purchases of the Eurosystem before the PSPP and the VIX, which is an index that captures international market volatility. For investment funds and ICPFs, variables that depict the liability side of the sectors are used, namely the net issuance of shares/units for investment funds and insurance technical reserves for ICPFs, as the investment behaviour of these sectors is likely to be influenced to a large extent by customer claims. For further details on the implementation of this approach for the euro area, see Adalid, R. and Palligkinis, S., “Sectoral Sales of Government Securities During the ECB’s Asset Purchase Programme”, SSRN mimeo, December 2016.

Chart C

Estimated impact of the PSPP on the holdings of euro area government securities by sector in terms of flows (March 2015 to March 2017)

(accumulated flows in EUR billions)



Sources: MFI balance sheet statistics for MFIs; balance of payments for non-residents; investment fund statistics for investment funds; quarterly sector accounts for ICPFs; euro area securities issues for issuance of government securities; and DataStream for the VIX volatility index (the latter two are only used when estimating the counterfactual net purchases).

Notes: The estimated impact is calculated as actual flows minus counterfactual net purchases, based on the estimated purchasing behaviour of each sector in the pre-PSPP period. The periods covered are March 2015 to March 2017 for the Eurosystem, MFIs, non-residents and government securities issuance; the second quarter of 2015 to the first quarter of 2017 for investment funds; and the second quarter of 2015 to the fourth quarter of 2016 for ICPFs. The data have been extrapolated to cover periods for which no data are available: March 2015 for investment funds; and March 2015 and the first quarter of 2017 ICPFs. The residual comprises all remaining sectors as well as data discrepancies.

The results show that between March 2015 and March 2017 non-residents are estimated to have reduced their holdings of euro area government securities by €496 billion relative to the situation that would have prevailed if the net purchases of government securities by the Eurosystem had been zero (see Chart C). This amount is equivalent to 45% of the net purchases of government securities carried out by the Eurosystem in the period from March 2015 to March 2017. An analogous calculation indicates that MFIs reduced their holdings by the equivalent of about 25% (€281 billion) of Eurosystem net purchases. The holdings of investment funds and ICPFs are estimated to have been reduced by the equivalent of 16% and 14% respectively of the net Eurosystem purchases.²⁶ These findings are not surprising, given that non-residents and MFIs also had the largest holdings of government securities immediately prior to the launch of the PSPP.

Relative to their initial holdings, non-residents and investment funds are estimated to be the sectors which have reacted most strongly to the Eurosystem purchases. To evaluate the relative response of each sector to the Eurosystem purchases, the estimated impact is expressed relative to the sector's pre-PSPP holdings. This comparison reveals that non-residents and investment funds showed the strongest response, with the impact on both sectors amounting to

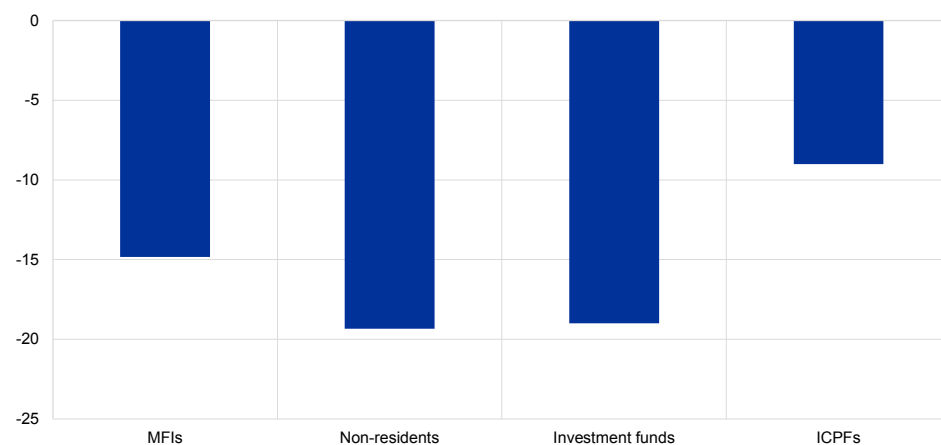
²⁶ Charts B and C contain differences in the underlying data owing to the use of different time periods and data sources. Chart B reports flows for all sectors consistently from the quarterly sector accounts, which are currently only available up to the fourth quarter of 2016. Chart C uses individual sectoral statistics. These statistics are available on a monthly basis for non-residents and MFIs, which are the two most relevant sectors for the analysis presented in this box. This allows the analysis to start contemporaneously with the beginning of the PSPP, in March 2015, and to extend it up to March 2017.

about 20% of their holdings of euro area government securities prior to the PSPP. By contrast, the reaction of the ICPF sector, one of the largest holders of government securities, equates to less than 10% of the sector's pre-PSPP holdings. With 15%, MFIs showed an intermediate reaction. The relatively small response of ICPFs is likely to reflect the investment strategies of this sector, which are dominated by the need to meet their long-term commitments and are subject to considerable regulatory constraints. By contrast, the non-resident and investment fund sectors are likely to comprise a larger share of active market participants, who are more driven by yield considerations.

Chart D

Estimated impact of the PSPP on holdings of euro area government securities by sector (March 2015 to March 2017) relative to holdings prior to the programme

(percentages of outstanding amounts in Q4 2014)



Sources and notes: See Charts A and C.