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MAIN DRIVERS OF THE ECB FINANCIAL ACCOUNTS AND ECB FINANCIAL STRENGTH OVER THE FIRST 11 YEARS¹

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In 2010 all ECB
publications
feature a motif
taken from the
€500 banknote.

NOTE: This Occasional Paper should not be reported as representing the views of the European Central Bank (ECB). The views expressed are those of the authors and do not necessarily reflect those of the ECB.

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ABSTRACT

This paper analyses the main drivers of the ECB's balance sheet and profit and loss account over the first 11 years of the ECB's existence. Furthermore, the paper assesses the financial strength of the ECB. As monetary policy operations are normally conducted by national central banks under the impulse and instructions from the ECB, the Eurosystem balance sheet is the primary reference for the analysis of Eurosystem monetary policy operations.

Three main drivers of the balance sheet and profit and loss account are identified. Firstly, financial market developments and portfolio management decisions imply changes in the value of the foreign reserve and own funds portfolios, which represent a substantial part of the balance sheet (with the share of own funds becoming increasingly larger over the period under review). At the same time, the profit and loss account depends to an important degree on interest income and expenses, realised gains and losses, and write-downs on these portfolios. Secondly, strong banknote demand has gradually increased the size of the balance sheet since the euro changeover in 2002. Banknotes in circulation also provide a strong base for seigniorage income, which is an important item of the profit and loss account. Thirdly, the liquidity-providing operations in foreign currency, which the Eurosystem has undertaken since 2007 in response to the financial crisis, increased significantly the size of the ECB's (and the Eurosystem's) balance sheet. In terms of income and expenses, these operations were rather immaterial at the level of the ECB, although the income generated was substantial at the Eurosystem level.

The ECB has remained financially strong over the 11-year period. Factors that support the financial position are strong legislative provisions on e.g. independence and income, the use of financial buffers, seigniorage as a reliable income source and an effective loss-coverage mechanism. The main risk stems from adverse financial market developments, in particular low

interest rates and depreciating foreign reserve currencies, implying security price and currency write-downs.

Key words: central banking, central bank balance sheet, financial accounts, financial strength

JEL classification: E58, E42, M41

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SUMMARY

This paper identifies and analyses the main drivers of the ECB's balance sheet and profit and loss account over the first 11 years of ECB existence. Furthermore, the financial strength of the ECB is assessed. As monetary policy operations are normally conducted by national central banks under the impulse and instructions from the ECB, the Eurosystem balance sheet is the primary reference for the analysis of Eurosystem monetary policy operations.

Three main drivers have been identified for the balance sheet developments and profit/loss: financial market developments and portfolio management, the special operations implemented during the financial crisis, and banknote issuance. The following findings were made concerning their impact on the balance sheet items:

- Financial market developments and portfolio management decisions led to significant changes in the value of foreign currency assets and euro-denominated assets. For foreign currency assets, a decomposition of the changes into volume and exchange rate effects has been made. Prominent volume effects were the EUR/USD exchange rate intervention in 2000, gold sales during 2005-09, and the gradual rebalancing in favour of the Japanese yen portfolio. Important exchange rate effects resulted from the long period of US dollar and Japanese yen depreciation, the strong rise in the gold price since 2005, and the strong Japanese yen appreciation in 2008. These developments also offset each other occasionally, e.g. the strong increase in the gold price helped to offset the depreciation of the US dollar portfolio (in EUR terms) in the second half of the 11-year period.

Valuation gains are prudently recorded in revaluation accounts in accordance with the ESCB/Eurosystem accounting rules, preventing potentially temporary unrealised

gains arising from favourable exchange rate developments are taken as income (and distributed). The use of revaluation accounts proved useful, as certain revaluations were indeed temporary, in particular for the US dollar holdings.

The size of the ECB's own funds portfolio, which is invested in euro-denominated assets and is thus not subject to exchange rate risk, increased strongly over time due mainly to inflows from the investment of the ECB risk provision into the own funds, but also from the reinvestment of the income generated over the years.

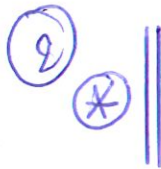
- The liquidity-providing operations in foreign currency, which the ECB has undertaken since 2007 as a response to the financial crisis, tripled the size of the ECB balance sheet by end-2008 and gradually faded out in 2009. The increase relates mainly to the euro leg of USD-EUR operations in which the ECB intermediated between the Federal Reserve and the Eurosystem national central banks (NCBs). The NCBs provided dollars to Eurosystem monetary policy counterparties as part of the Eurosystem's liquidity-providing operations. On the asset side, the settlement of the transactions with the NCBs increased the ECB's "other claims within the Eurosystem (net)" by about €217 billion. On the liabilities side, the euro part of the swap transactions with the Federal Reserve did not settle, but remained "liabilities to non-euro area residents denominated in euro". The size of the operations with other central banks was much smaller and totalled on average €34 billion in late 2008.
- The ECB banknote issuance has increased the ECB balance sheet gradually over time since 2002. Strong demand for euro banknotes boosted the total euro banknote issuance (tripling the stock over the period 2002-09), of which 8% is assigned to the ECB.

The following findings were made concerning the impact of three (actual and potential) drivers on the profit and loss account items:

- Seigniorage income proved to be a reliable income source in the long run. Seigniorage contributed increasingly to ECB interest income, reaching €2,230 million in 2008, some 84% of the surplus before any transfer to the risk provision. However, seigniorage income significantly depends on the level of the interest rate on the main refinancing operations (marginal MRO rate) and fell markedly to €787 million in 2009.
- Financial market developments and portfolio management had an important impact on the financial result through three channels. First, write-downs due to exchange rate developments, which were strong in 2003-04 and 2007, ranging between €2 billion and €4 billion. Second, realised gains, which were occasionally significant due to the exchange rate intervention in 2000 (€2.5 billion), and gold sales between 2005 and 2009. Third, net interest income (excluding seigniorage income), which depends on the interest rate gap between mainly the US interest rates and the euro area marginal MRO rate.
- The liquidity-providing operations in foreign currency are a factor that in principle could have an impact on the financial result, but the actual impact has been minor for the ECB up to the end of 2009.
- The financial crisis in general brought favourable revaluation developments reflecting the fact that ECB portfolios are mostly invested in high-quality fixed-income instruments and exchange rate developments were overall favourable, but seigniorage dropped due to lower interest rates.

The assessment of the ECB's financial strength led to the following conclusions:

- The ECB remained financially strong throughout the 11-year period. The ECB pursues financial strength to be able to credibly commit to its price stability objective and credibly perform other potentially costly tasks relating to its general mandate. Strong legislative provisions providing financial independence and transparency on ECB income acted as a strong base to protect the financial position. Furthermore, the financial buffers sufficed for the purpose of absorbing a financial loss, thereby protecting paid-up capital, except in 2004 when a loss of €1.3 billion was offset against Eurosystem monetary income. Financial losses were offset mainly through the risk provision, partly because it can be built up faster than the general reserve mechanism. In addition, the financial result was increasingly supported by seigniorage income, whilst the ESCB accounting rules, particularly the principle of prudence, also prevented the ECB from incurring even greater losses in periods of depreciating currencies through the use of revaluation accounts for recording unrealised gains.
- Although the financial position of the ECB remained strong, the 11-year experience has pointed out some risks. Financial market developments have posed the biggest threat mainly through exchange rate risk, which resulted in significant write-downs at times. This exposure is likely to test the financial buffers again in the future. Furthermore, seigniorage became an important factor, but would be significantly lower in the near future despite strong banknote demand if the level of the marginal MRO rate were to remain low.



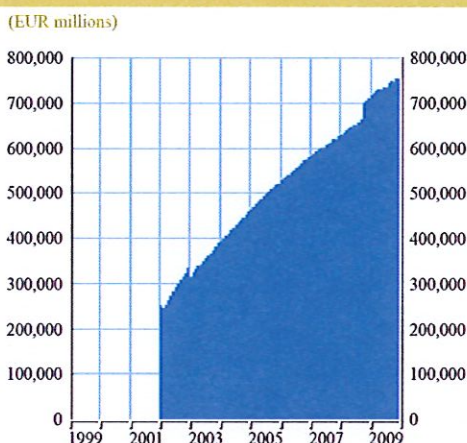
conducted with the NCBs led to an increase of ECB “intra-Eurosystem claims” of on average €217 billion in late 2008. In addition, the corresponding swap transactions with the Federal Reserve resulted in a large increase in “liabilities to non-euro area residents denominated in euro” (it should be noted that the euro part of the swaps with the Federal Reserve did not settle but rather created a liability).

The other smaller operations increased a number of balance sheet items somewhat. The settlement of the Danish krone or Swedish krona leg of the swap transactions with respectively Danmarks Nationalbank or Sveriges Riksbank increased the “claims on non-euro area residents denominated in foreign currency”. The swap transaction between the ECB and NCBs to provide Swiss francs resulted in “intra-Eurosystem balances”. The liability of the ECB to the Swiss National Bank increased the “liabilities to non-euro area residents denominated in euro”. In addition, the latter item contains the euro deposits placed by the Swiss National Bank at the ECB. “Claims on non-euro area residents denominated in euro” contained the claim on the Magyar Nemzeti Bank in connection with repurchase transactions. The financial implications of these operations are discussed in Section 3.

2.3 ECB BANKNOTE ISSUANCE

The ECB’s balance sheet increased gradually due to the strong demand for euro banknotes. According to Article 106 of the EU Treaty, the ECB has the exclusive right to authorise the issuance of euro banknotes. In practice, the euro banknotes are put into circulation by the NCBs and the ECB has been assigned a share of 8% of the total banknotes in circulation as presented in Chart 8. Until end-2001, only national banknotes were in circulation and these were recorded on the balance sheets of the individual NCBs. Since 2002, euro banknotes are in circulation and the ECB’s share appeared on its balance sheet. This share implies a claim by the ECB on the NCBs, as the ECB itself does not put banknotes into circulation.

Chart 8 Total euro banknotes in circulation



Source: ECB.

The demand for euro banknotes proved to be consistently strong. As a result, the ECB intra-Eurosystem claim related to the banknote issuance grew gradually over time from €10,638 million at the beginning of 2002 to €64,513 million at the end of 2009. Together with banknotes in circulation (i.e. the mirror item on the liabilities side), it made the total balance sheet grow gradually. The gradual increase can be observed for the period 2002-07 in Chart 7, but was overshadowed by the special operations after 2007.

3 MAIN DRIVERS OF ECB PROFIT AND LOSS

During the first 11 years, the variability of the ECB financial result was naturally related to the main drivers of the balance sheet items discussed in Section 2. The way these drivers affected the ECB profit and loss account is discussed. In particular, this section presents the main income and expense drivers and points out which items they affect on the ECB profit and loss account. Furthermore, the ECB's financial buffers are presented and the way these were used to smooth surpluses and cover losses is explained.

Three main income and expense drivers are identified. First, banknote demand and nominal interest rates, which give rise to income from the issuance of euro banknotes (i.e. seigniorage), were important components of ECB income. Second, financial market developments had an important impact on the financial result, mainly due to the exposure of foreign reserve holdings. Third, the financial crisis at the end of the period is identified as a potentially important driver, although its impact was limited up to 2009.

3.1 MAIN INCOME AND EXPENSE DRIVERS

The ECB's regular income is derived primarily from investment earnings on its holdings of foreign reserve assets and from interest income on its 8% share of the euro banknotes in circulation. Furthermore, the exposure of the foreign reserve holdings to exchange rate, asset price and interest rate risks implies that its financial result is significantly determined by revaluations. The importance of these factors can be derived from the profit and loss account overview in the Appendix, where these items are separately reflected. Here, the income and expense drivers are discussed in more detail.

3.1.1 SEIGNIORAGE AS A FUNCTION OF BANKNOTE DEMAND AND THE MONETARY POLICY STANCE

As inflation moderated in developed economies in the last decade, the average seigniorage

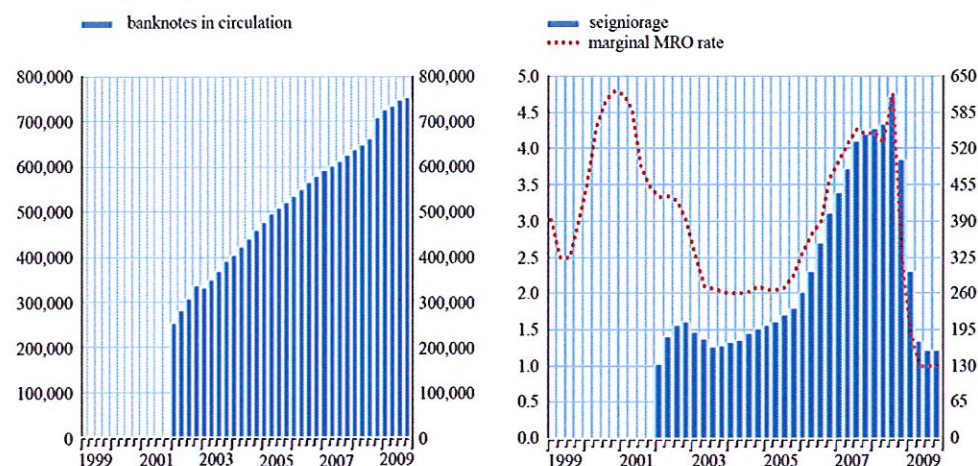
income has decreased for many central banks over time, but remains a reliable income source in the long run, and helps central banks to maintain their financial independence.

The monetary income of the Eurosystem mainly consists of interest income arising from the liquidity-providing operations due to the refinancing needs of the banking system. Those refinancing needs primarily stem from the issuance of euro banknotes whose volume is a function of euro banknote demand. The income earned by Eurosystem central banks is linked to the interest rate applied on liquidity-providing operations, which is usually close to the marginal rate of the main refinancing operations (MROs), slightly higher than the main policy rate of the ECB. The amount of liquidity supplied by the Eurosystem is based on an estimate of the demand such that the short-term money market interest rate remains close to the policy rate, i.e. the minimum bid rate of the main refinancing operations. The monetary income consists of this interest income minus certain expenditures. The main expenditure is the interest paid on the amount of required reserves the monetary financial institutions hold with the Eurosystem. This interest rate paid is the average MRO rate such that on average the required reserves do not provide income to the Eurosystem. Any excess reserves kept with the Eurosystem are not remunerated and therefore profitable to the Eurosystem, but are typically small (<0.5%, for that same reason, because it is costly to commercial banks). The central banks only incur a small cost for printing banknotes, hence the so-called seigniorage income represents most of the Eurosystem's monetary income.

The ECB receives interest on its 8% share of the total euro banknote issuance. As the ECB does not put the euro banknotes into circulation, it holds a claim on the NCBs of the Eurosystem which fulfil that task. Interest on the claims of the ECB in respect of its share of banknotes is earned at the latest marginal rate (or fixed rate) for the Eurosystem's main refinancing operations.

Chart 9 Euro banknotes in circulation, ECB seigniorage and the marginal MRO rate

(EUR millions, percentages)



Source: ECB.

4 The seigniorage has been boosted by strong banknote demand since the changeover in 2002. Chart 9 shows the increase in total banknotes in circulation, which implied that the ECB banknote share tripled from €20 billion at end-2002 to over €60 billion by end-2009. For a given marginal MRO rate, the growth in banknotes raised the potential income from seigniorage.

The often projected decrease in banknote demand due to the use of electronic payments (e-money) has not materialised and is not likely to pose a major threat. For example, Goodhart (2000) provided a number of arguments why currency will not disappear so easily and these arguments have been vindicated. Chart 9 shows the strong trend in the amount of euro banknotes in circulation, but also the ratio of banknotes to GDP (not depicted) increased strongly over time, indicating an increase in currency use.

5 The marginal MRO rate is also a crucial factor of ECB seigniorage, which introduces more variation in seigniorage. This can be observed by comparing the charts in Chart 9. The rate varied considerably over the period and made seigniorage strongly correlated with the

marginal MRO rate. The decreasing marginal MRO rate at the start of the period implied that the seigniorage stagnated in the period 2002-03, despite the increase in banknotes. Similarly, the rate and seigniorage strongly increased from 2005 onwards and dropped at end-2008.

In this analysis, the marginal MRO rate is taken as given when it comes to ECB income, and hence seigniorage is endogenous. The steering of the policy rate (and MRO rate) only serves the ECB's primary objective of price stability, and profit maximisation does not play any role.

3.1.2 FINANCIAL MARKET DEVELOPMENTS AND RESERVE MANAGEMENT

The substantial foreign reserve and own funds portfolios of the ECB result in gains and losses through portfolio management operations and developments in asset prices, exchange rates and interest rates. Central bank foreign reserves are typically not hedged. As a consequence, revaluations through price and exchange rate movements have an important impact on the financial position. Moreover, this implies that the asset side of the balance sheet does not necessarily match the liabilities in terms of return. The reserve management is also subject