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**Research Report**

## Why accounting matters: a central bank perspective

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EUROPEAN CENTRAL BANK

EUROSYSTEM

**OCCASIONAL PAPER SERIES**

**NO 153 / MAY 2014**

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## ABSTRACT

This paper analyses how accounting frameworks can affect three important areas of responsibility of many central banks, namely monetary policy, financial stability and banking supervision. The identified effects of accounting rules and accounting information on the activities of a central bank are manifold. First, the effectiveness of monetary policy crucially hinges on the financial independence of a central bank, which can be evidenced, inter alia, by its financial strength. Using a new simulation of the financial results of the European Central Bank (ECB), this paper shows that the reported annual profit and financial buffers of a central bank can be significantly affected by accounting, profit distribution and loss coverage rules. Second, in respect of financial stability, the accounting frameworks applied by commercial banks can not only affect their behaviour, but also that of financial markets. Indeed, there is evidence that accounting frameworks amplified pro-cyclicality during the recent crisis, and thus posed risks to the stability of the financial system. This being so, the accounting frameworks of credit institutions have obvious implications for central banks' analyses with regard to promoting financial stability. Finally, as regards banking supervision, regulatory reporting and key supervisory ratios are based on accounting data. Under the new regulatory framework for banks in the European Union (EU), bank supervisors are highly reliant on accounting data. This means that central banks, in their role as bank supervisors, need to understand the underlying accounting rules and should directly support the development and application of high-quality accounting frameworks.

**JEL code:** E58, M41, M48

**Keywords:** accounting standards, financial reporting, central bank balance sheet, financial stability, banking supervision

## SUMMARY

Accounting data and accounting rules can be highly relevant for the various activities and analyses of central banks. However, literature on accounting from a central bank perspective is rather scarce and very often limited in scope. This paper aims at reducing this gap by providing an overview of the importance of accounting frameworks for the three areas of responsibility of almost all modern central banks, namely the conduct of monetary policy, the safeguarding of financial stability and the supervision of banks. The key issues that this paper deals with and its main findings are summarised below.

First, a primary goal for major central banks today is maintaining price stability. Unlike commercial banks, central banks are not profit-oriented. While the financial statements of commercial banks are used by investors as a basis for the decision to allocate capital, central banks do not rely on capital from the financial markets. However, the accounting framework of a central bank is important as it determines the calculation of the profit available for distribution to its shareholders and, thus, the retained profits at disposal for a buffer against potential future losses. Hence, accounting influences the financial strength of a central bank. As shown by many studies in the literature, the financial weakness of a central bank can, in extremis, affect the effectiveness of monetary policy decisions, since policy measures can expose central banks to the risk of substantial losses. Given the specific objectives of central banks, the accounting frameworks developed for them often differ in certain key respects from those applied by commercial banks.

In order to demonstrate the link between accounting and financial strength, this paper provides the results of a simulation of key financial figures of the ECB under both the Eurosystem accounting framework and International Financial Reporting Standards (IFRS). The profits, profit distributions and financial buffers of the ECB are estimated for the period 1999 to 2013 under three different profit distribution and loss coverage scenarios. The results show clearly that the particular accounting framework implemented has a significant impact on financial results. Under IFRS, profits and profit distribution would have been higher, but also more volatile, and financial buffers substantially lower. Assuming no automatic loss coverage also reduces financial buffers, with the decrease being more pronounced under IFRS. In conclusion, the Eurosystem accounting rules have been more beneficial in preserving the financial strength of the ECB than what would have been the case with a “pure” IFRS approach.

Second, accounting rules, as applied in the banking sector, may be perceived as having a negative impact on financial stability. Financial institutions have to meet capital requirements in order to cover any potential losses arising from their activity. Accounting rules influence the amount of capital that is available and may reinforce pro-cyclicality in lending behaviour or prompt asset fire sales. This can, in turn, exacerbate economic downturns. Fair value measurement and impairment methodology based on the incurred loss model are discussed in this context. Policy-makers should consider the negative implications of the excessive use of fair value measurement and promote the adoption of an impairment methodology based on expected losses. With the aim of preserving financial stability, central banks should analyse the risks stemming from certain accounting rules and contribute directly to the discussions on accounting standards, particularly during the course of the standard-setting process.

Third, supervision of banks relies heavily on accounting data and accounting rules. This is because the latter influence the level of capital and the measurement and disclosure of financial institutions’ exposures. In addition, regulatory reports by banks contain accounting data or are based upon these,

which implies that accounting frameworks have an impact on the analytical work of supervisors. As yet, there is no single accounting framework that is universally applied in all jurisdictions and thus for all commercial banks, making an international comparison of supervisory figures a challenging prospect. This paper looks at the regulatory requirements stipulated in the new EU Capital Requirements Directive IV (CRD IV) package and describes the reliance of supervisory ratios and supervisory reports on accounting data. The new reporting requirements specified in the CRD IV package, referred to as “Common Reporting” (COREP) and “Financial Reporting” (FINREP), took effect on 1 January 2014. As regards capital ratios and the leverage ratio, the paper shows that different accounting frameworks can change their values substantially. Thus, promoting the application of a globally accepted high-quality accounting framework seems to be an objective worth pursuing by central banks in their role as supervisors, i.e. together with international accounting standard-setters. This is particularly the case for the EU, with the Single Supervisory Mechanism (SSM) being established in 2014. From the SSM perspective, it is important to ensure that there is a level playing field for the supervised commercial banks.



## I INTRODUCTION

Accounting is not considered a core activity of a central bank and is usually seen by many as merely an auxiliary function.<sup>1</sup> But accounting rules, as well as accounting information, can influence the operations of a central bank and the behaviour of economic agents in quite different ways. This paper aims at analysing how accounting rules affect central banks' actions in three important areas of responsibility, namely the conduct of monetary policy, the safeguarding of financial stability and the supervision of banks.<sup>2</sup>

Starting with the first area of responsibility of a typical central bank, Chapter 2 reviews how central banks' own accounting frameworks are related to the conduct of monetary policy. During the financial crisis, central banks around the globe undertook a number of non-standard operations of an unprecedented magnitude. As a result, the balance sheets of many central banks expanded considerably, changing their risk profiles substantially. These events put central banks' published financial information in the public spotlight and raised questions about their financial soundness.

Financial reporting for central banks has a very different objective and audience than for commercial firms. For commercial entities, financial reporting is meant to give a "true and fair view" of their financial situation and performance that helps economic agents to make informed investment decisions. Central banks, on the other hand, though required to present a true and fair view of their activities for reasons of accountability and good governance, do not need financing from investors and are protected from insolvency since they can generally exercise their monopoly to create money to pay for all their outgoings.<sup>3</sup>

Nevertheless, accounting and financial reporting is important for central banks. Accounting frameworks affect the financial strength of central banks by having repercussions for the financial buffers which they may want to create. Through this channel, accounting can influence the decisions made by central banks, their credibility, and, hence, the successful implementation of monetary policy. Chapter 2 describes this in more detail. Furthermore, in order to assess the impact of different accounting frameworks on financial strength, a simulation of the profitability and financial buffers of the ECB is conducted under both the Eurosystem accounting framework and IFRS, while varying the rules on profit distribution and loss coverage in a scenario analysis.

A second important task of many central banks is to safeguard financial stability. Banks play a pivotal role in the distribution of financial resources to the real economy. Problems in the banking sector can thus have detrimental effects on the economy as a whole, as the recent financial crisis has so amply demonstrated. In addition, commercial banks are the primary counterparties and intermediaries in monetary policy operations conducted by central banks. As a consequence, the transmission of monetary policy can be affected if the banking sector is not functioning effectively. Therefore, central banks have a vested interest in contributing to the stability of the banking system.

Two accounting concepts have been subject to often very contentious discussions in the context of financial reporting by banks, namely fair value accounting and loan loss provisioning based on the incurred loss model. Opponents have criticised the pro-cyclical nature of these concepts,

1 "Accounting" can be defined as the financial quantification of the results of an entity's activities and transactions for internal and external reporting purposes.

2 The importance of accounting frameworks for other central bank activities, e.g. for the purpose of statistical reporting in accordance with the European System of National and Regional Accounts (ESA 95) in the EU, is not dealt with in this paper.

3 Note also that, the financial performance of central banks is not an indicator of the effectiveness of their policy operations. Indeed, the implementation of appropriate policy can have a negative impact on a central bank's finances.

whereas proponents argue that the rules have increased transparency. Following the outbreak of the financial crisis, the opponents felt confirmed in their beliefs. Policy-makers also expressed concerns that the prevailing accounting paradigm might have been detrimental to financial stability.<sup>4</sup> Chapter 3 reviews the aforementioned concepts and analyses their likely impact on financial stability and the work of central banks.

Chapter 4 analyses another important role of many central banks, namely banking supervision, and looks at the influence of the accounting frameworks applied by supervised institutions on the tasks of supervisors. As the supervisory frameworks in place at the time of the financial crisis were generally considered insufficient to detect the build-up of risks and prevent banks from running into difficulties, many supervisory initiatives evolved to tackle these problems. In this context, supervisory infrastructures were adjusted and stricter regulatory requirements for banks were introduced.

Despite the different objectives of financial reporting and supervisory reporting, the latter strongly relies on accounting data and thus the accounting rules that generate these data. The data reported to supervisors are very often not identical to balance sheet data, but are adapted to meet the needs of banking supervision. Nevertheless, accounting rules influence key supervisory ratios and thus the work of supervisors, as described in more detail in the chapter.

4 See Tumpel-Gugerell (2010) and Constâncio (2012).

## 2 ACCOUNTING AND EFFECTIVE MONETARY POLICY

A primary goal of modern central banks is maintaining price stability. Therefore, it is important to understand the impact of accounting on meeting this objective. In this context, “accounting” is interpreted in the broader sense to include accounting frameworks, profit distribution rules and loss coverage arrangements. Accounting frameworks stipulate the methods to be used for the recognition and measurement of assets and liabilities as well as for income recognition. Profit distribution rules determine the amount of net profit to be transferred to shareholders and the amount that can be allocated to reserves. Central bank profit distribution arrangements are normally laid down in law and tend to be inflexible, with little discretion left to the central bank’s management as to whether profits should be retained in buffers and, if so, by what amount. Whether and how losses are covered is prescribed by loss coverage rules, which are usually not formalised in law.

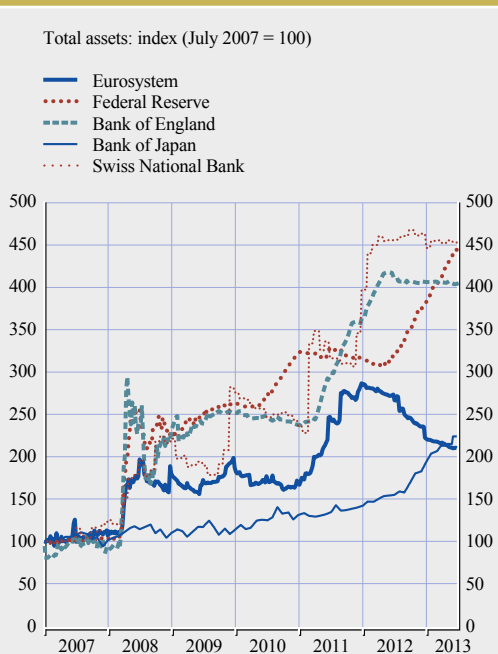
The link between accounting and the successful implementation of monetary policy objectives is indirect, as it is influenced by the financial strength of a central bank. Therefore, Section 2.1 looks at the reasoning why a central bank’s financial position may impact the implementation of monetary policy or the policy transmission mechanism. Section 2.2 then illustrates the link between accounting, profit distribution and loss coverage frameworks and the financial strength of central banks, using a simulation of the ECB’s financial results under three different scenarios.

### 2.1 THE LINK BETWEEN MONETARY POLICY OBJECTIVES AND CENTRAL BANKS’ FINANCIAL STRENGTH

The debate regarding central banks’ financial strength and its implications for the successful implementation of monetary policy is not a new development.<sup>5</sup> However, the recent financial crisis has renewed interest in this topic, since many central bank balance sheets expanded significantly as a result of the various non-standard operations conducted (see Chart 1).

Central banks can issue base money and earn seigniorage income<sup>6</sup> at negligible cost. Therefore, under normal circumstances, their long-term profitability and financial strength should be assured and thus be of little concern.<sup>7</sup> However, empirical evidence has shown that central banks’ financial positions can deteriorate for various reasons associated with the conduct of monetary policy. First, exchange rate stabilisation and revaluation of foreign reserves can also lead to large-scale losses in the longer

Chart 1 Balance sheet expansion of major central banks



Source: Respective central banks.

<sup>5</sup> See, for example, Milton and Sinclair (eds.) (2011).

<sup>6</sup> In the Eurosystem context, “monetary income” is the income accruing to national central banks (NCBs) in the performance of the Eurosystem’s monetary function, derived from assets earmarked in accordance with Governing Council guidelines and held against banknotes in circulation and deposit liabilities to credit institutions.

<sup>7</sup> See Bindseil et al. (2004).

term.<sup>8</sup> Second, crisis intervention can be risky. This is because the frequently observed expansion of central bank balance sheets in times of crisis, due to measures undertaken to stabilise financial markets such as the provision of emergency liquidity to the banking sector or large-scale securities purchases, exposes the central bank to credit, interest rate and exchange rate risk. At the same time, provision of capital by the government is often not automatically triggered by the respective legal framework, and even if it were, the government might refrain from recapitalising the central bank because of a precarious fiscal situation or a preference for increased inflation over using public resources or increasing taxes to fund the losses incurred by the central bank.

If the financial health of a central bank deteriorates, it might seek recapitalisation from the government, which then might try to influence the central bank's decisions in return for committing public money.<sup>9</sup> Alternatively, the central bank might try to avoid situations where recapitalisation is required, for fear of government intervention or political pressure. Therefore, the central bank might find itself in a situation where monetary policy objectives are not the only goal pursued and, as a result, a sub-optimal monetary policy might be implemented (e.g. an excessively inflationary policy aimed at generating more revenue for the central bank).<sup>10</sup> Even if the central bank were to refrain from conducting a sub-optimal monetary policy, this might not be correctly reflected by market expectations, and thus its credibility might be affected.<sup>11</sup>

Several empirical studies provide evidence that central bank finances affect monetary policy. In a study of 87 central banks, Ize (2006) finds that, in countries where the central bank has negative structural profits, gross domestic product (GDP) per capita tends to be lower and inflation tends to be higher compared with countries where the central bank is financially strong. A negative correlation between central bank financial strength and inflation is also found by Klüh and Stella (2008) in an econometric evaluation of 15 countries in Latin America and the Caribbean. Adler et al. (2012) investigate the interest rate rules of 41 countries, both emerging and advanced economies, and find that variations in central bank financial strength can explain large negative deviations from optimal interest rate levels.

Clearly, financial strength per se is no guarantee that an effective monetary policy will be conducted. Similarly, financial weakness does not necessarily imply that central banks may not be able to pursue monetary policy goals effectively. Some central banks have performed well in the past even though they were financially weak: well-documented examples are the central banks of Chile, the Czech Republic, Israel and Mexico.<sup>12</sup>

In a nutshell, the empirical evidence seems to confirm that a weak financial position is not an optimal situation for a central bank because it could constrain policy actions and it might affect its credibility. In contrast, a sound capital base increases financial strength and the trust of market participants in a central bank's policies.<sup>13</sup>

For the reasons mentioned above, a number of central banks show a tendency to be concerned about their financial position. The ECB has also explicitly linked financial independence with the conduct

8 See Frait and Holub (2011) and Gustavo et al. (2012).

9 See Cukierman (2011).

10 This situation, where the pursuit of monetary policy objectives may be negatively influenced by the financial situation of the central bank, has been appropriately called "policy insolvency" (see Stella and Lönnberg, 2008).

11 The credibility of the central bank keeps inflation expectations anchored; see, for example, ECB (2011) and Blinder (2000).

12 See Archer and Moser-Boehm (2013).

13 See, for example, Ize (2005) and Cukierman (2011).

of an effective monetary policy and central bank credibility.<sup>14</sup> The ECB has further stated that any situation where the net equity of a national central bank (NCB) of the Eurosystem is below its statutory capital for a prolonged period of time may negatively impact that NCB's ability to perform its tasks and perhaps affect the credibility of the Eurosystem's monetary policy. Therefore, an NCB should always be adequately capitalised such that its financial independence is not endangered.<sup>15</sup> The paper now considers how accounting rules can affect the financial situation of a central bank, making use of a simulation study of the ECB's financial results.

## 2.2 THE LINK BETWEEN ACCOUNTING AND CENTRAL BANKS' FINANCIAL STRENGTH: A SIMULATION OF THE ECB'S FINANCIAL RESULTS

Accounting frameworks, profit distribution and loss coverage rules for central banks differ around the globe. Therefore, international comparability is difficult and one should always take into consideration the legal and economic environment in which a central bank operates as well as its assigned tasks. Nevertheless, some accounting frameworks may be more conducive to maintaining financial strength than others.

A comprehensive analysis of accounting frameworks implemented by central banks is provided by Archer and Moser-Boehm (2013). In the foreword to this study, Jaime Caruana, General Manager of the Bank for International Settlements, proposes ideas on how to structure accounting rules that could help build trust in the independence and effectiveness of central banks. He recommends that unrealised revaluation gains should not be distributed; however, rather than being hidden by accounting policies, they should be ring-fenced from distribution in a transparent manner. If the distribution framework cannot be adapted in such a way, as would certainly be the case for the Eurosystem NCBs and the ECB, two accounting policies could make sense for central banks, namely the use of revaluation accounts and general risk provisions; both of which are incorporated in the Eurosystem accounting rules.<sup>16</sup> The following analysis provides empirical evidence of whether this was conducive to the building up of financial buffers with regard to the ECB. But first there is a brief description of the basic principles of the Eurosystem accounting framework as well as of the ECB's profit distribution and its loss coverage mechanism.<sup>17</sup>

### 2.2.1 ACCOUNTING, PROFIT DISTRIBUTION AND LOSS COVERAGE RULES APPLIED BY THE ECB

Many central banks have adopted IFRS as the basis for their accounting. In the case of the ECB and the Eurosystem, which has the unique statutory power to develop its own accounting framework, a harmonised accounting regime was put in place that, while resembling IFRS in general terms, avoided certain aspects (e.g. the recognition of unrealised gains as income and the bar on creating provisions against general risks) considered to be insufficiently prudent for Eurosystem central banks.<sup>18</sup>

In line with the Eurosystem accounting framework, marketable securities other than those held-to-maturity, gold and all other assets and liabilities denominated in foreign currency are measured at end-of-period market value. Other items are accounted for on an amortised historical cost basis, subject to impairment. The recognition of unrealised results is asymmetric, which

14 See Bini Smaghi (2007).

15 See ECB (2013b).

16 Both of these requirements conflict with IFRS, as they currently stand. However, central banks that apply IFRS often have legal provisions within their profit distribution arrangements that require them to transfer unrealised gains to a reserve and to create general reserves against potential losses of various specific types (e.g. the Reserve Bank of Australia and the Bank of Mauritius). The economic difference compared to the Eurosystem framework then becomes minimal, the difference being presentational in the income statement.

17 The accounting policies of the ECB can be found in Decision ECB/2010/21 of 11 November 2010 (as recast), and the allocation of net profits and losses is laid down in Article 33 of the Statute of the ECB.

18 See Merriman (2003) and Ingram (2011) for a more comprehensive discussion.

means that unrealised gains are transferred to a revaluation account, whereas unrealised losses affect the profit and loss account if they exceed any related existing revaluation account balances. The Governing Council may establish general provisions for foreign exchange rate, interest rate, credit and gold price risks in the balance sheet of the ECB.

Unlike the accounting framework, the profit distribution regimes of the Eurosystem NCBs are not harmonised. For the ECB, a maximum of 20% of its annual net profit may be transferred to a general reserve fund, subject to a limit equal to 100% of the paid-up capital.<sup>19</sup> The remainder is to be distributed to the shareholders of the ECB, namely the Eurosystem NCBs, in proportion to their fully paid-up subscriptions to the ECB's capital.<sup>20</sup> If the ECB incurs a loss, the general reserve fund may be used to offset it. When the general reserve fund is exhausted, the Governing Council can decide to offset the remaining shortfall against the monetary income of the NCBs for that year.

### 2.2.2 METHODOLOGY FOR THE SIMULATION OF THE FINANCIAL RESULTS OF THE ECB

The analysis below aims at assessing the impact of alternative hypotheses on key financial figures, such as those relating to profit, profit distribution and financial buffers. The simulation exercise covers the period from 1999 to 2013, and comprises three different profit distribution and loss coverage scenarios that would be possible under the ECB's Statute:<sup>21</sup>

- (i) **existing rules:** a base scenario with the profit distribution and loss coverage rules, as currently applied by the ECB;
- (ii) **loss coverage from profit retention:** it is assumed that just the general reserve fund, and none of the monetary income of the Eurosystem NCBs, is used to cover losses of the ECB and subsequent annual profits are retained until accumulated losses from previous years have been covered;
- (iii) **loss coverage from limited profit retention:** here again, the general reserve fund, and no monetary income, is used to cover losses of the ECB, but 80% of the profit is distributed regardless of whether there are accumulated losses from previous years.<sup>22</sup>

Published accounting statements can significantly influence the decisions of economic agents. In the case of the simulation conducted, the decisions taken by the ECB, its stakeholders and financial markets could have been affected by the different accounting rules applied. But these effects (such as changes in interest rates that affect the ECB's income) are even hard to "guesstimate". Therefore, the simulation ignores such effects.

Financial results for the three scenarios are provided under the Eurosystem accounting framework and under IFRS. In the simulations, the main changes<sup>23</sup> made to the reported figures to estimate the results that would have been reported under IFRS are: (a) actual transfers to the general risk provision are reversed; and (b) changes to the revaluation accounts for foreign exchange revaluations and price revaluations of securities are included in the profit and loss account. In addition, other minor adjustments are also carried out. When there is a net profit under IFRS, its distribution is adapted assuming that 20% of the IFRS profit is retained and transferred to the general reserve fund and that the remaining 80% is distributed. In the case of a loss, the general reserve fund is first used to

<sup>19</sup> The limit applies to the sum of the general reserve fund and the general risk provisions.

<sup>20</sup> The ECB capital subscription is shown in Table A1 in the Appendix.

<sup>21</sup> Actual accounting data are used for the simulation exercise. Main positions can be found in the Appendix.

<sup>22</sup> This scenario stands against the ECB's legal opinions and the ECB Convergence Report of June 2013, which states that accumulated losses have to be covered before profit is distributed. The scenario is used to assess the importance of this rule.

<sup>23</sup> A detailed list of all assumptions is provided in the Appendix.

cover this loss. The monetary income of NCBs is used to offset ECB shortfalls in years where its loss exceeds the general reserve fund in the “existing rules” scenario. In the other scenarios, losses accumulate: there is retention of profits in subsequent years in scenario (ii), while 80% of the profit is always distributed in scenario (iii). After these recalculations, the balance of the general reserve fund, the gold revaluation accounts and accumulated losses are calculated under IFRS.

**Table 1 Simulation results for the profit of the ECB**

Scenario	Accounting framework	Mean (in EUR billion)	Volatility
(i)	Eurosystem	0.64	1.07
	IFRS	1.26	3.95
(ii)	Eurosystem	0.62	1.02
	IFRS	1.17	3.94
(iii)	Eurosystem	0.62	1.06
	IFRS	1.10	3.93

Source: Own calculations.

### 2.2.3 SIMULATION RESULTS FOR THE PROFIT OF THE ECB

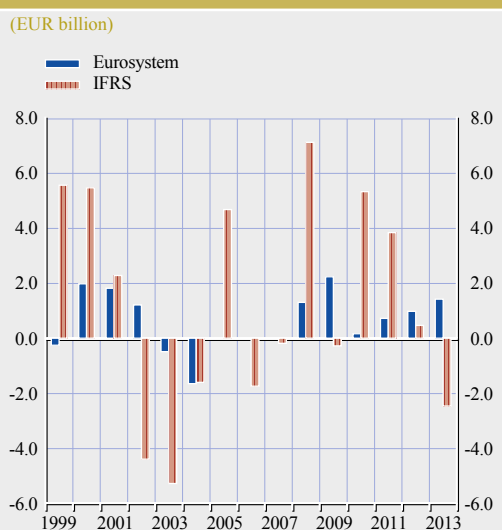
Table 1 displays the means and volatilities (standard deviations) of the ECB’s profit in the period from 1999 to 2013 under the Eurosystem accounting rules and IFRS for all three scenarios described above. The first row of scenario (i) refers to the actual reported profit of the ECB. One can observe that IFRS would inevitably have led to a higher mean profit, but also to more volatile net results. What stands out immediately is the extent to which the different accounting rules affect the net results. The mean profit over the sample period is about twice as high under IFRS for each scenario. This higher profitability comes at the expense of an increased dispersion – volatility increases nearly fourfold. The different profit distribution and loss coverage scenarios seem to have little influence on the mean profit and profit volatility, as there are only moderate differences between scenario (i) and scenarios (ii) and (iii).

Chart 2 illustrates the differences in profit under the Eurosystem accounting rules and IFRS in the “existing rules” scenario (i) during the period 1999 to 2013. Scenarios (ii) and (iii) show similar patterns. The IFRS profit is large, both in a positive and negative direction, whereas the profit generated under the Eurosystem rules is of a much lower magnitude and does not vary as much.<sup>24</sup> In other words, the Eurosystem rules lead to a smoothing of annual results; a natural result of the asymmetric treatment of unrealised gains and losses and the build-up of risk provisions.

### 2.2.4 SIMULATION RESULTS FOR THE PROFIT DISTRIBUTION OF THE ECB

Table 2 shows the simulation results for the profit distribution of the ECB. The higher and more volatile profit under IFRS carries over to a higher and more volatile profit distribution. One can see that different profit distribution and loss coverage rules do have some impact on the distributable amounts, but not as much compared with the impact of a different accounting framework. It is clear

**Chart 2 Simulation results for the profit of the ECB under scenario (i) – “existing rules”**



Source: Own calculations.

24 An explanation of drivers of the balance sheet and the profit and loss account of the ECB can be found in Vergote et al. (2010).

that the distributed profit under the Eurosystem accounting rules, while lower on average, is generally smoother and thus future shareholder profits are more predictable.

When evaluating the profit distribution under the different accounting frameworks, external recapitalisations (through the pooling of monetary income in the case of the ECB) need to be taken into account, as they effectively represent a negative profit distribution. In the “existing rules” scenario, the monetary income of the Eurosystem NCBs was used twice to offset ECB losses, resulting in an average pooling of €0.10 billion. Under IFRS, monetary income would have been used five times, leading to an average pooling of €0.64 billion per annum since 1999.

The higher and more frequent recourse to external recapitalisation under IFRS also implies that the impact on profit distribution when moving from the “existing rules” scenario (i) to the “loss coverage from profit retention” scenario (ii) is greater under that accounting framework. However, when moving from the “existing rules” scenario (i) to the “loss coverage from limited profit retention” scenario (iii), the impact is not significant as the possibility of covering accumulated losses with the profits of the year is restricted.

The profit distribution in each year for the “loss coverage from limited profit retention” scenario (iii) is displayed in Chart 3. It confirms that the distributed profit under the Eurosystem accounting rules, while lower on average, is smoother and thus future shareholder profits are more predictable.

### 2.2.5 SIMULATION RESULTS FOR THE FINANCIAL BUFFERS OF THE ECB

The paper now turns to financial buffers, which are one of the main determinants of the financial strength of a central bank. Under the Eurosystem accounting rules, the financial buffers of the ECB comprise gold, foreign currency and security price revaluation accounts, the general risk provision

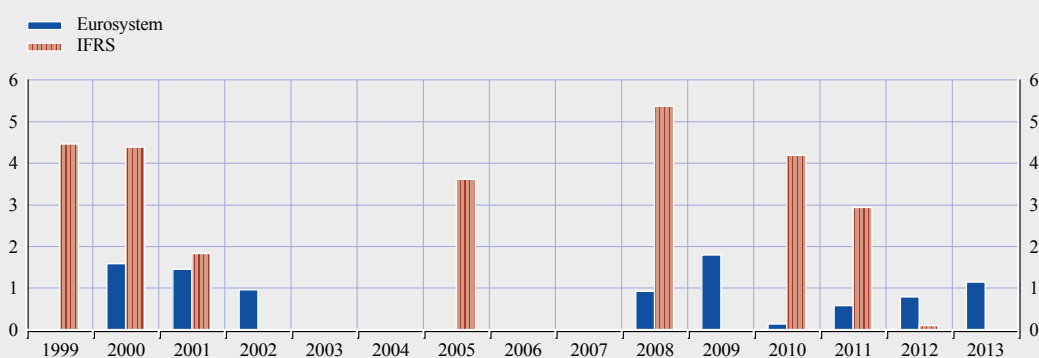
**Table 2 Simulation results for the profit distribution of the ECB**

Scenario	Accounting framework	Mean (in EUR billion)	Volatility
(i)	Eurosystem	0.74	0.77
	IFRS	1.86	2.16
(ii)	Eurosystem	0.62	0.72
	IFRS	1.16	1.77
(iii)	Eurosystem	0.62	0.66
	IFRS	1.79	2.11

Source: Own calculations.

**Chart 3 Simulation results for the profit distribution of the ECB under scenario (iii) – “loss coverage from limited profit retention”**

(EUR billion)



Source: Own calculations.



Table 3 Simulation results for the financial buffers of the ECB

Scenario	Accounting framework	Financial buffers excluding capital		Financial buffers excluding capital and gold	
		Mean (in EUR billion)	Volatility	Mean (in EUR billion)	Volatility
(i)	Eurosystem	13.75	9.21	7.41	4.63
	IFRS	7.54	6.00	1.20	1.20
(ii)	Eurosystem	13.31	9.47	6.97	4.97
	IFRS	4.45	7.40	-1.88	4.03
(iii)	Eurosystem	13.12	9.17	6.78	4.69
	IFRS	0.47	4.40	-5.87	4.98

Source: Own calculations.

and the general reserve fund, reduced by accumulated losses from previous years for the scenarios without loss coverage using the NCBs' monetary income (i.e. scenarios (ii) and (iii)). In contrast, general risk provisions and security price revaluation accounts are absent from the simulations under IFRS rules.<sup>25</sup> Currency revaluation accounts only exist for gold under IFRS. Table 3 shows the simulation results for the ECB's mean financial buffers in the period 1999 to 2013. The financial buffers excluding gold revaluation accounts are displayed separately.

It can be observed that the financial buffers are considerably higher under the Eurosystem accounting framework, while mean balances are very similar irrespective of the profit distribution scenario.<sup>26</sup> In contrast, under IFRS, the profit distribution scenarios do in fact make a substantial difference to the figures. In the "loss coverage from limited profit retention" scenario (iii), the average financial buffers available are even as low as €0.47 billion. The buffers in the corresponding scenario using Eurosystem accounting rules are about 28 times higher. It can therefore be deduced that automatic loss coverage is generally more advantageous for central banks applying IFRS.

Due to the large amount of gold holdings and volatility in the price of gold, balances on gold revaluation accounts exhibit considerable variation. Given that, in practice, gold cannot be used, e.g. sold to offset losses,<sup>27</sup> the same analysis is conducted excluding gold revaluation accounts – see the last two columns of Table 3. The variation in the financial buffers under the Eurosystem framework now decreases. Under IFRS, in the scenarios without loss coverage using the NCBs' monetary income (i.e. scenarios (ii) and (iii)), the accumulated losses are so high that the buffers become negative on average when gold revaluation accounts are excluded.

Chart 4 gives a graphical presentation of the ECB's financial buffers (excluding capital) over the sample period. It reveals that the buffers under the Eurosystem accounting framework are not only higher on average, but also higher in each year of the sample period. Under IFRS, in the scenarios without loss coverage using the NCBs' monetary income, the buffers excluding capital become

<sup>25</sup> Capital is also usually taken into account when evaluating financial buffers. However, the paid-up capital of the ECB is not utilised to offset losses (see Ingram, 2011). Therefore, capital is excluded in this comparison.

<sup>26</sup> In individual years, such as 2006, differences of up to €1.8 billion can be observed. This is so because the rules for establishing the general risk provision were changed in 2005, and, in 2006, the entire sizeable net profit was effectively transferred to the provision in order to build it up to its maximum level as quickly as possible. However, these differences are almost eliminated over time, as profits are used to compensate for accumulated losses.

<sup>27</sup> The Central Bank Gold Agreement, to which the ECB is a party, restricts the amount of gold that signatories may sell.

negative in several years, despite the inclusion of gold revaluation accounts. Even if one were to allow for the amount of capital, the ECB would have had negative equity in several years.

### 2.2.6 SUMMARY OF THE SIMULATION RESULTS

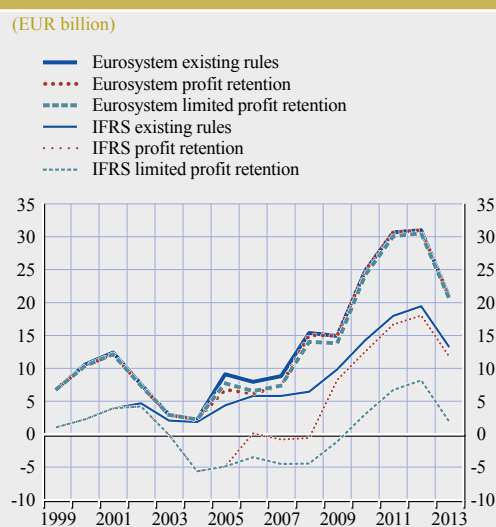
The two accounting frameworks have a significant impact on the profits reported by central banks. The ECB's profits would have been higher, on average, and more volatile under IFRS, mainly due to the symmetrical recognition of unrealised results in the income statement as compared with the Eurosystem accounting rules.

Profit distribution would also have been affected substantially when moving to IFRS as, in contrast to the Eurosystem's profit distribution arrangements, unrealised gains are not protected from distribution. Higher profits would thus imply a higher profit distribution under IFRS. Meanwhile, assuming that external recapitalisation is not automatically available would result in lower profit distribution; mainly in the "loss coverage from profit retention" scenario (ii), where profits are first used to cover losses.

Financial buffers, which are generally perceived as an indication of financial strength, are also significantly affected by the accounting framework implemented. These are higher in every year of the sample period under the Eurosystem accounting rules. Furthermore, both loss coverage from profit retention scenarios result in a substantial reduction of the financial buffers under IFRS, but only a marginal one under the Eurosystem accounting framework.

To conclude, the implementation of accounting standards can make a significant difference to the financial results of a central bank. In view of the simulations presented, the Eurosystem accounting framework that applies to the ECB appears to be justified and also appropriate in terms of supporting its financial independence. This can be assumed because, firstly, the lower profit levels than under IFRS are a consequence of the creation of higher financial buffers, which in turn imply greater financial strength and the reduced likelihood of the need for external recapitalisation. Secondly, a steady and less risky income stream could promote a positive market perception of the ECB's financial strength. Finally, assuming that financial buffers and financial strength can reinforce the credibility of a central bank, the Eurosystem accounting rules would seem to be more conducive to improving the financial independence of the ECB than the "pure" IFRS framework as it now stands, without special legislative provisions for excluding unrealised gains from distributed profits or the possibility of building up risk provisions.<sup>28</sup>

**Chart 4 Simulation results for the financial buffers of the ECB (excluding capital)**



Source: Own calculations.

<sup>28</sup> It should be borne in mind that, unlike the accounting framework, the profit distribution regimes of the Eurosystem NCBS are not harmonised. Were the ECB to have reported and distributed profits in accordance with the IFRS scenarios above, the various distribution schemes could have meant that the recipient NCBS would in turn have distributed larger profits to their respective governments, in many cases without the ability to build up buffers of their own. The result would have been a comparative weakening of the financial strength of the Eurosystem as a whole, and not just of the ECB.

### 3 ACCOUNTING AND FINANCIAL STABILITY

Financial statements not only record the financial situation of a reporting entity, they also influence its management decisions. Additionally, they affect the way investors perceive a company and thus have an impact on their investment decisions. Consequently, financial statements and accounting rules influence the behaviour of financial institutions, which may in turn have an effect on financial stability.

The role of accounting rules in the recent financial crisis is currently a contentious topic. In particular, the principles set out in International Accounting Standard 39 Financial Instruments: Recognition and Measurement (IAS 39), namely fair value measurement and impairment rules, have been subject to criticism in respect of financial stability. As a result, the International Accounting Standards Board (IASB) is currently developing a new standard, IFRS 9: Financial Instruments, to replace IAS 39.

In the following subsections, the effects of fair value accounting on the financial markets as a whole, and the advantages of adopting a more forward-looking loan loss provisioning model are discussed. Finally, the implications for the financial stability function of central banks are described.

#### 3.1 FAIR VALUE ACCOUNTING

By reflecting current market conditions and providing timely information, fair value<sup>29</sup> accounting was intended to increase transparency and thus reinforce disciplining effects imposed by the markets. In perfect and fully efficient capital markets with no information asymmetries, herd behaviour, build-up of bubbles and fire sales or liquidity problems, full fair value accounting can be seen as the most appropriate valuation method. In such circumstances, it should accurately reflect changes in the overall wealth of a reporting entity between two reporting dates. However, given market inefficiencies, some undesirable effects may occur, particularly in the case of financial institutions. For example, whilst recognising unrealised gains eliminates hidden reserves and thus helps improve transparency, making such gains distributable via the profit and loss account without any demonstrable proof that they are readily realisable may conflict with the accounting principle of prudence.<sup>30</sup> Furthermore, “marking to market” in this way may increase the volatility of the income statement. Pro-cyclicality in bank lending may arise from the immediate and excessive recognition of losses in economic downturns, leading to a reduction in the capital base of banks. Since banks have to hold capital against the risks inherent in their operations, they may then be forced to reduce lending or sell assets. In economic booms these effects reverse such that banks may further expand lending or buy assets.<sup>31</sup>

Another drawback is that pricing of non-marketable instruments or of assets with illiquid markets is based on models and assumptions, leaving considerable discretion to banks vis-à-vis the measurement of their assets. This increases opaqueness and reduces the comparability of financial statements.<sup>32</sup>

When the first proposal for IAS 39 was published in 1999, the concept of fair value accounting was heavily criticised by banks and regulators. In particular, the application of fair value measurement

29 According to IFRS 13, fair value is: “The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date”.

30 The prudence principle has been removed from IFRS.

31 See, for example, Amis and Rospars (2005) or Borio and Tsatsaronis (2005). A report by the IMF also provides a simulation through the business cycle and finds evidence for pro-cyclicality of fair value accounting (see IMF, 2008).

32 See ECB (2004).

to loans or other non-negotiable instruments and to some liabilities was seen as inappropriate.<sup>33</sup> In response, the IASB introduced the mixed attribute model in 2002, which allows banks to measure certain financial instruments of the banking book at amortised cost, but also includes a fair value option, whereby a financial institution can choose to measure any asset or liability at fair value. Again, the supervisory community and the ECB expressed some concerns.<sup>34</sup> Taking account of these concerns, in November 2004 the European Commission endorsed IAS 39, with the exception of two “carve-outs” relating to the fair value option and hedge accounting. The latter is not dealt with in this paper. After further changes, the fair value option was finally endorsed in full by the European Commission.

In response to the financial crisis that started in the summer of 2007, amendments to the IAS 39 rules on the reclassification of financial assets have been introduced by the IASB, and adopted by the European Commission, to mitigate the consequences of the crisis and give European companies the same flexibility as companies applying the United States Generally Accepted Accounting Principles (US GAAP).<sup>35</sup> More specifically, from the third quarter of 2008, banks have been allowed to reclassify certain non-derivative financial assets that were initially classified as “held-for-trading” or “available-for-sale” and measured at fair value, to “held-to-maturity” assets that are measured at amortised cost under certain circumstances. This was intended to prevent the immediate recognition of large losses in asset values and to thereby alleviate a downward spiral.

The severity and spread of the crisis also made policy-makers reconsider the rules on fair value accounting. G20 leaders agreed that the accounting standard-setters should improve standards for the valuation of financial instruments and reduce their complexity, while reaffirming the concept of fair value measurement. Indeed, as mentioned above, the IASB is currently developing IFRS 9 to replace the requirements under IAS 39. But some valid questions remain: did fair value accounting exacerbate the recent financial crisis? And should central banks, as the guardians of financial stability, raise their voices against the excessive use of fair value accounting?

Hoogervorst (2012) argues that fair value accounting played, at most, a minor role in the crisis as volatility was inherent to banks’ business models. Furthermore, financial reporting should contribute to stability by virtue of providing transparency. Stability, however, should not be considered the primary goal.

Some studies suggest that it was not the accounting rules per se, but other rules (such as regulatory requirements or collateral requirements) that accelerated the crisis by provoking a downward spiral. For example, banks relied heavily on repurchase agreements as refinancing instruments and also had large amounts of derivative contracts outstanding. Both types of business take into consideration the market values of the collateral provided, leading to margin calls in a market downturn that subsequently result in asset fire sales,<sup>36</sup> as was the case. In addition, Barth and Landsman (2010) and Laux and Leuz (2010) find that banks had most of their assets in portfolios that were not subject to fair value accounting. Furthermore, banks were mostly regulated based on prudent values for equity capital, using prudential filters to calculate the regulatory capital. In this way, the recognition of unrealised gains was neutralised.

33 See ECB (2001).

34 See Trichet (2004).

35 See European Commission (2008).

36 Laux and Leuz (2009) also argue that, as the accounting standards allow for deviation from market prices in fair value accounting in times of crises, it is difficult to claim that fair value accounting rules caused the fire sales observed during the crisis.

Other studies find that the accounting rules did indeed have a significant effect on banks' income statements and may thus have exacerbated the impact of the crisis. Jarolim and Öppinger (2012) empirically analyse the reaction of the European banking sector to the aforementioned amendments to the rules on reclassification of financial assets from October 2008 by focusing on 52 of the 80 banks included in the STOXX® Europe TMI Banks index.<sup>37</sup> They show that this reclassification option was used quite extensively by some banks and, on average, it avoided recognition of accounting losses of almost €900 million per bank.<sup>38</sup> The study reveals that banks could have run into substantial problems if the rules had not been amended at the peak of the crisis. Nevertheless, the application of historical cost accounting, which disguises the true financial situation of banks in periods of major market volatility, could not have alleviated the problems during the crisis.

In line with this, Georgescu and Laux (2013) find that three prominent German banking failures involved banks that were regulated using data based on historical costs. In addition, policy-makers reject the notion that historical cost accounting would be more suitable for promoting financial stability in the future. Among others, the IMF (2008) has concluded that despite the problems encountered with fair value accounting, it is still the most appropriate way of valuing financial instruments.

Although some current research fails to find clear empirical evidence that fair value accounting caused or significantly worsened the crisis, regulatory and financial stability policy-makers believe that the excessive use of fair value measurement, including the recognition of unrealised gains as income, artificially increases the volatility of profit and loss accounts and may exacerbate pro-cyclicality, which would not be beneficial for the resilience of the financial system. The ECB has itself stated that the “[financial] crisis confirmed the scepticism that fair value is not the most relevant measurement for all asset portfolios at every moment”.<sup>39</sup> Summing up, rules to limit the excessive use of fair value measurement are promoted by both the academic literature and regulatory and financial sector policy-makers.

### 3.2 LOAN LOSS PROVISIONING

Under IAS 39, the rules for impairment of loans currently follow the so-called “incurred loss model”. This model assumes that loans will be repaid in their entirety and that actual indications to the contrary must be identified before any impairment losses are recognised. Critics of the accounting standard argue that the recognition after identification of evidence, such as a counterparty failing to meet its contractual obligations, is much too late because the expenses in the income statement for impairments then accumulate in economic downturns when losses materialise. This provisioning regime therefore increases pro-cyclicality. In good times, when lending is already at a high level, banks are not required to set aside buffers for expected losses, and thus overstate the economic value of the loan portfolio and understate losses in the income statement. As a result, lending can be expanded beyond the amount that would be possible under a different accounting regime. In economic downturns high credit losses occur, but the lack of available provisions increases the losses reported in banks' income statements, which reduces capital and may force banks to recapitalise or reduce lending and sell assets. Hence, provisions set aside in good times could serve as a buffer against risk; one that alleviates the impact of these effects and reduces the likelihood of banks becoming insolvent.

37 TMI stands for Total Market Index.

38 For Deutsche Bank, the losses would have been approximately €5 billion.

39 See Constâncio (2012).

In contrast to the incurred loss model, the so-called “expected loss model” implements a forward-looking methodology. Under this model, impairments can be made in a timelier manner, potentially dampening pro-cyclicality. Credit losses that are expected to occur are reflected over the life span of credits, providing useful information for investors.

Naturally, this raises the question whether the expected loss model will actually achieve these desired effects in practice. In 2000, Spain had already adopted a dynamic provisioning approach that allowed for early recognition of future credit losses. Previously, Spanish banks had had the lowest ratio of provisions to non-performing loans amongst the Organisation for Economic Co-operation and Development (OECD) countries, whereas, by 2006, this ratio had become the highest among Western European countries. Nevertheless, there have been a vast number of write-offs of Spanish banks since the start of the crisis due to the real estate crisis in Spain. Hence, did dynamic provisioning fail to prevent the crisis for Spanish banks? It is obvious that the situation for Spanish banks would have been considerably worse without the large buffers set aside in good times. Moreover, Fernández de Lis and García Herrero (2009) find that the Spanish provisioning model reduced pro-cyclicality but did not eliminate it.

Meanwhile, Fillat and Montorial-Garriga (2010) analyse the effects that the Spanish provisioning model would have had on US banks during the crisis. In this hypothetical situation, about half of the US banks that received government support would not have required it. However, the provisions would not have been enough to cover all losses incurred, suggesting that the Spanish model is a good way of covering losses in “average” downturn periods, but would not suffice for a financial crisis that is as severe as the most recent one.

Chan-Lau (2012) notes that, in theory, dynamic provisioning should weaken pro-cyclicality. However, in a simulation exercise applied to the Chilean banking sector, he finds that while dynamic provisioning increases the resilience of banks it may not dampen pro-cyclicality. Therefore, dynamic provisioning might not be effective for dampening pro-cyclical effects in all jurisdictions and policy-makers should not rely solely on this approach to solve the problems encountered during a crisis. Instead, Chan-Lau recommends that additional counter-cyclical measures, such as the regulatory buffers proposed by the Basel III regime, should be considered. In line with these arguments, Hoogervorst (2012) states that: “The lesson is that economic cyclicality can be too powerful to be dented significantly by mere accounting”.

While the advantages of the expected loss model for the soundness of the financial system are acknowledged, there are certain critical aspects that should be considered when judging this model. Bushman and Williams (2012) examine banks across 27 countries and find that discretionary forward-looking provisioning can also be used to smooth or disguise earnings. This could weaken market discipline, as transparency and comparability of financial statements may then be reduced.

As mentioned above, the IASB aims at introducing a forward-looking impairment method during the course of 2014. In general, academics, the banking sector, central banks and regulatory authorities largely welcome the introduction of an expected loss provisioning regime. Yet, the details of how this should be implemented remain a matter of discussion.<sup>40</sup> Nonetheless, the ECB has expressed its support for moving to provisioning based on the expected loan loss.<sup>41</sup> It is believed that adequate forward-looking provisioning rules will mitigate pro-cyclicality and dampen the negative

40 The comments on the IASB’s Exposure Draft on expected credit losses (ED/2013/3) are publicly available in IASB (2013).

41 See, for example, Constâncio (2012).

effects of economic downturns, thereby contributing to the solvency of banks and the soundness of the banking system.

### 3.3 IMPLICATIONS FOR CENTRAL BANKS

Given the role played by fair value measurement and the loan impairment methodology in the recent financial crisis, there are two main conclusions to be drawn by central banks acting as guardians of financial stability.

First, when assessing the overall resilience of the financial sector, the implications of accounting frameworks should be taken into account.<sup>42</sup>

Second, central banks should assess accounting standards applicable to the entities in their jurisdiction from a financial stability perspective, and contribute to the public discussions on accounting standards as well as the standard-setting process.

Criteria to assess accounting standards from a financial stability perspective were presented by the European System of Central Banks (ESCB) Banking Supervision Committee in its report of December 2006 on the “Assessment of accounting standards from a financial stability perspective”.<sup>43</sup> The report identifies the risks to financial stability stemming from the accounting treatment of the banking sector. The Maystadt report requested by the European Commission (see Maystadt, 2013), which focuses on strengthening the EU’s voice in the field of accounting and financial reporting, even proposes formalising financial stability considerations in the IFRS adoption process in the EU by amending the IAS Regulation.<sup>44</sup> It suggests introducing two additional adoption criteria for IFRS standards in the EU, namely that the standards should not endanger financial stability or hinder economic growth. In addition, the report proposes to reform the European Financial Reporting Advisory Group (EFRAG).<sup>45</sup> It suggests, *inter alia*, giving the ECB and other European supervisory authorities the right to be represented on EFRAG’s supervisory board. In this way, the ECB could formally contribute to the comment letters of EFRAG addressed to the IASB and also to the advice to the European Commission on the endorsement of standards.

42 The Financial Stability Review of the ECB (e.g. ECB (2013a)) can be quoted as an example of how accounting frameworks are taken into account when analysing the leverage ratios of euro area banks.

43 See ECB (2006).

44 See Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards, OJ L 243/1.

45 EFRAG is a private European body providing technical advice to the European Commission on IFRS-related issues.

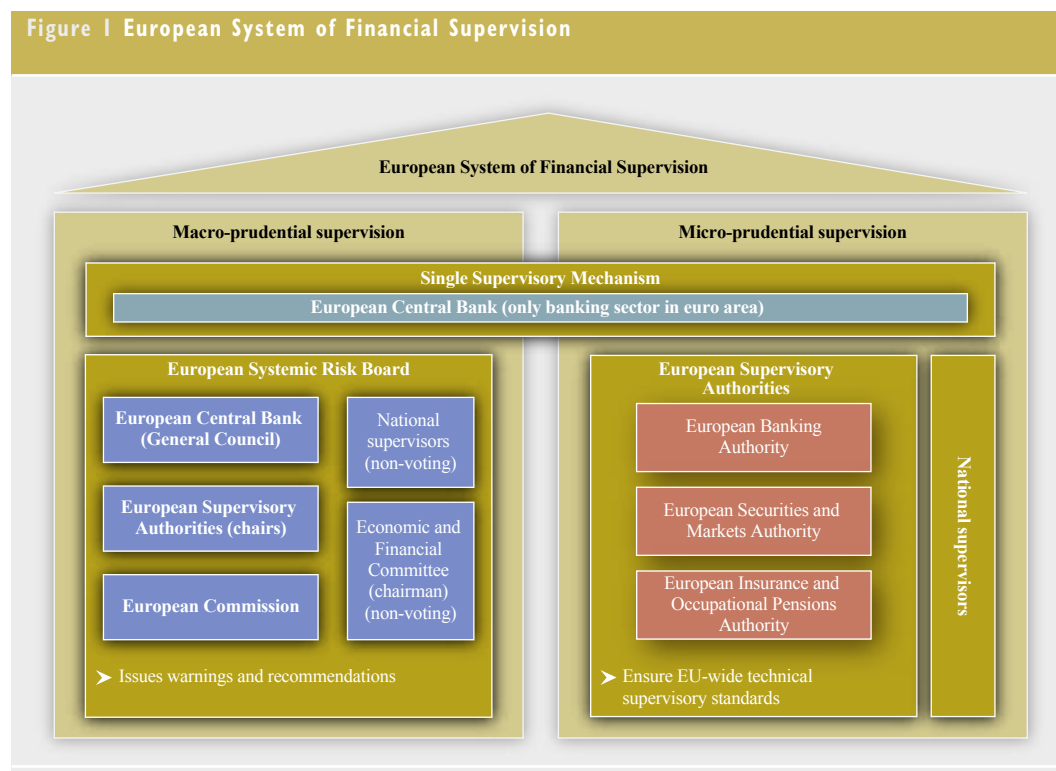
## 4 ACCOUNTING AND BANKING SUPERVISION

### 4.1 THE EUROPEAN SYSTEM OF FINANCIAL SUPERVISION AND THE NEW ROLE OF THE ECB

In response to the financial crisis a new institutional architecture was developed for the financial sector of the EU: the European System of Financial Supervision (ESFS) which started operations in 2011 and focuses on macro-prudential and micro-prudential supervision. Responsibility for the former lies with the European Systemic Risk Board (ESRB), while micro-prudential supervision is conducted by the three European Supervisory Authorities (ESAs), i.e. the European Banking Authority (EBA), the European Securities and Markets Authority (ESMA) and the European Insurance and Occupational Pensions Authority (EIOPA).<sup>46</sup>

To promote further integration of the European financial system and restore market confidence, the European Commission proposed the adoption of a banking union in September 2012. The SSM is an integral part of the banking union<sup>47</sup> and assigns specific banking supervision tasks to the ECB, which will formally commence with its work in November 2014. The ECB will be responsible for the direct supervision of significant credit institutions<sup>48</sup> and also for the effective and consistent functioning of the SSM. As such, it will grant and withdraw authorisations for credit institutions, carry out supervisory reviews, ensure compliance with the relevant legal acts, and cooperate closely with all other institutions of the ESFS. It will also work closely with national competent authorities

Figure 1 European System of Financial Supervision



46 Although accounting is also linked to macro-prudential supervision and to the supervision of markets or insurances, this chapter focuses on the micro-prudential supervision of banks.

47 For further details see Constâncio (2013).

48 The categorisation of significant credit institutions is based on certain criteria, such as total bank assets.



with regard to the supervision of all other banks. Consequently, national authorities will continue to play an important role in the euro area.

## 4.2 REGULATORY REQUIREMENTS AND THEIR RELIANCE ON ACCOUNTING VALUES

Given that accounting values are the basis for calculating capital and preparing a number of supervisory reports, accounting rules can substantially influence the work of central banks in charge of banking supervision. The paper now examines the reliance of supervisory reports on accounting data and the differences that accounting frameworks can make to supervisory ratios, using the leverage ratio as an example.

In the wake of the financial crisis, various initiatives to strengthen regulatory requirements and develop additional reporting requirements have evolved. Probably the best-known one is the Basel III framework developed by the Basel Committee on Banking Supervision, which aims at strengthening the quality and level of the capital base of financial institutions by increasing own funds requirements. In addition, Basel III introduces multi-dimensional regulation and supervision, with capital, liquidity<sup>49</sup> and leverage ratios covering the whole balance sheet of banks.

In the EU, Basel III is implemented by the so-called “CRD IV package”, consisting of the Capital Requirements Directive<sup>50</sup> and the Capital Requirements Regulation<sup>51</sup> (CRR), which took effect on 1 January 2014.<sup>52</sup> Accounting rules are of great importance because the mandatory supervisory ratios and reports specified in the new directive and regulation are largely based on accounting data, as discussed in more detail below. Even in cases where accounting data are replaced by prudential data in the context of regulatory requirements, accounting rules may still have an impact on regulatory capital ratios.<sup>53</sup>

### 4.2.1 COMMON REPORTING REQUIREMENTS

Some of the most prominent and probably most important requirements of Basel III are those concerning minimum capital. The three capital ratios specified in Article 92 of the CRR are reported under the COREP framework and calculated as follows: the relevant capital base (i.e. Common Equity Tier 1 capital, Tier 1 capital or own funds) divided by the total risk exposure amount, as per Equation 1 below. This equation uses the example of the Common Equity Tier 1 capital ratio, which is considered the core measure of a bank’s financial strength.

#### Equation 1 Common Equity Tier 1 capital ratio according to Article 92 of the CRR

$$\text{Common Equity Tier 1 capital ratio} = \frac{\text{Common Equity Tier 1 capital}}{\text{Total risk exposure amount}}$$

Capital instruments qualify as Common Equity Tier 1 capital if, among other things, they are classified as equity under the accounting framework applied by the financial institution and if

49 The liquidity ratio will be not described in the paper, as its dependence on accounting rules is not so pronounced.

50 Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC, OJ L 176/338.

51 Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012, OJ L 176/1.

52 See European Commission (2013).

53 See BCBS (2013).

they are disclosed in the balance sheet.<sup>54</sup> Deductions to arrive at Common Equity Tier 1, such as intangible assets or deferred tax assets, also depend on the relevant accounting values. With due regard to the different objectives of accounting and supervisory data, prudential filters are applied in order to adjust accounting measures to prudential measures. These prudential filters foresee exclusions from regulatory capital of elements related to securitised assets as well as cash flow hedges. The prudential filters also stipulate additional value adjustments for positions measured at fair value. This means that the differences in values calculated according to the regulatory rules and those calculated according to the rules on fair value measurement specified in IFRS 13 must be deducted from Common Equity Tier 1 capital.<sup>55</sup> Hence, despite the influence of accounting values, regulatory capital and accounting capital will generally differ. In order to understand the differences, institutions must reconcile all the regulatory capital items back to the balance sheet in their audited financial statements. Pursuant to paragraph 1 (a) of Article 437 of the CRR, this reconciliation has to be disclosed to the general public.<sup>56</sup>

Meanwhile, the denominator of the capital ratios, i.e. the total risk exposure amount, is calculated using so-called “exposure values”, which are adjusted for the risk of the exposure. According to paragraph 1 (see first sentence) of Article 166 of the CRR, “the exposure value of on-balance sheet exposures shall be the accounting value measured without taking into account any credit risk adjustments made.”<sup>57</sup> Therefore, both the numerator and the denominator of the capital ratios largely depend on the accounting rules applied by banks.

#### 4.2.2 FINANCIAL REPORTING REQUIREMENTS

In addition to the prudential reporting under the COREP framework, institutions have to submit financial information to their relevant supervisory authority. These reports, referred to as “FINREP”, find their legal basis in paragraph 2 of Article 99 of the CRR. The reports include the balance sheet, off-balance-sheet activities and the income statement, and provide a detailed breakdown of the positions involved. The values reported are measured in line with the relevant accounting framework, which is IFRS for most banks in the EU. No adjustments to the accounting figures are made. FINREP poses an enormous challenge to both financial institutions and supervisors because of the vast amount of data reported. Supervisors must process and analyse the data received. In addition, the consistency of data reported in annual accounts, COREP and FINREP has to be ensured.<sup>58</sup>

#### 4.2.3 LEVERAGE RATIO

In contrast to risk-based capital requirements, the leverage ratio is a more tangible and simple measure; designed to be internationally comparable and to restrict the build-up of leverage in the banking system.<sup>59</sup> The leverage ratio is defined as Tier 1 capital (Common Equity Tier 1 capital and additional instruments) divided by total exposure. Just as for the calculation of the three capital ratios, the total exposure measure comprises the exposure values of all assets on the balance sheet as well as off-balance-sheet items. But, in contrast to the capital ratios, the total exposure measure used for the leverage ratio is not risk-adjusted.

54 See paragraph 1 (c) ii and paragraph 1 (d) of Article 28 of the CRR.

55 The additional value adjustments will be specified in Regulatory Technical Standards proposed by the EBA.

56 Financial institutions must follow disclosure requirements to allow financial markets to assess the risk situation and capital buffers of institutions. The requirements are often referred to as “market discipline requirements”.

57 The cited definition is the exposure value for exposures under the Internal Ratings-Based Approach. The corresponding definition for the Standardised Approach can be found in paragraph 1 of Article 111 of the CRR.

58 Israël et al. (2013) outline recent developments in the collection of statistical and regulatory data with better cross-country comparability in response to the financial crisis.

59 See the declaration of the G20 leaders at the London summit on “Strengthening the Financial System” of 2 April 2009.

**Equation 2 Leverage ratio according to Article 429 of the CRR**

$$\text{Leverage ratio} = \frac{\text{Tier 1 capital}}{\text{Total exposure measure}}$$

Despite efforts to find an internationally comparable measure, the leverage ratio varies across jurisdictions due to different accounting regimes, variations in balance sheet presentation and domestic regulatory adjustments, with accounting regimes being responsible for the largest differences.<sup>60</sup> A study by the US Federal Deposit Insurance Corporation (FDIC) compared the leverage ratios of global systemically important banks (G-SIBs) using different accounting regimes, namely US GAAP and IFRS. The leverage ratios of US G-SIBs were modified to take account of differences in rules for netting in order to derive a crude estimate of the leverage ratio of these firms under IFRS. When calculating total assets to determine the crude IFRS estimate, disclosed netted amounts applied to derivatives were added back to the total assets reported under US GAAP. The differences due to the accounting rules turned out to be substantial: the average leverage ratio of US G-SIBs is 6.17% under US GAAP, but only 3.88% under the IFRS estimate.<sup>61</sup>

As regards the implementation of the leverage ratio in the EU, the EBA was mandated to develop draft Implementing Technical Standards. To facilitate cross-jurisdictional comparisons, the proposed reporting templates for banks in the EU include a reconciliation of accounting assets reported in published financial statements and regulatory exposures, as required by the CRR.<sup>62</sup>

**4.3 IMPLICATIONS FOR SUPERVISORY AUTHORITIES**

Banking supervisors have good reason to call for the application of high-quality accounting frameworks. The supervisory assessment of banks largely depends on the regulatory ratios and reports that are submitted to them. And, of the regulatory ratios, the pivotal capital ratios and the leverage ratio are determined using accounting figures. COREP reports contain, to a large extent, adjusted accounting figures, and FINREP is based solely on accounting data. Furthermore, not only do these regulatory ratios and reports mostly depend on accounting figures, but also, as shown by the FDIC, the type of accounting framework implemented can make a substantial difference to the numbers. Consequently, an unequal treatment of commercial banks by a supervisory authority might be the result of the application of different accounting frameworks.

Therefore, it is important for supervisors to understand the accounting rules behind the figures and to promote sound accounting practices. G20 leaders have proposed the development of a single set of high-quality global accounting standards, which would facilitate comparability of accounting data and supervisory ratios. Greater harmonisation of accounting frameworks is also supported by the ECB.<sup>63</sup> Given that IFRS in the EU apply only to the consolidated accounts of listed companies, not all of the banks here have set up their accounts according to IFRS. There is a risk of not fully understanding the differences in accounting rules among Member States. Consequently, from the SSM perspective, it would be preferable to require that the banks to be supervised apply IFRS, and thereby ensure equivalence in any regulatory assessment of data dependent on accounting figures.

60 See D'Hulster (2009) and ECB (2013a).

61 See Hoenig (2013).

62 See EBA (2013) for the draft implementation standard.

63 See Constâncio (2012).

## 5 CONCLUSION

Many central bank activities depend on accounting data and accounting frameworks. In this context, this paper has analysed three fields of responsibility of a typical central bank, namely monetary policy, financial stability and banking supervision.

The successful implementation of monetary policy can be impaired by the financial weakness of a central bank. Using a new analysis of the ECB's financial results based on different profit distribution and loss coverage scenarios under the Eurosystem and IFRS accounting frameworks, this paper provides evidence for the influence of accounting rules on financial results. The difference in the level and volatility of profits, profit distribution and financial buffers resulting from the two frameworks can be substantial, while the impact of different profit distribution and loss coverage rules on financial buffers is more visible under IFRS. Given the prevailing heterogeneous profit distribution and loss coverage rules of its members, the Eurosystem accounting framework is clearly the most conducive to building up financial buffers and, therefore, to improving the financial strength of both the ECB and the Eurosystem.

Accounting rules can be detrimental to financial stability. Fair value measurement and impairment methodologies, as applied by financial institutions before and during the crisis, might have fostered pro-cyclicality and exacerbated the recent financial crisis. This paper recommends restricting the excessive use of fair value measurement and applying a loan impairment concept based on expected losses as the most appropriate way forward. In general, central banks acting as guardians of financial stability, should understand and take into consideration accounting aspects when analysing issues related to financial stability. In addition, they should contribute directly to the discussion on accounting standards, particularly during the course of the standard-setting process.

Regulatory requirements and reports are, to a great extent, based on accounting definitions and accounting data. Therefore, the effectiveness of banking supervision is influenced by the choice of accounting framework on the part of the banks supervised. This paper has analysed the regulatory requirements of the CRD IV package and highlighted the parts with a strong reliance on accounting rules or data. In addition, using the example of the leverage ratio, it has shown that accounting rules can make a substantial difference to supervisory ratios, impeding the international comparability of key metrics required in the supervision process. Consequently, supervisors should understand and follow the developments in accounting standards, and support the application of a globally-accepted high-quality accounting framework. This is particularly the case for the Eurosystem, which will see the establishment of the SSM in 2014.

## APPENDICES

## I ECB CAPITAL, BALANCE SHEET AND PROFIT AND LOSS ACCOUNT

Table A.1 ECB capital key		
	Capital key %	Paid-up capital (as from 1 January 2014) EUR
Nationale Bank van België/Banque Nationale de Belgique	2.4778	268,222,025.17
Deutsche Bundesbank	17.9973	1,948,208,997.34
Eesti Pank	0.1928	20,870,613.63
Central Bank of Ireland	1.1607	125,645,857.06
Bank of Greece	2.0332	220,094,043.74
Banco de España	8.8409	957,028,050.02
Banque de France	14.1792	1,534,899,402.41
Banca d'Italia	12.3108	1,332,644,970.33
Central Bank of Cyprus	0.1513	16,378,235.70
Latvijas Banka	0.2821	30,537,344.94
Banque centrale du Luxembourg	0.203	21,974,764.35
Central Bank of Malta	0.0648	7,014,604.58
De Nederlandsche Bank	4.0035	433,379,158.03
Oesterreichische Nationalbank	1.9631	212,505,713.78
Banco de Portugal	1.7434	188,723,173.25
Banka Slovenije	0.3455	37,400,399.43
Národná banka Slovenska	0.7725	83,623,179.61
Suomen Pankki – Finlands Bank	1.2564	136,005,388.82
<b>Total for euro area NCBs</b>	<b>69.9783</b>	<b>7,575,155,922.19</b>
Българска народна банка (Bulgarian National Bank)	0.859	3,487,005.40
Česká národní banka	1.6075	6,525,449.57
Danmarks Nationalbank	1.4873	6,037,512.38
Hrvatska narodna banka	0.6023	2,444,963.16
Lietuvos bankas	0.4132	1,677,334.85
Magyar Nemzeti Bank	1.3798	5,601,129.28
Narodowy Bank Polski	5.123	20,796,191.71
Banca Națională a României	2.6024	10,564,124.40
Sveriges Riksbank	2.2729	9,226,559.46
Bank of England	13.6743	55,509,147.81
<b>Subtotal for non-euro area NCBs</b>	<b>30.0217</b>	<b>121,869,418.02</b>

**Table A.2 Development of selected balance sheet items 1999 to 2013**

	1999	2000	2001	2002	2003
Assets					
Gold and gold receivables	6,957	7,041	7,766	8,058	8,145
Claims denominated in foreign currency	44,518	41,300	44,871	40,364	31,605
Claims denominated in EUR	6,540	4,654	4,815	183	475
Intra-Eurosystem claims		13,081	9,697	34,150	39,499
Claims related to the allocation of euro banknotes				28,681	34,899
Other claims within the Eurosystem (net)		13,081	9,697	5,468	4,600
Other assets	1,468	1,264	911	7,512	6,331
Loss for the year	247				477
<b>Total</b>	<b>59,730</b>	<b>67,339</b>	<b>68,061</b>	<b>90,268</b>	<b>86,532</b>
Liabilities					
Banknotes in circulation				28,681	34,899
Liabilities denominated in EUR	1,382	4,789	1,293	1,264	1,212
Liabilities denominated in foreign currency	4,709	4,803	5,858	5,192	1,452
Intra-Eurosystem liabilities	41,190	39,469	40,497	40,497	40,497
Other liabilities	1,540	1,678	1,853	1,493	1,337
Provisions	22	2,637	2,803	2,645	87
Revaluation accounts	6,861	7,973	9,429	4,405	2,176
Capital and reserves	4,027	4,000	4,506	4,870	4,870
Profit for the year		1,990	1,822	1,220	
<b>Total</b>	<b>59,730</b>	<b>67,339</b>	<b>68,061</b>	<b>90,268</b>	<b>86,532</b>

Note: Figures as in corresponding annual report in EUR millions; totals may not add up due to rounding.

**Table A.3 Development of the Profit and Loss Account 1999 to 2013**

	1999	2000	2001	2002	2003	2004	2005
Interest income on foreign reserve assets	1,515	2,507	1,707	991	541	422	889
Interest income arising from the allocation of euro banknotes within the Eurosystem				727	698	733	868
Other interest income	3,357	4,657	2,271	1,965	1,450	1,457	1,794
<b>Total interest income</b>	<b>4,872</b>	<b>7,165</b>	<b>3,979</b>	<b>3,683</b>	<b>2,689</b>	<b>2,612</b>	<b>3,552</b>
Remuneration of NCBs' claims in respect of foreign reserves transferred	-913	-1,375	-1,509	-1,141	-808	-693	-710
Other interest expense	-3,205	-4,375	-1,698	-1,547	-1,167	-1,229	-1,572
<b>Total interest expense</b>	<b>-4,118</b>	<b>-5,750</b>	<b>-3,207</b>	<b>-2,688</b>	<b>-1,975</b>	<b>-1,922</b>	<b>-2,282</b>
<b>Net interest income</b>	<b>754</b>	<b>1,414</b>	<b>771</b>	<b>995</b>	<b>715</b>	<b>690</b>	<b>1,270</b>
Realised gains/losses arising from financial operations	-265	3,353	1,352	735	525	136	149
Write-downs on financial assets and positions	-605	-1	-109	-277	-3,973	-2,093	-97
Transfer to provisions for foreign exchange rate and price risks		-2,600	109	154	2,569	0	-992
<b>Net result of financial operations, write-downs and risk provisions</b>	<b>-870</b>	<b>752</b>	<b>1,352</b>	<b>612</b>	<b>-879</b>	<b>-1,957</b>	<b>-940</b>
Other income and expenses from fees and commissions	1	2	2	4	3	6	18
Staff costs	-61	-80	-97	-120	-130	-161	-153
Administrative expenses	-61	-83	-185	-134	-154	-176	-158
Depreciation of tangible fixed assets	-10	-14	-20	-18	-30	-34	-32
Banknote production services				-118	-2	-3	-4
<b>Profit/loss for the year</b>	<b>-247</b>	<b>1,990</b>	<b>1,822</b>	<b>1,220</b>	<b>-477</b>	<b>-1,636</b>	<b>0</b>

Note: Figures as in corresponding annual report in EUR millions; totals may not add up due to rounding.

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
7,928	10,065	9,930	10,280	10,664	12,355	17,016	19,644	20,359	14,064
29,655	34,142	32,502	32,890	63,837	38,750	44,040	46,255	44,161	40,662
88	13	4	125	629	2,182	19,759	24,480	22,056	18,695
43,512	50,364	53,805	71,372	295,117	70,873	67,176	120,483	97,681	76,495
40,101	45,217	50,259	54,131	61,022	64,513	67,176	71,090	73,007	76,495
3,411	5,147	3,546	17,241	234,096	6,360		49,393	24,674	
7,393	8,160	9,525	11,376	13,656	13,838	15,532	20,009	23,035	24,259
1,636									
<b>90,212</b>	<b>102,743</b>	<b>105,766</b>	<b>126,043</b>	<b>383,903</b>	<b>137,998</b>	<b>163,523</b>	<b>230,871</b>	<b>207,292</b>	<b>174,175</b>
40,101	45,217	50,259	54,131	61,022	64,513	67,176	71,090	73,007	76,495
1,187	1,699	1,170	15,621	254,951	10,571	2,307	78,378	51,912	25,820
1,260	856	331	667	1,718	19	478	407		19
39,782	39,782	39,782	40,042	40,150	40,204	61,430	40,308	40,308	40,430
1,464	1,964	2,162	2,593	5,213	1,337	1,812	2,744	2,490	1,342
111	1,028	2,394	2,694	4,039	4,043	5,217	6,408	7,595	7,620
1,921	8,109	5,578	6,169	11,353	10,915	19,627	24,325	23,335	13,358
4,385	4,089	4,089	4,127	4,137	4,142	5,306	6,484	7,650	7,653
	0	0	0	1,322	2,253	171	728	995	1,440
<b>90,212</b>	<b>102,743</b>	<b>105,766</b>	<b>126,043</b>	<b>383,903</b>	<b>137,998</b>	<b>163,523</b>	<b>230,871</b>	<b>207,292</b>	<b>174,175</b>

2006	2007	2008	2009	2010	2011	2012	2013
1,318	1,355	997	700	366	290	229	187
1,319	2,004	2,230	787	653	856	633	406
2,762	4,380	8,431	5,608	4,796	8,331	10,917	6,477
<b>5,399</b>	<b>7,739</b>	<b>11,658</b>	<b>7,096</b>	<b>5,816</b>	<b>9,478</b>	<b>11,779</b>	<b>7,071</b>
-965	-1,357	-1,400	-443	-347	-434	-307	-192
-2,462	-3,962	-7,877	-5,106	-4,047	-7,044	-9,183	-4,874
<b>-3,427</b>	<b>-5,319</b>	<b>-9,277</b>	<b>-5,549</b>	<b>-4,394</b>	<b>-7,478</b>	<b>-9,490</b>	<b>-5,066</b>
<b>1,972</b>	<b>2,421</b>	<b>2,381</b>	<b>1,547</b>	<b>1,422</b>	<b>1,999</b>	<b>2,289</b>	<b>2,005</b>
475	779	662	1,103	474	472	319	52
-718	-2,534	-3	-38	-195	-157	-4	-114
-1,379	-286	-1,339	35	-1,163	-1,166	-1,166	0
<b>-1,622</b>	<b>-2,042</b>	<b>-679</b>	<b>1,099</b>	<b>-884</b>	<b>-851</b>	<b>-852</b>	<b>-63</b>
11	7	8	8	48	22	21	25
-161	-169	-174	-187	-196	-216	-222	-241
-166	-185	-183	-186	-197	-208	-220	-260
-29	-26	-23	-21	-14	-11	-13	-19
-5	-5	-7	-6	-9	-6	-8	-8
<b>0</b>	<b>0</b>	<b>1,322</b>	<b>2,253</b>	<b>171</b>	<b>728</b>	<b>995</b>	<b>1,440</b>

## 2 METHODOLOGICAL ASSUMPTIONS FOR THE SIMULATION OF THE ECB'S FINANCIAL RESULTS UNDER IFRS IN SECTION 2.2

The set of methodological assumptions underlying the calculation of the hypothetical ECB financial result under IFRS is summarised in the following table.

**Table A.4 Assumptions underlying the calculation of the ECB's financial results under IFRS in scenario (i) – “existing rules”**

Issue/provision	Assumed treatment under IFRS
Price revaluation of securities that are not held-to-maturity (HTM)	Revaluation gains and losses, which are treated asymmetrically under the Eurosystem rules, are both taken to the profit and loss account as the securities are assumed to be held-for-trading.
Currency revaluation of items denominated in foreign currency	Revaluation gains and losses, which are treated asymmetrically under the Eurosystem rules, are taken to the profit and loss account.
Gold	The IFRS framework is inadequate when it comes to the massive amounts of monetary gold held by central banks, as gold is treated like a commodity. For the purposes of this study, gold is measured at end-of-period market value, but unrealised gains and losses are transferred to gold revaluation accounts, as per the Eurosystem rules. This is in order to avoid substantial distortions caused by the marked increase in the price of gold during the sample period.
General risk provision	Not allowed under IFRS. Transfers to and from provisions are removed from the income statement to arrive at adjusted net profit/loss figures.
Deposits and repo/reverse repo transactions	At amortised cost, as per the Eurosystem rules.
Impairment on the HTM portfolios <sup>1)</sup>	Not applicable, as no impairment losses were recorded during the sample period.
Net profit retention	For each single year, 20% of the net profit is retained in the general reserve fund and 80% of the net profit is distributed to the shareholders.
Transfer to the general reserve fund	As in the past, the transfer of profit to the general reserve fund results in an equivalent increase in the own funds portfolio and a reduction in TARGET balances.
Disinvestment of own funds portfolio	No disinvestment of the own funds portfolio is assumed if the general reserve fund is used to cover a loss.
Income adjustment <sup>2)</sup>	The profit and loss account is further adjusted to provide for: – interest income/expense due to different TARGET balances (e.g. profit distribution and pooling of monetary income are settled in TARGET and therefore different TARGET balances would arise under IFRS); – income arising due to the different balance of the own funds portfolio (as a result of the different transfers to the general reserve fund and the general risk provision).
Loss coverage	Following the exhaustion of the general reserve fund, pooled monetary income from the national central banks is used to exactly offset the loss.
Timing of events	For practical reasons, it is assumed that profit distribution, an allocation of capital to the general reserve fund, investment in own funds portfolio and pooling of monetary income all take place at the beginning of the following reporting year.
Items not considered due to their minor impact	- Differences in the capital and foreign reserve contributions of new Eurosystem entrants as a result of different net equity at end of preceding period. - Compound interest on interest income adjustments due to different TARGET balances.

1) The ECB holds three securities portfolios for monetary policy purposes classified as held-to-maturity portfolios: the first covered bonds purchase programme (CBPP) since 2009; the Securities Markets Programme (SMP) since 2010; and the second covered bonds purchase programme (CBPP2) since 2011.

2) Further details on income adjustments are provided in Appendix 3.



### 3 INCOME ADJUSTMENTS APPLIED IN THE SIMULATION

The following income adjustments should be noted:

(a) the transfer of monetary income to the ECB to cover a loss results in claims vis-à-vis the NCBs in the TARGET system, which are remunerated at the main refinancing operation (MRO) rate – this leads to higher interest income in subsequent years;

(b) profit distribution to the NCBs results in TARGET liabilities, reducing the interest income of subsequent years;

(c) the ECB's "own funds portfolio" is a euro-denominated investment portfolio held as a direct counterpart to capital, the general reserve fund and the general risk provision (see the "Annual Report 2013"). Transfers to the general reserve fund or to the general risk provision lead to investment of equivalent sums in the own funds portfolio. Purchases of securities for the own funds portfolio are settled via the TARGET system. Hence, these transfers lead to higher TARGET liabilities and lower TARGET income, but higher income from the investment portfolio. The impact of the additional balances in the own funds portfolio on the price revaluation buffers is also estimated.

#### EXAMPLE

The following example illustrates the way in which the above income adjustments were applied. In 1999 the reported net result of the ECB was a loss. Thus, there was no distribution of profits and no transfer to the general reserve fund. The NCBs transferred €220 million of their monetary income to the ECB via the TARGET system to cover the ECB's loss. The simulated profit for 1999 under the IFRS framework would have been €5,576 million. Therefore, under IFRS, 80% of this profit – €4,461 million – would have been distributed and none of the NCBs' monetary income would have been necessary. The total difference between the TARGET balances of the ECB under the Eurosystem rules and under the IFRS framework would then have been €4,681 million (€220 million + €4,461 million).

Therefore, under IFRS, the interest income of the ECB in the subsequent year would have been lower by the difference in the TARGET balance multiplied by the average MRO rate. In this example, this reduction in income, which is deducted from the ECB profit in 2000, is €161 million (€4,681 million x 3.43%).

In addition, under IFRS the estimated transfer to the general reserve fund would have been €1,143 million higher than it was under the Eurosystem rules. As the ECB undertakes investments in its own funds portfolio of the same amount as transfers to the general reserve fund, the ECB would also have had a higher investment amount in its own funds portfolio and higher TARGET liabilities if IFRS had been the accounting framework implemented. This would also result in an additional adjustment due to the difference between the accounting return on the own funds portfolio and the MRO rate.

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