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Editors in chief	*Doris Ritzberger-Grünwald, Helene Schuberth*
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Scientific coordinators	*Markus Eller, Martin Feldkircher*
Editing	*Owen Davies, Dagmar Dichtl, Jennifer Gredler, Ingeborg Schuch, Susanne Steinacher*
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Questionnaire – Focus on European Economic Integration
https://de.surveymonkey.com/r/feei_survey-2016
This questionnaire aims to provide the Oesterreichische Nationalbank (OeNB) with an update on how the OeNB's quarterly publication Focus on European Economic Integration (FEEI) is currently perceived by its readers. The results of this survey will be used to further improve the quality of this publication. For this purpose, your evaluation and feedback is critical. The survey is open until early October 2016.

As from 2016, Focus on European Economic Integration is available online only at:
http://www.oenb.at/en/Publications/Economics/Focus-on-European-Economic-Integration.html

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In 2000, the Oesterreichische Nationalbank (OeNB) established an award to commemorate Olga Radzyner, former Head of the OeNB's Foreign Research Division, who pioneered the OeNB's CESEE-related research activities. The award is bestowed on young economists for excellent research on topics of European economic integration and is conferred annually. In 2016, four applicants are eligible to receive a single payment of EUR 3,000 each from an annual total of EUR 12,000.

Submitted papers should cover European economic integration issues and be in English or German. They should not exceed 30 pages and should preferably be in the form of a working paper or scientific article. Authors shall submit their work before their 35th birthday and shall be citizens of any of the following countries: Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, FYR Macedonia, Hungary, Kosovo, Latvia, Lithuania, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia or Ukraine. Previous winners of the Olga Radzyner Award, ESCB central bank employees as well as current and former OeNB staff are not eligible. In case of co-authored work, each of the co-authors has to fulfill all the entry criteria.

Authors shall send their submissions either by electronic mail to *eva.gehringer-wasserbauer@oenb.at* or by postal mail – with the envelope marked "Olga Radzyner Award 2016" – to the Oesterreichische Nationalbank, Foreign Research Division, POB 61, 1011 Vienna, Austria. Entries for the 2016 award should arrive by September 16, 2016, at the latest. Together with their submissions, applicants shall provide copies of their birth or citizenship certificates and a brief CV.

For detailed information, please visit the OeNB's website at *www.oenb.at/en/About-Us/Research-Promotion/Grants/Olga-Radzyner-Award.html* or contact Ms. Eva Gehringer-Wasserbauer in the OeNB's Foreign Research Division (write to *eva.gehringer-wasserbauer@oenb.at* or phone +43-1-40420-5226).

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The Oesterreichische Nationalbank (OeNB) invites applications from external researchers (EU or Swiss nationals) for participation in a Visiting Research Program established by the OeNB's Economic Analysis and Research Department. The purpose of this program is to enhance cooperation with members of academic and research institutions (preferably postdoc) who work in the fields of macroeconomics, international economics or financial economics and/or pursue a regional focus on Central, Eastern and Southeastern Europe.

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Applications (in English) should include

- a curriculum vitae,
- a research proposal that motivates and clearly describes the envisaged research project,
- an indication of the period envisaged for the research visit, and
- information on previous scientific work.

Applications for 2017 should be e-mailed to *eva.gehringer-wasserbauer@oenb.at* by November 1, 2016.

Applicants will be notified of the jury's decision by mid-December. The following round of applications will close on May 1, 2017.

Studies

The development of bank profitability in Denmark, Sweden and Switzerland during a period of ultra-low and negative interest rates

Thomas Scheiber,
Maria Silgoner,
Caroline Stern[1]

In June 2014, the ECB decided to lower its interest rate on the deposit facility for the first time to below zero with the aim of countering deflation risks. Negative central bank interest rates have no precedent in history and thus raise questions about potential unintended side effects on the economy and the banking system. To evaluate the risks of such side effects, we investigate the development of bank profitability in three European countries that look back on more than one year of negative interest rates: Denmark, Sweden and Switzerland. Overall we conclude that in these countries, negative interest rates have so far not resulted in a significant reduction of bank profitability and particularly of net interest income. Declines in interest income have been more than compensated for by declines in interest expenses. Most fears about unintended consequences of negative interest rates, such as a rush to cash or a reduction of credit supply, have so far not materialized.

JEL classification: E43, E52, G21
Keywords: low interest rate environment, monetary transmission, bank profitability

On June 5, 2014, the Governing Council of the ECB decided to lower the ECB's interest rate on the deposit facility into negative territory for the first time, namely to –0.10%. Three interest rate cuts later the deposit facility rate had reached a level of –0.40% in March 2016. This is the interest rate at which commercial banks may deposit any excess liquidity with the Eurosystem over night. While before the crisis, commercial banks did not use the deposit facility regularly as they could make better deals in the interbank market, the general reluctance to lend to other banks and the overall excess liquidity that currently exists in the financial system have increased the use of the deposit facility substantially, so that now the deposit facility rate has direct implications for money market and customer rates.[2] The interest rate on the main refinancing operation, i.e. the rate at which banks can borrow one-week liquidity from the ECB, was reduced to 0.00% on March 16, 2016.

Any change in key interest rates has important consequences for many economic aggregates such as inflation, GDP growth, exchange rates or demand and supply for loans, but also for asset prices and the distribution of wealth and incomes. The monetary transmission mechanism describes how an interest rate cut ultimately affects the economy. Recent literature (e.g. Hannoun, 2015) suggests that the extreme case of negative interest rates may fundamentally change several of the transmission channels, thus opening the discussion on whether there is an absolute lower bound for interest rates – which may be at or below zero.

[1] *Oesterreichische Nationalbank (OeNB), Foreign Research Division, thomas.scheiber@oenb.at, maria.silgoner@oenb.at and caroline.stern@oenb.at (corresponding author).* *The authors would like to thank Reimo Juks from Sveriges Riksbank, Thomas Nitschka from the Swiss National Bank, Dubravko Mihaljek from the Bank for International Settlements and Louise Funch Soerensen from Danmarks Nationalbank as well as Peter Backé, Christian Belabed, Angelika Knollmayer, Claudia Kwapil, Paul Ramskogler and Helene Schuberth (all OeNB) for helpful comments and valuable suggestions. Opinions expressed by the authors do not necessarily reflect the official viewpoint of the OeNB or of the Eurosystem.*

[2] *An alternative to overnight interbank market lending or the deposit facility – namely to leave any excess liquidity on the Eurosystem's current account – currently yields the same interest rate of –0.40% for all amounts that exceed the minimum reserve requirement. The interest rate for required minimum reserves was lowered to 0.00% in March 2016.*

This paper focuses specifically on the effect of ultra-low interest rates on bank profitability.[3] The recent policy debate argues that negative key interest rates pose a special challenge to banks because of the limits they encounter when trying to pass on further interest rate cuts to their customers. Given the importance of net interest income as a source of operating income, negative interest rates may strongly affect bank profitability.[4] A substantial compression of bank profitability may have ambivalent consequences for bank lending or banks' risk aversion. On the one hand riskier banking operations would require closer monitoring by banking supervisors, while on the other hand a possible decline in bank lending would adversely affect the real economy, thwarting the initial purpose of the key interest rate reduction.

The low interest rates we observe today are in line with a global long-term trend that started in the 1980s. However, negative nominal key interest rates have no precedent in economic history up to 2012. Even Japan went below the zero bound only recently. With negative key interest rates, central banks have thus entered uncharted waters. The effectiveness and limits of this unprecedented monetary policy measure are highly uncertain. It is therefore important to carefully monitor available recent experiences with negative interest rates in other countries. In Europe, three countries outside the euro area have had negative central bank deposit rates for more than one year (chart 1): Denmark since July 2012, Switzerland since December 2014 and Sweden since February 2015.[5]

In this study we investigate what effects negative interest rates have so far had on bank profitability in these three countries. However, a country comparison has its limitations since negative interest rates in Denmark and Switzerland were primarily intended to counter appreciation pressures after strong capital inflows, whereas euro area and Swedish monetary policy primarily attempted to counter a subdued inflation outlook, in particular after 2013. These differences in motivation may influence how economic agents assess the future interest rate path. Capital flows toward Denmark and Switzerland are mostly related to the euro area sovereign debt crisis and thus largely exogenous. As crisis sentiment fades, appreciation trends may also swiftly subside or reverse, which would allow the Danish and Swiss central banks to quickly undo earlier interest rate cuts. Deflation risks in the euro area, however, are mainly related to a weakness in domestic demand that is unlikely to vanish in the near term. Banks' response to key interest rate cuts may thus also differ, depending on whether these cuts are perceived as permanent or temporary. Furthermore, the deflation challenge also motivated the Eurosystem and Sveriges Riksbank to pursue asset purchase programs, which may also impact bank profitability. Notwithstanding these limitations, we believe that this analysis may help evaluate the potential future effects of negative interest rates in the euro area.

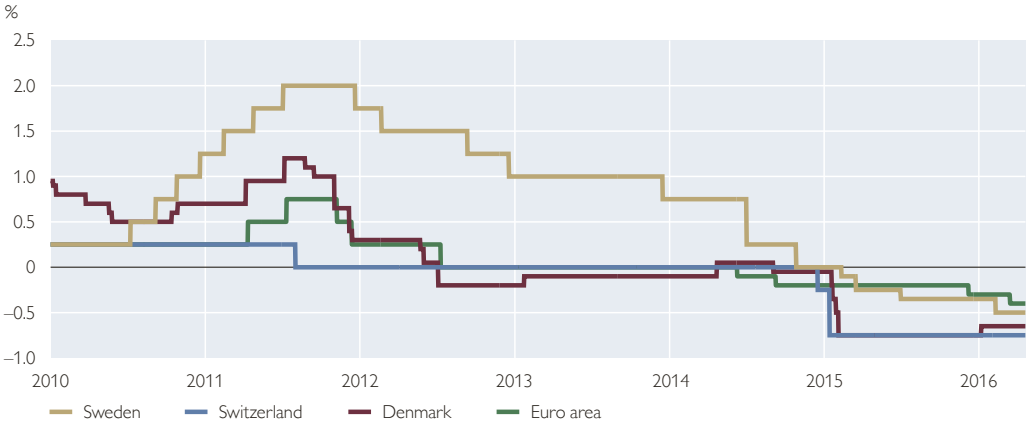
[3] *For an analysis of the effects of low interest rates on pension funds and insurance companies, see e.g. Antolin et al. (2011).*

[4] *We will not consider potential technical and operational problems, e.g. how to ensure that IT systems can handle negative rates.*

[5] *Two additional countries recently lowered their specific key deposit rates to below zero: The Bulgarian National Bank announced in November 2015 that it would apply a negative interest rate on excess reserves if the ECB's deposit facility rate was negative. In March 2016, Magyar Nemzeti Bank lowered its overnight deposit rate to –0.05%.*

Chart 1

Central bank policy rates in the euro area, Denmark, Sweden and Switzerland



Source: Thomson Reuters.

Note: Denmark: interest on one-week certificates of deposit; euro area: interest on deposit facility; Sweden: repo rate; Switzerland: three-month LIBOR target.

This paper is structured as follows: Section 1 first discusses the standard transmission of monetary expansion to the real economy and to bank profitability and then focuses on the special case of negative interest rates. In this context, we discuss the various intended or unintended effects of ultra-low or negative interest rates. Section 2 briefly sketches the recent monetary policy moves and the introduction of negative interest rates on excess reserves in Denmark, Sweden and Switzerland. Using banking statistics data, section 3 investigates the effects of recent interest rate cuts on various balance sheet positions in the three countries under consideration. Section 4 concludes.

1 Transmission channels of monetary expansion: effects on inflation, growth and bank profitability

This section describes the various channels through which key interest rate cuts affect inflation, growth and bank profitability. Starting from the standard transmission mechanism, we move to the special case of an interest rate cut into negative territory.

1.1 Standard transmission mechanism: the impact of interest rate cuts

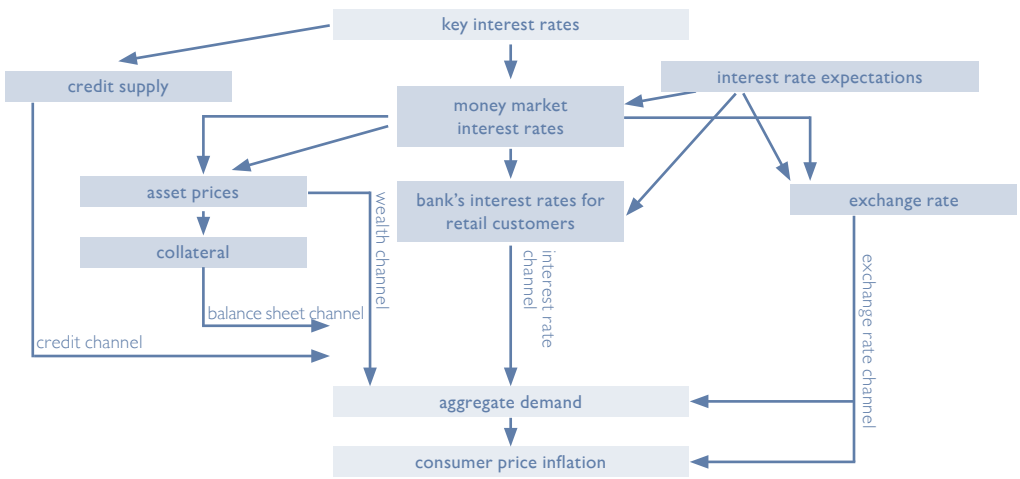
The primary mandate of the Eurosystem's monetary policy is to maintain price stability, which is defined as an inflation rate below, but close to, 2%. Without prejudice to its price stability objective, the Eurosystem may, with its monetary policy moves, also support other goals such as strong economic growth or low unemployment.

In general, with monetary expansion, i.e. interest rate cuts, the Eurosystem either aims to counter deflation risks or/and to promote GDP growth and help lift the economy back on a sustainable growth path that is consistent with its definition of price stability. There are numerous channels through which monetary policy moves affect the economy. The illustration below shows the monetary transmission mechanism for the standard case of a key interest rate cut; several of the channels

depicted here also apply to asset purchase programs, which lead to valuation gains and thus lower yields.

If banks pass on lower refinancing costs to retail customers, investment and consumption become more attractive and loan demand increases (*interest rate channel*).[6] At the same time an interest rate cut positively affects asset prices, making people feel wealthier and ready to consume and invest (*wealth channel*). Asset purchase programs may reinforce this channel. With lower return on euro area fixed income assets, the euro's exchange rate will depreciate, thereby promoting external demand (*exchange rate channel*) and banks will be more willing to extend loans as the value of collateral rises (*balance sheet channel*) and default risk goes down (*credit channel*). All of these effects should eventually promote economic growth and – with a time lag – lift inflation.

Monetary policy transmission channels



Several of these transmission channels also have effects on bank profitability, which are easiest to illustrate along the major positions of a profit and loss statement (table 1). We focus here on the positions that are directly affected by an interest rate cut:

- Net interest income (A), i.e. the difference between interest income from lending and interest expenses (i.e. interest paid on liabilities, e.g. customer deposits, bonds), is usually a key source of income for banks. It normally increases immediately after an interest rate cut as the entire yield curve shifts downward and steepens at the same time. Returns from maturity transformation increase as the duration of assets typically exceeds the duration of deposits. This effect will increase in line with the share of fixed interest rate loans in total loans since

[6] *Illes et al. (2015) show for 11 EU Member States that banks did not substantially change their rate-setting behavior after the financial crisis and conclude that their interest rate pass-through relationships have remained stable.*

interest expenditures for deposits decline almost immediately after an interest rate cut while revenue losses on loans become effective only gradually as high-interest assets mature.[7] Interest income also benefits from higher credit demand and supply, as suggested by the monetary transmission mechanism.

Table 1

Profit and loss statement

(A)	+	Net interest income
(B)	–	Loan loss provisions
(C)	+	Net fee and commission income
(D)	+	Realized and unrealized gains/losses on securities
	=	Operating income
(E)	–	Operating expenses
(F)	+/–	Other income/expenses
	=	Net income

Source: OeNB.

- Loan loss provisions (B) account for the risks posed by nonperforming loans (NPLs).[8] These risks, and thus loan loss provisions, usually decline after an interest rate cut because default on loans becomes less likely as lending rates go down and growth prospects brighten. This has a positive effect on bank profitability. However, if interest rates reach very low levels, banks may have incentives to reschedule or roll over debt in case customers have payment difficulties rather than declaring them NPLs and writing them down. This strategy, which is known as "forbearance" or "evergreening of loans" (Lambert, 2015), has potential negative effects on future asset quality if the expected recovery is delayed.
- As asset prices increase after an interest rate cut, banks benefit from realized and unrealized gains/losses on securities (D), depending on their hedging strategy. Moreover, asset purchase programs pursued by central banks may as well lead to increased earnings from securities via the above mentioned wealth channel.

Overall, banks' operating income and profitability typically improve after an interest rate cut. The next section will investigate whether, and to what extent, these effects are different in a negative interest rate scenario.

1.2 Effects of negative interest rates on bank profitability

The recent literature has argued that this inverse relation between key interest rates and bank profitability may weaken or break down in a negative interest rate environment (Hannoun, 2015, or IMF, 2016). This may limit the effectiveness of the expansionary monetary policy move. What remains an open question is whether such non-linearities kick in at zero interest or at a lower level. Moreover, the effect may become effective only when the negative interest rate environment lasts for a while so that economic agents adjust their expectations.

We follow again the various positions in table 1 to illustrate how negative key deposit rates may weigh on bank profitability. The net effect would thus be the sum of the "standard" case described in subsection 1.1 and the special scenario described here.

- In a negative interest rate environment, **net interest income (A)** may be compressed. This results from the fact that there may be limits to lowering inter-

[7] *IMF (2016) shows for selected euro area countries that the share of variable rate loans is especially high in Spain, Italy and Portugal, while fixed rate loans are more common in Belgium, Germany, France, Luxembourg and the Netherlands.*

[8] *A loan is labeled nonperforming if the creditor is several months late in servicing their debt, i.e. in paying back the principal or the interest accrued.*

est rates to below zero. As short-term interest rates will reach this zero lower bound earlier than the structurally higher longer-term rates, the yield curve flattens. Since banks tend to borrow short but lend long, interest rate cuts are passed on to their full extent to lending rates, but not to deposit rates (Beer and Gnan, 2015). As a result, a rate cut lowers net interest incomes.

One reason for banks' reluctance to lower deposit rates to below zero are legal constraints.[9] Other reasons may be to preserve the deposit base in a context of high retail funding competition or in view of the risk of substitution of saving deposits by banknotes ("rush to cash"), since holding cash becomes a viable alternative in view of a zero interest rate or negative interest rates.[10] The importance of this rush-to-cash effect will depend on the share of variable rate contracts in total deposits, on the propensity of customers to switch to cash or to competitors – which in turn varies with the type of customer (business customers rely more on electronic settlements than private customers, see World Bank, 2015) and the extent to which the economy is still cash based – and on the duration of the low interest rate situation, since over time customers will adapt to the new environment.[11]

Obviously banks will also fear rush-to-cash effects more if they depend more on deposits as a source of funding as compared to banks with a higher share of bonds or interbank market funding-based refinancing.[12] A flattening of the yield curve is, however, by no way assured. The yield curve may actually even steepen if a zero lower bound is included in loan contracts. Any incomplete pass-through of interest rate cuts to banks' retail rates would limit the effectiveness of the monetary policy move if the intention behind that move was to influence domestic financing conditions.[13]

To some extent the burden on net interest income may be lifted by the simple fact that customers move from longer-term deposits to short-term deposits in view of low opportunity costs (Beer and Gnan, 2015), thereby reducing banks' interest expenses. However, the costs for hedging against interest rate changes increase if customers opt for higher-maturity loans with fixed interest.

Banks may have different strategies to compensate for potential losses in net interest income. One response would be to expand loan growth,[14] another to take on greater risks – not only in the loan book but on the whole balance sheet ("search for yield").

[9] *In some countries (e.g. Germany or Austria) legal disputes are ongoing on whether a savings book, i.e. the contract between bank and saver, excludes by definition a negative interest rate because this would imply a new contract (e.g. for the sole storage of wealth).*

[10] *This argument is conditional on customers actually being aware of the negative level of interest rates. Based on the Austrian Household Finance and Consumption Survey (HFCS), Beer et al. (2016) show that respondents are broadly aware that monetary policy rates are currently ultra-low, but at the same time they generally overestimate the interest rates on their savings books.*

[11] *Some of the costs of switching to cash are fixed costs which will only pay off once the low interests remain in place for a protracted period of time. Also, certain services such as the provision of cash storage may only develop over time. UBS (2015) estimates the costs of keeping cash (storage rooms, security, transport, insurance, etc.) at 0.2% to 0.5% of the stored amount.*

[12] *The IMF (2016) shows that the share of household and corporate deposits in total liabilities is especially low in Sweden and Denmark. By contrast, banks in Germany, Italy, Portugal and Spain are comparatively strongly dependent on household and corporate deposits.*

[13] *If negative rates have predominantly the goal to counter appreciation pressures, this argument is less relevant.*

[14] *The IMF (2016) shows for selected euro area countries that banks are unlikely to be able to extend loan growth sufficiently to offset losses in net interest income with additional income from lending in view of the slow pace of new loan growth in recent years as well as regulatory pressure to improve capital ratios.*

- To restore profitability, banks may start raising **fees and/or commissions (C)** to compensate for losses in net interest income (see e.g. Genay, 2014, for U.S. evidence). Fees and commissions represent more than 60% of total noninterest income, which increased to 90% during the crisis period (Borio et al., 2015). The net effect for savers may be identical to that of an interest rate cut, but such a strategy may be less visible to customers and thus a way to avoid rush-to-cash behavior. According to the IMF (2016), there is room to boost fee and commissions income as large European banks depend much less on this source of income than their American peers.
- If operating income remains compressed for longer, banks may be forced to take more fundamental consolidation measures such as reducing the number of staff or bank branches. This would be visible in a decrease in **operating expenses (E)** and a lower cost-to-income ratio.

Overall, the effect of negative interest rates on net interest income and bank profitability is thus a priori undetermined and may change over time (Cœuré, 2012). Whether, in the end, the profitability-compressing effects of negative interest rates dominate over the standard profitability-increasing effects of an interest rate cut depends mainly on the duration of the low interest rate situation and banks' creativity in and capability of compensating for interest income losses by other revenue-creating measures.

Furthermore, as pointed out by Bech and Malkhozov (2016), the modalities of the implementation of negative interest rates have important implications for the transmission of key interest rate cuts to money markets and other interest rates and therefore banks' costs in terms of profitability.

An ultra-low interest rate environment may also lead to redistribution within the banking sector as the importance of interest income for banks' profitability varies across banks and countries and the level of competition differs across market segments. Furthermore, if the zero lower bound on deposits is effective, customers may tend to switch to banks with higher ratings for more security at identical interest. Such moves would lead to higher losses in the deposit base for banks with inferior ratings.

Given the little historical evidence for ultra-low interest episodes, the question of bank profitability remains an empirical one in the end. Section 3 will thus evaluate the empirical evidence in Denmark, Sweden and Switzerland, the three European countries with at least one year of experience with negative deposit rates.

2 Denmark, Sweden and Switzerland – background and motivation for negative interest rates

The central banks of the euro area, Denmark, Sweden and Switzerland all introduced negative interest rates in the period from mid-2014 to early 2015 as a response to the challenging macroeconomic developments prevailing. While the ECB and Sveriges Riksbank declared they intended to counter a subdued inflation outlook which endangered the firm anchoring of long-term inflation expectations, Denmark's and Switzerland's recent monetary policy moves were primarily motivated by an attempt to discourage capital inflows and thus an appreciation of their currencies.

The next three subsections describe the background for these policy moves. When comparing the dimensions of negative interest rates in these three countries, we need, however, to keep in mind that marginal and average interest rates

may deviate substantially because of various forms of exemptions (e.g. tiered reserve systems in Denmark and Switzerland) (OECD, 2016). Bech and Malkhozov (2016) show that in mid-February 2016, Switzerland had the lowest policy rate (–0.75%) for deposits above the exemption threshold, whereas the weighted average rate in Switzerland was much less negative (–0.27%) than in Denmark or Sweden (–0.52%).

2.1 Denmark

The major objective of the monetary policy of Danmarks Nationalbank is to keep the exchange rate vis-à-vis the euro within a +/–0.5% fluctuation band around the central parity.[15] To this end, the Danish central bank closely follows the interest rate policy of the Eurosystem and occasionally intervenes in the foreign exchange market.

Danmarks Nationalbank had maintained negative rates on one-week certificates of deposit, a facility to collect commercial banks' excess reserves, from mid-2012 to April 2014, already prior to the ECB's first move below zero. The recourse to negative interest rates was intended to mitigate appreciation pressures originating from strong capital inflows during the euro area sovereign debt crisis. When the ECB cut its deposit rate to –0.10% on June 11, 2014, the Danish central bank followed suit on September 5, 2014, cutting its certificate-of-deposit rate to –0.05%, following a further rate cut by the ECB.

The Danish krone experienced further appreciation pressures stemming from accelerated capital inflows after the discontinuation, by the Swiss National Bank (SNB), of its minimum exchange rate against the euro on January 15, 2015, and the ECB's decision to expand its asset purchase program on January 22, 2015. Four successive rate cuts over a period of two and a half weeks took the rate on certificates of deposit to –0.75% in early February 2015, thus swiftly following the SNB key deposit rate. Heavy interventions in the foreign exchange market to fight speculative capital inflows increased the stock of foreign currency reserves to 38% of GDP by the end of March 2015. Additionally, the Danish Ministry of Finance announced that it would suspend the issuance of domestic and foreign bonds until further notice.[16] As a result, Danish longer-dated sovereign bond yields turned temporarily negative. A reversal of the pressure on the Danish krone since May 2015 led to a gradual decline of foreign exchange reserves back to levels seen before the speculative attack. In early 2016, Danmarks Nationalbank raised the rate on certificates of deposit to –0.65%.[17]

The Danish banking system holds reserves and excess reserves at the central bank, which uses a combination of overnight and one-week liabilities to drain the liquidity surplus and offers an exemption threshold for computing the negative remuneration on reserve holdings. Overnight demand deposits in Danmarks Nationalbank's current account earn zero interest, one-week certificates of deposit

[15] *Denmark has pursued a nearly fixed exchange rate to the euro since 1982 and entered the Exchange Rate Mechanism (ERM) II in 1999. The ERM II arrangement sets a central rate of DKK/EUR 7.46038 and defines a mutually agreed fluctuation band of +/–2.25%. This band is narrower than the standard fluctuation band of +/–15%.*

[16] *The issuance of government bonds was resumed in October 2015, meeting high demand.*

[17] *For a comprehensive analysis of the impact of negative interest rates on the Danish banking sector, see Danmarks Nationalbank (2015).*

currently yield –65 basis points. Both an aggregate limit and individual limits have been set on the amount of funds that can be held in the current accounts. If the aggregate limit is exceeded at the end of the day, deposits exceeding the individual limits are converted into one-week certificates of deposit.[18]

2.2 Sweden

Similar concerns as those the ECB encountered led Sveriges Riksbank to move its repo rate into negative territory in the first quarter of 2015. The Swedish central bank aimed at "safeguarding the role of the inflation target as a nominal anchor for price setting and wage formation" (Sveriges Riksbank, 2015a and 2016). Other nonstandard measures complement these negative interest rates. Sveriges Riksbank began to purchase government and inflation-linked bonds, which are set to cover around 37% and 9%, respectively, of current outstanding nominal stocks by end-2016. Although Sveriges Riksbank has no operational exchange rate target, it stated that it was prepared to intervene in the foreign exchange market if the Swedish krona's appreciation threatens price stability. As a result of these measures, inflation expectations continue to edge higher, albeit slowly (Sveriges Riksbank, 2016).

The Swedish central bank cut its repo rate to –0.10% on February 18, 2015. Further cuts in March and July 2015 and finally in February 2016 lowered the repo rate to –0.50%.[19]

Since February 2016, one-week debt certificates issued by the Riksbank have yielded –50 basis points. These debt certificates absorb the bulk of excess liquidity. Moreover, daily fine-tuning operations, aiming to drain any remaining reserves prior to the close of business, earn –0.60%, and only any residual amounts left in the current account earn a negative remuneration of –1.25%.

2.3 Switzerland

As the global economic and financial crisis proceeded, appreciation pressures on the Swiss currency intensified (see, e.g., Yeşin, 2015). Between 2007 and 2011, the Swiss franc appreciated against the euro by almost 38%. Foreign exchange interventions from 2008 onward expanded the balance sheet of the Swiss National Bank (SNB) by more than 200% but could not stop the Swiss franc from appreciating. In September 2011 the SNB laid down a minimum exchange rate of CHF/EUR 1.20, which it maintained for more than three years, aided by substantial further interventions.

In view of the Eurosystem's reinforced asset purchase programs, appreciation pressure intensified at end-2014. In December 2014, the SNB introduced an interest rate on sight deposit accounts of –0.25%, to take effect as of January 22, 2015. On January 15, 2015, the SNB announced that it would give up its exchange rate ceiling and lower the targeted level for the three-month LIBOR to –0.75%. Immedi-

[18] *In addition to interest rates, Danmarks Nationalbank has actively varied the current account limits – most recently raising them in March 2015 and then lowering them in August 2015 and January 2016.*

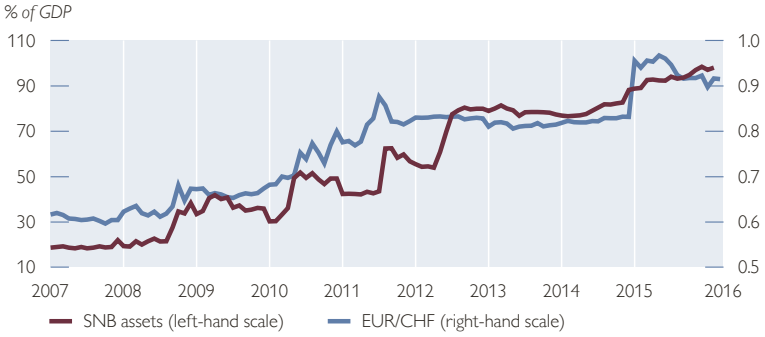
[19] *Sveriges Riksbank had first introduced a negative deposit rate in 2009/10 to keep the interest rate corridor symmetrical. The amount of funds on the overnight deposit is negligible, as Sveriges Riksbank typically uses daily fine-tuning operations to drain most excess liquidity prior to the close of business. Hence, the repo rate is more important for the remuneration of excess reserves than the overnight deposit rate.*

ately after this move, the Swiss franc appreciated markedly and, after a couple of weeks, it stabilized at a level that was about 10% stronger than the original exchange rate ceiling. The SNB continued to accumulate foreign exchange reserves to counter appreciation trends.

The negative interest rates in Switzerland apply only to demand deposit account balances that exceed a given exemption threshold (about 20 times the minimum reserve requirement[20]). Nevertheless, marginal interest rates significantly have dampened overall financing costs.

Chart 2

Switzerland: exchange rate and central bank assets



Source: ECB, SNB, AMECO.

Note: Data for 2016 based on 2015 GDP figures.

3 Bank profitability in a negative interest rate environment: evidence from Denmark, Sweden and Switzerland

To analyze the impact of ultra-low and negative interest rates in Denmark, Sweden and Switzerland we use banking statistics data[21] from each of the three national central banks. Moreover, we analyze single bank data from SNL Financial and calculate aggregated balance sheets and profit and loss statements. The observation period starts in the first quarter of 2010 and ends in the fourth quarter of 2015. For Switzerland single bank data are only available at a semiannual frequency, starting with the first half of 2010 and ending with the second half of 2015. In all the countries under observation, our banking sample covers more than 50% of total loans. Table 2 lists the individual banks that were analyzed and aggregated.

As we are restricted to using publicly available data, our banking sample concentrates on the major banks in the countries under review. Moreover, we use consolidated bank data (i.e. data including foreign subsidiaries) as this is the most comprehensive data basis. Negative interest rates may have a different impact on banks of different sizes due to e.g. the extent of banks' foreign business, refinancing possibilities or market power. Consequently, our findings are only of limited validity for smaller banks in these countries.[22] Because of significant differences between banks' business models in Switzerland, throughout this

Table 2

Aggregated banks' share in total bank assets

Country	Aggregated banks	% of total bank assets in relevant country
Denmark	Danske Bank, DLR Kredit A/S, Jyske Bank, Nykredit Realkredit, Sydbank	75
Sweden	Nordea, Swedbank, SEB, Svenska Handelsbanken	85
Switzerland	Credit Suisse, UBS, Banque Cantonale Vaudoise (BCV), Raiffeisen Gruppe Schweiz, Zürcher Kantonalbank	69

Source: OeNB.

[20] *For account holders that are not subject to minimum reserve requirements, there is a fixed threshold of CHF 10 million (Swiss National Bank, 2015b).*

[21] *Switzerland: SNB Monthly Bulletin of Banking Statistics; Denmark: Danmarks Nationalbank's StatBank – Statistics on the MFI sector; Sweden: Statistiska Centralbyran – Financial market statistics.*

[22] *The financial stability report of Danmarks Nationalbank (2015) explicitly accounts for this fact by investigating the effects for smaller and larger banks separately.*

study we differentiate between the two big Swiss banks (UBS and Credit Suisse) and the smaller banks in our sample (Raiffeisen Bank Schweiz, Zürcher Kantonalbank und Banque Cantonale Vaudoise).

To connect the empirical figures with theoretical considerations from section 1, we use the profit and loss statement from table 1 as reference.

As a first step we analyze the overall profitability situation of the examined banks. In a second step we will have a closer look at the different components of their profit and loss statements. However, we have to keep in mind that we do not differentiate between whether the observed developments in banks' financial statements are caused by ultra-low and negative interest rates or by other circumstances (e.g. overall economic developments).

3.1 Overall development of profitability

Based on the theoretical considerations in section 1, we investigate whether banks' profitability has declined over recent years. We find that banks' profitability situation varies across the three countries. On an aggregated basis, the examined Swedish banks have experienced an increase in net income since 2010. This development is also reflected in their return on equity[23] (ROE, 12.7% in the fourth quarter of 2015, annualized) and return on assets[24] (ROA, 0.6% in 2015) figures, which are higher than those recorded in the other two countries. Banks in Sweden have managed to raise their net interest income and net fee and commission income over the last five years. These results are somewhat surprising. However, one factor that may have helped Swedish banks might be the fact that Sveriges Riksbank kept raising its main refinancing rate until end-2012 and lowered it significantly just afterward (see chart 1 above).

Net income in Denmark was quite volatile between 2010 and 2015. On an aggregated basis, banks in Denmark posted a loss two times over the observation period (in the third quarter of 2011 and in the fourth quarter of 2014). Losses resulted from unrealized and realized losses on securities. Moreover, in 2014 Danish banks suffered losses in their insurance subsidiaries (DKK –3.2 billion) and they had to step up their loan loss provisions (DKK 3.5 billion). The significant rise in loan loss provisions might be a result of the burst housing bubble in Denmark. However, over the last five years, banks in Denmark have managed to improve their ROE (7.5% in 2015) and ROA (0.4% in 2015).

In Switzerland, the two big banks (Credit Suisse and UBS) recorded rather volatile developments in net income/loss between 2010 and 2015. Their net income decreased significantly from the beginning of the observation period until the first half 2013, when UBS posted a loss of CHF 4 billion (mainly goodwill impairments). Since the first half 2013, the two banks managed to raise their net income again. Credit Suisse, however, reported a loss of CHF 5 billion in the second half of 2015 (mainly goodwill impairments as well). The situation is totally different for the smaller banks in Switzerland. These managed to keep their net income quite constant. However, profitability indicators like the ROE (7.0% in 2015) and ROA (0.5 in 2015) have been declining slightly but constantly since 2010.

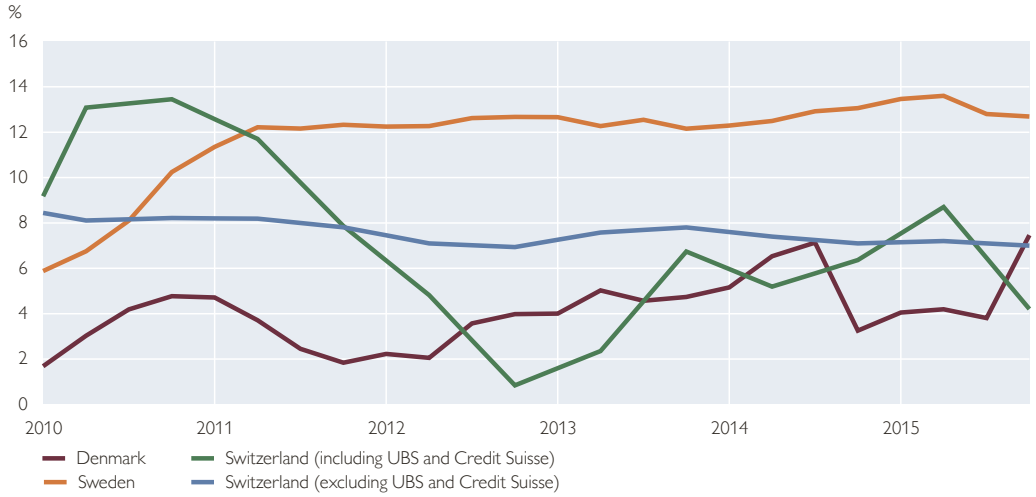
[23] *Return on equity (ROE) = net income/average total equity (four-quarter moving average).*

[24] *Return on assets (ROA) = net income/average total assets (four-quarter moving average).*

Chart 3

Slump in return on equity (ROE) for most banks in the sample

Year-on-year annualized quarterly data



Source: SNL Financial, OeNB.

As we can see from chart 4, the income composition of the banks in our sample did not change significantly from 2010 to 2015. We observe some decrease in net interest income for the smaller banks in Switzerland, while UBS and Credit Suisse expanded the share of net interest income as a share of operating income. Net fee and commission income also went up slightly in all three countries. In the subsequent sections we will have a closer look at each income component.

3.2 Net interest income (A)

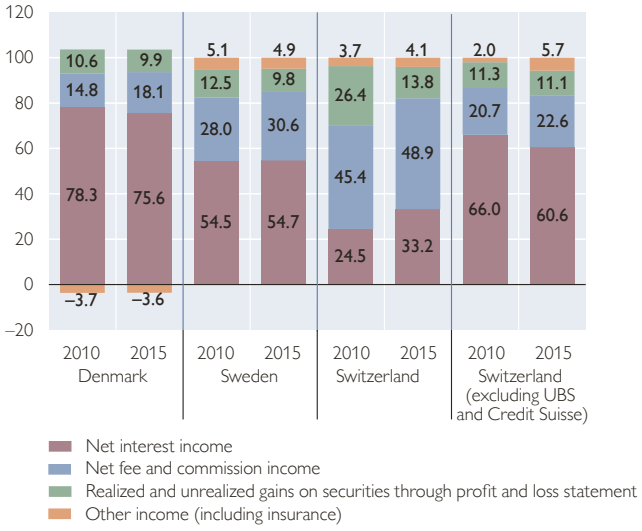
In all countries examined and for all banks excluding UBS and Credit Suisse, net interest income is the most important source of income, amounting to more than 50% of operating income. Although interest rates are negative in all three countries, the absolute level of banks' net interest income has remained almost stable and the relative importance of net interest income for operating income, on an aggregated basis, has remained almost unchanged as well (see chart 4).

Despite the fact that the net interest margin[25] is at a low level and declining slightly in all countries (except for UBS and Credit Suisse), net interest income has not declined significantly since

Chart 4

No major changes in the composition of operating income

% of operating income



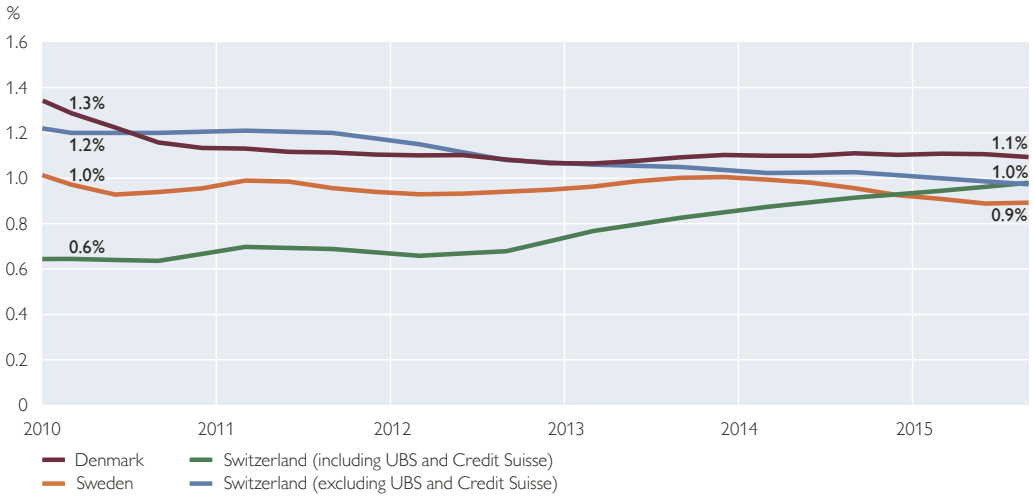
Source: SNL Financial, OeNB.

[25] *Net interest margin = net interest income/average interest-earning assets (four-quarter moving average).*

Chart 5

Net interest margins almost stable

Year-on-year annualized quarterly data



Source: SNL Financial, OeNB.

2010. If we look at the components of net interest income, we find that all banks in the sample managed to reduce their interest expenditure faster and by a larger extent than their interest income, which resulted in stable net interest income. By contrast, for an extended country sample, Claessens et al. (2016) empirically showed that lower interest rates are typically associated with lower net interest margins. Moreover, they find that the adverse effect on net interest margins is substantially larger when interest rates are at low levels.

One of the reasons why interest expenditure decreased more strongly than interest income might be the observable shift from fixed-term to demand deposits (short-term deposits), at least at the beginning of the observation period. Such a shift reduces interest expenditure as banks pay lower interest rates on demand deposits than on fixed-term deposits. This development is in line with the theoretical considerations given in section 1. However, deposit growth is stagnating or even declining (Denmark and Sweden), which may make this effect less relevant.

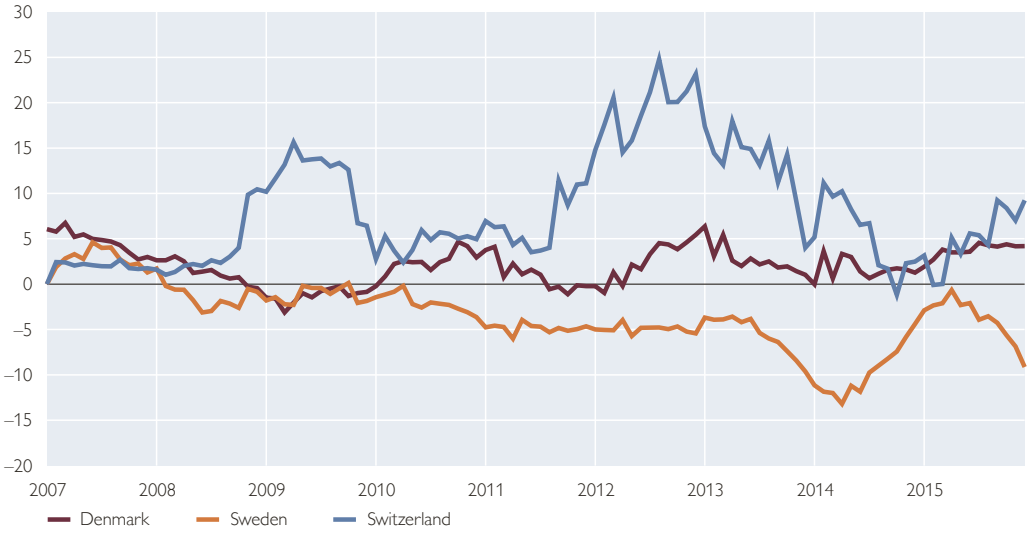
Interestingly, so far no rush-to-cash behavior motivated by negative interest rates has been observable in the three countries in question (chart 6). By contrast, cash use in Sweden went down over the last few years, mainly because the Swedish population prefers to use electronic payment methods. In Switzerland, by contrast, the volume of currency in circulation augmented significantly in recent years. Since this development started as early as in 2008, it cannot solely be related to negative interest rates. But the unusually steady increase in currency in circulation during 2015 may indicate a shift in customer preferences toward cash.

An additional factor which may have helped to lower interest expenditure quickly might be that banks in Denmark and Sweden refinance their loans heavily via the financial markets (the loan-to-deposit ratio is 189% in Sweden and 320% in Denmark for the banks in our sample). Bech and Malkhozov (2016) show that the pass-through of central bank interest rates to money market rates works efficiently in the three countries, which should ensure that a bank's interest expenses go

Chart 6

Currency in circulation in Denmark, Sweden and Switzerland

Nominal year-on-year change in period-end stock in %

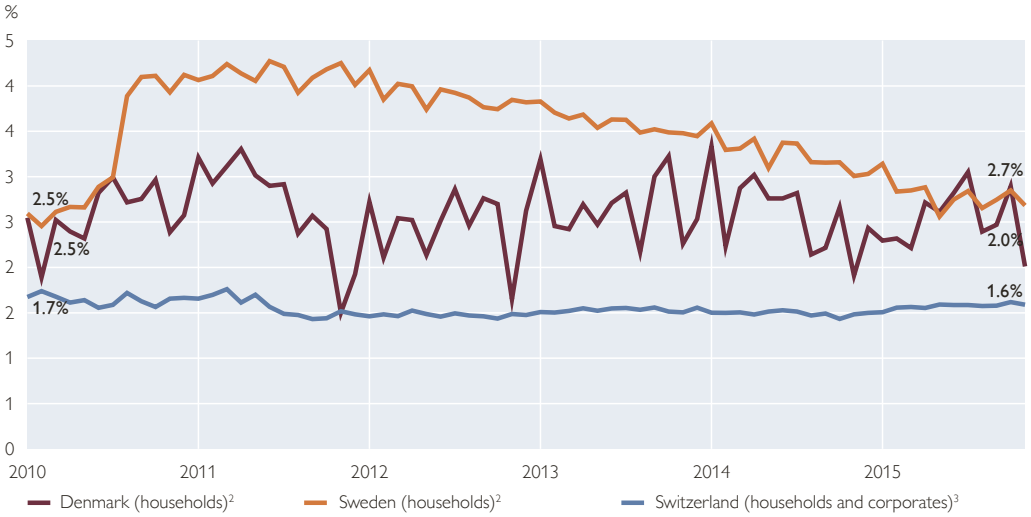


Source: ECB, SNB.

down rather quickly if the bank is heavily refinanced via the financial markets. In a similar vein, the IMF (2016) points out that strong refinancing via the financial markets could have helped banks in Denmark and Sweden to lower their interest expenses. By contrast, banks in Switzerland refinance themselves mostly via deposits (the loan-to-deposit ratio is below 100%). Moreover, asset purchases by

Chart 7

Banks still earn a margin on the difference between loan and deposit rates[1]



Source: National central banks, OeNB.

[1] *Difference between loan and deposit rates = loan rate – deposit rate.*
[2] *Monetary financial institutions.*
[3] *Banks.*

the central banks might also have helped as they translated into lower bond yields and thus lower refinancing costs for banks.

A further reason why interest income did not decline as fast as interest expenditure could be that interest rates on loans were reduced more slowly than interest rates on deposits. For example, a high share of fixed-rate loans in total loans could delay the effect of lower interest rates on banks' loan portfolio (see also IMF, 2016). This might be the case in Switzerland (share of fixed-rate loans in new loans: 83%), but probably not in Sweden (share of variable rate loans in new loans: 66%) and Denmark (share of variable rate loans in outstanding loans: 74%). In addition, Sweden witnessed an observable shift from fixed- to variable rate loans.

Switzerland is an interesting case. After an initial decline in lending rates following the central bank's deposit rates move into negative territory, the two major Swiss banks, UBS and Credit Suisse, switched strategy and eventually raised – rather than lowered – their mortgage interest rates for new loans as a way to restore profit margins. Generally, demand in this market segment is rather inelastic in view of the booming housing market. However, competition is rising in this sector as insurance companies and pension funds also offer more and more mortgage lending in search for yield (Swiss National Bank, 2015), so that this practice may eventually come to an end.

Another interesting point is that in all three countries under observation, banks occasionally impose negative interest rates on large business customers, but not on households' retail deposits.[26] As a result, deposit rates for households remained at a higher level than deposit rates for corporates for a longer period. Therefore, the difference between deposit and lending rates remained almost stable in all three countries (see chart 7), which points to the fact that banks still earn on interest rate differences even though negative interest rates are not passed on to household deposits. Bech and Malkhozov (2016) also show that banks' profitability will only be negatively affected if negative interest rates are transmitted to the lending rates for firms and households.

Moreover, when going through banks' financial statements, we can see that their net interest income was also held stable to some extent via an increase in loan volumes, which compensated for lower interest rates to some extent. However, loan growth rates in Denmark have been oscillating around zero. Positive growth rates stem mainly from the lending activities of mortgage credit institutions. The situation is different in Sweden and Switzerland, where loan growth remained positive. In Sweden, loan growth rates recovered in mid-2014 but are now slowing down again. However, the subset "loans to households (including mortgages)" still posts significant positive and increasing growth rates.

3.3 Loan loss provisions (B)

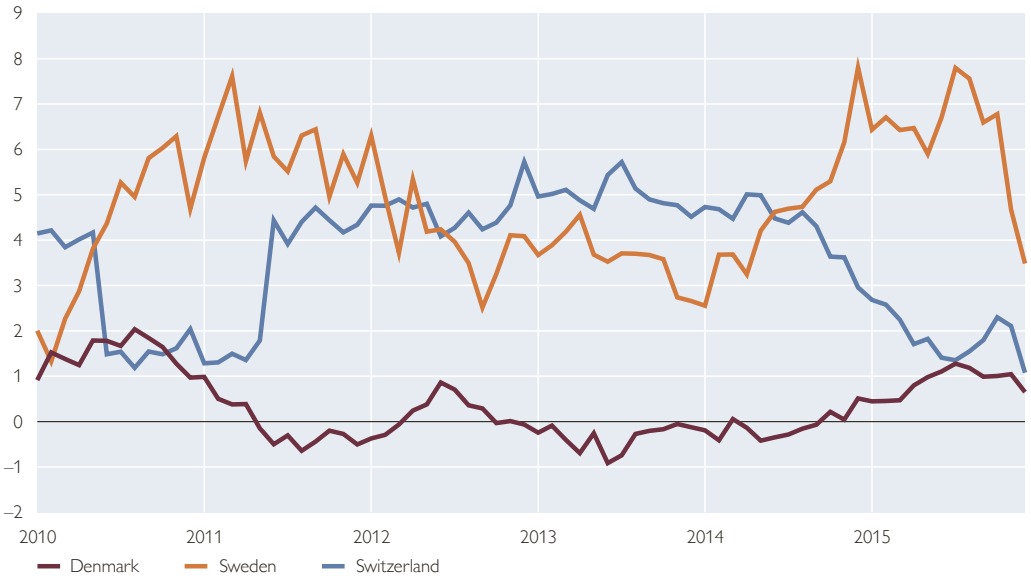
In line with the theoretical considerations in section 1, we observe a significant decline in loan loss provisions in all three countries under observation. At the same time, NPL ratios (i.e. the ratio of NPLs to gross loans) in Sweden and Switzerland are very low and declining further. Sveriges Riksbank (2015b) points out that a high share of credit losses in Sweden comes from banks' lending in other

[26] *There is one notable exception: At the end of 2015, a small Swiss bank specialized in ethical banking services (Alternative Bank Schweiz) pioneered by announcing negative deposit rates also for private retail customers*

Chart 8

Domestic loan growth declining but still positive

Year-on-year growth in %



Source: National central banks, OeNB.

Nordic countries and the Baltics. Nevertheless, as interest rates have fallen also in this region, the effect of lower interest rates on credit losses is likely to be strong. Moreover, interest-only loans are common in these countries and might have also helped keep NPL ratios low. By contrast, in Denmark we observe slightly increasing NPL ratios, a phenomenon which relates to the burst housing bubble. At the same time, coverage ratios (i.e. the ratio of NPLs to loan loss reserves) in Sweden and Switzerland are declining. Some of the banks in these two countries even dissolved their loan loss reserves over the observation period.

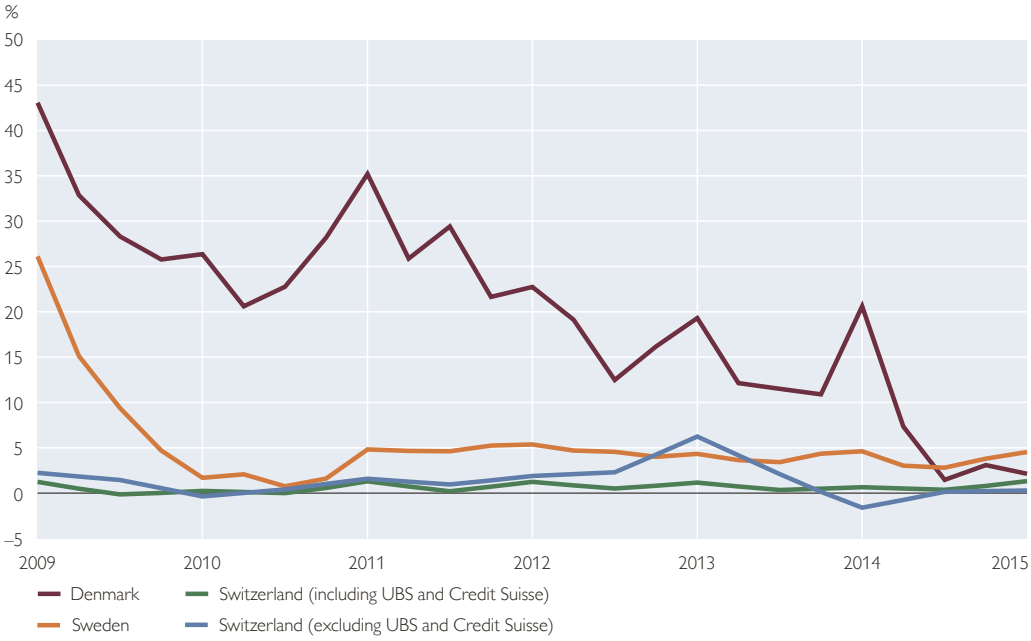
3.4 Realized and unrealized gains on securities through profit and loss statement (D)

With decreasing interest rates, we expect debt and equity securities to increase in value (see section 1 – wealth channel). However, asset purchases might have also influenced the value of debt and equity securities. This should lead to an increase in the value of debt and equity instruments held by banks. If a bank values these securities at fair value or realizes gains on securities, income from realized and unrealized gains on securities should increase. Furthermore, we would expect that the positive fair value of derivatives will decrease when interest rates decline. This holds only under the assumption that banks' main reason for entering into a derivative contract is to hedge interest rate risk so that they receive and pay variable interest rates.

However, the development of realized and unrealized gains on securities varies across countries and banks. What is more, due to data restrictions it is not possible to decompose the different effects of market value changes on banks' balance sheets and profit and loss statements. It also seems that different banks are hedged against interest rate risk to a different extent. In Denmark, for instance, banks

Chart 9

Loan loss provisions as a share of operating income very low in all three countries



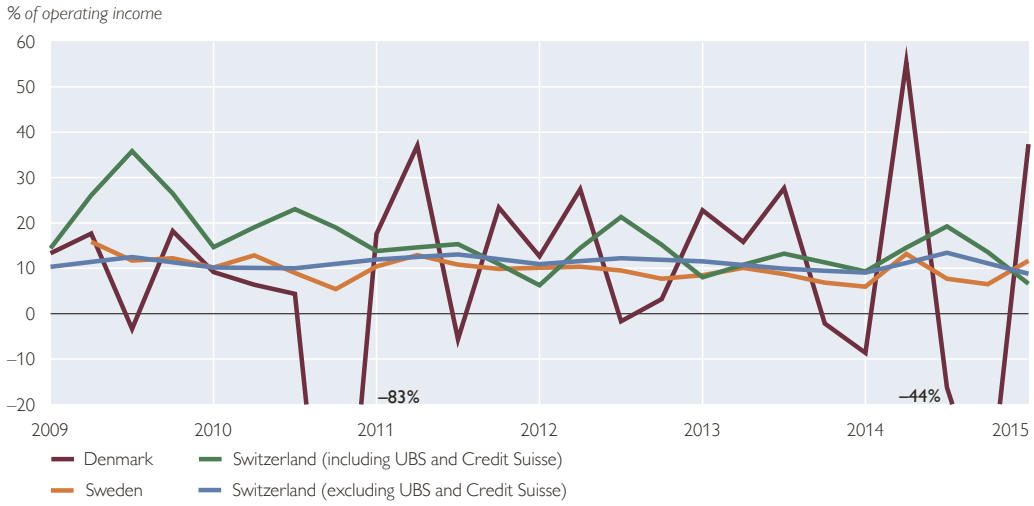
Source: SNL Financial, OeNB.

report different developments of realized and unrealized gains/losses on securities over the same time horizon.

To conclude, the effect of ultra-low and negative interest rates on bank profitability via an increase in the value of securities is not straightforward and highly dependent on banks' hedging strategies.

Chart 10

Volatile realized and unrealized gains on securities through profit and loss statement



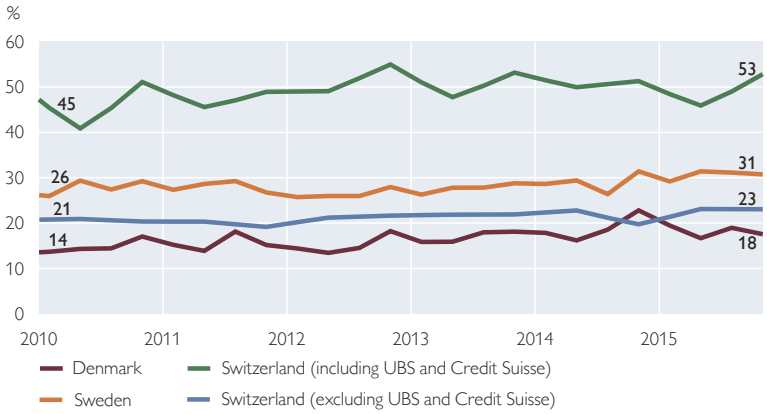
Source: SNL Financial, OeNB.

3.5 Net fee and commission income (C)

For the majority of banks in our sample, net fee and commission income (NFCI; i.e. the difference between fee and commission income and fee and commission expenses) is of subordinated importance in comparison with net interest income. Some mortgage lenders in Denmark even post negative NFCI. For the other banks, the contribution of NFCI to operating income comes to between 18% and 35% (fourth quarter of 2015). In our banking sample, the relative importance of NFCI is lowest in Denmark and highest in Switzerland (in particularbecause of the importance of wealth management for UBS), closely followed by Sweden (for Swedish banks, NFCI makes up one-third of operating income on average). Developments in the countries examined have been heterogeneous since 2010.

Chart 11

Net fee and commission income as a share of operating income increased slightly



Source: SNL Financial, OeNB.

All Danish banks in our sample, except those that recorded a negative NFCI, were able to raise their NFCI in absolute and relative terms (Danske Bank: 16%–23%; Sydbank: 22%–35%; Jyske Bank: 17%–18% from 2010 to 2015). The three banks managed to step up their NFCI by increasing their fee and commission income while at the same time keeping their fee and commission expenses stable.

The situation is different in Sweden. NFCI already made up 21% to 37% of banks' operating income in 2010. The absolute and relative development of NFCI was stable for most of the banks except for Nordea and Svenska Handelsbanken. Nordea managed to raise its fee and commission income while keeping fee and commission expenses stable. Svenska Handelsbanken increased their NFCI in absolute terms by the same procedure. However, as net interest income went up at the same time and makes up a larger part of operating income, the relative importance of NFCI as a share of operating income did not change. Sveriges Riksbank (2015b) found that increases in NFCI were partly driven by stronger asset management activities as well as by investment banking services.

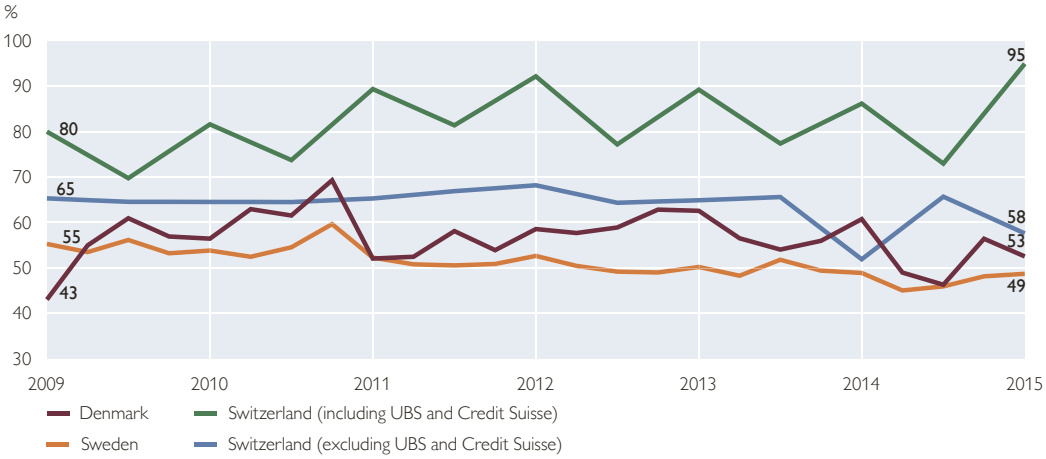
The picture in Switzerland is mixed. Larger banks managed to increase the relative importance of NFCI. However, for smaller banks the relative importance of NFCI did not change. In Switzerland, fee and commission income remained mostly stable while fee and commission expenses went down.

3.6 Operating expenses (E)

Cost-to-income (i.e. operating income-to-operating expenses) ratios vary across the three countries. Swedish banks recorded the lowest cost-to-income ratio (49% in 2015), followed by Denmark (53% in 2015). For our banking sample, in Switzerland the ratio amounted to 95% (in 2015, resulting mainly from a loss of Credit Suisse at end-2015); except for Credit Suisse and UBS, the ratio improved to 58% (2015) but remained significantly higher than in the other two countries. Banks in Sweden and Denmark reduced their cost-to-income ratio

Chart 12

Cost-to-income ratio



Source: SNL Financial, OeNB.

since 2012 by managing to keep their costs constant while increasing operating income. In Switzerland, Credit Suisse plans to cut costs by reducing their staff by 4.000 persons and UBS will reduce their staff by between 500 and 3,000 persons and shift part of the jobs to lower-income countries like Poland.

4 Conclusions

This article investigates the effects of ultra-low or negative central bank interest rates in three European countries that have had negative rates in place for more than one year: Denmark, Sweden and Switzerland. We focus specifically on the effects of negative interest rates on bank profitability and the main income components, given that banks' soundness and the strategies they follow in dealing with revenue shortfalls may be key for both the smooth pass-through of monetary policy measures to the real economy and financial stability (Shin, 2016). Such an analysis may help policymakers to prepare early for dealing with the potential future effects of negative interest rates on the profitability of euro area banks.

We find that in the countries under observation, ultra-low and negative interest rates have so far not resulted in a significant slump of bank profitability and especially of net interest income. Moreover, there has been no observable significant shift in the composition of banks' operating income from net interest income to other income components. The stable development of the net interest income of the examined banks resulted from a stronger decrease in interest expenses in comparison with interest income. We observe that some of the banks increased their net fee and commission income. However, a significant rise in NFCI was only visible for banks that do not yet earn a substantial part of their income from net fee and commission income.

The pass-through of central bank interest rates to money market rates works quite efficiently, as shown by Bech and Malkhozov (2016). Nonetheless, we observe that lending rates did not decrease as fast and to the same extent as central bank interest rates. As a result, loan-deposit rate spreads remained broadly stable so that banks can still earn interest income on this difference. Illes et al. (2015) suggest

comparing lending rates with a weighted average cost of funds to show that banks did not substantially change their rate-setting behavior after the financial crisis and that therefore the interest rate pass-through relationships across eleven European countries appear to have remained stable.

If negative interest rates are in place for a longer period of time, banks' room for maneuver may be constrained and this, in turn, may eventually curtail banks' profitability. One instrument to compensate for lower interest income could be to raise lending volumes. However, banks' lending capacity might be limited by stricter regulatory requirements.

Overall, we conclude that in Denmark, Sweden and Switzerland, most of the fears about the adverse side effects of negative interest rates for banks have so far not materialized. Banks' profitability has remained sound, and we do not observe significant rush-to-cash effects on banks' customers.

References

Antolin, P., S. Schich and J. Yermo. 2011. The Economic Impact of Protracted Low Interest Rates on Pension Funds and Insurance Companies. In: OECD Journal: Financial Market Trends 2011 (1). 1–20.

Bech, M. and A. Malkhozov. 2016. How have central banks implemented negative policy rates? In: BIS Quarterly Review. March. 31–44.

Beer, C. and E. Gnan. 2015. Implications of ultra-low interest rates for financial institutions' asset liability management – a policy-oriented overview. In: Monetary Policy & the Economy Q2/15. 52–76.

Beer, C., E. Gnan and D. Ritzberger-Grünwald. 2015. Interest rate perceptions and expectations when interest rates are low – survey evidence on Austrian households. In: Monetary Policy & the Economy Q4/15. 31–54.

Beer, C., E. Gnan and D. Ritzberger-Grünwald. 2016. Saving, portfolio and loan decisions of households when interest rates are very low – survey evidence for Austrian households. In: Monetary Policy & the Economy. Q1/16. 14–32.

Borio, C., L. Gambacorta and B. Hofmann. 2015. The influence of monetary policy on bank profitability. BIS Working Papers No. 514.

Claessens, S., N. Coleman and M. Donnelly. 2016. "Low-for-long" interest rates and net interest margins of banks in Advanced Foreign Economies. Federal Reserve. IFDP Notes. April 11.

Cœuré, B. 2012. Central banks and the challenges of the zero lower bound. Intervention at the "Meeting on the Financial Crisis". Miami. February 19.

Danmarks Nationalbank. 2015. Financial Stability, 1st half 2015.

Genay, H. 2014. What is the impact of a low interest rate environment on bank profitability? Chicago Fed Letter 324. July.

Hannoun, H. 2015. Ultra-low or negative interest rates: what they mean for financial stability and growth. Remarks at the Eurofi High-level Seminar in Riga. April 22.

Illes, A., M. Lombardi and P. Mizen. 2015. Why did bank lending rates diverge from policy rates after the financial crisis? BIS Working Papers No. 486.

IMF. 2016. Impact of Low and Negative Rates on Banks. Box 1.3. In: Global Financial Stability Report: Potential Policies for a Successful Normalization. April. 44–46.

Jackson, H. 2015. The International Experience with Negative Policy Rates. Bank of Canada Staff Discussion Paper. 2015–13.

Lambert, F. 2015. Are unconventional monetary policies bad for banks? In: Workshops. Proceedings of OeNB Workshops. Asset-liability management with ultra-low interest rates. 38–43.

OECD. 2016. Effects of central bank negative interest rates. Box 1. In: OECD Economic Outlook 99. June. 38–40.

Shin, H. S. 2016. Bank capital and monetary policy transmission. Panel remarks at The ECB and its Watchers XVII conference. Speech. Frankfurt. April 7 . http://www.bis.org/speeches/sp160407.pdf (retrieved on July 13, 2016).

Sveriges Riksbank. 2015a. Riksbank cuts repo rate to –0.25 per cent and buys government bonds for SEK 30 billion. Press release. March 18.

Sveriges Riksbank. 2015b. Swedish financial institutions and low interest rates. Economic Commentaries. November.

Sveriges Riksbank. 2016. Annual Report 2015.

Swiss National Bank. 2015a. Financial Stability Report 2015.

Swiss National Bank. 2015b. Merkblatt zu Negativzinsen auf Girokontoguthaben. Zurich. May 1.

UBS. 2015. Die Zinswelt steht Kopf. Auswirkungen des Negativzinsumfeldes auf die Schweiz. Chief Investment Office WM. March 6.

World Bank. 2015. Negative Interest Rates in Europe: A Glance at Their Causes and Implications. In: Global Economic Prospects. The Global Economy in Transition. Box 1.1. June. 13–19.

Yeşin Pinar. 2015. Capital Flow Waves to and from Switzerland before and after the Financial Crisis. In: Swiss Journal of Economics and Statistics 151 (I). 27–75.

Design of fiscal frameworks and compliance with fiscal rules in CESEE

Wolf Heinrich Reuter[1]

This paper analyzes the fiscal frameworks (i.e. the fiscal rules, fiscal councils and medium-term budgetary frameworks) in place in the 11 Central, Eastern and Southeastern European (CESEE) countries among the 28 EU Member States (EU-28). In recent years especially, these countries have significantly expanded and strengthened their fiscal frameworks, relying mostly on debt and expenditure rules with quite strong medium-term budgetary frameworks (MTBFs). The 11 CESEE EU countries adhered to their own fiscal rules in approximately 65% of the years between 1995 and 2015, mainly due to their very high compliance with debt and expenditure rules. While average compliance is currently higher in the CESEE EU countries than in the EU-28, it is actually decreasing over time, while increasing in the EU-28 sample.

JEL classification: H60, H11
Keywords: fiscal frameworks, compliance with fiscal rules, fiscal councils, medium-term budgetary framework

A wide range of theoretical and empirical literature recommends the introduction of stringent fiscal frameworks as a way to increase the sustainability of public finances (see Heinemann et al., 2016, for a meta-analysis). Furthermore, empirical research has shown that strong fiscal frameworks can, inter alia, reduce output volatility (Fatas and Mihov, 2006), increase fiscal space (Nerlich and Reuter, 2015) and reduce government bond interest rate spreads (Iara and Wolff, 2014). The introduction of fiscal (expenditure) rules has been recommended specifically for Central, Eastern and Southeastern European (CESEE) countries, e.g. at the OeNB Workshop on Limited Fiscal Space in CESEE (OeNB, 2011), in order to contain public expenditure growth in good economic times especially. Generally, the main rationale for introducing strong fiscal frameworks is based on the theory of the deficit bias of politicians and governments (see Wyplosz, 2012, or Debrun et al., 2008, for a survey of the literature).

Another argument for introducing strong fiscal frameworks has been put forward in the literature regarding fiscal and monetary policy coordination. Strict rules are supposed to prevent the emergence of externalities of fiscal policy that influence the optimal conduct of monetary policy (see Niemann and Von Hagen, 2008, or Combes et al., 2014, for a survey of the literature). Examples of such externalities could be the need for high inflation rates to cope with mounting debt levels, or high inflation rates induced by excessive government spending.

This article presents the recent developments with respect to national fiscal frameworks in the 11 CESEE countries[2] which are also members of the EU-28. As such, they are also subject to the EU's supranational fiscal framework (although the non-euro area countries are theoretically subject to less severe sanction possibilities), which has also undergone major changes in recent years. Nevertheless, this article

[1] *Oesterreichische Nationalbank, Economic Studies Division, research@wreuter.eu.* *The views expressed in this paper are exclusively those of the author and do not necessarily reflect those of the OeNB or the Eurosystem. The author would like to thank Markus Eller, Lukas Reiss, Martin Summer and an anonymous referee for helpful comments and valuable suggestions.*

[2] *The study concentrates on the following 11 CESEE EU countries: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.*

concentrates purely on the national frameworks, as the focus is to identify differences in the design, development and possible outcomes of fiscal frameworks. On the one hand, the article highlights the heterogeneous introduction and design of fiscal rules, fiscal councils and medium-term budgetary frameworks in the CESEE EU countries. On the other hand, a country's compliance with its own fiscal rules is analyzed and compared with the institutional setting, as well as with a larger set of countries.

This paper is structured as follows: Section 1 discusses the data used for analysis purposes. In section 2, the fiscal frameworks of the 11 countries studied in this paper are described in detail. Section 3 presents stylized facts about the compliance of those countries with their national fiscal rules and section 4 sets out the conclusion.

1 Data

The European Commission provides three datasets describing the main elements of fiscal frameworks: (1) a dataset on national numerical fiscal rules (European Commission, 2014a), covering national government budget balance, expenditure, debt and revenue rules; (2) a dataset on national fiscal institutions (European Commission, 2014b), covering fiscal councils, audit and budget offices and research institutions; and (3) a dataset on medium-term budgetary frameworks (European Commission, 2014c). The analysis in this study is based on these datasets, supported by the fiscal rules dataset of the IMF (2015), the legal texts collected in Reuter (2015) and the data analyzed in Nerlich and Reuter (2013).

The information in the main datasets by the European Commission (2014a, 2014b, 2014c) and the IMF (2015) is based on questionnaires sent to members of ministries of the EU countries and publicly available information. Some of the individual observations in those official datasets have been criticized in the literature for being imprecise. Among others, there is often a difference between the legal rules and their actual implementation, while different responses to fiscal rules surveys (e.g. from the ministry of finance or the national central banks) sometimes identify different characteristics of fiscal rules whose specific details sometimes remain vague even in legal documents. Nevertheless, the data give a good overall picture of the developments of fiscal frameworks from 1980 to 2015. Reuter (2015) tries to verify the data in the datasets by looking into the original legal documents setting out the fiscal rules. While some discrepancies are found, the overall picture remains valid. Thus the following analysis is conducted using the data available, but bearing in mind that some observations might be biased.

With respect to the CESEE EU countries, the observations concerning the fiscal rules dataset start in 1994, and all 11 countries in the sample of this article are covered by the European Commission dataset (2014a).[3] Data on fiscal councils start in Slovenia in 1991, while data on medium-term budgetary frameworks can be analyzed for the full set of countries from 2008 onward.

[3] *The IMF (2015) covers Kosovo, Montenegro and Serbia additionally to the CESEE countries in European Commission (2014a).*

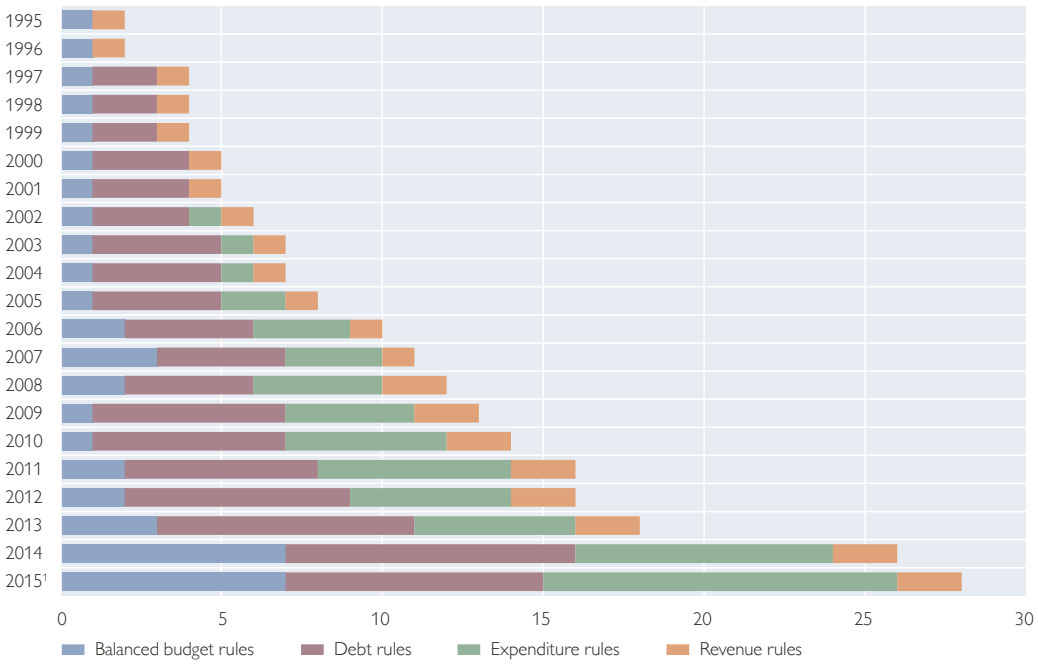
2 Fiscal frameworks

The fiscal frameworks in the countries studied in this article have changed significantly over the past 20 years. As shown in chart 1, the number of national numerical fiscal rules increased from just 2 in 1995 to 28 in 2015. While debt rules were the predominant type of fiscal rules in the 1990s and in the early 2000s, this has since changed: today expenditure rules predominate. The heavy reliance on debt rules distinguishes the CESEE and former transition economies from the western European countries, which have mainly introduced balanced budget rules.

One general reason why fiscal rules increased toward the end of the sample period are changes in the supranational fiscal framework at EU level. Especially the new EU legislation in the aftermath of the sovereign debt crisis, the "six-pack"[4] and "two-pack",[5] as well as the fiscal compact,[6] prescribe the adoption of a balanced budget rule in national law (formulated in structural terms and including an automatic correction mechanism in case of deviation) and the establishment of a national fiscal council. According to the European Commission (2014a) dataset, only five of the CESEE EU countries (Bulgaria, Latvia, Lithuania, Romania and Slovakia) had implemented the national, structural budget balance rule prescribed in the Fiscal Compact up to 2015 and only Latvia, Romania and Slovakia had

Chart 1

Number of national numerical fiscal rules in CESEE EU countries



Source: European Commission (2014a).

[1] For 2015: only rules which were already set out in a legal document in 2014, but came into force only in 2015.

[4] *EU Regulations 1173/2011 to 1176/2011, EU Directive 2011/85/EU.*

[5] *EU Regulations 472/2013 and 473/201.*

[6] *Treaty on Stability, Coordination and Governance in the Economic and Monetary Union.*

adopted such a national rule and set up a national fiscal council (as recommended in the EU two-pack regulations).
Despite the substantial overall increase in fiscal rules, the distribution across countries – especially when looking at the rules based on statutory or constitutional law – is quite heterogeneous. While Lithuania and Latvia had all four types of fiscal rules enshrined in legal documents in 2015, most of the countries combined at least two types: seven countries had at least a debt and an expenditure rule, and seven countries had at least a debt and a balanced budget rule. The Czech Republic was the only country with just one rule, while Slovenia had no national numerical fiscal rule in place based on statutory or constitutional law in 2015.[7]

Over the same time period, i.e. from 1995 to 2014, the European Commission (2014b) dataset shows that the number of independent fiscal councils increased from only one in Slovenia to six (although several fiscal councils were in the course of establishment). This number is still quite low, despite the recommendation in the new EU two-pack and six-pack to set up such independent fiscal watchdogs. Some countries have already had national audit offices in place for several decades but they are not counted as independent fiscal councils as they only provide an ex post evaluation of fiscal policy and also follow a mostly legal approach, as opposed to economic analysis.[8] Looking more closely at the fiscal councils in place in 2015, three of them (in Hungary, Latvia and Slovenia) also concentrate on topics beyond fiscal policy, while those in Croatia, Latvia and Slovenia also provide (or endorse) independent macroeconomic or budgetary forecasts. All fiscal councils, except for those in Latvia and Slovenia, perform an independent analysis of fiscal policy and all, except for Hungary and Romania, issue normative statements or recommendations. The independence of all these fiscal councils is laid down in legal acts. All fiscal councils covered in this study operate on the basis of a written mandate; they publish regular public reports on the budget and have at least privileged access to government information. Furthermore, in all countries except Hungary, the members of the fiscal council are not allowed to hold political posts and, except for Hungary and Slovenia, the fiscal councils are not formally attached to the government or national parliament. More information on fiscal councils worldwide is provided in Beetsma and Debrun (2016).

Medium-term budgetary frameworks (MTBFs) are another important element of strong national fiscal frameworks. Typically, MTBFs combine the top-down approach of fiscal rules with a bottom-up approach, where individual expenditure programs have a medium-term perspective and are in accordance with the overall fiscal rules. Latvia and Romania had two of the MTBFs with the highest combined score according to the European Commission database (2014c) even in the EU-28, whereas Hungary and Poland had those with the lowest scores in 2014. All CESEE EU countries sampled in this paper have MTBFs that cover the general government or large parts of it (except for the Czech Republic, whose MTBF only covers the central government). They also have some monitoring and enforcement procedures in place to support achievement of their multi-annual tar-

[7] *While not having rules based on statutory law or a constitution, Slovenia does have two fiscal rules (on debt and expenditure) which are based on coalition agreements.*

[8] *One exception is the Cour des comptes in France, which regularly ventured into prospective assessments with some economic content until a fiscal council linked to the Cour des comptes was created in 2012.*

gets, but no well-defined actions for addressing deviations. The exceptions are the Czech Republic and Romania (which both have defined clear actions and regularly monitor target achievement) and Croatia (which lacks clearly defined monitoring or enforcement procedures). In five CESEE EU countries (Croatia, Czech Republic, Latvia, Romania, Slovakia) the national parliament votes on the MTBF targets, in four (Bulgaria, Estonia, Lithuania, Slovenia), there is at least a formal presentation in the national parliament and in two (Hungary and Poland) there is no formal presentation or vote. In Bulgaria, Estonia, Croatia, Lithuania and Poland the national budget is prepared based on the targets set out in the MTBF, and in the Czech Republic, Hungary, Latvia, Romania, Slovenia and Slovakia there is even a fixed framework defining how the targets are included in the national budgets, generally without deviations over time.

Chart 1 also shows large differences as to when the national fiscal frameworks were rolled out. Table 1 provides an overview of the dates when the fiscal institutions were first embodied in statutory law or the constitution in the countries under review. Some countries, like Lithuania or Poland, have already had fiscal rules since the 1990s. Other countries, like Romania or Latvia, began to establish fiscal institutions only very recently. As already mentioned above, debt rules were the first elements introduced before the year 2000, while balanced budget rules came into force only very recently.

Table 1

Introduction dates of fiscal institutions

Country	Balanced budget rule	Debt rule	Expenditure rule	Revenue rule	Fiscal council
BG	2012[1]	2003	2012[1]	..	..
CZ	..	..	2005	..	..
EE	..[2]	2010	..	..	..[5]
HU	2007–2008	2009	..	..	2008
LT	2015	1997	2008	2008	..[6]
LV	2013	2013	2014	1994	2013
HR	..	2009	2011	..	2011
PL	..[3]	1997	2015	..	..[7]
RO	2014	2014	2014	..	2010
SI	..	..[4]	..[4]	..	1991
SK	2014	2012	2002	..	2012

Source: European Commission (2014a, 2014b, 2014c).

[1] Bulgaria already had an expenditure rule from 2006 to 2012 and a balanced budget rule from 2011 to 2012, but only as a political commitment.
[2] Estonia has had a balanced budget rule since 1993 as part of a coalition agreement.
[3] Poland had a balanced budget rule from 2006 to 2007 as a political commitment.
[4] Slovenia had a debt rule from 2000 to 2009 and an expenditure rule from 2010 to 2011 as part of a coalition agreement.
[5] Estonia has had a national audit office since 1990.
[6] Lithuania has had a national audit office since 1990.
[7] Poland has had an audit office since 1919.

Note: Incorporation into statutory law or the constitution; databases as of 2014.

The various elements of fiscal frameworks can be designed very differently, such that only looking at the introduction of a fiscal rule, for example, might be misleading with respect to its policy impact. Table 2 illustrates how the strength of the three elements of fiscal frameworks evolved, as calculated by the European Commission (2014a, 2014c) and Nerlich and Reuter (2013). The general observa-

tion that fiscal frameworks have been strengthened over the past years is also confirmed when looking at these indices of strength. The only decrease from 2004 to 2014 is found for the fiscal rules of Slovenia and Estonia, and the medium-term budgetary framework of Hungary. The strongest increase in the strength of the fiscal framework can be observed for Bulgaria and Latvia, followed by Slovakia, Romania and Croatia.

Table 2

Indices of strength of fiscal institutions

Country	Fiscal rules			Fiscal council		MTBF	
	2004	2009	2014	2004	2014	2009	2014
BG	0.63	1.16	3.55	0.00	0.00	0.80	1.40
CZ	–0.46	–0.13	–0.13	0.00	0.00	1.40	1.40
EE	0.78	0.78	0.76	0.00	0.00	1.00	1.40
HU	–0.80	0.06	0.78	0.00	1.00	1.40	1.00
LT	–0.10	0.54	0.56	0.00	0.00	1.00	1.40
LV	–0.07	–0.07	2.84	0.00	1.00	1.00	1.80
HR	–1.01	0.12	1.62	0.00	1.00	1.40	1.40
PL	0.91	1.31	1.76	0.00	0.00	0.80	1.00
RO	–0.62	–0.62	2.07	0.00	1.00	0.80	1.80
SI	0.24	0.24	–0.82	1.00	1.00	1.40	1.60
SK	0.11	0.09	2.95	0.00	1.00	1.40	1.60
EU-15 average	0.54	0.43	1.98	0.47	0.87	1.20	1.70
EU-28 average	0.20	0.28	1.70	0.29	0.64	1.20	1.60

Source: European Commission (2014a, 2014c), Nerlich and Reuter (2013).

Note: MTBF stands for medium–term budgetary framework; Fiscal rule index by the European Commission (2014a), range: [–1.01 to 3.55]; Fiscal council dummy by Nerlich and Reuter (2013), range: [0 to 1]; MTBF index by the European Commission (2014c), range: [0 to 2].

When combining the (normalized) strength of all three elements of fiscal frameworks, the strongest combination in 2014 can be found in Latvia, Slovakia and Romania, and the weakest in the Czech Republic, Lithuania and Estonia. But it has to be noted that for Slovenia and Hungary the mere existence of a fiscal council (the quality of the fiscal council is not assessed here[9]) has a significant quantitative impact on the combined score, i.e. it would be among the lowest combined scores when ignoring the fiscal council columns.

3 Compliance with national numerical fiscal rules

While there is a wide range of studies analyzing the impact of fiscal rules on various policy variables, this has almost always been done without looking at actual compliance with the fiscal rules. The two exceptions are Cordes et al. (2015), who look specifically at compliance with expenditure rules, and Frankel and Schreger (2013), who analyze the compliance of countries with the supranational rules of the Stability and Growth Pact. Nevertheless, looking at the compliance of countries with their fiscal rules can shed light on the optimal design of fiscal frameworks and enrich the analysis of the effects of fiscal rules. With respect to the credibility of policymakers, for example, one can think of cases where it would be better to have no fiscal rule at all rather than rules that are continuously not

[9] *Beetsma and Debrun (2016) also provide an index of the strength of fiscal councils but do not include all fiscal councils presented in table 2.*

complied with. On the other hand, high compliance rates with a poorly designed fiscal framework may not bring much credibility either. Furthermore, fiscal rules generally (even if the rules are not complied with on a regular basis) increase transparency and monitoring of fiscal policy and thus also public awareness, which can have an impact itself, independently of actual compliance.

The two databases on fiscal rules by the European Commission (2014a) and the IMF (2015) provide short descriptions of the actual rules enforced in the respective legal or coalition documents. Together with the documentation in Reuter (2015), these descriptions can be translated into mathematical inequalities, which indicate whether a fiscal rule is complied with or broken. Subsequently, the numerical limit set out in the fiscal rule as well as the constrained variable can be

Table 3

Variables set out in national numerical fiscal rules

Country	Type	Constrained variable	Limit	Condition
Rules covering general government				
BG	BBR	Budget balance (cash basis)	≥ –2%	
BG	DR	Gross debt	≤ Gross debt (–1)	If gross debt (–1) > 60%
BG	ER	Expenditures (ratio to GDP)	≤ 40%	
EE	BBR	Budget balance	≥ 0	
EE	BBR	Structural balance	≥ 0	
HR	ER	Growth of expenditures	≤ –1%	If primary balance (–1) < 0
		Cyclically adjusted primary balance	≥ 0	If primary balance (–1) ≥ 0
HU	BBR	Primary balance	> 0	
HU	BBR	Budget balance	> Budget balance (–1)	
HU	DR	Gross debt	≤ Gross debt (–1)	If gross debt (–1) > 50%
HU	ER	Growth of real primary expenditures	≤ 1/2 growth real GDP	
LV	BBR	Structural balance	≥ –0.5%	If structural balance (–1) > –1%
		Structural balance	≥ Structural balance (–1) +0.5%	If structural balance (–1) < –1%
LV	DR	Gross debt	≤ 60%	
PL	DR	Budget balance / revenues	≥ Budget balance (–1) / revenues (–1)	If gross debt (–1) > 50%
		Gross debt	≤ Gross debt (–1)	If gross debt (–1) > 55%
RO	DR	Gross debt	≤ 60%	
RO	ER	Growth of expenditures	≤ Average (3-year) growth GDP	If budget balance (–1) ≤ 0
SI	DR	Gross debt	≤ 40%	
SK	BBR	Structural balance	≥ –0.5%	If gross debt (–1) > 60%
		Structural balance	≥ –1%	If gross debt (–1) ≤ 60%
Rules covering central government				
HR	DR	Difference gross debt	≤ 0%	If gross debt (–1) > 60%
HU	BBR	Primary balance	≥ 0%	
HU	DR	Difference gross debt	≤ 0%	
LT	ER	Growth of expenditures	≤ Average (5-year) growth revenues +0.5%	If avg. (5 yrs) budget balance ≤ 0
PL	ER	Growth of cyclically adjusted real expenditures	≤ 1%	
PL	BBR	Budget balance	≤ PLN 30 trillion	

Source: European Commission (2014a), IMF (2015), Reuter (2015).

Note: Only rules which were already in force before 2014 and rules with quantifiable limits, all variables (except expenditure, revenue and growth variables, if not stated otherwise) are in percentage of GDP and on an accrual basis (if not stated otherwise). BBR stands for balanced budget rule, DR for debt rule, ER for expenditure rule; the expenditure rule in CZ is not included as it is more of an MTBF and does not set out fixed, but changing, limits for fiscal variables.

calculated for each year the rule has been in force. If the characteristics of a rule are changed, it is treated as a different (new) rule in this setting. Table 3 presents those limits and constrained variables for the fiscal rules which cover the central or general government (but not regional or local governments, due to lack of data) in the sample of countries studied in this paper.

Based on the descriptions shown in table 3, the annual compliance of a country with its fiscal rules can be calculated as follows:

$$c_{i,j,t} = \begin{cases} 1 & \text{if } V_{i,j,t} \leq L_{i,j,t} \\ 0 & \text{otherwise} \end{cases} \tag{1}$$

where $V_{i,j,t}$ is the variable constrained by fiscal rule j in country i in year t, $L_{i,j,t}$ the numerical limit set out by the same rule for year t and $c_{i,j,t}$ the binary variable being one if country i complied with its fiscal rule j in year t.

The calculation of $V_{i,j,t}$ and $L_{i,j,t}$ is based on data from Eurostat's Government Finance Statistics dataset and Eurostat's AMECO database. Contrary to the usual evaluation of the national rules with national data, the compliance assessed in this paper is actually based on EU-level data.[10] While the EU-level data (especially ex ante data) might be more resilient to a potential reporting bias induced by national authorities, a national government might base its fiscal decisions on national data and thus the resulting compliance might differ from the actual compliance observed nationally. Nevertheless, robustness checks adding 10% (for variables not in percentage of GDP terms), 0.5 percentage points of GDP or one standard deviation (over the period in which the respective fiscal rule was in force) to the constrained variable respectively, did not significantly change the qualitative results of the analysis.

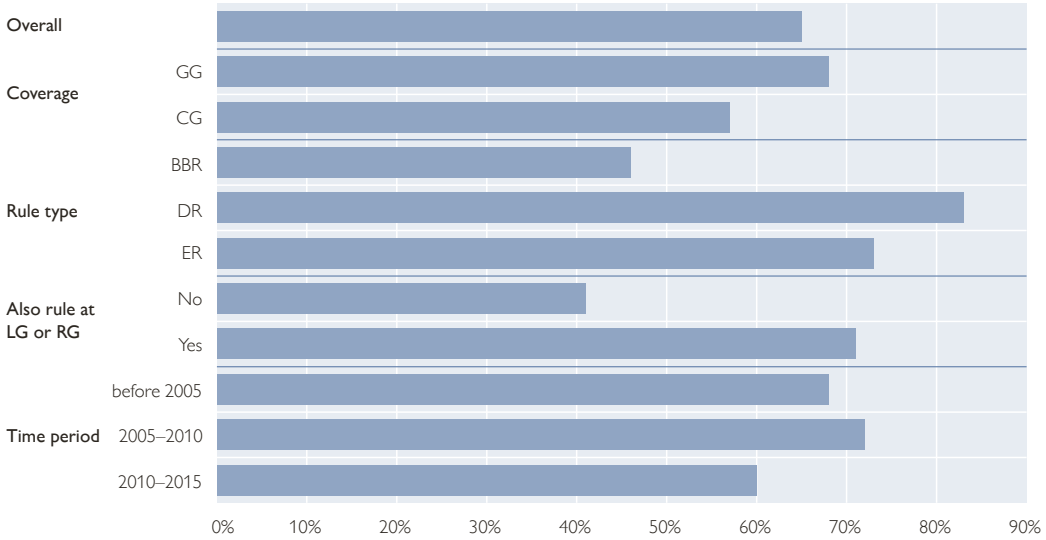
Chart 2 shows the average compliance calculated using equation 1 for various subgroups of fiscal rules. Overall compliance with national fiscal rules is quite high in the CESEE EU countries, which complied with their fiscal rules in 65% of the years. Some interesting observations emerge when splitting the sample of fiscal rules into subgroups according to central features of the rules. For example, rules covering the general government seem to be complied with slightly more often (68% vs. 57%) than rules covering only the central government. One reason for this difference becomes apparent when comparing compliance with various types of fiscal rules, as debt rules are more often used to constrain the general government rather than the central government.

Debt and expenditure rules (83% and 73%) were complied with much more often in the countries sampled in this paper than balanced budget rules (46%). This is partly because debt and expenditure rules more often constrain stock(-like) rather than flow variables. Furthermore, some of the countries introduced debt and expenditure rules with limits which were far above the current level of the debt variable, for example – i.e. rules which were not binding for many years. The limits set by balanced budget rules, on the other hand, were almost always close to the constrained variable.

[10] *Generally, the variables are used as stated in the text of the fiscal rules. For instance, if the rule constrains cash variables, the calculations are also based on variables in cash terms.*

Chart 2

Average compliance with subsamples of national fiscal rules in CESEE EU countries



Source: Author's calculations.

Note: GG stands for general government, CG for central government, RG for regional government, LG for local government, BBR for balanced budget rules, DR for debt rules, ER for expenditure rules.

Although this paper is not able to look at compliance with fiscal rules at the regional or local level, the figures show that compliance with the rules at the central or general government level was generally higher (71% vs. 41%) if there were also fiscal rules in force constraining local or regional government. Some of the countries use local or regional fiscal rules to enforce the rules constraining general government variables, which seems to be an effective approach to increasing overall compliance.

Interestingly, no major differences can be observed when comparing compliance with fiscal rules for the CESEE EU countries over time. Generally speaking, compliance was highest between 2005 and 2010 (72%), but was around the same level (68%) even before 2005. Only in recent years did compliance drop slightly to 60%, mostly because the stock variables (e.g. general government debt-to-GDP levels) caught up with their previously distant limits. Nevertheless, it remains interesting that general compliance does not seem to be strongly influenced by different time periods.

3.1 Comparison with compliance figures for the EU-28

Reuter (2016) also calculates compliance with national numerical fiscal rules for the larger sample of all EU-28 Member States. The paper shows that across the EU-28 compliance is generally higher in countries with independent and strong monitoring and enforcement bodies, as well as in larger countries with lower government debt and fragmentation. Furthermore, the paper shows that governments tend to comply less with fiscal rules introduced by their predecessors and that forecast errors generally do not influence average compliance.

When comparing the descriptive statistics of Reuter (2016) with the sample of the CESEE countries in this paper (table 4), it becomes apparent that compliance

Table 4

Comparison of compliance statistics: CESEE EU vs. EU-28

	EU-28	CESEE EU sample		EU-28	CESEE EU sample
	Number of fiscal rules			*Compliance*	
Balanced budget rules	24	7	Overall (1995–2014)	52%	65%
Debt rules	15	9	Balanced budget rules	37%	46%
Expenditure rules	20	8	Debt rules	88%	83%
Revenue rules	4	2	Expenditure rules	48%	73%
			Before 2005	48%	68%
			After 2005	55%	66%

Source: Author's calculations and Reuter (2016).
Note: Compliance values refer to the percentage of years the countries on average complied with the fiscal rules included in the sample.

in the CESEE EU countries is much higher than in the EU-28 as a whole, where it is only 52%. As already mentioned, this is mainly due to the strong reliance on the much more closely observed debt rules in the CESEE EU countries. Furthermore, expenditure rules also seem to be complied with significantly more often in the CESEE EU countries than in the overall sample (73% vs. 48%).

Overall compliance with fiscal rules in the EU-28 has increased steadily over time and has peaked during the last five years. There could be two possible explanations for this. On the one hand, governments could have weakened their fiscal rules and abolished strict ones, which would facilitate compliance. On the other hand, the monitoring and enforcement of the rules could have been increased over time, thereby improving compliance. Both explanations are possible, but in the case of the EU-28 over the past years the second explanation might be more likely, as the indices of the strength of fiscal rules (European Commission, 2014a) have improved significantly over time. The general increase in compliance in the EU-28 contrasts with a recent fall in compliance in the CESEE EU countries. As pointed out above, this is chiefly due to the fact that stock variables, which were mainly constrained by the fiscal rules in the CESEE EU countries, caught up with their numerical limits and thus became binding. In the EU-28, on the other hand, the most common rule type is the balanced budget rule, which explains the lower overall compliance figures. However, this rule type usually constrains a flow variable, and rules targeting flow variables are more often binding than rules constraining stock variables (as compliance with the latter depends on the initial distance between the constrained variable and the numerical limit).

Many other observations are similar for the CESEE EU countries and the full sample of EU-28 countries. For example, compliance with rules covering the general government which are combined with local or regional rules is high for both CESEE EU countries and the EU-28 sample.

A more detailed econometric analysis of the determinants of compliance with fiscal rules is not possible in the CESEE EU sample due to the small number of observations and low variance within each country. For example, some of the CESEE EU countries could not be used for an econometric exercise, as they always – or at the other extreme never – complied with their fiscal rules. In the much larger EU-28 sample, the number of remaining observations is sufficient. Another main concern which could significantly bias the econometric results in such a setting is endogeneity, as some fiscal rules and the average compliance with these

rules might both be determined by the same omitted variable for voter preferences. In the EU-28 sample, i.e. with a larger amount of observations, various control variables can be added to reduce the omitted variable bias. The set of variables includes those related to the fiscal tastes of voters, like the ideology or fragmentation of government, (lagged) debt to GDP ratio, decentralization of public finances, indicators of upcoming elections, but also variables of the wider economic environment, like the past output gap, country size, inflation or exchange rate.

4 Conclusions

This article highlights the development of fiscal frameworks in the CESEE countries of the EU-28 countries. The development and type of institutions introduced in the various countries is very heterogeneous and the design differs strongly, but an overall trend can be observed toward more and stricter elements of fiscal frameworks. When looking at the average compliance with national fiscal rules, it is striking that compliance with debt rules, which were a very popular type of fiscal rule in the CESEE EU countries, was much higher than compliance with expenditure or (even more so) balanced budget rules. One reason was that for some years the constrained policy variables in the CESEE EU countries were far below the limit set out in the debt (and expenditure) rules, which were thus quite loose and almost always complied with.

Several changes in the fiscal frameworks would support an increase in the compliance with fiscal rules in the future: First, many of the CESEE EU countries do not yet have fiscal councils, or those established are not strong enough. But, as shown in Reuter (2016), independent monitoring and enforcement bodies significantly increase the probability of compliance with fiscal rules. Second, only two of the CESEE EU countries had already implemented the balanced budget rule stipulated in the fiscal compact before 2014. The new rules coming in force now and in the future will strengthen the existing fiscal frameworks.

References

Beetsma, R. and X. Debrun. 2016. Debunking 'fiscal alchemy': The role of fiscal councils. http://voxeu.org/article/debunking-fiscal-alchemy-role-fiscal-councils.

Combes, J.-L., X. Debrun, A. Minea and R. Tapsoba. 2014. Inflation Targeting and Fiscal Rules: Do Interactions and Sequencing Matter? IMF Working Paper 14/89.

Cordes, T., T. Kinda, P. Muthoora and A. Weber. 2015. Expenditure rules: Effective tools for sound fiscal policy? IMF Working Paper 15/29.

Debrun, X., L. Moulin, A. Turrini, J. Ayuso-i Casals and M. S. Kumar. 2008. Tied to the mast? National fiscal rules in the European Union. In: Economic Policy. 23(54). 298–362.

European Commission. 2014a. Database on numerical fiscal rules in the EU Member States. http://ec.europa.eu/economy_finance/db_ndicators/fiscal_governance/fiscal_rules/index_en.htm.

European Commission. 2014b. Database on independent fiscal institutions in the EU Member States. http://ec.europa.eu/economy_finance/db_indicators/fiscal_governance/independent_institutions/index_en.htm

European Commission. 2014c. Database on medium-term budgetary framework in the EU Member States. http://ec.europa.eu/economy_finance/db_indicators/fiscal_governance/framework/index_en.htm.

Fatas, A. and I. Mihov. 2006. The macroeconomic effects of fiscal rules in the US states. In: Journal of Public Economics. 90(1–2). 101–17.

Frankel, J. and J. Schreger. 2013. Over-optimistic official forecasts and fiscal rules in the Eurozone. In: Review of World Economics 149(2). 247–72.

Heinemann, F., M.-D. Moessinger and M. Yeter. 2016. Do fiscal rules constrain fiscal policy? A meta-regression-analysis. ZEW Discussion Paper 16-027.

Iara, A. and G. B. Wolff. 2014. Rules and risk in the euro area. In: European Journal of Political Economy 34. 222–36.

IMF. 2015. Fiscal Rules Dataset, 1985–2014. http://www.imf.org/external/datamapper/FiscalRules/map/map.htm.

Nerlich, C. and W. H. Reuter. 2013. The design of national fiscal frameworks and their budgetary impact. ECB Working Paper 1588.

Nerlich, C. and W. H. Reuter. 2015. Fiscal rules, fiscal space and procyclical fiscal policy. ECB Working Paper 1872.

Niemann, S. and J. Von Hagen. 2008. Coordination of monetary and fiscal policies: A fresh look at the issue. In: Swedish Economic Policy Review 15. 89–124.

OeNB. 2011. Limited Fiscal Space in CESEE: Needs and Options for Post-Crisis Reform, 68th East Jour Fixe of the Oesterreichische Nationalbank. Workshop Proceedings of OeNB Workshops No. 17.

Reuter, W. H. 2015. National numerical fiscal rules: Not complied with, but still effective? In: European Journal of Political Economy 39. 67–81.

Reuter, W. H. 2016. When and why do countries break their national fiscal rules? Mimeo.

Wyplosz, C. 2012. Fiscal rules: Theoretical issues and historical experiences. In: A. Alesina and F. Giavazzi, eds. Fiscal Policy after the Financial Crisis. University of Chicago Press. 495–525.

Belarus in recession, banking sector in difficulties – Russia to the rescue

Stephan Barisitz[1]

After a long period of economic growth, which weakened from 2012, Belarus slid into recession in 2015, which has continued into 2016. The downturn was triggered by a sharp contraction of exports to Russia, which itself had fallen into recession, largely on account of the plunge of the oil price. The Belarusian banking sector is mostly state-owned and has served as a conduit for directed lending to state-owned enterprises, the backbone of the economy. The currency devalued sharply in 2015, deposit and credit growth ground to a halt and banking activity started to contract, already high levels of dollarization increased further, nonperforming loans more than doubled, and profitability shrank to low levels. Meanwhile, periodic bank recapitalization measures (of an estimated 2% of GDP a year) have held capital adequacy at seemingly satisfactory levels. Major risks include exchange rate, credit, liquidity, and state solvency challenges. The salient shock-absorbing factor is Russia – essentially performing a function of external "lender of last resort" to Belarus and, a fortiori, to its banking sector. The outlook is for high short-term vulnerability, a sluggish recovery and continuing costly and externally financed muddling-through policies.

JEL classification: D14, F36, P2, P5, R21, R3
Keywords: residential property markets, housing finance, household survey, Central, Eastern and Southeastern Europe

After almost two decades of positive economic growth (according to official figures), which weakened to low levels from 2012, Belarus slid into a recession in 2015, which has continued into 2016. The banking sector, which has traditionally served as a conduit for state-directed lending, has been hard-hit by the crisis. Section 1 of this short study features an overview of macroeconomic developments in recent years (from 2012 to 2016), with a focus on the most recent difficult period. Within this framework, section 2 focuses on how the banking sector evolved from the pre-crisis years (2012–14) to the crisis years (2014–16). Section 3 deals with the current risk profile of the banking system and with existing shock-absorbing factors. A brief outlook is offered by section 4, which wraps up the study.

1 Macroeconomic overview: Belarusian "economic model" facing its limits

The Belarusian economic model has remained highly centralized and state-dominated until today. State-owned enterprises (SOEs) continue to account for around half of GDP and about two-thirds of employment. The pervasive use of government-determined production plans for SOEs and of administrative controls for "key" prices distort resource allocation. At the same time, the country continues to benefit from subsidized energy (oil and gas) deliveries from its main trading and investment partner, Russia.[2] Belarus is a member of the Eurasian Economic Union with Russia, Kazakhstan, Armenia and Kyrgyzstan. Crude oil is processed, and refined petroleum products are re-exported at world market prices, which

[1] *Oesterreichische Nationalbank, Foreign Research Division, stephan.barisitz@oenb.at.* *The author wishes to thank Peter Backé, Markus Eller and Daniela Widhalm (all OeNB) as well as an anonymous referee for their valuable comments and suggestions. Opinions expressed by the author do not necessarily reflect the official viewpoint of the OeNB or of the Eurosystem.*

[2] *Belarus' large eastern neighbor accounts for about 40% of the country's exports, more than half of its imports, and almost half of foreign investment inflows into Belarus. The EU accounts for almost one-third of the country's overall trade and for more than a quarter of investment inflows.*

provides the country windfall gains (Triebe, 2015). The latter have fallen since the plunge of the oil price in 2014 and 2015, however. Compared to other former Soviet republics and to a number of other Central, Eastern and Southeastern European (CESEE) countries, Belarus boasts relatively low levels of poverty, income inequality and unemployment, and relatively high levels of per capita GDP.

The Belarusian authorities have traditionally aimed at high annual economic expansion by putting in place mandatory output and investment targets. Large-scale and subsidized "directed lending under government programs" (DLGP), carried out by state-owned banks (SOBs), has contributed to attaining these goals. Part of the lending is funded from earmarked government deposits, other parts are covered by banks' own resources. SOBs are estimated to account for about two-thirds of the banking sector's total assets. The focus of directed lending is on supporting residential construction, agriculture and heavy industry. An "activist wage policy" (AWP) by setting and executing centrally-fixed wage targets has been the second, demand-oriented, plank of the authorities' growth strategy (Miksjuk et al., 2015; p. 8–9).

However, given deep structural rigidities, expansionary macroeconomic policies have increasingly fueled inflation and external imbalances; once temporary corrective interventions had alleviated the situation (somewhat), renewed growth-oriented loosening measures typically gained the upper hand again.[3] In contrast to the past, these stop-and-go policies from 2012 only produced anemic annual growth of between 1% and 2%.[4] Despite price controls, inflation was not brought down to single digits. After the current account deficit had swollen to over 10% of GDP in 2013, tightened policies reined it in somewhat in 2014. Meanwhile, gross international reserves had declined to less than two import months (see table 1). A Russian official loan of USD 2 billion in 2014 (corresponding to about 2.6% of Belarus' GDP) assisted the authorities in navigating the external imbalances.

The oil price plunge-triggered collapse of the Russian ruble in late 2014 and early 2015 and a surge of imports from Russia forced the Natsionalny bank Respubliki Belarus (NBRB) to abandon its crawling peg regime against the U.S. dollar. It adopted a managed float (vis-à-vis a currency basket comprising the Russian ruble, the U.S. dollar and the euro) in the first half of 2015.[5] As a result, from late 2014 to early 2016, the Belarusian ruble (BYR) lost about half of its value against the U.S. dollar. Meanwhile, stepped-up price controls held down inflation. Mandatory production targets were reined in and de jure moves were made to replace output targets with efficiency targets (IMF, 2016; p. 2). Government-led wage increases were suspended. Sharply reduced demand for exports due to the Russian recession in 2015–16, and tight fiscal and monetary policies pushed Belarus into recession in 2015 (GDP: –3.9%) and 2016 (from January to May:

[3] *Thus, an effort to boost the economy beyond its capacity had contributed to the outbreak of a currency crisis in 2011 (IMF, 2013; p. 4).*

[4] *Given the nonmarket nature of a sizeable part of the economy, Belarusian statistical data have to be treated with caution. Thus, GDP deflators may be partially incomparable, as prices may not reflect the relative scarcity of goods because of extensive price controls, trade barriers and other administrative interventions (Dabrowski, 2016; p. 5). In some cases, e.g. with regard to centrally-driven quasi-fiscal activities, which play an important role in the Belarusian context, the IMF provides specific quantitative estimates (see table 1).*

[5] *This only happened after heavy initial administrative interventions in December 2014 and January 2015, which were subsequently discontinued or phased out (EBRD, 2015).*

–2.8% year on year). This contributed to cutting the current account shortfall, while gross external debt, which is largely public debt, rose substantially (as a ratio of GDP), and gross international reserves further eroded to a very low level (1.5 import months, see table 1) comparable to the one attained on the eve of the currency crisis of 2011. In the first half of 2015, the authorities managed to raise loans of about USD 2.5 billion[6] from the Russian government and Sberbank (of Russia) to cover external repayment needs (Dobrinsky, 2016; p. 57).

Table 1

Belarus: macroeconomic indicators (2012–2016)

	2012	2013	2014	2015	2016 (latest)
GDP growth (in real terms, %)	1.7	1.0	1.7	–3.9	–2.8 (Jan.–May)
Consumer prices (year-end, %)	21.8	16.5	16.2	12.0	12.4 (end-May)
Consumer prices (annual average, %)	59.2	18.3	18.1	13.5	14.0[3]
Current account balance (% of GDP)	–2.9	–10.4	–6.7	–3.8	–2.7[3]
NBRB policy rate (general refinancing rate, %, end of period)	30.0	23.5	20.0	25.0	24.0 (end-May)
Net FDI inflows (% of GDP)	2.1	2.8	2.4	2.7	..
Gross external debt (% of GDP)	53.1	55.3	52.5	69.9	80.0[3]
Gross international reserves (year-end, % of GDP)	12.7	9.3	6.6	7.6	..
in USD billion	8.10	6.65	5.06	4.18	4.27 (end-May)
in GNFS import months	2.1	1.8	1.7	1.5	..
General government budget balance (% of GDP)	0.7	0.1	1.1	1.5	1.8 (Jan.–Mar.)
Augmented general government balance[1] (% of GDP)	–6.3	–5.8	–3.5	–6.9[2]	..
Unemployment rate (LFS, %)	0.6	0.5	0.5	1.0	2.0[3]
Memo items:					
GDP (nominal, BYR trillion)	530.4	636.8	778.1	869.7	..
Exchange rate (BYR/USD, period average)	8,336	8,876	10,216	15,864	20,316 (Jan.–May)

Source: Natsionalny bank Respubliki Belarus, IMF, wiiw.

[1] *Including outlays for new directed lending and for bank recapitalizations and outlays related to called guarantees of publicly guaranteed debt.*
[2] *IMF forecast April 2015.*
[3] *wiiw forecast March 2016.*

The Belarusian ruble's exchange rate stabilized somewhat in spring 2016, which was probably linked to the stabilization of the oil price (for the time being) and the easing of Russia's economic difficulties. While Belarus' external position has remained very vulnerable due to its continuing high external financing needs, in March 2016, the Russia-led Eurasian Fund for Stabilization and Development (EFSD) approved a new USD 2 billion financing facility for Belarus and disbursed its first tranche of USD 500 million. Negotiations on a possible loan from the IMF have been going on since 2015 and have yet to produce tangible results (Standard & Poor's RatingsDirect, 2016; p. 2–3).

2 Banking developments

2.1 General aspects and pre-crisis developments: directed lending and high dollarization

SOBs account for the majority of banking sector total assets (see table 2), with Belarusbank (the big savings bank, 42.9% of total assets at end-2015), Belagroprombank (14.8%) and Belinvestbank (5.9%) playing the most important role. Foreign-owned banks (FOBs) make up around 30% of the sector's total

[6] *This sum would correspond to about 4.6% of Belarus' GDP of 2015.*

assets, with Russian credit institutions comprising the lion's share: BPS-Sberbank (10.4% of total assets), Belvneshekonombank (5.5%), and Belgazprombank (5.0%). The largest non-Russian FOB is Priorbank, a subsidiary of Austria's Raiffeisen Group, accounting for about 4.3% of total assets (Raiffeisen Research, 2016; p. 55).[7] The largest share of the banking sector's loans (about 40%–45% in total) goes to SOEs and the general government,[8] followed by private firms (about one-quarter) and households (around 15%).

When the Development Bank of the Republic of Belarus (DB) was established in 2011, it originally offered the prospect of reining in directed lending by combining the latter in a single policy entity and winding it down step-by-step, while allowing other banks to operate on commercial terms. However, apart from absorbing a minor transfer of DLGP loans, the DB actually turned into a new vehicle for performing directed lending, existing next to traditional channels. Moreover, a presidential decree of 2013 vested the DB with the assignment to finance strategic investment projects and supply subsidized credit to the export sector. DLGP has declined (from about 7% of GDP in 2012 to 3%–4% in 2015), but at this level still partly crowds out more viable commercial lending (IMF, 2015; p. 9). The accumulated stock of directed credits makes up around 40% of total lending. The ratio of large exposures to banking capital steadily increased over the years, as shown in table 2.

After still growing by 8% (in real terms and exchange rate-adjusted) in 2012, deposits slightly declined in the next two years.[9] Belarusian banking activities have been characterized by strong and rising deposit and loan dollarization tendencies. Prior to the plunge of the national currency and the country's slide into recession in 2015, dollarization was already on the rise (to 52% of total deposits and 53% of total loans at end-2014), supported by a steady weakening of the Belarusian ruble, partly due to the crawling peg regime, itself aimed at upholding Belarus' competitiveness. The high share of foreign currency (FX)-denominated loans and the expansion of FX lending (spurred by a large interest rate differential on loans denominated in Belarusian ruble) has raised concerns because many loans apparently go to unhedged borrowers. The latter are corporate borrowers, but hardly any households, because only very little retail lending is FX-denominated (see table 2). Dollarizaton grew despite various NBRB measures (e.g. a hike in reserve requirements for FX deposits, restrictions on short-term FX lending), which may point to challenges in the combination of policy measures (policy mix).

2.2 Crisis mode and policy intervention (from late 2014): deteriorating credit quality and high recapitalization needs

The acceleration of the Belarusian ruble's devaluation and the country's plunge into recession in 2015 put banks under increasing pressure amid already high dollarization. Some jittery savers withdrew household deposits in Belarusian ruble and converted them into foreign currency. Some liquidity drained out of the sector, which weakened banks' liquid assets-to-total assets ratio. The contraction

[7] *Austrian banks' exposure to Belarus amounts to about 0.5% of their total exposure to CESEE countries.*

[8] *While the share of SOEs in total loans has remained more or less constant at about one-third in recent years, the state has doubled its share from 6% (at end-2012) to 12% (at end-March 2016).*

[9] *Expressed in nominal exchange rate-adjusted annual terms, deposits and loans expanded until mid-2015, and only thereafter slightly decreased (table 2).*

of deposits (in real terms and exchange rate-adjusted) gathered momentum in 2015 and the first quarter of 2016 (–12% to –15%). This happened despite increasing deposit interest rates; the latter even exceeded inflation, which was held back by price controls. Under the impact of subdued credit demand, lending behaved similarly, although the rates of contraction in 2015 and early 2016 were somewhat less pronounced. In order to rein in excessive FX demand the NBRB implemented countermeasures in early 2015, including a ban on the use of FX for a range of domestic transactions. Also, the key interest rate (the refinancing rate) was hiked by 500 basis points to 25%.

While panic reactions were kept in check, monetary tightening had an additional negative impact on lending. Also, negative balance sheet effects from exchange rate adjustment could not be avoided. As of end-March 2016, the share of FX-denominated deposits had risen to 67% of total deposits, and FX-denominated loans came to 65% of total loans. As shown in table 2, NPL ratios jumped from 4% (end-2014) to 12% (end-March 2016) of the credit volume, and further worsening is expected. Moreover, official NPL ratios likely understate the true share of problem loans because of widespread loan rescheduling by SOBs (including pervasive evergreening practices of directed credits), an elevated share of publicly guaranteed loans, and recurrent transfers of impaired loans to the Development Bank (IMF, 2014; p. 5).[10] Unsurprisingly, overdue debt is a greater problem in the corporate than in the retail sector (The Banker, 2015; p. 47). The ratio of large exposures to banking capital took a big leap in 2015 and early 2016 (from 141% at end-2014 to 204% at end-March 2016). Banks' established reserves for bad assets did not at all keep pace (end-2014: 3%, end-March 2016: 5%) with the sharp increase of NPLs. While recorded profitability remained relatively modest up to end-2014, it further declined, but was still positive, in the crisis year 2015 and in early 2016 (end-March 2016: ROA: 1.4%, ROE: 11.4%).[11]

The total number of banks operating in the country fell from 31 at the beginning of 2015 to 26 at end-March 2016, owing to the withdrawal of the licenses of five smaller entities on account of the erosion of their capital bases. These withdrawals, as well as repeated and systematic bank recapitalization measures – coming to an estimated average amount of 2% of GDP annually and mostly carried out by the state (IMF, 2013; p. 35) –, are responsible for the fact that, despite a small decline, reported capital adequacy ratios remain at seemingly comfortable levels (16%–17% in early 2016). Although the erosion of deposits – notably of FX-denominated ones – picked up again in late 2015 and the first months of 2016, the NBRB decided to reduce the key interest rate step by step from April to July 2016 by 5 percentage points to 20% (back to where it had stood in late 2014) in order to combat the continuing recession. Russia's Alfa Bank in January 2016 arranged a syndicated loan of USD 250 million for Belarusbank, Belarus' largest credit institution (see above). Against the backdrop of its tight budgetary situation, the government in

[10] *Most recently, the authorities have reportedly taken a new initiative to assign DLGP loans to the DB, while other banks are to be alleviated from directed lending obligations.*

[11] *Considerable monitoring difficulties thus reflect regulatory forbearance practices and weaknesses of banking supervision in Belarus. Here one can add conflicts of interest for the NBRB as a supervisor of one of the smaller to medium-sized banks, the Moskva-Minsk Bank (1.4% of total banking assets), purchased by the NBRB in 2014 from VTB of Russia following failed attempts by the VTB to sell it to a private investor (IMF, 2015; p. 14).*

Table 2

Belarus: banking sector-related indicators (2012–2016)

	End-2012	End-2013	Mid-2014	End-2014	Mid-2015	End-2015	End-03 16
Total assets (BYR trillion)	321.2	395.2	434.2	481.5	557.7	630.5	650.9
Total assets to GDP (%)	60.6	62.1	61.7	61.9	66.6	72.5	. .
Market share of SOBs (% of total assets)	65	63	. .	64	. .	. .	. .
Total deposits (of resident sectors, excl. interbank, BYR trillion)	206.8	244.4	270.5	306.2	361.1	392.9	398.7
Annual growth (nominal, exchange rate-adjusted, %)	+31.1	+12.4	+15.0	+12.6	+7.9	–1.9	–3.6
Annual growth (in real terms, exchange rate-adjusted, %)	+7.7	–3.5	–4.2	–3.1	–4.7	–12.4	–14.5
Share of FX deposits (incl. interbank)	48.1%	49.5%	49.4%	51.5%	57.1%	65.0%	67.3%
Total loans (to resident sectors, excl. interbank, BYR trillion)	271.2	335.7	364.9	406.3	471.3	520.0	539.5
Annual growth (nominal, exchange rate-adjusted, %)	+23.4	+17.7	+15.9	+8.5	+3.5	–0.6	–2.0
Annual growth (in real terms, exchange rate-adjusted, %)	+1.3	+1.0	–3.4	–6.7	–8.6	–11.2	–13.1
Share of FX loans (incl. interbank)	45.5%	49.6%	51.3%	52.6%	59.2%	61.7%	65.1%
Loans to state-owned enterprises	92.2	123.0	129.6	144.1	168.2	169.9	176.8
of which: FX loans	53.6%	60.2%	60.3%	60.0%	66.1%	67.2%	69.7%
to private enterprises	66.6	79.4	90.0	103.3	120.2	132.0	140.8
of which: FX loans	60.2%	67.6%	69.8%	67.5%	75.5%	71.7%	73.0%
to households	40.2	54.0	57.4	62.9	64.7	68.8	68.6
of which: FX loans	3.0%	1.5%	1.4%	1.3%	1.4%	1.3%	1.3%
Directed lending (net flow, % of GDP)	6.6	5.0	. .	3.9	. .	3.5	. .
Loan-to-deposit ratio (%)	131.1	137.4	134.9	132.7	130.5	132.3	135.3
Nonperforming loans[1] to total gross loans (%)	5.5	4.5	4.7	4.4	5.5	6.8	11.6
Watch loans[2] to total gross loans (%)	12.6	9.6	. .	8.6	. .	. .	. .
Established reserves for assets subject to credit risk (%)	3.9	3.6	3.5	3.4	3.8	4.7	4.8
Liquid assets to total assets (liquid assets ratio, %)	33.2	30.0	30.0	29.7	29.7	26.0	23.4
Liquid assets to short-term liabilities (%)	96.3	89.6	96.0	89.9	81.6	75.8	79.8
Large exposures to capital (%)	109.6	127.6	131.2	140.7	201.5	193.8	203.7
Return on assets (%)	2.2	2.3	2.0	2.1	1.7	1.3	1.4
Return on equity (%)	14.8	16.2	14.5	15.3	13.3	10.4	11.4
Capital adequacy ratio[3] (%)	20.8	15.5	14.8	17.4	16.8	18.7	16.3
Tier 1 capital ratio[4] (%)	16.2	11.5	11.6	12.9	13.2	14.7	13.4

Source: Natsionalny bank Respubliki Belarus, IMF, Raiffeisen Research.

[1] *Share of substandard, doubtful and bad assets in assets subject to credit risk.*
[2] *Watch loans include loans with delinquencies, negative information on the borrower, or insufficient collateral.*
[3] *Regulatory capital to risk-weighted assets.*
[4] *Regulatory tier 1 capital to risk-weighted assets.*

May 2016 decided to prepare a sell-off (privatization) of up to 25% of Belarusbank until end-2017 (Ostwirtschaftsreport, 2016).

3 Risk profile and shock-absorbing factors

3.1 Major risks: exchange rate, credit, liquidity, and state solvency risk

The major risks the Belarusian banking sector is currently facing include, in order of importance: exchange rate risk, credit risk (including directed lending risk), and liquidity risk. State solvency risk is a salient underlying risk, given that the state is a majority shareholder and key decision maker in the banking sphere.

While the Belarusian ruble has stabilized most recently, a renewed plunge of the oil price, a worsening of the economic situation in Russia, or difficulties with further disbursements of the EFSD facility, in the absence of other financial support forthcoming, could easily weaken its exchange rate again. The Belarusian currency remains very fragile against the backdrop of the country's weak external position, characterized by a persistent – if smaller – current account deficit, a high level of external debt and a very low – if recently stabilized – level of international

reserves. A new substantial slide of the Belarusian ruble would push up dollarization and NPLs even further and in the worst case could trigger bank runs and sizable deposit withdrawals.

Given that recorded nonperforming loans more than doubled in the year to end-March 2016, credit risk has sharply increased in the current recession. This is particularly valid for directed lending, which typically follows politically-determined targets instead of furthering the efficient allocation of resources. Doubtlessly, increased credit risk will eventually raise the need for transferring impaired loans to the Development Bank (DB) and step up recapitalization requirements for credit institutions, which in turn will further expand quasi-fiscal costs.

Liquidity risk/funding risk plays a role notably in connection with exchange rate risk as referred to above: Triggered by a renewed significant slump of the currency or another negative event, depositors could quickly take recourse to more conversions of holdings in Belarusian ruble into FX holdings, or if some savers lost confidence, they could try to take their funds out of banks. Given all these risks, the NBRB's above-mentioned considerable monitoring difficulties are a cause for concern.

Because of SOBs' predominant position in the sector and their role as instruments of government-directed lending policies, the risk of the government running into financial or other difficulties in fulfilling its bank ownership functions constitutes an immediate business risk which is all the more serious against the background of the authorities' current crisis-triggered tight financial situation (see also below).

3.2 Shock-absorbing factors: dwindling quasi-fiscal resources, external "lender of last resort"

The shock-absorbing factors for the Belarusian banking sector are essentially of a domestic and external nature. Because banks' capital adequacy ratios are periodically propped up by capital injections from public resources, the still "comfortable" level of these ratios is of an artificial nature and not sustainable without continuing transfers of means within the given framework. The state budget itself, more precisely in its version of the "augmented general government balance" (IMF, 2015; p. 26, 42) includes such recapitalization outlays and thus constitutes an important shock-absorbing factor. Yet the financial straits of the Belarusian state (high "augmented" deficit, elevated external debt, international reserves of less than two import months), which the recession of 2015–16 exacerbated further, seriously calls into question the solidity of this shock absorber.

This leaves external support as the major second supporting pillar of the country's economy and its banking sector. Sources of external support can principally be financial assistance from the IMF or financial assistance from Russia directly and/or from the Russia-led Eurasian Fund (ESFD), or from supplementary sources (e.g. China). An IMF loan would bear the advantage of diversifying Belarus' financial dependence, while its structural conditionality would be relatively strict and mandate market-oriented institutional reforms (probably including the phase-out of mandatory targets and of directed lending) that do not enjoy unambiguous support at the highest echelons of power in the country. Russia is currently overcoming a recession, therefore its available financial means are more limited than in the past. However, some assistance from the ESFD has been forthcoming lately, based on a conditionality that is weaker than the IMF's (containment of wage and

directed lending growth, maintenance of international reserves etc). For geo-economic reasons (strong trade and investment links with Minsk, see above) and geopolitical reasons (continuing sanctions-countersanctions stand-off with the West in the Ukrainian crisis), one can expect Moscow to uphold assistance to Belarus, including its banking system.[12]

4 Outlook: high short-term vulnerability, costly muddling through probably unsustainable in the long term

While Belarus' short-term economic prospects are bleak, Russia's weakening recession in 2016 and expected return to growth in 2017, as well as the EU's positive if lackluster growth prospects in 2016–17 will probably slowly improve Belarus' external economic environment, even if the uncertainty generated by the U.K.'s decision to the leave the EU may be a drag on this improvement. The Belarusian economy may stagnate in 2017 and return to growth only in 2018. These prospects for a sluggish recovery are not likely to provide any substantial stimulus to the banking sector in the medium term. In the immediate future the ongoing recession and devaluation pressures should cause NPLs to swell further, which in turn should push up recapitalization needs. The high level of dollarization can only be stabilized and reversed once external disequilibria are overcome, which is yet far from the case.

Belarus will in all likelihood continue to depend heavily on its big eastern neighbor for financial, economic and political support. In this sense, Belarus' external funding needs – at least in 2016 – are liable to be covered by loans from Russia or from official sources associated to Russia. Part of this assistance is another USD 600 million tranche of the EFSD facility (of a total of USD 2 billion, see above) which is earmarked for the second half of 2016, once performance criteria are met. If negotiations with the IMF take longer than planned or fail, Minsk may consider other sources of quasi-official support (such as SOBs) from Russia or China (Standard & Poor's RatingsDirect, 2016; p. 3).

Summing up, the Belarusian authorities and the NBRB do not yet appear to be prepared for profound institutional and structural reforms (which would not only require the termination of heavy-handed state interventionism but also substantial progress in price and wage liberalization and the privatization of SOEs and SOBs). As long as Moscow is prepared to go on – within some limits – financing the Belarusian model and, a fortiori, the country's banking sector, costly muddling-through strategies will probably continue. The financial burden of this policy choice may be unsustainable in the long run.

[12] *This assistance may come at a price, though. The authorities might have to agree to sell more state-owned assets to Russian interests.*

References

The Banker. 2015. Belarus' Small Salvation. November. 46–48.

Dabrowsky, M. 2016. Belarus at the Crossroads. Bruegel Policy Contribution. Issue 2016/2. January.

Dobrinsky, R. 2016. Belarus: Recession Continues. In: Adarov, A. et al. Growth Stabilizes: Investment a Major Driver, Except in Countries Plagued by Recession. wiiw Forecast Report Spring 2016. March. 55–59.

EBRD. 2015. Transition Report – Rebalancing Finance. Online Country Assessments: Belarus (http://2015.tr-ebrd.com/en/countries/).

IMF. 2013. Republic of Belarus – 2013 Article IV Consultation and Fourth Post-Program Monitoring Discussions. May 9.

IMF. 2014. Republic of Belarus – Fifth Post-Program Monitoring Discussions. November 25.

IMF. 2015. Republic of Belarus – Staff Report for the 2015 Article IV Consultation. April 27.

IMF. 2016. Belarus: Staff Concluding Statement of the 2016 Article IV Mission. June 30.

Miksjuk, A., S. Ouliaris and M. Pranovich. 2015. The Game of Anchors: Studying the Causes of Currency Crises in Belarus. IMF Working Paper 15/281. December.

Natsionalny bank Respubliki Belarus. 2014. Biulleten bankovskoy statistiki. No. 12 (186).

Natsionalny bank Respubliki Belarus. 2016. Statistichesky biulleten. No. 3 (201).

Ostwirtschaftsreport. 2016. Belarusbank soll teilprivatisiert werden. No. 20. May 17. 11.

Raiffeisen Research. 2016. CEE Banking Sector Report – 2016: "New Normal" and 10% thresholds. June.

Standard & Poor's RatingsDirect (ed). 2016. Research Update: Republic of Belarus 'B-/B' Ratings Affirmed on Continued Russian Support; Outlook Stable. April 8.

Triebe, B. 2015. Alles hört auf sein Kommando – Unter Präsident Lukaschenko balanciert Weissrussland zwischen West und Ost, zwischen Marktwirtschaft und Planwirtschaft. In: Neue Zürcher Zeitung. September 29. 28.

Event wrap-ups and miscellaneous

Drivers of household credit demand before and during the crisis

Compiled by Ádám Banai and Nikolett Vágó (Magyar Nemzeti Bank)

On June 9, 2016, the OeNB played host to a presentation of topical research results based on data from the OeNB's Euro Survey by Ádám Banai, head of the Applied Research and Stress Testing Department at Magyar Nemzeti Bank (MNB), and Nikolett Vágó, researcher at the same department, at an event chaired by Peter Backé (OeNB).

In their paper, Banai and Vágó identified the drivers of household credit demand in Hungary and Poland. The authors emphasized that due to a lack of data, it was always challenging to examine household credit demand. The OeNB's Euro Survey is the only database that contains relevant information on Hungarian households' financial behavior whose structure does not change over a long horizon. For this reason, getting access to Euro Survey data was extremely useful for the MNB. The Euro Survey has provided the basis for several earlier studies that deal with the motivation behind households' financial decisions, e.g. Stix (2013) or Beckmann et al. (2011). Relying in particular on Fidrmuc et al. (2013), Banai and Vágó examined the demand-side reasons of foreign currency lending to households using Euro Survey data for the period from H2 2007 to H2 2011. They ran several logit estimations where the dependent variable was provided by the response to the question "Do you plan to take out a loan within the next year?"

Methodology

In terms of methodology, the key challenge was that a considerable number of observations were missing from the database; this could have affected the reliability of the empirical results if the problem had not been handled properly. Therefore, the authors used multiple imputations, an advanced method that is more reliable and efficient than less sophisticated conventional methods. Their results confirmed that the outcome differed depending on the method used, i.e. the proper treatment of missing variables was indeed important. This was one key finding from a methodological point of view. Moreover, Banai and Vágó showed that the proper methodology to manage the problem of missingness got more important as the level of missingness increased. In the case of missingness as high as 50%, estimation results can differ even if two different multiple imputation techniques are compared. At a moderate level of missingness (15% to 25%), different multiple imputation methods yielded practically the same results.

Main results

The results showed that in both Hungary and Poland, borrowing decisions were determined primarily by three factors: existing banking relations, which may be closely connected with financial awareness and financial literacy; macroeconomic expectations, which also have a connection with households' personal financial situation; and trust in the institutional system. As regards the latter, trust in the EU – in addition to trust in domestic institutions – was particularly important in Poland: credit demand from households who trust the EU was stronger. In Hungary, trust in foreign banks was significant so that higher trust went hand in hand with higher credit demand. Also in Hungary, the labor market influenced credit demand in all periods. Unemployed people's intention to borrow was

stronger than employed people's right after the onset of the crisis, which may have been attributable to strong liquidity constraints.

As the two countries were examined separately, the role of regions (agglomerations) could also be taken into consideration. In Hungary, the effect of the place of residence appeared to be very strong. It suggests that in the pre-crisis period, the credit market was indeed flooded by borrowers with deteriorating creditworthiness. However, from 2009 onward, credit demand was highest in Central Hungary, the country's most developed region. In Poland, a similar phenomenon before the crisis appeared only with respect to the role of education, as this factor had a negative effect.

The largest difference between the Polish and Hungarian results appeared in the later phase of the crisis (between H2 2010 and H2 2011). In the case of Hungary, there were two factors that proved to be significant, which did not appear in the estimate performed on the Polish data. First, the negative experience with foreign currency loans reduced credit demand. This may be attributable to the fact that in Hungary the problems related to foreign currency loans were well known already in 2010. Second, the results confirm that in Hungary self-selection may also play a strong role in household lending. Those households that regarded banks' credit conditions as strict were less inclined to apply for a loan in the first place.

Discussion

In the lively discussion that followed the presentation, several questions and suggestions were raised. For example, it was suggested running the estimations on data excluding those who already had a loan when the survey was conducted. Having a loan contract may also be a reason for the low willingness to borrow. It should be a good robustness check. According to the survey, it seems that one of the main motives for borrowing in foreign currency was the advice of banks. Some suggested, however, that in many cases respondents just like to blame others (i.e. debtors may blame banks for the choice of the loan currency). Since this phenomenon could be observed even before the crisis, bank advice was an important factor in any case, the authors pointed out in response. Finally, it was suggested to redo the estimations based on a joint Hungarian-Polish sample to additionally check for robustness. This may give rise to some new insights, the authors acknowledged, but at the same time they pointed out that due to significantly different missingness structures, any empirical results derived from a combined two-country sample should be interpreted with utmost caution.

Expert meeting on macroforecasting in CESEE

Compiled by
Martin Feldkircher

As part of its CESEEnet research information network activities, the OeNB hosted a workshop on macroforecasting on June 30, 2016. The event brought together researchers from various central banks in Central, Eastern and Southeastern Europe (CESEE), the ECB, the Banco de Portugal and the Vienna University of Business and Economics (WU Wien).

The first session of the workshop discussed issues related to forecast evaluation and measures of forecast accuracy. Marián Vávra (NBS) presented a new test to judge whether forecasts based on a given model systematically outperform those based on competing models. The test has particularly useful properties when dealing with short time series and might be used at the NBS in the near future. František Brázdik (CNB) presented how the CNB decomposes forecast revisions from a structural model. This approach allows the assessment of how much of a revision of a forecast can be attributed to revisions in the underlying data, conditioning information or expert judgement. The second session was devoted to nowcasting, which uses high-frequency data to predict the near future or the recent past of macroeconomic aggregates that are only available with a time lag. Rafael Ravnik (HNB) presented MIRA (monthly indicator of real economic activity), the nowcasting model the Croatian central bank introduced in 2009. The model includes a set of foreign variables to capture revenues from tourism and has a proven track record in terms of forecast accuracy. Peter Tóth (NBS) presented results from a horse race between models to nowcast GDP in several CESEE economies. He concluded that both model specifications and the set of best short-term predictors vary across countries. An innovative and new short-term high frequency indicator was introduced by the next speaker, Paulo Rodrigues (Banco de Portugal). He presented research utilizing cash withdrawals and point-of-sale revenues to nowcast private consumption in Portugal. The Portuguese network of ATMs is one of the most highly developed and strongly used networks in Europe. Consequently, the use of cash withdrawals could help significantly improve private consumption forecasts. Unfortunately, similar data for other countries are hardly available. Finally, the third session discussed new approaches to forecasting on a more general basis. Alistair Dieppe (ECB) gave an overview of the BEAR (Bayesian estimation analysis and regression) toolbox developed at the ECB that allows the estimation and inference of a battery of models for policy analysis and forecasting purposes. Florian Huber (WU Wien) presented work on a heavy-tailed prior distribution in Bayesian vector autoregressions that excels in forecasting. Finally, Anca-Adriana Galatescu (BNR) used non-linear single indicator models to successfully predict turning points in the Romanian and the euro area business cycles.

Notes

Periodical publications

Starting from 2016, the OeNB's periodical publications are available in electronic format only. They can be downloaded at *https://www.oenb.at/en/Publications.html*. If you would like to be notified about new issues by e-mail, please register at *https://www.oenb.at/en/Services/Newsletter.html*.

Geschäftsbericht (Nachhaltigkeitsbericht) — German | annually
Annual Report (Sustainability Report) — English | annually

This report informs readers about the Eurosystem's monetary policy and underlying economic conditions as well as about the OeNB's role in maintaining price stability and financial stability. It also provides a brief account of the key activities of the OeNB's core business areas. The OeNB's financial statements are an integral part of the report.
http://www.oenb.at/en/Publications/Oesterreichische-Nationalbank/Annual-Report.html

Inflation aktuell — German | quarterly

This publication presents the OeNB's analysis of recent inflation developments in Austria and its inflation outlook for Austria for the current and next year. In addition, it provides in-depth analyses of topical issues.

Konjunktur aktuell — German | seven times a year

This publication provides a concise assessment of current cyclical and financial developments in the global economy, the euro area, Central, Eastern and Southeastern European countries, and in Austria. The quarterly releases (March, June, September and December) also include short analyses of economic and monetary policy issues.
http://www.oenb.at/Geldpolitik/Konjunktur/konjunktur-aktuell.html

Monetary Policy & the Economy — English | quarterly

This publication assesses cyclical developments in Austria and presents the OeNB's regular macroeconomic forecasts for the Austrian economy. It contains economic analyses and studies with a particular relevance for central banking and summarizes findings from macroeconomic workshops and conferences organized by the OeNB.
http://www.oenb.at/en/Publications/Economics/Monetary-Policy-and-the-Economy.html

Fakten zu Österreich und seinen Banken — German | twice a year
Facts on Austria and Its Banks — English | twice a year

This publication provides a snapshot of the Austrian economy based on a range of structural data and indicators for the real economy and the banking sector. Comparative international measures enable readers to put the information into perspective.
http://www.oenb.at/en/Publications/Financial-Market/Facts-on-Austria-and-Its-Banks.html

Financial Stability Report — English | twice a year

The reports section of this publication analyzes and assesses the stability of the Austrian financial system as well as developments that are relevant for financial stability in Austria and at the international level. The special topics section provides analyses and studies on specific financial stability-related issues.
http://www.oenb.at/en/Publications/Financial-Market/Financial-Stability-Report.html

Focus on European Economic Integration — English | quarterly

This publication presents economic analyses and outlooks as well as analytical studies on macroeconomic and macro-financial issues with a regional focus on Central, Eastern and Southeastern Europe.
http://www.oenb.at/en/Publications/Economics/Focus-on-European-Economic-Integration.html

Statistiken – Daten & Analysen — German | quarterly

This publication contains analyses of the balance sheets of Austrian financial institutions, flow-of- funds statistics as well as external statistics (English summaries are provided). A set of 14 tables (also available on the OeNB's website) provides information about key financial and macroeconomic indicators.
http://www.oenb.at/Publikationen/Statistik/Statistiken---Daten-und-Analysen.html

Statistiken – Daten & Analysen: Sonderhefte
Statistiken – Daten & Analysen: Special Issues

German | irregularly
English | irregularly

In addition to the regular issues of the quarterly statistical series "Statistiken – Daten & Analysen," the OeNB publishes a number of special issues on selected statistics topics (e.g. sector accounts, foreign direct investment and trade in services).
http://www.oenb.at/en/Publications/Statistics/Special-Issues.html

Research Update

English | quarterly

This newsletter informs international readers about selected research findings and activities of the OeNB's Economic Analysis and Research Department. It offers information about current publications, research priorities, events, conferences, lectures and workshops. Subscribe to the newsletter at:
http://www.oenb.at/en/Publications/Economics/research-update.html

CESEE Research Update

English | quarterly

This online newsletter informs readers about research priorities, publications as well as past and upcoming events with a regional focus on Central, Eastern and Southeastern Europe. Subscribe to the newsletter at:
http://www.oenb.at/en/Publications/Economics/CESEE-Research-Update.html

OeNB Workshops Proceedings

German, English | irregularly

This series, launched in 2004, documents contributions to OeNB workshops with Austrian and international experts (policymakers, industry experts, academics and media representatives) on monetary and economic policymaking-related topics.
http://www.oenb.at/en/Publications/Economics/Workshops.html

Working Papers

English | irregularly

This series provides a platform for discussing and disseminating economic papers and research findings. All contributions are subject to international peer review.
http://www.oenb.at/en/Publications/Economics/Working-Papers.html

Proceedings of the Economics Conference

English | annually

The OeNB's annual Economics Conference provides an international platform where central bankers, economic policymakers, financial market agents as well as scholars and academics exchange views and information on monetary, economic and financial policy issues. The proceedings serve to document the conference contributions.
http://www.oenb.at/en/Publications/Economics/Economics-Conference.html

Proceedings of the Conference on European Economic Integration

English | annually

The OeNB's annual Conference on European Economic Integration (CEEI) deals with current issues with a particular relevance for central banking in the context of convergence in Central, Eastern and Southeastern Europe as well as the EU enlargement and integration process. For an overview see:
http://www.oenb.at/en/Publications/Economics/Conference-on-European-Economic-Integration-CEEI.html
The proceedings have been published with Edward Elgar Publishers, Cheltenham/UK, Northampton/MA, since the CEEI 2001 (*www.e-elgar.com).*

Publications on banking supervisory issues

German, English | irregularly

http://www.oenb.at/en/Publications/Financial-Market/Publications-of-Banking-Supervision.html

Addresses

	Postal address	Telephone/Fax/E-mail
Head office		
Otto-Wagner-Platz 3 **1090 Vienna, Austria** Internet: *www.oenb.at*	PO Box 61 1011 Vienna, Austria	Phone: (+43-1) 404 20-6666 Fax: (+43-1) 404 20-042399 E-mail: *oenb.info@oenb.at*
Branch offices		
Northern Austria Branch Office Coulinstraße 28 **4020 Linz, Austria**	PO Box 346 4021 Linz, Austria	Phone: (+43-732) 65 26 11-0 Fax: (+43-732) 65 26 11-046399 E-mail: *regionnord@oenb.at*
Southern Austria Branch Office Brockmanngasse 84 **8010 Graz, Austria**	PO Box 8 8018 Graz, Austria	Phone: (+43-316) 81 81 81-0 Fax: (+43-316) 81 81 81-046799 E-mail: *regionsued@oenb.at*
Western Austria Branch Office Adamgasse 2 **6020 Innsbruck, Austria**	Adamgasse 2 6020 Innsbruck, Austria	Phone: (+43-512) 908 100-0 Fax: (+43-512) 908 100-046599 E-mail: *regionwest@oenb.at*
Representative offices		
New York Representative Office Oesterreichische Nationalbank 450 Park Avenue, Suite 1202 **10022 New York, U.S.A.**		Phone: (+1-212) 888-2334 Fax: (+1-212) 888-2515
Brussels Representative Office Oesterreichische Nationalbank Permanent Representation of Austria to the EU Avenue de Cortenbergh 30 **1040 Brussels, Belgium**		Phone: (+32-2) 285 48-41, 42, 43 Fax: (+32-2) 285 48-48