The level of the countercyclical capital buffer rate in Poland

A study prepared for a meeting of the Financial Stability Committee

Warsaw, November 2023

Executive summary

This study is a compilation of information for the purposes of assessing the intensity of cyclical systemic risk and deciding about the level and adequacy of the countercyclical capital buffer (CCyB) rate recommended by the Financial Stability Committee (FSC).

According to the reasons analysed in the text, there is no rationale for determining the CCyB at a rate higher than 0%, i.e.:

- In 2023 Q2, the readings of early warning models decreased compared to the previous quarter; however, they remain higher than the average readings in 2022. The recorded level of cyclical risk points to a low risk of a crisis in the medium-term (i.e. from one year to four years). It follows from the interpretation of the results of those models that there is no rationale for creating a countercyclical buffer;
- In 2023 Q2, the private non-financial sector debt towards domestic monetary financial institutions (narrow credit aggregate) amounted to 36.7% of GDP, which represents a decline of 6.9 p.p. year-on-year. The standardised credit gap amounts to -23.1%, and the credit gap calculated based on the narrow credit measure is -17.1%. The credit to GDP ratio remains at a low level and is likely to continue to fall.

This study presents information on the intensity of cyclical systemic risk, including indicators recommended by the European Systemic Risk Board (ESRB) for determining the level of the countercyclical capital buffer. The study is divided into three parts. **Part 1** deals with an assessment of macroeconomic developments and strains in Poland's financial system. **Part 2** presents the progression of credit gap values and of other variables that illustrate lending in Poland, the monitoring of which is recommended by the ESRB. **Part 3** shows the results of early warning models.

1. Macrofinancial developments and current financial system stress

The economic situation in the world, and in the euro area in particular, remains weakened. At the same time, uncertainty persists about the economic activity outlook in the major economies. This uncertainty is accompanied by a further decline in inflation, with annual price growth in most countries remaining elevated. Amid global economic slowdown, also in Poland the growth in economic activity has declined. Despite this, the labour market is strong, and unemployment continues to be low.

From the point of view of lending, uncertainty and the weakening of the economic environment are partially offset by NBP interest rate cuts. In 2023 Q3, the annual growth of credit to the non-financial sector remained negative, but the pace of the fall slowed. A further weakening of the pace of corporate loan growth coincided with a slow increase in consumer loan and housing loan growth. Although lending growth recovery was observed, the credit to GDP ratio remains low and is likely to fall. However, there are no signs of constraints to credit supply, whose low growth seems to result primarily from demand-side factors.

From the beginning of 2023 Q2, the Composite Indicator of Systemic Stress (CISS), whose monitoring is recommended by the European Systemic Risk Board (ESRB 2014/1, Recommendation D, paragraph2), fell below the average level from the period indicated by the ESRB as a period of elevated risk (see Wykres 1). Therefore, the CISS is not elevated at present. This systemic stress indicator is particularly relevant when it is high and, at the same time, other indicators (such as indicators that determine the position in the credit cycle, early warning model rates) give grounds for creating a countercyclical buffer – under such a scenario, the economy could already be in a crisis, and – consequently – creating a buffer would be unwarranted. On the other hand, an increase in the CISS to a high level in a situation where the buffer has already been created could give grounds for releasing it. **To sum up, the current economic situation and financial stress measured by the CISS are not contraindications to creating a buffer.**

Figure 1. Composite Indicator of Systemic Stress in the financial system
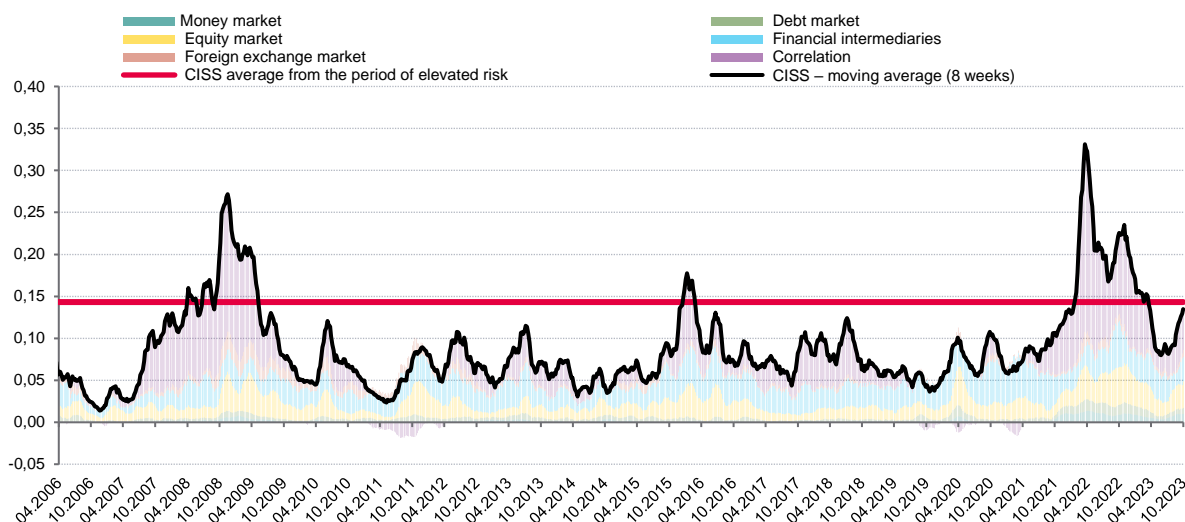
Notes: The CISS measures the current state of financial sector turmoil, reflected in market quotations. The intensity of the turmoil in a given period is interpreted as an ex-post measure of systemic risk. The CISS was originally developed for the euro area and has been applied by both the ECB and the ESRB. The sub-indices that comprise the CISS include five areas of the domestic financial market: the equity market, the money market, the foreign exchange market, the debt market and the financial intermediaries. Correlation, or the sixth variable, increases when stress begins to prevail in several sectors at the same time. Periodically, this variable may be negative; this variable refers to a situation in which stress in some areas is offset by a positive stress-free situation in other areas. Such a design of the CISS puts more weight on situations in which stress prevails in several market segments at the same time.

Red line is used to mark the average CISS value from the period classified by the ESRB as a period of elevated risk (August 2007 – November 2009).

Data for the period running from 23 April 2006 to 20 October 2023.

*Source: Own calculations based on Bloomberg and NBP data.*

2. Position in the credit cycle and the ESRB-recommended indicators

In 2023 Q2, the ratio of credit to the private non-financial sector to GDP (broad credit aggregate) amounted to 62.9%.[1] This means that the ratio has declined by 8.6 p.p. year-on-year. **On the other hand, the level of private non-financial debt towards domestic monetary financial institutions (i.e. banks and cooperative savings and credit unions, or narrow credit aggregate) amounted to 36.7% of GDP, which represents a 6.9 p.p. decline year-on-year.** In nominal terms, the broad credit aggregate decreased by 0.6% in 2023 Q2 from the previous quarter. Also, in the corresponding period, the narrow credit aggregate dropped by 1.2%. As a result of the interest rate cuts, which market participants anticipated, and the "Safe 2% Mortgage" programme, the downward trend of the narrow and the broad credit aggregates

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[1] The ratio of credit to the private non-financial sector to GDP includes debt of non-financial corporations and households due to loans and borrowings and debt securities. The ratio calculated on the basis of the narrow credit measure includes debt towards banks and cooperative savings and credit unions, and additionally – on the basis of the broad credit measure – debt towards other domestic non-monetary entities (among others, enterprises, financial intermediaries) and foreign entities.

(in nominal terms) is expected to reverse. At the same time, due to high nominal GDP growth, NBP expects the credit to GDP ratio to remain in the downward trend (see Figure 2).

Figure 2. Breakdown of the ratio of credit to the private non-financial sector to GDP (%)
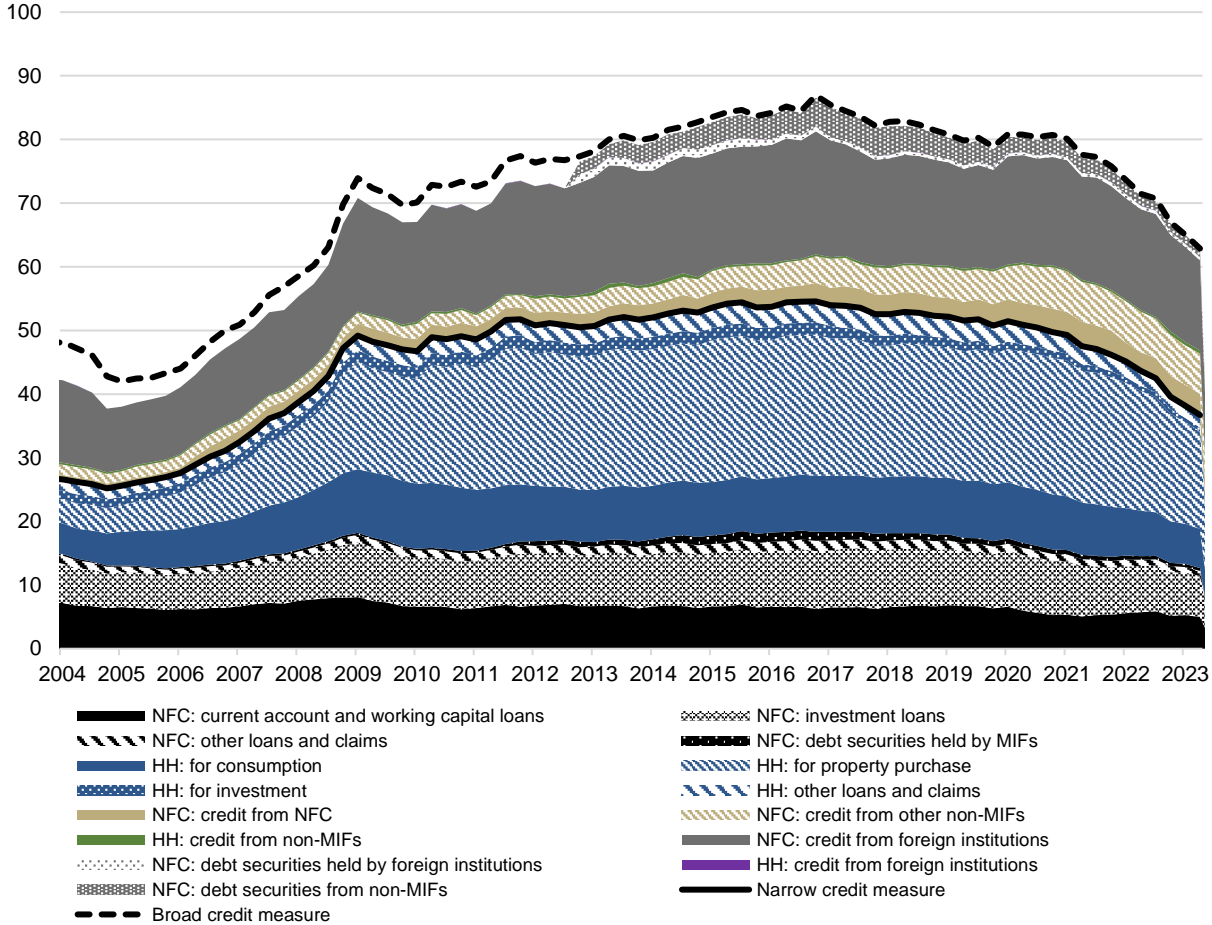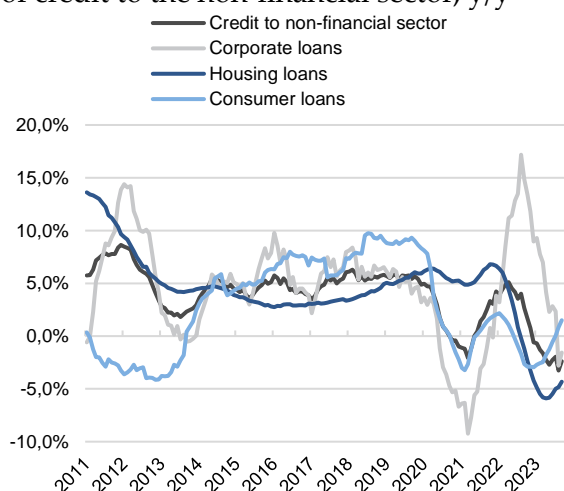

Notes: Last observation for 2023 Q2. The ratio of credit to the private non-financial sector to GDP includes debt of non-financial corporations and households due to loans and borrowings and debt securities. The ratio calculated on the basis of the narrow credit measure includes debt towards banks and cooperative savings and credit unions, and additionally – on the basis of the broad credit measure – debt towards other domestic non-monetary entities and foreign entities. The area chart runs in some parts below the black dashed line of the credit (broad measure) to GDP ratio, because in these periods – due to missing data – debt due to debt securities was not divided into debt towards banks and cooperative savings and credit unions and debt towards other domestic non-monetary entities. In these periods, the empty area presents, collectively, the debt of NFCs due to debt securities. The data that enable a detailed breakdown have been available since 2012 Q4. Abbreviations: NFCs stands for non-financial corporations, HH stands for households and MFIs stands for monetary financial institutions.

Source: Own calculations based on NBP data.

In 2023 Q3, housing and corporate loan growth was negative. Positive consumer loan growth was not sufficient to maintain the positive growth of credit to the non-financial sector, which fell to -2.4% year-on-year towards the end of 2023 Q3 (see Figure 3 and Figure 4).

Figure 3. Growth rate of selected categories of credit to the non-financial sector, y/y

Notes: Last observation for September 2023.
Source for (both figures): NBP.

Figure 4. Value of new loans (3-month moving average)
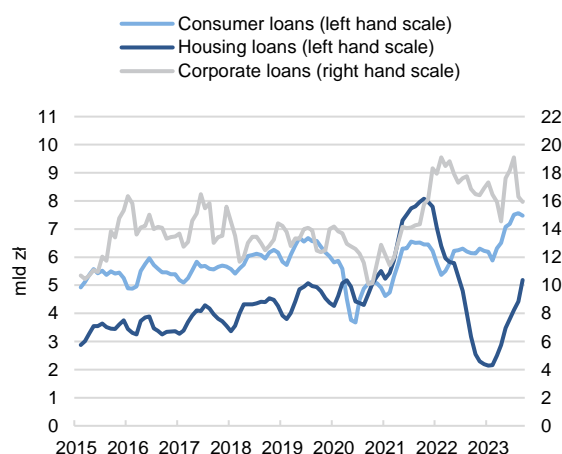
Notes: Under new corporate loan statistics, current loans are not included.

The standardised credit gap [2] stood at -23.1%, which indicates that there is no rationale for creating a countercyclical buffer (see Figure 5). There would be a rationale for creating one, had the gap been positive and above 2%. The credit gap computed based on the narrow credit measure is -17.1% and does not warrant the creation of a countercyclical buffer either. The value of the credit gap estimated based on the narrow credit measure, which takes into consideration the length of the financial cycle in Poland[3], also confirms that there are no grounds for creating a countercyclical buffer – the gap amounted to -5.4%.[4]

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[2] The standardised credit gap is a deviation in the value of credit to the private non-financial sector to GDP ratio from the long-run trend. In compliance with Recommendation (ESRB/2014/1), the long-run trend was specified using a recursive HP filter with the smoothing parameter λ=400.000, which corresponds to fluctuations lasting 20 years and more.

[3] Lenart, Ł. and Pipień, M. (2015) and Pipień, M., Wdowiński, P. and Kaszowska, J. (2018), op. cit.

[4] In this approach, the long-run trend was specified using a recursive HP filter with a parameter λ corresponding to fluctuations lasting 10.5 years.

Figure 5. Standardised credit gap (upper panel) and credit gap compliant with the length of the financial cycle in Poland (lower panel) and the corresponding buffer rate
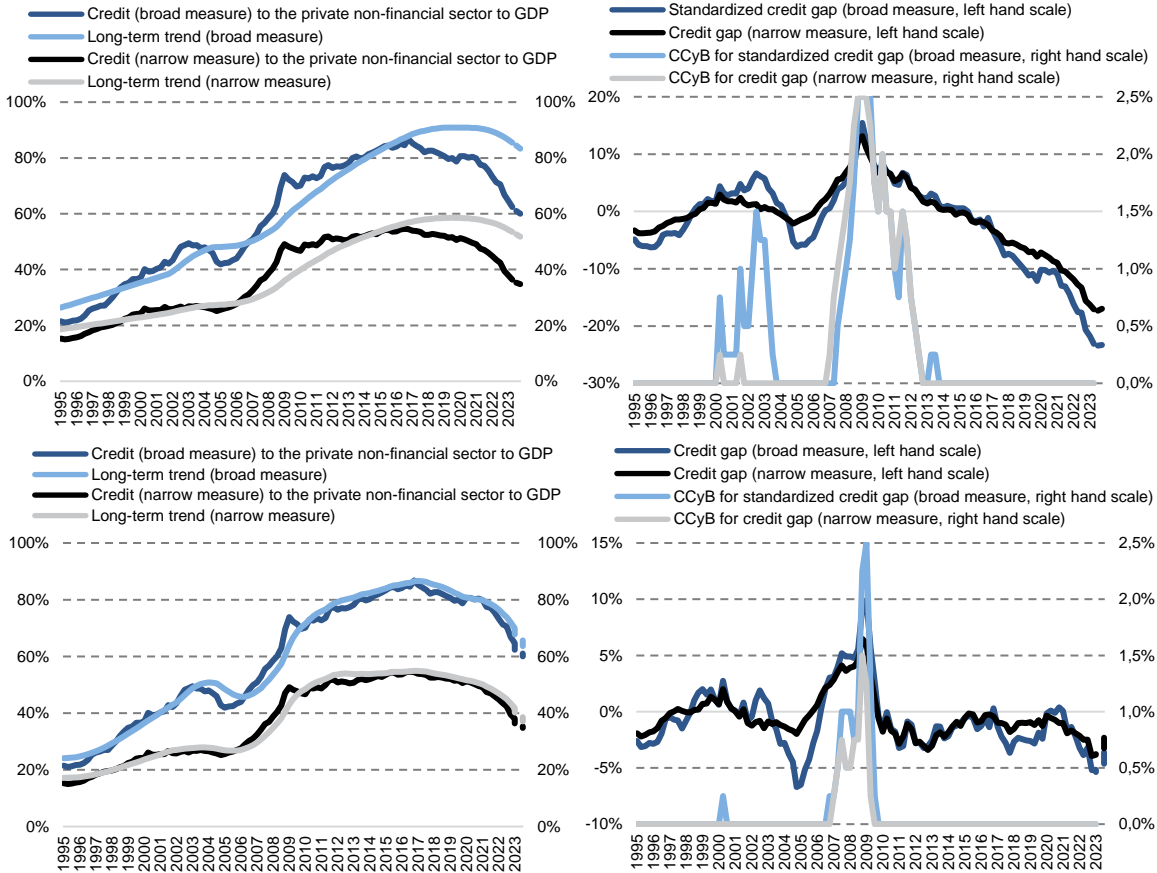
Notes: Last real observation for 2023 Q2 and extrapolation using ARIMA models for the period 2023 Q3-Q4. Credit gap estimations were obtained using the one-sided recurrent Hodrick-Prescott (HP) filter, which ensures that to calculate a trend only information available in every moment in time is used. This approach is compliant with Recommendation (ESRB/2014/1). Estimations of the credit gap resulting from the application of the HP filter include all cycles with a frequency higher than the long-term frequency; for this reason, some fluctuations may result from cycles that are shorter than the financial cycle.
Source: Own calculations based on NBP and Statistics Poland data.

The credit gap is one of the variables that have to be considered when the decision is made to create a CCyB. Many countries also apply a modified approach by using a broader set of information. The variables whose monitoring is recommended by the European Systemic Risk Board (ESRB/2014/1, Recommendation C, paragraph 2) are shown in Table 1. The levels of the variables, compiled in Table 1, observed in 2023 Q2 do not indicate that there is a need to change the level of the CCyB.

3. Early warning models

Indicators based on several variables are also informative for assessing excess credit growth and the risk of a financial crisis. Therefore, the ESRB also recommends pooling various

variables and the credit gap. A logit model[5] is a commonly used solution, where the variable explained is a binary variable denoting banking crises, and the explaining variables are macroeconomic and financial indicators. The advantage of this class of models consists in the possibility of using information coming from many variables and in estimating the likelihood of a crisis on the basis of them.

Early warning models including domestic and global (i.e. with the VIX variable) factors as well as early warning models based only on domestic factors (i.e. without the VIX variable) are shown in Figure 6. The models exhibit the highest predictive values in the group of around 50 countries in the years 1970–2016.[6]

Figure 6. Results of early warning models for Poland
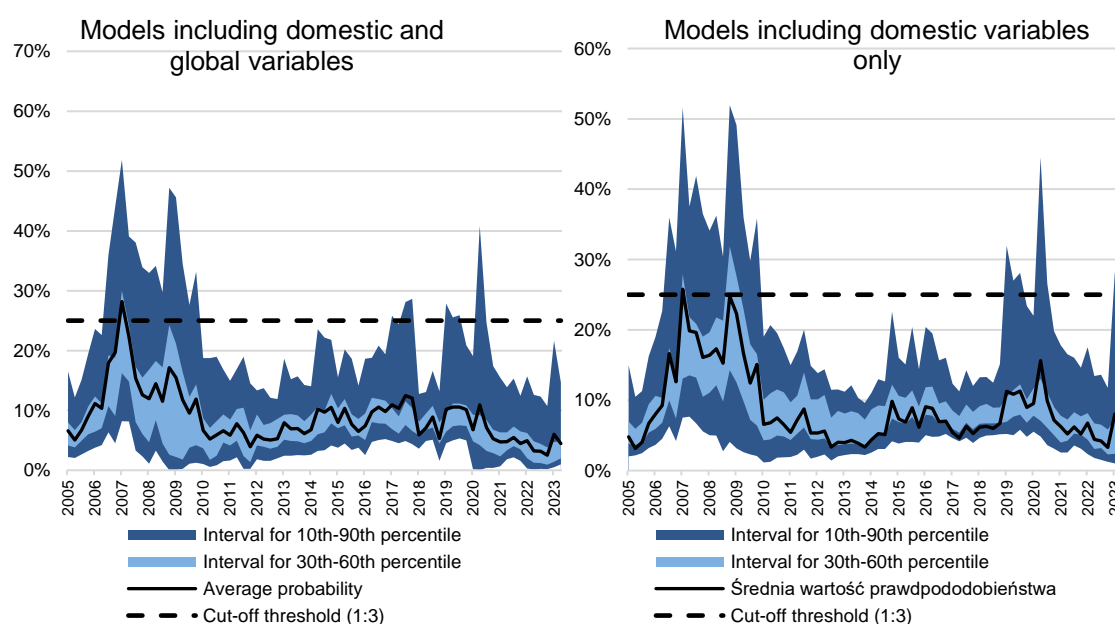
Notes: Last observation for 2023 Q2. The figures show the average (weighted by signal quality) value of probability obtained on the basis of 206 models including domestic and global variables (left panel) and 148 models including only domestic variables (right panel) and the cut-off threshold, which when exceeded, signals the risk of a banking crisis (it has been assumed, following the ESRB studies, that the cost of an absence of a signal warning against a real crisis is three times higher than the cost of a wrong signal about a crisis if no crisis occurs). The blue ribbons denote the range of values of probability (not weighted by signal quality) for all models, excluding those models which show the lowest and highest probability of a banking crisis in Poland in every period. The average value of probability (a black line) weighted by the quality of signals of the models sometimes runs below the line of the 30th percentile of probabilities and above the line of the 60th percentile of probabilities, because better models have indicated a lower probability and a higher probability of a crisis in these periods, respectively.

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[5] Potential forward-looking indicators have been analysed on data from 47 countries in the years 1970-2016. Individual variables have been analysed, taking into account the levels, dynamics, and cyclical deviations from the trend. The assessment of the variables had been made over the horizon from 18 quarters to 6 quarters prior to the crises. The study of Babecký, J., Havránek, T., Matějů, J., Rusnák, M., Šmídková, K., & Vašíček, B. (2013), *Leading indicators of crisis incidence: Evidence from developed countries*, Journal of International Money and Finance, 35, 1-19., which is the result of work under the *ESCB Heads of Research*, has been used for crisis dating purposes.

[6] The best models, with the highest weight in the average shown in Figure 5, correctly classify all pre-crisis and non-pre-crisis situations in over 90% of the cases for an international sample. Using the credit gap alone enables accurate classification only in around 65% of the cases and using the best single variable – in around 75% of the cases.

In 2023 Q2, the readings of early warning models decreased from the previous quarter. At the same time, they remain higher than the average reading of 2022. The interpretation of the models results does not give grounds for creating a countercyclical buffer.

Table 1. Summary of key indicators monitored for the purposes of making decisions on the level of the CCyB

Indicator	2023 Q1	2023 Q2
Credit to private non-financial sector to GDP (broad credit aggregate)	65.0%	62.9%
Credit to private non-financial sector to GDP (narrow credit aggregate)	38.2%	36.6%
Standardised credit gap (broad credit measure)	-21.8%	-23.1%
Standardised credit gap (narrow credit measure)	-16.3%	-17.1%
Credit gap taking into account the characteristics of the financial cycle in Poland (broad credit measure)	-5.2%	-5.4%
Credit gap taking into account the characteristics of the financial cycle in Poland (narrow credit measure)	-3.8%	-3.8%
Dwelling prices to income (index; average for 2010 = 100)	73.4	73.0
Hedonic housing price index* (2006 Q3 = 100)	236.8	243.9
Current account balance as % of GDP	+2.9%	+0.6%
Debt Service Ratio	7.0%	7.0%
Contribution of the financial sector to GDP	5.4	5.4
Growth of a real broad credit measure (y/y)	-10.6%	-8.8%
Growth of a real narrow credit measure (y/y)	-14.3%	-12.8%
VIX (Volatility Index) – a measure of the implied volatility of options for the S&P 500 index	20.7	16.4

Notes: * (Harmonised) Hedonic House Price Index – price index per sq metre of a secondary market apartment with 2006 Q3 basis = 100 for 7 cities (including Warsaw). It reflects a change in prices purged of qualitative changes (e.g. an increase/decrease in the share of higher quality (more expensive) apartments).
Source: Own calculations based on data from NBP, BIS, Statistics Poland, Eurostat, and Thomson Reuters.