# The level of the countercyclical capital buffer rate in Poland

*A study prepared for a meeting of the Financial Stability Committee*

Warsaw, August 2023

# Executive summary

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

The early warning models indicate that there is a low risk of excess credit growth. The ratio of credit to the private non-financial sector to GDP continues its fall, which started in 2017. Under these circumstances, there is no rationale for determining the CCyB at a rate higher than 0%.

Due to the current macroeconomic and geopolitical conditions, i.e. relatively high interest rates, a deterioration in the economic outlook and high uncertainty, lending growth is expected to remain low in Poland. Although most probably the impact of the government-subsidized "Safe 2% Loan" programme is positive from the point of view of credit creation, it is yet difficult to make an explicit assessment of its impact on the total supply of loans.

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 within Poland's financial system. **Part 2** presents the time course 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. Macroeconomic developments and financial system strains

The external developments do not support Poland's economic conditions and expansion of lending associated with them. In 2023 Q1, the annual global economic growth remained weak. This primarily applied to developed economies, including the euro area. Global economic conditions were negatively affected by the impact of an earlier surge in commodity prices, tighter financing conditions in most economies and a high level of uncertainty.

Due to the current macroeconomic and geopolitical conditions, i.e. relatively high interest rates, a deterioration in the economic outlook and high uncertainty, lending growth is expected to remain low in Poland. Moreover, meeting the target level of the MREL while assuming a limited issue of eligible liabilities, would have to come at the expense of reducing capital surpluses of a number of banks. This significantly increases the risk of credit rationing by the banks, and in some cases – may lead to the necessity to reduce the value of the loan portfolio, which would further weaken lending expansion. Although most probably the impact of the government-subsidized "Safe 2% Loan" programme is positive from the point of view of credit creation, it is yet difficult to make an explicit assessment of its impact on the total supply of loans.

Since early 2020, the readings of the Composite Indicator of Systemic Stress (CISS), whose monitoring is recommended by the European Systemic Risk Board (ESRB/2014/1, Recommendation D, paragraph 2), have been high, from the point of view of historical values. This was the result of, firstly, the outbreak of the COVID-19 pandemic, and then of the war in Ukraine. In October 2022, the CISS reached its all-time high and has begun to fall since. Following the end-of-2022 and early-2023 declines, the CISS has begun to increase. From May 2023, it began to rise again above the average level indicated by the ESRB as a period of elevated risk (see Figure 1). Therefore, the CISS remains elevated. This systemic stress indicator is particularly relevant when it is high and, at the same time, other indicators (among others, indicators that determine a 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 the situation when the buffer has already

been created, could give grounds for releasing it. **To sum up, a high CISS indicates that the reasons for creating a buffer – even if this is indicated by other variables – are limited**.

Figure 1. Composite Indicator of Systemic Stress in the financial system
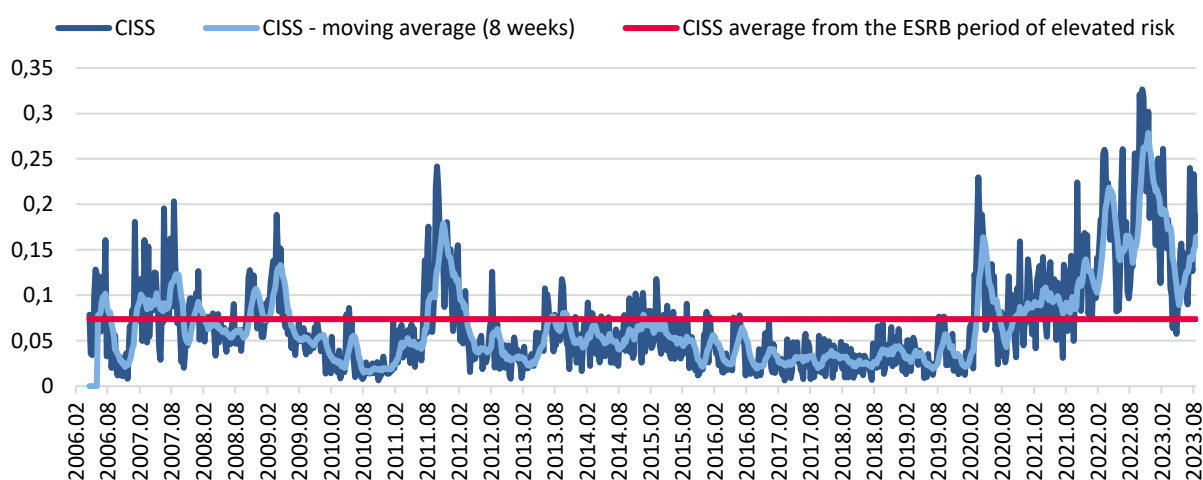


Notes: The CISS measures the current state of financial sector turmoil, reflected in market quotations. The intensity of the turmoil in a given period is interpreted as an *ex-post* measure of systemic risk. The CISS was originally developed for the euro area[1] and both the ECB and the ESRB have applied it. Indicators that comprise the CISS include five areas of the domestic financial market: the equity market, the money market, the foreign exchange market, the bond market, and bank stock quotations. A 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 21 April 2006 to 22 August 2023.
Source: Bloomberg and NBP calculations.

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

**In 2023 Q1, the ratio of credit to the private non-financial sector to GDP (broad credit aggregate) amounted to 64.8%.**[2] This means that the ratio has declined by 8.7 p.p. year-on-year. On the other hand, the level of private non-financial sector debt towards domestic monetary financial institutions (i.e. banks and cooperative savings and credit unions, or narrow credit aggregate) amounted to **38.1%** of GDP, which represents a decline of 6.9 p.p. year-on-year. In nominal terms, in 2023 Q1 a broad credit aggregate increased by 0.5% compared to the previous quarter. On the other hand, in the corresponding period, a narrow credit aggregate decreased by 0.2%. Thanks to the latest readings of lending, as well as market participants' expectations for interest rate decreases and the "Safe 2% Loan" programme, the downward trend of both narrow and broad credit aggregates (in nominal terms) is expected

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[1] Hollo D., Kremer M., Lo Duca M. (2012), *CISS – a composite indicator of systemic stress in the financial system*, ECB Working Paper 1426.
[2] 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 narrow credit measure includes debt towards banks and cooperative savings and credit unions, and additionally – on the basis of broad credit measure – debt towards other domestic non-monetary entities (among others, enterprises, financial intermediaries) and foreign entities.

to reverse. At the same time, due to the high nominal GDP growth, NBP expects the credit to GDP ratio to remain in the downward trend observed since 2017 (see Figure 2).

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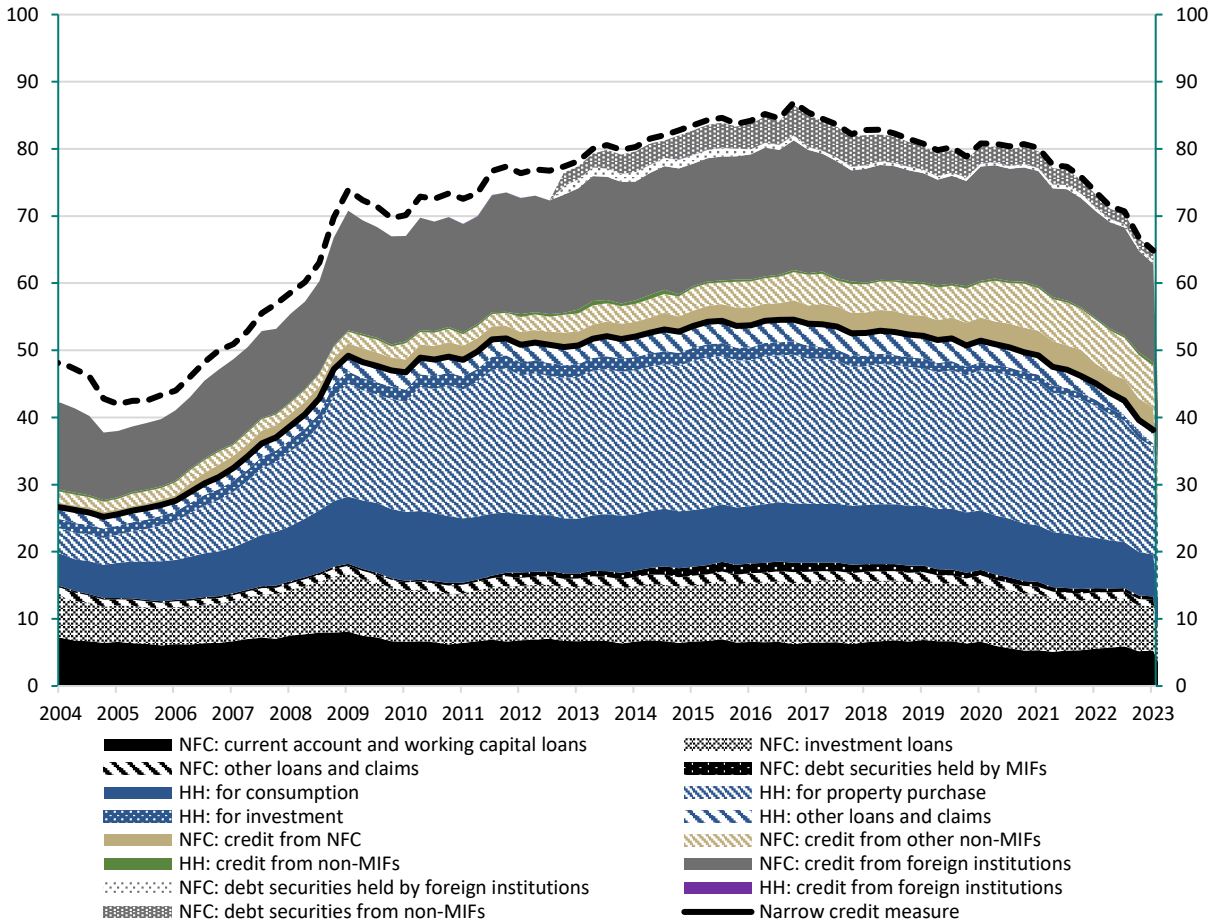


Notes: Last observation for 2023 Q1. The ratio of credit to the private non-financial sector to GDP includes debt of non-financial corporations and households due to loans and borrowings and debt securities. The ratio calculated on the basis of narrow credit measure includes debt towards banks and cooperative savings and credit unions, and additionally – on the basis of broad credit measure – debt towards other domestic non-monetary entities and foreign entities. The area chart runs in some parts below a 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, an empty area presents, collectively, debt of NFCs due to debt securities. The data that enable a detailed breakdown have been accessible since 2012 Q4. Abbreviations: NFCs stands for non-financial corporations, HH stands for households and MFIs stands for monetary financial institutions.
Source: NBP.

In 2023 Q2, negative housing and consumer loan growth continued. The positive albeit slowing corporate loan growth was not sufficient to maintain the positive growth of credit to the non-financial sector, as it fell to -2.2% year-on-year towards the end of 2023 Q2 (see Figure 3 and Figure 4).

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



Figure 4. Value of new loans (3-month moving average)
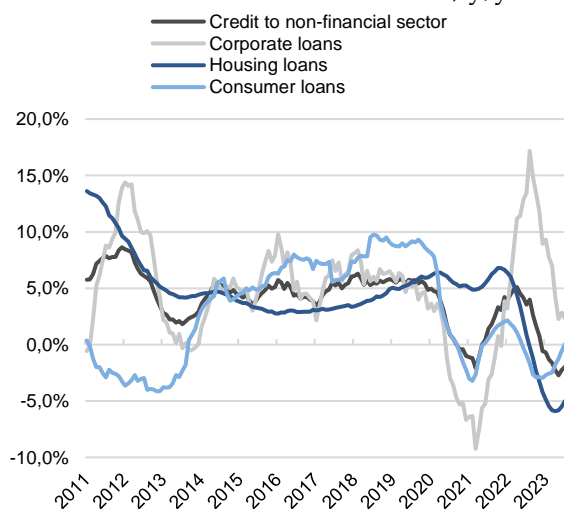


Notes: Last observation for March 2023.
Source for (both figures): NBP.
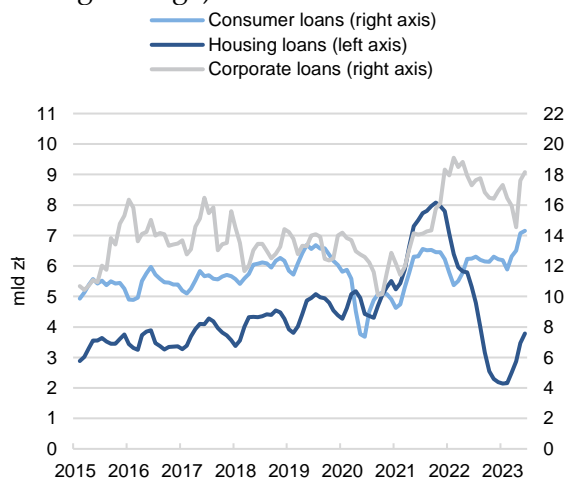
Notes: Under new corporate loan statistics, current loans are not included.

**The standardized credit gap[3] was -21.8%, which indicates that there is no rationale for creating a countercyclical buffer (seeFigure 5). There would be a rationale for creating it, had the gap been positive and over 2%.** The credit gap calculated based on narrow credit measure is -16.3% % and is also not a condition for creating a countercyclical buffer. The value of the credit gap estimated on the basis of narrow credit measure, which takes into consideration the length of the financial cycle in Poland[4] also confirms that there are no grounds for creating a countercyclical buffer – the gap was -5.2%.[5]

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[3] The standardized 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 $\lambda$=400.000, which corresponds to fluctuations lasting 20 years and more.

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

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

Figure 5. Standardized credit gap (upper panel) and credit gap compliant with the length of the financial cycle in Poland (lower panel) and the corresponding buffer rate
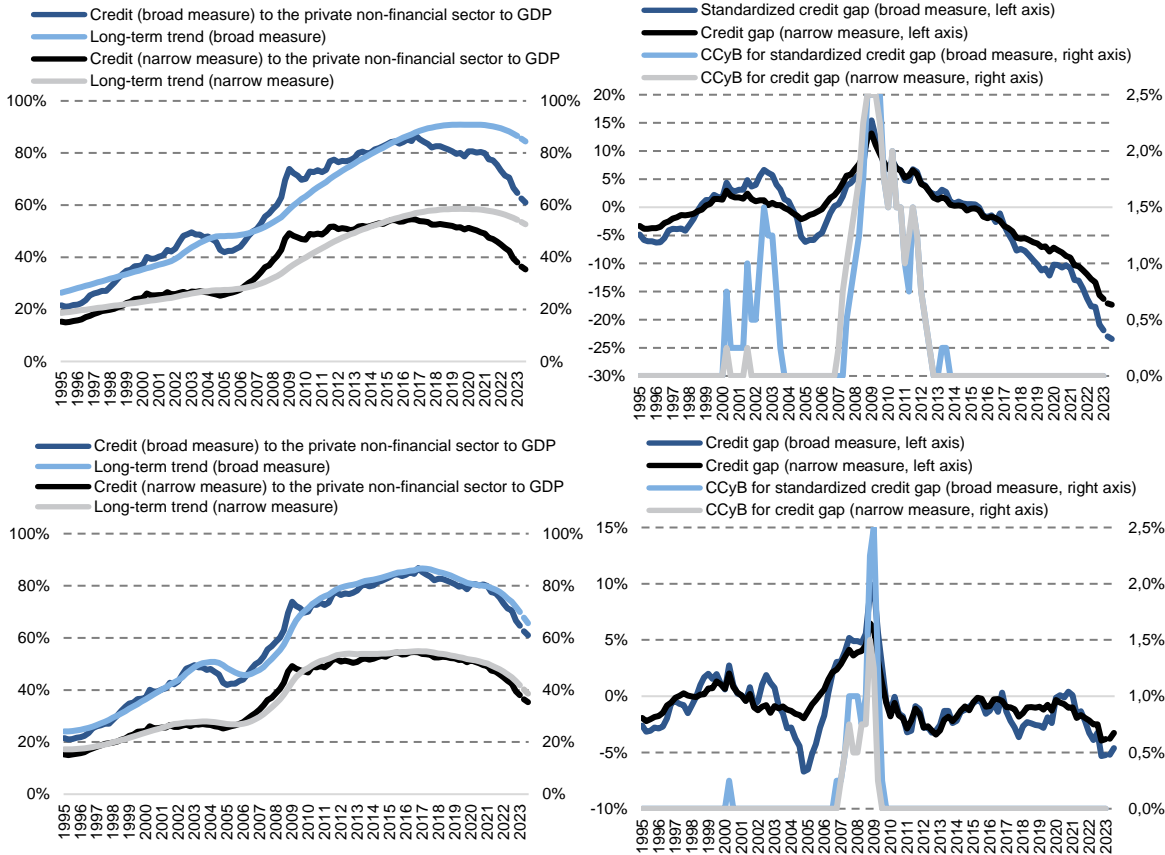


Notes: Last real observation for 2023 Q1 and extrapolations using ARIMA models for the period 2023 Q2-Q3. Credit gap estimations were obtained using one-sided recurrent Hodrick-Prescott (HP) filter, which ensures that to calculate a trend only information available in every moment in time is used. This approach is compliant with Recommendation (ESRB/2014/1). Estimations of the credit gap resulting from the application of a 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: Statistics Poland and NBP calculations.

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 level of the variables, compiled in Table 1, observed in 2023 Q1 does 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 [6] 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 the variables.

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 forecasting quality in the group of around 50 countries in the years 1970–2016.[7]

Figure 6. Results of early warning models for Poland
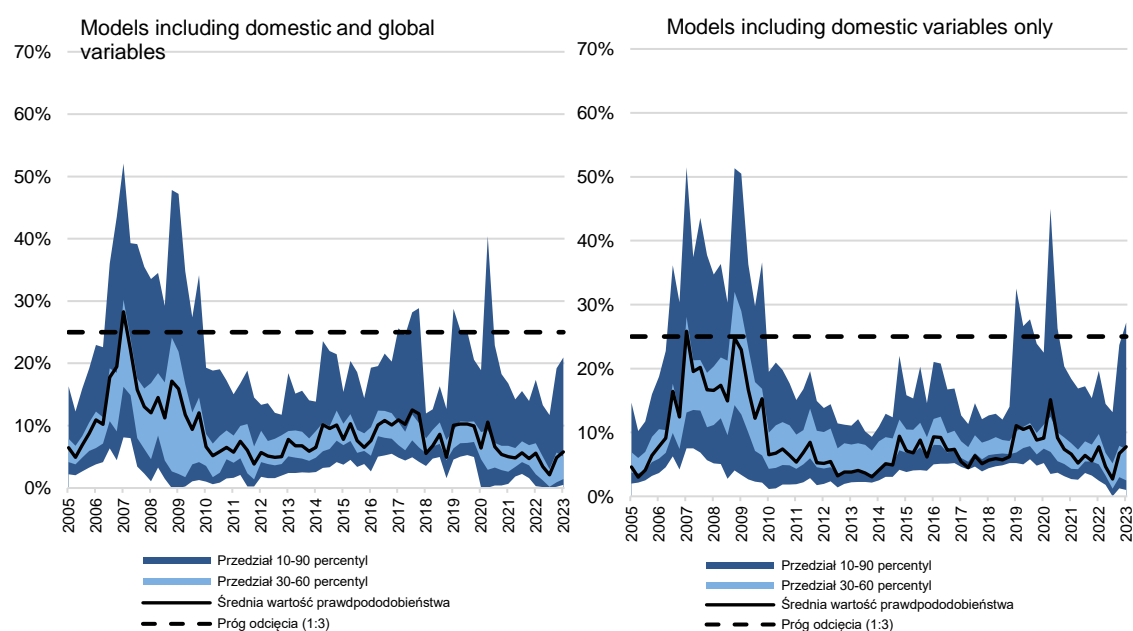


Notes: Last observation for 2023 Q1. The figures show the average (weighted by signal quality) value of probability obtained on the basis of 206 models including domestic and global variables (left panel) and 148 models including only domestic variables (right panel) and the cut-off threshold, which 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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[6] 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 six 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.

[7] 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 cases for an international sample. Using the credit gap alone enables accurate classification only in around 65% of cases and using the best single variable – in around 75% of cases.

**In 2023 Q1, the readings of early warning models increased when compared to the previous two quarters**. The last two readings, for 2022 Q3 and 2022 Q4, were among the lowest on record. Therefore, a relative increase in the model indications relative to the last two quarters is no reason for concern, and the currently observed risk of a crisis in the medium-term, i.e. from one year to four years, is still low.

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

| Indicator | 2022 Q4 | 2023 Q1 |
|---|---|---|
| Credit to private non-financial sector to GDP (broad credit aggregate) | 66.8% | 64.8% |
| Credit to private non-financial sector to GDP (narrow credit aggregate) | 39.6% | 38.1% |
| Standardized credit gap (broad credit measure) | -20.9% | -21.9% |
| Standardized credit gap (narrow credit measure) | -15.6% | -16.3% |
| Credit gap taking into account the characteristics of the financial cycle in Poland (broad credit measure) | -5.3% | -5.2% |
| Credit gap taking into account the characteristics of the financial cycle in Poland (narrow credit measure) | -3.9% | -3.8% |
| Dwelling prices to income (index; average for 2010 = 100) | 76.9 | 74.8 |
| Hedonic housing price index* (2006 Q3 = 100) | 239.0 | 236.8 |
| Current account balance as % of GDP | -1.6% | +3.1% |
| Debt Service Ratio | 6.9% | 7.0% |
| Contribution of the financial sector to GDP | 5.1 | 5.2 |
| Growth of a real broad credit measure (y/y) | -12.4% | -12.2% |
| Growth of a real narrow credit measure (y/y) | -14.7% | -15.7% |
| VIX (Volatility Index) – a measure of the implied volatility of options for the S&P 500 index | 25.0 | 20.7 |

Notes: *Hedonic housing price index (harmonized) – 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: BIS, Statistics Poland, Eurostat, Thomson Reuters and NBP calculations.