

Thematic article on financial stability ——— 6/2020

Usability of capital buffers under
a binding leverage ratio requirement

Lukáš Pfeifer



Czech National Bank ——— Thematic article on financial stability ——— 6/2020

The thematic articles on financial stability respond to selected topical financial stability-related issues. They are aimed at disseminating the results of financial stability analyses and specific aspects of CNB macroprudential policy in an educational and easy-to-understand form. They constitute a stand-alone series of publications supporting the analyses and conclusions of Financial Stability Reports.

The opinions contained in this article are those of the authors and do not necessarily reflect the official position of the Czech National Bank.

Editor: Libor Holub

Coordinator: Jan Janků

USABILITY OF CAPITAL BUFFERS UNDER A BINDING LEVERAGE RATIO REQUIREMENT

Lukáš Pfeifer¹

A leverage ratio requirement designed to limit the risk of excessive leverage is to become binding in the EU in June 2021. In the expansionary phase of the cycle, associated primarily with constant or growing regulatory and voluntary capital buffers, those buffers aid compliance with the leverage ratio requirement, even in institutions with low aggregate risk weights. In the recessionary phase of the cycle, the use of the buffers may cause the leverage ratio to fall. In certain conditions, the usability of the capital buffers for covering losses may thus be constrained. This article illustrates the potential extent of this constraint in the Czech banking sector at present. The results indicate that the degree of non-usability of capital for loss absorption in the Czech banking sector at the end of the first half of 2020 would hypothetically have been 1.7 pp of the capital ratio. This signals that in certain extreme situations, the leverage ratio requirement may prevent the capital buffers from being fully effective.

I. INTRODUCTION

A binding leverage ratio requirement of 3% of an institution's total exposures² on both an individual and consolidated basis is to apply in the EU as from 28 June 2021³ (Article 92(1) of CRR II). The leverage ratio requirement is designed to act as a prudential backstop against the risk of excessive growth in leverage, which tends to rise in the expansionary phase of the cycle.⁴ It is thus intended to counterbalance the risks that may arise in respect of the capital ratio requirement (the ratio of capital to risk-weighted exposures) through incomplete capture of credit risk by banks' internal models (Leslé and Avramova, 2012; Montes et al., 2018).

The expansionary phase of the cycle is generally associated with constant or growing regulatory and voluntary capital buffers, which in turn aids compliance with the leverage ratio requirement, even in institutions with low aggregate risk weights. During the recessionary phase of the financial cycle, institutions can use previously created capital buffers to absorb losses and lend to the real economy,⁵ as illustrated by macroprudential authorities' response in the ongoing coronavirus crisis.⁶ In this context, possible approaches to the use of buffers have started to be discussed in light of the "stigma effect". This effect is based on concerns about the market's reaction, on account of which institutions may avoid "using" the combined capital buffer (i.e. avoid non-compliance with the related requirement) and instead opt to curb lending. The ongoing debate ignores aspects connected with the application of a binding leverage ratio requirement in the EU as from June 2021. The use of capital buffers to absorb losses leads, ceteris paribus, to a decline in the leverage ratio. In certain extreme situations, a binding leverage ratio requirement may thus constrain the use of the capital buffers for their intended purpose in the case of institutions that entered the recessionary phase of the financial cycle with relatively low absolute capital levels as a result of low risk weights for credit exposures.

This article examines to what extent capital buffers can be used to absorb losses given a parallel leverage ratio requirement. To do so, it uses data for Czech institutions obtained from the CNB's internal database. The article is structured as follows. Section II provides a survey of relevant literature. Section III describes the interaction between the capital ratio requirement and the leverage ratio requirement. Section IV quantifies the potential usability of capital buffers in the Czech banking sector. Section V describes the current regulatory exemption from the leverage ratio requirement. The final section concludes and summarises.

¹ Lukáš Pfeifer, Czech National Bank, Financial Stability Department, lukas.pfeifer@cnb.cz. The author thanks Libor Holub, Václav Brož, Jan Frait, Helena Sůvová, Luděk Palán and Marcela Gronychová for their valuable comments.

² The total exposure measure comprises not only balance-sheet items, but also off-balance-sheet items, operations awaiting settlement, derivative contracts and add-ons for repo operations. Certain exposures are excluded from the total exposure measure.

³ Until then, institutions in the EU are required only to report and disclose their leverage ratio (since 2014).

⁴ For more on the role of the leverage ratio requirement as a prudential backstop, see Pfeifer et al. (2016).

⁵ The Czech banking sector has a substantial liquidity surplus, enabling it to lend to the economy without any negative impact on the leverage ratio.

⁶ CNB (2020) considers it natural that, following the release of the countercyclical capital buffer (CCyB), institutions will temporarily not maintain the combined capital buffer in full and will use the capital conservation buffer (CCoB) and the systemic risk buffer (SRB) in order to be able to continue providing services to their clients in the event of strongly adverse developments in the domestic economy.

II. LITERATURE REVIEW

The current literature on the leverage ratio requirement is dominated by studies that assess its role as a prudential backstop for financial stability purposes. Brei and Gambacorta (2016) compare the cyclicality of the leverage ratio and the capital ratio and find that the former is significantly more countercyclical. Pfeifer and Hodula (2020) identify channels that influence the resulting capital and leverage ratios and confirm that the leverage ratio is more countercyclical. Unlike the capital ratio, the leverage ratio is not influenced over time by variable quality and asset structure, only by the volume of exposures and the level of Tier 1 capital, i.e. by leverage. In this context, Juselius and Drehmann (2015) state that, alongside the debt burden, leverage is the main driver of the financial cycle, so it is desirable to put regulatory limits on it. Bair (2015) and Smith et al. (2017), for example, refer to improved financial stability as being a consequence of introducing a binding leverage ratio requirement.

In certain extreme situations, however, a binding leverage ratio requirement may constrain the usability of the capital buffers in the recessionary phase of the cycle. This issue is addressed by a second and considerably smaller set of studies. The effective use of capital buffers for macroprudential purposes can become constrained as soon as the capital generated⁷ by the Pillar 1 and Pillar 2 capital requirements becomes smaller than the capital generated by the leverage ratio requirement. For example, Sweden's Finansinspektionen (2016) demonstrates that the capital buffers of the four largest institutions were not fully usable in the period analysed. Likewise, Denmark's Nationalbank (2018) states that in the period under review, the usability of the capital buffers was limited in four out of the seven domestic systemically important institutions, and in two of them the buffers were not usable at all. This article contributes to this second branch of research by analysing the impact of introducing a binding leverage ratio requirement on the usability of capital for loss absorption in the Czech banking sector.

III. THE CAPITAL REQUIREMENTS AND THEIR INTERACTION

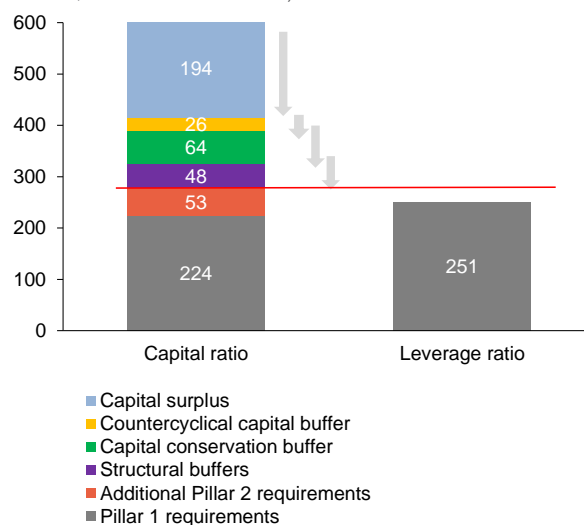
Two capital requirements – a (risk-weighted) capital ratio requirement and a (non-risk-weighted) leverage ratio requirement – will be binding in the EU from 28 June 2021 onwards.

The capital requirements determined as a percentage of risk-weighted assets (**the capital ratio**) are composed structurally of the Pillar 1, Pillar 2 and combined capital buffer regulatory minima. Institutions usually hold a capital surplus in excess of the regulatory requirements for the purposes of strategic management of their capital positions.

Institutions have to maintain capital in accordance with the Pillar 1 requirement and the Pillar 2 supervisory review and evaluation process requirement at all times.⁸ If they fail to comply with these requirements, the supervisory authority will respond by deploying its instruments (Article 104 of CRD V) or by taking early intervention measures (Article 27 of BRRD).

Chart 1 Structure of the capital requirements

(CZK billions; data as of 30 June 2020)



Source: CNB

Note: The minimum leverage ratio requirement will take effect on 28 June 2021. The horizontal line divides Pillar 1 and Pillar 2 capital from the other components of capital.

⁷ In reality, a capital requirement does not generate capital but creates a signal for the bank to set aside a minimum level of capital corresponding to the requirement. The constraining requirement for the bank is the one (either the capital ratio requirement or the leverage ratio requirement) that is associated with the higher absolute minimum capital level.

⁸ Pillar 2 capital is divided into two parts: (a) the regulatory Pillar 2 Requirement (P2R), which is legally binding and requires institutions to maintain the relevant capital constantly where the supervisory authority determines that they meet the conditions requiring them to do so, and (b) the Pillar 2 Guidance (P2G), which is set primarily on the basis of the results of supervisory stress tests (CRD V, Article 104b). Given the nature of P2G, as well as regulatory practice, the P2G capital held by institutions can be used in stressed situations (ECB, 2020).

The combined capital buffer – the sum of the countercyclical capital buffer (CCyB),⁹ the capital conservation buffer and the structural capital buffers – is a soft limit, as the institution itself decides whether or not to “use” it (i.e. not comply with the related requirement). The institution can use its capital buffers to absorb losses¹⁰ or to lend to the real economy.¹¹ When the combined capital buffer is “used”, measures are taken to conserve the institution’s capital. The institution prepares a capital conservation plan (under Article 142 of CRD V), which is approved by the supervisory authority. The institution also temporarily restricts the distribution of profits (under Articles 141, 141a and 141b of CRD V) until the buffer has been replenished. Chart 1 illustrates the anticipated time sequence of the use of the voluntary and regulatory capital buffers together with the levels of those buffers in the Czech banking sector.

The capital requirements determined as a percentage of total exposures (**the leverage ratio**) are composed structurally of a 3% regulatory minimum and, in the case of global systemically important institutions (G-SIIs), a leverage ratio buffer (not relevant in the Czech Republic).¹² A minimum leverage ratio requirement of 3% of an institution’s total exposures on an individual and consolidated bases will become binding in the EU on 28 June 2021. Like the Pillar 1 and Pillar 2 capital requirements, this will be a hard limit.¹³ The following holds for the leverage ratio:

$$\text{Leverage ratio} = \frac{\text{Tier 1 capital}}{\text{Total exposures}} \geq 3\% \quad (1)$$

So, two capital requirements – a (risk-weighted) capital ratio requirement and a (non-risk-weighted) leverage ratio requirement – will be in effect as from 28 June 2021. Institutions will have to maintain a minimum amount of capital according to whichever of the requirements generates the higher absolute level of capital. **The constraining effect of the capital/leverage ratio requirement** will depend mainly on the institution’s business model and the phase of the financial cycle, specifically (i) the aggregate risk weight and (ii) the capital buffers, which vary over time.¹⁴

At a certain aggregate risk weight for exposures,¹⁵ the capital ratio requirement and the leverage ratio requirement will generate the same level of capital. ESRB (2015) and Pfeifer et al. (2016) refer to this as the critical risk weight, which can be determined as the ratio of the leverage ratio requirement to the capital ratio requirement, both expressed in per cent. At the end of 2020 Q2, the critical risk weight for the Czech banking sector stood at 19% (the figure differs from institution to institution depending on the buffer level and the Pillar 2 requirement). Excluding the buffers it amounted to 30% (varying across institutions depending on the Pillar 2 requirement – see Chart 2). This means that if the aggregate risk weight for an institution’s exposures¹⁶ fell below 30%, the institution would not, under these conditions, be able to use some part of its buffers to absorb losses. If the aggregate risk weight dropped below 19%, the institution would not be able to use its buffers to the full, as it would simultaneously fail to meet the leverage ratio requirement.

In the expansionary phase of the cycle, credit portfolio quality generally rises and the aggregate risk weight, *ceteris paribus*, tends to fall (Brož et al., 2017; Malovaná, 2018). This increases the role of the leverage ratio requirement as a prudential backstop. On the other hand, this phase of the cycle is associated predominantly with constant or growing regulatory and voluntary capital buffers, including the CCyB. Growth in those buffers aids compliance with the leverage ratio requirement (see Chart 3), even in institutions with low aggregate risk weights. This is because a rise in the regulatory capital buffers given a constant leverage ratio requirement reduces the critical risk weight at which the leverage ratio requirement starts to generate a higher level of capital than the capital ratio requirement (see Chart 2).

⁹ Where systemic losses have occurred or are highly likely to do so in the near future, the macroprudential authority will usually release the CCyB where available. In doing so, it will boost the capital surplus and create room for loss absorption and lending to the real economy (for details, see Holub et al., 2020).

¹⁰ Losses in the narrow sense mean a financial loss sustained by the banking sector. Losses in the broader sense can also include a potential decline in the capital ratio caused by growth in risk weights. However, this does not lead to a reduction in the banking sector’s absolute level of capital, but to an increase in its risk-weighted exposures and hence to growth in the capital requirement.

¹¹ Capital buffers can also be used for profit distribution, in particular dividend payments. This, however, is undesirable from the prudential perspective.

¹² As from 2023, the leverage ratio buffer applicable to G-SIIs will increase the leverage ratio requirement (50% of the G-SII buffer). The leverage ratio requirement for G-SIIs will thus be at least 3.5% of total exposures. However, the leverage ratio requirement constituting – like the combined capital buffer – a “soft” limit (Article 92(1a) of CRR II). This is not relevant to institutions in the Czech Republic.

¹³ If an institution fails to comply with this requirement, the supervisory authority will respond by deploying its instruments (Article 104 of CRD V) or by taking early intervention measures (Article 27 of BRRD).

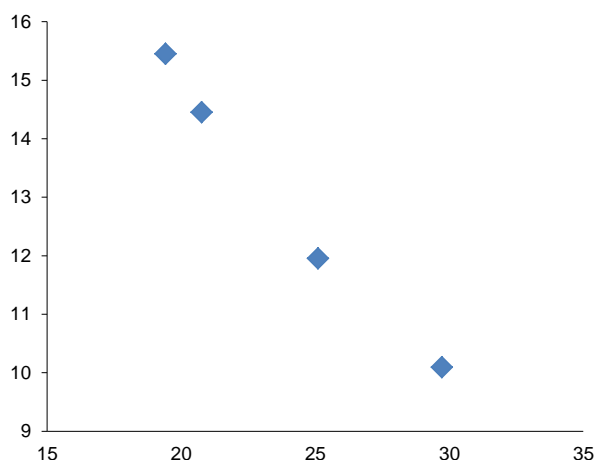
¹⁴ It is assumed that the capital requirement determined as a percentage of risk-weighted exposures varies over the cycle due solely to changes in the level of the capital buffers.

¹⁵ Specifically the “density ratio”, i.e. the ratio of risk-weighted exposures to total exposures for the leverage ratio calculation.

¹⁶ Assuming that the institution’s risk-weighted capital requirement expressed in per cent is equal to the sector-level requirement.

Chart 2 The critical risk weight given the leverage ratio requirement (3%) and various capital ratio requirements

(x-axis: critical risk weight in %; y-axis: capital ratio requirement)

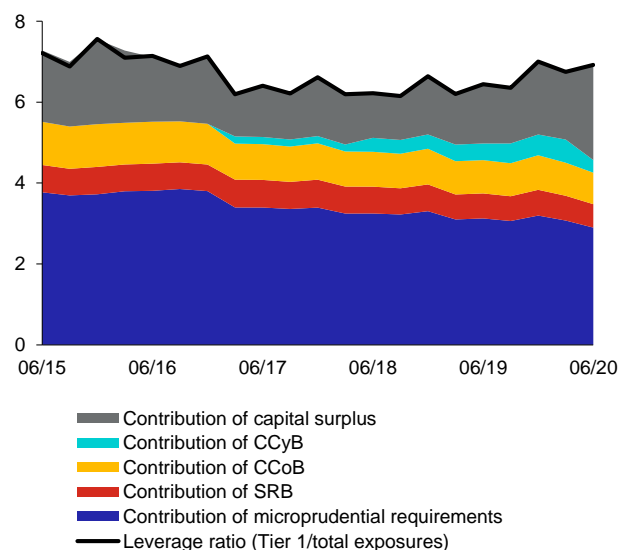


Source: CNB, author's calculations

Note: The data on the y-axis show the individual capital ratio requirements for the Czech banking sector – Pillar 1 = 8%; TSCR = 10.1%; TSCR + SRB = 12%; TSCR + SRB + CCoB = 14.5%; TSCR + combined capital buffer = 15.5%. The critical risk weight is determined as the ratio of the leverage ratio requirement to the capital ratio requirement, both expressed in per cent, and indicates the density ratio at which the capital ratio requirement and the leverage ratio requirement will generate the same level of capital.

Chart 3 Structure of the leverage ratio by source of capital

(%)



Source: CNB

Note: For reasons of unavailability of data in a longer time series, the denominator of the leverage ratio contains total assets instead of total exposures until 2016 Q3.

In the recessionary phase of the cycle, by contrast, the aggregate risk weight, *ceteris paribus*, increases due to worsening loan portfolio quality. This increases the level of capital required under the risk-weighted capital requirement. Simultaneously, however, the capital buffers are released and used, and this is accompanied by a potential decline in the absolute level of capital, primarily as a result of the use of the buffers to absorb losses. However, the leverage ratio requirement remains constant. The use of the regulatory capital buffers amid a constant leverage ratio requirement reduces the critical risk weight at which the leverage ratio requirement starts to generate a higher level of capital than the capital ratio requirement (see Chart 2). The “use” of the capital buffers means that the constraining effect of the leverage ratio requirement tends to increase during a cyclical contraction. In certain circumstances, the capital ensuring compliance with the capital ratio requirement may not be sufficient to maintain the required leverage ratio. In such a situation, the usability of the capital buffers for covering losses may be constrained.

IV. USABILITY OF CAPITAL BUFFERS UNDER A BINDING LEVERAGE RATIO REQUIREMENT

This section analyses the usability of domestic institutions’ capital buffers for absorbing losses under a binding leverage ratio requirement. The starting point of the analysis is that an institution which has to maintain a higher level of capital under the leverage ratio requirement than under the Pillar 1 and Pillar 2 capital ratio requirements cannot take full advantage of the flexibility of the capital buffers (and any capital surplus) to cover its losses.

Loss absorption leads, *ceteris paribus*, to growth in an institution’s aggregate risk weight and thus increases the capital needed to cover the capital ratio requirement.¹⁷ However, the aggregate risk weight may be affected in the opposite direction during the recessionary phase of the cycle by a change in balance-sheet structure towards less risky exposures and by the use of certain monetary policy instruments associated with growth in risk-free exposures to the central bank in institutions’ balance sheets. The analysis below thus assumes that institutions’ risk-weighted exposures are constant during the loss absorption period.

¹⁷ However, the growth in the institution’s aggregate risk weight linked with the change in the cycle may have quite a long time lag and may not have a strong effect given the use of the through-the-cycle approach for some risk-weighted components. The usability of the buffers may thus become constrained before the aggregate risk weight increases due to loss absorption.

Usability of capital buffers under a binding leverage ratio requirement

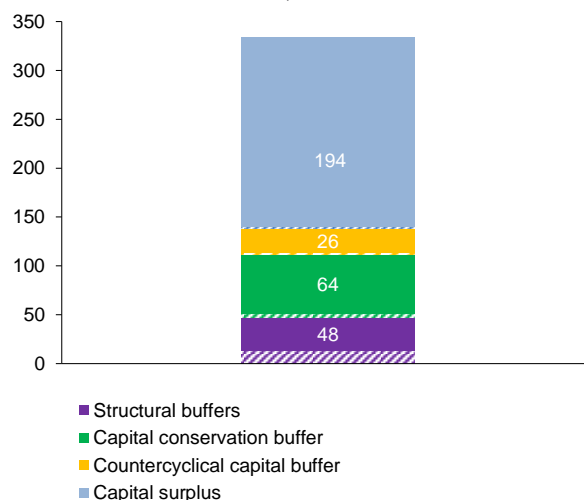
To calculate the usability of domestic institutions' capital buffers, we used data from the CNB's internal database for individual institutions on an individual and consolidated level. This data allows us to determine the potential degree of non-usability of the capital buffers (and any capital surplus) due to the binding leverage ratio requirement. The results in this section are illustrative, as they are based on data as of 30 June 2020, whereas the binding leverage ratio requirement will not take effect in the EU until 28 June 2021.

Chart 4 and Table 1 illustrate the potential non-usability of the capital buffers for loss absorption in the domestic banking sector. Overall, given the hypothetical scenario of the leverage ratio requirement having been binding at the end of 2020 Q2, capital buffers totalling CZK 18 billion (0.7 pp of the capital ratio) on a consolidated level, and CZK 22 billion (0.9 pp of the capital ratio) on an individual level, would not have been usable for this purpose.

Only one domestic institution would have been non-compliant with the leverage ratio requirement of 3% of total exposures at the end of 2020 Q2. This institution would not even have been able to use its capital surplus to absorb losses. At the consolidated level, the usability of the capital conservation buffer would have been 94.5% and that of the countercyclical capital buffer 99.2%. The usability of the systemic risk buffer would have been constrained in two systemically important institutions and would have been 73.2% at the sector level.

Chart 4 Usability of the capital buffers on a consolidated level

(CZK billions; data as of 30 June 2020)



Source: CNB, author's calculations

Note: The dashed area denotes the portion of the voluntary/regulatory capital buffer that is unusable due to the binding leverage ratio requirement. The leverage ratio requirement will become binding on 28 June 2021.

Table 1 Usability of the capital buffers under the binding leverage ratio requirement

(as of 30 June 2020)

	Capital surplus	CCyB	CCoB	KSR
Consolidated level				
Component of capital for sector (CZK bn)	193.8	25.7	64.2	47.7
Usability of capital buffers (CZK bn)	1.2	0.2	3.5	12.8
Usability of capital buffers in %	99.4%	99.2%	94.5%	73.2%
No. of institutions with limited usability	1	1	2	2
Individual level				
Component of capital for sector (CZK bn)	193.8	25.7	64.2	47.7
Usability of capital buffers (CZK bn)	1.9	0.8	6.5	12.8
Usability of capital buffers in %	98.9%	97.1%	89.9%	73.2%
No. of institutions with limited usability	4	4	7	2

Source: CNB, author's calculations

Note: The leverage ratio requirement will become binding on 28 June 2021.

V. THE CURRENT LEGISLATIVE EXEMPTION

The use of certain monetary policy instruments is associated with growth in risk-free exposures to the central bank in institutions' balance sheets. This causes institutions' aggregate risk weight to fall, which, in turn, can further reduce the usability of their capital surpluses and capital buffers for absorbing losses. In the most recent Basel III update, the Basel Committee (BIS, 2017) proposed giving national jurisdictions the discretion to exclude exposures to the central bank from the denominator of the leverage ratio for one year in exceptional macroeconomic circumstances. This exemption made its way into CRR II (Article 429a), was later revised in another amendment (the CRR "quick fix") and will be usable along with the binding leverage ratio requirement. However, when exposures to the central bank are excluded from the denominator of the leverage ratio, the institution's leverage ratio requirement must be recalculated according to the following equation (2) so as to offset the impact of exempting exposures to the central bank:

$$aLR = \frac{EM_{LR}}{EM_{LR} - CB} \quad (2)$$

where:

Usability of capital buffers under a binding leverage ratio requirement

aLR = the adjusted leverage ratio requirement,

EM_{LR} = the institution's total exposures prior to the exclusion of exposures to the central bank,

CB = the amount of exposures to the central bank excluded (determined as the amount of exposures to the central bank immediately preceding the date of the announcement of exceptional circumstances)

The current wording of the legislative exemption thus de facto prevents the exemption from being usable in practice, as the need to recalibrate does not involve a relaxation of the leverage ratio requirement (the exclusion of exposures to the central bank is associated with a proportionate increase in the requirement for other exposures). The exemption therefore has virtually no impact on capital usability as analysed in the previous section.¹⁸ Moreover, the one-year timescale for the application of the exemption is too short to limit the effect of monetary policy on the size of institutions' balance sheets.

Some countries not subject to EU regulations (the USA, Japan, Switzerland and Canada) have excluded exposures to the central bank (and also government bonds in some cases) from the leverage ratio denominator without a need to recalibrate the requirement, in order to enhance the room for monetary policy manoeuvre and increase the banking sector's capacity to absorb losses and lend to the real economy. This has led in practice to a partial relaxation of the leverage ratio requirement. Likewise, an amendment of the CRR (the "quick fix") has allowed exposures to the central bank to be excluded without the need to recalibrate the leverage ratio requirement, though only until the requirement becomes binding (i.e. only until 27 June 2021).

In the case of the Czech Republic, the exclusion of exposures to the central bank from the leverage ratio denominator without the need for recalibration would lead to an increase in the usability of the capital buffers (see Table 2). Overall, given the hypothetical scenario of the leverage ratio requirement having been binding at the end of 2020 Q2 and the exclusion of exposures to the central bank from the leverage ratio denominator without the need for recalibration of the requirement, the unusable portion of the capital buffers at the consolidated level would decrease from CZK 18 billion to CZK 1.4 billion. Only one institution with a specific business model would be affected.

Table 2 Usability of the capital buffers under the binding leverage ratio requirement (excluding exposures to the CNB)

(as of 30 June 2020)

Consolidated level	Capital surplus	CCyB	CCoB	KSR
Component of capital for sector (CZK bn)	193.8	25.7	64.2	47.7
Usability of capital buffers (CZK bn)	0.5	0.2	0.6	0.0
Usability of capital buffers in %	99.7%	99.0%	99.1%	100.0%
No. of institutions with limited usability	1	1	1	0

Source: CNB, author's calculations

Note: The table shows the hypothetical impact of the leverage ratio requirement (excluding exposures to the central bank) on the usability of current capital. The leverage ratio requirement will become binding on 28 June 2021.

However, the exclusion of exposures to the central bank from the leverage ratio denominator without the need for recalibration will not necessarily lead to an equivalent increase in the usability of capital buffers for loss absorption in other banking sectors, because for many institutions operating in the EU, the constraint arising from the leverage ratio requirement is due to generally very low risk weights for exposures (such as those secured by residential property) rather than to a large share of exposures to the central bank.

VI. CONCLUSION

A leverage ratio requirement is to become binding in the EU on 28 June 2021. This requirement is meant to act as a prudential backstop against excessive growth in leverage. In certain circumstances, however, it may constrain the usability of the capital buffers and any capital surplus for loss absorption in some institutions during the recessionary phase of the financial cycle. Given the hypothetical scenario of the leverage ratio requirement having been binding at the end of 2020 Q2, CZK 18 billion of the capital buffers of domestic institutions on a consolidated basis (0.7 pp of the capital ratio of the banking sector) would not have been usable for loss absorption, as the use of these funds would have led to non-compliance with the leverage ratio requirement. The results therefore indicate that in certain extreme situations, the leverage ratio requirement may prevent the capital buffers from being fully effective.

¹⁸ Growth in exposures to the central bank in the period of use of the exemption may provide partial relief.

REFERENCES

- Bair, S. C. (2015): How a supplemental leverage ratio can improve financial stability, traditional lending and economic growth, Banque de France, Financial Stability Review 19/2015.
- BIS (2017): Basel III: Finalising post-crisis reforms, Bank for International Settlements. ISBN 978-92-9259-022-2.
- Brei, M., Gambacorta, L. (2016): *Are bank capital ratios pro-cyclical? New evidence and perspectives*, Economic Policy 31(86): 357–403.
- Brož, V., Pfeifer, L., Kolcunová, D. (2017): Are the risk weights of banks in the Czech Republic procyclical? Evidence from wavelet analysis, CNB WP 15/2017.
- CNB (2020): Financial Stability Report 2019/2020, Czech National Bank. ISBN 978-80-87225-95-0.
- CRD V (2019): Directive (EU) 2019/878 of the European Parliament and of the Council of 20 May 2019 amending Directive 2013/36/EU as regards exempted entities, financial holding companies, mixed financial holding companies, remuneration, supervisory measures and powers and capital conservation measures, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019L0878>
- CRR II (2019): Regulation (EU) 2019/876 of the European Parliament and of the Council of 20 May 2019 amending Regulation (EU) No 575/2013 as regards the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, reporting and disclosure requirements, and Regulation (EU) No 648/2012, available at: <https://eurlex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019R0876>
- Danmarks Nationalbank (2018): Minimum leverage ratio requirement may overrule buffer requirements, in Analysis, Financial stability, 2nd half 2018, Low interest rates and ample lending capacity put pressure on credit standards, available at: <https://www.nationalbanken.dk/en/publications/Pages/2018/11/Low-interest-rates-and-ample-lending-capacity-put-pressure-on-credit-standards.aspx>
- ECB (2020): ECB Banking Supervision provides temporary capital and operational relief in reaction to coronavirus, 12 March 2020, available at: <https://www.bankingsupervision.europa.eu/press/pr/date/2020/html/ssm.pr200312~43351ac3ac.en.html>
- ESRB (2015): The ESRB handbook on operationalising macroprudential policy in the banking sector, Addendum: Macroprudential leverage ratios, European Systemic Risk Board, June 2015.
- Finansinspektionen (2016): Leverage ratio as a minimum requirement reduces banks' buffers, FI Analysis 7, available at: <https://fi.se/en/published/reports/fi-analysis/>
- Holub, L., Konečný, T., Pfeifer, L., Brož, V. (2020): The CNB's approach to releasing the countercyclical capital buffer, CNB, Thematic article on financial stability 3/2020.
- Juselius, M., Drehmann, M. (2015): *Leverage dynamics and the real burden of debt*, BIS Working Paper 501.
- Leslé, V., Avramova, S. (2012): Why do RWAs differ across countries and what can be done about it? IMF Working Paper 90.
- Pfeifer, L., Holub, L., Pikhart, Z., Hodula, M. (2016): The role of the leverage ratio in capital regulation of the banking sector, CNB, Thematic article on financial stability.
- Pfeifer, L., Hodula, M. (2020): *New kid on the block: Leverage ratio and its implications for banking regulation*, European Journal of Finance, forthcoming, available at: <https://www.tandfonline.com/doi/abs/10.1080/1351847X.2020.1789185>
- Malovaná, S. (2018): The pro-cyclicality of risk weights for credit exposures in the Czech Republic, CNB WP 12/2018.
- Montes, C. P., Artigas, C. T., Cristófoli, M. E., San Segundo, N. L. (2016): *The impact of the IRB approach on the risk weights of European banks*, Journal of Financial Stability 39: 147–166.
- Smith, J. S., Grill, M., Lang, H. (2017): *The leverage ratio, risk-taking and bank stability*, ECB Working Paper 2079.

Issued by:
CZECH NATIONAL BANK
Financial Stability Department
Na Příkopě 28
115 03 Praha 1
Czech Republic

Contact:
COMMUNICATIONS DIVISION
GENERAL SECRETARIAT
Tel.: 224 413 112
Fax: 224 412 179
www.cnb.cz