

Debt Cap Rules and Ethics: Balancing Stability and Inclusion

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Bálint Dancsik
Hungary
*Head of Department
Magyar Nemzeti Bank**
*(the Central Bank of
Hungary),
Budapest (Hungary)*



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Financial crises have a long history where swindles and frauds feature strongly in the credit-fuelled “manias” which precede them (Kindleberger & Aliber, 2005). The meltdown after such crises reveals morally questionable practices, and those engaging in them – typically bankers – are brought to the forefront of public attention and academic analysis. However, this emotionally-heated dialogue blurs the lines between two distinct issues:

- (1) how different financial institutions treat their own customers;
- (2) to what extent individual banks are responsible for the outbreak of a financial crisis with severe macroeconomic consequences.

This paper focuses on the latter question.

The study argues that the decisions faced by financial institutions sometimes reflect the tragedy of the commons (Hardin, 1968), which is a metaphor for the conflict between individual and collective rationality. Just as the cattle in the analogy graze more and more of the pasture, increasing lending uses up more and more income in the economy. Just as it makes sense for individual herdsmen living around the pasture to send an increasing number of cattle to the field, under certain conditions the decision-makers at individual financial institutions may feel that lending more and more is rational, even if they have to loosen credit conditions to do so, thereby generating risks for the whole system.

In the aftermath of the 2007–2008 global financial crisis, it has become a priority to prevent

similar meltdowns. To this end, bank regulators have created a set of so-called macroprudential instruments. The most direct of these are debt cap rules, which explicitly state to what degree debtors can become indebted relative to their income or equity. The regulations prevent over-indebtedness among economic actors, thereby addressing the issue of coordination among banks and reducing the probability of financial crises. However, establishing the minimum requirements for these rules raises a new, truly ethical dilemma. The question arises as to where to draw the line and find the trade-off between ensuring financial stability and providing people access to credit.

The paper examines these problems. First, it is shown that – when driven by overlending – the emergence of macro-level financial imbalances is often analogous to the tragedy of the commons. This comparison seeks to show that the issue arises much more from a failure of “coordination” than from ethics. Following the same logic, the paper suggests why so-called debt cap rules that limit borrowing can address this issue of coordination, and thus respond to the new moral concerns raised by the introduction of such regulation.

Financial instability as a tragedy of the commons

Hardin’s famous story (1968) has three crucial aspects that are necessary conditions for the

emergence of the tragedy of the commons:

- (1) The participants in the game have two choices (‘A’ or ‘B’), which have different effects on the common-pool resource;
- (2) Option ‘B’ exploits the resource more, but results in greater utility to the individual players, so it is always worth choosing it. But if everyone opts for Option ‘B’, then;
- (3) they will be worse off collectively than if everyone had chosen Option ‘A’.

The story is the perfect metaphor for the conflict between individual and collective rationality in certain decisions.

In our tragedy, the players are the banks, the common-pool resource is the income of economic actors (states, households, companies), and the decision is about the amount and the related riskiness of the loans made by the bank. To the best of the author’s knowledge, the analogy of the tragedy of the commons appears in only a handful of papers on financial crises, and usually only as a passing remark, without a comprehensive assessment of the similarities. In the literature on financial stability, Borio, Furfine and Lowe (2001) and Rungcharoenkitkul, Borio and Disyatat (2019) mention it, while in the literature on business ethics de Bruin (2018) remarks on the tragedy, but he does so in connection with the bursting of housing market bubbles rather than in relation to lending.

To explain the parallel, three claims must be substantiated:

(I) Excessive lending compared to income increases financial instability;

(II) Financial instability entails high costs for the entire financial system and its institutions;

(III) Under certain external and internal circumstances, individual banks have the ability and willingness to tend towards a strategy of increased lending.

Too much credit results in financial instability

When lending, banks expect returns from the debtor's income. As the ratio of debt servicing to income increases, so does the debtor's riskiness. In good times, economic actors are prone to build up leverage. However, the higher the leverage, the smaller the shock necessary for debtors to fail to meet their debt servicing commitments. High leverage built up in good times leads to instability (Minsky, 1992).

At the macroeconomic level, gross domestic product (GDP) is a good proxy for aggregate income, while the leverage of the economy as a whole can be measured as the ratio of private sector credit to GDP. A rise in this indicator indicates an increase in the average relative indebtedness of economic actors. The Basel III accord developed by the Bank for International Settlements seeks to measure the financial cycle through the fluctuations in - or deviations from the trend of - precisely this

indicator (BIS, 2010). If the credit-to-GDP ratio persistently deviates from its trend in a positive direction, so that credit steadily grows at a faster rate than income, it suggests overlending and thus could signal a risk.

The dangers of a high credit-to-GDP ratio are also confirmed by empirical research, because a rise in leverage can be observed before most financial crises. The majority of crises are "credit booms gone bust" (Shularick & Taylor, 2012), as attested by historical analyses going back centuries (Kindleberger & Aliber, 2005; Reinhart & Rogoff, 2009). Empirical analyses examining financial crises also highlight lending as the most important factor (Borio & Lowe, 2002; Drehmann & Juselius, 2013; Borio, 2014; Alessi & Detken, 2018), with overlending especially harmful when coupled with the evolution of asset price bubbles.

In summary, too much credit eats up the income of economic agents, just as too many cattle exhaust the resources of the pasture. Experience has shown that too much credit relative to income often leads to a banking crisis. Of course, it is important to determine what amount of credit is too much. One difference compared to a textbook tragedy of the commons, which is practically an n-person prisoner's dilemma, is that while every new animal grazing the pasture reduces the position of the other herdsmen, lending is not harmful up to a certain point,

and in fact can have a particularly positive effect on economic growth (Levine, 2005). Nevertheless, it is not different from a real-life tragedy of the commons: in reality, sending out new cattle does not create negative external factors up to a certain number of livestock, as the pasture usually provides enough food for more animals to reach their maximum size for slaughter. In reality, the pasture only becomes saturated beyond a certain point, when the negative external factors take hold, in the same way as overlending in the financial system.

Overlending can have a disastrous effect on the whole financial sector and the wider economy

Banking crises are costly. According to Laeven and Valencia's database (2018), the median loss in output due to systemic banking crises between 1970 and 2017 was 23 per cent; (meaning that at the end of the third year following the crisis, actual GDP had a cumulative lag of this amount behind the estimated GDP value estimated based on the pre-crisis). The highest median share of non-performing loans on banks' balance sheets was 26 per cent. Fiscal costs directly related to the restructuring of the banking system amounted to 9 per cent, or net 6 per cent of GDP. Management financial crises in the broader sense also entails costs, which increases government debt, potentially leading to a sovereign debt crisis

(Reinhart & Rogoff, 2011; Acharya, Drechsler, & Schnabl, 2014).

Systemic banking crises also have a detrimental effect on the players in the financial system. In the wake of the 2007–2008 crisis, multiple institutions failed or were forced into mergers or acquisitions to avoid bankruptcy.

Banks are able and eager to lend during booms

Although macroeconomics textbooks tend to present banks as mere intermediaries, banks do not in fact lend out deposits: on the contrary, they create deposits by lending (McLeay, Radia, & Thomas, 2014; Werner, 2014; Ábel, Lehmann, & Tapaszt, 2016). If a bank finds an opportunity for lending that is profitable enough (or at least appears to be), it can conclude the deal even in the absence of the necessary liquidity and then turn to the interbank market or the central bank for funds. Of course, this does not mean that banks can create an infinite amount of loans (money). The development of lending and bank balance sheets is also constrained by prudential regulation (Xiong, Wang, Wang, & Stanley, 2020). It is no coincidence that the techniques and innovations that financed the credit boom before the US subprime crisis partly sought to circumvent precisely these limits, such as securitisation. An interesting parallel with common-pool resources is that in tragedy-of-the-commons situations related

to natural resources, these are often depleted by rapid advances in technology; for example, when a lake's fish stock is exhausted due to the sudden appearance of motorboat fishing (Ostrom, 2000). Innovations in banking allowed credit institutions to encumber the income of private sector players with debt faster than before.

Banks can create too much credit, when the level is seemingly warranted by individual bank strategies to bolster profitability prospects. In this context, what are the factors which can prompt banks to fuel overheating during a credit boom?

Competition, innovation, and market pressure

Banks strive to innovate, secure new markets and move ahead of their peers. In the US, one such innovation was the servicing of a huge number of subprime debtors which spread the resulting debt through securitisation. Other institutions were forced to adopt successful strategies, or those that temporarily seemed to be so, in order to avoid losing market share.

Conformity, groupthink, and peer pressure

Another important factor is the imitation or conformity observed among institutions and experts. Conformity is not exclusive to financial companies; it can be observed anywhere in the economy. Warren Buffett refers to

these “lemming-like tendencies” as an institutional imperative, during which “the behaviour of peer companies, whether they are expanding, acquiring, setting executive compensation or whatever, will be mindlessly imitated” by market participants (cited in Hagstrom, 2005, p. 97). This is because corporate leaders are “unwilling to look foolish” and fall behind other firms, even if these competitors “are heading to the sea” in the medium term. The same is stressed by Lámfalussy (2008), clearly in relation to the financial system: “the greater the competition, especially by famous competitors, the stronger the urge to use the behaviour of the majority as a benchmark to measure manager performance. An error committed by everyone is considered less grave than a ‘lonely’ one” (Lámfalussy, 2008, p. 91).

Executive payments

Prior to the subprime crisis, volume-based compensation packages rewarding short-term performance were widely used. DeYoung, Peng, and Yan (2013) point out that bank executives whose compensation depended more on the volatility of the bank's share price (i.e. those whose compensation packages included a large share of stock options) were more likely than their peers to engage in riskier and more innovative activities to boost profits.

Soft budget constraint and moral hazard

Moreover, risky decisions had asymmetric consequences: in a boom, the profits went to the financial institution's employees and shareholders, while the bill was often picked up by the state and ultimately the taxpayer after risks surfaced and financial strains appeared. This "too big to fail" attitude resulted in a soft budget constraint for financial institutions (Kornai, Maskin, & Roland, 2003), thereby contributing to the distortion of banks' behaviour through the changed consequences ("payoffs") of their decisions.

A failure of coordination, not ethics

The factors discussed above all reduce clarity in terms of ethics during a credit boom. The negative consequences of individual lending decisions do not appear immediately, while their positive effect is clear. During a boom, it is the avoidance of risky lending that can be viewed as unethical by the bank and its employees. This is because the institution would deny the realisation of debtors' "dreams" in a market where the economic outlook and the availability of funds seem to support it. For example, in the years leading up to the subprime crisis, 12 million Americans purchased their own homes (Gramlich, 2007) and many of them were able to later service their debts.

Despite the subsequent economic meltdown, the ethical consequences of a decision are difficult to assess, even at the micro level. Banks and bank administrators cannot necessarily be expected to assess macro-level consequences, as these are also difficult to measure (de Bruin, 2018).

However, this paper does not focus on micro-level ethical problems in financial crises. Instead, it concentrates on the relationship between individual financial institutions and the financial system as a whole. This connects it to several earlier studies. Herzog (2017) discusses the "public good" issues of sectors with competing companies, underlining that firms are in strategic interaction, to employ a term from game theory. Herzog (2019) specifically examines the systemic harm caused by banks, concluding that individual institutions disregard social interests, due to epistemic, motivational and coordinational reasons. Moggia (2021) analyses the systemic issues in the CDS market and reaches a similar conclusion when noting that consideration of moral aspects is difficult for individual institutions for three reasons. First, the ethical assessment of probabilities is problematic in itself, creating a "problem of paralysis" and "problem of fairness" (see also Hayjenhelm & Wolff, 2011); second, in most cases the influence of individual market participants on system-wide

stability is marginal; and third, market participants have limited knowledge of the system-wide consequences of their actions. De Bruin (2018) also concludes that nobody can be blamed for large-scale events such as financial crises.

The dynamics of the tragedy in banking

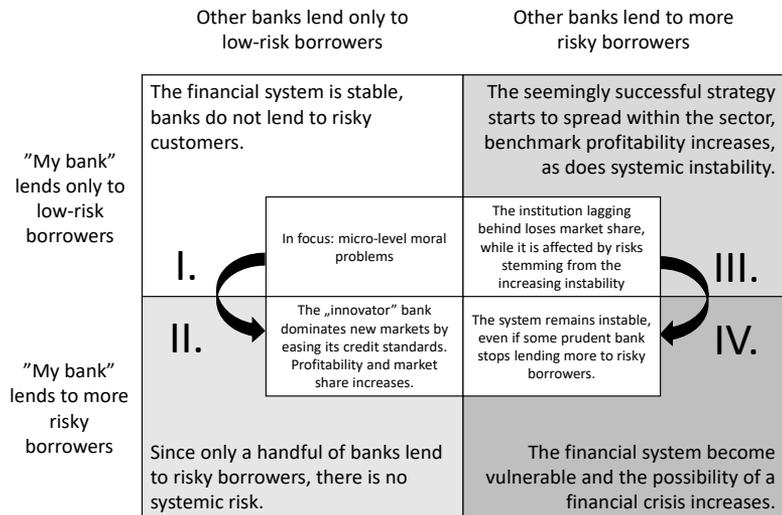
These findings are completely consistent with the analysis in this study. The tragedy of the commons is a metaphor for situations where individual players (“any bank”) typically cannot break out on their own, because even if they made a cooperative decision, it would not have a clear-cut positive outcome for the system as a whole. If a bank decides to cut its credit supply during a credit boom, the resulting

vacuum can easily be filled by a competitor, thereby rendering the efforts of the former superfluous. Under such circumstances, the strategy of lending may dominate over the strategy of non-lending (Figure 1).

In the chart below, the inner rectangles detail the motives of individual banks, while the outer rectangles describe the state of the system. Under certain circumstances, specific institutions always find it worthwhile to open up towards risky debtors, regardless of the lending practices of other banks. Outcome II is better than Outcome I, and Outcome IV is better than Outcome III. Risky lending dominates over prudent behaviour.

It is no coincidence that in order to

Figure 1. Financial instability as a tragedy of the commons during a credit boom



Source: Author’s compilation.

overcome the issue of coordination, Herzog (2019) suggests the creation of “associations” in which market participants and regulators can identify market failures and agree on the forms of behaviour to be avoided. Ostrom (1990) also points out that a large portion of common-pool resource issues can be solved by participants themselves; for example through non-state institutions established by them, such as the associations proposed by Herzog.

However, the author believes that this suggested solution is problematic in several respects for bank lending. First, the market has too many participants, and the above-mentioned “internal” solutions are mostly able to work with smaller communities. Second, there are typically many different interpretations of the factors creating a credit boom (Shiller, 2019), so not everyone may associate the developments with instability. Third, communication, mutual decisions and “cooperation” among competitors is closely watched by the competition authorities, and therefore cooperating market participants are likely to face penalties.

If we accept that the emergence of a financial crisis can be considered a market failure out of which individual institutions find it difficult to escape, regulators are responsible for addressing this failure. However, this raises other dilemmas of a truly ethical nature.

Debt cap rules and ethics

Regulators have done much in recent years to manage the failure in coordination discussed above. The existing rules on banks have been tightened, and several new, so-called macroprudential rules have been introduced. These partly serve to prepare banks to weather systemic risks and include countercyclical capital buffers, capital conservation buffers, and liquidity rules. They are also partly designed to prevent the over-indebtedness of borrowers, especially households.

The debt cap rules used to achieve these goals can take many forms. For example, they can regulate the loan amount relative to the value of the property to be purchased (the loan-to-value rule), thus effectively prescribing a minimum own contribution for future debtors. They can also establish constraints in relation to debtors’ income, such as by capping the ratio of instalments and monthly income (the payment-to-income rule) or of income and the loan amount (the loan-to-income rule).

These rules considerably enhance the system’s financial stability. They are tantamount to placing restrictions on the herdsmen in the tragedy of the commons regarding the maximum number of cattle allowed on different parts of the pasture, thereby addressing the issue of coordination. Individual constraints on herdsmen can prevent the overuse of the pasture, just as

debt cap rules can prevent a certain amount of income from being burdened by too much leverage.

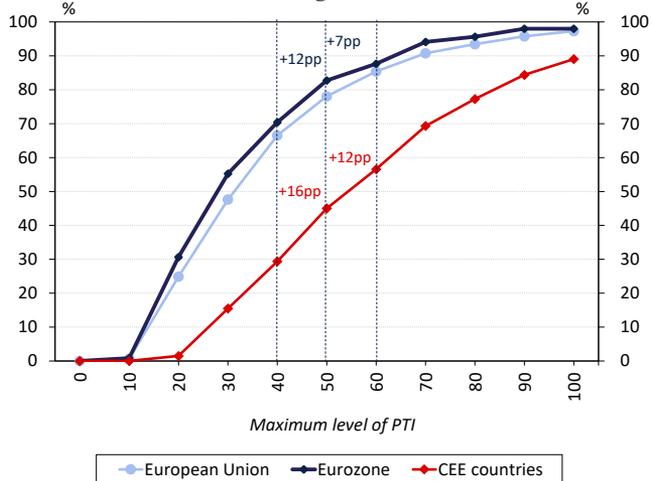
Unintended consequences of the regulation

However, one adverse side effect is that the rules determine at the same time whom to exclude from the credit market or its specific segments. Depending on their form, debt cap rules determine the maximum loan amount for a specific level of income, indirectly determining the maximum size and quality of the properties that debtors can plan to purchase. The loan-to-value rules govern the size of a borrower's own contribution, thus determining the number of years he or she will need to save before buying a given home.

What does this mean for example in the European Union? Figure 2

shows a schematic estimate of the number of people within the population of the EU who could take out a loan to finance the purchase of a 50-square metre home in the capital of their country, given various payment-to-income (PTI) limits. The countries are highly heterogeneous from this perspective, since the calculation is influenced by income inequalities, the typical composition of households, the housing loan rates characteristic of the countries and property prices in the capital. Our simple calculations show that if a macroprudential regulator sets the PTI cap at 40 per cent instead of 60 per cent, that may exclude close to 20 per cent of households from purchasing their desired home. Regulation has an even greater effect in the central and eastern European region. Of course, this is an extreme

Figure 2. Share of households which can afford a 50-square metre flat in the capital financed from borrowing, with different PTI limits



Source: Source: Own calculations, Eurostat (EU-SILC), Numbeo.com, ECB .

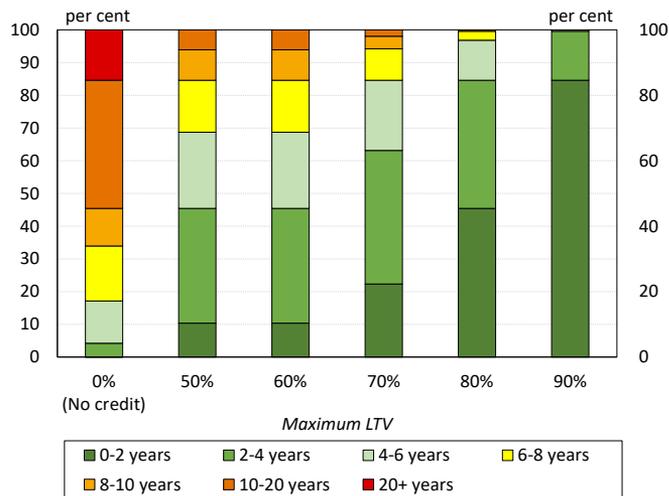
scenario, with credit terms which are in part arbitrarily selected. They would only be realistic if banks were willing to lend at any PTI limit, and the only restraint on borrowing was regulation.

The calculations in Figure 2 were based on average prices per square metre in the capitals of individual countries. The author examined the number of households which can pay the instalments of a 30-year loan with an LTV of 70 per cent in the context of the average housing loan rates in individual EU countries and the income distribution of households in the given country (down to deciles), while also respecting the various PTI limits. All household deciles were assumed to have income at the top

of the given decile (for example, at the 10th percentile in the 1st decile), with the exception of the top decile, where the income of the decile members was assumed to be the income at the 95th percentile.

The LTV limit influences the time necessary for the borrower to accumulate their own contribution for the home purchase. Examining the issue with regard to the European Union: Only 34 per cent of households could accumulate their own contribution for purchasing a 50-square metre flat in their country in less than four years with an LTV limit of 50 per cent, assuming that they saved all of their income for this purpose. With an LTV of 70 per cent this share was 63 per cent, and with an LTV of 90 per cent it was close to

Figure 3. Time necessary to accumulate one’s own contribution for purchasing a 50-square metre flat in EU capitals, with different LTV limits



Source: Own calculations, Eurostat (EU-SILC), Numbeo.com, ECB

100 per cent (Figure 3).

Figure 3 shows the distribution of EU households based on the number of years it takes them to save all of their income to accumulate their own contribution for purchasing a 50-square metre flat in the capital. The same weighting applies to income distribution as in Figure 2.

The dilemma

A large portion of the debtors excluded due to debt cap rules could make payments and the income of many of them would not contract considerably even in a subsequent recession. However, it is difficult to identify these debtors precisely or who would fail to qualify, using currently available information. Banks and regulators use probability models to estimate default rates, but in the case of households these provide useful information for the population (the portfolio) as a whole rather than for individual households. Therefore, macroprudential regulation inevitably excludes some debtors who would be eligible for loans, because it is safer for the system overall if loans are not extended to them.

The above calculations are admittedly schematic and arbitrary, but they highlight the problem: depending on the calibration of debt cap rules, certain social groups are excluded from the credit market or they need to settle for smaller loans and homes. This is despite the fact that many households should be

more indebted based on expected future income. For example, the problems detailed above are particularly difficult for young adults, as their income is generally the lowest, while their expected wage growth is among the highest, and the amount of available savings (their own contribution) is also typically low. According to the life-cycle/permanent income hypothesis (Modigliani & Brumberg, (1954) and Friedman (1957)), they should expand their consumption and investments with substantial borrowing.

Since this is essentially a probability issue, rights-based ethics offer little guidance in its assessment (see Moggia, 2021). These ethics can better decide yes-no questions; for instance, is it ethical to offer loans or not? However, they cannot provide an adequate answer as to whether 30, 40, 50 or 51 per cent is the ethical limit for the PTI. The choice of the regulatory limit is inevitably arbitrary, and it is almost certain that some debtors will be excluded “without grounds” from among those eligible for loans. In fact, the missing (but not risky) borrowing also reduces economic growth and is thus harmful to society.

Ethics based on a cost–benefit analysis is more useful for such problems. This approach still has problems, such as the problem of fairness (Moggia, 2021). From the perspective of outcome-based ethics, it is clearly easier to argue that introducing rules is positive

and ethical, as although it excludes some people from accessing the appropriate loans, it saves society from a much greater “utility loss” by preventing financial crises. But here the question also arises as to what extent the economic benefits can be aggregated with the utility caused by the “happiness” of the people acquiring their own home. Our models can only capture the former: they can examine whether one unit of additional lending is probably harmful or beneficial for the *economy*, taking into account the effects on GDP.

In short, a merely theoretical approach will probably not determine the ethical level of debt cap rules. There is, however, something that can definitely be done: people who are the “exceptions” can be identified, who may violate the rule without affecting the systemic risk but still increasing their own utility. Overall, undifferentiated debt cap rules point in the right direction, but we should still think about enhancing them and improving the trade-off between financial stability and inclusion.

Outlook – how to improve?

The author does not wish at all to suggest that the introduction of debt cap rules was misguided. These rules ensure the stability of the entire system, making them particularly useful in preventing future financial instability. However, the same rules have unintended consequences, and one should consider how to

improve their management, without undermining their original purpose. I believe that this is the best way to resolve, or at least ease, the ethical dilemma described above.

Be better at finding those who actually default

Debt cap rules are necessary because it has detrimental effects on the entire system if loans are disbursed to too many debtors with an overstretched income. However, it would be easier to determine whom to exclude from lending, and who was eligible for larger loans despite their current low income or wealth if more information were available on the debtors who will not be able to make payments, rather than general statistical data for households as a whole or certain parts of it. Probability of default (PD) models constantly evolve, and the databases that can be used are also expanding. This allows the default risks of individual debtors to be assessed more accurately, even using alternative methods besides traditional credit scoring (see for example, Berg, Burg, Gombovic, & Puri, 2020). The state also has a role to play here in maximizing the data and databases that are available to lenders to make the assessment of credit risks increasingly accurate; for example, by expanding the information available in credit registers.

Of course, this is only useful up to a certain point. The information that can potentially be collected

on debtors is vast, but privacy considerations raise other serious ethical issues.

Make better estimates of the optimal level of debt cap rules

To balance the beneficial and detrimental effects of lending, it is vital to gain an accurate picture of the exact limit that prevents the evolution of financial instability while minimising the unintended consequences of the regulation.

Enable and support cost-reducing innovations

In the context of sufficiently intense competition, the reduction in the costs of financial intermediaries is also reflected in falling prices (i.e. interest rates). Other things being equal, lower interest rates allow a wider group of society to access the desired loans. The innovative firms and solutions that appear in lending can thus significantly expand financial inclusion.

Use other tools to compensate excluded potential debtors who nevertheless pose a lower risk

If social groups can be identified where debt cap rules make borrowing especially difficult even though the long-term risk of the group is lower, the exclusion of these households from the credit market can be mitigated by other government instruments. Possible solutions include state subsidies

such as financial guarantees on own contributions for young employees, interest subsidies or making the cost of borrowing tax deductible.

Differentiate between debt cap rules

Social groups which maintain a lower risk profile even with higher PTI and LTV limits should be identified and supported, and they should be allowed to borrow more freely. Young people who are first-time home buyers could receive financial loan support, as is the case in several EU member states. For example, a higher LTV can be used for first-time home buyers in Finland, Ireland, Malta and Romania and in the Czech Republic and Estonia, even without specifying a social group and only determining a specific share of banks' portfolio (ESRB, 2020). In the latter case, it is the banks' responsibility to identify the debtors who do not pose extreme risk even with a higher LTV. However, this option is capped.

In conclusion, this study argues that the lending activities of individual banks sometimes follow the logic of a tragedy-of-the-commons situation, and that the emergence of financial instability is a coordination issue, rather than an ethical one. After the 2008 financial crisis, regulators took several steps to prevent the evolution of similarly devastating crises in the future. Debt cap rules effectively limit the debt accumulated by private sector

actors, keeping it at a healthy level relative to income. However, these rules also exclude parts of society from borrowing who could be good debtors and would not significantly increase systemic risk.

It is our shared responsibility to find these groups and strike an even better balance between financial stability and financial inclusion. •

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