

Pál Péter Kolozsi – Bianka Parragh – György Pulai

Categorising the Central Bank's Credit Incentive Programs by Targeting and Intensity

SUMMARY: The global financial crisis that broke out in 2007–2008 substantively set back activity in the credit market. Several central banks reacted to this by implementing credit incentive programs. Based on the program parameters, our study evaluated 14 international and Hungarian credit incentive programs launched by central banks in terms of targeting and intensity (strength of incentives). After the outbreak of the crisis, there was a clear trend for credit incentive programs becoming increasingly targeted and highly incentivised, without any clear trends in terms of sizing. The shift from less targeted and less highly incentivised programs towards more targeted, higher-intensity ones was typical both internationally and within Hungary. The Hungarian credit incentive programs introduced after 2013 show extensive targeting and intensity levels, even on an international scale.¹

KEYWORDS: credit incentives, monetary policy, crisis management

JEL CODES: E51, E52, H12, E59

With the end of each great financial and economic crisis, attention turned towards understanding the reasons and consequences, the economic political responses to the crises, and the valuation of the effects and results of said programs.² A decade has passed since the last global financial crisis, meaning that sufficient time has passed since the remission of crisis phenomena to enable us to look back and analyse the crisis management measures and strategies used, with a focus on correlations and trends.

In our article, we will review the targeted credit incentive schemes of central banks through international and domestic examples, particularly with respect to the evolution of the programs. The targeted credit incentive programs were typically introduced as a response from central banks aiming to contain the credit

crisis developed during the global financial crisis that broke out in 2007–2008, and to avoid a credit crunch. However, in certain parts of our analysis, we will also cover a targeted credit incentive scheme that was implemented before the crisis, specifically to show the development of the programs. Until now, the literature did not focus on the comparative typing of the credit incentive programs of central banks, thus this analysis is unique in its way.

CREDIT MARKET DISTURBANCES AND CREDIT INCENTIVE PROGRAMS

The significance of managing the disturbance of credit markets

The long-term credit squeeze may have several non-intended and undesired consequences in

E-mail address: kolozsip@mnbb.hu

the long term. The permanent lack of credit distorts companies' production, investment and financing decisions, thus deteriorating the long-term growth potential of the local economy. In addition to the immediate lack of credit, credit freeze and credit crunch, the risk of creditless recovery may also arise (Balog-Matolcsy – Nagy – Vonnák, 2014), which may easily contribute to the continued existence of a distorted, double economic structure (Bauer – Oláh, 2016).

When the financial mediation system is not able or, due to extreme risk aversion,³ is not willing to provide sufficient funds for the real economy, then in order to facilitate growth and recovery⁴ from the crisis that typically prevails in such cases, state intervention may become necessary. This may be done using the tools of either fiscal or monetary policy, but decision-makers must be aware of the costs as well as the potential advantages. Budget-side interventions can occur mainly in the form of lending by state-run banks, interest rate subsidies and the strengthening of the institutional guarantee. These can often be efficient tools, but they also pose a burden to the budget which the state is not always ready to undertake. The potentially available central banking schemes do not directly represent a budgetary expense; the decision on their applicability is primarily made based on other aspects. In this study we focus exclusively on central banking schemes.⁵

If intervention proves to be necessary on the lending market, central banks will first resort to the toolkit available within the framework of their traditional operations, with the easement of monetary conditions (i.e. an interest rate cut) almost always being the⁶ first step. Additionally, other conventional measures are also possible: decreasing the mandatory reserve rate for banks, expanding the range of collateral acceptable for central bank loans, and expanding the possi-

bly limited availability of central bank credit assets. However, it is possible that no (further) action is possible within the framework of traditional monetary policy, for example, in the following cases.

▶ The primary goal of central banks is typically to maintain price stability. As such, assuming inflation targeting, if the expected inflation path is above the central bank targets, or if there is a high degree of vulnerability to external exposure, the credibility of interest rate cuts can be questionable.

▶ Naturally, central banks have to take prudential aspects into account as well, because excessive bank debt can endanger financial stability, which is also a vital objective.⁷

▶ In an imminent crisis situation, it is quite possible for monetary transmission interest channels to cease functioning efficiently, even though the central bank can continue to apply traditional tools. In these cases, despite the prime rate cut, no or only limited mitigation in corporate interest rates can be achieved.⁸

▶ Another possibility is that the central bank's interest rate decisions may not be effective in all affected segments, they may not prove to be sufficient for the purposes of easing the credit market limits. In these cases, the use of other, non-conventional central bank tools will also become necessary.

After the global financial crisis, the philosophy and perception of the role of central banks underwent a significant change.⁹ Central banks assumed a more active role in economic policy, with one of the more obvious consequences being an increase in security purchasing programs by central banks. Through the quantitative easing realised in the form of government security purchases, significant liquidity is pumped into the economy, which also pushes down the yields of the affected securities. Additionally, through asset swaps of low-risk bonds,

central banks can enable commercial banks to get rid of their riskier, illiquid securities that cannot be used as collateral for market fund acquisition, and thus, with government bonds as collateral, they can obtain the liquidity needed for lending from the market.¹⁰ In addition to government security purchases, if the economy in question has a developed capital market, it may also be possible for the central bank to directly assume risk by purchasing corporate securities. However, this is often not possible due to the lack of a market for such, especially for smaller economies.

For a central bank striving to accelerate the lending market, the correct answer can often be incentivising of lending through the banking system, by providing favourable conditions for refinancing or other targeted tools for commercial banks. Naturally, prior to applying such programs, the central bank must consider the price stability target as well as the asset's potential costs and any unintended consequences.¹¹

The small- and medium-sized enterprise (SME) sector provides half of the added value, half of the investment, and two-thirds of the employment generated by most developed countries. This sector is primarily financed through commercial banking loans. Therefore, it is especially important to ensure bank financing for the sector providing the framework for sustainable and inclusive growth, mainly according to the aspects supporting¹² healthy SME lending. We can consider the objective of a loan to be productive if it serves the creation of new investment under economically feasible financing terms. Werner (2012) points out the significance of separating loans disbursed in productive directions from speculative or consumer lending, as growth in the real economy will primarily be supported only by the former type of loans.

General features of the central bank credit incentive programs

We can describe and group the central bank credit incentive programs, which are in the focus point of our study, based on a number of parameters. Of these, we wish to briefly highlight the most dominant ones, without providing an exhaustive list.

Monetary policy tools, and thus, credit incentives can be either general or targeted. Targeting means, on the one hand, whether the given tool is intended for the management of a well-defined problem (in the wider sense, an unfavourable macroeconomic trend, financial stability risk or market failure). A prime rate cut could be considered the least targeted tool, with high-volume asset purchasing programs intended to reduce yields and general liquidity increasing tools having much the same effect. As opposed to this, there are some dedicated programs aiming to incentivise lending which have a more targeted effect on lending and bank lending activities. As for credit incentive schemes, there are two types of targeting:

- when the scheme attempts to manage the difficulties of a specified sector (mostly SMEs) in accessing credit,
- when in addition to (or as a part of) incentivising lending, there is a more specific goal, which can include increasing the given loan portfolio, improving lending conditions, increasing project loan volume, reducing the amount of non-performing stock etc.¹³

The central bank may limit access to a given scheme as well as its quantity and/or price by setting conditions for its use, often with sanctions for non-compliance (involving at least the return of unearned benefits).

Programs can also be categorised by the ways they are used to incentivise the bank's lending activities. A credit incentive program

is maximally efficient if it “helps” the credit institutions in the lending factor representing the narrowest cross-section in terms of lending capacity or willingness. The circle of collaterals under which a given program is available can also be relevant, since the wider the range of acceptable banking collateral, the more accessible the credit incentive program is from the bank’s side. Naturally, the individual programs can also vary based on their availability. There are two dimensions especially worth noting here: the length of availability, and the ratio of funding limits to GDP. Programs with greater volume and longer availability are more likely to have a greater impact than smaller and shorter programs; however, their efficiency is not necessarily better, as much depends on the extent of targeting.

Finally, credit incentive programs can also differ regarding which side of the credit market they intend to make an impact on, although in the long term, most measures will generally have some degree of impact both on supply and demand. Programs primarily affecting the credit supply typically directly provide favourably priced funds or other incentivising tools (e.g. by making lending cheaper/easier or by mitigating risk) for the credit institutions, while the expansion of lending will typically begin through banking behaviour changing as a result of said incentives, normally through decreasing bank credit rates. On the other hand, there are also monetary policy measures (e.g. general interest rate cuts) which support lending through stimulating the demand for credit. Decreasing credit interest rates for the purpose of (or as a result of) stimulating demand can also affect the supply side, however, as it incentivises increased competition between banks, and as a result of improving corporate recovery and rising asset prices, the creditworthiness of companies will also improve in the long run.

FRAMEWORK FOR THE ANALYSIS OF CENTRAL BANK CREDIT INCENTIVE PROGRAMS

Considerations for analysing credit incentive programs

Regarding credit incentive programs, our study divides the characteristics to be analysed into two groups. These two groups of characteristics are as follows.

TARGETING: includes characteristics determining the extent to which a given program can be considered targeted or not, i.e. to what extent the lending goal is limited, how precise the program is in defining the lending segment (market) in which it intends to progress, how focused it is, how directly it affects either the growth of the selected lending stock or on the loan conditions applying to the end borrowers. Also, whether other (central bank or government) programs facilitate the enforcement of said targeting.

INTENSITY: sums up the characteristics describing the program’s depth and the incentivising power of its tools, particularly focusing on the extent to which the program can incentivise an increase in lending activity, including both volume and advantages offered when compared to prevailing market conditions.

We assume that these two groups of characteristics are suitable for delineating the programs, as well as for monitoring their development over time. We chose this framework for analysis because

- we assume that the individual credit incentive programs may differ from each other both in terms of the extent of incentives, and in terms of targeting;
- we assume that the individual programs can show development in respect of either intensity or targeting.

As regards the methodology applied in our

study, we believe it is worth recording the following.

▶ This study evaluates the most well-known international and domestic credit incentive programs, based on a focused but standard analysing methodology and rating criteria system, thus enabling comparisons, even if to a limited extent, and revealing whether the program's general direction for development can be detected within this framework.

▶ Our methodology for analysis uses an *ex ante* framework, since it evaluates the announced conditions for the programs, and does not assess the results (*ex post* analysis).

▶ This analysis was made possible by the fact that the global financial crisis impacted the developed Western economies at roughly the same time, ensuring that the various countries faced similar economic shocks on the lending market as well.

▶ Our analysis does not deal with the macroeconomic, monetary policy, financial stability, or even social conditions in which the individual programs were introduced. Thus, the selected framework for analysis is not suitable for drawing conclusions regarding the effectiveness or efficiency of the programs, or for assigning any sort of normative ordering to the individual credit incentive programs.

The rating of the individual programs was performed based on the following sub-questions.

1 TARGETING CHARACTERISTICS

◆ To what extent can the lending problem to be managed be considered as limited? How focused is it? Does the product information or the related communication for the credit incentive program in question clearly define the lending problem the program intends to manage? Does it specify the credit market segment considered as problematic? (Principles for scoring: program without a lending target area – 0 points; program announced with a

general credit incentive goal – 1 point; program focused on a limited lending segment – 2 points.)

◆ To what extent does the program ensure that any favourable conditions are passed on to clients? Does the given credit incentive program require, expect and guarantee that the “benefit” comprising the subject of the incentive is actually received by the target group, e.g. the SME companies drawing the loan? (Principles for scoring: no institutionalised guarantee that the incentive appears on the demand (client) side of the credit market – 0 points; the given incentive does appear on the demand (client) side of the credit market through institutionalised guarantees – 2 points.)

◆ Does the program directly incentivise the growth of the targeted credit stock, and does the maximum quantity of utilisation depend on said growth? *Ceteris paribus*, the credit incentive program will be effective at a macroeconomic level only if lending increases in the targeted segment. The strategy followed by credit incentive programs can be one of at least two types. The first approach involves using credit incentives to ease the lending conditions for the credit segment in question, but without the program containing detailed requirements for the lending dynamics to be utilised. The second approach requires the bank participating in the program to increase its lending activity across the board in the given credit segment. (Principles for scoring: if there is no direct stock incentive – 0 points; if there is direct stock incentive but utilisation does not depend on it – 1 point; if there is both direct stock incentive and utilisation depends on it – 2 points.)

◆ How sophisticated is the program or tool used? Does the program consist of several mutually complementary elements, or is it connected to a central bank/governmental program that promotes the enforcement of

targeting (i.e. does it comprise part of a package of measures)? The more banks receive what they actually require to increase lending, the stronger credit incentives will be. This means that sophisticated and/or integrated programs can be more successful due to their specific targeting (while integrated programs that are sophisticated in their use of tools can be simple with respect to utilisation and basic correlations, because this can make the program easier to understand, more transparent, and consequently more effective, this analysis only focuses on the complexity of the instruments themselves). (Principles for scoring: non-sophisticated and non-integrated program – 0 points; sophisticated or strongly integrated program – 1 point; highly sophisticated and/or strongly integrated program – 2 points.)

2 INTENSITY CHARACTERISTICS

◆ What type of strict sanctions will banks face in the case of default? If the individual bank's lending activity does not reach the central bank aimed for with the program's announcement and calibration, the individual bank will face certain "sanctions" which can be the loss of a positive incentive, or even the implementation of a negative incentive. *Ceteris paribus*, the stronger the sanctions for non-compliance, the more effective the credit incentive program. Sanctioning assumes that the program performs an evaluation of the individual banks' performance. (Principles for scoring: no sanction – 0 points; soft sanction – 1 point; strict sanction – 2 points.)

◆ Are the conditions more favourable than market conditions, if yes, to what extent and with respect to how many criteria? The "force" of a credit incentive program is greatly influenced by the extent to which it is advantageous for the bank to favour using it over available market conditions. The number of aspects based on which the program can be considered more favourable than the market

conditions is also important, assuming that *ceteris paribus* the more aspects there are favouring the program, the stronger its incentivising force. (Principles for scoring: market conditions – 0 points; one major characteristic making it more favourable over market conditions – 1 point; several major characteristics making it more favourable over market conditions – 2 points.)

◆ To what extent is the program available for banks? The power of the program is determined by its size. Nonetheless, it is not necessarily true that the bigger the program, the more effective it is. Commitment to incentives is well demonstrated by the extent to which the central bank is willing to devote funds to the success of the program. (Principles for scoring: the volume of the program does not reach 1 percent of GDP – 0 points; the volume of the program is 1–5 percent of GDP – 1 point; the volume of the program exceeds 5 percent of GDP – 2 points.)

Based on the product information for the program, we have associated values between 0–2 points to the described sub-questions, then proceeded to sum up the scores of the sub-questions for the individual groups of characteristics.¹⁴

The individual credit incentive programs can theoretically be assigned one score each in the intensity-targeting two-dimensional space, based on the scores given to the characteristic groups of targeting and intensity. In practice, however, it is more appropriate simply to place the individual programs inside the coordinate system since:

- we assumed that the significance of the individual sub-questions and sub-indices matches, i.e. we ignored the fact that certain characteristics may be more important than others;
- the rating of the programs in comparison to each other within the individual countries is typically fairly obvious, but

comparing programs between countries tends to be problematic.

The individual credit incentive programs can be displayed on a graph as shown in *Figure 1*, using an intensity–targeting two-dimensional matrix.

Assumptions related to the development of credit incentive programs

In addition to evaluating the individual programs, our analysis primarily searches for answers regarding whether any developmental trend can be observed for the credit incentive programs. Our related preliminary assumptions are as follows.¹⁵

▶H1. The credit incentive program show

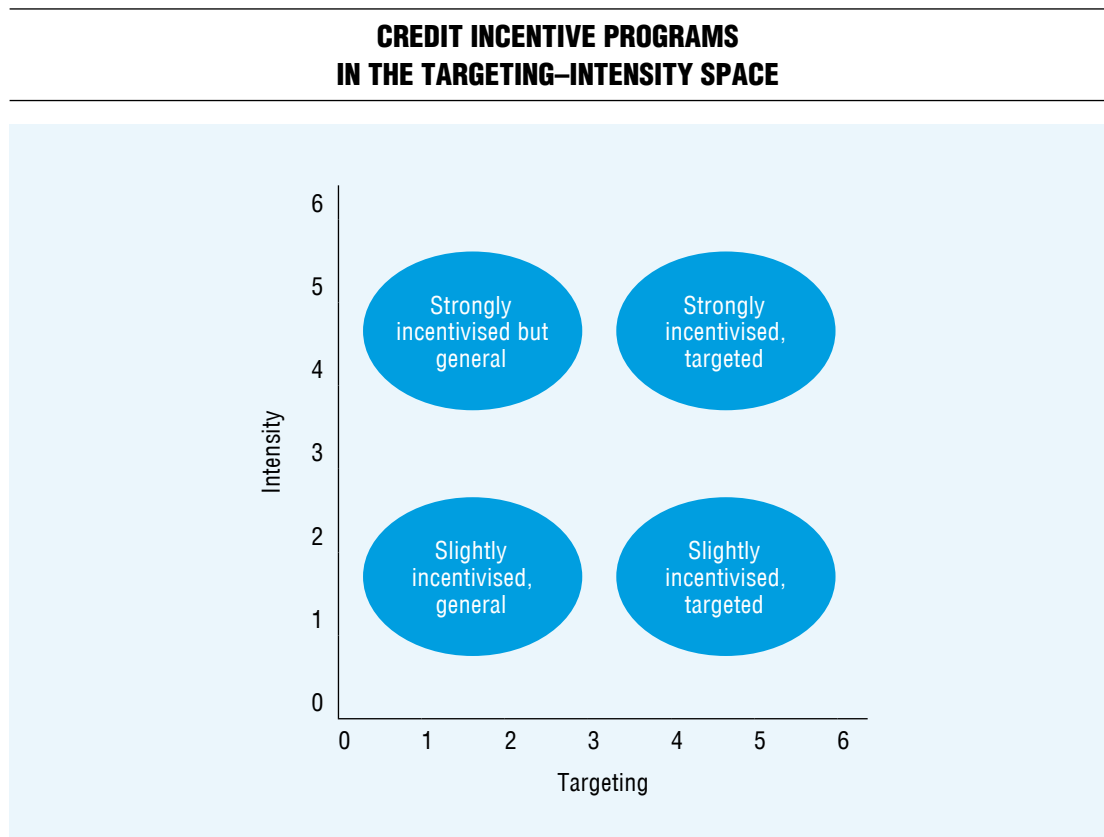
a developmental trend not primarily with regards to size, but in terms of targeting and/or intensity (incentivising force).

▶H2. There is a positive relationship between the intensity (incentivising force) and targeting of the credit incentive programs, i.e. typically they change in the same direction.

▶H3. As regards the individual central bank programs, typically, a shift from less targeted and poorly incentivised programs toward more targeted, higher-intensity programs was evident.

If our assumptions are valid, then having placed the individual credit incentive programs into the intensity–targeting space, *Figure 2* should show the programs introduced earlier ending up closer to the left lower corner of the coordinate system.

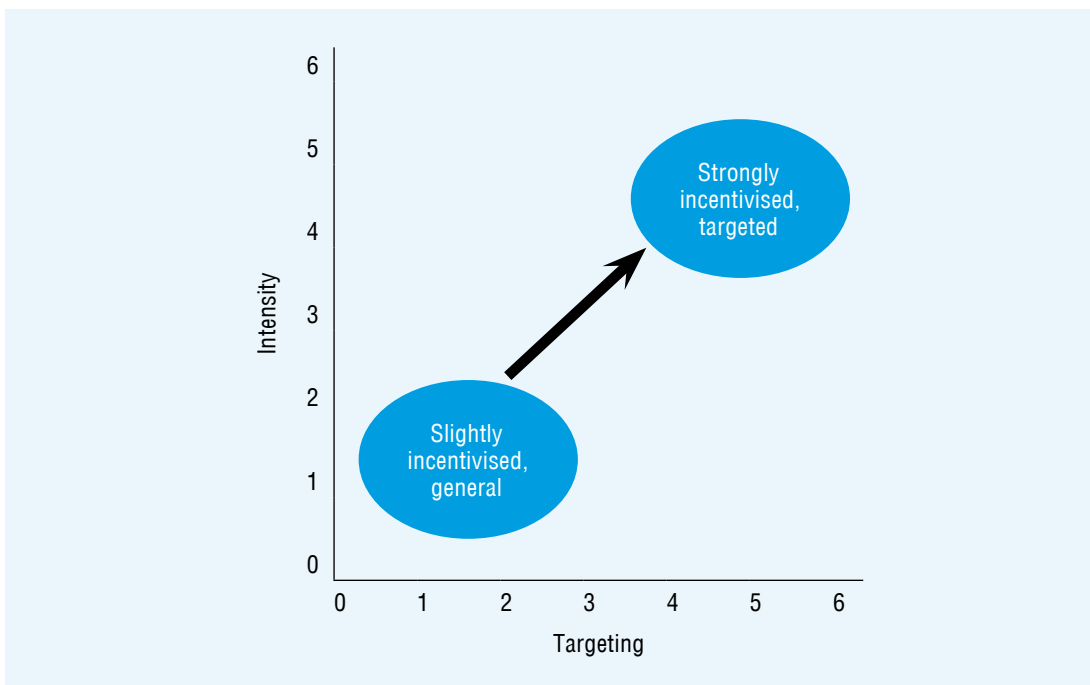
Figure 1



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Figure 2

ASSUMED DEVELOPMENT OF THE CREDIT INCENTIVE PROGRAMS



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ANALYSIS OF THE CENTRAL BANK CREDIT INCENTIVE PROGRAMS

In our analysis, we will review the most significant international and domestic credit incentive programs of central banks. We have divided the programs into two groups, and we will proceed to analyse the international and Hungarian credit incentive programs separately. In addition to the programs introduced as a response to the economic crisis that broke out in 2007–2008, we will also include a credit incentive program introduced before the crisis, as a sort of “control program”.

We have rated the individual programs based on the product information (document analysis), also taking the program’s size as a ratio of GDP into consideration. We will not describe the individual credit incentive programs in detail, the details are available based

on their product information, conditions and the list of references. We will display the results in a table format.

Analysis of the international central bank credit incentive programs

Of the international programs, we have evaluated central bank credit incentive programs in South Korea, England, the Eurozone, Japan and Argentine.

Evaluated credit incentive programs

The aggregate credit ceiling program of the South Korean central bank

The aggregate credit ceiling program of the South Korean central bank (*Bank Intermediated Loan Facility*) was introduced in 1994. This program involves the central bank providing

a discounted credit line for credit institutions, for the purpose of managing the banks' lending activity. The quotas for the individual financial institutions are typically distributed according to their performance in the financing of SMEs operating in the trade financing and creative technological industries. The interest rate of the program is lower than the prime rate in order to strengthen the allocation of funds provided by banks to the SME sector and to sectors supporting growth. The credit program is a monetary policy tool which, together with other state-run programs (state guarantee program), intends to channel bank lending to growth sectors in a targeted way.

■ *Credit incentive programs of the Bank of England*
 Since the outbreak of the crisis, in 2012 the Bank of England introduced a scheme which, in addition to a prime rate cut and a high volume of asset purchases, attempted to narrow its target to incentivise an increase in corporate lending, with an increased focus on SME lending later on. The Funding for Lending Scheme (FLS) approved in 2012 was a novelty in the sense that it tied the quantity and price of available funds to lending performance. The program was expanded in April 2013: after expanding available credit stock towards SMEs, the central bank's funds can be utilised with an increased (10x) multiplier.¹⁶ In August 2016, the Bank of England introduced a new program named the "Term Funding Scheme" (TFS). The amount of available funds was essentially defined as 5 percent of starting credit stock for both programs, supplementing it with the level of credit stock growth seen during the reference period.

■ *Credit incentive programs of the European Central Bank*
 The European Central Bank opted to introduce a longer-term refinancing operation (LTRO) in December 2011 in order to incentivise bank

lending and to ensure the necessary liquidity.¹⁷ *The term of the loans was 36 months. The interest rate was the average of the key interest rate (MRO) for the time period in question. The ECB announced the implementation of a targeted longer-term refinancing operation (TLTRO) in June 2014. Within the framework of the 4-year instrument, banks were entitled to an amount of credit equalling 7 percent of their credit stock. The credit stock used for the calculation only included credits provided to non-financial sectors, with the exception of retail property loans. The interest rate of the TLTROs was fixed at the MRO at the time of the transaction, applicable to the whole term. Banks had to undertake obligations with respect to the development of their total credit portfolio, and if they failed to fulfill these commitments, they had to repay the loans prior to maturity. Additionally, banks could receive further refinancing up to triple the net lending provided by them, on a quarterly basis. In the summer of 2016, the ECH launched a new program (TLTRO II) using 4-year terms for credit. The interest rate for credit depends on the bank's lending activity, and may even fall to the level of the ECB's deposit interest rate. The amount of the TLTRO II is 30 percent of the dedicated credit portfolio.*

■ *Credit incentive programs of the Bank of Japan*
 The funds for the first round of the Japanese Central Bank's Growth Supporting Funding Facilities could be spent on 18 goals to support growth. The fixed interest rate of the central bank funding was more favourable than that of the market. Between 2010 and 2017, nearly one third of the funds was allocated to the energy industry. Through its Stimulating Bank Lending Facility program, launched in 2012, it provides funds for financial institutions at favourable interest rates. The program allows for drawing funds up to double a given institution's loan portfolio growth for the previous year. The goal of the program is the

general incentivisation of lending, and the support of economic growth.

■ *Credit incentive programs of the Argentinean central bank*¹⁸

The first credit program of the Argentinean central bank was launched in June 2010, and provided discounted funds for strategically important, productive industries. The interest rate of the loans disbursed within the framework of the Bicentenary Productive Financing Program (BPPF) is more favourable than general market conditions. The creditworthiness of any company applying was assessed by a state office in the case of all applying companies, attempting to determine whether the goals of a given project or company were macroeconomically important. The other credit incentive program of the Argentinean central bank was the Credit Line for Productive Investment (CLPI) which was launched in the summer of 2012, and lasted until the first half of 2016.¹⁹ *Upon the launching of the program, it was stipulated that at least half of the loans should be provided to small- and medium-sized enterprises, with the program increasing lending for the SME sector even further in later phases.*

Rating the credit incentive programs of international central banks

We evaluated the described programs based on the methodology and sub-questions shown in the first half of the study, using our targeting-and-intensity framework. The partial index values of the individual programs are included in *Table 1*.

Analysis of the credit incentive programs of Hungarian central banks

Out of the credit incentive programs of the National Bank of Hungary, we have chosen the two-year loan operation and the Funding

for Growth Scheme and the Market-Based Lending Scheme to evaluate.

Evaluated credit incentive programs

■ *Two-year loan of the National Bank of Hungary*

In order to subsidize SME lending, the National Bank of Hungary introduced a two-year credit operation as part of a package of measures in March 2012. Its interest rate was the prime rate during the term of the loan. The banks undertook that their corporate loan stock would not fall below the reference value during the term of the loan. At first, the National Bank of Hungary announced the tender without any quantitative limits, but from September 2013 it stipulated the maximum extent of the bank's participation (50 percent of the corrected corporate loan stock). In the case of default, the bank was obliged to pay a surcharge. The surcharge totalled 50 basis points, increasing by a further 50 basis points for every 1 percentage point decrease in the corporate loan portfolio (to a maximum of 250 basis points). The National Bank of Hungary suspended the scheme in April 2013.

■ *Funding for Growth Scheme*

In 2012, the Hungarian SME credit market was on the brink of a credit crunch. Within the framework of its Funding for Growth Scheme (FGS) launched in June 2013, the National Bank of Hungary provided refinancing loans for commercial banks with 0 percent interest rates, which could only be used for lending to small and medium-sized companies under a fixed, maximum 2.5 percent interest margin, with a maximum term of 10 years. Under these favourable conditions, the credit program could only be used for the credit objectives and activities determined in the program's product information. The details of the offered conditions were continually fine-tuned, the range of activities eligible for

Table 1

PARTIAL TARGETING AND INTENSITY VALUES OF THE CREDIT INCENTIVE PROGRAMS OF INTERNATIONAL CENTRAL BANKS

	Bank of Korea - Bank Intermediated Loan Facility	Bank of England - Funding for Lending Scheme (FLS)	Bank of England - Funding for Lending Scheme 2 (FLS2)	Bank of England - Term Funding Scheme (TFS)	ECB - Longer-term refinancing operations (3-year LTRO)
	1994	2012	2014	2016	2011
TARGETING	1	2	4	2	0
To what is the lending problem to be managed limited? How focused is it?	Generally limited goals which can be modified in a flexible fashion	The goal is to increase household and corporate lending	The goal is to increase corporate, especially SME lending	The goal is to lend to the corporate and household sectors at lower interest rates	The goal of the operation is to incentivise lending
To what extent does the program ensure that favourable conditions are passed on to the companies?	0	0	0	0	0
Does the program directly incentivise the growth of the targeted credit stock, and does the maximum quantity of utilisation depend on said growth?	No	Yes, and the quantity of funds is proportionate to said growth	Yes, and the quantity of funds is proportionate to said growth	Yes, and the quantity of funds is proportionate to said growth	No
How sophisticated is the program's design in order to improve targeting? Is it connected to other implements with the same goal, but different characteristics?	Simple	Simple	Simple	Simple	Simple
INTENSITY	2	3	4	4	3
Are there sanctions if the conditions for use are not met, and how strict are they?	None, not relevant	Interest rate penalty	Interest rate penalty	Interest rate penalty	None, not relevant
Are the conditions more favourable than market conditions, and with respect to how many criteria?	Favourable interest rate	Favourable interest rate	Favourable interest rate, increased options for utilisation	Favourable interest rate, which may even fall to the deposit interest rate	Favourable interest rate
What volume is available for banks (GDP%)?	~1,5%	~2,1%	~1,8%	~3,8%	>10%

Continue Table 1

	EKB – Targeted longer-term refinancing operations I. (TLTRO I.)	EKB – Targeted longer-term refinancing operations II. (TLTRO II.)	Bank of Japan – Growth Supporting Funding Facilities	Bank of Japan – Stimulating Bank Lending Facility	Bank of Argentina Bicentenary Producti Financing Program (BFPF)	Bank of Argentina – Credit Line for Productive Investment (CLPI)
	2014	2016	2010	2012	2010	2012
TARGETING	3	3	2	3	2	5
To what is the lending problem to be managed limited? How focused is it?	The goal is to increase the credit available for the non-financial sphere, with the exception of retail	The goal is to increase the credit available for the non-financial sphere, with the exception of retail	18 goals for supporting growth	General credit incentives	Individual assessment of companies	Loan purpose, stipulation regarding quantity and SME criteria
To what extent does the program ensure that favourable conditions are passed on to the companies?	2	0	0	0	0	0
Does the program directly incentivise the growth of the targeted credit stock, and does the maximum quantity of utilisation depend on said growth?	It does not require it	It does not require it	It does not require it	It does not require it	It does not require it	It does not require it
How sophisticated is the program's design in order to improve targeting? Is it connected to other implements with the same goal, but different characteristics?	1	1	0	2	No	0
	Yes, but the maximum utilisation does not depend on it	Yes, but the maximum utilisation does not depend on it	No	Tried to credit portfolio increase	No	Specific requirement in terms of volume
	Simple	Simple	1	Sophisticated	1	Sophisticated
INTENSITY	4	5	2	3	2	3
Are there sanctions if the conditions for use are not met, and how strict are they?	1	1	0	0	0	0
Are the conditions more favourable than market conditions, and with respect to how many criteria?	Yes, but soft	Yes, but soft	None, not relevant	None, not relevant	None, not relevant	None, not relevant
What volume is available for banks (GDP%)?	2	2	1	1	2	2
	Favourable and fixed interest rates	Favourable and fixed interest rate, which may even fall to the deposit interest rate	Favourable interest rate	Favourable interest rate	More favourable and fixed interest rate	Favourable and fixed interest rates
	~2%	~9%	~3%	~8%	~1%	~3%

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financing was expanded, and increasing focus was placed on the project loans most suitable for supporting economic growth.²⁰

■ *The Market-Based Lending Scheme*

Gradually phasing out the FGS, in October 2015, the National Bank of Hungary, opted to implement the Market-Based Lending Scheme (MBLS), to support market-based lending to SMEs. Banks could cover their interest rate risk by using interest rate swap implements (HIRS) at more favourable terms than general market conditions, or, as a supplementary tool, banks' liquidity management was also assisted through a preferential deposit placement opportunity. For this program, banks could undertake the lending of SMEs specifying the net amounts. In the case of a default, the National Bank of Hungary would recover a proportional part of the bank's realised excess income in the form of a sanction. If the default rate exceeded 50 percent, the bank would also be excluded from the program. The second phase of the MBLS started in the summer of 2017, enabling banks to further increase their lending.

Rating the credit incentive programs of the Hungarian central bank

We evaluated the Hungarian programs based on the methodology and sub-questions shown in the first half of the study, using our targeting-and-intensity framework. The partial index values for the individual programs are included in *Table 2*.

Central bank credit incentive programs in the targeting–intensity space

After rating the programs, we will proceed to place the analysed credit incentive programs in the targeting–intensity space. Due to the small number of samples, a truly robust

econometric analysis could not be performed, thus we evaluated the assumptions shown at the beginning of our study through graphical analysis. This graphical evaluation can be considered as the first analytical approach. A deeper understanding of the development of the credit incentive programs requires further sophisticated analyses.

1 We have reviewed which characteristics of the programs (targeting, intensity and volume), show a clear, trend-like development in any direction when placed in chronological order. No trend is visible in terms of program volume. While this may potentially be caused by the fact that every year, programs for different countries are added to the database, that is not the case here, because there is no clear direction in evidence even when comparing the credit incentive programs of individual countries. For example, the ECB's 2011 LTRO program comprised 10 percent of GDP, TLTRO I was one-fifth of that, then TLTRO II was again almost of the same volume as the first program. The programs of the National Bank of Hungary also do fail to confirm any tangible development in credit incentive programs with respect to volume. The two-year credit was a relatively small program that was followed by the FGS, which represented 8 percent of GDP, finally followed by the MBLS, which was smaller in volume than the FGS. All this would mean that according to our data, volume is not a parameter which has recently clearly shown any type of trend as pertaining to credit incentive programs (*Figure 3*).

There is, however, a marked trend in targeting and intensity (*Figure 4*).

Figures 3 and 4 show that the primary development in central bank credit incentive programs after the crisis was in their intensity. Although their targeting also improved, the trend there is less clear. This suggests that central banks saw the key to solving the lend-

Table 2

PARTIAL TARGETING AND INTENSITY VALUES OF THE CREDIT INCENTIVE PROGRAMS OF HUNGARIAN CENTRAL BANKS

	Two-year loan		Funding for Growth Scheme (FGS)		Market-Based Lending Scheme (MBLS)	
	2012		2013		2015	
TARGETING	2		6		6	
To what is the lending problem to be managed limited? How focused is it?	The National Bank of Hungary introduced the scheme in order to subsidize corporate lending. Medium level of focus	1	The goal is to incentivise SME lending. Focused.	2	The National Bank of Hungary introduced the schemes in order to subsidize SME lending. Focused.	2
To what extent does the program ensure that favourable conditions are passed on to the companies?	It does not require it	0	Required	2	It does not require it	0
Does the program directly incentivise the growth of the targeted credit stock, and does the maximum quantity of utilisation depend on said growth?	The defined credit portfolio must be stabilised.	1	The growth of the portfolio is only indirectly affected, through the favourable conditions	0	Yes, with proportional utilisation	2
How sophisticated is the program's design in order to improve targeting?	Simple	0	Highly sophisticated	2	Sophisticated, and connected to other types of implements	2
INTENSITY	2		6		5	
How strict are sanctions if the conditions for use are not met?	Medium strictness	1	Strict (with penalty interest rates)	2	Strict	2
Are the conditions more favourable than market conditions, and with respect to how many criteria?	Regarding interest rates, The National Bank of Hungary will assume the maturity premium, but interest rates are not fixed	1	Yes (term, fixed, interest rate level)	2	Substantively more favourable with regards to both the HIRS and the preferential deposit	2
What volume is available for banks (GDP%)?	<1%	0	~8%	2	~4%	1

Source: own editing

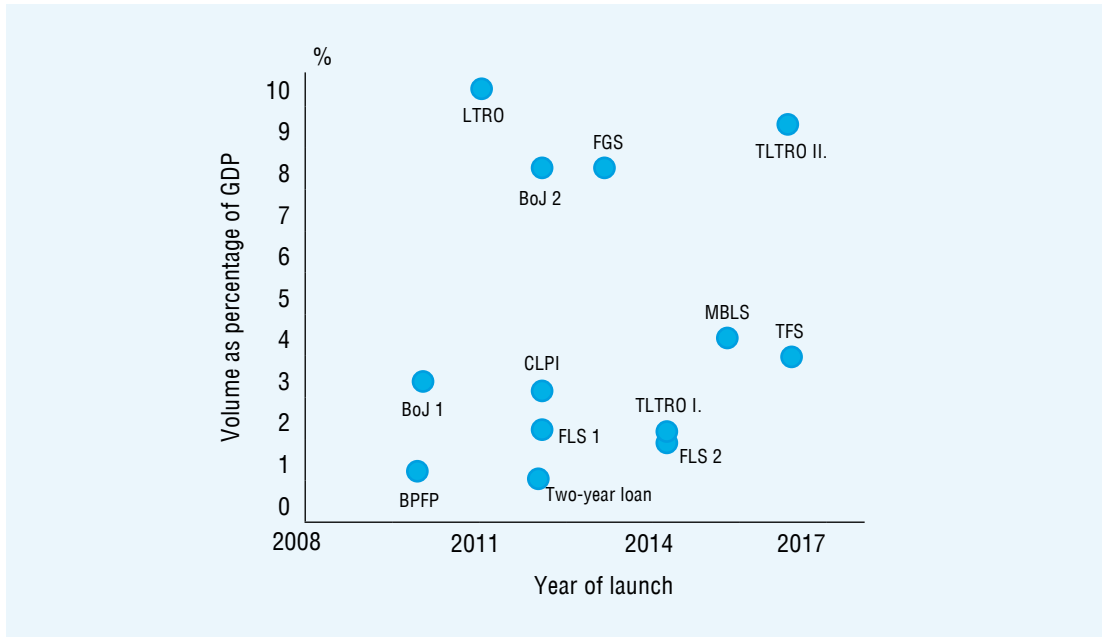
ing problems primarily in stronger incentives, and generally had less faith in the efficacy of continuous improvements in targeting. This might be related to the fact that the credit incentive programs fulfilled monetary policy functions in a number of cases (particularly in the case of the TLTRO II and TFS programs), with their generality being, in fact, one of their primary characteristics. As per the above, the credit incentive programs became increasingly targeted and their incentivising force showed even more marked improvement, while there

no clear trend was evident in terms of their volume (H1).

2 Next, we have placed the reviewed programs in the targeting-intensity space (*Figure 5*). When comparing program values, a statistical connection can be seen between intensity and targeting. A significant correlation can be observed between the two variables, in excess of 70 percent. Thus, it appears to be true that typically, the more precisely targeted a program is, the greater its incentivising power.

Figure 3

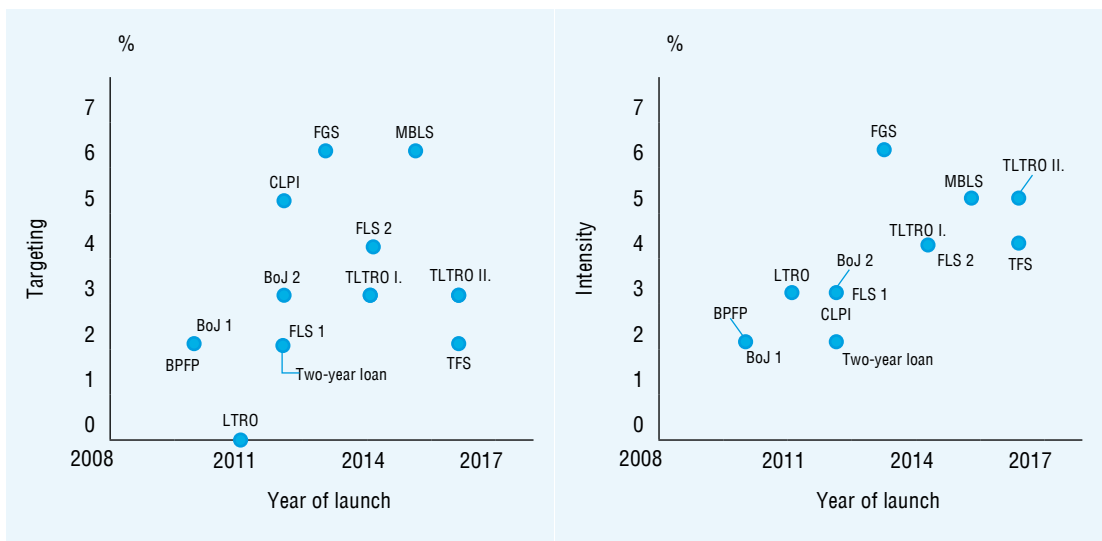
LAUNCH YEAR AND VOLUME FOR CREDIT INCENTIVE PROGRAMS



Source: own editing

Figure 4

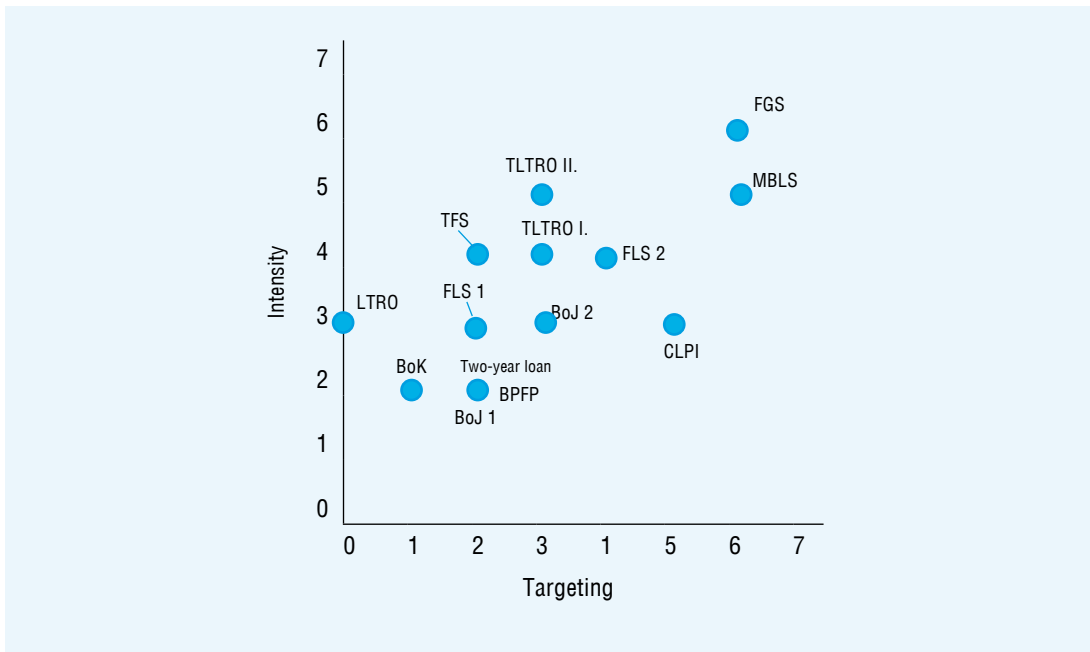
LAUNCH YEAR, TARGETING AND INTENSITY FOR CREDIT INCENTIVE PROGRAMS



Source: own editing

Figure 5

TARGETING AND INTENSITY VALUES OF CREDIT INCENTIVE PROGRAMS



Source: own editing

Based on the above, therefore, the intensity and incentivising force of the program typically increased along with its level of targeting (H2). Based on the chart, we can assess that the targeted credit incentive measures and programs of the National Bank of Hungary introduced after 2013 (FGS, MBLS) can be considered as highly targeted on an international level, and their incentivising power is also strong.

3 We have reviewed whether any time gaps or trends can be identified for credit incentive programs as illustrated in the targeting-intensity space. We have performed our review of domestic and international programs separately (Figure 6). For both reviewed groups, we were able to establish that the “first-round” programs approved in the 2–4 years following the outbreak of the global crisis were typically

less targeted, and their incentivising power was significantly lower than those of the “second-round” programs launched after 2012–2013.

In addition to general trends, it is also worth reviewing the program trends on a per-nation basis (Figure 7). Based on the individual data, it is evident in the case of the ECB, the Bank of Japan, the Bank of Argentina and also the National Bank of Hungary that the first-round credit incentive programs were less targeted and lower-intensity than the second- and third-round programs. The Bank of England does not fully match this trend, because while compared to the first phase of the *Funding for Lending* program, the incentivising power of the second phase was stronger and more targeted, the *Term Funding Scheme* introduced in 2016 was a step-back in terms of targeting (although not in intensity). The analysis of this specific case is beyond the

TARGETING AND INTENSITY TRENDS OF CREDIT INCENTIVE PROGRAMS



Source: own editing

limits of our study, but it should certainly be noted that this program, which is primarily an item of monetary policy, was introduced by the Bank of England as part of an announced package in order to mitigate the effects of the referendum held regarding Brexit. A deeper analysis of individual trends could be the topic of an independent study, which would primarily start with analysing the nature and persistence of the crisis of the given country.

In the aggregate, we can observe a general trend from the reviewed examples based on which – excluding certain individual differences – central bank credit incentives typically show a shift from less targeted and poorly incentivised programs toward more targeted, higher-intensity programs. This trend was evident both in Hungary and internationally (H3).

CONCLUSIONS

One of the consequences of the global financial crisis was the substantive downturn

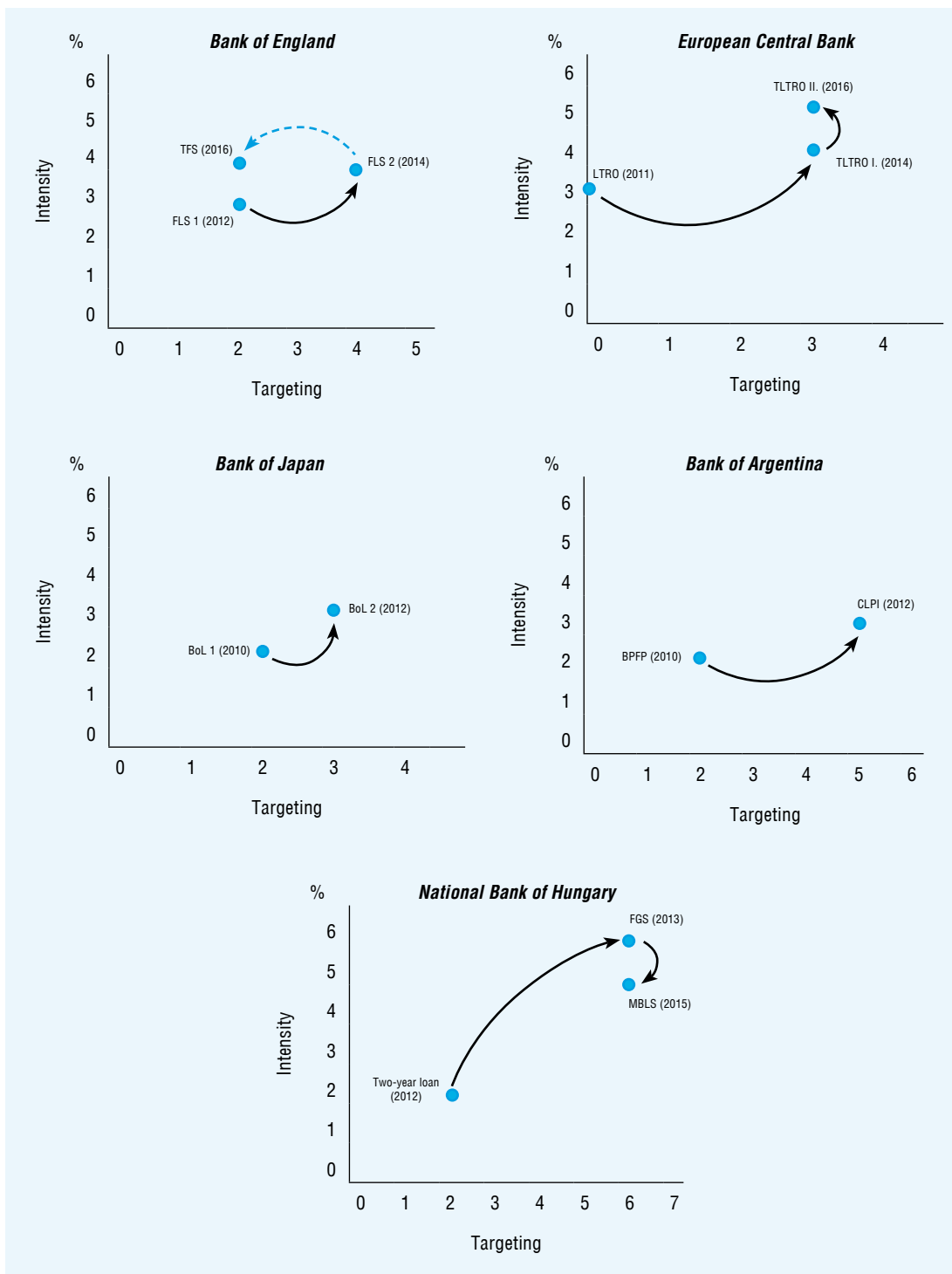
in credit market activity, which rendered state intervention necessary. Central banks typically first resorted to the toolkit available within the framework of traditional operations, but over time, a number of central banks also took non-conventional measures in order to increase the dynamism of the credit market. Out of these, our analysis focused on programs ensuring refinancing or other targeted operations under conditions favourable for commercial banks.

Our study analysed targeted credit incentive programs based on two groups of criteria, targeting and intensity (incentivising power). As the first step of our analysis, we evaluated 11 international and 3 domestic credit incentive programs along our two dimensions, and we then placed the analysed programs in the resulting targeting–intensity space. Based on the reviewed examples:

- compared to the first-round credit incentive measures, the second- and third-round programs were more targeted and had greater incentivising power, while no clear trend was evident in terms of volume;

Figure 7

TARGETING AND INTENSITY TRENDS OF CREDIT INCENTIVE PROGRAMS, BY COUNTRY



Source: own editing

- the intensity and incentivising force of the program typically increased along with its level of targeting;
- regarding credit incentives, the shift from less targeted and less highly incentivised programs towards more targeted, higher-intensity ones was typical both internationally and within Hungary;
- the Hungarian credit incentive programs

introduced after 2013 show extensive targeting and intensity levels, even on an international scale.

This analysis and the conclusions outlined herein could be further developed through empirical testing of the effectiveness and efficiency of credit incentive programs, resulting in an analysis of the evolution of programs applied by individual countries.²¹

NOTES

- ¹ The authors thank Ádám Plajner, Tamás Nagy, Zsolt Oláh, Miklós Szébeny and Gábor Horváth for their assistance in the preparation of the study.
- ² For more information on this, see: Blanchard et al. (2012), and Kolozsi (2015)
- ³ Stability and sustainability in monetary policy: Mitigation of information asymmetry in the practice of the central bank, see: Parragh (2017)
- ⁴ See: Giday (2012)
- ⁵ A detailed theoretical overview of the potential measures for incensitivising corporate lending has been given by Fábíán – Fáykiss – Szigel (2011).
- ⁶ Felcser – Soós – Váradi analyses the impact of the Hungarian interest rate cuts (2015)
- ⁷ Macroprudential policy tools aim to cushion the cyclic behaviour of the financial system. For a summary, see: Szombati (2013).
- ⁸ Matolcsy and Palotai (2016) points to the adverse effects of foreign currency-denominated debt held by economic players, and demonstrate that this has greatly eroded the efficiency of the National Bank of Hungary's monetary transmission mechanism, because a significant portion of the loans lost its direct sensitivity to interest rates.
- ⁹ (Stiglitz, 2012).
- ¹⁰ In some cases, these types of interventions may also be seen to violate the ban on monetary financing.
- ¹¹ The role of bank lending and, as its complementary action, capital market financing in incentivising growth is presented by Banai – Horváth – Vonnák (2016), summarising the relevant literature. Based on their empirical analysis, the economic convergence of countries undergoing too rapid monetary expansion proved to be more fragile than that of the countries with only moderate levels of expansion in private lending – one possible reason primarily being the direct and indirect negative impact on growth derived from unsustainable and overenthusiastic lending.
- ¹² National Bank of Hungary (2015) or Horváth–Oláh (2016)
- ¹³ Within the European Union, the central banks have less room to manoeuvre, since monetary policy cannot be applied to help individual sectors or regions in a targeted way due to the rules for state subsidies and the ban on monetary financing (this being the purview of government programs and development banks along the lines of the current national and European development policies).
- ¹⁴ For our methodology, we took the methodology used by Balls - Howat – Stansbury (2016) as a basis.

¹⁵ Our analysis does not include an evaluation of the macroeconomic situation or economic specifics of the national economy applying the credit incentive program in question.

¹⁶ Havrylchuk (2016)

¹⁷ Csutiné – Lehmann – Mérő Balázs (2017)

¹⁸ Banai – Méhes – Winkler (2015)

¹⁹ From 2015, named “Financing Line for Production and Financial Inclusion”.

²⁰ The short-term goal upon launching of the FGS was to mitigate credit market limits and stimulate competition. Additionally, the FGS revived enterprise-side credit demand, and turned the attention

of credit institutions to the small- and medium-sized corporate sector, which also served to incentivise increased competition for maintaining and acquiring clients. For further details, see: Lentner (2016).

²¹ Our analysis is indirectly related to the evolution of a new monetary theory which, instead of ignoring the role of banks in economic models (Christiano et al., 2010) or assigning them to the role of financial mediators, focuses more on the role of the banking system in money supply, including its capacity to generate money (see particularly: Ábel et al., 2016; Jakab – Kumhof 2015). The analysis of targeted credit incentive programs can be expanded with further characteristics within such a theoretical monetary framework supplemented with an endogenous monetary perspective.

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