

The impact of TLTROs on banks' lending policies: the role of competition

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Abstract

This article assesses the impact of the targeted longer-term refinancing operations (TLTROs) of the European Central Bank (ECB) on the credit supply of the euro area banks. An empirical approach is used that permits distinction between the direct and indirect effects of the TLTROs. The direct effects are that banks participating in the TLTROs increase their credit supply thanks to the lower costs prompted by these refinancing operations. The indirect effects stem from the changes that the TLTROs produce in the competition between banks in the loan and deposit markets and which also affect banks that do not participate directly in the programme, albeit in principle with an ambiguous sign. Taking a sample of 130 banks from 13 countries and their confidential replies to the ECB Bank Lending Survey, it is found that the TLTROs played a direct part in reducing the margins on lower risk loans and easing credit standards in the large enterprises segment. As regards the indirect effects, it is observed that the TLTROs also eased credit standards at non-participating banks, primarily at banks exposed to high competitive pressure, so it appears that the TLTROs increased the supply of bank credit through the indirect channel also.

Keywords: non-standard monetary policy, TLTROs, lending policies, competition.

JEL codes: G21, E52, E58.

THE IMPACT OF TLTROs ON BANKS' LENDING POLICIES: THE ROLE OF COMPETITION

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Introduction

Since the global financial crisis that began in 2008, the principal central banks have implemented numerous non-standard monetary policy measures to prevent a credit crunch, stimulate aggregate demand and boost inflation. In the euro area, these measures included: liquidity provision through fixed-rate full-allotment tender procedures; extending the term of the refinancing operations; broadening the pool of eligible collateral in these operations; large-scale public and private asset purchases; negative interest rates; and forward guidance.

The article summarises the paper authored by Andreeva and García-Posada (2019),¹ which aims to assess the impact that one of these non-standard measures implemented by the ECB – the targeted longer-term refinancing operations (TLTROs) – had on the lending policies of the euro area banks. The first TLTROs were announced in June 2014, against a backdrop of slow economic growth, low inflation expectations and weak monetary and credit dynamics in the euro area. Unlike their predecessors, the VLTROs,² the TLTROs provided financing for periods of up to four years and were expressly designed to boost lending to the private sector of the economy.

Specifically assessed in the article are the direct effect that these measures had on the lending policies of banks that participated in the TLTROs, and the indirect effect they had on banks which, although not direct participants, were exposed to competitive changes in the credit and funding markets as a result of these operations.

Institutional framework

The ECB announced its first TLTRO programme (TLTRO I) on 5 June 2014. The programme was conducted through eight operations, organised quarterly between September 2014 and June 2016, open to all institutions eligible for Eurosystem refinancing operations.

All eight TLTRO I operations matured in September 2018, although voluntary early repayment was allowed 24 months after the start of each TLTRO. The interest rate applied was the rate on the main refinancing operations (MROs) at the time of take-up, plus a spread of 10 basis points (10 bp) in the case of the first two TLTROs.

The credit institutions participating in the TLTROs were subject to borrowing limits. In the first two operations – September and December 2014 (initial TLTRO I) – banks could not borrow in total more than an amount equivalent to 7% of their eligible loans at 30 April 2014. Eligible loans are all loans to the non-financial private sector, excluding loans to households for house purchase. In the other six operations, between March 2015 and June 2016 (additional TLTRO I), banks could not borrow more than three times the difference between the net flow of eligible loans³ since 30 April 2014 and a specific

¹ D. Andreeva and M. García-Posada (2019), "The impact of the ECB's targeted long-term refinancing operations on banks' lending policies: the role of competition", Banco de España Working Paper 1903.

² Very long-term refinancing operations, which had a term of three years, conducted between December 2011 and February 2012.

³ The net flow of eligible loans is the difference between new eligible loans and repayments of existing loans over a certain period of time.

benchmark for each bank. If a bank borrowed funds under the TLTROs, but its subsequent lending was not sufficiently dynamic to reach the benchmark, it had to repay, in September 2016, all the amounts received.

Participation in the programme was very high. Euro area banks borrowed €212 billion in the two initial TLTROs and €220 billion in the six additional TLTROs. Thus, in the initial TLTROs, 80% of the participating banks borrowed at least 90% of the maximum sum to which they were entitled.

A second TLTRO programme (TLTRO II) was announced on 10 March 2016 and was conducted between June 2016 and March 2017, also on a quarterly basis. The paper summarised in this article focuses exclusively on the effect of the TLTRO I on banks' lending policies, measured through credit standards and the margins applied by banks.⁴

Theoretical framework: direct and indirect effects

To guide their empirical research, Andreeva and García-Posada (2019) develop an extension of the Monti-Klein model of oligopolistic competition in the banking sector in which it is considered that banks compete in the loan and deposit markets. It is also assumed that some but not all banks participate in the TLTROs.

In this model, the introduction of the TLTROs has direct effects on the participating banks and indirect effects on the non-participating banks. Regarding the direct effects, the model predicts that a participating bank's lower funding costs as a result of the TLTROs increase its credit supply. As to the indirect effects, the model identifies two opposite impacts. On the one hand, competition in the credit market intensifies. By reducing the funding costs of the participating banks, the TLTROs allow them to compete more aggressively in the market, granting more loans at lower interest rates. Given that banks' loans are substitutes, growth in participating banks' credit supply would, in principle, lead to a contraction in non-participating banks' credit supply. On the other hand, competition in the deposit market weakens, because participating banks replace a portion of their deposits with TLTRO funds. Their lower deposit demand drives down deposit market rates and this translates into lower funding costs for non-participating banks also. This positive externality of the TLTROs on non-participating banks would prompt an increase in their credit supply. Accordingly, the net indirect effect is ambiguous and needs to be assessed empirically.

For the sake of simplicity, the theoretical model summarised here examines only the deposit market, but it should be noted that the TLTROs might also generate positive externalities in other funding markets. For example, given that the TLTROs allow participating banks to borrow from the Eurosystem rather than from the wholesale markets, they could give rise to a drop in the supply of bank bonds. In turn, a scarcity of these instruments should give rise to a lower yield, which would also benefit non-participating banks.

Empirical analysis: direct effects

The analysis presented below is based on the replies to the BLS, on the individual balance sheet items (IBSI) database and on the information on participation in operations with the ECB of a sample of 130 credit institutions from 13 euro area countries. The study covers the period from 2014 Q2 to 2017 Q4.

⁴ According to the ECB Bank Lending Survey (BLS), credit standards are the guidelines or internal criteria that reflect a bank's lending policy, and margins on loans should be understood as the spread between the bank lending rate and a benchmark market rate (such as EURIBOR).

The aim, in particular, is to determine whether or not the TLTROs alter banks' lending policies, in terms of their credit standards or margins on loans to non-financial corporations. In this respect, each quarter the BLS asks banks how their credit standards for new loans and their margins on new loans have changed. Banks have to indicate whether they have tightened, barely changed or eased their credit standards in the last three months. In the case of margins, the BLS distinguishes between average and riskier loans. Banks have to indicate whether they have tightened (widened), barely changed or eased (narrowed) their margins in the last three months.

To measure the extent of each bank's use of the TLTROs, and thus be able to estimate the direct effect of these operations, the ratio of each bank's take-up in the initial TLTROs⁵ to its total assets ("TLTRO bank" variable) is calculated. To proxy the scale of the indirect effect, the ratio of the total take-up of each bank's domestic market competitors to their total assets ("TLTRO country" variable)⁶ is calculated.

The variable that measures the level of participation in the TLTRO programme – "TLTRO bank" – is highly heterogeneous: it takes the value 0 for some 50% of the observations (i.e. of the 130 banks in the sample, approximately half did not participate in the initial TLTROs), and ranges between 0.1% and 5% for the other 50% (participating banks). Accordingly, this variable allows a distinction to be drawn between the direct effect of the TLTROs on the extensive margin (participation or non-participation in the TLTROs) and also on the intensive margin (amount borrowed by participating banks).

Table 1 shows the quantitative findings of this analysis. Table 1.1 depicts the extensive margin by means of regressions of credit standards and margins on a variable (participation) that takes the value 1 if a bank participated in the initial TLTROs and 0 if it did not. Table 1.2 depicts the intensive margin by means of regressions of credit standards and margins on the "TLTRO bank" variable for the subsample of banks that participated in the initial TLTROs.

As Table 1.1 shows, there is no appreciable difference between the lending policies of the participating and the non-participating banks. In other words, the mere fact of participating in the TLTROs, without taking into account the amount borrowed, has no impact on banks' lending policies.

By contrast, in the case of the intensive margin (see Table 1.2), limiting the analysis to participating banks, the effect of the "TLTRO bank" variable is positive and significant in columns (3) and (4). This suggests that the higher the amount borrowed, the higher the probability that credit standards for large enterprises will ease and that margins on average loans to enterprises in general will narrow. The scale of these effects is considerable: an increase of 1 percentage point (1 pp) in the "TLTRO bank" variable increases the probability of easing of credit standards for large enterprises by 7.2 pp and of narrowing of margins on average loans by 11.6 pp. However, no significant effects are observed on overall credit standards, on credit standards for small enterprises or on margins on riskier loans.

These findings suggest that, for participating banks, the lower funding costs owing to the TLTROs were passed through to the real economy through easing of credit standards for large enterprises and lower margins on relatively safe loans.

5 If take-up in all the TLTROs, rather than just the first two, is used, the findings are similar. The decision to use only the first two TLTROs is for methodological reasons. See Andreeva and García-Posada (2019), *op. cit.*, for more details.

6 For more information on the methodology, see Andreeva and García-Posada (2019), *op. cit.*

Table 1.1 shows the effect of the "participation" variable and Table 1.2 the effect of the "TLTRO bank" variable. Table 1.1 includes all the banks in the sample, and Table 1.2 all the banks in the sample that participated in the TLTROS. For more details, see Andreeva and García-Posada (2019), *op. cit.*

1 TLTROS: EXTENSIVE MARGIN

Change in probability of easing of credit standards and of margins on loans owing to participation in TLTROS

Dependent variables (a)	(1) Overall credit standards	(2) Credit standards for SMEs	(3) Credit standards for large enterprises	(4) Margins on average loans	(5) Margins on riskier loans
Participation	NS	NS	NS	NS	NS

2 TLTROS: INTENSIVE MARGIN

Change in probability of easing of credit standards and of margins on loans when participating banks increase their borrowing

Dependent variables (a)	(1) Overall credit standards	(2) Credit standards for SMEs	(3) Credit standards for large enterprises	(4) Margins on average loans	(5) Margins on riskier loans
1 pp increase in "TLTRO bank"	NS	NS	7.2 pp	11.6 pp	NS

SOURCE: ECB.

NOTE: NS = non-significant effect.

a The dependent variables take the value 1 (easing) and 0 (no change or tightening).

Empirical analysis: indirect effects and the role of competition

The aim in this section is to elucidate the scale and sign of the indirect effects stemming from the impact of the TLTROS on the degree of competition between banks in the credit and funding markets. The corresponding estimates (see Table 2) show clear evidence of indirect effects, as the impact of the "TLTRO country" variable is significant in columns (1), (2) and (3).⁷ Moreover, the scale of these effects is considerable. For instance, with an increase of 1 pp in the "TLTRO country" variable, the probability that a bank (whether or not it participated in the TLTROS) will ease its overall credit standards increases by 7.6 pp, the probability that it will ease its credit standards for large enterprises increases by 12.6 pp and the probability that it will ease its credit standards for SMEs increases by 6.6 pp. By contrast, the "TLTRO country" variable has no significant effect on margins on average loans (see column (4)) or on margins on riskier loans (see column (5)). Accordingly, the results presented to date suggest that the TLTROS also helped to ease the credit supply of non-participating banks, or in other words, that the effect associated with better access to funding markets more than offset that associated with the loss of competitiveness vis-à-vis the other credit market participants.

The following robustness analysis aims to isolate the indirect effect of the TLTROS on non-participating banks through their externalities in the funding markets. In other words, to analyse how participating banks' lower deposit demand translates into lower deposit market rates and, therefore, into better funding costs for non-participating banks also. For this purpose an additional explanatory variable is included that proxies the intensity of competition in credit markets, as reported by the banks responding to the BLS. The survey specifically asks banks about the changes in various factors that affect their credit standards, and about the factors that shape the terms and conditions applied, including

⁷ In all estimates of the indirect effect we control for the "TLTRO bank" variable in order to avoid omitted-variable bias.

INDIRECT EFFECTS OF TLTROs (CHANGE IN PROBABILITY OF EASING OF CREDIT STANDARDS AND OF MARGINS ON LOANS WHEN DOMESTIC MARKET COMPETITORS INCREASE THEIR TLTRO BORROWING)

TABLE 2

The table illustrates the effect of the "TLTRO country" variable. For more details, see Andreeva and García-Posada (2019), *op. cit.*

Dependent variables (a)	(1) Overall credit standards	(2) Credit standards for SMEs	(3) Credit standards for large enterprises	(4) Margins on average loans	(5) Margins on riskier loans
1 pp increase in "TLTRO country"	7.6 pp	6.6 pp	12.6 pp	NS	NS

SOURCE: ECB.

NOTE: NS = non-significant effect.

a The dependent variables take the value 1 (easing) and 0 (no change or tightening).

POSITIVE EXTERNALITIES OF TLTROs IN FUNDING MARKETS (CHANGE IN PROBABILITY OF EASING OF CREDIT STANDARDS AND OF MARGINS ON LOANS WHEN DOMESTIC MARKET COMPETITORS INCREASE THEIR TLTRO BORROWING, TAKING INTO ACCOUNT THE DIRECT EFFECT OF COMPETITION)

TABLE 3

The table illustrates the effects of the "TLTRO country" and "competition" variables. For more details, see Andreeva and García-Posada (2019), *op. cit.*

Dependent variables (a)	(1) Overall credit standards	(2) Credit standards for SMEs	(3) Credit standards for large enterprises	(4) Margins on average loans	(5) Margins on riskier loans
1 pp increase in "TLTRO country"	9.4 pp	8.2 pp	13.1 pp	NS	NS
Competition effect = 1	8.6 pp	8.0 pp	8.8 pp	37.6 pp	9.5 pp

SOURCE: ECB.

NOTE: NS = non-significant effect.

a The dependent variables take the value 1 (easing) and 0 (no change or tightening).

margins on loans. Thus, a factor may play a part in tightening, holding unchanged or easing credit standards (or terms and conditions). These various factors are grouped into four categories: cost of and access to funds, competitive pressure, risk perception and risk tolerance. In the following analysis a "competition" variable is added, which takes the value 1 if the competitive pressure factor contributed to easing the terms and conditions of loans, and a value 0 if it contributed to tightening or holding them unchanged.⁸

The results of this exercise are presented in Table 3. It should be noted, first, that the effects of the "competition" variable are positive and significant. This suggests that an increase in competition drives up the probability of easing of credit standards and of narrowing of margins. In other words, banks respond to an easing of credit standards by their competitors by increasing their credit supply so as to avoid losing market share. In addition, the "TLTRO country" effects now only capture the positive externality in the funding markets caused by the TLTROs, since the "competition" variable already captures the effect in the credit market. These effects are positive and significant when the dependent variables are overall credit standards and credit standards for SMEs and for large enterprises (columns (1), (2) and (3)). The scale of the effects is also considerable. For instance, with an increase of 1 pp in the "TLTRO country" variable, the probability that a bank will ease its overall credit standards for enterprises increases by 9.4 pp. This suggests that the TLTROs generate major positive externalities in the funding markets, given that

⁸ The findings are similar when the "competition" variable takes the value 1 if the competitive pressure factor contributed to easing credit standards and 0 if it contributed to tightening or holding them unchanged.

INDIRECT EFFECTS OF TLTROs AND COMPETITION (CHANGE IN PROBABILITY OF EASING OF CREDIT STANDARDS AND OF MARGINS ON LOANS WHEN DOMESTIC MARKET COMPETITORS INCREASE THEIR TLTRO BORROWING) TABLE 4

The table shows the effect of the "TLTRO country" variable for a sample of banks subject to high (Table 4.1) and low (Table 4.2) competitive pressure. For more details, see Andreeva and García-Posada (2019), *op. cit.*

1 HIGH COMPETITIVE PRESSURE

Dependent variables (a)	(1) Overall credit standards	(2) Credit standards for SMEs	(3) Credit standards for large enterprises	(4) Margins on average loans	(5) Margins on riskier loans
1 pp increase in "TLTRO country"	30.4 pp	39.9 pp	53.9 pp	NS	-26.8 pp

2 LOW COMPETITIVE PRESSURE

Dependent variables (a)	(1) Overall credit standards	(2) Credit standards for SMEs	(3) Credit standards for large enterprises	(4) Margins on average loans	(5) Margins on riskier loans
1 pp increase in "TLTRO country"	NS	NS	7.2 pp	11.6 pp	NS

SOURCE: ECB.

NOTE: NS = non-significant effect.

a The dependent variables take the value 1 (easing) and 0 (no change or tightening).

non-participating banks can benefit from lower competition for funding through deposits, bonds and other instruments.

A second robustness analysis (see Table 4) examines whether the indirect effects of the TLTROs are greater in more competitive environments. For this purpose the same estimation exercise as in Table 2 is made, but separating out two subsamples: one where the "competition" variable takes the value 1 (banks reporting high competitive pressure) and one where it takes the value 0 (banks reporting low competitive pressure).⁹ Table 4 shows that the indirect effects of the TLTROs on credit standards are very strong in the case of banks subject to high competitive pressure (see Table 4.1, columns (1) to (3)). For instance, with an increase of 1 pp in the "TLTRO country" variable, the probability of easing of overall credit standards increases by 30.4 pp. By contrast, these effects are not statistically significant in the case of banks subject to low competitive pressure (see Table 4.2).

To sum up, the empirical evidence available suggests that the TLTROs had important effects on financial institutions' lending policies.

The direct effects are a result of the fact that participating banks increased their credit supply thanks to the lower costs entailed by the TLTROs. The indirect effects stem from the changes caused by the TLTROs in the loan and deposit markets and which also affect non-participating banks. Thus, the TLTROs helped reduce margins on average (relatively safe) loans and ease credit standards for the large enterprises segment (direct effects), and they also prompted easing of credit standards at non-participating banks, primarily at those exposed to high competitive pressure (indirect effects).

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⁹ The findings are very similar if a single regression is estimated interacting the "TLTRO country" variable with the "competition" variable.