Cyprus Economic Policy Review, Vol. 19, No. 1, pp 56-73 (2024) 1450-4561

Credit Standards, Bank Lending and Economic Growth

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Abstract

The paper investigates the effects of credit standards and loan demand on bank lending and economic growth, as well as the timing and persistence of these effects. Using data for 19 euro area countries and a panel vector autoregression (PVAR) methodology, we find that a tightening of credit standards decreases lending growth and inflation, while it increases lending interest rates. An increase in demand for housing loans boosts lending growth across all loan categories, also having a positive effect on interest rates. On the other hand, an increase in interest rates does not appear to have any significant effects on lending standards, while it has the expected negative effects on NFC lending, GDP growth, and inflation. Finally, an increase in GDP causes only a temporary effect on bank lending standards.

Keywords: credit standards, BLS, consumer credit, non-financial corporations, housing loans, monetary policy, euro area

1. Introduction

Bank policies and actions usually have a direct influence on people's credit decisions and subsequently in overall economic development. Protecting bank stability and loan viability promotes consumer spending and confidence, new business ventures, and the capacity for businesses to grow and improve. This, however, is not always possible, especially during crises, when uncertainty is present.

For instance, before the 2008 financial crisis, optimism prevailed, with banks making risky investments with highly inflated house prices as collateral. This belief eased banks' perceptions of risk in the economy, and subsequently caused lending standards for housing loans to loosen (see Duca et al., 2011; Fishman et al., 2020; Michail, 2021). As a result of lower risk perceptions, banks lent heavily to borrowers with poor credit risk (sub-prime). These risky loans eventually

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All views and opinions expressed are strictly personal and may not reflect the views of the institutions they are affiliated. The paper has been presented to the Central Bank of Cyprus research group, which we would like to thank for the insightful comments and suggestions we have received.

contributed significantly to the Great Recession, where banks suffered losses stemming both from their failed loans and from investor faith.

Given the importance of supply-side factors when it comes to lending growth (Michail, 2021), and especially of bank risk perceptions, more emphasis should be placed on credit standards, which capture the essence of risk for the banking sector. As such, the aim of this paper is to investigate the effects of shocks on credit standards (CS), which act as a proxy of the banking sector's risk perception (Lown et al., 2000; Maddaloni et al., 2009; Maddaloni and Peydró 2011). To do this, we combine both survey and macroeconomic variables in a system of equations using a panel vector autoregression (PVAR), using data for 19 European countries from the first quarter of 2009 through the first quarter of 2022. In particular, we combine qualitative data from the Eurosystem Bank Lending Survey (BLS), with macro data to identify any permanent effects of changes in credit standards on loan growth and economic activity. The BLS is a quarterly survey on credit conditions conducted in all euro area countries since the end of 2002 and includes questions regarding lending standards, loan demand, factors influencing loan supply and demand, and specific terms and conditions related to loan offerings (such as price and non-price supply conditions). Berg et al. (2005) provide a thorough summary of the survey.

Our findings suggest that there is a negative relationship between a tightening in credit standards and loan growth of the non-financial corporations (NFCs), and consumer credit (CC) loan categories, with loan growth reaching its trough at around five quarters. The response of NFC loans is larger, something that is in line with the literature on the topic (De Bondt et al., 2010). After a tightening of credit standards, inflation responds negatively, while GDP growth and the interest rate do not record any significant effects. Demand for CC, NFC, and housing loans appears to be negatively influenced by the shock, but the negative impact shortly dies out. Following a positive shock in loan demand, lending growth is positively affected, with the exception of housing loans, where a rise in NFC loan demand results in a decrease in housing loans, perhaps due to a rationing impact (Jaffee and Stiglitz, 1990).

In terms of macroeconomic shocks, an increase in GDP reduces consumer credit CS but the impact is not persistent, lasting about a quarter. Additionally, a positive shock in GDP growth has a beneficial, five-quarter-long impact on NFC credit standards. An inflation shock, on the other hand, causes credit standards across all loan types to tighten. The effect lasts for longer as it remains significant for around eleven periods.

Our findings generally show a positive relationship between interest rates and credit standards, with the latter tightening following an increase in the former. A similar relationship holds between credit standards and with inflation, with higher prices leading to a tightening. As tighter credit standards push loan growth rates lower, their positive relationship with inflation suggests, perhaps surprisingly, that loan growth is higher during periods of low inflation. On the other hand, GDP does not appear to have a significant impact on credit standards.

Our results have important policy-making implications since the banking sector has a significant role to play and ought to use this function as a growth catalyst (Kehinde et al., 2011). Therefore, examining bank actions can help us comprehend how the sector could potentially respond to various shocks, such as changes in bank policies or interest rates, and whether or not those changes would have an effect on economic activity. Furthermore, the quantification of the impact from a shock in credit standards, as a proxy for bank risk appetite, also plays a crucial role in evaluating policy actions and the extent that these can have on the overall economy.

The next section provides an overview of the related literature, while section 3 offers the data and methodology used in this paper to provide further understanding into these conclusions. A summary of the estimation's findings is provided in Section 4 before further discussion and conclusion in Section 5.

2. Literature Review

The viability of the financial sector depends critically on banks' capacity to decide wisely where to lend money, what measures to take, and what limitations to impose. According to Berger et al. (2004), the procyclicality of bank lending behaviour may result in a number of potential problems, including a worsening of the business cycle, an increase in systematic risks, an inefficient use of lending resources, and difficulty for external stakeholders (including capital market participants and government regulators/supervisors) to penalize banks. Therefore, it is crucial to investigate bank lending practices and determine whether they have long-lasting consequences on macroeconomic factors such as GDP growth and inflation. Figuring out these relationships will allow us to understand how borrowers will behave in response to various shocks, such as changes in bank policies or interest rates, and whether or not those changes will have an impact on economic activity.

Nonetheless, the field is relatively under-studied, with most research focused on the relationship between interest rates and lending standards. For instance, lower overnight rates, according to Maddaloni et al., (2009) who use data from the Bank Lending Survey for the Euro Area, soften bank credit standards for all categories of loans, although the effect is stronger for loans to non-financial corporations. On the other hand, as De Bondt et al. (2010) demonstrate, a rise in the European overnight rate leads to higher growth in loans to non-financial corporations.

Regarding the relationship between interest rate and credit standards, Maddaloni and Peydró (2011), using data from the US and the Euro Area, demonstrate that lower interest rates can ease credit standards. Similar to this, other studies that take lending standards into account and concentrate on this risk-taking channel of monetary policy have found that bank lending standards are weakened when interest rates are lower (e.g., Jiménez et al., 2014; Ioannidou et al., 2014; Ciccarelli et al., 2015; Bonfim and Soares, 2018). However, the literature is not unanimous about the extent and the duration of this effect (see Michail et al., 2021; Michail et al., 2022; Guerello, 2014).

Lown et al. (2006) present an intriguing argument regarding the relationship between loan growth and credit standards. The authors suggest that larger loan levels cause tightening standards, maybe as a result of lenders concluding (or being informed by supervisors) that standards are too loose. Lower expenditure and loan levels result from tighter standards, which are then followed by looser standards, greater spending and loan levels, and so on indefinitely. Following this argument, Lown et al., (2000); Cappiello et al., (2010); Kaufmann et al. (2013) and Van der Veer and Hoeberichts (2016) establish a direct link between a tightening of credit standards and a decrease in output and commercial lending.

Overall, it appears that interest rates, credit standards, and loan growth are crucial factors in determining how strong a banking industry is (Keeton 1999; Foos et al., 2010). Additionally, the resilience of a banking industry in the face of monetary policy changes and risks associated with lending is important for economic growth. However, from the perspective of the policymaker, the transmission mechanism requires additional research since it may shed light on the

magnitude and durability of the influence of monetary policy actions on risk-taking behaviour and the loan supply.

3. Data and methodology

This study's objective is to examine the magnitude of the impact from shocks to lending standards, loan demand, and interest rates on loans, GDP, and inflation. To do so, data for 19 European countries (Austria, Belgium, Cyprus, Germany, Estonia, Spain, Finland, France, Greece, Ireland, Italy, Lithuania, Luxemburg, Latvia, Malta, Netherlands, Portugal, Slovenia, and Slovakia) were gathered from Eurostat and the European Central Bank's Statistical Data Warehouse (ECB SDW), ranging from 2009q1 until 2022q1.

Our main variables of interest are credit standards and loan demand for each of the three loan categories i.e., consumer credit, non-financial corporation and house loans as collected by the Bank Lending Survey (BLS). As previously suggested, the BLS is a quarterly survey on credit conditions conducted in all euro area countries since the end of 2002 and includes questions regarding lending standards, loan demand, factors influencing loan supply and demand, and specific terms and conditions related to loan offerings (such as price and non-price supply conditions). Berg et al. (2005) provide a thorough summary of the survey. Data from the survey have been used by a variety of authors, including, inter alia, Hempell and Kok (2010), De Bondt et al., (2010), Ciccarelli et al., 2015, Köhler Ulbrich et al., (2016), and Burlon et al., (2019). The literature review provides more details on the existing literature.

The BLS variables included in our study relate to actual observations of credit standards and loan demand over the previous three months. In particular, the credit standard question asks, "*Please indicate how you expect your bank's credit standards as applied to the approval of loans or credit lines to enterprises to change over the next three months*", and relates to the change and not the level of standards. Similarly, the loan demand question is "*Over the past three months (apart from normal seasonal fluctuations), how has the demand for loans or credit lines to enterprises changed at your bank?*". The question is asked regardless of whether this will result in a loan or not. For more details about the BLS questions, see table A1 in the Appendix.

All BLS variables are in net percentage form, meaning the difference between the (bank) responses of increased minus decreased (for loan demand) and tightened minus loosened (for credit standards). Further to the BLS variables, we also include the main macroeconomic factors in the estimation, i.e. GDP growth, inflation, and the prevailing lending interest rate.[1] In addition, we also employ loan growth in the relevant loan category, as the main variable of interest.

The inclusion of the aforementioned variables (i.e., credit standards, GDP growth, inflation) enables us to account for the key drivers of bank lending, namely changes in the macroeconomic environment, policy stances, and the banks' loan-offering intentions. By analysing the effects of direct shocks on the lending rate, we are also able to investigate the potential existence and magnitude of the bank lending channel. In a similar vein, by adding loan demand in our model, we are able to investigate how central bank policy shocks could influence borrowers' choices. We also examine the effects of shocks on GDP growth and inflation in order to better understand how banks and people respond to critical periods such as a slowdown and/or an expansion.

[1] While we use the non-financial corporation interest rate in the estimation, the correlation between lending rates is so high (at around 90%) that its substitution with another category's lending rate would provide qualitatively similar results. Similar findings were reported in Michail et al., (2021).

To empirically estimate the impact of shocks on the above variables, we employ a panel vector autoregression (PVAR) model with panel-specific fixed effects. Formally, the panel VAR (PVAR) can be expressed by the following system of linear equations (Canova and Ciccarelli, 2013, Abrigo and Love, 2016; Michail, 2021):

$$\boldsymbol{X_{i,t}} = A_{0i}(t) + A_i(l)\boldsymbol{X_{i,t-i}} + u_{it}$$

where i represents the respective country, while t represents the time period. $\boldsymbol{X_{i,t}}$ is a matrix of endogenous variables, defined as the combination of lending (i.e., credit standards, interest rate, demand, loans) and macroeconomic variables (i.e., GDP growth and inflation rate). $A_{0i}(t)$ is a vector of constants, and $A_i(l)$ is a polynomial in the lag operators, which, in our case, are assumed homogeneous.

We estimate the above using the Abrigo and Love (2016) approach, which takes into account a k-variate homogeneous panel VAR with panel-specific fixed effects, is used to perform the PVAR estimation within a GMM framework. Using GMM estimators (Hayakawa 2016), which have been demonstrated to yield consistent estimates of the panel VAR equation, the panel VAR parameters are estimated simultaneously with the fixed effects as a system of equations. Country-specific fixed effects are employed, while a lag order of one has been selected based on the Hansen (1982) J criterion. The following section contains the estimation results.

4. Empirical Estimates

Figure 1 displays how each system variable responds to a positive shock to consumer credit CS (i.e., a tightening). Consumer credit and non-financial corporation loans appear to be negatively affected, but the negative effect fades after seven quarters. It is noteworthy that, non-financial corporation loan growth responds more strongly than the other loan categories, a result in line with Maddaloni et al., (2009). Housing loans appear to increase in the long-term, a result that suggests the possible existence of a substitution effect between the two categories.

Consumer credit demand is registers a negative response to the credit standards tightening, but the impact dissipates after six quarters. With regards to loan demand in the other two categories (i.e., NFCs and housing loans), the responses suggest that the impact is insignificant in almost all quarters. These findings demonstrate that borrowers' decisions to apply for loans are adversely affected by the banks' tightening actions, but that this relates more to the same loan category, perhaps also because the consumer credit category is the smallest of the three.

When credit standards tighten, interest rates seem to increase, perhaps also as an additional mechanism used by banks to deter lending. However, given that the impact is not significant until the eleventh quarter, this might suggest that is akin to a self-fulfilling prophecy, as tighter standards will eventually lead to higher risk and hence higher rates. With regards to the other macroeconomic variables, a tightening of credit standards has a negative impact on inflation, while GDP growth does not record any significant effects from the tightening.

Figure 2 depicts the same responses, albeit after a positive shock on non-financial corporation CS. It appears that tighter standards have a significant negative impact on all loan categories lending growth. With the exception of the NFC impact, which is long-lasting since it lasts for eleven quarters, these effects are only significant for the first four quarters. GDP growth and inflation responses roughly follow Figure 1's general trend. Interest rate response, on the other hand is negative and significant throughout all quarters. Demand for consumer credit and housing loans

have the same responses. That is, they are negatively affected by tighter NFC credit standards. However, the negative effect does not appear to be persistent (i.e., it only lasts for three to four quarters).

Finally, Figure 3 shows the above responses after a tightening of housing loan CS. Paradoxically, it seems that credit standards do not affect housing lending growth, as it does not seem to have a significant impact. The initial negative effect on inflation is not as apparent as in Figure 1, but it is larger than that of Figure 2, at around 0.06%.

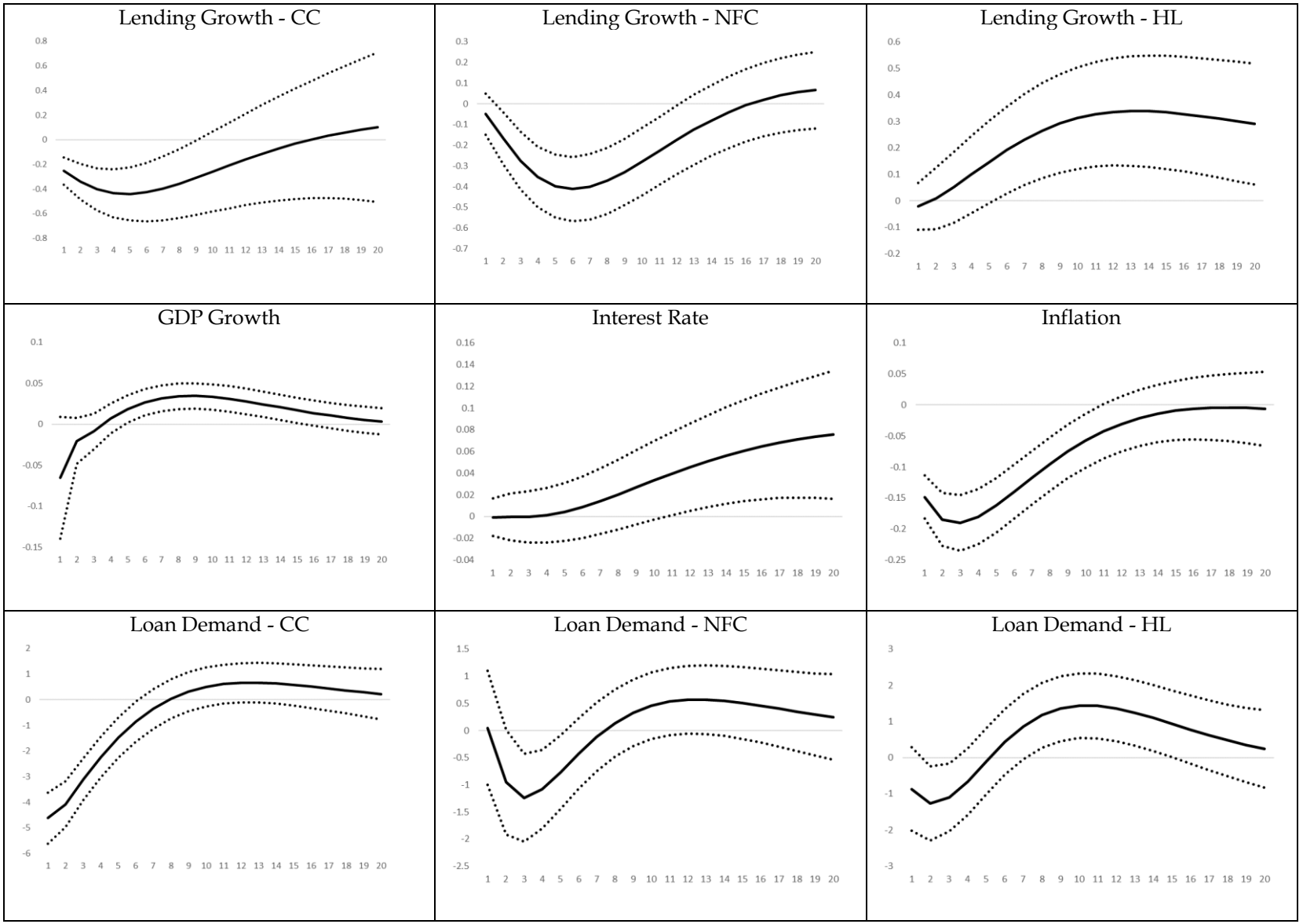
The GDP impact is however, higher, marking the importance of housing in the economy. Overall, it appears that credit standards are significant factors when it comes to determining loan growth, as also suggested by the literature (Lown et al., 2000; Capiello et al., 2010). This conclusion is consistent with US research based on a longer period of data, particularly in the case of non-financial corporations, (e.g. Cunningham, 2006).

Following up on the analysis, the next three Figures display how all variables react to a positive shock on demand for consumer credit (Figure 4), demand for non-financial corporation loans (Figure 5), and demand for housing loans (Figure 6). A positive shock in consumer credit demand causes an increase in CC lending. Since this effect lasts for around four years, it appears to be persistent. The effects of the other variables do not seem to be particularly significant.

CS for all three loan categories (CC, NFC, and HL) do not change significantly with an increase in NFC loan demand. Moreover, the interest rate responds in the same way as in Figure 4, but in this case, the decline is apparent and significant. Following an increase in NFC loan demand, the macroeconomic factors (i.e., GDP growth and inflation) once more don't appear to have a substantial effect. While the impact on housing loans is negative and significant across all quarters, the impact on CC and NFC loans is positive and significant only for the first seven quarters.

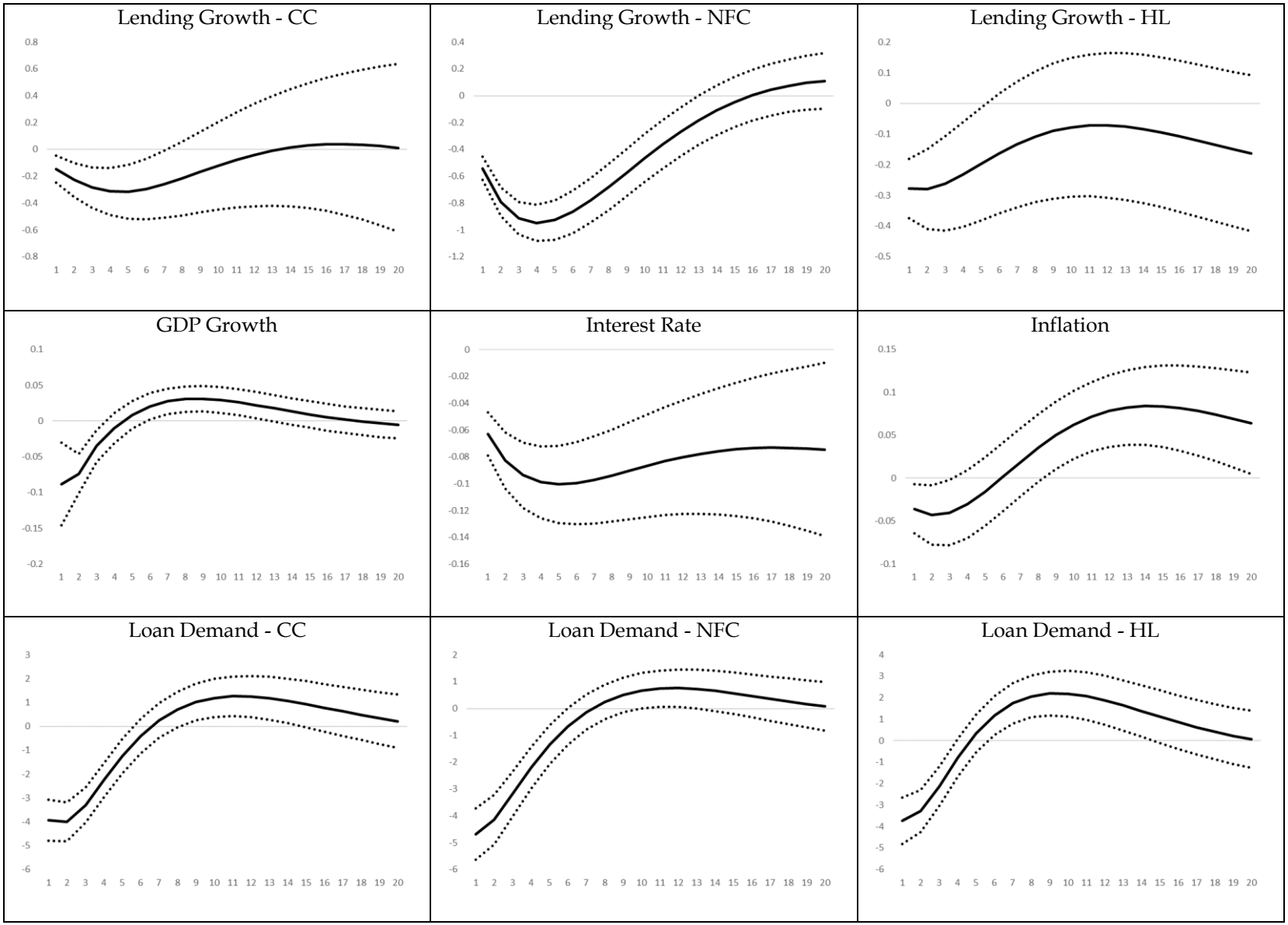
There seem to be some notable differences in Figure 6. All loan category lending growth looks to be positively impacted by a positive shock to housing loan demand. The fact that these effects are significant across all the quarters, suggests that they are long-lasting. Once more, the GDP exhibits a non-significant response, despite the importance of the impact of interest rates and inflation. The first variable exhibits a persistent upward trend, in contrast to the second variable, which experiences a significant fall up until the fifth quarter. All credit standards follow a downward trend when housing loan demand experiences a positive shock.

FIGURE 1
Response to a Credit Standards (Consumer Credit) shock



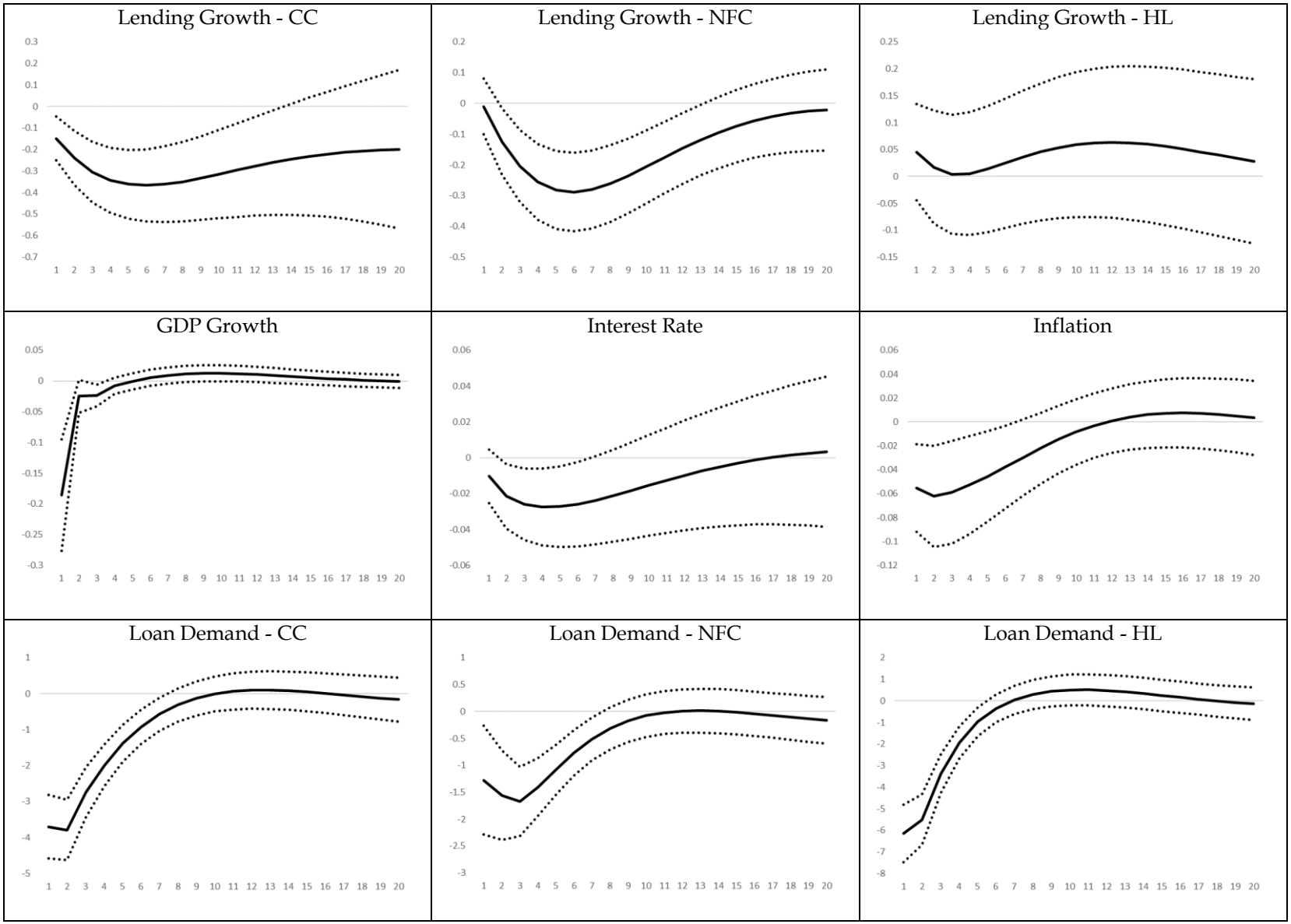
Note: Figure 1 represents the orthogonalised responses of the PVAR variables to a positive shock of loan credit standards for consumer credit. Dashed lines are the 68% confidence interval, estimated using Monte Carlo methods. Vertical axis is in percentage points.

FIGURE 2
Response to a Credit Standards (NFCs) shock



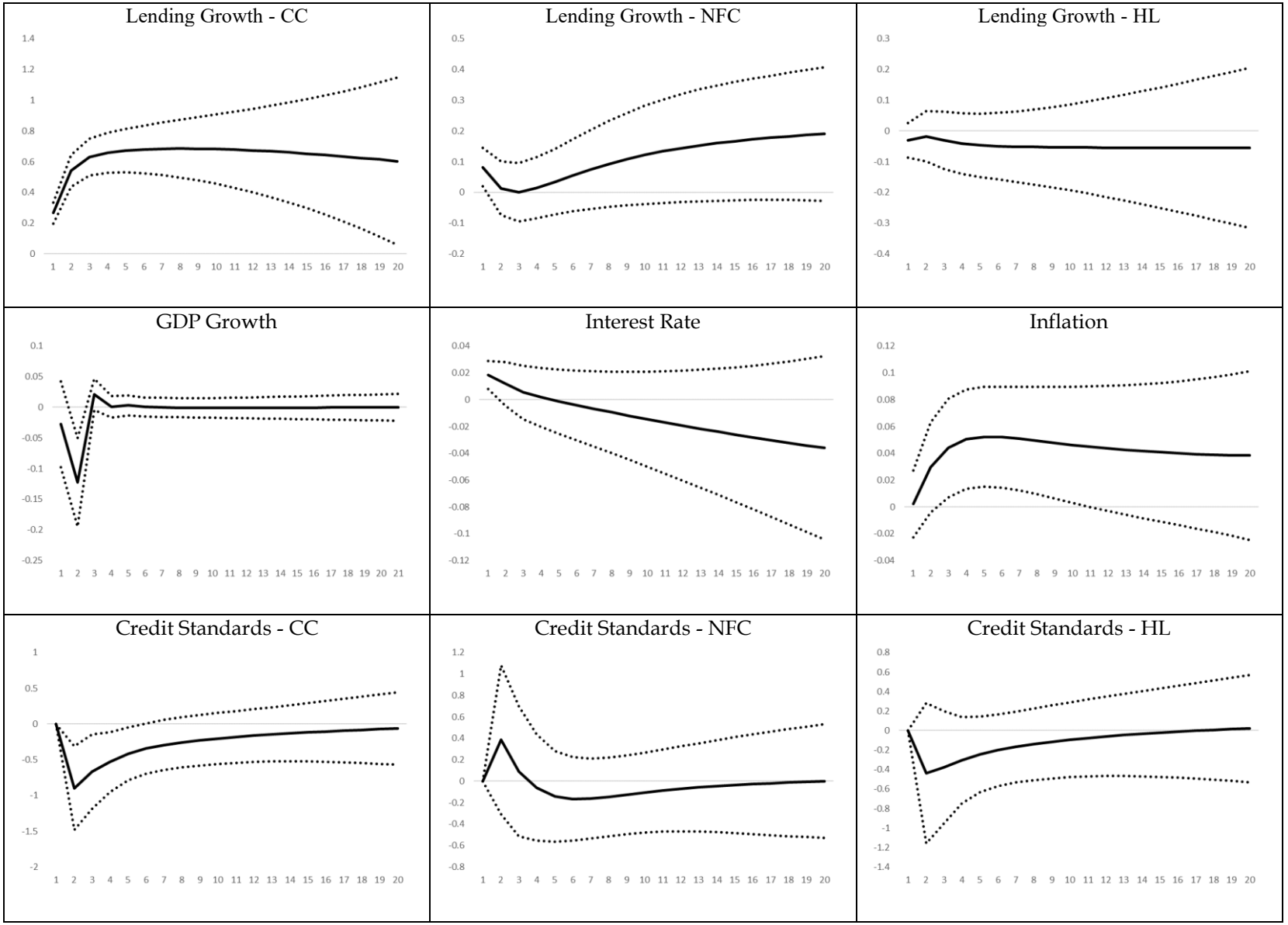
Note: Figure 2 represents the orthogonalised responses of the PVAR variables to a positive shock of loan credit standards (for non-financial corporations). Dashed lines are the 68% confidence interval, estimated using Monte Carlo methods. Vertical axis is in percentage points.

FIGURE 3
Response to a Credit Standards (House Purchase) shock



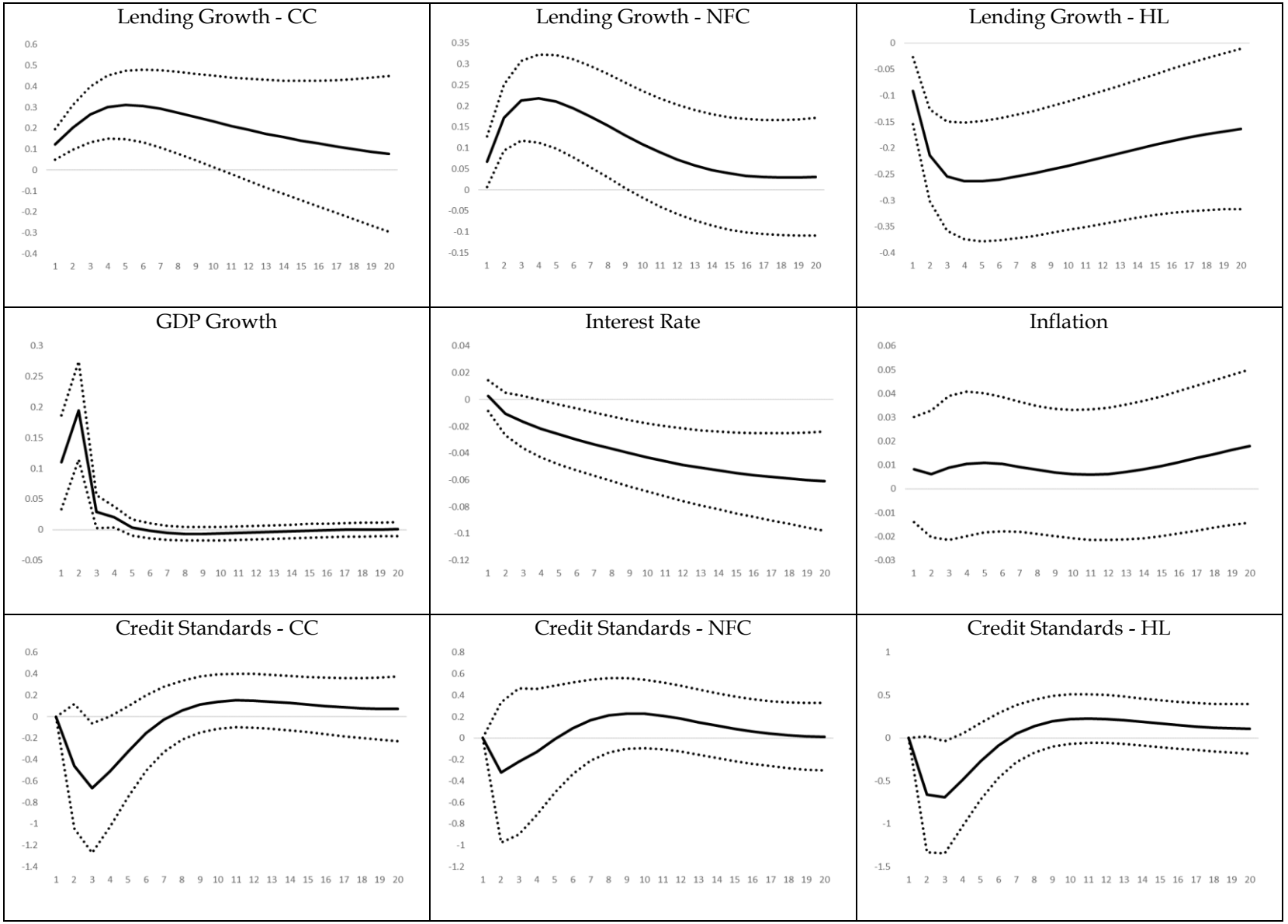
Note: Figure 3 represents the orthogonalised responses of the PVAR variables to a positive shock of loan credit standards (for households). Dashed lines are the 68% confidence interval, estimated using Monte Carlo methods. Vertical axis is in percentage points.

FIGURE 4
Response to a shock in (CC) loan demand



Note: Figure 4 represents the orthogonalised responses of the PVAR variables to a positive shock of loan demand (for consumer credit). Dashed lines are the 68% confidence interval, estimated using Monte Carlo methods. Vertical axis is in percentage points.

FIGURE 5
Response to a shock in (NFC) loan demand



Note: Figure 5 represents the orthogonalised responses of the PVAR variables to a positive shock of loan demand (for non-financial corporations). Dashed lines are the 68% confidence interval, estimated using Monte Carlo methods. Vertical axis is in percentage points.

FIGURE 6
Response to a shock in (Housing) loan demand

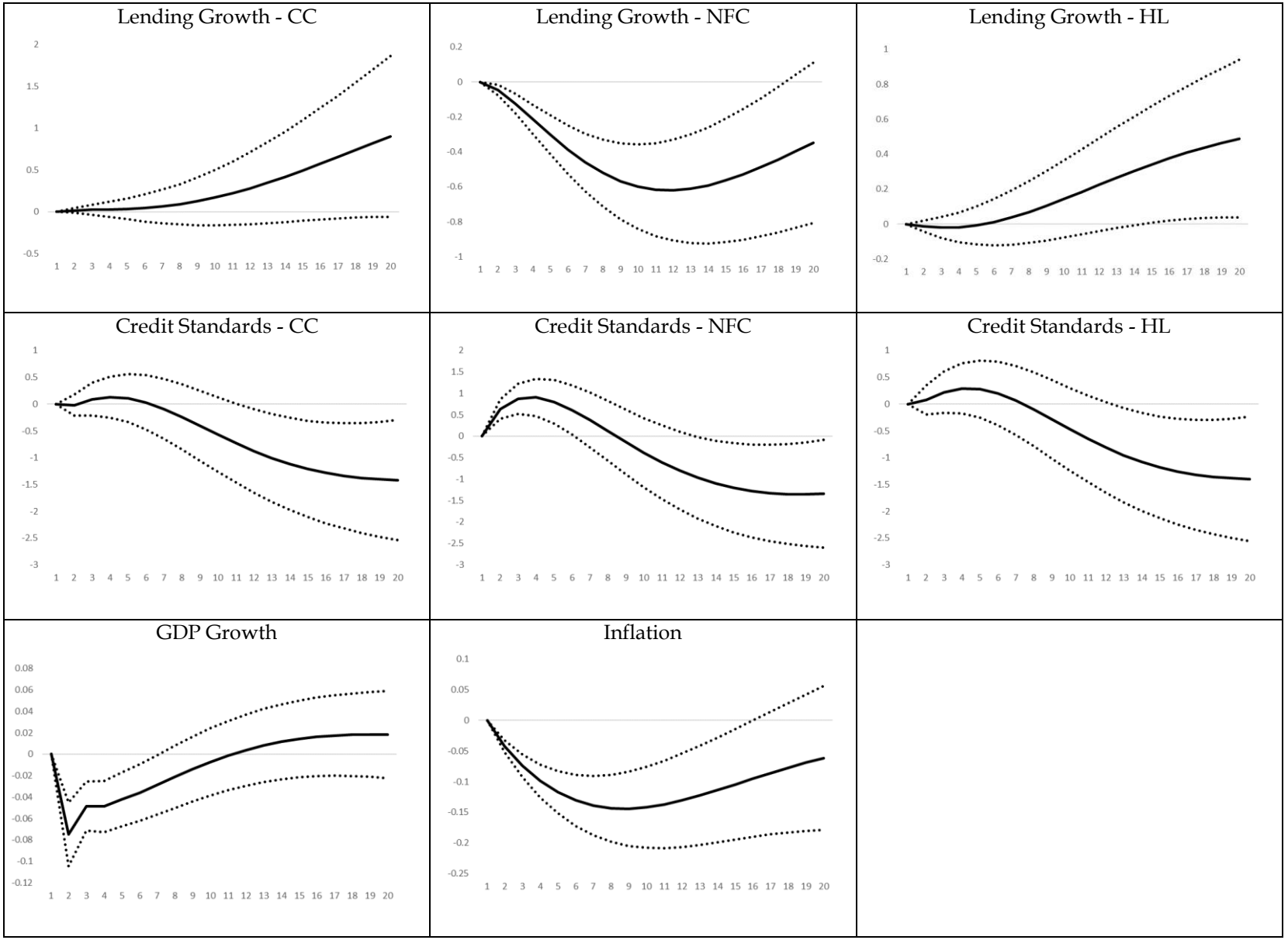
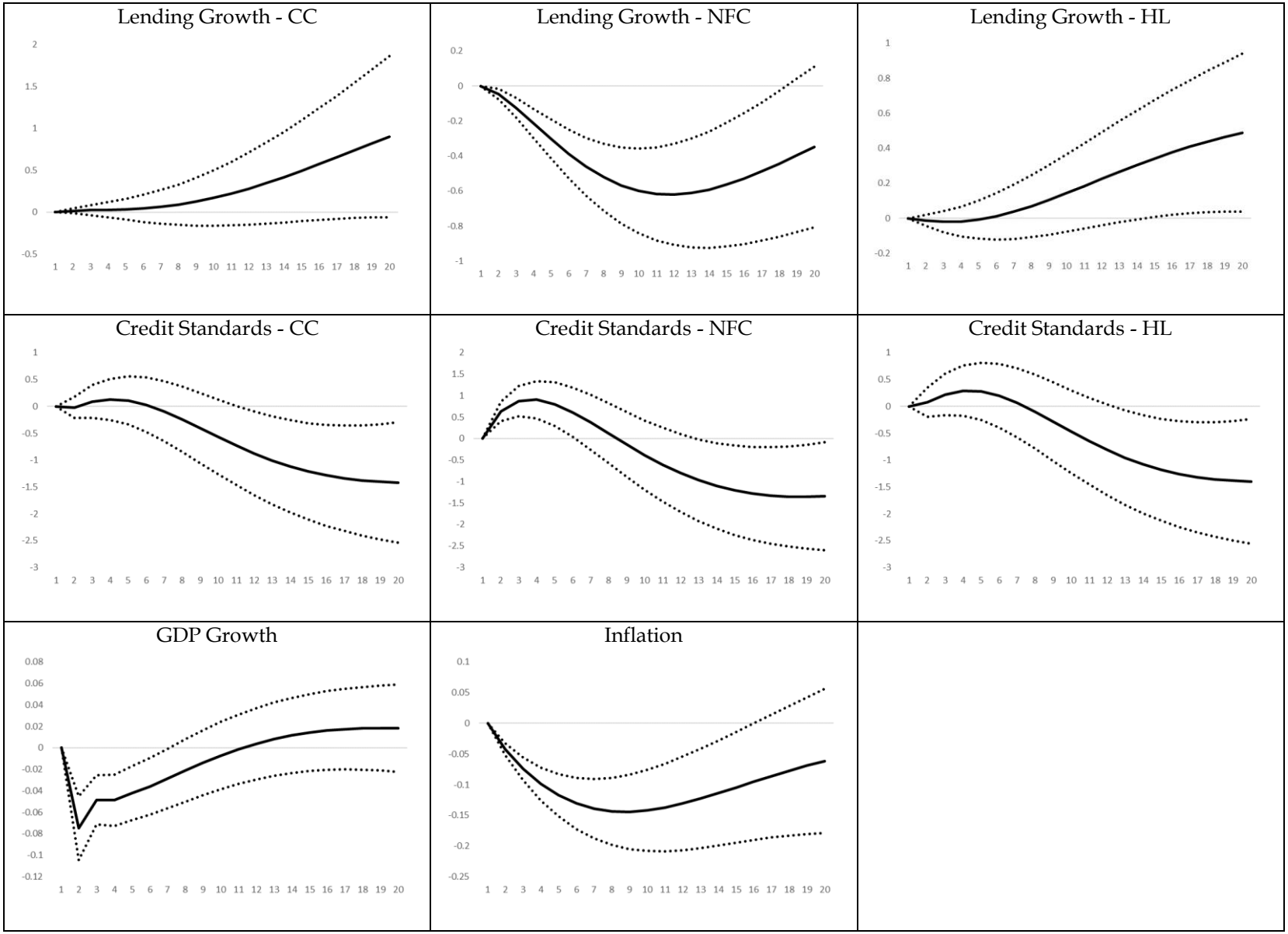
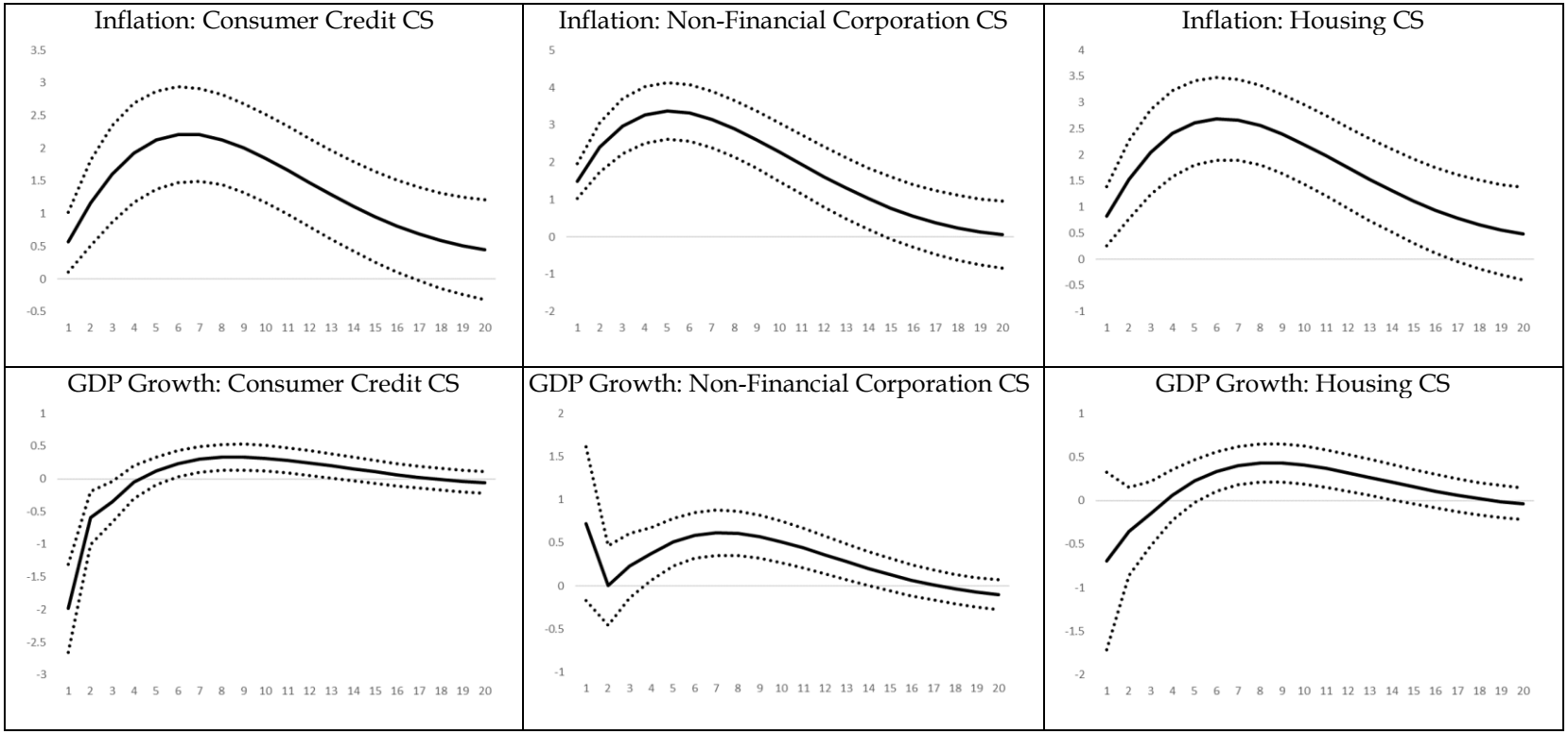


FIGURE 7
Responses to a shock in the Interest Rate



Note: Figure 7 represents the orthogonalised responses of the PVAR variables to a positive shock of interest rate. Dashed lines are the 68% confidence interval, estimated using Monte Carlo methods. Vertical axis is in percentage points.

FIGURE 8
Credit standard responses to macroeconomic shocks



Note: Figure 8 represents the orthogonalised responses of the credit standards to a positive shock of inflation (for the first row) and to a positive shock of GDP growth (for the second row). Dashed lines are the 68% confidence interval, estimated using Monte Carlo methods. Vertical axis is in percentage points.

Figure 7 represents the effects of the aforementioned variables after a positive interest rate shock. Consumer credit and housing loan reactions are not significant, but the impact of non-financial corporation loan is. It experiences a decline for eleven quarters, illustrative of a long-lasting impact. NFC credit standards rise when interest rates rise, but this positive effect is temporary. Both GDP growth and inflation significantly decline, with the former lasting for two quarters and the latter for nine.

When it comes to macroeconomic shocks (see Figure 8), an increase in GDP growth has a negative influence on consumer credit CS and is a short-lived impact (approximately a quarter). Contrarily, an inflation shock appears to have long-lasting effects. In other words, rising inflation results in tighter credit standards for all loan types, and this effect appears to be long-lasting because it lasts for almost three years (eleven quarters).

In general, our results support the findings of Maddaloni et al. (2009) and Maddaloni and Peydró (2011) that higher interest rates may result in tighter credit standards. Therefore, the risk perceptions in the economy must be tightened when banks seek to protect the viability of loans. In addition, lower loan growth rates are the outcome of tighter credit standards, which is in line with findings from Lown et al., (2000), Lown et al., (2006), and Kaufmann et al., (2013). Finally, it doesn't seem like GDP much affects lending standards.

5. Conclusions

We examine to what extent shocks on credit standards, loan demand and interest rates affect bank lending growth, GDP growth, and inflation, using data for 19 euro area countries and a panel vector autoregression model (PVAR). Our findings indicate that a tightening of credit standards negatively affects consumer credit (CC) and non-financial corporation (NFC) loan growth. The negative effect on NFC loan growth seems to be more persistent than that on CC loan growth (eleven versus seven quarters). The impact on housing loans is depends on the origin of the credit standards shock. On the other hand, tighter NFC credit standards have a detrimental impact on demand for all three loan categories, while lending growth appears to be positively affected by an increase in loan demand.

Credit standards appear to tighten when inflation rises and this effect is persistent, lasting for around three years. This positive relationship may indicate that loan growth is higher during periods of low inflation, given that tighter credit standards lead to lower loan growth rates. Similarly, credit standards tighten when interest rates rise, even though the effect is short-lived. On the other hand, and as expected, NFC lending, GDP growth, and inflation decline when interest rates rise, and these negative reactions do seem to be more persistent.

Overall, this study suggests that factors relating to bank loan supply, such their risk perception, as captured via credit standards, matter for credit and output in the euro area. However, the economy appears to react with a lag, as reactions take about five quarters to attain their peak. Demand factors also play a role, and they appear to have a greater and longer-lasting impact.

Finally, our study emphasizes the significance of having a proper monitoring of credit developments in the monetary policy toolkit, and supports the case for giving credit analysis a key position in a central bank's monetary policy strategy. However, further research is required to better understand the dynamic relationships between the state of the financial sector, credit provision, real economic activity, and inflation.

Funding: No funding was received for this research

Data availability statement: Data for this paper were all obtained from publicly available sources.

Conflicts of Interest: The authors do not have any conflicts of interest

IRB Statement: Not applicable

References

Abrigo, M. R., and Love, I. (2016). 'Estimation of panel vector autoregression in Stata'. *The Stata Journal*, 16(3): 778-804.

Berg, J., Van Rixtel, A. A., Ferrando, A., De Bondt, G., and Scopel, S. (2005). 'The bank lending survey for the euro area'. ECB occasional paper, No.23.

Berger, A. N., and Udell, G. F. (2004). 'The institutional memory hypothesis and the procyclicality of bank lending behavior. *Journal of financial intermediation,* 13(4): 458-495.

Bernanke, B. S. (2018). 'The real effects of disrupted credit: Evidence from the global financial crisis'. *Brookings Papers on Economic Activity*, 2018(2): 251-342.

Bonfim, D., and Soares, C., (2018), 'The Risk-Taking Channel of Monetary Policy: Exploring All Avenues', *Journal of Money, Credit and Banking,* 50(7): 1507-1541.

Burlon, L., Köhler-Ulbrich, P., Drahonsky, A. C., and Dimou, M. (2019). 'What does the bank lending survey tell us about credit conditions for euro area firms?'. ECB Economic Bulletin, Issue 8/2019.

Cappiello, L., Kadareja, A., Kok, C., and Protopapa, M. (2010). '*Do bank loans and credit standards have an effect on output? A panel approach for the euro area'*. ECB Working Paper No. 1150, European Central Bank.

Ciccarelli, M., Maddaloni, A., and Peydró, J. L. (2015). 'Trusting the bankers: A new look at the credit channel of monetary policy', *Review of Economic Dynamics*, 18(4): 979-1002.

Cunningham, L. (2006). '*The predictive power of the senior loan officer survey: do lending officers know anything special*?'. Federal Reserve Bank of Atlanta, Working Paper 2006-24.

De Bondt, G., Maddaloni, A., Peydró, J. L., and Scopel, S. (2010). '*The Euro area bank lending survey matters: Empirical evidence for credit and output growth'*. ECB Working Paper No. 1160.

Duca, J. V., Muellbauer, J., and Murphy, A. (2011). '*Shifting credit standards and the boom and bust in US house prices*'. CEPR Discussion Paper No. DP8361

Fishman, M. J., Parker, J. A., & Straub, L. (2024). A dynamic theory of lending standards. *The Review of Financial Studies*, 37(8), 2355-2402.

Foos, D., Norden, L., and Weber, M. (2010). 'Loan growth and riskiness of banks'. *Journal of Banking and Finance*, 34(12): 2929-2940.

Guerello, C. (2014). 'The cost of deviating from the optimal monetary policy: A panel VAR analysis'. *Journal of Financial Stability*, 15: 210-229.

Hansen, L. P. (1982). 'Large sample properties of generalized method of moments estimators'. *Econometrica*, 50: 1029-1054.

Hayakawa, K. (2016). 'Improved GMM estimation of panel VAR models'. *Computational Statistics and Data Analysis*, 100:240-264.

Hempell, H. S., and Kok, C. (2010). '*The impact of supply constraints on bank lending in the euro area-crisis induced crunching?'.* ECB Working Paper, No. 1262. European Central Bank.

Ioannidou, V., Ongena, S., and Peydró, J. L, (2014). 'Monetary policy, risk-taking, and pricing: Evidence from a quasi-natural experiment', *Review of Finance*, 19(1): 95-144.

Jaffee, D., and Stiglitz, J. (1990). 'Credit rationing'. *Handbook of monetary economics*, 2: 837-888.

Jiménez, G., Ongena, S., Peydró, J. L., and Saurina, J. (2014). 'Hazardous times for monetary policy: What do twenty-three million bank loans say about the effects of monetary policy on credit risk-taking?' *Econometrica*, 82(2): 463-505.

Kaufmann, S., and Scharler, J. (2013). '*Bank-lending standards, loan growth and the business cycle in the Euro area*'. University of Innsbruck Working Papers in Economics and Statistics (No. 2013-34).

Keeton, W. R. (1999). 'Does faster loan growth lead to higher loan losses?'. *Economic review-Federal reserve bank of Kansas City*, 84(2): 57.

Kehinde, J. S., and Adejuwon, K. D. (2011). 'Financial institutions as catalyst to economic development: The Nigerian experience'. *European Journal of Humanities and social sciences*, *8*(1).

Köhler Ulbrich, P., Hempell, H. S., and Scopel, S. (2016). '*The euro area bank lending survey*'. ECB Occasional Paper, (2016/179). European Central Bank.

Lown, C. S., Morgan, D. P., and Rohatgi, S. (2000). 'Listening to loan officers: The impact of commercial credit standards on lending and output'. *FRBNY Economic Policy Review*, July 2000

Lown, C., and Morgan, D. P. (2006). 'The credit cycle and the business cycle: new findings using the Loan officer opinion survey'. *Journal of Money, Credit and Banking*, 1575-1597.

Lown, C., Morgan, D. 2002. 'Credit effects in the monetary mechanism'. *Federal Reserve Bank of New York Economic Policy Review,* 8: *217–235*

Maddaloni, A., and Peydró, J. L. (2011). 'Bank risk-taking, securitization, supervision, and low interest rates: Evidence from the Euro-area and the US lending standards'. *The review of financial studies*, 24(6): 2121-2165.

Maddaloni, A., Peydró, J.-L., and Scopel, S. *'Does monetary policy affect bank lending standards? Evidence from the euro area bank lending survey*', ECB Working Paper, 2009. European Central Bank

Michail, N. A. (2021). 'The impact of conflict on the exchange rate of developing economies'. *Review of Development Economics*, 25(2): 916-930.

Michail, N. A., and Savva, C. S. (2020). 'What Determines Bank Lending Standards in Cyprus?', *Cyprus Economic Policy Review*, 14(1): 16-26.

Michail, N. A., Savva, C. S., and Koursaros, D. (2021). 'Are central banks to blame? Monetary policy and bank lending behavior'. *Bulletin of Economic Research*, 73(4): 762-779.

Michail, N., and Koursaros, D. (2022). 'Can Monetary Policy Affect Bank Behaviour? Evidence from Bank Credit Standards'. *CESifo Economic Studies*, 68(2): 184-199.

Van der Veer, K. J., and Hoeberichts, M. M. (2016). 'The level effect of bank lending standards on business lending'. *Journal of Banking and Finance*, 66: 79-88.

Appendix

TABLE A1
Variable Definitions

Credit Standards	Credit standards are the internal guidelines or criteria of a bank which reflect the bank's loan policy. The net percentage for changes in credit standards is calculated as the difference between the percentages of respondents answering that they tightened considerably or somewhat, minus the percentages responding that they eased considerably or somewhat.
Question from BLS	Please indicate how you expect your bank's credit standards as applied to the approval of loans or credit lines to enterprises to change over the next three months. Please note that we are asking about the change in credit standards, rather than about their level *Answers:* **1**.Tightened considerably **2**.Tightened somewhat **3**.Remained basically unchanged **4**.Eased somewhat **5**.Eased considerably **6**.N/A
Loan Demand	The net percentages for the questions on demand for loans are defined as the difference between the percentage of respondents answering that the demand for loans has increased considerably or somewhat, minus the percentage responding that demand has decreased somewhat or considerably.
Question from BLS	Over the past three months (apart from normal seasonal fluctuations), how has the demand for loans or credit lines to enterprises changed at your bank? Please refer to the financing need of enterprises independent of whether this need will result in a loan or not. *Answers:* **1**.Decreased considerably **2**.Decreased somewhat **3**.Remained basically unchanged **4**.Increased somewhat **5**.Increased considerably **6**.N/A