

Short economic and financial analyses

Bank lending to non-bank financial institutions and implications for credit to the real economy

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The rapid expansion of bank lending to non-bank financial institutions (NBFIs), relative to lending to non-financial corporations (NFCs) and households, has raised questions about banks' lending priorities and risk appetite. In the euro area, NBFIs have gained an increasing share in banks' loan portfolios, particularly since 2024. One concern is that the growth of NBFi lending may reflect a broader derisking of bank loan portfolios, with banks reallocating credit towards NBFIs, often perceived as *ex ante* lower-risk counterparties, at the expense of lending to the real economy.¹

The issue is policy-relevant for at least two reasons. First, a sectoral reallocation of bank credit could affect financing conditions for firms and households, particularly those that are more bank-dependent. Second, such a shift could alter the transmission of monetary policy through the banking sector. A large literature documents how banks adjust their balance sheets in response to monetary tightening, regulatory changes and capital constraints, often reallocating credit towards safer borrowers within the NFC sector (e.g. Jiménez et al., 2014; Acharya et al., 2018; Peydró et al., 2021). At the same time, the growing role of NBFIs in financial intermediation and the expansion of bank–NBFi linkages have attracted increasing attention in the context of market-based finance and shadow banking (Adrian and Shin, 2010; Pozsar et al., 2013; ESRB, 2025). However, less attention has been paid to whether stronger bank lending to NBFIs translates into weaker credit supply to the real economy.

Empirically disentangling these effects is challenging, as aggregate lending patterns may reflect both demand and supply factors. To isolate credit supply adjustments, this paper builds on the identification approach of Khwaja and Mian (2008), using firm–bank matched data and firm–time fixed effects to control for borrower demand. By combining bank-level evidence with granular AnaCredit data, the analysis distinguishes between aggregate balance sheet co-movements and firm-level credit supply decisions, allowing for a more precise assessment of how changes in NBFi lending relate to credit provision to the real economy.

The findings can be summarised as follows. At the bank level, increases in NBFi lending are associated with weaker growth in lending to NFCs and households. However, once borrower demand is controlled for, loan-level estimates do not support a systematic decline in firm-level credit supply, and the estimated effects are economically small. The results further suggest a liquidity-related motive, as increases in NBFi lending are associated with reductions in liquidity buffers, indicating that NBFi exposures and liquidity holdings act, at least partly, as substitutes from a balance sheet perspective. This interpretation is consistent with the composition of NBFi lending, which is dominated by short-term, collateralised instruments. Taken together, these results indicate that the observed aggregate co-movement between NBFi and NFC lending is more likely driven by short-term balance sheet and liquidity management considerations than by a structural reallocation of credit away from the real economy.

¹ Previous work documents derisking within the NFC sector through a shift in lending towards less risky firms (Volk, M., *Pricing Risk or Rationing Credit? Bank Behaviour in a Tightening Monetary Cycle*, Banka Slovenije Working Paper). This analysis instead focuses on whether derisking extends across sectors, assessing whether increased lending to NBFIs leads to a reallocation of credit away from NFCs and households.

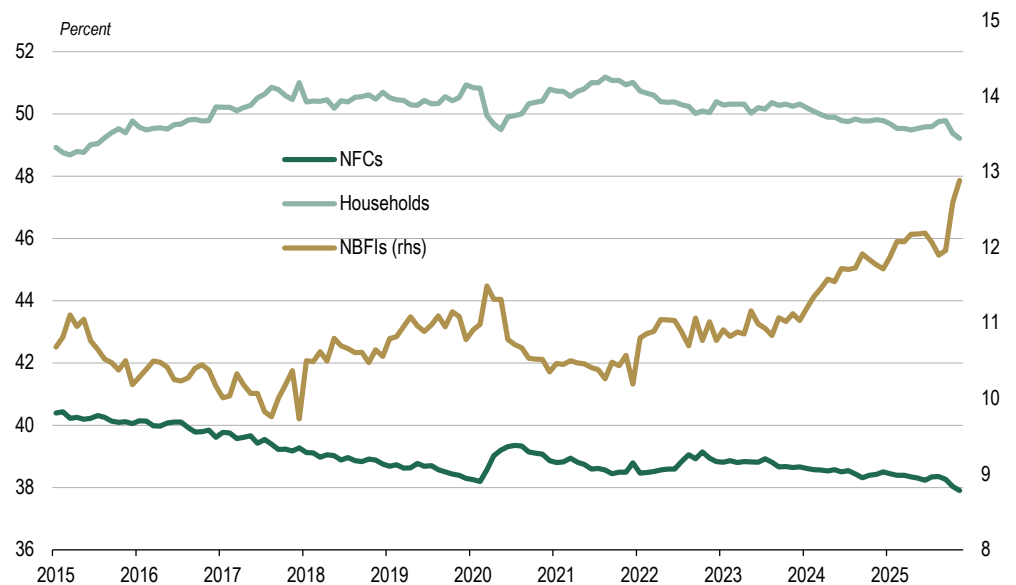
Stylised facts on bank lending to non-bank financial institutions

Recent data point to a marked increase in the role of NBFIs in euro area banks' loan portfolios. As shown in Figure 1, the share of lending to NBFIs in total loans to the non-bank private sector has increased steadily since 2022 and accelerated after 2024, rising by around 2 percentage points. Over the same period, the share of lending to non-financial corporations continued its longer-term gradual decline, while the household share remained broadly stable. Although the increase in the NBFIs share mechanically coincides with a lower NFC share, the downward trend in NFC lending predates the recent acceleration in NBFIs lending, making it difficult to attribute the compositional shift solely to sectoral reallocation.

This shift is particularly relevant in an environment where lending to NFCs has only recently begun to recover. Since the start of monetary policy easing, growth in loans to NFCs has gradually strengthened, but it remains relatively subdued at around 3% in the latest data and below the level consistent with economic fundamentals.² This makes it especially relevant to examine whether the increasing importance of NBFIs lending in banks' portfolios may be one factor weighing on the recovery in credit for firms.

The recent expansion is also visible in growth rates. Figure 2 shows that annual growth of loans to NBFIs strengthened markedly in 2024–2025, with particularly strong contributions from “other financial intermediaries, financial auxiliaries, and captive financial institutions and money lenders” (sectors S.125, S.126 and S.127). Lending to insurance corporations and investment funds exhibits more volatility but does not account for the bulk of the recent increase. The broad-based acceleration in total NBFIs lending contrasts with more subdued growth in lending to NFCs over the same period.

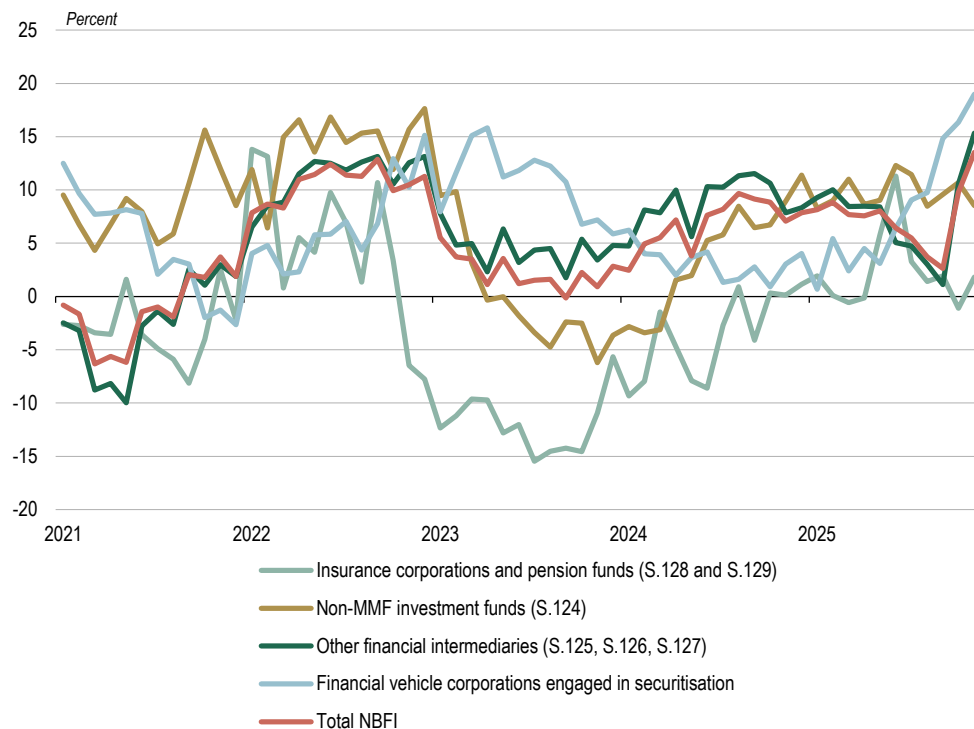
Figure 1: Structure of loans to the non-bank private sector



Note: The figure shows shares of loans to NFCs, households and NBFIs in the total stock of loans to the non-bank private sector. Sources: ECB, BSI, own calculations.

² The fundamentals-based benchmark is measured as the long-run equilibrium level of credit estimated from a Vector Error Correction Model (VECM), which relates credit to key macro-financial variables, including GDP, lending rates and share market funding among bank liabilities.

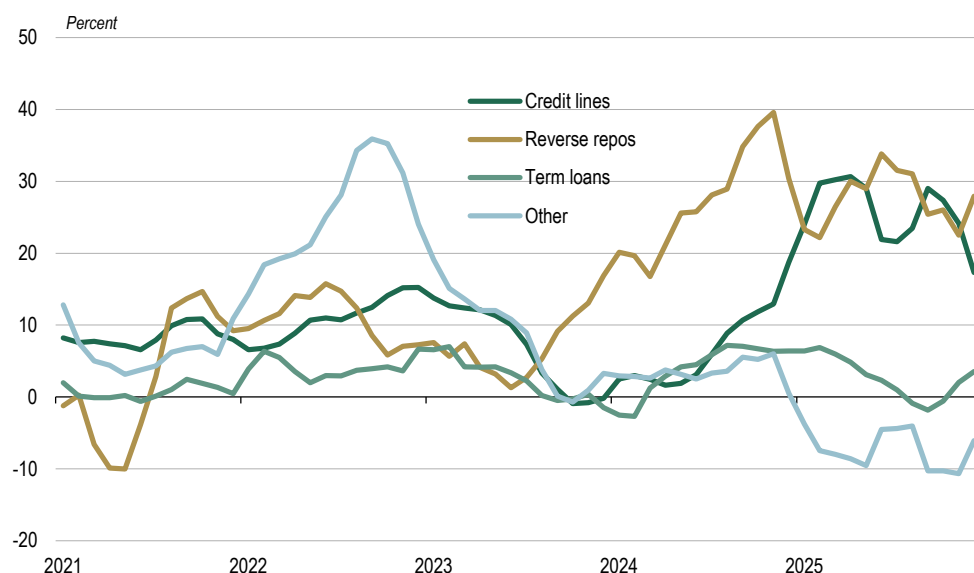
Figure 2: Annual growth of loans to NBFIs



Sources: ECB, BSI, own calculations.

The composition of NBFIs lending provides further insight into the nature of this expansion. Figure 3 shows that lending to NBFIs has been increasingly driven by reverse repos, with their growth accelerating markedly in the recent period. Reverse repos, which according to the latest data represent around 70% of the outstanding stock of bank lending to NBFIs, are typically short-term, collateralised transactions linked to liquidity and securities financing activities rather than long-term credit relationships. The predominance of such instruments suggests that a significant portion of the increase in

Figure 3: Bank lending to NBFIs by type of instrument



Note: "Other" includes revolving credit, overdrafts, deposits other than repos, credit card debt, trade receivables and financial lease.
Sources: AnaCredit, own calculations.

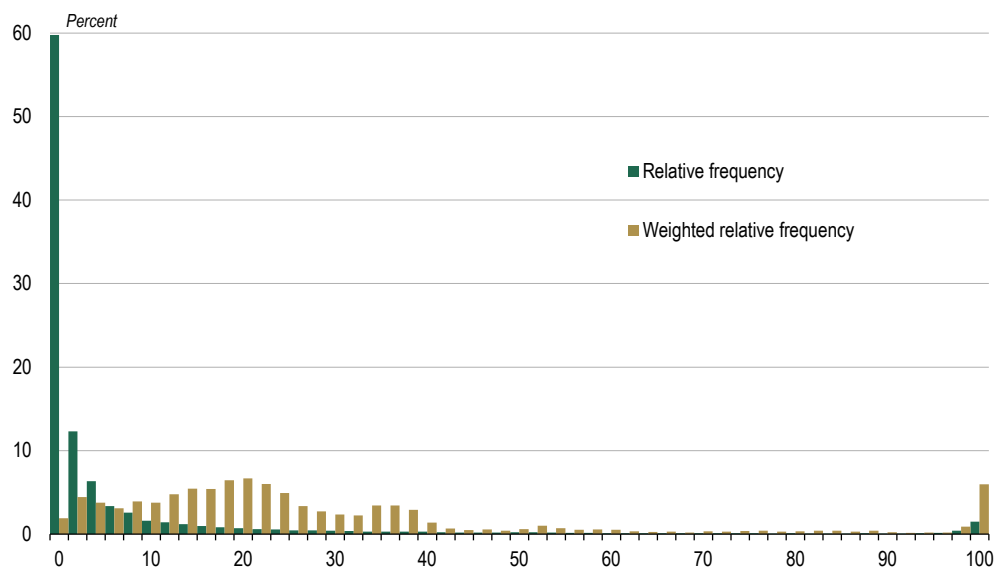
NBFI lending may reflect balance sheet and liquidity management considerations, rather than a structural shift in credit allocation towards non-bank financial intermediaries.

Exposure to NBFIs is also highly heterogeneous across banks. Figure 4 shows the distribution of the NBFI lending share across banks, both unweighted and weighted by the amount of lending to NBFIs. While many banks maintain relatively small NBFI exposures, a subset of institutions exhibit substantially higher NBFI shares. When weighting by NBFI lending amounts, the distribution shifts markedly to the right relative to the unweighted distribution. This indicates that a significant portion of total NBFI lending is concentrated in a relatively small number of banks. In fact, a few institutions specialise almost exclusively in lending to NBFIs, with some individual banks accounting for around 6% of the total stock of bank lending to NBFIs. The aggregate increase in NBFI lending is therefore driven disproportionately by a limited group of banks rather than reflecting a uniform shift across the banking sector.

Finally, Table 1 reports correlations between the NBFI share and selected bank-level characteristics. The NBFI share is positively correlated with bank size and market-based funding and negatively correlated with leverage. It is also positively correlated with liquidity holdings. Taken together, these patterns show that higher NBFI shares tend to be seen among larger banks, among banks that rely more on market-based funding and among banks with stronger liquidity positions.

Taken together, the stylised facts document a clear increase in NBFI lending, particularly since 2024, and highlight three key features: (i) the compositional shift within total bank lending, (ii) the predominance of reverse repos among NBFI exposures, and (iii) heterogeneity across banks. At the same time, the longer-term decline in NFC lending and the cross-bank distribution of exposures caution against a mechanical interpretation of the rise in NBFI lending as evidence of crowding-out. These observations motivate the empirical analysis that follows, which investigates whether the expansion of NBFI lending reflects a systematic reallocation of credit away from the real economy once borrower demand and bank characteristics are taken into account.

Figure 4: **Distribution of NBFI lending as a share of total loans to the non-bank private sector**



Note: The weighted frequency uses stock of loans to non-bank financial institutions as the weight.
Sources: ECB, IBSI, own calculations.

Table 1: **Correlation of NBFI share with key bank-level measures**

	NBFI share	Leverage ratio	log(Total assets)	Liquidity
Leverage ratio	-0.028			
log(Total assets)	0.2576	-0.1958		
Liquidity	0.2331	0.0001	0.1203	
Market funding	0.4612	-0.2943	0.4141	0.2029

Notes: The NBFI share is defined as bank lending to non-bank financial institutions divided by total lending to the non-bank private sector. The leverage ratio is measured as bank equity relative to total assets. Liquidity is proxied by reserves held at the ECB deposit facility as a share of total assets. Market funding is defined as total liabilities excluding deposits and equity, expressed as a share of total assets.

Sources: ECB, IBSI, own calculations.

3

Methodology

To assess whether increased NBFI lending is indicative of a reallocation of bank credit away from firms and households, we adopt a sequential empirical strategy that moves from aggregate relationships to granular credit supply identification. We begin with bank-level regressions to characterise the co-movement between changes in lending to NBFIs and lending to the real economy. We then turn to loan-level analyses based on matched bank–firm data, which allow us to isolate credit supply effects by explicitly controlling for borrower demand. This progression is essential, as aggregate bank-level relationships may reflect both changes in credit supply and shifts in borrower demand, whereas loan-level estimates enable a cleaner identification of supply-side adjustments.

Across all specifications, the key explanatory variable is the annual change in the NBFI share, defined as the change in the stock of loans to NBFIs relative to the previous year’s stock of total loans to the non-bank private sector. This measure captures changes in the relative importance of NBFI lending within a bank’s balance sheet. The bank-level analysis relies on supervisory and balance sheet information from the Integrated Banking Supervision Information System (IBSI), while the loan-level analysis is based on AnaCredit data, which provide detailed information on individual bank–firm lending relationships.

At the bank level, we estimate regressions of the form:

$$\Delta \log(\text{Loans}_{bt}^j) = \beta^j * \Delta \text{NBFI}_{bt-1} + \gamma^j * X_{bt-1} + \alpha_b^j + \tau_t^j + \varepsilon_{bt}^j$$

where $\Delta \log(\text{Loans})$ denotes annual growth in lending by bank b to sector j , which is either NFCs or households. ΔNBFI is the annual change in the NBFI share and X is a vector of bank-level controls. These controls capture capitalisation (leverage ratio), liquidity (reserves held at the ECB deposit facility relative to total assets), market-based funding (liabilities excluding deposits and equity relative to total assets), bank size and overall growth in lending to the non-bank private sector. Bank fixed effects absorb time-invariant heterogeneity across institutions, while time fixed effects capture common macroeconomic conditions. These regressions document aggregate relationships but cannot fully disentangle supply from demand effects.

To isolate credit supply adjustments, we then estimate loan-level regressions using AnaCredit data. The baseline specification takes the form:

$$\Delta \log(\text{Loans}_{ibt}) = \beta * \Delta \text{NBFI}_{bt-1} + \gamma * X_{bt-1} + \alpha_b + \tau_{it} + \varepsilon_{ibt}$$

where $\Delta \log(\text{Loans})$ represents either the annual change in the outstanding credit stock between bank b and firm i or the log amount of newly granted loans. The inclusion of firm–time fixed effects τ_{it} follows the identification approach of Khwaja and Mian (2008): by comparing lending across different banks to the same firm in the same period, this specification absorbs all time-varying firm-level demand shocks. The coefficient β can therefore be interpreted as capturing changes in bank credit supply, conditional on borrower demand. Bank fixed effects account for time-invariant differences across institutions.

We estimate separate specifications for changes in outstanding credit stocks and for new loan originations. The former capture adjustments along the intensive margin within existing lending relationships, while the latter reflect credit supply at the extensive margin. This distinction allows us to assess whether changes in NBF1 lending are associated with reductions in ongoing credit exposure or with weaker origination of new loans.

4

Results

The bank-level regressions reveal a negative association between changes in NBF1 lending and lending to the real economy. Banks that expand their lending to NBF1s tend to exhibit weaker growth in loans to non-financial corporations (NFCs) and, to a lesser extent, households. The estimated elasticities range from -0.62 for NFC lending to -0.39 for household lending (Table 2). These magnitudes suggest that, at the aggregate level, increases in the NBF1 share are associated with a deceleration in lending growth to the real economy. Importantly, however, the results do not indicate that this relationship strengthened after 2024, when NBF1 lending growth accelerated. If anything, the elasticity with respect to NFC lending appears to decline slightly in the post-2024 period, suggesting that the recent expansion in NBF1 lending has not been accompanied by a more pronounced weakening of lending to the real economy.

However, this aggregate evidence should be interpreted with caution. Bank-level regressions capture co-movements and do not distinguish between changes in credit supply and shifts in borrower demand. A negative relationship may reflect weaker demand for NFC loans at banks that simultaneously increase NBF1 exposures, rather than an active reallocation of credit. Moreover, changes in NBF1 lending may be endogenous to bank-specific balance sheet conditions, such as liquidity management, funding structure adjustments or shifts in risk appetite, that simultaneously affect other lending activities.

To address these identification challenges, we turn to loan-level regressions that control explicitly for borrower demand using firm–time fixed effects. By comparing lending across different banks to the same firm in the same period, this specification isolates relative changes in credit supply at the bank–firm level and absorbs all time-varying

Table 2: **Bank level estimates**

	NFC		Households	
	(1)	(2)	(1)	(2)
Δ NBFI	-0.618***	-0.641***	-0.386***	-0.378***
Δ NBFI \times d(2024)		0.104*		-0.036
Number of observations	178,534	178,534	173,016	173,016
R-square	0.609	0.609	0.653	0.653

Notes: The table reports bank-level regression estimates of the association between changes in NBFI lending and growth in loans to NFCs and households over the sample period starting in 2007. Regressions include bank and time fixed effects and all the controls described above; d(2024) is a dummy variable that equals one from 2024m1 onwards. Asterisks denote statistical significance as follows: * 0%, ** 5% and *** 1%.

Sources: ECB, IBSI, own estimates.

firm-specific factors, such as shifts in investment demand, profitability or creditworthiness. This approach therefore addresses the concern that aggregate relationships may reflect changes in borrower demand rather than adjustments in bank lending behaviour.

However, while the inclusion of firm–time fixed effects substantially strengthens identification on the demand side, it does not fully eliminate potential endogeneity arising from bank-specific shocks. Changes in NBFI lending may still reflect underlying balance sheet conditions – such as liquidity management, funding structure adjustments or shifts in risk appetite – that simultaneously affect other lending activities. For example, a change in bank risk appetite may lead a bank to increase exposures to NBFIs while simultaneously tightening credit standards for other borrowers. In the absence of a valid external instrument, the estimates should therefore not be interpreted as fully causal. Rather, they provide evidence on conditional credit supply adjustments.

The loan-level results differ markedly from the aggregate evidence. Once borrower demand is controlled for, changes in the NBFI share are not associated with a statistically significant reduction in firm-level credit supply. As reported in Table 3, the coefficient on the NBFI measure is insignificant both for changes in outstanding loan stocks and for new loan originations. This finding holds across specifications and remains robust when focusing on the period after 2024.

In addition to statistical insignificance, the estimated effects are economically small. For new lending, a one percentage point increase in the NBFI share is associated with a reduction of approximately 0.04% in the credit amount of newly granted loans. For changes in outstanding credit stocks, the corresponding estimate is around 0.09 pp. Even if statistically significant, such magnitudes would imply only marginal adjustments in bank–firm lending relationships and would be unlikely to materially affect aggregate credit conditions.

Table 3: **Loan level estimates for NFCs**

	Δ Credit stock		New lending	
	(1)	(2)	(1)	(2)
Δ NBFI	-0.090	-0.063	-0.038	-0.039
Δ NBFI \times d(2024)		0.142		0.006
Number of observations	138.5m	138.5m	4.6m	4.6m
R-square	0.476	0.476	0.781	0.781

Notes: The table reports loan-level regression estimates for non-financial corporations (NFCs). In columns (1)–(2), the dependent variable is the log change in the outstanding credit stock at the firm–bank level. Columns (3)–(4) focus on new loan originations, where the dependent variable is the log of the credit amount of newly granted loans. The sample period starts in 2020. All specifications include firm–time fixed effects and bank fixed effects, as well as the full set of control variables described above. Asterisks denote statistical significance as follows: * 10%, ** 5% and *** 1%.

Sources: AnaCredit, own estimates.

Table 4: **NBFI lending and liquidity management**

	(1)	(2)
Δ NBFI	-0.375***	-0.289*
Δ NBFI \times d(2024)		-0.359
Number of observations	165,365	165,365
R-square	0.274	0.274

Notes: The table reports bank-level regression estimates of the association between changes in NBFI lending and growth in bank liquidity measured as reserves held at the ECB deposit facility relative to total assets. Regressions include bank and time fixed effects and all the controls described above; d(2024) is a dummy variable that equals one from 2024m1 onwards. Asterisks denote statistical significance as follows: * 10%, ** 5% and *** 1%.

Sources: ECB, IBSI, own estimates.

To complement the above findings, we provide additional evidence on the underlying balance sheet mechanism linking NBFI lending to banks' liquidity management. Table 4 reports bank-level regressions relating changes in liquidity, measured as reserves held at the ECB deposit facility relative to total assets, to changes in NBFI lending, using a specification analogous to that employed for lending to NFCs and households. The results indicate a negative and statistically significant relationship, suggesting that increases in NBFI lending are associated with declines in liquidity buffers. This pattern is consistent with the interpretation that NBFI lending and liquidity holdings act, at least in part, as substitutes from a bank balance sheet perspective.

The second specification explores whether this relationship has changed since 2024, when NBFI lending growth accelerated, by interacting the NBFI measure with a post-2024 dummy. The estimated interaction term is negative, pointing to a potential strengthening of the substitution between liquidity and NBFI lending in the recent period, although the effect is not statistically significant. As such, while the results do not provide conclusive evidence of a meaningful change in the relationship, they are consistent with the view that recent increases in NBFI lending may be linked to adjustments in liquidity management rather than to a shift in credit allocation.

5

Conclusion

This paper examines whether the recent expansion of bank lending to non-bank financial institutions reflects a reallocation of credit away from the real economy. While aggregate bank-level regressions indicate a negative co-movement between changes in NBFI lending and lending to non-financial corporations and households, more granular loan-level evidence does not support the view that increased NBFI lending has led to a systematic reduction in firm-level credit supply. Once borrower demand is controlled for using firm-time fixed effects, the estimated effects become statistically insignificant and economically small.

Additional evidence points to the importance of balance sheet and liquidity management considerations in explaining the observed patterns. Bank-level estimates reveal a negative relationship between changes in NBFI lending and liquidity holdings, suggesting that increases in NBFI exposures are associated with reductions in liquidity buffers. This is consistent with the interpretation that NBFI lending and liquidity serve, at least in part, as substitutes from a balance sheet perspective. While there is some

indication that this relationship may have strengthened since 2024, the evidence does not point to a statistically significant change. Taken together, these findings support the view that recent increases in NBF1 lending are more closely linked to liquidity management than to a reallocation of credit across sectors.

This interpretation is reinforced by the composition of bank lending to NBF1s. Around 70% of the outstanding stock of NBF1 lending consists of reverse repos, which primarily reflect short-term, collateralised liquidity and securities financing transactions. Such operations are typically driven by banks' balance sheet and liquidity management considerations and tend to adjust rapidly to market conditions. As a result, they are less likely to represent persistent shifts in credit allocation or to compete directly with relationship-based lending to NFCs. Taken together, the evidence suggests that the observed aggregate co-movement between NBF1 and NFC lending is more consistent with short-term balance sheet dynamics than with an active reallocation of credit away from the real economy.

From a monetary policy perspective, the findings imply that the recent rise in NBF1 lending has not materially impaired the bank credit channel. Although the composition of bank balance sheets has shifted towards greater NBF1 exposure in aggregate, there is no indication of a systematic tightening of credit supply to firms once borrower demand is taken into account. Banks appear to have accommodated increased NBF1 lending without constraining financing to the real economy. Nevertheless, given the heterogeneous nature of NBF1s and the evolving structure of financial intermediation, continued monitoring of bank–NBF1 linkages remains warranted.

6

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