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SELECTED ISSUES

August 2022

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July 12, 2022

Approved by
European Department

Prepared by Bogdan Lissovolik

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HIGH LENDING INTEREST RATES AND CREDIT-LESS RECOVERY IN LATVIA: A COMPARATIVE MACRO-FINANCIAL PERSPECTIVE FROM THE BALTICS AND THE EURO-AREA [1]

Loan interest rates in the Baltic countries, and especially Latvia, have been relatively high and (recently) rising despite their membership in the euro-area. At the same time, and unlike its Baltic peers, Latvia has experienced a protracted weakness of corporate credit. An analysis of stylized facts and some empirical relationships between credit growth, interest rates, and other macroeconomic variables (i) documents some segmentation in bank lending interest rates between the Baltic states and the euro-area during 2015–22; (ii) finds that interest rates in Latvia are higher than in its Baltic peers with the gaps being yet wider at longer maturities and, within those, for smaller-sized loans; and (iii) determines that there is some relationship between Latvia's weak corporate credit and high interest rates. The findings call for broad-based actions to alleviate both supply and demand-side factors that affect Latvia's interest rates and bottlenecks to its credit provision.

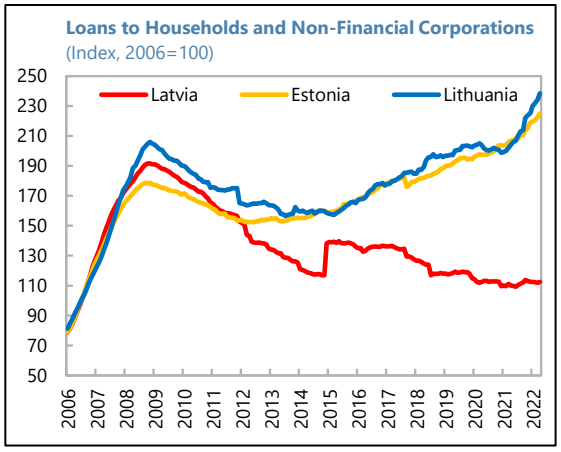
A. Introduction

1. Bank lending interest rates in Latvia and its Baltic neighbors have been surprisingly high in recent years despite their euro-area membership. The puzzle of the high rates in the Baltics was recently highlighted by Benkovskis et al. (2021), whose bank-level analysis suggests that the differences in interest rates on corporate credit and lending margins between the Baltics and the euro-area cannot be explained by conventional bank-specific factors, including funding costs and credit risk. In parallel, Bank of Latvia (2021) explored the determinants of high corporate lending rates in Latvia through a microstudy of credit register data, finding that the characteristics of the loan-issuing credit institution were the most significant determinant, followed by the borrowers' size and type of sectoral activity. Karmelavicius et al. (2022) analyzed the problem of high lending rates focusing on Lithuania, attributing it to bank margins and market concentration. In the context of the euro-area, the problem of high rates in the Baltics raises concerns over the efficiency of transmission of monetary policy. A broader related concern is that the high cost of borrowing limits access to finance and opportunities for economic growth.

2. In parallel, Latvia has experienced an unusually protracted credit-less recovery. While credit growth turned negative in all Baltic countries in the aftermath of the global financial crisis (GFC) of 2008–09, credit started recovering in Lithuania and Estonia by 2013–14. By contrast, Latvia's credit continued to contract for the entire decade that followed the GFC. And while the household segment of Latvia's credit market has finally turned around and registered positive growth in 2021,

[1] Prepared by Bogdan Lissovolik (EUR). The analysis benefitted from discussions with the authorities, particularly Karlis Vilerts and Konstantins Benkovskis.

corporate lending growth has remained in negative territory. Latvia's decade-long credit contraction well exceeds the usual 3-year span of credit-less recoveries (see Abiad et al. (2011)). From a policy perspective, the lack of corporate credit has been typically associated with underperformance of investment, whose growth in Latvia lagged that of the euro-area.



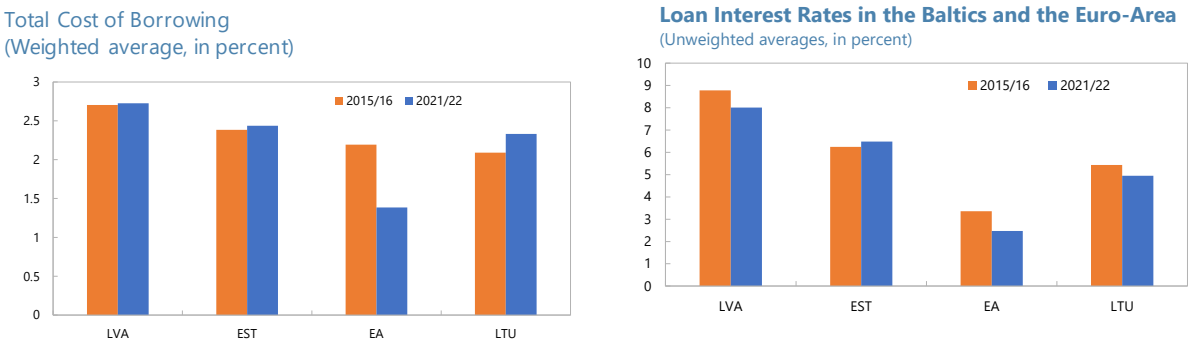
3. This paper explores Latvia's combination of high lending rates and weak credit in a comparative perspective. As a first step, the paper analyzes available data and the associated stylized facts on lending interest rates to assess their comparative levels and dynamics across market segments, comparing Latvia with the other Baltic countries and the euro-area. As a second step, the paper digs into other stylized facts to explore some hypotheses on the drivers of the lending interest rate differentials. Third, an empirical analysis of credit growth is performed to shed light on Latvia's credit-less recovery and compare those with Estonia's credit developments. The paper concludes with policy recommendations.

B. "Unpacking" Comparisons of Latvia's Lending Rates

4. The ECB statistical data warehouse contains extensive data on interest rates on all euro-area countries. The dataset contains monthly data on bank lending interest rates (as well as other interest rates and credit aggregates), with about two dozen types of interest rates on different market segments. Information on interest rates is split into those on loans to non-financial corporates (NFCs) and households, with separate breakdowns by selected maturities, size of loans (for corporates), and types of loans for some of the segments. The data pertains to interest rates on loans to new businesses. The stylized facts examined in this paper will focus on: (i) in terms of country coverage, the three Baltic countries and the euro-area average; and (ii) in terms of time period, changes between around 2015 (when all Baltic countries established their membership in the euro-area) and the most recent period in 2022 (12-month averages of data are used to smooth the monthly volatility of the data in some market segments). Both weighted and unweighted averages of interest rates across market segments are used as they convey complementary information.

5. Overall, the ECB data confirms the higher level, and divergent dynamics, of interest rates in Latvia and the Baltics versus those in the euro-area. Data on weighted average interest rates indicate that those in all Baltic countries slightly increased over the past six years (with the level of interest rates in Latvia remaining the highest) while for the euro-area average they fell perceptibly during the same period (Figure 1). Data on unweighted average interest rates (across all market segments that are available at a granular level) show a slightly different take on the same picture, indicating a decline in interest rates in Latvia almost by the same margin as that of the euro-area, albeit from much higher interest rate levels. The data implies that in certain market segments differences in lending interest rates remain elevated, but those segments have relatively small volumes.

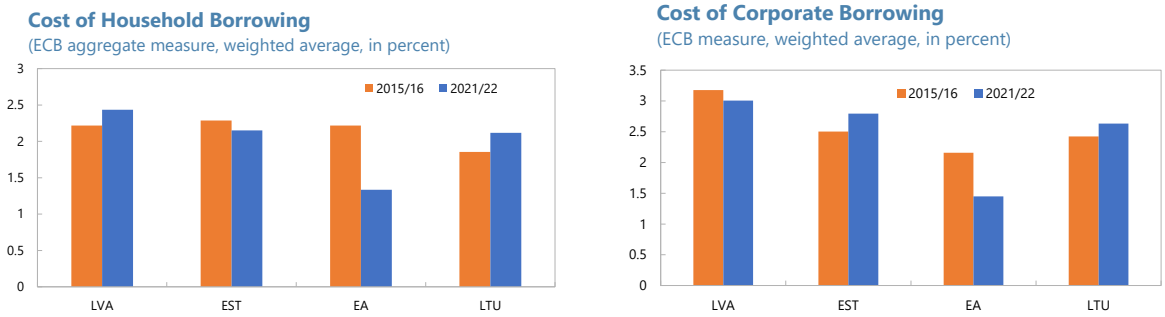
Figure 1. Loan Interest Rates in the Baltics and the Euro-Area, 2015–22



Source: ECB Statistical Data Warehouse and IMF staff estimates.

6. The levels and dynamics of interest rates for household and corporate loans suggest a pattern of (i) broad alignment of interest rates within the Baltics, and (ii) a de-coupling of the Baltics from the euro-area average (Figure 2). Based on weighted averages, Latvia's interest rates levels remain the highest, though they are quite close to those of other Baltic countries; there was a relatively minor change in those rates, in either direction, over the past 6 years, despite the easing of monetary policy in the euro-area. Against this background, the rates in the euro-area experienced a pronounced decline over the same period.

Figure 2. Household and Corporate Loan Rates in the Baltics and the Euro-Area, 2015–22



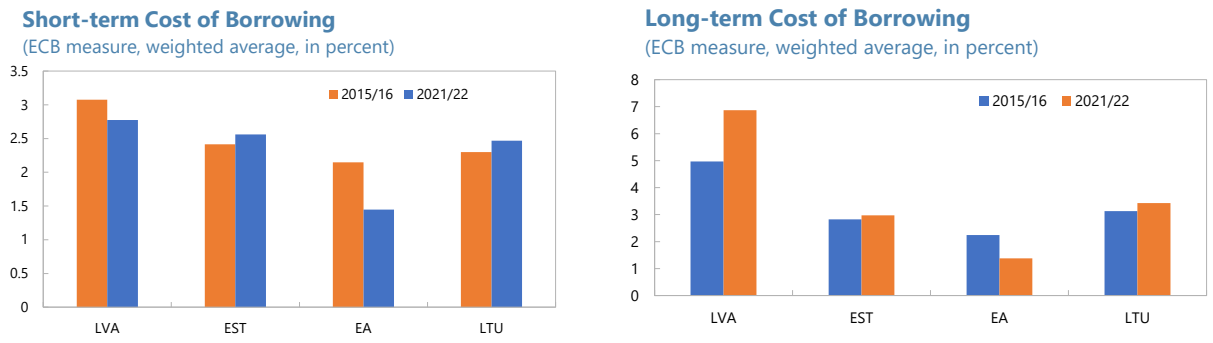
Source: ECB Statistical Data Warehouse and IMF staff estimates.

7. Examination of interest rates by maturity suggests a similar but yet-more pronounced pattern of divergence for Latvia that is concentrated on longer maturities and particularly for corporate lending.[2] As can be seen from Figure 3, short-term borrowing costs follow the same pattern of within-Baltics alignment and de-coupling from the euro-area. At the same time, Latvia's long-term (over one year) borrowing costs have increased perceptibly, from already high levels, and

[2] Cross-country comparisons of interest rates on loans by maturity are subject to certain data caveats, as practices of loans terms fixation may vary and be sensitive to other factors, such as floating versus fixed rate loans.

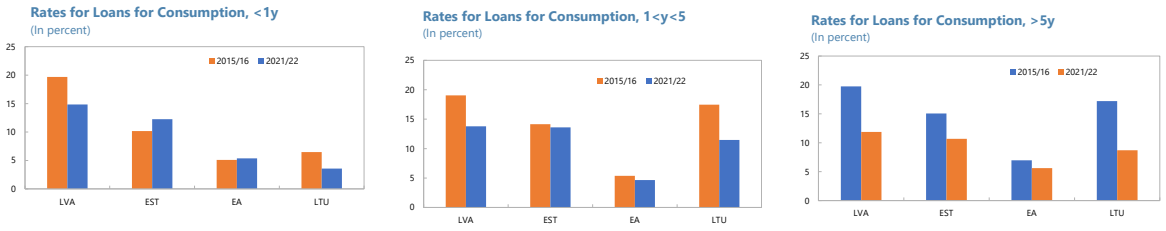
have diverged both from the euro-area and the Baltics. A more detailed view of market segments by maturity suggests that: (i) for *consumption* loans (Figure 4), there has been convergence of the Baltics toward the euro area, but there remains a very high disparity in the levels of interest rates, which are in double digits for Latvia across all maturities; (ii) for *mortgage loans* (Figure 5), Latvia's interest rates have declined broadly by the same margin as those of the euro-area at the short end, but stayed constant at high levels on the long end, thereby diverging from those in the euro-area; and (iii) for (small) *corporate loans* (Figure 6), Latvia's interest rates declined by a smaller margin than the euro area on the short end while increasing (and diverging) sharply on the long end.

Figure 3. Short-term and Long-term Loan Rates in the Baltics and the Euro-Area, 2015–22



Source: ECB Statistical Data Warehouse and IMF staff estimates.

Figure 4. Consumption Loans by Maturity in the Baltics and the Euro-Area, 2015–22

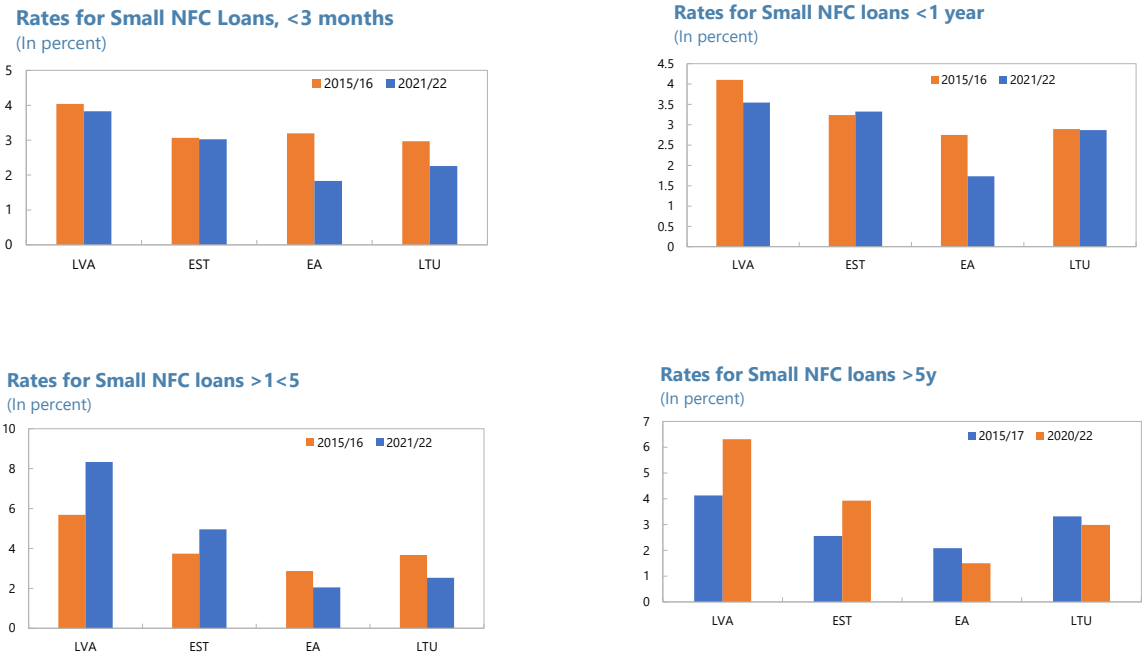


Source: ECB Statistical Data Warehouse and IMF staff estimates.

Figure 5. Mortgage Loans by Maturity in the Baltics and the Euro-Area, 2015–22

Source: ECB Statistical Data Warehouse and IMF staff estimates.

Figure 6. Small NFC Loans by Maturity in the Baltics and the Euro-Area, 2015–22



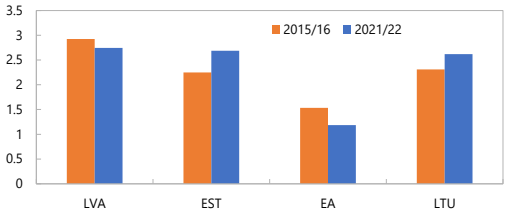
Source: ECB Statistical Data Warehouse and IMF staff estimates.

Note: the two bottom figures use 24-month averages instead of 12-month averages due to data availability issues.

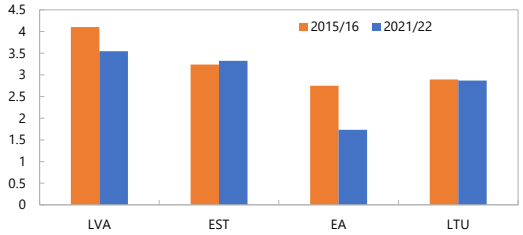
8. The size of corporate loans is inversely related to interest rates, with Latvia's divergence being particularly magnified for small loans. As expected, smaller corporate loans (below EUR 1 million) tend to have an interest rate premium over large loans. In Latvia, such premium has been the largest, though it declined perceptibly for short-maturity loans over the past six years (Figure 7). By contrast, for longer-maturity loans (Figure 8) the small-loan interest rate premium has appreciably increased in Latvia and (to a smaller extent) Estonia. Therefore, the size of loans acted as an "amplifier" of the dynamics when it interacted with other factors, such as the maturity of loans.

Figure 7. Short Term Corporate Loans by Size in the Baltics and the Euro-Area, 2015–22

Rates for Large NFC Loans < 1 Year
(In percent)



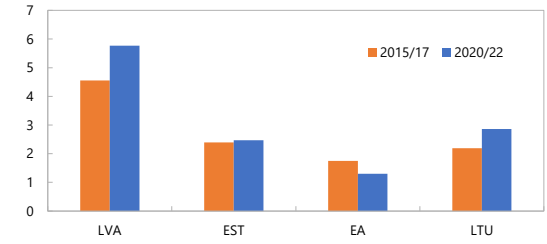
Rates for Small NFC Loans < 1 Year
(In percent)



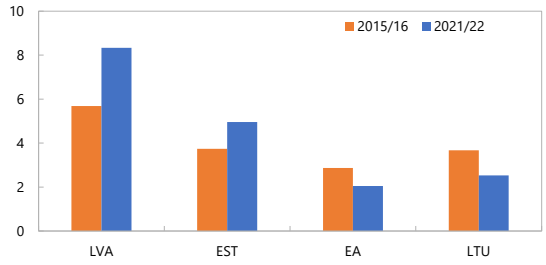
Source: ECB Statistical Data Warehouse and IMF staff estimates.

Figure 8. Medium Term Corporate Loans by Size in the Baltics and the Euro-Area, 2015–22

Rates for Large NFC Loans > 1 <5
(In percent)



Rates for Small NFC Loans > 1 < 5
(In percent)



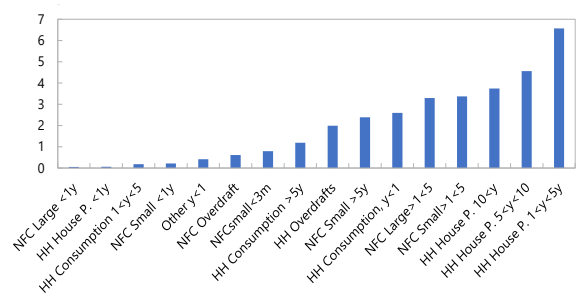
Source: ECB Statistical Data Warehouse and IMF staff estimates.

9. Pairwise comparisons convey sizeable and heterogeneous interest rate differentials across all market segments (Figure 9). Comparing loan interest rates between Latvia and Estonia suggests that Latvia's interest rates are higher by about 2 percentage points as an unweighted average and rise to 4–6½ percent for household house purchase loans with maturity of above one year. The differential is also higher than average (around 3 percentage points) for longer-term corporate loans (maturity above 1 year). The gap between loan interest rates between the Baltic and euro-area averages is yet higher, being around 4 percentage points as an unweighted average and up to 9 percentage points for some types of loans to households. The differential tends to be higher for household loans and higher maturities, although for the latter the relationship may be non-linear

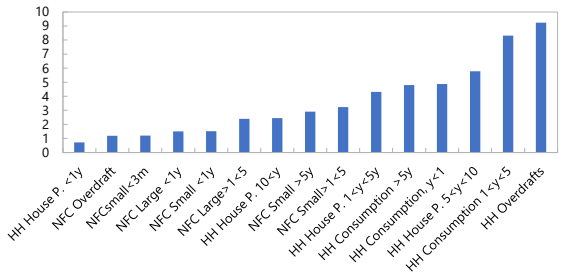
in that for some segments, such as housing loans, long-term contracts are more typical/standardized and therefore carry a lower interest rate than for shorter maturities.

Figure 9. Country-level Interest Rate Differentials, 2021–22

Latvia Loan Interest Rate "Premium" Over Estonia
(In percent)



Baltics Interest Rate Premium Over Euro-Area
(In percent)

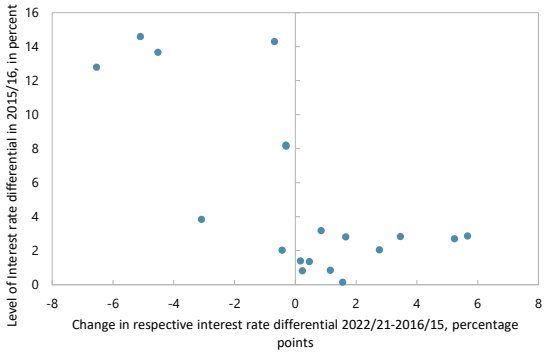


Source: ECB Statistical Data Warehouse and IMF staff estimates.

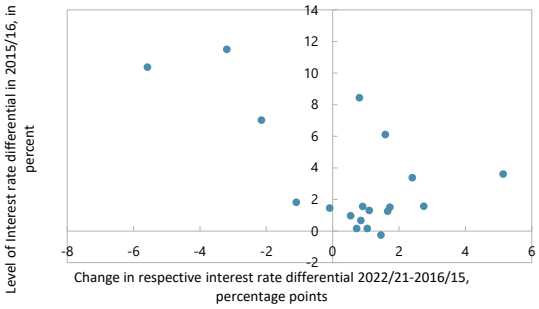
10. The growing segmentation of the Baltics and the euro-area and patterns of convergence or divergence can be illustrated by scatter figures (Figure 10, 11). The figures plot changes in the interest rate differential against the level of the respective interest rates at the beginning of the period (2015–16), comparing Latvia's rates to those in the euro-area and the other Baltics, respectively. The figures help identify instances of narrowing of interest rate differentials (convergence) versus their widening. While the scatter figures contain elements of such convergence and divergence at the same time, divergence seems to be more frequent in comparisons of Latvia/Baltics and the euro-area, while within the Baltics convergence is more frequent. The plots illustrate that instances of convergence are concentrated in segments where the initial interest rate differentials were high, while in segments where the differentials were narrower divergence tends to dominate. Overall, there is a clear lack of convergence in most segments.

Figure 10. Interest Rate Convergence Between Latvia/Baltics and the Euro-Area, 2015–22

Convergence/Divergence of Interest Rates
Between Latvia and the Euro-Area



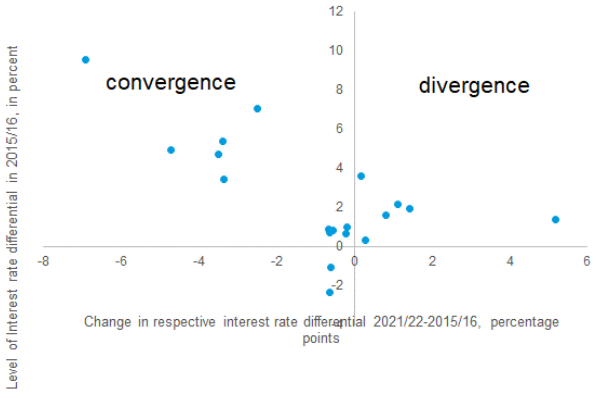
Convergence/Divergence of Interest Rates Between the
Baltics and the Euro-Area



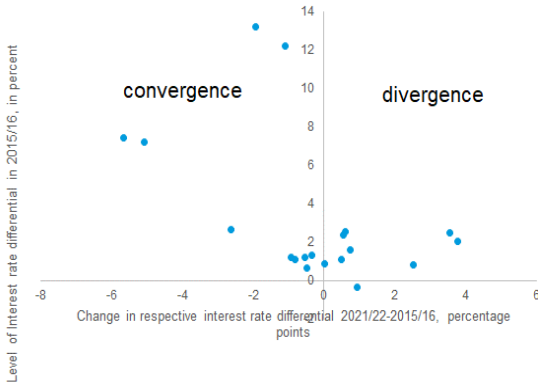
Source: ECB Statistical Data Warehouse and IMF staff estimates.

Figure 11. Interest Rate Convergence between Latvia and Other Baltic Countries, 2015–22

Convergence/Divergence of Interest Rates Between Latvia and Estonia



Convergence/Divergence of Interest Rates Between Latvia and Lithuania



Source: ECB Statistical Data Warehouse and IMF staff estimates.

C. Exploring Potential Factors behind the Interest Rate Differentials

11. There can be several sets of hypotheses behind high and diverging interest rate differentials in the lending rates between Latvia, Baltics, and the euro-area. First, there may be potential differences in the cost of funding for banks, notably the cost of attracting bank deposits. Second, the gap may reflect the differences in risks associated with non-bank borrowers. Third, the differential may reflect different characteristics of banks, including their health, extent of bank competition, and differences in lending policies. Some of these hypotheses can be investigated further by looking at the cross-country and country-specific stylized facts.

Deposit Rates

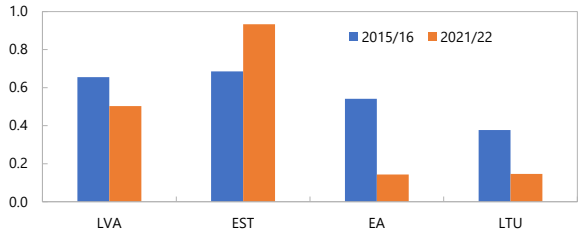
12. The ECB database contains information that permits to gauge cross-country differences in the cost of deposits.[3] Overall, this cost is low for all types of deposits, but there remain some differences among the Baltic countries (Figure 12). As an unweighted average, the cost of Estonia's deposits is perceptibly higher than that of other Baltics, which is largely explained by the high cost of Estonia's NFC deposits of over two years whose volume is relatively low. As a weighted average, however, the cost of deposits is uniformly negligible at below 0.1 percent for all Baltic countries, with Estonia's deposits still remaining relatively more costly but only marginally so.

13. A more granular examination of the data suggests that most other Euro-area banks have two advantages relative to the Baltics in terms of the cost of deposits, but these are quantitatively small (Figure 13). The first advantage is greater reliance on longer-term deposits,

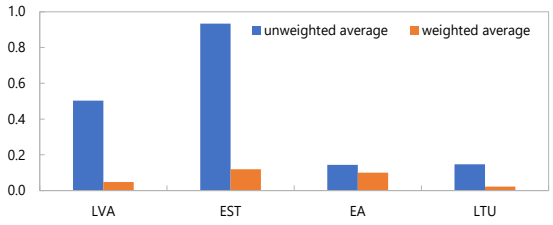
[3] The overall funding cost could however be different from the cost of deposits particularly in the Baltics, where the key banks are part of international banking groups that may partially resort to cross-border funding strategies.

Figure 12. Baltics and the Euro-Area: Cost of Deposits, 2015/16–2021/22

Cost of Deposits
(In percent, unweighted Average)



Cost of Deposits, 2021–22
(In percent)

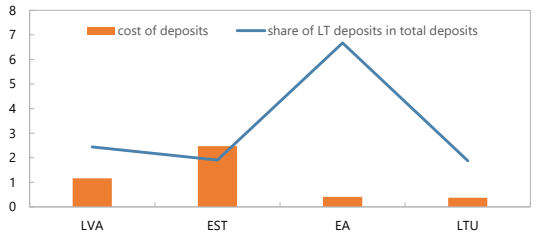


Source: ECB Statistical Data Warehouse and IMF staff estimates.

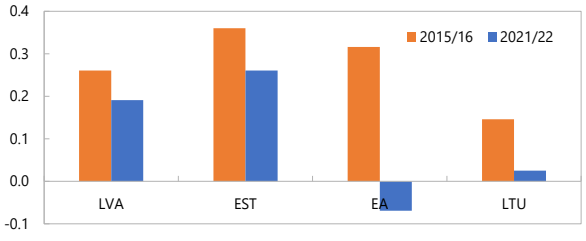
which carries a higher cost relative to short-term funding but is valuable given the risk of maturity mismatches. Euro-area banks are attracting long-term deposits in a higher proportion and at a smaller cost than the Baltic countries. The second advantage of euro-area banks is the lower cost of enterprise deposits, which they were able to carry at negative nominal rates (unlike the Baltic countries, which have those at positive nominal rates). Such difference is however relatively small (0.1–0.3 percentage point relative to the Baltic countries). Overall euro-area's bank funding advantages are too small to significantly explain the differences in lending rates: the differential in deposit rates accounts for between 1 percent (for Lithuania) and 5 percent (for Latvia) of the loan rate differential. This issue may be even less important as a matter of bank funding as access to central bank financing, including targeted longer-term refinancing operations (TLTRO), smoothens the differences in funding costs in euro-area banks.

Figure 13. Baltics and the Euro-Area: Cost of Selected Deposits, 2015–22

Share and Cost of Deposits with Maturity Over 2 Years in Total Deposits in 2022
(In percent)



Cost of NFC Deposits
(In percent)



Source: ECB Statistical Data Warehouse and IMF staff estimates.

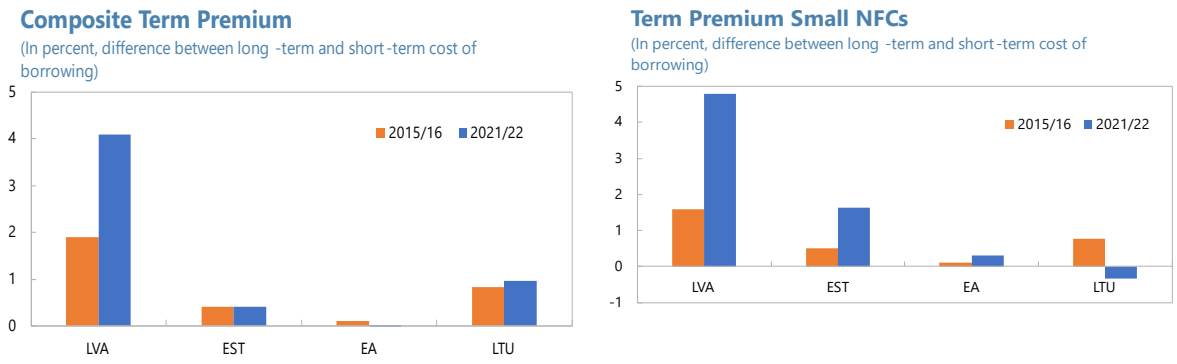
Risks of Non-bank Borrowers

14. Another possible reason for the high interest rates in Latvia could be risks associated with nonbank borrowers. These may reflect deep legacy issues of the economic transition, as well as imbalances that emerged in the region in the context of the 2008–09 GFC and the associated bottlenecks to faster productivity growth and convergence. Corporate sector risks have been a key

focus of these discussions, due to the relatively small size of Latvian firms and their slower pace of productivity improvements relative to larger firms (see Deb (2016)). While Latvia and other Baltics countries have achieved sustained improvements in economic performance and risk perceptions owing to wide-ranging economic reforms, remaining challenges and setbacks have been substantial (see the policy discussion below). Nevertheless, aggregate country-level statistics on Latvian firms must be interpreted with caution, as the relatively low loan-to-GDP ratio may entail a selection bias whereby the financial situation of borrowers could be better than that of an average firm in general. In this context, a 2019 report by the European Banking Authority assesses Latvia's loan recovery rates relatively favorably.[4]

15. Cross-country comparisons show that Latvia's interest rate term premia are consistently higher than those of other Baltic countries (Figure 14,15). Latvia's total bank lending term premium (e.g., the difference between long-term and short-term composite cost of borrowing as calculated by the ECB), at 4 percentage points, is the highest among the Baltic countries. It is well above the euro-area average, increasing substantially relative to peers in recent years. This is also the case for such subsectors as small loans to NFCs and loans for house purchase. However, several interest rate market segments have more volatile and scant data, hampering cross-country comparisons. In some segments, including large corporate loans and consumption and "other" household loans, Latvia's term premiums are lower than those for Estonia. Interpretation of the aggregate term premia as proxies for borrower risks should however be made with caution because of likely shifts in the composition of banks or borrowers, few transactions, and lack of standardization of terms of transactions in some areas.

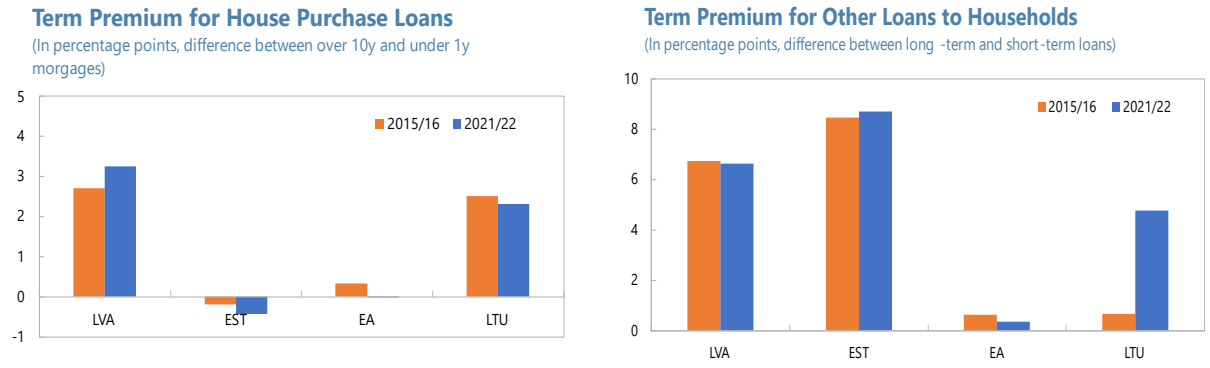
Figure 14. Interest Rate Term Premium in the Baltics and the Euro-Area, 2015–22



Source: ECB Statistical Data Warehouse and IMF staff estimates.

[4] See Microsoft Word - CfA on Insolvency - Final Report.docx (europa.eu)

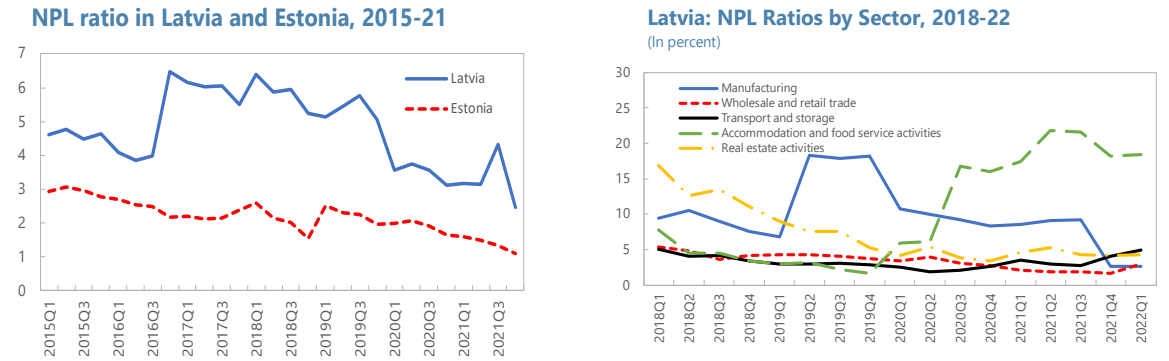
Figure 15. Interest Rate Premium in the Baltics and the Euro-Area, 2015–22



Source: ECB Statistical Data Warehouse and IMF staff estimates.

16. Latvia's non-performing loans are higher than in its Baltic peers but have been on a downward trend overall, thereby conveying a mixed picture regarding borrower-side risks (Figure 16). Non-performing loans can help assess borrower risks, although they are an imperfect proxy, not least because of their backward-looking nature. Latvia's NPL ratio has been on a higher path than in other Baltic countries, reflecting large effects from the GFC shock and some other factors.[5] Latvia's NPL ratio has also been more volatile, including because of a temporary uptick observed in 2016–17. Still, there has been a sustained reduction in the NPL ratio overall, particularly since 2018. This reduction continued during the COVID-19 shock, except pandemic-hit services sectors such as food and accommodation. The decline in NPL ratios in Latvia suggests that, if any supply side factors contributed to upward pressures on interest rates, they are unlikely to be those that relate to asset quality. Notwithstanding the improving trend, NPL ratios have remained relatively in some sectors, suggesting remaining vulnerabilities among some corporate borrowers.

Figure 16. NPL Ratios in Latvia and Estonia, and Latvia's Nominal NPLs by Sector, 2016–21



Sources: IMF staff estimates, National Summary Data Pages of Latvia and Estonia, and FCMC.

[5] For example, Latvia's greater contraction of credit entails an upward effect on the NPL ratio, other things equal, through the denominator effect.

17. An analysis of interest rates for NFCs suggests that the role of collateral may have been falling in Latvia. Comparing interest rates on collateralized and total corporate loans for small, medium-sized, and large loans indicates that the collateral "discount" has been relatively small and declining over time, as OLS regressions (Table 1) show that the level of the discount over the past decade is negatively associated with the time trend term in all three segments. The intuition behind these results is however not straightforward and warrants caution given the aggregated nature of the data and absence of granular controls.[6] Normally, the lower collateral discount would signal improvements in broader debt enforcement outcomes. However, since loans to SMEs generally require collateral, a shift in the composition of credit toward larger borrowers (which do not require collateral and enjoy lower interest rates relative to SMEs for reasons other than collateral) would explain the declining discount. An analysis of the quantity and composition of bank credit between large enterprises, SMEs, and micro firms is therefore needed to better assess these hypotheses given the evidence that SMEs and micro-firms are credit-constrained (see EIB (2021)). [7]

Table 1. Latvia: Interest Rates and Collateral

Dependent Variable: Difference Between Interest Rates for All and Collateralized Loans

Sample 2010(6)-2022(3)	**small NFC loans**	**medium NFC loans**	**large NFC loans**
constant	0.21***	0.10**	0.29***
	4.07	*2.47*	*3.47*
trend	-0.001***	-0.001***	-0.002***
	-4.69	*-4.31*	*-4.63*
Number of observations	142	142	142
R-squared overall	0.31	0.45	0.59
R-squared adj.	0.27	0.42	0.57
Seasonal/time dummies	yes	yes	yes

t-statistics in italics
***,**, and * denote statistical significance at 0.01, 0.05, and 0.1 level respectively.

18. Latvia's corporate equity gap is a key factor to be assessed in understanding corporate risks, notably with respect to SMEs and microenterprises. According to Ebeke et al. (2021), Latvia's corporate equity gap was estimated at some 5 percent of GDP based on firm-level data prior to the COVID-19 pandemic and projected at 9 percent of GDP post-pandemic. These levels were the highest among the 15 euro-area countries for which such gap was estimated, although

[6] Interestingly, Bank of Latvia (2021) study, which uses granular loan-level information, also finds that the role of collateral in interest rates is weak overall, though it does not report the evolution of this effect over time.

[7] There is yet another possible interpretation of the negative trend in the collateral "discount," such as a deterioration in the efficiency of collateral-enforcement procedures relative to general debt-enforcement procedures. There are, however, no specific stylized facts that would argue for this interpretation.

other Baltic countries and smaller euro-area countries were not part of the sample. The study also reported that Latvia's share of SMEs relative to large enterprises (99.9 percent) and the proportion of insolvent firms (around 50 percent) in the sample were by far the largest of the 15 countries.[8] The small firms face greater financing constraints and barriers to investing and productivity growth. In this context, a comparison with Estonia, whose economy is smaller, suggests that Latvia's problem of small firm size is not just a by-product of country size. For example, EIB (2021) reports that while the proportion of overall finance-constrained firms in Estonia (7 percent) and Latvia (8 percent) differed only marginally, such difference for small and micro firms was much larger (12 versus 22 percent).

Role of Banks

19. Bank-related factors also play an important role in loan interest rates, including in the context of relatively high profitability and mark-ups in the Baltics. On the one hand, low bank competition, conservative lending policies, lower bank risk appetite, and higher bank costs are associated with higher interest rates. Conversely, the operation of the same factors in the other direction would be associated with lower interest rates. Benkovskis et al. (2021) and Bank of Latvia (2021) have provided extensive empirical analysis of factors affecting corporate loan interest rates using detailed, bank-level data. Both papers argue that bank-related supply-side factors, including conservative lending policies, are likely a major factor behind the high interest rates in Latvia. However, the papers' empirical exercises yielded substantial unexplained residuals and needed to be completed by judgmental elements to derive policy conclusions. For example, data on the extent of bank competition in Latvia is not extensive and granular enough to be internalized in the modeling frameworks. Additional challenges involve separating borrower sector risks from factors shaping bank behavior, with such assessments being complicated by inherent endogeneity biases and data gaps. Nevertheless, bank profitability in the Baltic countries is among the highest in the euro area, therefore suggesting that higher interest rates also get reflected in higher profits.

20. While Latvian banks have solid buffers that should incentivize risk-taking, this hinges on the competitive conditions and incentives of banks and corporates. Capitalization and profitability of Latvia's (and other Baltic) banks is among the highest in the euro-area, suggesting that it should be beneficial for banks to expand market shares. However, the observed weakness in Latvia's corporate credit, despite banks' high profitability, does not fully fit this narrative. It would therefore be important to assess factors influencing credit growth to throw more light on demand and supply conditions and other macro-financial conditions influencing banks and borrowers.

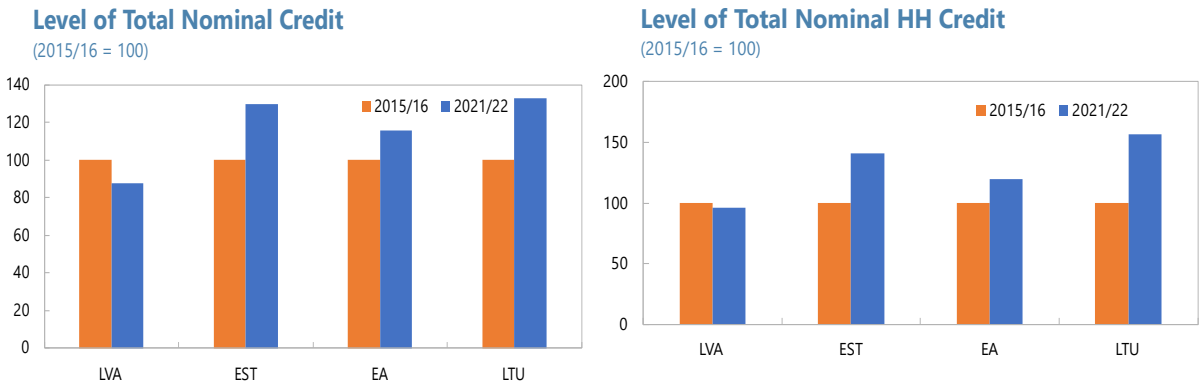
D. Analysis of Corporate Credit Growth

21. Latvia's credit growth has been the weaker than in peers, both for corporates and households (Figure 17). While Latvia's credit to households was broadly flat over the past six years, its credit to corporates contracted by 20 percent, in contrast to significantly positive growth in both segments in other countries. The protracted contraction of corporate credit in Latvia in nominal

[8] These conclusions from enterprise statistics should however be interpreted with caution due to potential differences in samples and legislative frameworks that govern insolvency conditions among enterprises.

terms appears to be a key puzzle, with the fall being even more pronounced in terms of GDP. The puzzle is accentuated by the fact that Latvia has many similarities with its Baltic peers in terms of economic size and structure, including broadly similar structural challenges, common monetary policy and regulation, similar structure of the banking system, and essentially the same banks.

Figure 17. Credit in the Baltics and the Euro-Area, 2015–22



Source: ECB Statistical Data Warehouse and IMF staff estimates.

22. A time series analysis was performed to throw light on the determinants of aggregate corporate credit growth in Latvia and put it in a comparative perspective with Estonia. Following Cihak and Tamirisa (2006) single country-level OLS regressions were used, focusing on macro-financial relationships, whereby aggregate bank credit growth was regressed on the basic proxies for loan demand (industrial production growth, wage growth, and unemployment) and loan supply (bank soundness), and real policy interest rates.[9] The model has been estimated based on both monthly and quarterly data for the period 2013-21.[10] Parsimonious specifications were obtained using general-to-specific modeling, starting with 12 lags for all explanatory variables for monthly data and four lags for quarterly data, sequentially eliminating statistically insignificant variables. Various diagnostic tests were used to check the validity of the usual econometric properties, as well as robustness of the results, including by comparing the same or similar relationships between monthly and quarterly data.[11] [12]

23. Regression results highlight both commonalities and differences between the drivers of Latvia's and Estonia's corporate credit (Tables 2,3). In both countries, there is a negative association between corporate credit growth and lagged industrial production. This result is not uncommon (see Cihak and Tamirisa (2006)) and has been interpreted in the literature as reflecting

[9] Bank soundness is measured as a ratio of non-performing loans and total loans.

[10] Due to data availability issues, monthly regressions for Latvia cover the period 2015–21.

[11] These tests and robustness checks are important given overfitting concerns that accompany this category of models and estimating procedures.

[12] Obviously, there is a tradeoff between using monthly and quarterly data, with the latter permitting a wider choice of suitable variables and controls but entailing less power in short-sample regressions that cover the same period.

the fact that strong retained earnings enable corporates to finance themselves internally. EIB (2021) confirms that self-financing was an important channel of corporate funding in both Latvia and Estonia. Another commonality between the Latvia and Estonia regressions is that potential explanatory variables such asset quality (NPLs), the policy rate, and the change in unemployment rate came out as statistically insignificant. The key difference between Latvia and Estonia is the sign of the wage growth term: in Estonia higher wage growth is positively associated with corporate loan growth while in Latvia this relationship is negative. Latvia's negative sign is in line with what would be generally expected (see Cihak and Tamirisa (2006)), while Estonia's result suggests particularly resilient credit demand, which possibly reflects strong overall productivity performance more than offsetting the typical drag on corporate sector growth caused by higher wages.

24. Demand-side factors are more easily identifiable through these regressions, but supply-side channels cannot be ruled out. On one level, while the hypothesis of strong retained corporate earnings is usually interpreted as reducing demand for bank credit, this is not a traditional demand-side explanation, since it does not imply reduced availability of resources for investment. On another level, identification of traditional supply-side relationships may have been impeded by limited data availability. For now, supply-side constraints have only been proxied by NPLs, which are backward-looking indicators, and for Latvia, they are not available at monthly frequency.[13] Availability of consistent series of forward-looking measures such as probabilities of default could help identification.

Table 2. Latvia and Estonia: OLS Regression for Credit Growth (Quarterly Data)

Dependent Variable: Real Quarterly Growth in Corporate Credit

Sample 2013(3)-2021(4)	**Latvia**	**Estonia**
Lagged ind. production growth	-0.55*** (3)	-0.23** (2)
	-3.70	*-2.93*
Lagged real wage growth	-1.52***(1)	0.75*** (2)
	-5.76	*3.84*
Other controls (dropped out as insignificant)	Policy rate, NPL ratio, change in unemployment rate	
Number of observations	34	34
Time dummies	one (2014 (1))	one (2017 (3))
AR 1-3 test:	[0.6934]	[0.0506]
ARCH 1-3 test:	[0.6379]	[0.9411]
Normality test:	[0.7919]	[0.5128]
Hetero test:	[0.9067]	[0.3534]
Hetero-X test:	[0.9166]	[0.2914]
RESET23 test:	[0.1956]	[0.8943]

t-statistics in italics
***,**, and * denote statistical significance at 0.01, 0.05, and 0.1 level respectively.

[13] The monthly model for Latvia therefore used interpolated NPL ratios.

Table 3. Latvia and Estonia: OLS Regression for Credit Growth (Monthly Data)

Dependent Variable: Real Monthly Growth in Corporate Credit

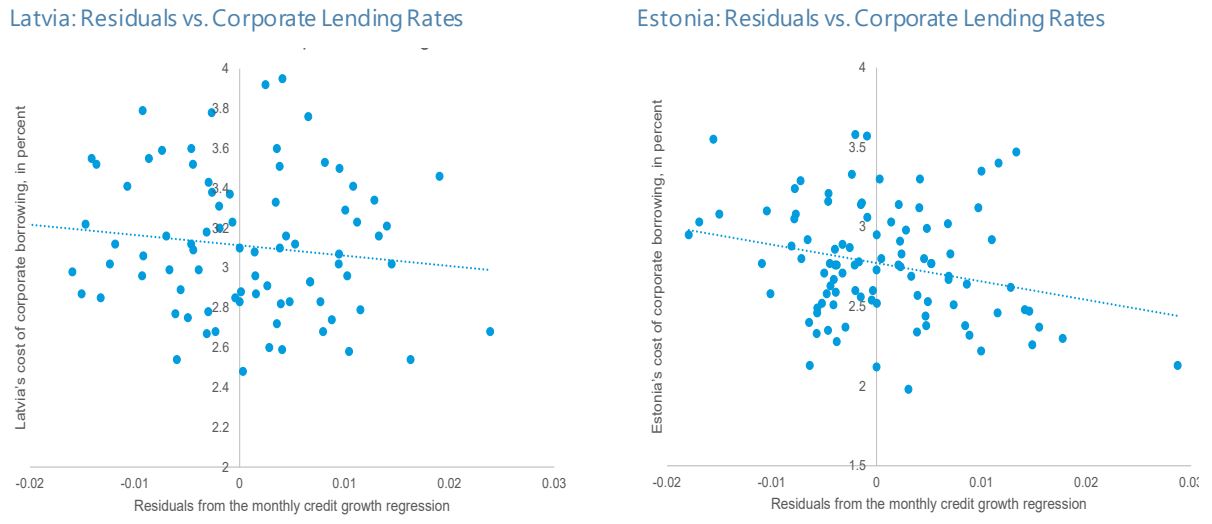
	Latvia	Estonia
Sample	2015(2) - 2021(12)	2013(8) - 2021(9)
Industrial production growth (lag)	-0.11** (6)	-0.06** (7)
	-2.02	*-2.36*
	-0.10** (7)	-0.12*** (11)
	-2.06	*-4.59*
	-0.13** (11)	
	-2.42	
Real wage growth (lag)	-0.20* (1)	0.28*** (0)
	-1.99	*3.92*
	-0.26** (3)	0.19** (1)
	-2.12	*2.76*
	-0.41*** (4)	
	-3.02	
	-0.42*** (5)	
	-4.97	
	0.26**(7)	
	2.52	
Lagged dependent variable (lag)		0.17** (10)
		2.60
Real policy rate (lag)	-0.002* (11)	
	-1.99	
Other controls (some not reported being insignificant)	NPL ratio, change in unemployment rate	
Number of observations	83	98
Time dummies	2017(9), 2018(7)	2017 (9)
Diagnostic tests (probability in brackets):		
AR test:	[0.7693]	[0.0369]*
ARCH test:	[0.8723]	[0.5963]
Normality test:	[0.0649]	[0.0816]
Hetero test:	[0.6586]	[0.5979]

t-statistics in italics

***,**, and * denote statistical significance at 0.01, 0.05, and 0.1 level respectively.

25. The residuals from the credit growth regression are negatively correlated with lending interest rates and provide additional insights. As is recognized in other studies, with credit growth likely being endogenous with lending interest rates, (non-policy) interest rates should not be included in OLS regressions of credit growth as they would cause reverse causality-type problems. Still, the examination of residuals from the regressions can provide insights on the potentially missing correlates. In this context, the residuals from both Latvia and Estonia regressions are negatively correlated with their respective lending interest rates, thereby suggesting that these phenomena may be related (Figure 18). A further investigation of this relationship over this time span is impeded by the relative shortness of the time sample and a limited menu of variables that could be candidates for instrumenting for reverse causality.

Figure 18. Relationship Between Regression Residuals and Lending Interest Rates



Source: IMF staff estimates.

E. Policy Recommendations

26. Recent research and policy studies suggest both supply and demand-side explanations to weak credit and high interest rates. Existing empirical studies have focused on three broad dimensions that shape interest rates and credit: (i) macroeconomic relationships; (ii) bank-level factors; and (iii) borrower-related conditions. Well-tailored and wide-ranging improvements in all these dimensions should anchor the reform agenda. In parallel, Estonia's experience and recent advances offer practical steps forward for Latvia.

	Macro-Characteristics	Bank Characteristics	Borrower/Loan Characteristics
Benkovskis et al. (2021)	Yes, some (those that determine "pure margins")	Yes	No
Bank of Latvia (2021)	No (e.g., macro-environment homogenous)	Yes	Yes
This paper	Yes, some (those that determine credit growth)	No	No

27. Structural reforms of the business environment and digitalization are needed to support productivity and resilience of firms. Latvia's convergence to Western Europe's income levels hinges on continued productivity improvements to underpin income and wage growth. As per above empirical analysis, higher productivity and competitiveness could also support demand for credit. Progress in enhancing productivity is however complicated by the high share of small and micro enterprises, which, besides balance sheet weaknesses and constrained access to finance, face problematic business environment and have limited access to productivity-enhancing services such as digital and transport infrastructure. For example, according to EIB (2021), some 57 percent of small and micro firms in Latvia report digital infrastructure as a barrier to long-term investment versus 29 percent in Estonia. In addition, Latvia's share of the shadow economy, at 26 percent in 2021, has remained the highest among the Baltics (see SSE (2022)). As shadow enterprises tend to

be less productive, reducing the share of the shadow economy would catalyze both productivity and demand for credit.

28. Measures to assess Latvia's corporate equity gap and its implications could help right-size solvency support and incentivize sound credit flows to the corporate sector. Latvia's corporate equity gap appears to be comparatively high, though more needs to be done to understand better its current (post-COVID-19) level, composition, and effects on the economy. IMF (2021) contains extensive advice on assessing the case for and design of recapitalization options, with a menu of European cases studies that can help guide implementation. IMF (2022) includes additional guidance and examples of solvency support, drawing on global experience. While Latvia has used the EU state-aid framework to offer recapitalization to larger enterprises, it could potentially do more to assess the scope for supporting SMEs and micro firms, which form most of the corporate sector. For micro enterprises, Norway's grant-based support scheme (IMF 2021) is a key option to consider, subject to fiscal space considerations and a tailored cost-benefit analysis.

29. There is scope to further upgrade the quality of enforcement procedures. As found by Wu (2019), a better insolvency recovery rate has been associated with higher productivity growth in Latvia. In the aftermath of substantial reforms of the insolvency framework, which included those undertaken with technical assistance of the IMF legal department, there is currently an improved framework and the menu of options for insolvency restructuring. However, there remains further work to be done in terms of legislative implementation and in translating these improvements to transactions "on the ground." Faster implementation of the EU restructuring directive will simplify debt restructuring through out-of-court and hybrid procedures. IMF (2022) contains a roadmap for more detailed and state-contingent options for implementing such procedures.

30. Well-tailored restructuring of the banks formerly servicing foreign clients (BSFCs) can expand options for credit provision on the part of banks. With the war in Ukraine putting a further spotlight on high-risk foreign clients that may be subject to sanctions, there is an opportunity to accelerate the restructuring of the business models. BSFCs can therefore intensify the search for viable domestic niches, injecting more competition in the lending market and spearheading greater credit provision. At the same time, stepped-up supervision would be critical as the BSFCs would be vulnerable to greater competitive pressures in the domestic lending market and shocks and regulatory changes affecting funding markets.

31. Regularly reviewing the banks' competitiveness landscape would be helpful to track supply-side factors in interest rate levels and credit provision. While Latvia's small size implies that its banking system is relatively concentrated for natural reasons, bank competition is fluctuating over time, including as BSFCs are restructuring their business models. Continually assessing measures of bank competition, such as the Herfindahl-Hirschman index across different loan segments (e.g., for small and large corporate loans, housing loans., credit card loans and overdrafts, and other loans) could help identify bottlenecks and opportunities for policies. Assessing trends in the credit provision by non-banks would throw light on the evolution of banks' comparative advantages in credit provision. Analyzing Latvia-specific access to finance by types of enterprises,

including in a comparative perspective that is offered by the ECB's SAFE survey and the EIB investment survey could also help inform regulatory and other reforms.

32. Advancement on the AML/CFT agenda would critically safeguard progress. In the past few years, shocks from AML/CFT events and costs of managing related risks could have limited credit provision while increasing bank costs and therefore interest rates. These costs and risks have likely affected (i) all banks, by increasing costs and limiting their risk appetite for exposures; (ii) BSFCs in particular, by directly impacting some of their client relationships and narrowing options for transitioning to the new business models, and (iii) many non-bank clients, since they or their partners or clients were subject to enhanced due diligence checks and other procedures. With the AML/CFT risk-based approach in place and with substantial steps forward having been made in creating and modernizing AML/CFT oversight, there are opportunities to reduce the risks and costs (see Jobst and Kao (2019)). In particular, after the fixed costs of ensuring pre-qualification requirements are incurred, the costs of compliance should be lower going forward.

33. Improved statistics and analytical/public reporting may support the policy agenda. While recent research papers by the staff of the Bank of Latvia have paved the way for attracting researchers,' financial sector professionals,' and societal interest in these issues, there is scope for additional steps. These could regard further data improvements, including in terms of the availability of monthly data on non-performing loans and high-frequency data on lending interest rates in a breakdown by economic sector. These data are publicly available in Estonia and could help better compare and understand Latvia's corporate sector risks. Additionally, periodic reports that are similar to that annually published by the Bank of Estonia ("Financing the Economy") could comprehensively assess the cost and availability of financing across all sectors, help promote and improve analytical debate, and potentially mobilize useful public and private sector action.[14]

F. Conclusions

34. Latvia's relatively high interest rates and its still-weak credit are important, interrelated problems. The paper presents stylized facts that generally point to a segmentation in lending interest rates between the Baltics countries and the euro-area, and, to a lesser extent, within the Baltic countries. This segmentation is unlikely to derive from the cost of bank deposits (which does not experience significant segmentation) or the health of the banking system (which is well-capitalized and profitable in Latvia and the other Baltics). Rather, it seems to be rooted in the complex nexus between borrower-side risks and related banks' policies. The empirical analysis assessed links of interest rates with loan growth and identified some bottlenecks to credit provision. While yet more research can be done to better break down those factors, pervasive endogeneity problems imbedded in the risk perceptions, as well as data gaps, may not guarantee clear-cut

[14] See for example https://www.eestipank.ee/en/publications/financing-economy/2022/financing-economy-february-2022.

results. Estonia's advances in improving productivity and credit provision while supporting a dynamic SME sector can usefully inform Latvia's reform agenda.

35. As Latvia's challenges are multifaceted and interrelated, they call for a broad-based reform agenda on both supply and demand sides of credit provision. Key reform areas include: (i) implementing steps to enhance productivity and non-price competitiveness and further reduce the shadow economy (ii) assessing and tackling Latvia's corporate equity gap with a particular focus on SMEs and micro-enterprises, (iii) improving the implementation of the insolvency procedures on the ground; (iv) completing the overhaul and re-orientation of BSFCs; (v) further proactively addressing AML/CFT challenges (vi) assessing and fostering a competitive landscape of the banking system; and (vii) improving the granularity of statistics and publicly available analysis and reporting on bank interest rates and credit growth.

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