REPUBLIC OF CROATIA

SELECTED ISSUES

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REPUBLIC OF CROATIA

SELECTED ISSUES

Approved By **The European Department**	Prepared by Tonny Lybek

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ECONOMIC RECOVERY AND CREDIT GROWTH: THE CASE OF CROATIA[1]

"…over-confidence seldom does any great harm except when, as, and if, it beguiles its victims into debt." Irving Fisher (1933, page 341)

This paper reviews the relationship between real GDP growth and domestic bank lending to the private sector in Croatia after the 2008 global financial crisis (GFC), drawing on a cross-country analysis of European countries.[2] Croatia's recession was substantially longer compared to peers due to both domestic and external factors. Bank credit to the private sector was found to be important for economic growth, but less than often perceived, especially during a boom-bust cycle.

Using empirical analysis, this paper confirms that the deleveraging of the private sector, particularly non-financial companies, was slow and contributed to Croatia's prolonged recession. When provisions of non-performing loans (NPLs) improved and the uncertainty following the GFC receded, credit supply increased, while demand for credit hesitantly picked up with the strengthening of the recovery. The paper thus reinforces that NPLs and how they are handled as well as real growth are important determinants for credit. These findings are supported by the cross-country analysis and corroborated by other studies.

A.   Introduction

1.   Before the GFC, most European countries experienced brisk economic and domestic bank credit growth. In many Central Eastern and South Eastern European (CESEE) countries, this was fueled by exuberant expectations about convergence and prospects of EU membership. Much of the bank lending—frequently funded by foreign parent banks—was often channeled to finance real estate and non-tradable sectors that proved not to be sustainable.[3]

2.   The GFC had a significant and a lasting impact on real GDP and domestic bank credit in Europe, including Croatia (Figure 1). Other CESEE countries reached pre-GFC output levels much faster than Croatia. It took Croatia six years to exit its recession. Croatia was also severely affected by the European sovereign debt crisis of 2010–11.[4] The ability to quickly overcome the GFC was hampered by the limited policy space and slow reform implementation. Already large fiscal deficits and growing public debt precluded traditional fiscal stimulus. Announced fiscal and structural reforms were frequently scaled back, which contributed to economic policy uncertainty. Monetary policy continued to be appropriately aimed at price stability in the context of the quasi-peg to the euro. Various macro- and micro prudential policies that had been tightened during the boom were

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[1] Prepared by Tonny Lybek. The author thanks Mario Bambulović, Ana Martinis, Carlos Mulas-Granados, Khaled Sakr, Velimir Šonje, and Svetlana Vtyurina for their comments on a previous draft. Any errors remain my own.

[2] A cross-country analysis of credit growth and economic recovery in Europe after the global financial crisis (Antoshin et al, 2017) informs this note. Similar case studies were done in various IMF Country Reports for Austria (No. 17/27), Hungary (No. 17/124), Slovenia (No. 17/126), and Iceland (No. 17/164).

[3] Bakker and Klingen (2012) review how the different CESSE countries were affected by the GFC.

[4] Croatia's main trading partners are Italy, Slovenia, and Bosnia and Herzegovina.

eased during the recession, but this was insufficient to jumpstart the recovery. The debt-ridden private sector was focused on deleveraging. The recession, thus, had many of the hallmarks of a *balance sheet recession* (Koo, 2003 and 2011).

Figure 1. Europe and Croatia: GDP Growth and Bank Credit to the Private Sector 1/

Sources: BIS total credit statistics; IFS; and IMF staff calculations.
Note: The pre-crisis (peak) trend is estimated up to year t=-3, and is extrapolated linearly thereafter.
1/ Expansion peaks, associated with the GFC, occurred in either 2007 or 2008, for all European countries in the sample (Appendix 1), except for Albania, Kosovo, and Poland, which avoided a post-GFC recession.
2/ Unweighted average of the logarithm of real output or bank credit per capita; expansion peak year t=0, and 100 equals respective trend in t=7.

3.   **The recovery finally ensued in late 2014.** It was supported by recoveries of trading partners; EU membership, which began on July 1, 2013; a boom in the tourism industry; and some tax changes. Households and much later non-financial companies gradually deleveraged. Bank lending finally began to increase in mid-2016—but only when looking at transaction data.

B. Why Was the Post GFC-Recovery in Croatia Different to Peers?[5]

4.   **This paper projects recession and recovery paths, drawing on Jordà et al (2013) and the local projection method developed by Jordà (2005).** The paths were based on a sample of 57 Advanced Economies (AEs) and Emerging Market economies (EMs) (Appendix I). The used specification is described in Box. 1.

5.   **The analysis used coefficients $\emptyset$ and γ to construct the projection paths for "normal" non-financial and "financial" recession and recovery paths.** Intuitively, $\emptyset$ and γ correspond to the average cumulative response of the dependent variable at each projection period. They are plotted in the first column of Figure 2. The coefficients were derived from observations on a sample of 79

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[5] In the cross-country paper, this analysis is performed by John Ralyea (EUR). For details on the data and methodology, see Antoshin et al (2017).

Box 1. Formula to Project Recession and Recovery Paths

$$\Delta_h y_{it(r)+h}^k = \propto_i^k + \emptyset_h N_{it(r)} + \gamma_h F_{it(r)} + \varphi_h N_{it(r)} * \left(x_{it(r)} - \overline{x_N}\right) + \theta_h F_{it(r)} * \left(x_{it(r)} - \overline{x_F}\right) +$$
$$\sum_{j=0}^{p} \beta_j^k Y_{it(r)-j} + e_{it(r)}^k$$

$\Delta_h y_{it(r)+h}$ = cumulative change in the pertinent variable at horizon period h from t(r), the start of the r_{th} recession.[1/]

N and F = dummy variables if peak associated with a systemic banking crisis (F) or not (N).[2/]

$x - \overline{x}$ = excess credit (at each GDP peak) - the yearly percentage point rate of change in bank loans relative to GDP in the preceding expansion phase demeaned using averages for normal and financial-crisis-related recessions

Y = vector of the standardized annual change in control variables (private consumption, investment, bank credit, current account, GDP)

$\propto$ = fixed effect for i_{th} country; e = error term; k = kth variable; j = lag period

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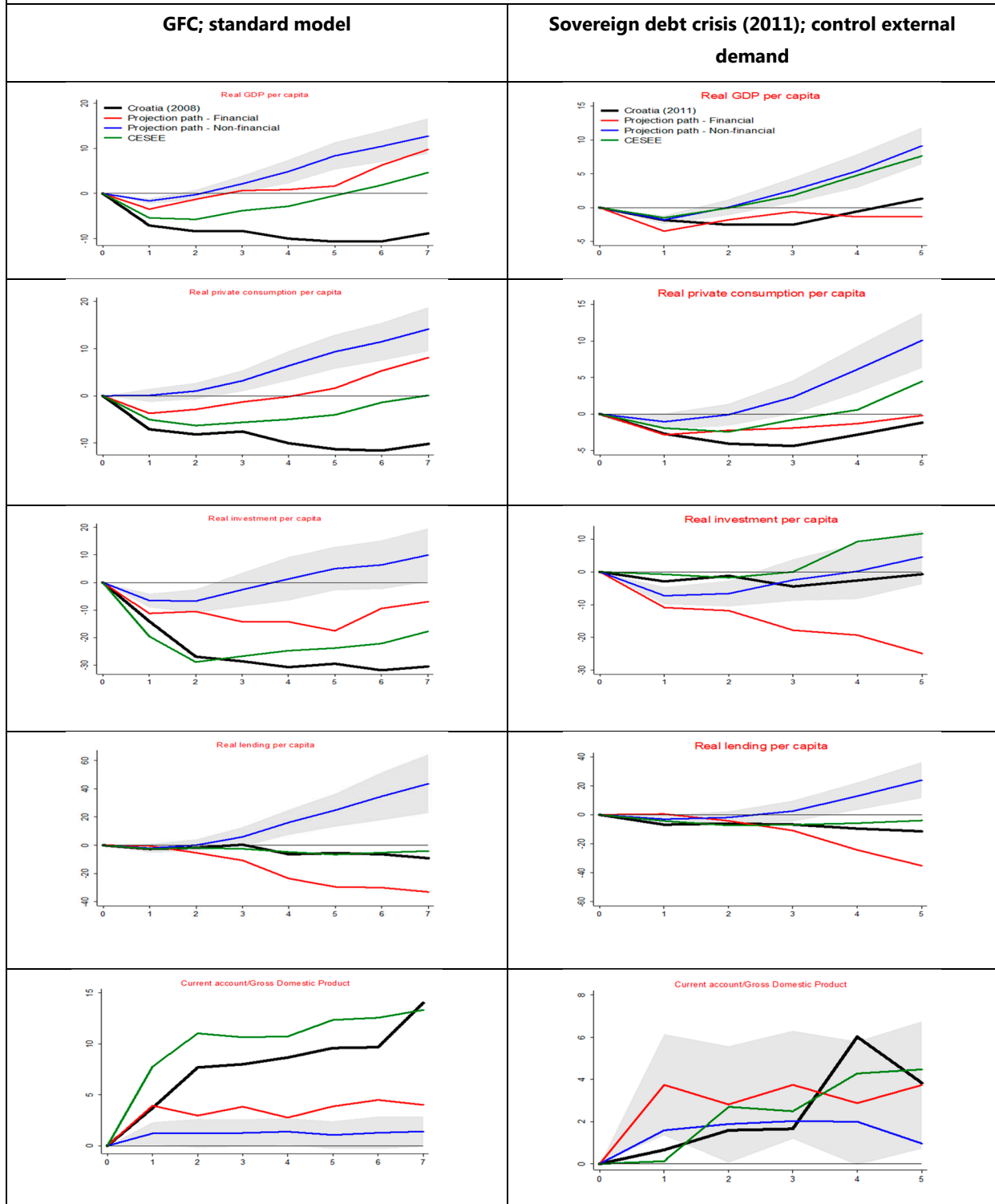[1/] Per capita variables were used, since some countries experienced noticeable changes in their population size.

[2/] A distinction was made between *normal* recessions and recoveries and those related to a *financial crisis*, i.e. those having had a *systemic banking crisis* as defined by Laeven and Valencia (2012). Two main conditions must be met to qualify for a systemic banking crisis. First, (Laeven and Valencia (2012, page 4): "Significant sign of financial stress in the banking system (as indicated by significant bank runs, losses in the banking system, and/or bank liquidations." Secondly, "Significant banking policy intervention measures in response to significant losses in the banking system." This definition implies that some countries may not have had a systemic banking crisis, if they have not met three of the six sub-conditions being "significant," although they may still have experienced severe financial tensions.

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recession and recovery episodes across 35 advanced and large emerging-market countries (which served as the control group) that occurred from the beginning of the post-Bretton Woods era up to the eve of the GFC (i.e.,1971–2006).[6]

6.   Croatia's recession since the GFC has been deep and significantly longer than previous recessions. Compared to both normal and financial-crisis recessions, from which it usually takes two to three years to recover, the CESEE countries took on average about five years to reach pre-GFC real GDP per capita levels. Croatia, in contrast, has still not yet reached pre-crisis real GDP per capita levels almost a decade after the GFC. Private consumption was particularly hard hit, even worse than in countries that faced a financial crisis. Fixed capital formation was also adversely affected. Like most other CESEE countries, Croatia's current account balance improved quickly after the GFC: initially due to import compression and later due to export recovery.

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[6] In total, 28 separate regressions were run (7 regressions for each dependent variable) with a projection horizon of 7 years, consistent with the post-GFC period from 2009–2015. The sample episodes include 20 recession and recovery periods in European countries. Out of the total episodes, 64 were classified as non-financial and 15 as financial recessions. The Bry and Boschan (1971) algorithm was used to date business cycles across countries.

Figure 2. Croatia and Emerging Europe: Performance Relative to Projection Paths
(cumulative percentage change from start of recession, percent)

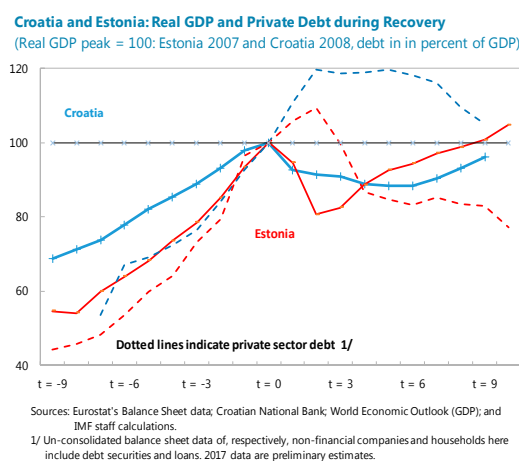| GFC; standard model	Sovereign debt crisis (2011); control external demand

Sources: BIS total credit data; Hungarian authorities; IMF staff calculations.

7.   Lending to the private sector by Croatian banks, however, remained largely at par with peer countries. Croatia did not have a financial crisis as defined by Laeven and Valencia (2012). Bank lending in Croatia thus performed much better than in countries that faced a financial crisis and was broadly in line with other CESEE countries.

8.   Nevertheless, the Croatian recession lasted longer than in other CESEE countries, possibly due to both external and domestic factors. First, the European sovereign debt crisis and the accompanying recessions in the main trading partners contributed to the prolonged recession. Croatia is not part of the German supply chain, as for instance Hungary and the Czech Republic (IMF, 2013). Moreover, CESEE countries that became EU members in 2004 and 2007 had access to significant amounts of EU structural and investment funds. Finally, Croatia had cumbersome debt restructuring procedures in place.

9.   When controlling for external demand and the European sovereign debt crisis, Croatia's output did better, although still worse than peers. (Figure 2, second column).[7] Both private consumption and especially investment per capita did better in this simulation, but still worse than peers. Domestic bank lending was broadly in line with peers.

10.   Cumbersome debt restructuring may also have played a role in the Croatia's delayed recovery. While the Baltic countries experienced much deeper recessions, they were typically shorter. These countries' real GDPs are now at or above pre-GFC levels. The debt of households and non-financial companies (loans and debt securities) has generally been reduced much faster than in Croatia. This is the case even when compared to Lithuania, whose private debt was lower than Croatia's at the outset of the recession. C*onsolidated* debt of households and non-financial companies (in percent of GDP) are now below their levels at the time when their real GDP level peaked before the GFC in both Croatia and the Baltic States. However, the *unconsolidated* debt of Croatian non-financial companies still exceeds pre-crisis debt levels, particularly if trade finance and

Croatia and Estonia: Real GDP and Private Debt during Recovery
(Real GDP peak = 100: Estonia 2007 and Croatia 2008, debt in in percent of GDP)

Sources: Eurostat's Balance Sheet data; Croatian National Bank; World Economic Outlook (GDP); and IMF staff calculations.
1/ Un-consolidated balance sheet data of, respectively, non-financial companies and households here include debt securities and loans. 2017 data are preliminary estimates.

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[7] Counterfactual dependent variable paths were estimated to control for the extremely weak global demand environment that followed the GFC. Then a contemporaneous external demand variable based on actual data was included as regressor in the standard equations described above in order to estimate its influence on the "typical" projection path. Thereafter, this external demand variable was rescaled to reflect, on average, the external demand faced by European countries after the GFC. New counterfactual dependent variables were then generated using the coefficients and values of the regressors from the previous step. The counterfactual external demand values were then substituted for the observed external demand. These steps resulted in counterfactual dependent variables, which represented "what-if" estimates of the dependent variables had the control group countries faced the same subdued external demand that European countries on average faced after the GFC. The standard regressions were then re-run with the new counterfactual dependent variables. The generated coefficients were used to construct the projection paths for non-financial and financial recession and recovery episodes. The end of the European sovereign debt crisis (2011) was used as point of departure.

other payables are also included. Although progress has been made in improving the legal framework, this framework was still not conducive for speedy results (Appendix II).
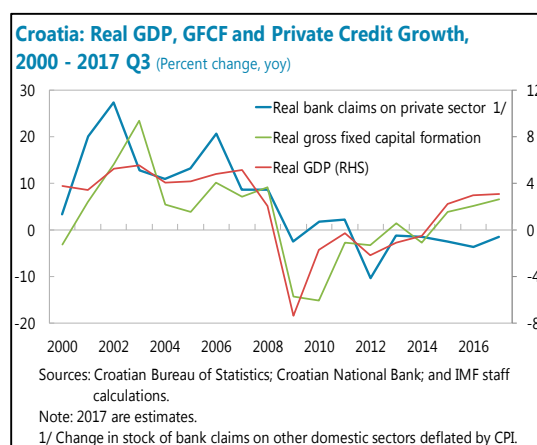
11.   Economic policy uncertainty may also have hampered the Croatian recovery.[8] Important fiscal and structural reforms were announced, but frequently rolled back and diluted. A case in point is the frequent piecemeal amendments to the bankruptcy legislation. While the intention to facilitate deleveraging was commendable, the way it was done added to the legal uncertainty. Furthermore, although Croatia luckily did not have a systemic banking crisis, the Swiss franc household loans had been lingering from the beginning of 2010 until their conversion in 2015 and may also have caused financial friction (Appendix IV).[9]

C.   The Relationship Between GDP Growth and Credit Growth[10]

12.   Bank credit is important for output growth, but seems to be less important than often perceived.[11] The cross-country analysis found a statistically significant positive but modest correlation between economic growth and bank credit growth for 39 European countries during the 1999–2015 period. A dynamic Generalized Method of Moments (GMM) panel estimator (Blundell and Bond, 1998) was used to estimate the relationship between real GDP growth and bank credit (Table 1, Appendix III). A 10 percent increase in domestic bank credit to the private sector correlates with real GDP increasing by about 0.6–1.0 percent. The main channel seems to be investment, as a 10 percent increase in credit growth is positively correlated with an increase in real private gross fixed capital formation GFCF) by around 2–2½ percent (Table 2, Appendix III). On average, these relationships did not change much during the recession and recovery periods. The co-

Croatia: Real GDP, GFCF and Private Credit Growth, 2000 - 2017 Q3 (Percent change, yoy)

Sources: Croatian Bureau of Statistics; Croatian National Bank; and IMF staff calculations.
Note: 2017 are estimates.
1/ Change in stock of bank claims on other domestic sectors deflated by CPI.

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[8] Sorić and Lolić (2017) have compiled various economic policy uncertainty indicators for Croatia and found that (page 445): "… the negative impact of most of the uncertainty measures employed becomes more pronounced in the contractionary phase of the cycle." Economic policy uncertainty in Croatia is also briefly discussed in Box 1 in IMF Country Report 15/163.

[9] Funke et al. (2016) looked at elections in 20 advanced economies during 1870–2014 and found that after severe recessions following from a systemic banking crisis, political polarization intensified, creating gridlock that likely further slowed the recovery.

[10] In the cross-country paper, this analysis is performed by Marco Arena. For details on the data and methodology, see Antoshin et al (2017).

[11] There are different strands of literature. One argues that increased credit and financial deepening facilitate growth, which indeed is the case if some agents with sound projects are liquidity constrained. Another strand points to over-indebtedness, in particular when credit has been extended to unsustainable projects with inadequate cushions, thus adversely affecting growth, when the unavoidable deleveraging takes place.

movements between real GDP, real gross fixed capital formation, and real bank lending are clearly visible in the case of Croatia (chart).[12]

13.   In some European countries, however, the relationship between real GDP growth and domestic bank credit was more complex and sometimes negative after the GFC, showing signs of a "creditless" recovery.[13] The cross-country study found that during the recovery period, the relationship between credit and GDP growth was stronger when focusing on the change in credit growth (the "credit impulse," Biggs et al, 2009) rather than credit growth. The credit impulse influenced GDP growth strongly and significantly during the post-GFC recessions and recoveries, but not before the GFC (Table 3, Appendix III).[14] In Croatia, bank lending (nominal value) to the private sector remained slightly positive immediately after the GFC, but began to contract from mid-2012, when the European sovereign debt crisis clearly signaled that a permanent adjustment was unavoidable.

D. Factors Influencing Bank Credit[15]

14.   NPLs, deposits, and bank capital seem to influence bank credit. The cross-country analysis used a bank-level panel to assess how bank fundamentals and selected macro factors correlated with credit dynamics during 1999–2015.[16] Different specifications were explored using system GMM.[17] The size of the bars in the chart represents the effect of a one-standard-deviation change in the respective regressor on credit growth in percentage points. The black bars indicate that these coefficients are statistically significant.

Europe: Determinants of Credit Growth 1/
(Standardized coefficients)

Source: IMF staff estimations.
1/ D stands for dummy.

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[12] The complex panel specification cannot be estimated on individual countries given the limited number of observations. In Croatia, the *correlation coefficient* between the percentage change of real bank claims on the private sector and real GDP was 0.65 (2000–2017, where 2017 data are projections).

[13] Creditless recoveries are not uncommon, particularly after a financial crisis. Abiad, Dell'Ariccia, and Li (2011) found that about one in five recoveries during the period 1964–2007 was creditless and weaker than normal recoveries. Sugawara and Zalduendo (2013) found that about 25 percent of all recoveries are creditless, but that this share increased to 45 percent after the GFC. Bodnár et al (2014) found that between a quarter and a fifth of recoveries were creditless and real growth was permanently lower in these cases.

[14] Unfortunately, the credit impulse could not be calculated on transaction data due to data limitations.

[15] In the cross-country paper, this analysis is performed by Etienne Yehoue. For details on the data and methodology, see Antoshin et al (2017).

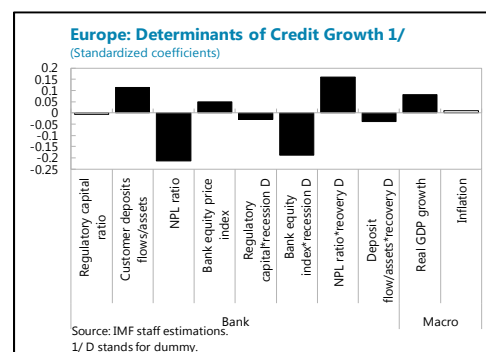[16] The unbalanced panel included 37 European countries, as well as Croatia, and up to almost 8000 banks during the 1999–2015 period. The annual macro data were from the IMF's *World Economic Outlook* data base, while the individual bank data were from *FitchConnect*. Unconsolidated balance sheets were used unless only consolidated balance sheets were available. Extreme values were removed from the sample. The key variable for credit growth was provided by *FitchConnect,* but the high degree of its variability, even after removing outliers, suggest that the results are at best only indicative.

[17] The GMM methodology help mitigate endogeneity issues, while the larger data set alleviates multicollinearity challenges. Even with the use of several instrument variables, it is obviously difficult to disentangle causality.

15. **The presence of large foreign-owned banks in many CESEE countries may explain why regulatory capital and funding seemed less crucial for credit growth in these countries.** Non-performing loan ratio (NPL) (-) and customer deposits (+) were the most important. It is noticeable that the NPL coefficient becomes m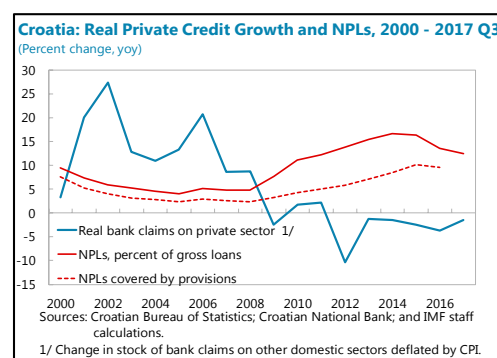uch less negative during recoveries, suggesting that if credit demand improves, then a high NPL ratio seems to be less of a concern. It is possible that during the recovery, most of the provisioning had already happened and was less of a potential constraint on equity to cover new risks.[18] As expected, the main macroeconomic influence on credit growth was real GDP growth. It is a proxy for both demand and the ability to service the debt. Inflation also had a positive, although insignificant, effect for the whole sample, but a small significant negative effect on credit in advanced economies.

16. **Similar factors have likely been at play in Croatia.**[19] Unfortunately, the number of available observations for Croatian banks in the sample was insufficient to use a similar specification. However, a simple average of real credit growth to the private sector of the Croatian banks included in the sample is within the confidence interval of the model. It is intrinsically difficult to disentangle whether domestic lending was subdued due to lack of demand or supply, as for instance discussed by Everaert et al (2015). Dumičić and Ljubaj (2017) found that subdued credit growth was "greatly influenced" by poor economic growth. Pintaric (2016) found that loan growth was more affected by demand than credit standards, especially for firms and consumer loans, while the information on mortgages was inconclusive. They all argue that the limited demand curbs the scope for boosting supply by further easing monetary and credit policies. Recent lending surveys show that both demand and supply of bank credit have increased, as the recovery strengthened (Appendix V). In the case of Croatia, the bank specific factors are discussed further below.

Bank credit
(Annual percentage change)

Legend: 95% CI — Europe (fitted) — Croatia (annual average, sample)

Non-Performing Loans

17. **As expected, the NPL ratio and the change in real lending to the private sector were strongly negatively correlated during the analyzed period.**[20] Croatian banks have high NPL ratios compared to peers, but the ratio has declined recently in large part due to NPL sales. Croatia still has relatively high share of NPLs

Croatia: Real Private Credit Growth and NPLs, 2000 - 2017 Q3
(Percent change, yoy)

Legend: Real bank claims on private sector 1/; NPLs, percent of gross loans; NPLs covered by provisions

Sources: Croatian Bureau of Statistics; Croatian National Bank; and IMF staff calculations.
1/ Change in stock of bank claims on other domestic sectors deflated by CPI.

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[18] Unfortunately, sufficient data were not available for the cross-country study to use the un-provisioned part of NPLs instead of the gross NPL ratio. This would be akin to use the *Texas ratio*, which is defined as the value of the lender's non-performing assets divided by the sum of its tangible equity and loan loss reserves.

[19] Appendix IV provides a brief overview of the Croatian banking system and its high degree of euroization.

[20] A basic linear regression on annual data (2000–2017) suggest a real bank claims on the private sector decline if the NPL ratio (-1.7; adj. R^2 = 0.54) and NPL ratio after provisions (-2.9; adj. R^2 = 0.53) increase one percentage point.

(12.5 percent of gross loans at end-September 2017) compared to other CESEE countries. As in other countries, the ratio is much higher for non-financial companies (25.9 percent) than for households (8.8 percent). Construction and real estate were particularly hard hit by the GFC.

18.   Provisioning improved, and the un-provisioned part is, on average, currently fully covered by excess capital.[21] The provision coverage initially declined after the GFC, but has gradually increased from about 39 percent of NPLs in 2010 to about 70 percent by end-2016. This is now above the average for peers (63 percent).[22]

Customer Deposits

19.   The customer deposit variable was significant with a positive sign in the bank-level cross-country analysis, although less so during recessions. Obviously, less dependence on more volatile wholesale funding reduces vulnerabilities.[23] In Croatia, following the GFC, the deposit growth of both households and non-financial companies decelerated. After the European debt crisis, new lending was less than amortizations. The "non-interbank loans to customer deposits" thus declined from 129 at end-2011 to 97 percent at end-2016. This increase in deposits allowed Croatian banks to deleverage and reduce their dependence on wholesale funding from aboard—mainly from their parents. In late 2015, the Croatian banking system moved from a net foreign debtor to a creditor position. Low interest rates on bank deposits and changes in the taxation of interest income have affected the retail funding structure. Since 2015, the share of demand deposits—typically in kuna— has increased compared to savings and time deposits.[24]

Bank Capital

20.   Bank regulatory capital, as percent of total assets, was associated with negative bank lending in the cross-country analysis, especially during recessions. This could imply that an increase in the regulatory requirement or perceived risks, make banks less able or willing to lend. More capital-constrained banks may be inclined to observe higher capital requirements by deleveraging rather than raising new capital. This seems to be more likely during recessions when bank equity capital may be relatively more expensive, as corroborated by the coefficient for the bank equity index. However, this variable was not significant for the CESEE sample, suggesting it was more important for parent banks. Banks that were not in need of increasing capital—the more

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[21] Appendix VI provides a brief overview of various measures taken to encourage a reduction of NPLs.

[22] Ridzak (2012) found that during the 2006–2009 period, the implementation of the loan classification and provisioning rules varied among the Croatian banks. Especially the collateral evaluation may have varied. At the outset of the GFC, it seemed that one group of banks perceived the shock as permanent and quickly tightened, while the other group apparently perceived the crisis as temporary and delayed the provisioning for as long as possible. It is common among banks to use the flexibility of asset classification and provisioning rules to smooth income. In 2013, provisioning rules were tightened, effective in 2014 (Šonje, 2016).

[23] However, in periods with very low wholesale interest rates, banks face a trade-off as a large retail funding base may be costlier but more reliable.

[24] In January 2015, a 12 percent tax rate was imposed on kuna and foreign currency savings (sight, time, and annuity) accounts. However, interest income below 0.5 percent from transaction (current and giro) accounts—primarily in kuna—was exempted. Moreover, households have increasingly placed their savings with investment funds.

conservative ones during the boom—probably had more restrictive credit standards. Croatian banks already had high capital cushions when the GFC hit. Moreover, they managed to increase their capital adequacy ratio after the GFC, mainly due to a reduction in risk-weighted assets, as exposure to the private sector was switched to claims on the government.

E.   General Policy Implications

21.   This paper confirmed that not all credit ensures *sustainable* growth. Credit-fueled booms, if based on exuberant and unrealistic expectations, will later be followed by painful adjustments. In case of an overindebted private sector, lax monetary and credit policies can indeed ease the debt service and unlock funding to investors with sound projects that are truly credit rationed. More importantly, such policies can be conducive to macroeconomic stability and positively influence expectations. Nevertheless, the impact on demand will be more limited during a balance sheet recession, where overindebted households and companies are focused on repaying debt rather than on consuming and investing.

22.   The paper also argued that the handling of NPLs is important to facilitate a speedy recovery. In principle, *fully provisioned* NPLs should not hamper new bank lending. Nevertheless, to the extent that a high NPL ratio adversely affects the *willingness* or *ability* of banks to lend, it can indeed affect credit growth. This can occur, particularly, if a high NPL ratio signals lingering uncertainty about the evaluation of collateral and the appropriateness of provisions, a weak debt recovery framework, and preoccupation by bankers with debt recovery instead of developing new businesses. Accordingly, it is important to develop a credible and timely strategy to deal with legacy NPLs (IMF (2015), EC (2017), ECB (2017A, 2017B) and ESRB (2017)). Over time, Croatia has taken several initiatives to facilitate a resolution of NPLs (Appendix VI).

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Appendix I. Country Group [1/]

Euro area - advanced		Other European - advanced		Central, Eastern, and Southeastern European		Other	
1	Austria *	1	Denmark *	1	Albania	1	Argentina *
2	Belgium	2	Iceland *	2	Bosnia & Herzegovina	2	Australia *
3	Cyprus *	3	Israel *	3	Bulgaria	3	Brazil *
4	Finland *	4	Norway *	4	Croatia	4	Canada *
5	France *	5	Sweden *	5	Czech Republic	5	China,P.R.: Mainland
6	Germany *	6	Switzerland *	6	Estonia	6	China,P.R.:Hong Kong *
7	Greece *	7	United Kingdom *	7	Hungary	7	India *
8	Ireland *			8	Kosovo	8	Indonesia
9	Italy *			9	Latvia	9	Japan *
10	Malta *			10	Lithuania	10	Korea, Republic of *
11	Netherlands *			11	Macedonia, FYR	11	Malaysia *
12	Portugal *			12	Montenegro	12	Mexico *
13	Spain *			13	Poland	13	Philippines *
				14	Romania	14	Singapore *
				15	Russian Federation *	15	South Africa *
				16	Serbia, Republic of	16	Turkey *
				17	Slovak Republic	17	United States *
				18	Slovenia		

1/ Belarus, Luxembourg, Moldova, San Morino, and Ukraine not included in sample.

* Countries with expansion peaks in 1971-2006 that are included in LP regression to derive projection paths.
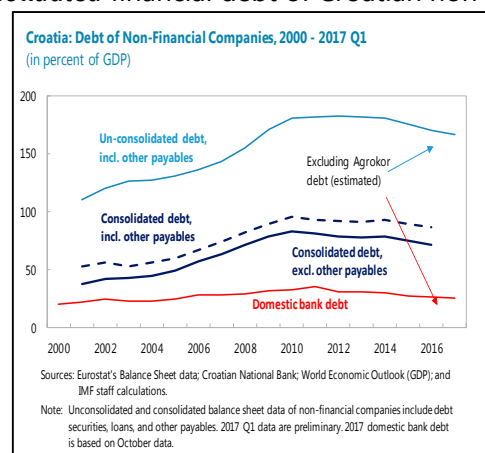
Appendix II. Private Sector Deleveraging in Croatia

1.   The private sector in Croatia slowly deleveraged following the European sovereign debt crisis. During the boom preceding the GFC, Croatian non-financial companies and households—similarly to many other CESEE countries—increased their financial debt. After the GFC, debt initially continued to increase. The deleveraging started for households but much later for non-financial companies. However, *unconsolidated* debt of non-financial companies (in percent of GDP) is, in contrast to most peers, still higher than before the GFC. Intercompany debt has been in important financing tool during the recession and recovery, perhaps because the legal framework was not conducive to debt restructuring, including out-of-court settlement, although this has since been improved.

2.   Existential concerns about bankruptcy due to excessive debt subdue demand and can cause a *balance sheet recession*, as described by Koo (2003 and 2011). Companies and households can become more focused on repaying debt to avoid bankruptcy rather than to invest—even when the expected net present value of project is positive—and consume. If the procedures to reduce the over-indebtedness are particularly challenging, they could prolong the recession and hamper the recovery. However, as the Croatian recession came to an end and the recovery gained traction, reduced financial debt but particularly increased financial savings, suggest that some households and firms were not liquidity constrained. For those, economic policy uncertainty and expectations about further decline of asset prices, like real estate prices, may have been important considerations before they decided to increase their demand.

Non-Financial Companies

3.   Croatian non-financial companies continued to increase their aggregated financial debt immediately after the GFC until 2012, when deleveraging started in earnest. Corporate sector debt increased rapidly during the boom. Many of these loans went into the non-tradable sectors, particularly real estate and construction. The CNB introduced measures to contain domestic bank credit, which did not increase as rapidly, but these measures were often circumvented, particularly by larger reputable companies that could borrow abroad. As the GFC hit, financial debt initially continued to increase, likely for working capital as investments were subdued. In 2014–15, non-bank funding, including from abroad, offset most of decline in bank financing, based on transaction data. Financial savings increased, but much more modestly, suggesting some heterogeneity among the companies.

4.   Net financial savings in percent of GDP of non-financial companies only started to increase after the recovery gained traction. It is tempting to speculate that many firms initially hoped they could sit-out the GFC, but after the European sovereign debt crisis in 2010–11, they began to deleverage in earnest. This may have been facilitated by new legislation and improved profitability. Experience from other countries—as Shin (2017) has documented for Korea—suggest that effective corporate debt restructuring can enhance growth, because the positive effects quickly outweigh the initial adverse impact.

5.   Croatian non-financial companies have relatively high gross financial debt compared to peers. The share of domestic bank loans of the total *consolidated* financial debt of Croatian non-financial companies has been declining since the early 2000s from 58 percent to about 38 percent. Like in other countries, many Croatian companies rely on inter- and intra-company debt (trade finance, etc.). In Croatia, this increased further after the GFC, which is illustrated in the chart by the difference between unconsolidated and consolidated debt as well as by "other payables." Croatian non-financial companies engaged in construction and hotels, i.e. tourism, have a relatively high share of their debt to credit and financial institutions compared to peers in the EU (CNB, 2016A, Box 3). Despite the recent deleveraging and continuously improved corporate profits

Croatia: Debt of Non-Financial Companies, 2000 - 2017 Q1
(in percent of GDP)

Sources: Eurostat's Balance Sheet data; Croatian National Bank; World Economic Outlook (GDP); and IMF staff calculations.
Note: Unconsolidated and consolidated balance sheet data of non-financial companies include debt securities, loans, and other payables. 2017 Q1 data are preliminary. 2017 domestic bank debt is based on October data.

since 2010, many Croatian companies—even when relying on consolidated corporate debt—remain over-indebted.[1]

6.   Many domestic bank loans to non-financial companies quickly became non-performing after the GFC. Construction and real estate were particularly hard hit. Since mid-2015, the NPL ratio for firms has begun to decline, albeit still high. Despite the recent improvements, surveys show that several Croatian companies, particularly small- and medium-sized enterprises, still feel credit constrained (Appendix V).
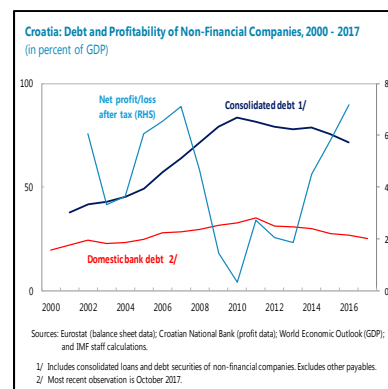

NFCs: Bank Loans and Non-Performing Loans, 2008 - 2017 Q3

Loan growth 1/
Loan growth, transaction data 2/
NPLs, percent of loans

Sources: Croatian National Bank (CNB); and IMF staff calculations.
Note: Loan definition and classification based on ESA 2010.
1/ Annual percentage change of nominal credit stocks.
2/ Based on transactions data, i.e. adjusting for exchange rate effects, NPL sales, etc.

7.   As expected, corporate profitability seems to be negatively correlated with the NPL ratio and postively correlated with deleveraging. Non-financial companies net profits suffered during the GFC, but has recovered since 2010 and particularly since 2014.[2] The NPL ratio has declined and the debt in percent of GDP has fallen.

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[1] Martinis and Ljubaj (2017) find, based on firm-level data, that about a third of the corporate debt remain unsustainable when compared to the ability of the companies to service their debt. The debt overhang is concentrated in about 2000 large companies, particularly in construction. State-owned enterprises are less burdened with debt than private ones. Moreover, exporters are less burdened with debt. Martinis and Ljubaj attribute this to exporters facing tougher competition and that they thus are more sensitive to vulnerabilities caused by expensive debt service that cannot easily be passed on. They also find that over-indebted companies invest less. The exceptions are (i) foreign-owned firms, which have access to parent funding and where investment plans may be more related to overall business strategies than the performance of the subsidiary; and (ii) state-owned firms, where investment decisions may be more related to political objectives.

[2] Croatian non-financial companies have high earnings before interest, tax, depreciation and amortization (EBITDA) compared to other EU countries, but their earnings before interest and tax (EBIT) are at the lower range. The high costs of depreciation and amortization is due to a relatively high share of tangible assets, due to tourism and construction, rather than a different appreciation policy. According to CNB 2016B (page 45): it "... is a result of preference ... and of the economy being oriented towards tourism (some 9% of tangible asset are accounted for by tourism ..."

8.   The Pre-Bankruptcy Settlement Law of 2012 was intended to facilitate deleveraging of non-financial companies. The purpose of the Law was to expedite debt restructuring of firms without going through the time-consuming and costly ordinary bankruptcy process.[3] However, there were several differences compared to the chapter 11 restructuring in the USA. First, it was compulsory, meaning that companies had to go through the pre-bankruptcy settlement process before entering the normal bankruptcy procedure. Secondly, in case the restructuring was successful, new financing as part of the resolution was not typically granted seniority, which may have complicated the negotiations. The Pre-Bankruptcy Law was rushed and thus challenged and had to be amended several times to ensure due judicial process for all involved parties. It was in force during October 1, 2012 to September 1, 2015. There were 8,959 applicants affecting 66,761 employees. A restructuring agreement approved by the Settlement Council was reached in 3,239 cases. However, more than half the cases (4,638) ultimately entered the normal bankruptcy proceedings. The debt write-offs following this Law amounted to HRK 25.8 billion, or about 7¾ percent of GDP.

Croatia: Debt and Profitability of Non-Financial Companies, 2000 - 2017
(in percent of GDP)

Net profit/loss after tax (RHS)
Consolidated debt 1/
Domestic bank debt 2/

Sources: Eurostat (balance sheet data); Croatian National Bank (profit data); World Economic Outlook (GDP); and IMF staff calculations.
1/ Includes consolidated loans and debt securities of non-financial companies. Excludes other payables.
2/ Most recent observation is October 2017.

9.   Effective September 1, 2015, the Pre-Bankruptcy Law was integrated into the general bankruptcy law. Pre-bankruptcy settlement is now only an option in case of the eminent risk of bankruptcy, i.e. only when a debtor is threatened by illiquidity, while the case goes directly into the normal bankruptcy procedure, if the debtor is unable to pay. Data on the use of pre-bankruptcy option under this legislation are scarce. Reportedly there have been about 300 applicants, of which about 70 have reached a restructuring plan, while the remaining are pending or have entered the normal bankruptcy procedure.

10.   The Agrokor Group illustrates both the peril of rapid unsustainable debt-financed expansion as well as the consequences of outmoded bankruptcy legislation. The Agrokor Group is a conglomerate with operations in Bosnia and Herzegovina, Serbia, Kosovo, Montenegro, Slovenia, and Hungary. It mainly specializes in food production, processing, distribution, and retail trade. It has about 60,000 employees of which about half in Croatia. In early 2017, negotiations about refinancing maturing debt soured. Due to the systemic importance of Agrokor, a new "*Law on The Extraordinary Procedure for Companies of Systemic Importance*" was quickly adopted in April 2017, since the bankruptcy legislation had not been adjusted to deal with such cases.[4] Following its adoption, an administrator was appointed and will propose a restructuring and debt settlement plan within 15 months. The administrator also got the authority to accept new funding and grant it seniority.

11.   The potential impact on Agrokor suppliers necessitated amendments to the general bankruptcy law that became effective in late October 2017. The amendments ensure that some of the new measures granted to systemically important companies are also available to other companies, not least suppliers to Agrokor. It was clarified—although in principle it was also possible
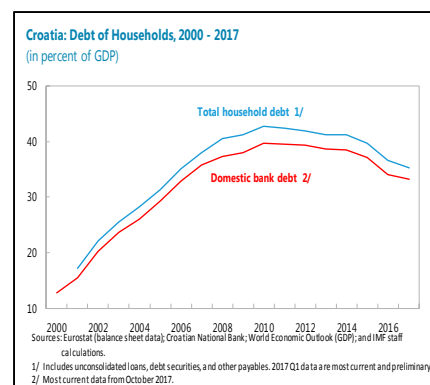
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[3] For some details on the Pre-Bankruptcy Law, please see Appendix V (page 42) in IMF Country Report 14/124.

[4] This Croatian Law is modelled after the Italian Parmelat Law and Alitalia Law.
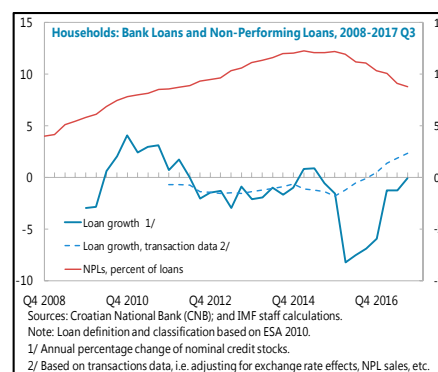
previously, but not practiced—that new funding as part of restructuring plan can get seniority provided ⅔ of the creditors approve. Moreover, a pre-bankruptcy restructuring plan can avoid asset sales, provided there is a positive cash flow. Finally, the deadlines for pre-bankruptcy restructuring was extended from 120+90 days to 360+60 days.

Households

12. **Immediately after the GFC, the aggregated financial debt of households increased in percent of GDP, until the end of the European sovereign debt crisis.** Most household debt is variable rate bank debt. About 90 percent of all households own their own residence. Right after the GFC hit, credit to households continued to increase as share of GDP until the sovereign debt crisis hit. Their financial savings began to increase immediately after the GFC, thus reducing their net financial debt.

Croatia: Debt of Households, 2000 - 2017
(in percent of GDP)

Sources: Eurostat (balance sheet data); Croatian National Bank; World Economic Outlook (GDP); and IMF staff calculations.
1/ Includes unconsolidated loans, debt securities, and other payables. 2017 Q1 data are most current and preliminary.
2/ Most current data from October 2017.

13. **Since early 2016, the NPL ratio of household loans has declined**. Immediately after the GFC, the NPL ratio began to increase, as real estate prices—the most frequently used collateral—and unemployment increased and consumer confidence declined. Since the recovery began in late 2014, these indicators have improved. The NPL ratio first stabilized and has declined since early 2016. This is in part due to many banks selling their NPLs to non-bank recovery companies and in part due to more households servicing their debt.

Households: Bank Loans and Non-Performing Loans, 2008-2017 Q3

Loan growth 1/
Loan growth, transaction data 2/
NPLs, percent of loans

Sources: Croatian National Bank (CNB); and IMF staff calculations.
Note: Loan definition and classification based on ESA 2010.
1/ Annual percentage change of nominal credit stocks.
2/ Based on transactions data, i.e. adjusting for exchange rate effects, NPL sales, etc.

14. **Many measures have been taken to assist over-indebted individuals**. The *Consumer Credit Act* was amended several times. Effective January 2014, it capped the interest rate on Swiss franc housing loans significantly below market rates. In 2015, the government encouraged a temporary voluntary agreement between small debtors with debt up to HRK 30,000 due for more than a year to telecom operators and banks. It could potentially have covered about 60,000, but 17,586 debtors reportedly enjoyed such debt relief. In September 2015, Swiss franc indexed household loans were retroactively converted to variable rate euro indexed loans (Appendix IV). It removed uncertainty about further appreciation of the Swiss franc and eased the debt burden of these households by an estimated 2 percent of GDP. In 2016, the long-awaited *Law on Consumer Bankruptcy* finally came into force, but it has only been used modestly.[5]

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[5] An individual, including self-employed, can initiate the procedure if the outstanding debt exceeds HRK 30,000 (about €4,000) and is 90 days overdue—or if unemployed and the debt exceeds HRK 10,000 (about €1,350)—but total debt from business activities do not surpass HRK 100,000 (about €13,5000) and there must not be more than 20 creditors. First, the debtor and creditors must seek a voluntary agreement. In practice, debtors typically reject the initial proposal because they hope for better terms after the court gets involved. If an initial agreement is not possible, the court will appoint a trustee to design and monitor a repayment plan. If the repayment plan is observed—typically for two to seven years—the remaining debt is forgiven. If the parties still fail to agree or the plan is infringed, ordinary bankruptcy procedure is initiated. Since the Law came into force on January 1, 2016, and to August 2017, a total of 1007 individuals, of which 3 self-employed, have launched the procedure. The law was intended to offer small debtors a fresh start, while not harm creditors with secured liens, and relieve the overburdened courts of many minor and less complicated cases. The main current challenge is to ensure sufficient number of trustees, likely due to the level of their remuneration.

Appendix III. Selective Regressions

Table 1. Croatia: GDP Growth and Bank Credit to The Private Sector: Recession and Recovery

Dynamic panel data; two-step GMM estimator

Sample of 39 European countries, estimation period: 1999–2015

	(1) Full sample	(2) AE	(3) CESEE	(4) Full sample	(5) AE	(6) CESEE	(7) Full sample	(8) AE
GDP growth rate (t-1)	0.199** (0.088)	0.224** (0.076)	0.150** (0.056)	0.200** (0.095)	0.199*** (0.047)	0.079 (0.070)	0.214*** (0.048)	0.082 (0.082)
GDP growth rate (t-2)		-0.183** (0.067)						
Private sector credit growth	0.094** (0.045)	0.074** (0.026)	0.058*** (0.010)	0.086** (0.029)	0.102** (0.035)	0.069** (0.021)	0.091*** (0.022)	0.180*** (0.050)
Private sector credit growth * Dummy recession [1]				0.076 (0.081)	-0.048 (0.095)	0.028 (0.098)	-0.011 (0.053)	-0.064 (0.067)
Private sector credit growth * Dummy recovery [2]				0.011 (0.062)	-0.171 (0.118)	-0.047 (0.076)		
Private sector credit growth * Dummy recovery * pre-GFC credit boom							-0.137** (0.061)	-0.169** (0.081)
Private sector credit growth * Dummy recovery * pre-GFC no credit boom							0.040 (0.080)	-0.069 (0.060)
Public consumption growth rate	-0.741 (0.496)	0.268** (0.110)	0.031 (0.065)	-0.513** (0.239)	0.125* (0.066)	-0.094 (0.182)	-0.212 (0.131)	0.069 (0.073)
Private sector credit-to-GDP ratio	-0.057** (0.025)	-0.028** (0.013)	-0.035*** (0.010)	-0.031** (0.010)	-0.009** (0.004)	-0.035** (0.012)	-0.030** (0.014)	-0.026** (0.009)
External demand [3]	0.284*** (0.062)	0.115** (0.059)	0.261*** (0.044)	0.231** (0.097)	0.171** (0.059)	0.123** (0.062)	0.180*** (0.031)	0.126** (0.050)
Log (MX)	-0.023*** (0.006)	-0.020*** (0.004)	-0.026*** (0.005)	-0.009** (0.004)	-0.012** (0.005)	-0.014 (0.010)	-0.010** (0.004)	-0.019*** (0.005)
Constant	0.122** (0.039)	0.091*** (0.025)	0.101*** (0.017)	0.064*** (0.019)	0.044** (0.019)	0.081** (0.033)	0.063*** (0.018)	0.083*** (0.024)
Dummy recession				-0.026** (0.012)	-0.016** (0.006)	-0.042*** (0.008)	-0.026*** (0.006)	-0.014** (0.004)
Dummy recovery				0.005 (0.005)	0.010** (0.004)	-0.0027 (0.006)	0.009** (0.003)	
Recovery after credit booms							0.009** (0.003)	0.016** (0.006)
Recovery without credit booms							0.002 (0.005)	0.013** (0.004)
No. Obs.	618	349	269	618	349	269	616	349
No. instruments	14	19	14	19	21	18	22	21
No. countries	39	21	18	39	21	18	39	21
Autocorrelation test, p-value	0.451	0.462	0.566	0.463	0.183	0.346	0.628	0.401
Hansen test, p-value	0.218	0.233	0.543	0.228	0.153	0.497	0.258	0.469

Standard errors in parentheses. * p<0.10, ** p<0.5, *** p<0.001

1/ Dummy takes the value of 1 during the recession period.

2/ Dummy takes the value of 1 during the post-GFC recovery period.

3/ Volume of trading partners imports weighted by exports' shares.

Table 2. Croatia: Private Gross Fixed Capital Formation (GFCF) and Bank Credit to The Private Sector

Dynamic panel data; two-step GMM estimator

Sample of 39 European countries, estimation period: 1999–2015

	(1) Full sample	(2) AE	(3) CESEE	(4) Full sample	(5) AE
GFCF growth rate (t-1)	0.063	0.123	0.064	0.190*	0.225**
	(0.175)	(0.106)	(0.217)	(0.114)	0.096
Private sector credit growth	0.260**	0.231**	0.221**	0.206**	0.247**
	(0.108)	(0.102)	(0.100)	(0.092)	0.12
Private sector credit growth * Dummy recession [1]				0.308 (0.277)	-0.424 0.375
Private sector credit growth * Dummy recovery [2]				-0.115 (0.311)	-0.381* 0.218
General government balance-to-GDP ratio	0.294	0.896***	0.300	0.216	0.025
	(0.622)	(0.149)	(1.032)	(0.725)	0.389
Private sector credit-to-GDP ratio	-0.081**	-0.052**	-0.171**	-0.071**	-0.112**
	(0.034)	(0.025)	(0.078)	(0.034)	0.049
Interest rate (policy rate)	-2.003**	-1.299**	-1.484*	-1.122**	0.938
	(0.686)	(0.502)	(0.857)	(0.347)	0.589
External demand [3]	0.972***	0.611***	0.800***	0.598**	0.322**
	(0.232)	(0.128)	(0.216)	(0.237)	0.135
Log (VIX)	-0.051*	-0.019	-0.105**	-0.061**	-0.077***
	(0.027)	(0.029)	(0.042)	(0.019)	0.02
Constant	0.186**	0.088	0.392**	0.228***	-0.002***
	(0.085)	(0.089)	(0.137)	(0.054)	0.021
Dummy recession				-0.038	0.062
				(0.029)	0.014
Dummy recovery				0.007	0.309***
				(0.019)	0.097
No. Obs.	557	320	237	557	320
No. instruments	14	15	15	21	21
No. countries	38	21	17	38	21
Autocorrelation test, p-value	0.484	0.730	0.156	0.155	0.67
Hansen test, p-value	0.439	0.259	0.387	0.228	0.297

Standard errors in parentheses. * p<0.10, ** p<0.5, *** p<0.001

Note: Data deficiencies do not allow conducting the analysis for CESEE countries.

1/ Dummy takes the value of 1 during the recession period.

2/ Dummy takes the value of 1 during the post-GFC recovery period.

3/ Volume of trading partners imports weighted by exports' shares.

Table 3. Croatia: GDP Growth and Credit Impulse: Recession and Recovery

Dynamic panel data; two-step GMM estimator

Sample of 39 European countries, estimation period: 1999–2015

	(1) Full sample	(2) AE	(3) CESEE	(4) Full sample	(5) AE	(6) CESEE
GDP growth rate (t-1)	0.292*** (0.048)	0.124 (0.086)	0.340*** (0.062)	0.269*** (0.057)	0.189*** (0.045)	0.368*** (0.072)
GDP growth rate (t-2)		-0.211** (0.074)			-0.090 (0.075)	
Change in private sector credit growth	0.020* (0.012)	0.045* (0.025)	0.027* (0.016)	-0.008 (0.018)	-0.033 (0.031)	-0.072 (0.056)
Change in private sector credit growth * Dummy recession [1]				-0.009 (0.035)	0.006 (0.040)	0.120** (0.050)
Change in private sector credit growth * Dummy recovery [2]				0.114*** (0.027)	0.097** (0.040)	0.166** (0.078)
Public consumption growth rate	0.150 (0.104)	0.782*** (0.177)	0.056 (0.116)	-0.248 (0.160)	0.459*** (0.118)	-0.121 (0.272)
Private sector credit-to-GDP ratio	-0.032** (0.011)	-0.011 (0.011)	-0.017 (0.017)	-0.020** (0.007)	-0.017 (0.014)	-0.009 (0.025)
External demand [3]	0.262*** (0.040)	0.141** (0.055)	0.360*** (0.058)	0.231*** (0.034)	0.195** (0.062)	0.290*** (0.047)
Log (VIX)	-0.023*** (0.004)	-0.020*** (0.005)	-0.020** (0.007)	-0.013** (0.006)	-0.018** (0.006)	-0.003 (0.009)
Dummy recovery				-0.001 (0.003)	0.007 (0.006)	-0.003 (0.005)
Dummy recession				-0.036*** (0.006)	-0.012 (0.008)	-0.038*** (0.010)
Constant	0.093*** (0.018)	0.068** (0.023)	0.067** (0.025)	0.071** (0.022)	0.067** (0.024)	0.027 (0.031)
No. Obs.	616	349	267	616	349	267
No. instruments	43	17	14	21	21	18
No. countries	39	21	18	39	21	18
Autocorrelation test, p-value	0.277	0.705	0.945	0.378	0.141	0.433
Hansen test, p-value	0.525	0.257	0.124	0.130	0.222	0.220

Standard errors in parentheses. * p<0.10, ** p<0.5, *** p<0.001
1/ Dummy takes the value of 1 during the recession period.
2/ Dummy takes the value of 1 during the post-GFC recovery period.
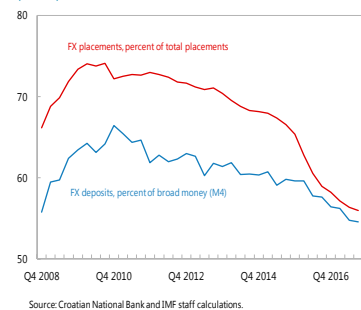3/ Volume of trading partners imports weighted by exports' shares.

Appendix IV. The Croatian Banking System and Its Euroization

1.   The Croatian banking system has, on average, been profitable, well-capitalized, and liquid (Figure 3).[1] The lending boom before the GFC was largely foreign funded. The NPL ratio was declining and bank profitability was comfortable. The GFC triggered a sharp increase in NPLs and lowered the profits. The system has on average been profitable during the whole analyzed period, with the exception of 2015, due to the conversion of Swiss franc household loans. Initially after the GFC, lending to the private sector remained modestly positive, as many loans were renegotiated, but ultimately domestic bank lending declined, as the Croatian recession continued after the European sovereign debt crisis ended. Banks, however, maintained a comfortable capital coverage, mainly due to a reduction of risk-weighted assets by switching lending from the private sector to the government as well as a reduction of some risk-weights. The latter was partially compensated by increasing the minimum capital requirement (in 2010) [2] and the implementation of CRD IV beginning in 2014. With credit subdued and deposits increasing, the loan-to-deposit rate declined, and banks moved to a net foreign asset position in the second half of 2015.

Euroization and Swiss Franc Indexed Household Loans

2.   A high degree of euroization has been a characteristic of the Croatian banking system. Following the experience with hyperinflation in the early 1990s, deposit euroization has been widespread in Croatia (Ljubaj and Petrović, 2016). Banks were thus quite interested in lending in foreign currency w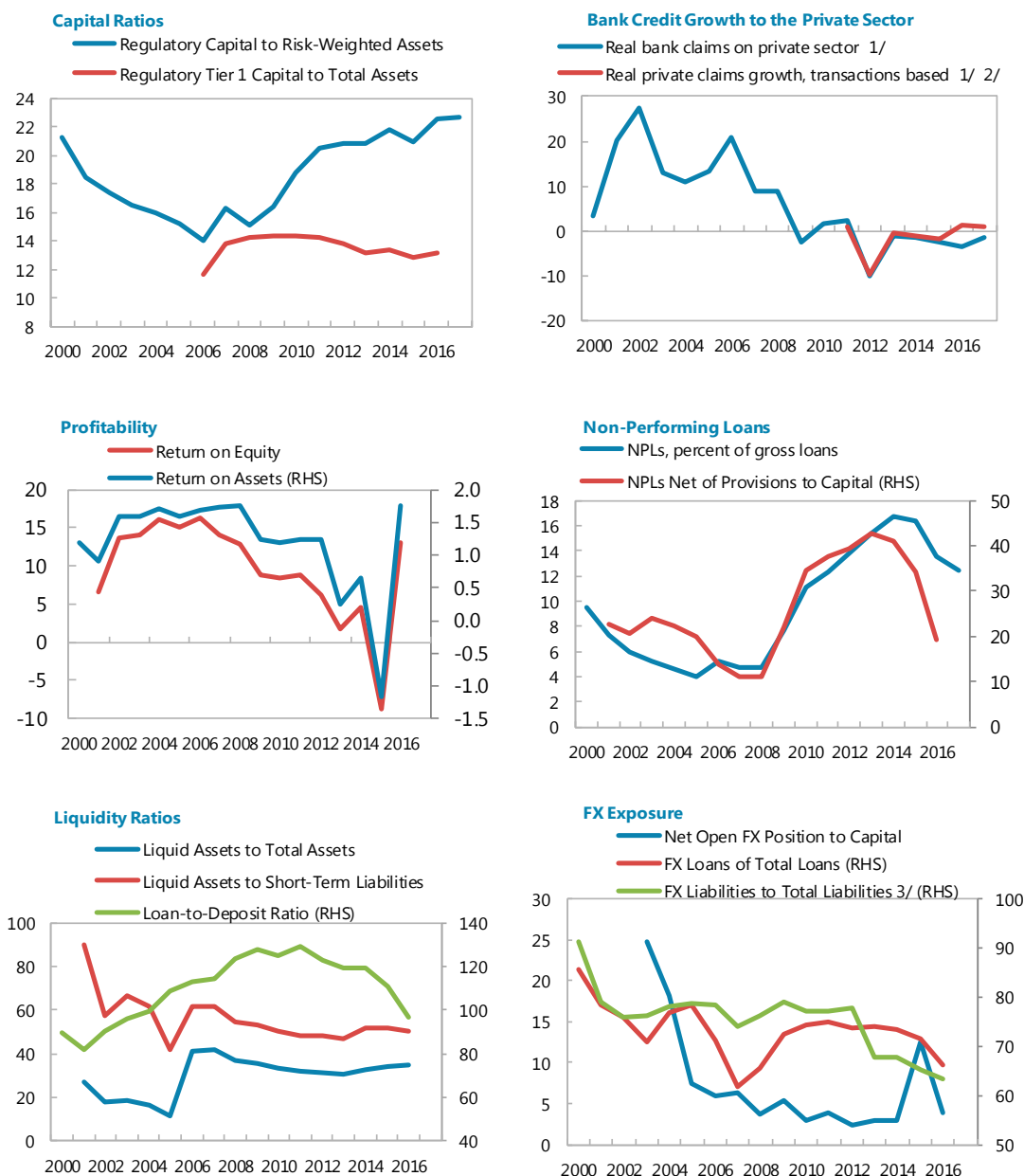ith a view to limit their net open FX position. As the cost of borrowing in Swiss franc were favorable compared to euros, the share of Swiss franc lending increased and accounted for about 13 percent of total loans and 24 percent of all household loans at the beginning of 2010, but these

Croatia: Euroization, 2008 Q4 - 2017 Q3
(Percent)

Source: Croatian National Bank and IMF staff calculations.

ratios have since declined to just below one percent. Most of the FX loans are denominated and paid in local currency, but indexed to a foreign currency—primarily to the euro.

3.   Banks remained profitable after the GFC, except in 2015, due to the conversion of Swiss franc indexed household loans. The increased provisioning following the GFC was obviously a drag on profitability. But 2015 is the only year since the GFC, when the banking system reported

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[1] The Croatian banking system has been gradually consolidating. Smaller banks have been acquired or closed. In 1999, 53 banks were licensed (of which 13 were foreign-owned, accounting for almost 40 percent of total assets). At June 2017, 26 banks were licensed (of which 15 were foreign-owned, accounting for almost 90 percent of total assets). A regionally systemically important bank is currently under restructuring in line with *the Bank Recovering and Resolution Directive*. In 2017, the Hungarian OTP bank, which owns a large subsidiary in Croatia (OTP Banka), bought Splitska Banka from Societe Generale. These two units are expected to formally merge in 2018.

[2] See Dimova et al (2016) for an overview of macro- and micro-prudential measures that the Croatian National Bank (CNB) tightened during the boom and eased during the recession.

Figure 1. Selected Indicators of the Croatian Banking System, 2000–2017 Q3

Capital Ratios
- Regulatory Capital to Risk-Weighted Assets
- Regulatory Tier 1 Capital to Total Assets

Bank Credit Growth to the Private Sector
- Real bank claims on private sector 1/
- Real private claims growth, transactions based 1/ 2/

Profitability
- Return on Equity
- Return on Assets (RHS)

Non-Performing Loans
- NPLs, percent of gross loans
- NPLs Net of Provisions to Capital (RHS)

Liquidity Ratios
- Liquid Assets to Total Assets
- Liquid Assets to Short-Term Liabilities
- Loan-to-Deposit Ratio (RHS)

FX Exposure
- Net Open FX Position to Capital
- FX Loans of Total Loans (RHS)
- FX Liabilities to Total Liabilities 3/ (RHS)

Sources: Croatian authorities; IMF *Financial Soundness Indicators Database*; previous IMF Staff Reports; and IMF staff calculations.
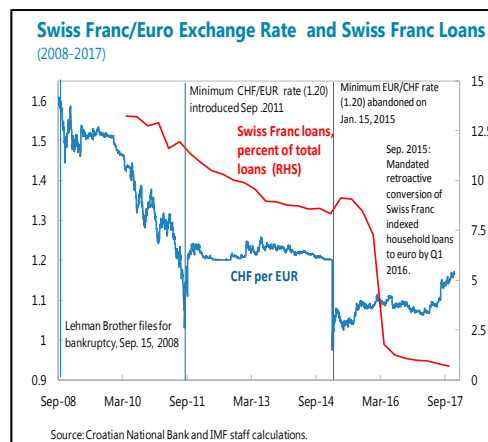
Note: Definitions of ratios have changed and are not fully consistent over time. Q2 2017 most current.

1/ Bank claims on other domestic sectors, i.e. the private sector, deflated by CPI inflation.

2/ Transaction data are adjusted for exchange rate effects, sales of loans to non-banks, closure of banks, etc. For details, see Annex 1 in *CNB Bulletin No. 221*, February 2016, Croatian National Bank.

3/ Before 2006, the figures refer to deposits instead of total liabilities.

an aggregated loss. The GFC triggered an appreciation of the Swiss franc vis-à-vis the euro, which amounted to about 38 percent at the time the Swiss National Bank abandoned its exchange rate floor (January 15, 2015). The Croatian authorities temporarily froze the indexation at the rate just before January 15 to allow borrowers and banks to reach a voluntary settlement. Little progress was achieved and with general elections approaching, banks were, on September 30, 2015, mandated to retroactively recalculate these loans, as if they had been issued as euro indexed loans with variable interest rates.

Swiss Franc/Euro Exchange Rate and Swiss Franc Loans (2008-2017)

Source: Croatian National Bank and IMF staff calculations.

4.   The Swiss franc conversion helped many households, but adversely affected banks. The conversion significantly reduced the uncertainty for the about 60.000 affected borrowers, of which a substantial portion would likely have defaulted. The retroactive nature of the calculation, however, signaled legal uncertainty for the business community. Banks may thus try to recoup their losses from future lending, i.e. seek compensation from future borrowers. The conversion cost for the banks amounted to almost 2 percent of GDP. Some of the affected banks and the European Commission challenged the law.[3]

5.   In 2016, however, bank profitability fully recovered, while 2017 profits will be adversely affected by Agrokor. During the 2008–16 period, Croatian banks distributed around 73 percent of their cumulative profits as dividends. Croatian banks can carry-forward losses for the following five years for tax purposes.

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[3] The Croatian Constitutional Court ruled that the Law was necessary to protect borrowers, thus rejecting banks' claim that it was unconstitutional. A couple of banks have filed their case with the International Centre for Settlement of Investment Disputes. The European Commission has taken the first step to initiate infringement procedures, but the case has since been paused.

Appendix V. Lending Surveys: Credit Demand or Credit Supply?

1.   It is intrinsically difficult to disentangle whether domestic bank lending has been subdued due to lack of demand or lack of supply, but lending surveys can offer a helpful clue. In October 2012, the CNB began conducting bank lending surveys following the methodology used by the European Central Bank (ECB). At the beginning of the recovery, banks seem to have eased their lending standards and hence increased the *supply* of credit, while more recently demand has picked up (Figure 4).[1] This is corroborated by Pintaric (2016)[2] and Dumičić and Ljubaj (2017).[3] They argue that the limited demand during the recession and early stages of the recovery curbed the scope for boosting supply by further easing monetary and credit policies.

2.   New bank lending to households and particularly non-financial corporations seems to finally be picking up. Due to data availability, the bank lending data used for the cross-country analysis were the change in the stock of credit to the private sector deflated by CPI inflation. This measurement can be misleading. It does not consider changes in the amortization flows, sales of NPLs to non-banks, write-offs, closure of banks, as well as exchange rate effects. These factors are removed from the transaction data prepared by the CNB.[4] These data suggest that new lending has been gradually picking up since mid-2016; particularly for firms.

Non-Financial Companies

3.   During the recession, some financially solid companies were credit rationed, but much less since 2013.[5] Domestic bank credit to firms has recently begun to increase—particularly to the

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[1] For a comparison of Croatia to other CESEE countries, see the *CESEE Bank Lending Survey*, which is published twice a year by the European Investment Bank (EIB, 2017). Note that demand could be underreported, as some clients may not even bother to apply, if they expect to be rejected.
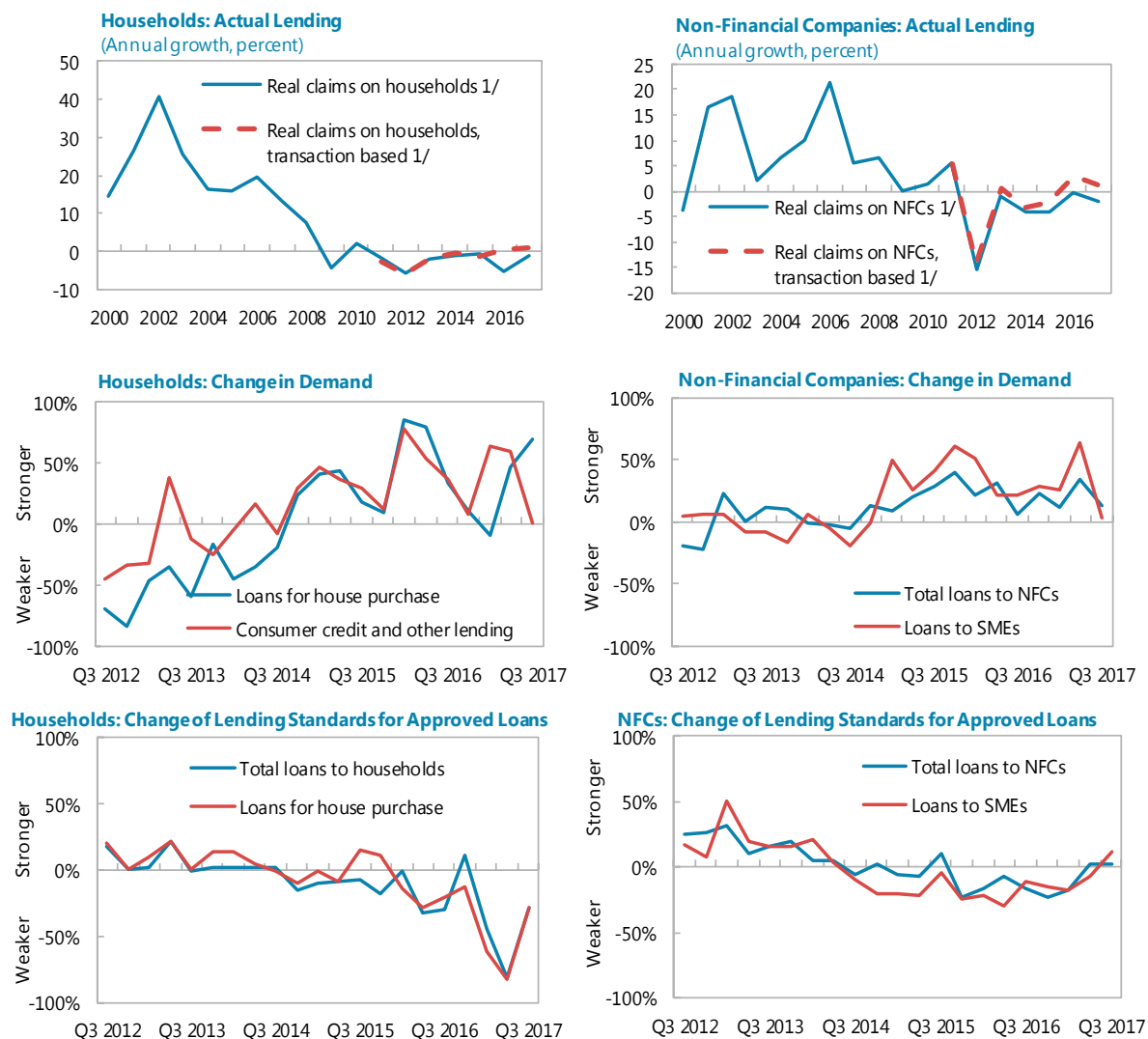
[2] Pintaric (2016) found that loan growth was more affected by demand than credit standards; especially for firms and consumer loans, while the information on mortgages was inconclusive. He used an unbalanced panel of quarterly lending survey data from Q3 2012 to Q4 2015.

[3] Dumičić and Ljubaj (2017) found that subdued credit growth was "greatly influenced" by poor economic growth. They use a switching regression framework to analyze the development of credit demand and supply using data from Q1 2001 to Q1 2015. For non-financial enterprises, the estimated demand and supply regressions show that the pre-crisis period was characterized by surplus demand for loans, of which part was met by externalized loans, while the period since 2012 was marked by a surplus supply of loans. It is tempting to speculate that improved profitability allowed corporates to rely more on internal resources. For households, the pre-GFC period was also characterized by surplus demand, while the post-crisis period (data until Q1 2015) was marked both declining demand and supply. It is tantalizing to speculate that these variations in excess demand and supply could somehow be related to the uncertainty caused by the many lawsuits against banks challenging their lending practices.

[4] For further details, see Annex 1 in *CNB Monthly Bulletin No. 221*, February 2016, Croatian National Bank.

[5] Šonje and Torma (2016) used micro-data and a probit/logit approach on a sample of 3,500 companies included in the regular business confidence survey, to identify whether sound companies faced financial constraints. After controlling for business expectations and sectoral characteristics, they found that sound large companies briefly faced credit crunch in the initial stage of the GFC. Optimistic SMEs faced a somewhat longer crunch, but their external financial constraint also vanished with time. Since 2013, constraints were practically absent. Moreover, they found no significant impact of pre-bankruptcy settlements. In general, companies under pre-bankruptcy regime remained financial constrained—perhaps because new funding as part of the restructuring was typically not granted seniority.

Figure 1. Croatia: Bank Lending Indicators, 2000–2017 Q3

Households: Actual Lending
(Annual growth, percent)

Non-Financial Companies: Actual Lending
(Annual growth, percent)

Households: Change in Demand

Non-Financial Companies: Change in Demand

Households: Change of Lending Standards for Approved Loans

NFCs: Change of Lending Standards for Approved Loans

Sources: Croatian National Bank (CNB); and IMF staff calculations.

Note 1: Lending surveys indicate the net percentage change compared to last quarter, with values ranging from −100 to +100. The responses are weighted by the shares of individual banks in total loans to enterprises and households. A positive value implies increased demand and a tightening of lending standards, and vice versa.

Note 2: The quarterly lending survey data for Croatia only begin in Q3 2012 and end Q3 2017.
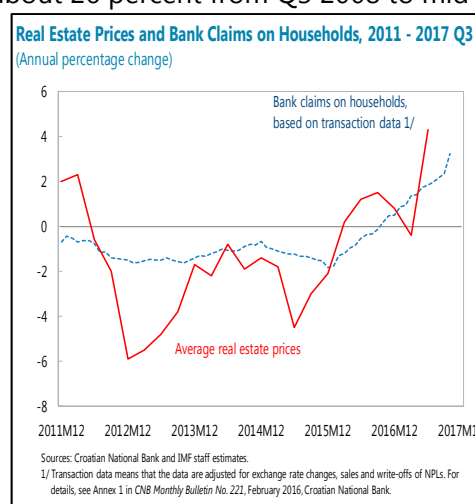
1/ Change in credit stock deflated by CPI. Most recent data from Q3 2017.

booming tourism sector—and the NPL ratio was projected to decline further. Nevertheless, Croatian companies do reportedly feel more credit constrained than peers. However, they also consider that the political and regulatory climate is a bigger obstacle to new investments than lack of financing.[6]

4.   Looking forward, bank credit to firms is expected to increase further, but it will be affected by Agrokor. Only a relatively small part of Agrokor's debt is to domestic banks, in part due to the fact that the CNB had tightened the large exposure regulation already in 2013. The Croatian banks, however, are also exposed to indirect risk, as they have financed factoring companies and suppliers. According to the CNB, the resolution of Agrokor has already adversely affected bank profitability in 2017, but their stress tests suggest that in the CNB's worst case scenario—including a disorderly resolution of Agrokor—only a couple of banks may have to increase their capital to observe the prudential requirements.

Households

5.   Looking forward, bank credit to households will likely depend on the new mortgage legislation. Real estate prices have, on average, declined about 26 percent from Q3 2008 to mid-2015, whereupon they stabilized and have since modestly increased in the capital and coastal areas. Credit demand by households has recently been spurred by better employment prospects and improved consumer confidence. The *Act on Subsidized Housing Loans* was introduced in 2017. Monthly loan annuities for some first-time buyers under 45 years of age are subsidized.[7] *The Home Loan Act*, with a view to transpose the EU Mortgage Credit Directive, has just been gazette.[8] Finally, the authorities had announced the introduction

Real Estate Prices and Bank Claims on Households, 2011 - 2017 Q3 (Annual percentage change)

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[6] According to an EIB (2016) survey covering 487 non-financial Croatian companies, 13 percent of the firms (weighted by value-added) felt finance constrained compared to 5 percent in the EU. Especially construction firms and SMEs felt finance constrained. In contrast, more Croatian companies felt that availability of external finance and internal finance—higher than the EU average—were the most positive factors enabling investment. Almost 50 percent compared to the EU average of 20 percent, stressed that the political and regulatory climate were the main short-term investment barrier.

[7] The 2017 budget includes HRK 17.5 million (about €2⅓ million) to subsidize housing loans, which is expected to cover 1,000 to 1,500 loans. The subsidy is maxed at €100,000 of the value of the residence and at a square meter price of €1,500 and the interest rate must not exceed 3.75 percent. Ten banks participate. The subsidy is for four years but can be extended by an additional two years for each new or adopted child. The 2018 and 2019 allotment is, respectively, HRK 35 million (about €4⅔ million). This law is in part replacing the savings subsidy for housing that was previously abolished, and in part to compensate for the removal of the exemption for first time buyers the real estate turnover tax effective January 1, 2017. The turnover tax rate was at the same time reduced from 5 to 4 percent.

[8] It permits a one-off conversion of FX mortgage loans into domestic currency, but only for loans issued after the new law came into force.

of modern real estate tax in two steps.[9] It was intended to replace three current charges (communal fee, tax on vacation houses, and monument rents). Significant protests emerged and this new, more equitable and efficient tax was delayed to give more time for its proper implementation.

6.   Kuna denominated bank lending is on the rise, particularly for households. The share for kuna loans to households has increased from about 26 percent at end-2013 to almost 48 percent by September 2017. The Swiss franc experience has made borrowers and banks aware of exchange rate induced credit risk. The CNB has taken several measures to ensure banks inform their clients about the risks.[10] In 2016, the CNB has introduced a structural liquidity kuna facility with a view to offer long-term kuna funding to banks.[11] However, the converted Swiss franc indexed loans and most of the new kuna lending are variable rate loans. Interest rate risk has thus increased for many borrowers.[12]

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[9] It was proposed that the tax would be based on a few simple criteria effective 2018, and a modern value-based tax would be introduced effective in 2020, when the property data records would have been updated.

[10] For details, see Ljubaj and Petrović (2016). Consumer awareness introduced mid-2015 include: (i) banks being required to inform clients about similar kuna denominated products or refer to other banks offering such products; (ii) banks showing how sensitive the debt and debt service are to exchange and interest rate movements; and (iii) the CNB intensifying its public communication about exchange and interest rates risks.

[11] In early 2016, the CNB introduced a *structural repo facility* that provided long-term (four years) kuna funding against eligible securities at low interest rates. Mainly smaller banks participated in the three auctions. In September 2017, the CNB decided to change its collateral requirements from repurchase agreements, hence earmarking individual eligible securities, to allow banks to use a pool of collateral, which makes the structural loan facility more appealing.

[12] See Rosan (2017) for an analysis of interest rate risk of the Croatian private non-financial sector.

Appendix VI. Resolution of Non-Performing Bank Loans

1.   **The Croatian authorities have taken several initiatives over the years to gradually resolve legacy NPLs.** Croatian banks have high NPL ratios compared to peers, but provisions have improved, and the un-provisioned part is, on average, currently fully covered by excess capital. In principle, banks have three broad options:

- **Renegoatiate or restructure the NPL:** This is preferable and the least costly option, provided the underlying business is healthy. It may include extending the maturity, lowering the debt device, debt-equity swaps, etc. Reducing the debt burden, however, is more complicated in Croatia due to different accounting and tax treatments. The introduction of the Pre-Bankruptcy Settlment Law for firms in 2012 and the Personal Insolvency Law for individuals in 2016 (as discussed in Appendix II) have facilitated the process for these special cases, but other out-of-court settlements remain complicated. The tightening of the provisioning rules, effective in 2014, reduced the risk of evergreening and encouraged banks to resolve legacy NPLs.

- **Sell the NPL:** Croatian banks have increasingly sold their NPLs to non-bank recovery firms. In 2013, the CNB issued recommendations to clarify the rules for selling NPL *portfolios* in an effort to help the resolution of Hypo Alpe Adria Bank Croatia. This practice has since flourished and is the main factor behind the declining NPL ratio. While it helps banks, it does not necessarily help the borrower.

Croatia: Sales of Non-Performing Loans, 2010 - 2017 Q3
(NPL sales per year in percent of outstanding gross NPLs)
Sources: Croatian National Bank; and IMF staff calculations.

- **Collect and write-off the NPL:** Collection can be expensive and time consuming, particularly for smaller loans. For instance, real estate transactions are taxed by 4 percent (before 2017 by 5 percent) for existing buildings while VAT (25 percent) is charged on "new" buildings and land for constuction. Banks have remained reluctant to write off even fully provisioned loans, since they for tax considerations had to "exhaust all legal means." This typically implied initiating bankrupcy procedures, which obviously limited the possibility of out-of-court settlements and could have unintended spill-over consequences. In 2013, tax code was amended to facilitate debt restructuring, but banks have remained reluctant to apply it. In part because write-offs are typically considered extraordinary income for corporates (although no longer for individuals) and in part due to unclear evaluations practices by tax examiners. Contested tax decisions, if appealed to the administrative courts, typically take three to seven years to resolve (World Bank, 2016). As of 2015, responses from tax examiners to inquiries on specific transactions became binding. Effective only during 2017, the tax code was amended to facilitate write-offs of fully provisioned loans with a view to encourage banks cleansing their balance sheet. It is too early to assess the impact of this measure. Thus far, it seems that NPL sales remains the preferred option of banks.