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Household Lending in Croatia: A Comparative Perspective

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CROATIAN NATIONAL BANK

HOUSEHOLD LENDING IN CROATIA: A COMPARATIVE PERSPECTIVE

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1. INTRODUCTION

Developing a sound financial system is clearly one of the key tasks of transition. Communist economies were relatively industrialized economies with primitive financial systems. Capital was allocated by the plan, or, in the case of "reform" or "market" socialism, by a banking system closely controlled by political instances. The former Yugoslavia, in which commercial banks were separated from the central bank as far back as 1952, probably went the furthest towards creating a banking system in the commonly understood sense, but even there, reforms in the 1970's created a unique, non-market, and in the end quite problematic sort of banking system.

Also, recent research has studied the finance-growth nexus, establishing the intuitively-appealing result that financial development actually causes growth (King and Levine 1993, Levine, Loayza and Beck 2000, Wachtel 2001, Rousseau 2002.) These cross-country findings underscore the importance of financial system reform in the transition countries.

At the same time, rapid credit growth has been identified as a key factor in banking and currency crises around the world. This raises the question of whether transition countries can have "too much of a good thing", or whether there are limits to the speed at which credit can safely grow. At this point, no hard and fast limits have been shown. Cross-country analysis suggests increased probabilities of prudential problems above certain thresholds (Caprio and Klingebiel 1996; also Eichengreen and Rose 1998, Eichengreen and Arteta 2000, Borio and Lowe 2002), but much dispute rages about whether this threshold is really appropriate everywhere. For example, Gourinchas et al (2003) suggest that problematic lending booms are mainly a Latin American phenomenon. And, in addition, definitions of a lending boom are numerous. (Cottarelli et al 2005 offer a rigorous definition for transition countries.)

Many of the transition countries have faced banking problems, and in quite a few cases these have been associated with macroeconomic problems (most spectacularly in Bulgaria in 1996-7, but also in Slovakia, Czech Republic, Croatia etc.) This post-transition wave of banking problems took place in a period in which banking systems were not well-consolidated. That is, although most of these banking systems had undergone some sort of "cleaning" process in which some of the legacy of bad loans to state-owned enterprises were removed from commercial bank balance sheets, and some degree of recapitalization was undertaken, supervision remained new and relatively weak, owners were at best inexperienced and at worst either closely-tied to large loss making SOE's (as in Bulgaria and perhaps Slovakia) or closely tied to unsound private corporate interests (Czech Republic and Croatia). The overall framework, in the legal, regulatory and competitive sense, was inadequate.

However, the subject of this paper is a more recent phenomenon: the rapid growth of credit in transition countries *after* the consolidation of the banking system. Since 2000, the transition countries of Central and South East Europe have experienced a wave of foreign investment in banking, resulting in foreign bank ownership of a majority of bank assets in almost all of the countries. This has also been accompanied by strengthening of banking supervision, usually during the clean-up process from the previous crisis, and improvements in the legal environment. A much more competitive environment has resulted, and the quality of the banking system seems vastly improved. [1]

[1] On competition in the Croatian banking system, see Kraft (2006). On banking reform in transition countries, see EBRD *Transition Report.*

Many of the countries have subsequently seen a sharp acceleration of bank lending. This has been associated with high levels of capital inflows in general, and, in many cases, with substantial current account deficits. (For an overview of the lending situation, see Backé and Zumer 2005).

Croatia has been in the forefront of this process, for better or worse. As early as August 2001, year-on-year growth rates of loans to households and enterprises taken together exceeded 20%. By end 2002, this rate was close to 30%. Croatia's current account deficit ballooned from 3.6% of GDP in 2001 to 8.6% in 2002, and its foreign debt grew from 60% of GDP in 2001 to some 82.3% at the end of 2005.

Recent work by Herrmann and Jochem (2005) has examined the macroeconomic problems, and in particular the current account deficits of CEE and SEE countries. Using cross-country techniques, they show that part of the current account deficit can be accounted for by the level GDP per capita. That is, when countries income grows, the estimated "normal" current account deficit falls. Although the cross-country regressions cannot directly explain this, it would seem that demand for capital inflows falls as income increases, while previous investment raises productivity and exports, decreasing the merchandise trade deficit.

This suggests that some of the current account deficits, and also some of the rapid credit growth seen in CEE and SEE countries, can be attributed to a normal catching-up process. However, even if such a conclusion is correct in general, it does not imply that catching-up is without its dangers and pitfalls, nor that catching-up countries cannot experience harmful lending booms and subsequent crisis. Despite the benign general diagnosis of catching-up, it is crucial to analyze individual cases to identify warning signs and vulnerabilities.

A paper prepared for this same conference three years ago (Kraft and Jankov 2005) examined the origins of Croatia's lending boom and tentatively attempted to assess its dangers. One of the mitigating factors that we pointed to was the high proportion of loans to households in Croatia, which, we felt, made this lending boom less likely to lead to prudential problems than the late 1990's boom in Croatia, which was very much based on wholesale lending. In the interim, loans to households have continued to grow at very rapid rates. Even though high growth rates of loans to households have now become common in CEE and SEE, Croatia stands out as having the highest stock of household loans to GDP, and for having the most sustained growth of household loans.

In this paper, I will examine the causes and implications of this strong share of household credit in Croatia. The main questions I ask are 1) Are repayment rates on household loans still holding up? And if so, how can this be reconciled with the rapid rate of growth of household credit? 2) Are there any special macroeconomic implications of this heavy share of household lending? In particular, how does consumption lending get reflected in balance of payments issues? 3) Is Croatia's seemingly high share of household loans actually high in broader cross-country comparison, and what determinants can be found for this high share?

The main conclusions of the paper are, first, that from a prudential point of view, household lending continues to be safer than enterprise lending in Croatia, and that prospects for the continuation of high repayment rates seem good in the immediate future. Second, because of the weakness of Croatian producing sectors in the areas of consumption stimulated by bank lending, lending to households is closely linked to increased imports and thus stimulates BOP problems. Third, in cross-country perspective, Croatia's high share of household credit seems

to be explained by its recent history of low inflation, the relative success of banking sector reform and the relative slowness of real sector reform. This suggests that speeding up economic reform across the board could both increase the amount of credit granted to enterprises, and raise competitiveness, mitigating Croatia's "consumption credit exceptionalism."

The paper is structured as follows: section 2 provides background information on the Croatian banking system and in particular on loans to households in Croatia. Section 3 discusses the evolution of credit quality, and examines possible explanations for continued high repayment rates. Section 4 looks at the macroeconomic effects of household credit, using a simple econometric model. Section 5 provides a cross-country analysis of lending to households, including an analysis of residuals for transition countries aimed at identifying the specific determinants of household lending in transition countries in general and in Croatia in particular. Section 6 concludes.

2. THE CROATIAN SETTING

Croatia experienced a wave of bank failures starting in March 1998 and extending into the first half of 1999. This was one of the triggers of a recession that lasted from the fourth quarter of 1998 through the third quarter of 1999. After that, coincident with the recovery, the government privatized three of the four largest banks. The largest bank, which was already private, was majority owned by foreign portfolio investors by 2000, and was purchased by a foreign buyer during 2001 in a friendly buyout. By end-2000, the majority foreign owners controlled 84.3% of total assets in the Croatian banking system.

This combination of economic recovery and ownership transformation resulted in sharp improvements in bank performance, as seen in Tables 1 and 2.[2]

Table 1: Croatian banking overview 2000-2005

	2000	2001	2002	2003	2004	2005
Total assets (billion HRK)	111,8	148,4	174,1	204,1	229,3	245,9
Total assets (% GDP)	73,3	89,6	96,1	102,9	107,7	107,4
Number of banks	43	43	46	41	37	34
Asset share of foreign banks	84,1	89,3	90,2	91,0	91,3	91,1
Asset share of state banks	5,7	5,0	4,0	3,4	3,1	3,4
Bad loans (%)	9,5	7,3	5,9	5,1	4,6	4,1
Capital adequacy ratio	21,3	18,5	17,2	16,2	15,3	14,4
ROAA	1,4	0,9	1,6	1,6	1,7	1,8
ROAE	10,7	6,6	13,7	14,5	16,1	16,5

Source: Croatian National Bank.

[2] The relatively low levels of profitability in 2001 are the result of the actions of a rogue trader at one of the newly-privatized banks. Although the traders activities dated back to the period prior to privatization, due diligence processes failed to uncover the fraud, and losses were only recognized in 2002.

Table 2: Macroeconomic environment 2000-2005

	2000	2001	2002	2003	2004	2005
Real GDP growth, %	2,9	4,4	5,6	5,3	3,8	4,3
Inflation, annual average, %	4,6	3,8	1,7	1,8	2,1	3,3
Unemployment (ILO method, %)	16,1	15,8	14,8	14,3	13,8	13,1
Consolidated general govt. deficit, %GDP	-6,5	-6,7	-5,2	-6,3	-4,9	-4,1
Current account deficit, % GDP	-2,5	-3,7	-8,6	-7,1	-5,1	-6,3
Foreign debt, % GDP	60,6	60,7	61,5	75,5	80,2	82,5
Government	26,4	26,8	24,1	25,2	25,5	22,8
Banks	11,0	11,5	15,5	23,3	27,1	29,1
Other sectors	18,6	16,5	16,1	18,6	20,5	23,1
Direct investment	3,6	4,9	5,8	7,0	7,1	7,6

Source: Croatian National Bank and Central Bureau of Statistics

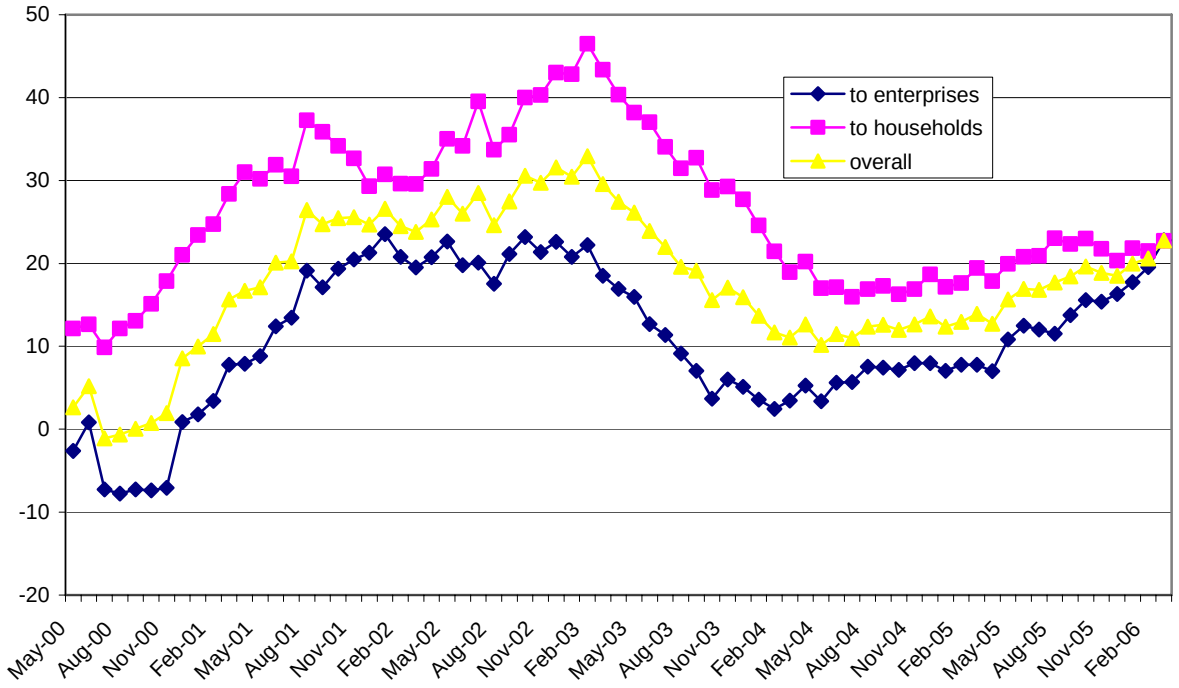
During the recession and its immediate aftermath, banks were very reluctant to loan. Bankers were quoted as saying that they were willing to loan to enterprises, but did not see good projects being offered. However, loans to households were already growing rapidly in 2000, and by end-2001 had reached an annual growth rate of 29.3%

On the funding side, the Euro conversion process in late 2001 brought a substantial inflow of deposits--foreign exchange deposits grew by 2.8 billion Euros (ECB 2002). But after this extraordinary inflow, deposit growth simply was not adequate to fund banks' credit expansion plans. Banks closed the gap with extensive foreign borrowing.

The persistent interest rate gap between Croatia and the Eurozone is a key explanatory factor in the lending boom. Interest earned on lending in Croatia has been far higher than on lending in the Eurozone (6-10 percent vs 3-5 percent), so that earnings (unadjusted for risk) are higher.

At the same time, with the ECB main reverse repo rate at 2 percent after June 2003, and exchange rate pressures on the kuna more often on the appreciation side, borrowing on the European market for 3.5-4 percent was a useful complement to deposit funding. However, it must be kept in mind that one of the key developments in this period has been the increasing importance of long-term lending, most notably mortgage (housing) lending. This type of lending creates particular funding issues, since long-term sources of Croatian kuna are rather difficult to come by. Thus maturity, and not only price, is one of the important drivers of bank foreign borrowing.

Graph 1: Loan growth by sectors



By late 2002, the Croatian National Bank had become quite concerned about the lending boom. It introduced a "tax" on rapid loan growth, which provided that banks whose loans and related assets grew more than 4% per quarter would have to purchase CNB securities bearing a yield of only 0.5%. The required amount of securities was equal to twice the overrun of the 4% limit.

In addition, the central bank required banks to hold a foreign exchange liquidity requirement of 35%. This meant that, for each unit of foreign exchange liabilities held by the bank, the bank had to hold 35% of a unit in liquid foreign assets. And this limit has to be met on a daily basis. While the main purpose of this was to force banks to have adequate foreign exchange backing for foreign exchange deposits, it also interacted with the loan growth tax, sometimes leading banks to decrease foreign borrowing, but in some cases actually leading banks to increase foreign borrowing so as to obtain liquid foreign assets.

Finally, the central bank also enacted a prudential measure relating to rapid growth. This was the requirement that banks whose loans grew more than 20% per year and whose capital adequacy was less than 15% would have to retain a portion of their dividends for three years. Higher rates of growth were coupled with higher retention rates. This prudential measure remains in force today.

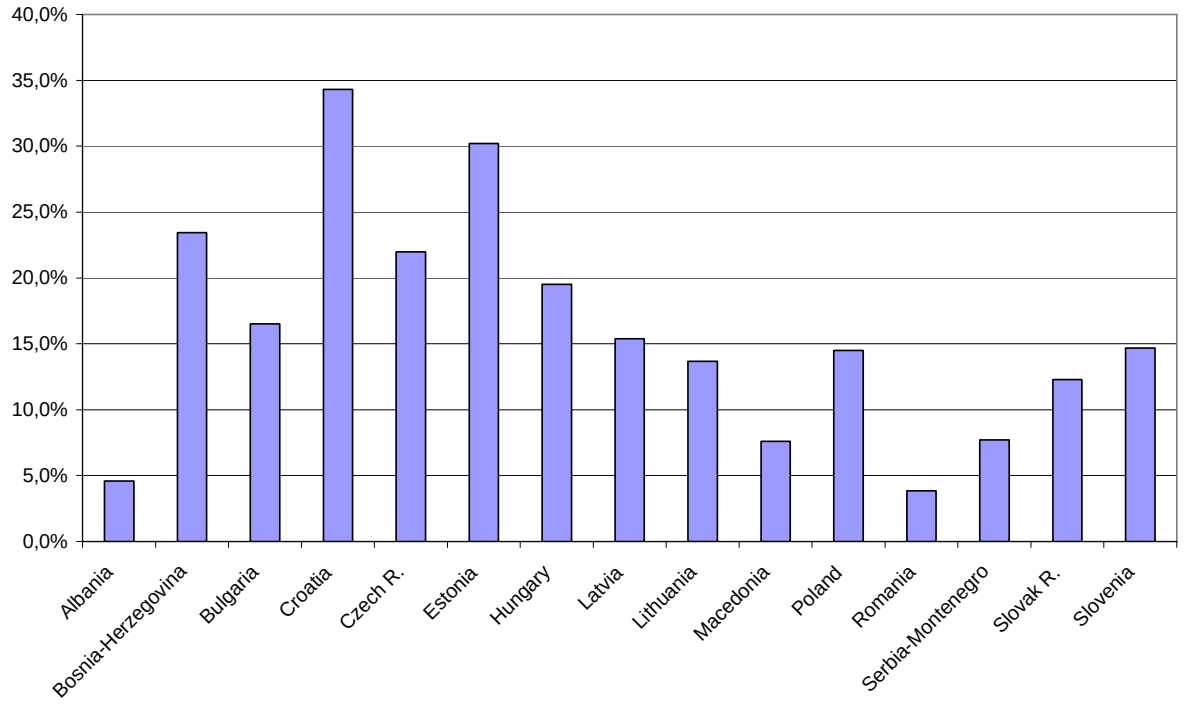
The loan growth "tax" only remained in force for one year. During 2003, bank lending slowed dramatically, with growth falling to 14.6% from 30.3% in 2003. However, banks got around the loan tax in part by referring their clients to leasing companies owned by their parent bank, and by encouraging the most creditworthy corporate clients to borrow directly from the parent

bank. Leasing company assets doubled in 2003, and non-bank, non-government foreign borrowing grew by 20%.

This led to the next set of measures, implemented in July 2004. A special reserve requirement, referred to as the marginal reserve requirement, was imposed on increases in bank foreign liabilities. Initially, the MRR had a rate of 24%; this was later raised to 30%, and, at the beginning of 2006, to some 55%.

The state of play as of early 2006 is the following: Croatia has the highest foreign debt to GDP ratio in CEE and SEE, and it has the highest ratio of household credit to GDP (see graph 2).

Graph 2: Household credit to GDP, 2005



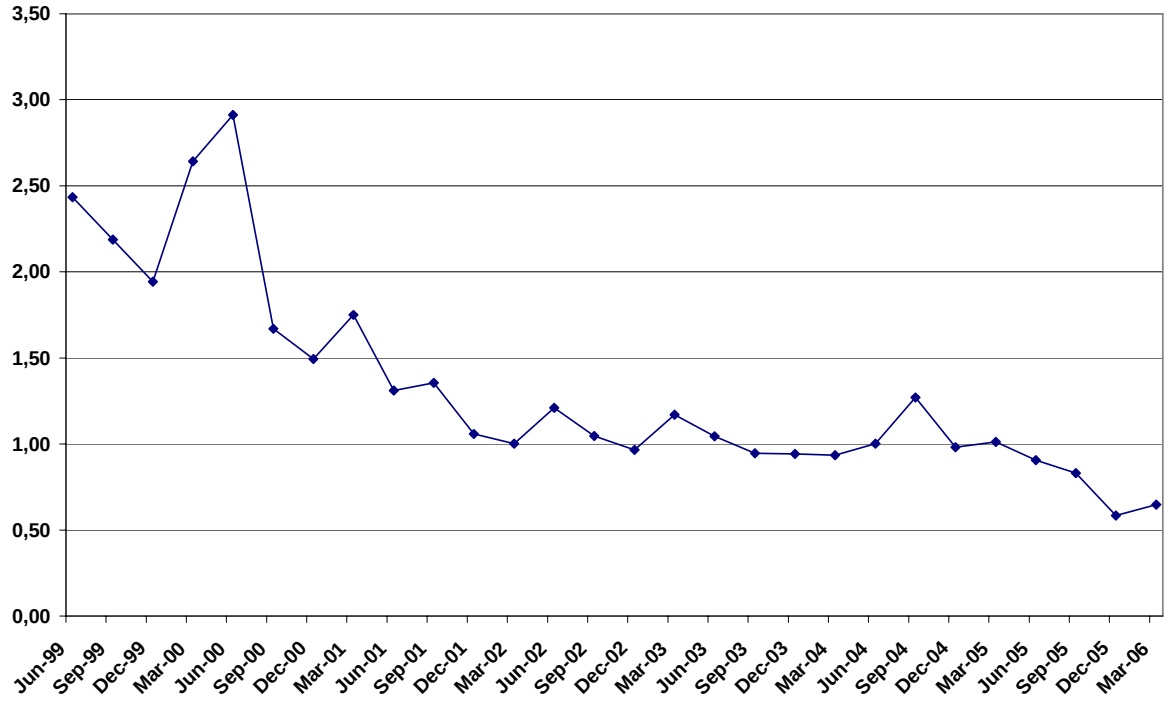
Source: National central banks

Having set the stage, I now turn to the issue of loan quality.

3. LOAN QUALITY AND PRUDENTIAL ISSUES

Now that the boom has gone on for almost 5 years, it is certainly meaningful to look at how the quality of household loans has held up. Somewhat surprisingly, it seems that quality has actually improved over time (see graph 3). The usual "seasoning effect" has not kicked in, at least yet. However,

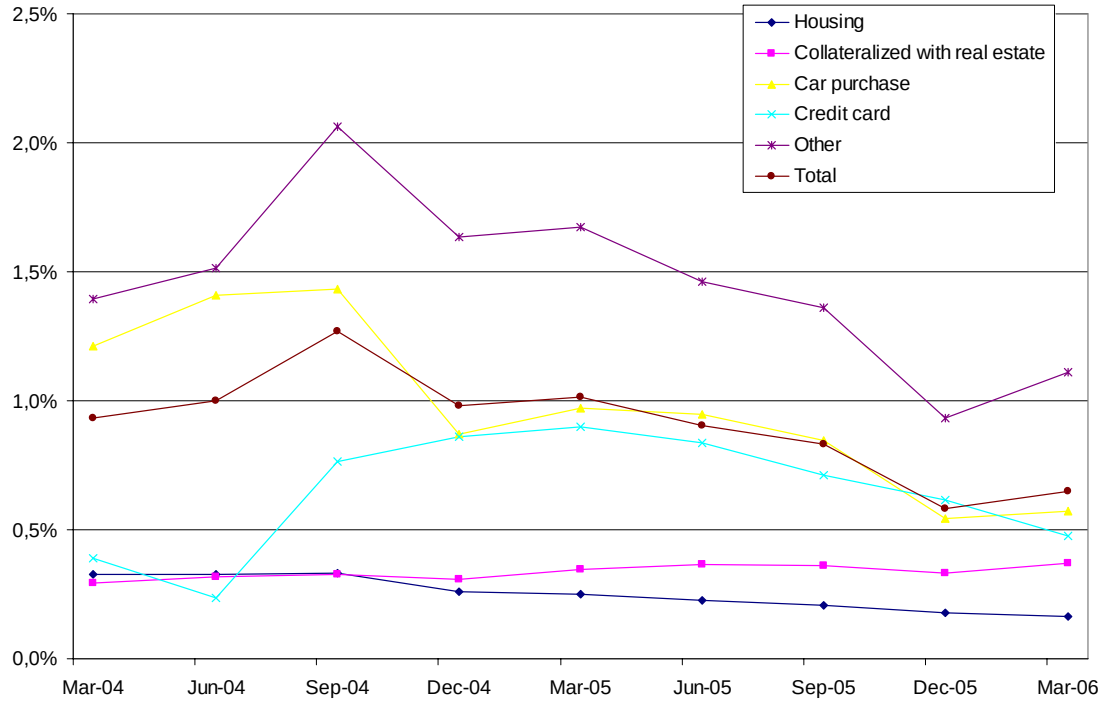
Graph 3: Past due loans to households, %



Source: Croatian National Bank

A more detailed breakdown is available starting in early 2004 (graph 4) To understand the implications of the graph, it is useful to know that the biggest subgroups are other loans (44.4% of the total in March 2006) and housing loans (37.4%), followed by car loans (10.8%).

Graph 4: Detailed breakdown of past due loans to households (% of each category past due)



Source: Croatian National Bank

Again, we see a generally downward-sloping pattern, with overall past dues running at 0.65% in March 2006. Housing loans and loans collateralized with real estate have very low past dues indeed, but the large "other" category has rather higher past dues. The other category includes loans for white goods as well as overdrafts on current accounts--loans for which the consequences of default are less cataclysmic than for one's house or car.

What can account for the improved quality of household loans in Croatia? Obviously, cyclical factors (sustained growth over 6 years) should come first. In addition, it is important to know that loans to households in Croatia have traditionally come with very stringent conditions. Either a co-debtor or two guarantors (or both) were often required on many loans. In addition, collateral levels have been very high, with banks sometimes taking real estate worth substantially more than the loan amount, or requiring the holding of compensating balances deposits at the bank.[3] Although these requirements are now being eroded by ever-growing competition, they remain common. Indeed, the Croatian National Bank does not possess any data at the moment on the proportion of loans repaid by activation of these mechanisms. Some data will be available in the second half of 2006, since banks will now be required to report the proportion of good loans that were collected from various forms of collateral and insurance.

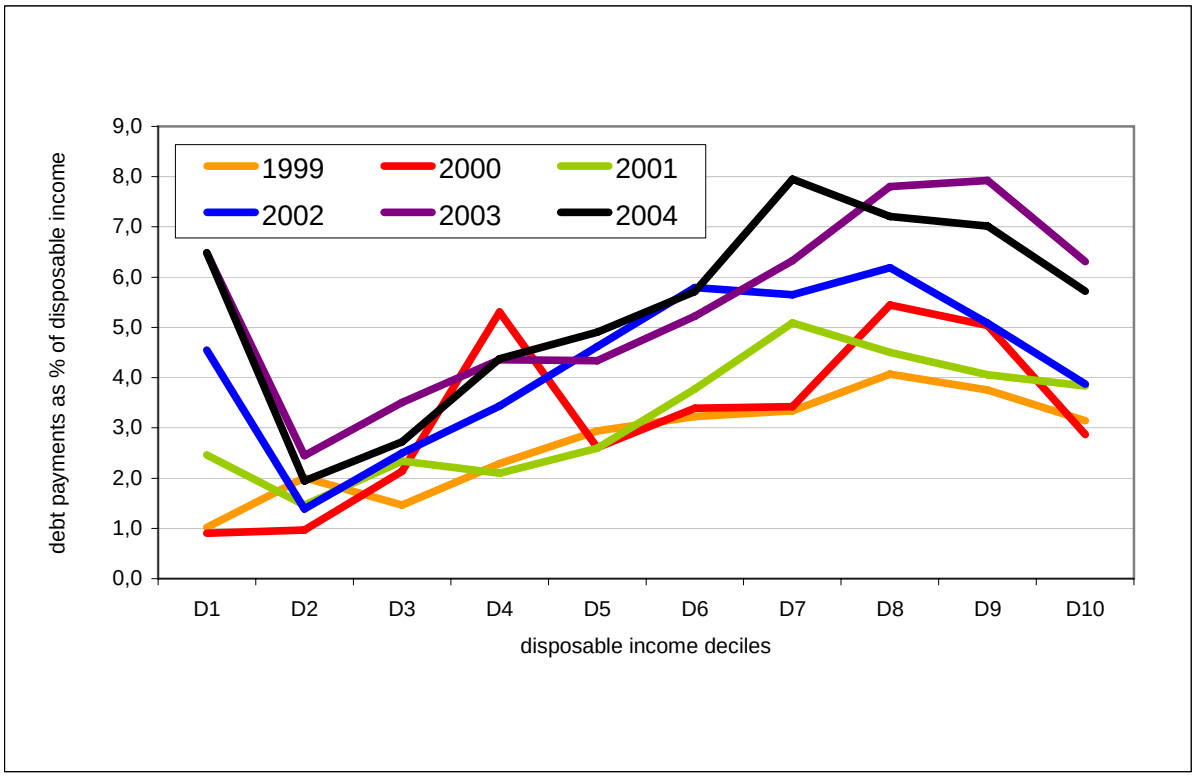
Two other considerations deserve mention here. First, due to the large unofficial economy, and strong family ties that bind Croatians in Croatia with relatives in more prosperous countries such as Germany, Switzerland and Australia, both the income and wealth of Croatian borrowers is probably underestimated by official statistics.

Second, the distribution of credit is biased towards wealthier households. Using data from the Household Budget Survey of the Central Statistical Office, Galac (2006) shows that the debt burden is highest in the seventh to tenth (i.e. highest) income deciles (see graph 5). These deciles account for some 65% of total disposable income, so it is clear that they are the ones who also have received the lion's share of household credit.

However, the reader may have noticed that in 2002 and 2003 the repayment burden of the very lowest decile of households rose sharply, with the repayment burden of the first decile actually equaling that of the seventh decile in 2003. And there was no further change in the lowest decile's burden in 2004. Nonetheless, the absolute amount of lending to the first decile is lower than lending to the seventh decile by a factor of about 7, so that the high indebtedness of the lowest decile need not present a problem for the banking system as a whole.

[3] For details on these practices, see the series of CNB bank surveys: Kraft 1998, Kraft 2000, Galac 2005, Galac and Dukić 2005

Graph 5: Distribution of household debt burden by income deciles, 1999-2004.



Source: Croatian National Bank

A curiosity of the distribution of credit is that banks' credit policies allow wealthier borrowers to tie-up substantial fractions of their income in loan repayments. In contrast to the rule of thumb that one should not spend more than one-third of one's income on housing, Croatian banks allow households to borrow up to the point where they have an "existential minimum" of income left over. That is, a wealthy family with an income of 10 times the national average, 45,000 HRK per month (about 6000 €), would be allowed to incur debt requiring monthly payments of about 43,000 HRK per month at some banks. While the exact numbers vary, this practice is widespread, and it allows much greater debt per capita than a 1/3 type rule.

In advanced countries, regulators have become less and less inclined to specify limits on household borrowing. Indeed, the EU's draft directive on consumer credit does not suggest any limits or rules of thumb (European Commission 2006). The UK FSA has a very friendly debt calculation program on its website that also does not automatically indicate a problem if debt to income ratios are, say, 50%. (FSA website) So it is hard to say whether the practices observed in Croatia are unusual. Perhaps there is something on the demand side; Croatian upper income households seem comfortable with rather high levels of debt. I will have a bit more to say about that below, in the cross-country regressions.

4. MACRO IMPACTS

It is clear that the impact of rapid lending growth on the current account balance in a small open economy will be negative. This negative impact will be further exacerbated if lending growth is funded from foreign borrowing.

In the long-run, it is also to be expected that lending to enterprises, to the extent that it funds acquisition of new capital goods and/or the acquisition of information capital, should raise productivity and output. While lending to households for consumption purposes could raise capacity utilization in consumer goods sectors, and eventually raise investment and productivity in these sectors through a multiplier-accelerator process, intuitively it seems probable that the long-term impact of increased lending to enterprises on productivity would be larger.

In the short-run, however, capital stock is fixed. This would imply that the main factor determining whether lending to enterprises would have a greater effect on net exports than lending to households would be the structure of domestic production. If, for example, the country produced a very broad range of consumer goods but very few capital goods, it might turn out that loans to enterprises would have a greater negative effect on net exports than loans to households.

In Croatia, both important capital goods and consumer goods are unavailable on the local market. Much of the equipment needed for road-building, for example, has to be imported. At the same time, Croatia produces no automobiles. Thus it is a priori not clear whether there would be any difference between the effects of loans to enterprises or to households on the trade balance.

Another way that the sectoral distribution of lending could affect the trade balance would be through funding structure. If, for example, the share of long-term loans in loans to households were much higher than the share of long-term loans in total loans to enterprises, and if, as was suggested above, banks need foreign funding sources mainly for long-term loans, there could be an indirect connection between sectoral composition, capital inflows and the current account.

To test these propositions empirically, I implement a model developed by Bussière et al (2004) and refined by Duenwald et al (2005). The original model was developed to study intertemporal current account dynamics in both advanced and transition countries. Both of the authors estimate versions of the model on panel data, but I will simply confine myself to Croatian data. In addition, I narrow the focus to the merchandise trade balance, in the belief that the services balance, which is crucial to Croatia's overall current account, is determined mainly by forces exogenous to Croatia (income and employment in the sending countries, price and non-price competition from other tourist destinations in the Mediterranean).

The model posits that the trade balance has a high degree of hysteresis, explained by the formation of habits in both Croatian purchases of imports and foreign purchases of Croatian exports. At the same time, the model assumes that agents are liquidity-constrained, so that fiscal policy and credit flows have impacts on expenditure behavior.

The innovation in the present version of the model is that credit flows are broken down into loans to households and loans to enterprises. This allows me to test whether the two types of loans have different effects on the trade balance.

The modified model takes the following form:

$$TB_t = a + b\ TB_{t-1} + c\ FB_{t-1} + d\ LE_{t-1} + e\ LH_{t-1} + f\ \Delta Y_t + u$$

where TB is the trade balance, FB is the fiscal balance, LE is the flow of new loans to enterprise, LH the flow of new loans to households, Y is GDP and u is a normally distributed error term.

The model is on quarterly data from 1996 to 2005. The variables are normalized as ratios of GDP, and seasonally adjusted. Neither the trade balance, fiscal balance nor GDP growth should have a trend. Loan flows, unlike stocks, should also be stationary. This is confirmed by unit-root tests (not shown here).

Table 3: Determinants of trade balance

	Coefficient	SE	*t*-Stat	Probability
Constant	-0.088	0.023	-3.906	0.000
Trade Balance (-1)	0.410	0.122	3.359	0.002
Fiscal Deficit (-1)	-0.005	0.011	-0.465	0.645
Loan flow to enterprises(-1)	0.175	0.186	0.948	0.350
Loan flow to households (-1)	-0.571	0.226	-2.532	0.017
GDP growth	-1.075	0.199	-5.409	0.000

Adjusted R-squared: 0.688
Observations: 38
Period: 1996 Q1-2005 Q4
S.E. of regression: 0.022
Durban-Watson: 2.209
F-statistic: 17.325
probability (F): 0.000

Two comments are in order. First, there is a striking difference between the coefficients on loans to households and loans to enterprises. While this finding for loans to households can be accepted fairly confidently, it could be that the loan to enterprises figure is somewhat distorted by the growing ability of enterprises to access international markets. This was stimulated by the CNB's 2003 loan "tax", which banks evaded in part by having their corporate customers borrow directly from the parent banks, and through leasing. Thus, the loan flow to enterprises might be underestimated.

Second, it might be surprising that the fiscal deficit variable is not significant. However, there are significant accounting issues plaguing the measurement of Croatia's fiscal deficit. In particular, the government had significant arrears, especially before 2000, but also thereafter. And there were significant changes in accounting practice, moving from cash accounting to modified accrual accounting.

In conclusion, although the results have to be taken with a considerable dose of reserve, this economic exercise suggests that in Croatia, even in the short-run, the bias to lending to households has had a negative effect on the trade balance, and in fact a greater negative effect than lending to enterprises.

5. IS CROATIA'S HOUSEHOLD LENDING EXCEPTIONAL?

So far, we have seen that Croatia's lending boom to households has been accompanied by improving loan quality, but has exacerbated external imbalances. In this section, I will use cross-country data to try to answer two important sets of questions: first, what are the cross-country determinants of lending to households, and can these determinants explain Croatia's experience? Second, can cross-country experience provide any policy recommendations as to how Croatia might bring household lending better into line?

The finance-growth literature mentioned in the introduction above has argued that finance development is an important cause of economic growth, and has proposed measures of financial development that are relevant here. The main studies in the finance-growth literature use three indicators of financial development: the ratio of bank credit to GDP; the ratio of commercial bank credit to central bank credit; and the ratio of stock market capitalization to GDP.

These ratios are important to keep in mind, since they are tied to economic growth. However, my task here is to explain one aspect of the development of the financial system: the degree to which a financial system provides credit to households. Intuitively, it is clear that the provision of household credit should be a function of income, measured as GDP per capita.[4] In countries where much of the population is close to subsistence, households would have very limited ability to repay credit. Admittedly, the microcredit movement has helped to create a technology for lending to the very poorest; but, quantitatively, this type of credit remains very small.

While income levels will turn out to be powerful explanatory variables in explaining credit to households, we need to examine factors that can explain the development of the financial system in general. Going back to the growth-finance literature, I use the ratio of commercial bank assets to commercial bank and central bank assets and the net interest margin as indicators of banking system development. I do not use the ratio of domestic credit to GDP, since it is so highly correlated to the ratio of household credit to GDP as to dominate other variables.

Furthermore, macroeconomic stability should be relevant to the level of household credit. High inflation, in particular, often decreases banks' inclination to lend.

Another important factor is enterprise credit demand. In advanced countries, enterprises rely more heavily on direct finance, although of course the degree of reliance on direct finance varies dramatically between the capital markets based financial systems of the US and UK and the bank-based systems of Germany and Japan. Still, there might be a positive correlation between stock market development and credit to households if high levels of stock market development decreased corporate lending opportunities for banks and banks substituted

[4] I use GDP at market prices, only because GDP at PPP for 2005 is not yet available, and it seemed unfortunate to throw away the most recent observation in this case. Experimental regressions using only data for 2003 and 2004 and GDP at PPP yielded similar qualitative results.

household for the lost corporate opportunities. Conversely, heavy corporate demand due to low stock market capitalization might compete with and decrease lending to households.

Much recent research has emphasized the role of strong institutions in fostering development in general, and financial development in particular. For this reason, I use the Transparency International Corruption Perceptions Index, which is available for a very broad sample of countries, as an indicator of institutional quality.

Additionally, I draw on the law and finance literature pioneered by La Porta, Silanes, Shleifer and Vishny (1997, 1998) They suggest a strong role for legal factors in explaining the degree to which creditor rights are protected, which in turn helps explain financial development. La Porta et al study in detail creditor protection provisions in legislation, and suggest that broad differences in the degree of creditor protection can be explained by the origin of countries' legal systems. Countries modeled on English common law generally provide relatively strong protection, while countries modeled on French civil law provide rather weak protection. The German and Scandinavian legal families fall somewhere in between.

While the classification used by La Porta et al has been criticized by Berkowitz, Pistor and Richard (2003), who emphasize the difference between "receptive" and "unreceptive" legal transplants, their classification is useful here because of its simplicity. I therefore include legal origin variables, but only for non-transition countries. Transition countries have drastically rewritten their legal codes since 1990, so that the question of legal origin seems less relevant for them. Also, as Pistor, Raiser and Gelfer (2000) show, enforcement is a key issue in transition countries, with the degree of enforcement perhaps being a more important indicator of legal system quality than laws on the books.

There are several other aspects of the transition experience that require special treatment. Large portions of the pre-existing stock of bank assets in transition countries, mainly claims on large socialist enterprises, proved worthless during transition. This, as well as high inflation in many of the transition countries, led to very low levels of credit to GDP in transition countries. Furthermore, transition countries faced the challenges of banking sector reform, which required time to overcome.

For these reasons, it is to be expected that transition countries will not fit the cross-country pattern. I deal with this in the following way: I add a 0-1 transition dummy in the cross-country regression, and then I pursue a further analysis of the transition country residuals. This method allows me to use variables for which data is only available for transition countries to try to pin down the determinants of the variation in household lending across transition countries.

The basic hypotheses of the transition residuals analysis are that greater progress in banking reform will lead to higher levels of household lending, while greater progress in enterprise reform and privatization will lead to greater enterprise credit demand and lower levels of household lending.

Table 4: Descriptive statistics for variables used in the cross-country analysis

	Mean	Median	Max	Min	Std. Dev.	Obs.
Household loans/GDP	0,266	0,151	1,087	0,004	0,262	255
GDP per capita	13961	6265	77784	113	15582	257
Commercial bank assets/ comm. + central bank assets	0,91	0,97	1,00	0,28	0,14	169
Net interest margin	0,042	0,034	0,123	0,008	0,024	157
Inflation (cumulative price change in preceding 5 years)	1,71	1,16	4,20	0,86	3,26	266
Corruption Score	5,12	4,45	9,70	1,80	2,38	246
Stock Market capitalization	65,53	41,59	528,59	0,13	73,10	150
Legal origin						
English	0,22	0,00	1,00	0,00	0,42	270
German	0,04	0,00	1,00	0,00	0,21	270
French	0,24	0,00	1,00	0,00	0,43	270

In addition, I allow for regional effects, using dummies for Latin America and Africa.

The data comprises observations on 90 countries in the years 2003-2005. The reason for this limited time sample is that, in fact, relatively few countries provide long time series for this category of lending. The ECB began to publish data on consumption lending in 2003, and this seemed to be a convenient starting point.[5] Longer series, while interesting, would imply a much smaller sample.

An important statistical caveat is that, while some countries classify loans purely by borrower (i.e. loans to households), others classify by use (e.g. consumption). The latter is what I would really like to measure. Both the ECB's data for all the Eurozone countries, and data from the United States, are on this basis. However, data for all the transition countries is purely on a borrower basis. This imparts an upward bias to the transition country data, since some loans to households that are used for productive purposes are included. However, since Croatia does not have a specially high proportion of sole proprietors, there is no reason to believe that the data for Croatia are biased relative to other transition countries.

The regressions use OLS. Although the issue of causality between financial variables and growth has been an important issue in the finance-growth literature, in this context there is no strong case for arguing that household lending causes growth (see also the discussion above in section 4, Macroeconomic implications). Thus I treat GDP per capita as exogenous to household loans.

The results of the cross-country regressions are shown in Table 5 below.

[5] I would like to thank Adalbert Winkler and xx from the ECB for providing me with the ECB data and kindly explaining its background.

Table 5: Cross-country determinants of lending to households
dependent variable Log(household loans/GDP)
(t-statistics in parenthesis)

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-6.72**	-5.89**	-5.78**	-5.64**	-5.65**	-7.246**
	(23.80)	(15.21)	(14.89)	(14.88)	(14.93)	(17.23)
Log (GDP per capita)	0.57**	0.36**	0.35**	0.34**	0.34**	0.62**
	(18.29)	(6.19)	(5.98)	(5.75)	(5.77)	(13.43)
2004 dummy x Log (GDP per capita)	0.01	0.01	0.01	0.01	0.01	0.00
	(0.77)	(1.03)	(0.93)	(0.95)	(0.96)	(0.78)
2005 dummy x Log (GDP per capita)	0.02+	0.03*	0.02*	0.02*	0.02*	
	(1.80)	(2.37)	(2.22)	(2.13)	(2.14)	
Cumulative price change in previous 5 years	-0.40**		-0.03*	-0.31**	-0.32**	-0.57**
	(4.42)		(2.32)	(3.57)	(3.61)	(4.13)
Transition country dummy	-0.49**	-0.36**	-0.32**	-0.35*	-0.34**	-0.42**
	(5.10)	(3.42)	(2.95)	(3.16)	(3.37)	(3.28)
Latin America Dummy		-0.25*	-0.25*			
		(1.99)	(1.98)			
English legal origin dummy		0.40**	0.40**			
		(3.95)	(3.93)			
German legal origin dummy		0.48**	0.48**			
		(2.63)	(2.65)			
French legal origin dummy				-0.03		
				(0.28)		
Transparency International Corruption Index		0.15**	0.16**	0.17**	0.17**	
		(4.45)	(4.57)	(4.86)	(5.03)	
Market cap of listed companies						0.00
						(1.52)
Total observations	252	232	230	230	230	140
Countries included	89	84	83	83	83	74
Adjusted R-squared	0.708	0.747	0.752	0.737	0.738	0.756
F-Statistic	122.96	86.24	78.29	92.47	108.31	86.80
Probability (F)	0.000	0.000	0.000	0.000	0.000	0.000

* significant at 5-percent **significant at 1%

As expected, GDP per capita proves a very powerful variable indeed. In addition, the transition dummy is consistently significant, and the inflation variable is consistently significant. Latin American countries show lower levels of household credit, and English and German legal origin contribute positively. Finally, the corruption index proves highly significant.

As hypothesized, development of securities markets, proxied by the market capitalization of listed companies, is positively associated with household lending, although the level of statistical significance is below conventional standards. Among the insignificant variables not shown in the table are time to start a business, and both the indicators of banking system development (commercial bank assets to commercial bank and central bank assets, and net interest margin, results not shown).

In short, a high level of income, a history of macroeconomic stability in the recent past, and strong institutions (low corruption and English or German law) all contribute to higher household lending.

Examining the residuals from these equations for transition countries, it turns out that Croatia and neighboring Bosnia-Herzegovina have high positive residuals outside the normal confidence bounds. In other words, Croatia and Bosnia-Herzegovina seem to be outliers at this stage.

However, when we analyze the transition country residuals, matters change. The analysis of residuals looks at three sets of factors: 1) the relative strength of the banking system 2) the degree of privatization and enterprise reform, as an indicator of enterprise credit demand and enterprise credit worthiness, and 3) the development of non-bank financial intermediation as a substitute to bank lending. The variables are taken from the EBRD's *Transition Report*, and the sample includes 23 transition countries.

Table 6: Transition variable descriptive statistics

	Mean	Median	Max	Min	SD	Obs
Cross-country equation residual	-0,004	-0,025	1,381	-1,674	0,657	67
EBRD banking reform	2,90	2,7	4	1,7	0,67	67
% of GDP produced by private sector	66,42	70	80	25	12,90	67
EBRD large-scale privatization	3,12	3,3	4	1	0,75	67
EBRD small-scale privatization	3,90	4	4,3	2	0,52	67
EBRD enterprise reform	2,47	2,3	3,3	1	0,61	67
EBRD non-bank reform	2,44	2,3	3,7	1,7	0,63	67

The results shown are based on the residuals from my preferred estimation, equation (3) above. However, the results from other specifications are rather similar.

Table 7: Analysis of transition country residuals

Cross-country specification with 5-year lagged inflation control variable (Equation 3, table y)
(t-statistics in parenthesis)

	(1)	(2)	(3)	(4)	(5)
Constant	-0.02	-0.77*	0.983	-0.982**	-1.08
	(0.08)	(2.55)	(2.31)	(3.23)	(4.89)
EBRD banking reform score	0.77**	0.74**	0.84**	0.80**	0.41*
	(7.22)	(5.27)	(7.37)	(4.16)	(2.58)
Percent of GDP produced by the private sector	-0.03**				
	(6.09)				
EBRD large-scale privatization score		-0.45**			
		(3.59)			
EBRD small-scale privatization score			-0.88**		
			(6.07)		
EBRD enterprise reform score				-0.55*	
				(2.60)	
EBRD non-bank financial institution reform score					-0.05
					(0.31)
Number of observations	67	67	67	67	67
Countries included	23	23	23	23	23
adjusted R-squared	0.454	0.282	0.453	0.220	0.139
Durbin-Watson	0.474	0.343	0.343	0.284	0.247
F-statistic	28.436	13.964	13.96	10.31	6.33
probability (F)	0.000	0.000	0.000	0.000	0.003

*significant at 5% **significant at 1%

Expectedly, banking reform, representing the supply side of lending, is highly significant. However, so are all four of the indicators of the enterprise demand side: percent of GDP produced by the private sector, and EBRD scores for large-scale and small-scale privatization, and enterprise reform. The development of non-bank financial institutions does not appear to be significant.

Furthermore, examination of the residuals of this estimation shows that Croatia is no longer an outlier. When these structural reform variables are taken into account, Croatia's level of household lending is no longer exceptional at all; in fact, Croatia's residual for 2005 is almost zero.

Bosnia-Herzegovina is an interesting comparison case, since it has experienced very rapid lending growth including very rapid housing lending growth, while making relatively slow progress on real sector restructuring. Bosnia-Herzegovina's residual from the transition residuals analysis is within the confidence interval, and actually falls from 2003 to 2005. Thus, it seems that a similar story of strong banking reform facing weak real sector reform applies rather well to Bosnia-Herzegovina also.

6. CONCLUDING DISCUSSION

Although consumer lending has now become a problem in Croatia, the regression analysis in this paper suggests that it is the result of Croatia's relative strong performance in banking sector reform and in maintaining low inflation. To a certain extent, Croatia is a victim of its own success in this respect.

Furthermore, household lending that allows consumers to enjoy a higher standard of living may represent rational income-smoothing by consumers expecting sharply higher income levels in the future. However, Croatia's household lending might also represent an irrational splurge ("exuberance"?), in which Croatian consumers attempt to adopt a western European lifestyle on a distinctly less than Western European income. Even if this is not so for individual households, it may be so for the country as a whole, if current account deficits and foreign debt positions prove unsustainable.

The cross-country regressions here suggest a straightforward policy conclusion: Croatia's weaknesses in enterprise reform and privatization are also to blame for the excessive bias of the banking system towards households. Stronger reform efforts in these areas are needed to bolster Croatia's competitiveness, improve its trade performance, and ultimately to raise growth and living standards. Croatia's process of negotiating accession to the European Union provides a unique opportunity for such reform. While the transposition of the *acquis commaunitaire* required by the accession process will certainly be very helpful in providing Croatia with a body of law supportive of economic development, even more important is the opportunity to strengthen the public administration and in particular regulatory bodies, and for Croatia to measure itself against the demanding standards of the European Union. Putting consumer credit in its proper place would be only one of the less important benefits of this process.

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