August 2004
IMF Country Report No. 04/251

Republic of Croatia: Selected Issues and Statistical Appendix

This Selected Issues paper and Statistical Appendix paper for the Republic of Croatia was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on July 16, 2004. The views expressed in this document are those of the staff team and do not necessarily reflect the views of the government of the Republic of Croatia or the Executive Board of the IMF.

The policy of publication of staff reports and other documents by the IMF allows for the deletion of market-sensitive information.

To assist the IMF in evaluating the publication policy, reader comments are invited and may be sent by e-mail to publicationpolicy@imf.org.

Copies of this report are available to the public from

International Monetary Fund ● Publication Services
700 19th Street, N.W. ● Washington, D.C. 20431
Telephone: (202) 623 7430 ● Telefax: (202) 623 7201
E-mail: publications@imf.org ● Internet: http://www.imf.org

Price: $15.00 a copy

International Monetary Fund
Washington, D.C.

INTERNATIONAL MONETARY FUND

REPUBLIC OF CROATIA

Selected Issues and Statistical Appendix

Prepared by the staff team for the 2004 Article IV Consultation
with the Republic of Croatia

Approved by the European Department

July 16, 2004

Contents Page

I. MONETARY TRANSMISSION IN CROATIA[1]

A. Introduction and Summary of Conclusions

1. **The widespread euroization and the openness of the Croatian economy restrict the scope for autonomous monetary policy.** The high degree of trade and financial integration and euroization underpins the importance of exchange rate stability in the authorities' monetary policy framework. The focus on maintaining a broadly stable kuna-euro exchange rate, combined with a relatively open capital account, limits the scope for autonomous monetary management.

2. **There are good reasons, however, to study the effectiveness of monetary transmission in Croatia in greater depth.** Monetary policy could still play a role provided that the domestic and the international capital markets are not perfectly integrated. Moreover, the exchange rate is not fixed, even though it is closely managed, and the fluctuations in the kuna-euro exchange rate might provide some maneuvering room for monetary policy.[2]

3. **Empirical studies on monetary transmission in Croatia are few and inconclusive.** This largely reflects the short time series with numerous structural breaks. Erjavec and Cota (1999), using multivariate Granger causality tests, found that the interest rate and the nominal exchange rate are econometrically exogenous variables. Billmeier and Bonato (2002) found that the Croatian economy, despite being highly euroized, had a low exchange rate pass-through, which they interpreted as possible evidence that strict exchange rate targeting might not be the best option. Recently, Lang and Krznar (2004), using a structural VAR model, found that monetary policy in Croatia was pro-cyclical—it eased when growth was high and tightened when growth was low—and suggested that there might be a benefit in an active monetary policy for correcting external imbalances. However, they also noted that strong capital inflows might render such policy ineffective and therefore concluded that keeping the existing monetary framework was probably the optimal choice for Croatia.

4. **The evidence analyzed in this chapter supports the view that monetary policy in Croatia is not an effective tool for aggregate demand management.** One of the main conclusions is that financial conditions in the economy are only weakly correlated with the monetary policy stance. Monetary policy can exercise some control over money market interest rates, but its influence on lending rates is uncertain and comes with long lags. The link between these variables was weak even before 2001, under a regime of extensive capital controls, and it has further weakened since then. The ineffectiveness of

---

[1] Prepared by M. Čihák and T. Konuki.

[2] Actual daily fluctuations were in the range of ±4.5 percent in 1999–2003 and ±7.5 percent in 1996–2003 (but no explicit fluctuation band was in place).

monetary policy is also illustrated by the experience with the credit controls in place during most of 2003.

B. Monetary Policy and Financial Conditions

5. **This section makes a first pass at the issue of monetary transmission in Croatia by constructing and comparing indices of monetary and financial conditions.** A *monetary conditions index* (MCI) is an approximate measure of the degree of restrictiveness of monetary policy. The index is a summary indicator characterizing the monetary tightness in an economy based on several key variables, typically the interest rate and the exchange rate. MCIs became subject of increased interest in 1990s, when a number of researchers and central banks started calculating and publishing them. A *financial conditions index* (FCI) measures the financial conditions actually faced by economic agents. This index expands on the MCI by including indicators of the tightness of financial conditions that economic agents face and are affected—but not necessarily determined—by monetary policy. While MCIs typically use short-term interest rates, FCIs also include long-term rates and even introduce other variables approximating the financial conditions of economic agents.[3] The relationship between the two can provide an indication of the strength of monetary policy transmission.

6. **The key parameters of the MCIs (and FCIs) are the relative weights of the exchange rate and the interest rate.** The ratio of the two weights is sometimes referred to as the MCI ratio. For example, the Bank of Canada uses weights of ¾ on the interest rate and ¼ on the exchange rate (an MCI ratio of 3:1), indicating that the effect on demand of a one percentage point interest rate increase can be offset by a three percent depreciation of the exchange rate (Freedman 1996). While exchange rate depreciation typically means a loosening of monetary conditions, it could theoretically lead to a tightening (increase in MCI), depending on the relative sizes of price and income effects. However, the empirical literature reviewed in this paper overwhelmingly finds a positive relationship.[4]

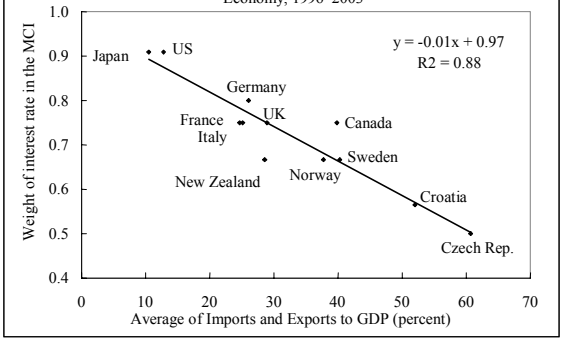
---

[3] Methods of designing MCIs are discussed, e.g., in Hansson and Lindberg (1994), Freedman (1996), Dennis (1997), Eika et al (1996), and Reserve Bank of New Zealand (1996). Gauthier et al. (2004) survey the literature on FCIs.

[4] In pegged exchange rate regimes that allow for some exchange rate fluctuation, depreciations are likely to lead to monetary tightening indirectly, as they prompt foreign exchange interventions. This indirect effect is captured in the MCI, because the impact of the intervention is likely to be reflected in higher short-term interest rates. However, the direct impact of the exchange rate is likely to be positive and can be substantial in pegged regimes, if economic agents are not well-hedged against exchange rate changes.

7. **The MCI ratio for Croatia can be calibrated by using estimates for other countries and adjusting for the openness of the Croatian economy.** Ideally, the MCI ratio should be based on a macroeconomic model of the Croatian economy. However, this is not feasible, given short time series and numerous structural breaks. Therefore, the method of calibration used here is based on the fact that open economies have a relatively lower weight assigned to the interest rate. To illustrate this point, Figure 1 plots interest rate weights in MCIs reported in the literature for various economies against the degree of openness of these economies.[5] The degree of openness is measured as the average of exports and imports in percent of GDP. For Croatia, this ratio is about 52 percent, the second highest in the sample.[6] The regression estimate presented in Figure 1 implies an interest rate weight of 0.57—an MCI ratio of 1.3:1—for Croatia, meaning that the effect on demand of a 1.3 percentage point of exchange rate appreciation can be offset by a 1 percent decline in interest rates.[7]

Figure 1. Interest Rate Weight in the MCI vs. Openness of the Economy, 1996–2003



8. **Illustrative MCIs and FCIs for Croatia can be calculated using the above MCI ratio.** The MCI, as a measure of the monetary policy stance, incorporates interest rates that are closely influenced by policies. The FCI, as a measure of the overall financial conditions and a broader measure, is based on interest and exchange rates relevant for economic decisions by enterprises and households. As mentioned above, the degree of correlation between the two provides prima facie evidence on the strength of policy transmission.

9. **The calculated MCI is closely correlated with the money market interest rate.** The MCI is defined as a weighted average of a kuna-euro nominal exchange rate index and a money market interest rate index (in both cases 2002 average=100). Both series are

---

[5] The MCI weights are from IMF (1998) (France, Italy, Germany, Japan, UK, and US); Freedman (1996) (Canada); Eika et al. (1996) (Sweden and Norway); Dennis (1997) (New Zealand); and Čihák and Holub (2000) (Czech Republic). Import and export to GDP ratios are from the World Bank Atlas and relate to 1998 (the data for Croatia are from the CNB and relate to 2003). The regression line and the implied MCI weight for Croatia was calculated by the authors.

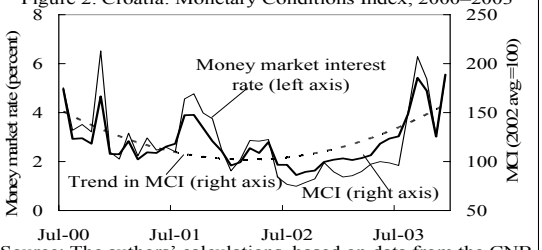
[6] The definition of openness can be adjusted for openness to capital flows, but such adjustments do not change the quantitative result substantially.

[7] The 2002 Article IV staff report (IMF Country Report No. 02/178) showed, for illustration, a monetary condition index based on an assumed MCI ratio of 2:1. Figure 1 suggests that such ratio could have been putting too low a weight on the exchange rate.

adjusted for seasonality. These two indices are then combined into the MCI, using the 1.3:1 ratio derived above. The resulting MCI is strongly correlated with the money market interest rate, reflecting the much lower volatility in the kuna-euro exchange rate. This observation is consistent with Lang and Krznar (2004), who find, using a structural VAR model, that since mid-2000, the monetary policy stance in Croatia is closely related to money market interest rates.

10. **The calculated MCI suggests that monetary policy was loosening during mid-2000 to mid-2002 and tightening since then** (Figure 2). The MCI shows substantial volatility in the last four years (despite the fact that it is based on seasonally adjusted variables). To detect the underlying trend, a Hodrick-Prescott filter was applied to the data.

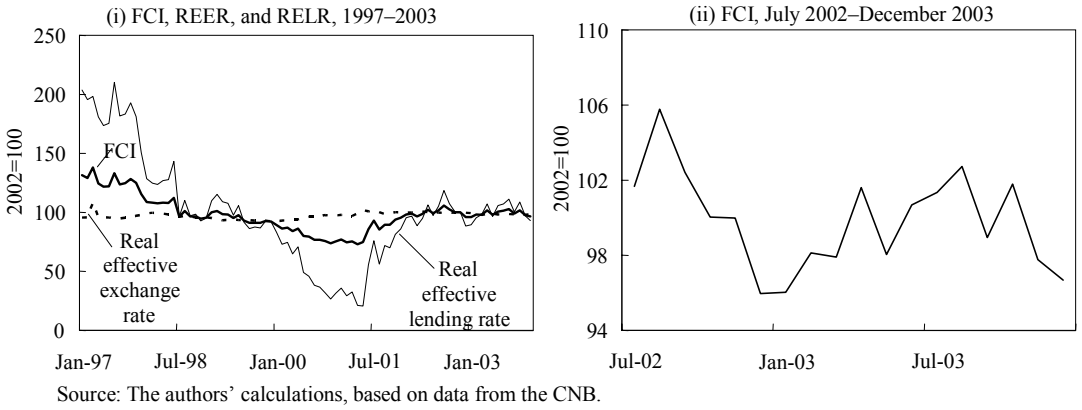
Figure 2. Croatia: Monetary Conditions Index, 2000–2003



Source: The authors' calculations, based on data from the CNB.

11. **The FCI is a weighted average of indices of the real effective exchange rate and the real effective lending rate.** If the FCI is to measure financial conditions faced by economic agents, it needs to be based on the real effective exchange rate (REER) and the real interest rate. This is the prevalent approach in the surveyed literature on FCIs. A similar approach can be applied to Croatia, using the trade-weighted REER (based on consumer price indices) and the real effective lending rate (RELR). The RELR is calculated as a weighted average of the interest rates on domestic and foreign borrowing—the weight being the share of external debt in total private sector debt—adjusted for price developments using the CPI. Both the REER and the RELR are seasonally adjusted using the X-12 method, assuming multiplicative seasonality, and normalized into an index (2002 average=100). These two indices are then combined into the FCI, using the 1.3:1 ratio derived above. Figure 3 shows the REER, RELR, and FCI in 1997–2003.

Figure 3. Croatia: Financial Conditions Index, 1997-2003



Source: The authors' calculations, based on data from the CNB.

12. **According to the calculated FCI there were no major changes in the financial conditions during 2002–03**. Financial conditions were loosening during 1997 to early 2001, followed by a tightening from mid-2001 to mid-2002. Since then, financial conditions have been relatively stable (Figure 3 (i)). A closer look at the mid-2002–2003 period reveals that a mild loosening in the second half of 2002 was followed by a mild tightening during the first half of 2003 and by another loosening at the end of 2003 (Figure 3(ii)).

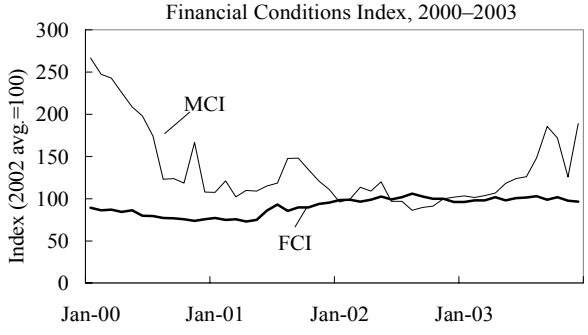
13. **Financial conditions are only weakly correlated with the monetary policy stance.** Figure 4 illustrates that the MCI (and the money market rate) showed a much higher volatility than the FCI. Also, the two series do not seem to be moving together (their correlation is +0.38 for the whole period 1997–2003 but slightly negative for the last three years). This is confirmed by a more detailed analysis, in particular by bivariate Granger causality tests and impulse-response functions based on a VAR model between the MCI and the FCI. Both methods suggest that the impact from the MCI to the FCI is weak in general and insignificant in the period since 2000 (Table 1 and Figure 5).[8]

Table 1. Granger Tests of MCI Versus FCI, 1997–2003
(F-statistics, p-values in parentheses)

	Period	3 lags	6 lags	9 lags
d(MCI) to d(FCI)	1997:1–2003:12	1.785	1.516	2.154
		(0.079)*	(0.187)	(0.040)**
d(MCI) to d(FCI)	2000:1–2003:12	0.198	0.711	0.970
		(0.897)	(0.643)	(0.489)

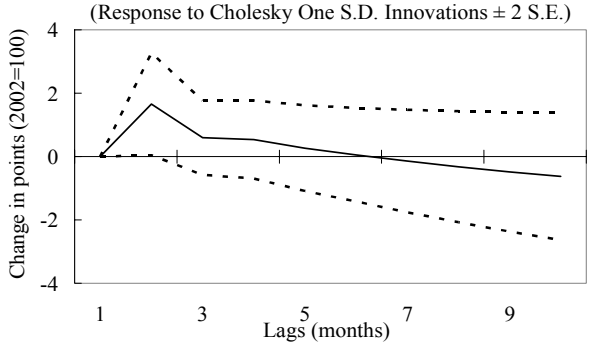
Source: The authors' calculations, based on data from the CNB.
Notes: */** denotes significance at 10/5/1 percent level, respectively. "d" stands for difference.
Granger tests from FCI to MCI were insignificant at the 10 percent level for all the above lags.

Figure 4. Croatia: Monetary Conditions Index versus Financial Conditions Index, 2000–2003



Source: The authors' calculations, based on data from the CNB.

Figure 5. Croatia: Response of FCI to MCI, 2000–2003
(Response to Cholesky One S.D. Innovations ± 2 S.E.)



Source: The authors' calculations, based on data from the CNB.

[8] The same analysis was carried out also with the money market rate instead of the MCI, with similar results.

14. **The calculated MCI and FCI are relatively robust to changes in the weights.** For reasons well-documented in the literature—in particular model dependency, ignored dynamics, parameter inconstancy, and nonexogeneity of regressors—the MCI and the FCI are only rough indicators of the monetary and financial conditions (e.g., Eika et al, 1996). However, the results presented here are not very sensitive to changes in the weights of the interest rate and exchange rate. For example, varying the weight on interest rate from the chosen number of 0.57 to 0.50 or even 0.40 creates indices with pair-wise correlations of about 0.99. Therefore, if the exchange rate has a somewhat higher weight in the transmission mechanism than suggested by the cross-country regression in Figure 1 (e.g., because Croatia is more euroized than the other countries), it would not lead to substantially different conclusions about the developments in the monetary conditions and the policy stance.

C. Interest Rate Channel of Monetary Transmission

15. **This section shifts the focus on the transmission of monetary policy through the interest rate.** The MCI and the FCI developed in the previous section are based on the two traditional channels of monetary policy, the interest rate channel and the exchange rate channel. We have argued that the exchange rate has a potentially larger weight in Croatia than in other countries but its direct impact on monetary conditions is limited. Due to the pegged exchange rate regime, a substantial part of the monetary transmission works through changes in money market rates (which can therefore be used as a proxy variable for the monetary policy stance). This section follows up by examining in more detail the interest rate channel of monetary policy, i.e., the transmission from policy rates to lending rates. The next section will examine other channels of monetary policy, in particular the credit channel.

16. **The CNB has some control over money market rates, since overnight rates tend to respond to changes in bank liquidity.** Money market interest rates are negatively linked to excess liquidity in the system. Econometric estimates based on daily data suggest that excess liquidity in the system is a leading indicator for money market interest rates. Excess liquidity, measured as the daily deviation from a 30-day moving average, shows a weakly negative correlation with the overnight money market rate. Table 2 shows the correlation pattern between excess liquidity and money market rates from January 2001-February 2004.

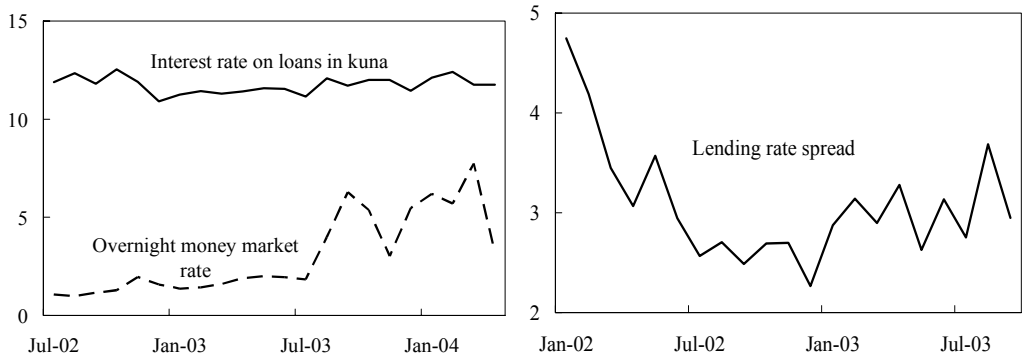
Table 2. Excess Liquidity Versus Money Market Interest Rates, 2001-04
(Correlation coefficient of liquidity and interest rate based on daily data)

	Zagreb Interbank Offer Rate (ZIBOR)					
Excess liquidity defined as	overnight	1W	2W	1M	3M	6M
Daily minus 30-day MA	-0.20	-0.20	-0.18	-0.15	-0.12	-0.23
30-day MA minus 12-month MA	-0.16	-0.20	-0.24	-0.33	-0.35	-0.34

Source: The authors' calculations, based on data from the CNB.
Note: "W" stands for week," M" stands for month, and "MA" stands for moving average. Excess liquidity is defined as departure from a trend of currency in circulation plus government deposits.

17. **However, the transmission from money market rates to bank lending rates is weak.** Although money market interest rates rose during 2003 in response to several hikes in the kuna portion of required reserves (from 25 to 42 percent), the effective lending rate of domestic banks remained largely unaffected and so did the spread between this and foreign interest rates (Figure 6). This can be assessed more formally by using Granger causality tests and an unrestricted VAR model for these variables.

Figure 6. Croatia: Interest Rates and Lending Rate Spreads, 2002–2003
(Percent)



Source: The authors' calculations, based on data from the CNB.

- *Granger tests* indicate only a weak link between lagged money market rates and the effective lending rate (Table 3). There appears to be a link between the two variables in the period 1997–2003. However, this includes a period before the liberalization of capital flows in 2001, when such transmission was more likely. The link disappears if only the period since 2001 is taken into account.

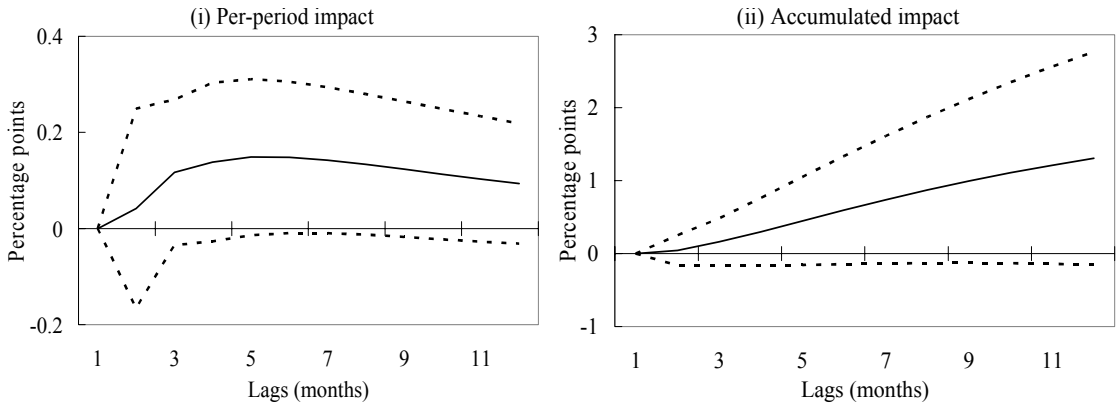
Table 3. Granger Tests of Money Market Rate Versus Domestic Lending Rate, 1997–2003
(F-statistics, p-values in parentheses)

	Period	3 lags	6 lags	9 lags
money market rate to lending rate	1997:1-2003:12	2.411 (0.074)*	1.907 (0.093)*	2.831 (0.008)***
d(money market rate) to d(lending rate)	1997:1-2003:12	1.893 (0.138)	1.632 (0.153)	2.189 (0.037)**
money market rate to lending rate	2001:1-2003:12	0.219 (0.882)	0.847 (0.545)	1.038 (0.440)

Source: The authors' calculations, based on data from the CNB.
Note: */**/*** denotes significance at 10/5/1 percent level, respectively. "d" stands for difference.

- *The VAR model* suggests that changes in policy rates do get transmitted to lending rates but the transmission is very weak. For the Euro Area, Angeloni and Ehrmann (2003) estimate that the maximum impact on lending rates is reached in about 5 months and the maximum impact is about 0.8 of the original shock to money market rates. In comparison, the VAR for Croatia suggests that in 5 months, the impact of money market rates on lending rates is only about 0.15 of the original shock, (Figure 7). Similarly to the Granger tests, if the impulse-response functions are re-estimated for the period since 2001, the response of domestic lending rates is virtually zero.

Figure 7. VAR Models for Money Market Rates and Domestic Lending Rate, 1997–2003
(Response to Cholesky 1 Standard Deviation Innovations ± 2 Standard Errors)



Source: The authors' calculations, based on data from the CNB.
Note: One st. dev. innovation means about 3.7 percentage point increase in money market rates.

18. **These findings are supported also by the analysis of short-term capital flows and interest rate differentials.** The degree of correlation of interest rate differentials and short-term capital flows has been weak and insignificant in 1997–2003 (Table 4).[9] This is consistent with the previous finding that there might have been an interest rate transmission channel in this period. However, as in the case of the previous findings, it should be noted that during a large part of the sample period, short-term flows were restricted. In particular, Chilean-type capital controls had been in effect in 1998 and it was only from mid-2001 that the corporate sector was allowed full access to the foreign exchange markets. As a result, the correlation between the two variables was close to nil before the removal of restrictions in 2001 and about ¼ since then (Table 4). Even though this change is insignificant at the 10 percent level, it suggests that these two series may have become more strongly correlated, and therefore the role of the domestic interest rate

[9] As medium or long-term capital flows are not likely to be interest rate-sensitive, we focused on short-term capital flows.

channel in the transmission mechanism may have weakened further. This finding will need to be verified as more data become available.

Table 4. Croatia: Interest Rate Differentials and Short-Term Capital Flows, 1997–2003

Sample	Correlation coefficient
1997:1–2003:4	0.11
1997:1–2001:2	0.03
2001:3–2003:4	0.24

Source: The authors' calculations, based on data from the CNB.
Note: Interest rate differentials defined as a difference between domestic lending rate and euro-area lending rate.

D. Other Channels and Credit Controls

19. **Monetary transmission may operate through other channels.** The discussion has so far focused on the traditional channels of monetary policy, the interest rate and the exchange rate channel. However, other channels may also play a role in the monetary transmission, in particular: (i) the equity price channel, playing a role through the impact of valuation changes on investment and consumption decisions; (ii) the credit channel, working through a reduction in the supply of bank credit; and (iii) the balance sheet channel, resulting from the fact that the external finance premium facing borrowers depends on the borrowers' financial position (e.g., a monetary restriction leads to a decline in real estate prices, which decreases the effective demand for credit by reducing the value of borrowers' collateral).[10]

20. **The importance of these channels in Croatia is likely to be lower compared to the interest and exchange rate channels.** Given the small size of the equity market in Croatia, the equity price channel is not likely to play an important role in monetary policy transmission. The real estate market plays a more important role, but the real estate prices have so far been driven largely by factors not determined by monetary policy.[11] The credit channel could be substantial, given the dominant role of banks in the financial sector, but it could operate only if banks did not have the capability to react to restrictive monetary policy by finding funding sources abroad. Preliminary bank-by-bank calculations presented by Lang and Krznar (2004) and in Chapter II of this paper suggest that banks—especially foreign-owned banks—have such capability. Therefore, the credit channel does not seem to play a very substantial role in Croatia, even though more research on this issue is warranted.

[10] Mishkin (1996) surveys the literature on monetary policy channels. Bernanke and Gertler (1995) focus on the credit and balance sheet channels.

[11] However, as better data become available, the real estate prices and the related balance sheet effects will become an important area for future research.

21. **The experience with credit controls, imposed by the CNB in 2003, also illustrates the weakness of the credit channel in Croatia.** In January 2003, faced with booming credit and a mounting external imbalance, the CNB introduced credit controls (IMF Country Report No. 03/252). Even though the controls were abolished at the end of 2003, the experience can provide interesting lessons for monetary policy both in Croatia and in other countries. It should be noted that the analysis presented here, while illustrative, cannot fully distinguish the impact of the credit controls from other factors (such as the liquidity rules, which were changed at about the same time). To distinguish that, we would need to use more sophisticated econometric techniques, for which there are not sufficient data.

22. **The credit controls may have contributed to slowing household consumption but did not affect enterprises**. Bank credit decelerated in 2003 (Table 5), possibly affecting spending by households that do not have easy access to foreign borrowing. Enterprises, however, were able to switch their borrowing from domestic to foreign banks (local banks typically directed corporate customers to their parent banks abroad) and use leasing and other forms of financing. As a result, external borrowing in 2003 was about 2.5 times higher than in 2002, and the share of external debt in financing corporate investment rose in 2003. Although the CNB abolished the credit controls at the beginning of 2004, credit growth has not bounced back: seasonally adjusted credit growth for the first five months of 2004, after adjusting for exchange rate movements, indicates an annualized rate of 14½ percent, about the same as in 2003. This indicates that the credit growth deceleration since the spring of 2003 is likely to have been largely demand-driven.

Table 5. Croatia: Credit Growth Before and After the Controls, 2000–03

	2000	2001	2002	2003
Total lending (% change y/y) 1/	5.7	20.8	24.6	20.3
of which (contribution in % points):				
Domestic bank borrowing	5.7	15.9	20.8	10.7
Foreign borrowing (without leasing)	5.6	-3.8	2.3	5.1
Leasing	0.2	2.6	1.9	3.8
Adjustment for write-offs	-5.9	6.1	-0.5	0.6
Corporate sector lending (% change y/y)	3.9	14.0	17.4	16.2
of which (contribution in % points):				
Domestic bank borrowing	1.0	10.7	11.9	2.4
Foreign borrowing (without leasing)	7.3	-5.1	3.2	7.7
Household sector lending (% change y/y)	11.4	41.7	42.1	28.5
of which (contribution in % points):				
Domestic bank borrowing	21.0	31.8	42.5	27.6
Foreign borrowing (without leasing)	0.2	0.1	0.2	0.0
Memorandum items:				
Composition of corporate financing (in %)				
Domestic borrowing (net flow)	2.8	25.8	24.4	4.8
Foreign borrowing (net flow)	20.2	-4.1	12.1	27.1
Other (e.g., reinvested profits)	77.0	78.3	63.5	68.1

Source: Authors' calculations based on data from CNB and the Central Statistics Bureau
1/ Total domestic and external borrowing by the non-government sector in Croatia.

23. **The limits also had a negative impact on the soundness of the financial sector**. Some of domestic banks' best corporate clients were redirected to foreign banks. The limits encouraged a rapid growth of unsupervised and unregulated leasing companies (which were growing rapidly since mid-1990s, but their contribution to overall lending growth increased in 2003). Finally, transparency of monetary and banking statistics deteriorated, as banks engaged—especially in early 2003—in some activities designed mainly to circumvent the limits, such as asset swaps, collateralization, and accelerated write-offs of nonperforming loans. The calculations in Table 5 attempt to approximate the impact of the write-offs on the total credit data.

REFERENCES

Angeloni, Ignazio and Michael Ehrmann, 2003, "Monetary Policy Transmission in the Euro Area: Any Changes after EMU?" *ECB Working Paper* No. 240 (Frankfurt: European Central Bank), July.

Bernanke, Ben and Mark Gertler, 1995, "Inside the Black Box: The Credit Channel of Monetary Policy Transmission." *Journal of Economic Perspectives*, Vol. 9 (Fall).

Čihák, Martin and Tomáš Holub, 2000, "Monetary Conditions Indicators" *Finance a úvěr/Czech Journal of Economics and Finance*, Vol. 50, No. 12 (December).

Dennis, Richard, 1997, "A Measure of Monetary Conditions," Reserve Bank of New Zealand Discussion Paper No. 97/1 (January). www.rbnz.govt.nz

Eika, Kari, Neil Ericsson, and Ragnar Nymoen, 1996, "Hazards in Implementing a Monetary Conditions Index," *Oxford Bulletin of Economics and Statistics*, 54, 4/1996.

Freedman, Charles, 1996, "The Use of Indicators and of the Monetary Conditions Index in Canada." In *Transmission of Monetary Policy in Canada*, Bank of Canada. http://www.bankofcanada.ca/en/pdf/hermes.pdf

Gauthier, Céline, Christopher Graham, and Ying Liu, 2004, "Financial Conditions Indexes for Canada," Bank of Canada Working Paper 2004-22, June.

Hansson, Björn and Hans Lindberg, 1994, "Monetary Conditions Index: A Monetary Policy Indicator," Sveriges Riksbank, Quarterly Review, No. 3.

International Monetary Fund, 1998, *World Economic Outlook* (Washington, DC: IMF), December. http://www.imf.org/external/pubs/ft/weo/weo1298/pdf/file4.pdf

Lang, Maroje and Ivo Krznar, 2004, "Transmission Mechanism of Monetary Policy in Croatia," Paper presented at the Tenth Dubrovnik Conference (Zagreb: Croatian National Bank). http://www.hnb.hr/dub-konf/10-konferencija-radovi/lang-krznar.pdf

Mishkin, Frederic, 1996, "The Channels of Monetary Transmission: Lessons for Monetary Policy," *NBER Working Paper* No. 5464.

Reserve Bank of New Zealand, 1996, "Summary Indicators of Monetary Conditions," Reserve Bank Bulletin, Vol. 59, No. 3.
http://www.rbnz.govt.nz/research/bulletin/1992_1996/1996sep59_3economics.pdf

II. The Determinants of Lending Rates and Domestic Spreads in Croatia[12]

A. Introduction and Summary of Conclusions

24. **Understanding the determinants of banks' lending rates is important for macroeconomic and financial sector surveillance.** Perceived profit opportunities in lending—which reflected high interest rates on lending and relatively low default rates—were the driving factor behind a rapid increase in bank credit to the private sector in Croatia in the last three years. The rapid expansion of bank credit has become one of the most prominent macroeconomic and financial sector developments.[13] An analysis of interest rate spreads is therefore important for designing and assessing macroeconomic and prudential policies to address the issues related to the rapid growth in credit.

25. **An analysis of factors behind lending rates and lending spreads is also important for understanding the monetary transmission mechanism.** If lending spreads are high and are determined mostly by factors other than money market rates, transmission of changes in money market rates into lending rates is likely to be weak. This was observed in 2003, when the effective lending rate of domestic banks remained unaffected, despite a substantial increase in money market interest rates. Preliminary analysis based on aggregate data suggest that the relationship between lagged policy rates and the effective lending rate is relatively weak in Croatia.[14] An analysis of the determinants of the lending rates and spreads makes it possible better to assess the factors that influence the interest rates at which banks lend.

26. **This chapter addresses the following issues:** how lending rates and spreads in Croatia compare to other countries and how they vary across banks; what explains the differences; what it means for the future developments in the banking sector; and what are the policy implications. These issues are addressed first by accounting decompositions based on aggregate balance sheet and income statement data and then—because there is a large bank-by-bank variability of interest rates and spreads in Croatia—also by panel regressions based on individual bank data. These two alternative methods provide two complementary assessments of the factors underlying interest rate spreads in Croatia.

27. **The chapter finds a number of factors that can explain lending rates and spreads within Croatia and draws of number of policy conclusions.** Interest rate spreads in Croatia have been declining but are still somewhat higher than in other

---

[12] Prepared by Martin Čihák, with inputs from Tomislav Galac and Danijela Mladinovič.

[13] Cottarelli et al. (2003) discuss what drives the rapid credit growth in Central and Eastern Europe and the Balkans. Their study, however, does not explicitly analyze the determinants of lending rates or spreads.

[14] See Chapter I of this Selected Issues paper.

Central, Eastern European, and Balkan (CEEB) countries. Lower spreads are generally seen for foreign greenfield banks, banks with a lower share of NPLs, banks that are more liquid and have higher capital adequacy, and in large banks (even though there is also some evidence that interest rate spreads increase with market share, other things being equal). The impact from NPLs underscores the need for credit information sharing and strong prudential regulations. Moreover, competition policy should, while ensuring strict enforcement of competition laws, allow banks to take advantage of economies of scale.

B. Decomposition of Interest Rate Spreads in Croatia

28. **Similarly to other CEEB countries, spreads between lending and deposit rates in Croatia are higher than in advanced economies.** Since the 1990s, they have declined towards the advanced economy levels (Figure 1)[15]. Throughout this adjustment period, interest rate spreads in Croatia have been somewhat (about 2–4 percentage points) above the CEEB average.[16]

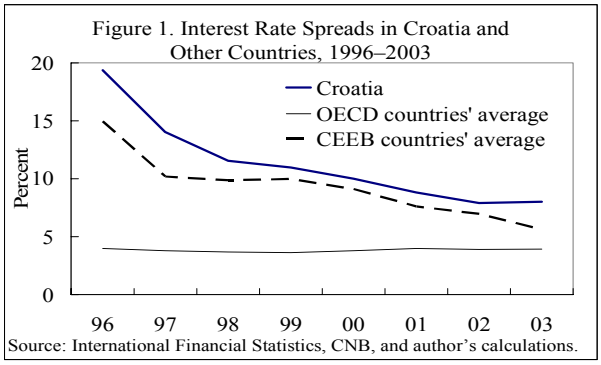


Figure 1. Interest Rate Spreads in Croatia and Other Countries, 1996–2003
Source: International Financial Statistics, CNB, and author's calculations.

29. **The factors underlying interest rate spreads can be assessed through a decomposition of the spreads into corresponding cost factors.** This decomposition is based on the accounting identity

$$i^{L} - i^{D} \equiv o + l + i^{D} r/(1-r) + d + p + \tau\,[p - o - l - i^{D} r/(1-r) - d]\,, \qquad (1)$$

where i^{L} is the average interest rate on loans, i^{D} is the average interest rate on deposits, o are the overhead costs relative to loans, l are loan loss provisions net of recoveries relative to loans, r is the reserve requirement rate, d is the deposit protection premium relative to loans, p is the profit margin (pre-tax profit relative to loans), and τ is the tax rate on profits. Profit margins are calculated as a residual after accounting for the other components.

---

[15] Interest rate spread is defined as the difference between average interest rates on non-bank client loans and deposits. For Croatia, the officially reported data have a methodological break in 2002. To present consistent time series, pre-2002 figures are the author's estimates based on the impact of the 2002 break.

[16] CEEB countries are defined here to include Albania, Bosnia and Herzegovina, Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, FYR Macedonia, Moldova, Poland, Russia, Slovak Republic, Slovenia, and Ukraine.

30. **The accounting decomposition of spreads was carried out using aggregate balance sheets and income statements for the Croatian banking sector in 2001–2003** (Table 1). The calculation leads to the following observations:

- ***Overhead costs were substantial***, accounting for about 2.5 percentage points, or more than a third, of the spread in 2003. This is above the advanced-economy average of about 2 percentage points and somewhat above the emerging market average. The higher overhead costs reflect the fact that the productivity of Croatian banks (measured by per-employee levels of assets, loans, deposits, and net interest income) is still below the emerging market average (Table 2). However, with cost-cutting and rapid credit growth, the ratio of overhead costs to loans declined by about 1 percentage point between 2001 and 2003 (Table 1).

- ***Loan loss provisioning expenses account for a small part of the spread*** (0.4 percentage points in 2003), reflecting the relatively low percentage of nonperforming loans (NPLs).

- ***The impact of reserve requirements on the interest rate spreads is about 0.2 percentage points***. This reflects low interest rates on deposits and positive remuneration rate (set at 25 basis points below the EURIBOR rate).

- ***The deposit protection premia account for about 0.4 percentage points of the spread***, which is relatively high compared with other countries. The high premia reflect the high cost of the past bank failures.

- ***The profit margin on lending declined between 2001 and 2003***. In 2003, the pre-tax profit on enterprise lending was substantially lower than the average return on banks' assets, making further enterprise lending relatively unattractive. In contrast, the pre-tax return on household lending was more than 4 times the average pre-tax return on assets.

- ***Greenfield foreign-owned banks have somewhat lower interest rate spreads and lower profit margins***. This most likely reflects their specialization on lower risk corporate clients (such as subsidiaries of large foreign corporations).

Table 1. Croatia: Decomposition of Interest Rate Spreads, 2001–03
(In percentage points)

	2001			2003					
	All loans	of which borrower):	(by	All loans	of which borrower):	(by	of which lender):		(by
		Enter-prises	House-holds		Enter-prises	House-holds	Green-field	Other foreign	Other
Interest rate spread	9.6	4.8	13.7	7.2	4.9	10.1	6.4	7.0	9.0
Overhead costs	3.5	3.5	3.5	2.5	2.5	2.5	2.4	2.5	3.8
Loan loss provisioning	0.1	0.1	0.1	0.4	0.4	0.4	0.6	0.2	1.0
Reserve requirement	0.0	0.0	0.0	0.2	0.2	0.2	0.3	0.2	0.1
Deposit protection	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.4
Pre-tax profit	5.6	0.8	9.7	3.7	1.4	6.6	2.8	3.8	3.6
Tax	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1
Profit margin	5.4	0.6	9.5	3.6	1.3	6.5	2.6	3.7	3.5
Memorandum item:									
ROA (after-tax)	1.3			1.3					

Source: CNB and author's calculations.

Table 2. Croatia: Bank Productivity in International Comparison, 2002
(In thousands of U.S. dollar)

	Assets per Employee	Loans per Employee	Deposits per Employee	Net Interest Income per Employee
Croatia	1,413	762	1,002	24
Emerging markets	2,040	910	1,620	60

Source: CNB, BankScope, and author's calculations.

C. Bank-by-Bank Regressions of Lending Rates, Spreads, and Credit Growth

31. **Interest rates and spreads vary widely among banks in the Croatian banking system.** In September 2003, for example, local currency deposit rates in individual banks varied from 0.4 to 5.9 percent and their lending rates ranged from 6.1 to 26.8, with spreads varying from 4.7 to 21.0 percent. This wide variability of interest rates within the system reflects different features and strategies of individual banks. The calculations in the previous section, which were based on aggregate banking sector data, can therefore be viewed only as a first approximation.

32. **To analyze the factors behind the variability of lending rates, spreads, and credit growth, panel regressions of individual bank data on interest rates were estimated.** Compared with the decomposition of the previous section, the regressions make it possible to look beyond the accounting relationships and analyze the underlying factors that may explain differences in interest rates. In particular, the lending rate is estimated as a function of the deposit rate, other variables characterizing the bank (such as bank size, ownership, asset quality, and profit margins), and variables characterizing the environment (such as the money market rate). A similar regression was then run for

the spread between the lending and deposit rates. Finally, another regression is run for credit growth as a function of the lending rate and a number of other factors.

33. **The estimates can explain a major part of the bank-by-bank variability in lending spreads** (Table 3). The regressions, carried out on a panel of monthly data for 46 Croatian banks from July 1999 to December 2003 (roughly 2,100 observations in 54 cross-sections), used two methods for dealing with heteroscedasticity in the data: seemingly unrelated regressions (SUR) and feasible generalized least squares assuming the presence of cross-section heteroscedasticity and using estimated cross-section residual variances (GLS). The columns in Table 3 correspond to the individual estimates, which differ from each other by the choice of dependent variables (lending rate, lending spread, and credit growth in non-financial sector), estimation methods (GLS vs. SUR), and choice of explanatory variables. The Appendix describes the input data, the definitions of the variables used, and the estimation methods. The estimates account for about 90 percent of bank-by-bank variability in lending spreads (the rest is likely to reflect different bank specialization and other factors and shocks). The main results are as follows:

- ***Larger banks have generally lower lending rates and lending spreads, reflecting economies of scale.*** If a bank's balance sheet doubles, the estimates suggest that its lending rates are typically lower by about 0.3–0.6 percentage points, other things being equal.[17] At the same time, however, there is some evidence that lending rates and spreads increase with market share. This means that banks with higher market share try to use their market power to achieve higher interest spreads. This finding needs to be treated with some degree of caution, however, as the estimated coefficient is significant only in some of the regressions.

- ***Lending rates and spreads increase with the NPL ratio.*** This finding is consistent with the result of the accounting decomposition: higher NPLs mean higher loan loss provisioning, which increases costs for banks and is reflected in higher lending rates and spreads.

- ***Banks with more liquidity have lower lending rates and spreads.*** The impact of liquidity on banks' lending rates and spreads is somewhat less significant than the impact of NPLs, but the results across the estimates generally point towards a negative impact of liquidity on lending rates and spreads.

- ***The impact of capital adequacy is different for lending rates and spreads.*** Banks with higher capital adequacy have lower lending rates, but they have even lower deposit rates, so that their spreads are higher than in banks with lower capital adequacy.

---

[17] This figure is obtained as 0.69 times the slope coefficient in Table 3, using the fact that $\log(2x)=\log 2 + \log x \approx 0.69 + \log x$.

Table 3. Croatia: Lending Rates, Spreads, and Credit Growth, 1999–2003
(Estimated coefficients and standard errors)

Dependent Variable	Lending rate	Lending rate	Lending rate fx indexed	Lending rate fx indexed	Lend. rate – deposit rate	Lend. rate – deposit rate	Credit growth
Estimation method	GLS	SUR	GLS	SUR	GLS	SUR	GLS
Bank specific factors							
Lending rate	-	-	-	-	-	-	-0.15**
							(0.02)
Deposit rate	0.04	0.05**	0.07	0.14**	-	-	-
	(0.05)	(0.02)	(0.04)	(0.02)			
Log (assets)	-0.40^{+}	-0.84**	-0.86**	-0.68**	-0.13	-0.85**	-0.19**
	(0.21)	(0.14)	(0.10)	(0.05)	(0.18)	(0.11)	(0.06)
Market share	0.03	0.04	0.07**	0.03**	0.00	0.04^{+}	0.02*
	(0.05)	(0.03)	(0.02)	(0.01)	(0.04)	(0.02)	(0.01)
NPLs in total loans	5.78**	2.76**	6.17**	5.39**	3.97**	4.21**	-5.97**
	(1.60)	(0.97)	(1.13)	(0.41)	(1.48)	(0.92)	(0.83)
Liquidity	0.03	-0.47**	0.06	-0.16^{+}	-0.15	-0.44**	0.27
	(0.16)	(0.10)	(0.15)	(0.09)	(0.15)	(0.09)	(0.36)
Capital adequacy	-	-0.98**	-	-0.01	1.70*	1.48**	-
		(0.46)		(0.32)	(0.75)	(0.30)	
Greenfield bank	-3.02**	-2.18**	-0.60**	-0.53**	-3.38**	-2.31	1.53**
	0.32	(0.26)	(0.15)	(0.08)	(0.27)	(0.22)	(0.15)
Privatized bank	0.77^{+}	0.89**	0.48^{+}	0.50**	1.25**	2.17**	0.16^{+}
	(0.32)	(0.26)	(0.28)	(0.12)	(0.39)	(0.22)	(0.09)
General factors							
EURIBOR money rate	-	0.30**	-	-	-	-	-
		(0.01)					
Domestic T-bill rate	0.11**	-	0.08**	0.07**	0.12**	0.12**	-0.12**
	(0.02)		(0.01)	(0.02)	(0.01)	(0.15)	(0.02)
AR (1)	0.85**	0.82**	0.80**	0.55**	0.82**	0.79**	0.11**
	(0.01)	(0.01)	(0.02)	(0.02)	(1.26)	(0.01)	(0.02)
Constant	13.08**	16.19**	15.02*	13.60**	8.18**	12.26**	105.10**
	(1.62)	(1.01)	(0.84)	(0.39)	(1.26)	(0.73)	(0.76)
R^2 weight.	0.91	-	0.94	-	0.86	-	0.99
R^2 unweig.	0.76	0.76	0.75	0.69	0.71	0.70	0.03
No. of obs.	2,140	2,140	2,109	2,109	2,144	2,144	2,144

Source: CNB's data, author's calculations.
* significant at 1 percent level
** significant at 5 percent level
$^{+}$ significant at 10 percent level

- ***Foreign greenfield banks have generally lower interest rate spreads than domestic banks.*** This finding is in line with findings in earlier empirical literature for Croatia, but is based on newer data and a formal panel regression estimate. Galac and Kraft (2000), based on interviews with bankers, concluded that the impact of foreign banks on the domestic system has been positive, even though competition has increased only mildly. Jemrič and Vujčić (2002), using the data envelopment analysis, found that foreign-owned banks were on average most efficient and that new banks were more efficient than old ones. Kraft et al. (2002),

using balance sheet data, found that new private and privatized banks are not the most efficient banks, but that foreign banks are substantially more efficient than all categories of domestic banks. Kraft (2002) concluded—using results of written and oral interviews and balance sheet data—that the entry of foreign banks had a substantial positive impact on competition in the domestic banking sector. All these studies included only data up to 2000, while the present one covers the recent period of rapid credit growth.

- ***The credit growth is lower for banks with higher lending rates.*** This finding is consistent with the notion that the demand for credit is a negatively sloping function of the interest rate. The credit growth is also lower for larger banks (suggesting that smaller banks are relatively more aggressive in lending) and those with higher NPL ratios (because the costs related to the stock of past NPLs prevent them from growing faster). There is a significant relationship between credit growth on the one hand and bank liquidity and capital adequacy on the other. Greenfield banks have been growing faster than other banks, after taking all the other factors into account. Higher treasury-bill rates are also related to lower credit growth.

- ***Changes in lending rates are positively related to changes in money market and deposit rates.*** However, the interest rate transmission operates with lags, which is reflected in the significant coefficient of the AR(1) factor. This reflects the fact that the relationship between money market (or treasury-bill) rates and lending rates, and the relationship between lending rates and credit growth operates with substantial lags.

D. Policy Implications

34. **The analysis in this chapter provides some guidance for what could be done to support a further increase in the efficiency of intermediation.** The finding that banks with high NPLs have higher lending rates can be used to underscore the need for improved credit information sharing (as an important prerequisite for achieving better asset quality) and stronger prudential supervision. The latter is also in line with the finding that banks with low liquidity and low capital adequacy have higher lending rates. In addition, the calculations offer two interesting findings:

- ***Competition policy.*** The estimates suggest that Croatian banks operate in an environment with significant economies of scale. Growth in bank size is likely to lead to declines in spreads through savings in overhead costs (which account for the largest part of the spreads). Competition policy that allows banks to grow, including through mergers and acquisitions, is likely to help decrease lending rates and spreads. At the same time, there is some evidence that banks with large market shares exert market power to enjoy a higher profit margin. The permissive merger and acquisition policy should therefore be accompanied by a strict enforcement of existing rules against behavior that limits or distorts competition (such as the abuse of dominant position).

- ***Reserve requirements.*** The reserve requirement rate is high at 19 percent. However, lowering reserve requirements, even though it could have an important signaling effect, would not have a major impact on lending rates (only about 0.2 percentage points), reflecting the fact that the reserves are remunerated (the remuneration rate being 25 basis points below the EURIBOR rate at present).

REFERENCES

Beck, Nathaniel and Jonathan N. Katz, 1995, "What to Do (and Not to Do) With Time-series Cross-section Data," *American Political Science Review*, 89(3), September, 634–647.

Cottarelli, C., G. Dell'Ariccia, and I. Vladkova-Hollar, 2003, "Early Birds, Late Risers, and Sleeping Beauties: Bank Credit Growth to the Private Sector in Central and Eastern Europe and the Balkans", IMF Working Paper No. 03/213 (Washington: International Monetary Fund).

Demirguc-Kunt, A., L. Laeven, and R. Levine, 2003, "Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation", National Bureau of Economic Research Working Paper No. 9890.

Galac, T. and E. Kraft, 2000, "What Has Been the Impact of Foreign Banks in Croatia?", Croatian National Bank *Survey* No. 4/2000.

Jemrič, I., and Vujčić, B., 2002, "Efficiency of Banks in Croatia: A DEA Approach." Croatian National Bank Working Paper No. 7/2002.

Kraft, E., 2002, "Foreign Banks in Croatia: Another Look", Croatian National Bank Working Paper No. 10/2002.

Kraft, E., R. Hofler, and J. Payne, 2002, "Privatization, Foreign Bank Entry, and Bank Efficiency in Croatia: A Fourier-Flexible Function Stochastic Cost Frontier Function Analysis", Croatian National Bank Working Paper No. 9/2002.

Móré, C. and M. Nagy, 2003, "Relationship between Market Structure and Bank Performance: Evidence for Central and Eastern Europe", Hungarian National Bank Working Paper No. 12/2003.

DATA DESCRIPTIONS, DEFINITIONS, AND ESTIMATION METHODS

The following are definitions of the key variables used in the regressions in Table 3:

- *Lending rate* is the nominal interest rate charged by a bank on its total new lending (measured in percent). The advantage of this variable is that it covers all loans; its disadvantage is that the methodology for its calculation changed in the beginning of 2002. This was addressed in two ways: first, by including a dummy variable to account for the change in the methodology; second, by using an alternative definition of lending rates, namely those for new kuna loans linked to foreign currency (*lending rate fx indexed*). This narrower definition does not have this break and still covers about 60 percent of total lending by banks.

- *Deposit rate* is defined as the average interest rate paid by a bank on its total deposits (measured in percent).

- *Spread* is defined as the difference between a bank's lending rate (i^L) and deposit rate (i^D). More exactly, it is defined as $[(1+i^L)/(1+i^D)]-1$, which can be approximated as (i^L-i^D) if i^D is small.

- *Non-financial sector credit growth rate* is defined as a bank's month-on-month rate of growth of credit to the non-financial private sector (in percent).

- Bank size was approximated by the logarithm of total assets in HRK million, *log(assets)*.

- *Market share* equals the bank's assets divided by total commercial bank assets. The reason for using this variable is that a bank that dominates the national market may enjoy a larger net interest income than a bank that does not control much of the market even after controlling for bank size. In other words, a bank with a large market share may exert market power to enjoy a higher net interest margin. The meaning of this variable is different from the bank size, because bank size can grow without an increase in market share (if the other banks grow at the same rate) and vice versa (if the other banks' total assets decrease).

- Asset quality was approximated by the share of gross NPLs in gross total loans (*NPLs in total loans*), measured in percent. NPLs are defined as the sum of substandard, doubtful, and loss loans (category C, D, and E in CNB's classification).

- *Liquidity* is measured by the L4 indicator used by the CNB, defined as non-borrowed excess reserves over the deposit base. (More exactly, the numerator includes cash (+),vault (+), required reserve deposits with the CNB (+), T-bills, CNB bills (+), net money market placements up to 1 week (+), and required reserves (-). The denominator are total deposits.) This indicator is used to control for differences in

bank assets. Banks with high levels of liquid assets in cash and government securities may receive lower interest income than banks with less liquid assets. If the market for deposits is reasonably competitive, then greater liquidity will tend to be negatively associated with deposit rates.

- *Capital adequacy* equals the regulatory capital divided by risk weighted assets (in percent).

- Ownership was expressed by dummy variables for greenfield foreign owned banks (*Greenfield*) and privatized banks (*Privatized*).

- *Domestic T-bill rate.* This rate is used to approximate the development in the market for short-term liquidity. In an alternative estimate, the monthly average of the overnight rate money market rate is used to approximate movements in domestic policy rates. (The disadvantage of an overnight rate was its higher volatility, but it was used because the overnight market has higher liquidity—and much higher information content—than those for longer maturities.)

- *EU money market rate.* The EURIBOR 12-month rate is used to approximate movements in foreign interest rates.

The following conventions were used to deal with banks that disappeared from the sample during the period under observation:

- *Failed banks* were kept in the sample, with missing observations in the period after the failure.

- For *mergers,* there are three series: two for the banks before the merger (with missing observations after the merger) and one for the merged bank (with missing observations before the merger).

- For *acquisitions*, there was one series with data for the acquiring bank and one with those for the acquired bank (with missing observations after the acquisition).

The following two estimation methods were used:

- *Generalized least squares (GLS).* A feasible GLS estimation method was estimated, assuming the presence of cross-section heteroscedasticity. The presented standard errors are based on variances and covariances that are robust to general heteroskedasticity. This form of heteroskedasticity is more general than the cross-section heteroskedasticity, since variances within a cross-section are allowed to differ across time.

- *Seemingly unrelated regressions (SUR).* The regression was estimated using feasible GLS specification correcting for both cross-section heteroskedasticity and

contemporaneous correlation. This specification is sometimes referred to as the Parks estimator (see Beck and Katz, 1995 for a discussion of advantages and disadvantages of this method)

III. EMPLOYMENT PROTECTION IN CROATIA[18]

A. Introduction and Summary of Conclusions

35. **This chapter discusses the economic implications of employment protection in Croatia.** Labor market performance in Croatia has been relatively poor, even compared with other Central and Eastern European countries (CEECs). Recent studies, such as Rutkowski (2003), attribute this poor performance, among other factors, to the strict employment protection in Croatia. Schneider and Dominik (2000) point out that stringent employment protection could also provide an incentive for firms to move to or remain in the informal sector in order to lower labor costs. A large informal sector could have a number of unwanted implications. Tax collections could be lower (indeed the Croatian Ministry of Finance has repeatedly blamed the size of the grey economy for unsatisfactory tax collections). Moreover, it could lower the productivity of the overall economy, as a recent study by Farell (2004) suggests: firms in the unofficial sector tend to be small, and their small scale limits their ability to fully utilize new technology and business practices, which drags down the productivity of the overall economy. This chapter presents the main stylized facts about employment protection and labor market performance in Croatia and examines the link between employment protection and the shadow economy.

36. **The main conclusion is that the strict employment protection in Croatia is likely to have negative economic implications.** Circumstantial evidence suggests that employment protection may have played an important role in explaining Croatia's poor labor market performance. Also, empirical tests indicate that employment protection is correlated with the size of the shadow economy. The policy implications of these findings are that Croatia could enhance employment in the official sector, expand the tax base, and boost productivity by relaxing employment protection. Labor law amendments implemented at the beginning of this year, which lowered Croatia's employment protection legislation (EPL) index by 23 percent,[19] are an important step in this direction.

B. Employment Protection and Labor Market Performance in Croatia: Stylized Facts

37. **Stringent employment protection may be significant in explaining the poor labor market performance in Croatia.** There is no consensus in the literature on the overall effect of employment protection on the aggregate level of employment and unemployment over the economic cycle. However, it is widely agreed that stringent employment protection increases the incidence of long-term unemployment (Blanchard 2000), as it makes labor turnover

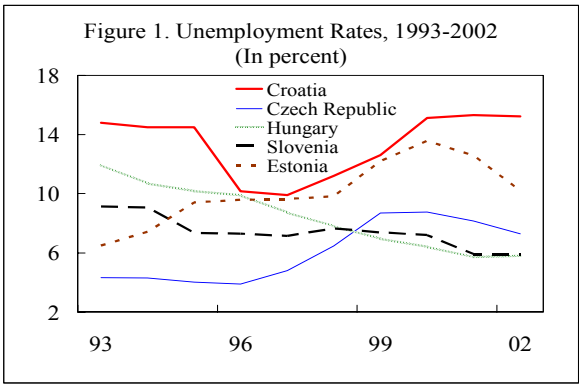
[18] Prepared by Tetsuya Konuki.

[19] EPL index is a weighted average of 22 indicators which represents the degree of restrictions to hire and dismiss workers. It takes values from one to six, and the higher the value the stricter the employment protection regulations.

difficult in the course of economic cycles. This issue becomes relevant in particular when the economy is hit by a severe negative shock, such as the transition from a planned to a market economy or a war, both of which Croatia experienced in the 1990s.

38. **The labor market in Croatia has not performed well.** In the early 1990s, economic restructuring and privatization significantly increased redundancies. The war between 1991 and 1995 worsened the situation. While labor shedding by many firms led to improved productivity, it also contributed to massive inflows to unemployment. Although economic growth has been brisk since the mid-1990s, outflows from unemployment, including outflows to jobs, have not accelerated, and have been falling short of inflows until 2000.[20] The labor force survey-based unemployment rate has been hovering around 15 percent for the past five years, which is relatively high even among CEECs (Figure 1). In addition, the share of long-term unemployment in total unemployment has been significantly higher in recent years (hovering around 55 percent) than in major CEECs, such as the Czech Republic, Hungary, and Poland (averaging around 45 percent). Finally, the labor force participation rate has remained low at around 50 percent. In particular, unemployment is high and participation is low among the young. The overall low participation may reflect poor availability of job opportunities and mismatch problems.

Figure 1. Unemployment Rates, 1993-2002
(In percent)



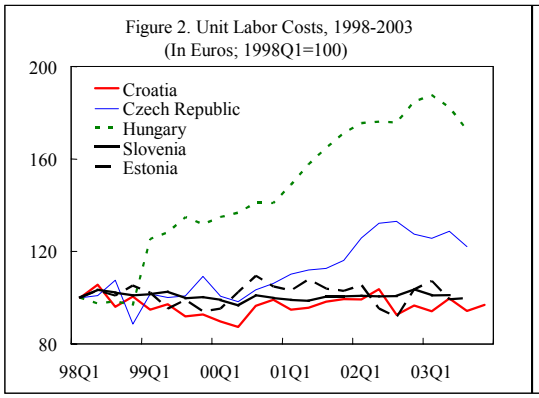
39. **Firm-level data reveal that the job reallocation in Croatia is sluggish.** Croatian firms yearly terminate about 5 percent of all jobs, compared with the job destruction rate of 10–11 percent in other CEECs.[21] At the same time, the job creation rate in Croatia is only 3½ percent, compared with 7-11 percent in other CEECs. These figures point to the stagnant nature of Croatian labor market and indicate that the Croatian economy does not seem to undergo the same intensive enterprise restructuring as the leading reformers among CEECs.

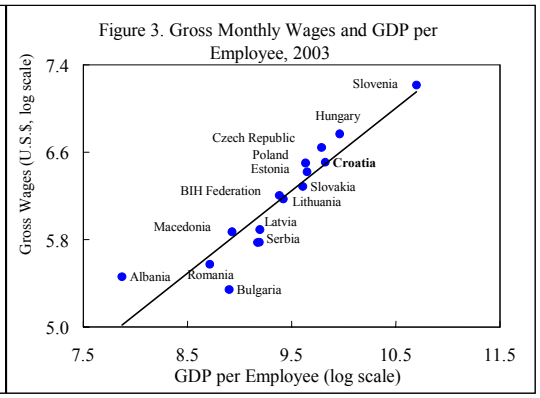
40. **Labor costs cannot explain the stagnant job creation in Croatia.** A gross wage comparison in manufacturing sector among CEECs by the World Bank (2003) suggests that gross wages in Croatia are higher than in most of other CEECs. However, economy-wide unit labor cost comparisons show that Croatia has held a relatively strong position in recent

[20] See Rutkowski (2003) for detailed discussions on labor market performance in Croatia.

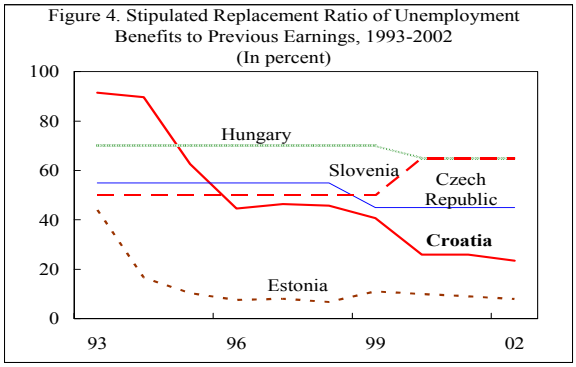
[21] Rutkowski (2003) presents cross-country comparison of job creation and destruction among the CEECs.

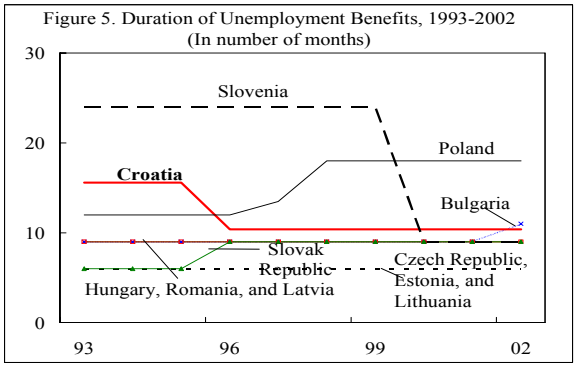
years among CEECs (Figure 2). Furthermore, the gross wage in relation to GDP per employee indicates that Croatian workers are not overpaid compared with those in other CEECs (Figure 3).





41. **Moreover, the unemployment benefit system in Croatia is not particularly generous.** The unemployment benefit in Croatia is a flat rate benefit and the fixed maximum amount is only about one-fourth of the average wage. Figure 4 compares the replacement ratios of unemployment benefits in CEECs for the past 10 years, measured as the stipulated unemployment benefits in percent of previous year's earnings. The comparison reveals that the replacement ratio in Croatia is relatively low. Also, relatively few unemployed receive the unemployment benefit in Croatia and the duration of the benefit payment is capped at 312 days, which is not out of line compared with other CEECs (Figure 5). The benefit coverage rate has been below 20 percent since the mid-1990s, reflecting two factors: (i) the unemployment rate is highest among new entrants to the labor market, who do not qualify for the unemployment benefit; and (ii) a large proportion of the unemployed are long-term unemployed, who are no longer eligible for the benefit. All these characteristics—low replacement rate, moderate duration of the benefit payment, and limited coverage—suggest that the labor supply disincentives related to the unemployment benefit system are likely to be modest in Croatia.





42. **However, employment protection in Croatia is among the strictest in CEECs.** According to the estimated value of the EPL index, employment protection in Croatia is even stricter than in most of the EU-15 and other CEECs (Table 1). Individual dismissals are costly due to the long advanced notice period and high severance pay. Collective dismissals are even more difficult mostly because of the overly inclusive definition of collective redundancy. Although fixed-term employment is a way of circumventing the high costs of terminating regular employment contracts, the labor law until recently restricted its use by requiring that fixed-term contracts were signed only on an exceptional basis.

Table 1. Employment Protection Legislation Index (EPL) of Selected CEECs

Croatia	**3.6**
Hungary	1.7
Poland	2.0
Czech	2.1
Slovakia	2.4
Estonia	2.6
Slovenia	3.0
EU average 1/	2.4
Italy	3.4
Portugal	3.7
Spain	3.1
UK	0.9
United States	0.7
Japan	2.0

Sources: World Bank (2002) and OECD Employment Outlook 1999.
1/ Does not include Greece and Luxemburg.

43. **Strict employment protection is also likely to have discouraged entry or expansion of new businesses in Croatia,** which have been the engine of job creation in other CEECs.[22] According to World Economic Forum's "Quality of the National Business Environment Rank", which ranks almost 100 countries based on survey scores of various factors affecting the business environment, Croatia ranks significantly behind the major CEECs, such as the Czech Republic, Hungary, and Poland. Croatia ranks worst in "cooperation in labor-employer relations", which could be explained by the strict employment protection. The share of employment by small and medium-sized enterprises (SMEs), a proxy for new businesses, is 46 percent in Croatia, compared to well over 50 percent in major CEECs.

44. **With a view to making the labor market more flexible, the labor law was amended in July 2003.** The amended labor law, which entered into effect at the beginning of 2004, has lowered Croatia's EPL index by 23 percent. The main changes include: (i) relaxing restrictions on the use of fixed-term contracts; (ii) easing the pre-conditions for valid dismissals; (iii) shortening the advanced notice period from 6 to 3 months; (iv) reducing the amount of severance pay from half to one-third of the monthly pay; and (v) relaxing the definition of mass lay-offs.

C. Employment Protection and the Shadow Economy

45. **This section analyzes in more detail the role of employment protection in explaining the size of the shadow economy** using cross-country data on selected OECD countries and CEECs. Although there is disagreement about the definition of shadow

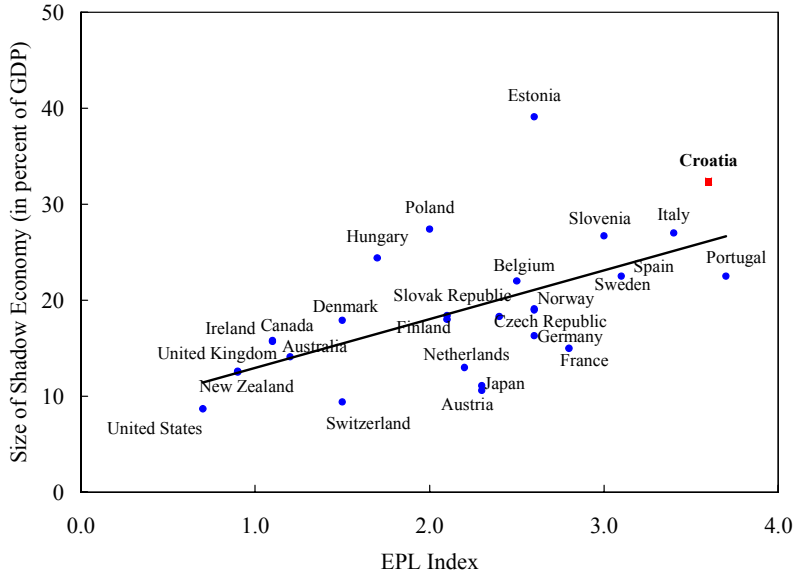
[22] See Jurajda and Terrell (2002) and Rutkowski (2003).

economy and estimation procedures of its size,[23] many studies in this field find a growing trend in the share of the shadow economy relative to the official economy among the majority of OECD countries during the past 10 to 20 years.

46. **Stringent employment protection leads to increased labor costs in the official economy.** It provides an incentive for firms to move or remain in the informal sector in order to lower labor costs. Since labor costs can be shifted onto employees, it could also provide workers with an incentive to work in the shadow economy. Schneider and Pöll (1999) present some empirical evidence of this using firm-level data in Germany.

47. **Cross-country comparisons indicate that strict employment protection is correlated with a large shadow economy.** Figure 6 plots the size of the shadow economy in percent of GDP and the EPL index of 20 OECD countries and 7 CEECs and shows a clear positive correlation. As mentioned above, different methodologies give rise to different estimates of the size of a country's shadow economy.[24] This study uses the estimations provided by Schneider (2002) because the study covers a large variety of countries and reports the most recent estimates (average of 2000/01 on 22 transition economies and average of 2001/02 on 21 OECD countries). As the EPL index only exists for a smaller number of countries, the sample size is limited to 27 countries.

Figure 6. Strictness of Employment Protection and Size of Shadow Economy



48. **However, other factors also affect the size of the shadow economy and have to be controlled for to assess the impact of employment protection.**[25] Almost all studies point

[23] The feature "Controversy: On the Hidden Economy" in *Economic Journal* (Vol. 109, No. 456, June 1999) documents the differing opinions of, e.g., Tanzi (1999), Thomas (1999), and Giles (1999).

[24] See Schneider and Enste (1999) and Feige and Urban (2003) for illustrative examples.

[25] Schneider and Enste (2000) provide an illustrative survey on this issue.

out that the tax and social security burden is one of the most important factors in explaining the size of the shadow economy. The bigger the tax wedge in the official economy, the greater the incentives to work in the shadow economy. Business regulations also affect the size of the shadow economy. Finally, it is widely recognized that the quality of infrastructure and effectiveness of public services improve as a country becomes richer. This indicates that the incentives to work in the unofficial sector become weaker as a country develops and per capita income grows.

49. **Even after controlling for the tax wedge, business regulations, and per capita income, employment protection is still significant in explaining the size of the shadow economy.** Table 2 reports the results of OLS regression of the size of the shadow economy on the log of per capita GDP, the EPL index, the tax wedge on labor income, and a business regulation index.[26] As expected, the coefficient of per capita income is significantly negative, while the EPL coefficient is positive and highly significant: evidence that less employment protection is correlated with a lower share of the shadow economy even after controlling for other factors. This is consistent with a strand of literature (including Tokman 1990 and Loayza 1996) suggesting that labor regulation is a major factor behind the dynamics of the unofficial economy. However, it is in contrast with the findings of Johnson, et al (1998), who did not find significant evidence of a positive relation between labor regulation and the size of the shadow economy. Finally, contrary to a lot of existing studies, neither the tax wedge on labor income or business regulation index is significant. These results suggest that the strictness of employment protection plays a more important role in explaining the cross-country difference in the size of the shadow economy than the tax burden on labor income or business regulations.

Table 2: OLS Estimation on the Impact of EPL on Shadow Economy

Dependent variable: Shadow Economy as a percent of GDP

Regressor	Coefficient	Standard Error	T-Ratio	Prob.
Constant ***	56.814	16.338	3.477	[0.002]
Log GDP per capita ***	-6.017	1.443	-4.171	[0.000]
EPL ***	4.234	1.387	3.052	[0.006]
Tax wedge on labor income	0.046	0.099	0.466	[0.646]
Business regulations	1.477	1.294	1.142	[0.266]

R-Bar-Squared=0.607

Number of Observations=27

Note: *** Indicates significance at 1percent level.

[26] Business regulation index as of 2001, compiled by the Economic Freedom Network, is used as a measure of strictness of business regulations. It takes into account price controls, time required for new business entry, and the extent of irregular payments to business regulators. It ranges from 1 (most strict) to 10 (most liberalized).

REFERENCES

Blanchard, Olivier, 2000, "The Economics of Unemployment: Shocks, Institutions, and Interactions," Lionel Robbins Lectures 1-3, Unpublished, London School of Economics.

Farrell, Diana, 2004, "The Hidden Danger of the Informal Economy," *McKinsey Quarterly*, 2004, No. 3.

Feige, Edgar and Urban, Ivica, 2003, "Estimating the Size and Growth of Unrecorded Economic Activity in Transition Countries: A Re-evaluation of Electric Consumption Method Estimates and their Implications," Institute of Public Finance, Zagreb.

Giles, David, 1999, "Measuring the Hidden Economy: Implications for Econometric Modeling," *Economic Journal*, Vol 109, No. 456, pp. 370-380.

Johnson, Simon, Kaufmann, Daniel, and Zoido-Lobaton, Pablo, 1998, "Corruption, Public Finances and the Unofficial Economy," World Bank, Mimeo.

Jurajda, Štěpán, and Katherine Terrell, 2002, "What Drives the Speed of Job Reallocation During Episodes of Massive adjustment?" Discussion Paper No. 601, (Germany: IZA, Bonn, October).

Loayza, Norman, 1996, "The Economics of the Informal Sector: A Simple Model and Some Empirical Evidence from Latin America," *Carnegie-Rochester Conference Series Public Policy*, 45, pp. 129-162.

Rutkowski, Jan, 2003, "Does Strict Employment Protection Discourage Job Creation?: Evidence from Croatia," World Bank, Mimeo.

Schneider, Friedrich, 2002, "The Size and Development of the Shadow Economies and Shadow Economy Labor Force of 22 Transition and 21 OECD Countries: What do we really know?," Institute of Public Finance, Zagreb.

Schneider, Friedrich and Enste, Dominik, 2000, "Shadow Economies: Size, Causes, and Consequences," *Journal of Economic Literature*, Vol 108, pp. 77-114.

Tanzi, Vito, 1999, "Uses and Abuses of Estimates of the Underground Economy," *Economic Journal*, Vol 109, No. 456, pp. 338-340.

Thomas, James, 1999, "Quantifying the Black Economy: 'Measurement without Theory' Yet Again?," *Economic Journal*, Vol 109, No. 456, pp. 381-389.

Tokman, Victor, 1990, "The Informal Sector in Latin America: 15 Years Later," In *The Informal Sector Revised*, Center Seminars, OECD, Paris.

World Bank, 2002, "Transition: The First Ten Years. Analysis and Lessons from Eastern Europe and the Former Soviet Union," Washington, D.C.

Table A1. Croatia: GDP by Expenditure Category, 2000-05

	2000	2001	2002	2003	2004 Proj.	2005 Proj.
			(Percentage changes)			
Real GDP	2.9	4.4	5.2	4.3	3.7	4.1
Domestic demand	-0.3	5.4	10.6	2.0	3.7	3.2
Consumption	3.6	2.0	5.4	3.2	2.9	3.3
Private 1/	4.2	4.4	7.5	4.1	3.5	4.5
Government 2/	2.0	-4.2	-0.3	-0.4	0.6	-1.4
Gross fixed capital formation	-3.8	7.1	12.0	16.8	5.8	5.4
Private 1/	10.0	5.3	12.4	11.5	8.6	8.7
Government 2/	-32.9	13.1	10.9	42.2	-4.9	-8.6
Exports	12.0	8.6	3.1	18.2	3.9	4.5
Imports	3.7	10.1	13.9	11.0	3.8	2.8
			(Percentage contributions)			
Real GDP	2.9	4.4	5.2	4.3	3.7	4.1
Domestic demand	-0.3	5.7	11.3	2.2	4.0	3.5
Consumption	3.0	1.7	4.4	2.5	2.3	2.5
Private 1/	2.5	2.7	4.5	2.5	2.2	2.7
Government 2/	0.5	-1.0	-0.1	-0.1	0.1	-0.2
Gross fixed capital formation	-0.9	1.5	2.7	4.0	1.5	1.5
Private 1/	1.6	0.9	2.1	2.3	1.8	1.9
Government 2/	-2.5	0.6	0.6	1.7	-0.3	-0.4
Change in inventories 3/	-2.4	2.5	4.2	-4.3	0.2	-0.5
Net foreign demand	3.2	-1.3	-6.1	2.1	-0.3	0.6
Exports	5.1	4.0	1.5	8.5	2.1	2.4
Imports	-1.9	-5.2	-7.6	-6.5	-2.4	-1.8
			(Percentage change in implicit deflators)			
GDP	4.7	4.0	2.9	3.2	2.7	3.0
Consumption	4.7	3.8	1.8	2.3	2.6	3.0
Private	5.5	4.7	1.9	1.4	2.2	2.8
Government	2.8	1.7	1.3	5.7	4.1	3.7
Gross fixed capital formation	4.8	3.8	6.5	3.2	3.0	3.1
Exports	10.9	3.3	0.2	1.5	2.2	2.4
Imports	10.1	3.2	-0.2	0.9	2.0	2.3
Nominal GDP	152,519	165,639	179,390	193,067	205,747	220,636

Sources: Croatian National Bank, Ministry of Finance, Central Statistics Bureau, and staff estimates

1/ Includes public enterprises.
2/ Due to the switch from GFS1986 to GFS2001, there is a break in series between 2002 and 2003.
3/ Includes statistical discrepancy.

Table A2. Croatia: Trends in Industrial Production, 1996-2004
(Industrial production by main industrial groupings, 2000=100)

	Total Industry	Energy	Intermediate Goods, Except Energy	Capital Goods	Durable Consumer Goods	Nondurable Consumer Goods
1996	90.0	77.3	95.6	91.2	73.6	90.0
1997	96.2	90.5	93.8	97.2	96.4	100.6
1998	99.7	93.8	97.4	98.5	94.7	104.9
1999	98.3	102.5	96.4	93.3	103.9	98.8
2000	100.0	100.0	100.0	100.0	100.0	100.0
2001	105.8	100.7	104.7	117.9	101.7	107.7
2002	109.4	99.9	110.4	121.9	97.8	112.1
2003	114.8	104.3	115.5	121.1	102.4	121.1
1996						
Q1	87.3	85.0	90.6	83.8	71.3	85.3
Q2	89.4	69.3	97.1	98.7	71.0	86.4
Q3	88.5	69.9	96.8	92.7	76.3	89.3
Q4	94.9	85.1	98.0	89.6	75.5	99.0
1997						
Q1	89.7	98.6	85.3	87.4	90.8	90.8
Q2	95.4	83.0	95.8	98.3	108.4	100.2
Q3	94.1	77.7	87.8	93.3	90.1	105.6
Q4	105.3	102.5	106.2	109.6	96.3	105.8
1998						
Q1	95.4	101.9	92.6	95.4	93.5	94.7
Q2	100.3	78.0	104.1	106.9	96.5	104.0
Q3	102.4	87.3	96.2	99.8	95.5	115.7
Q4	100.9	107.8	96.8	92.2	93.5	105.0
1999						
Q1	92.0	120.5	84.9	81.7	91.1	89.5
Q2	99.9	92.8	103.3	93.0	100.9	100.7
Q3	97.7	87.5	96.1	97.3	100.8	102.2
Q4	103.7	109.0	101.7	101.3	122.6	102.9
2000						
Q1	95.4	118.1	94.5	79.3	99.8	87.8
Q2	101.9	88.3	106.0	110.9	106.5	103.0
Q3	100.2	87.9	96.3	111.9	91.9	107.2
Q4	102.5	105.7	103.3	97.9	101.8	101.8
2001						
Q1	100.6	114.6	97.8	104.2	110.5	95.4
Q2	107.9	88.9	111.2	131.2	108.9	111.1
Q3	106.1	90.3	102.3	123.5	90.4	114.9
Q4	108.7	108.9	107.6	112.7	96.8	109.5
2002						
Q1	102.4	109.4	101.7	109.0	97.8	99.0
Q2	110.2	87.9	115.5	130.8	103.0	114.5
Q3	110.4	91.4	107.8	130.2	89.9	119.6
Q4	114.5	110.7	116.5	117.4	100.7	115.5
2003						
Q1	107.2	116.0	106.7	105.4	101.8	106.4
Q2	116.8	92.7	121.1	134.9	107.9	125.0
Q3	116.1	95.2	113.1	128.8	93.8	129.6
Q4	119.2	113.5	121.2	115.5	106.0	123.5
2004						
Q1	113.2	115.3	116.2	117.1	110.5	110.2

Source: Central Bureau of Statistics.

Table A3. Croatia: Price Developments, 1996-2004

	Consumer Prices			Producer Prices		
		Rate of Growth			Rate of Growth	
	Index Dec. 1994=100	Previous Period	Same Month Previous Year	Index Dec. 1994=100	Previous Period	Same Month Previous Year
1996	105.6	3.5	...	101.5	1.4	...
1997	109.4	3.6	...	104.0	2.5	...
1998	115.6	5.7	...	102.8	-1.2	...
1999	120.4	4.1	...	105.5	2.6	...
2000	127.9	6.2	...	115.7	9.6	...
2001	134.2	4.9	...	119.8	3.6	...
2002	136.5	1.7	...	119.4	-0.4	...
2003	138.9	1.8	...	121.6	1.9	...
2001						
Jan	132.1	0.41	6.75	121.9	0.91	8.20
Feb	132.8	0.51	6.88	120.9	-0.84	8.30
Mar	132.5	-0.20	6.05	120.4	-0.43	5.50
Apr	134.4	1.42	6.81	120.6	0.21	5.10
May	135.6	0.90	7.25	120.7	0.10	5.20
Jun	135.3	-0.20	4.94	120.7	-0.01	4.50
Jul	134.0	-0.99	3.82	120.1	-0.49	4.00
Aug	134.9	0.70	4.86	118.9	-1.00	3.40
Sep	135.2	0.20	3.84	119.5	0.48	3.00
Oct	134.5	-0.50	3.21	119.5	0.06	2.10
Nov	134.4	-0.10	2.76	117.8	-1.48	-2.00
Dec	134.9	0.40	2.55	117.1	-0.62	-3.10
2002						
Jan	136.2	1.00	3.15	118.7	1.43	-2.60
Feb	136.1	-0.10	2.53	117.5	-1.05	-2.80
Mar	136.1	0.00	2.74	117.6	0.09	-2.30
Apr	136.5	0.30	1.60	118.9	1.13	-1.40
May	137.2	0.49	1.19	119.3	0.30	-1.20
Jun	136.4	-0.59	0.79	119.5	0.19	-1.00
Jul	136.0	-0.30	1.50	120.4	0.71	0.20
Aug	135.8	-0.10	0.70	119.7	-0.51	0.70
Sep	136.4	0.40	0.89	121.0	1.07	1.30
Oct	136.6	0.20	1.60	120.3	-0.64	0.60
Nov	136.9	0.20	1.90	119.5	-0.60	1.50
Dec	137.5	0.39	1.89	119.7	0.16	2.30
2003						
Jan	138.1	0.49	1.38	122.2	2.03	2.90
Feb	138.4	0.19	1.68	120.7	-1.24	2.70
Mar	139.1	0.48	2.17	123.1	2.03	4.70
Apr	138.7	-0.29	1.57	122.2	-0.70	2.80
May	139.1	0.29	1.37	121.4	-0.67	1.80
Jun	138.5	-0.39	1.57	121.5	0.09	1.70
Jul	138.7	0.10	1.97	122.0	0.42	1.40
Aug	138.8	0.10	2.17	122.1	0.08	2.00
Sep	139.1	0.19	1.97	122.5	0.28	1.20
Oct	139.1	0.00	1.77	120.3	-1.81	0.00
Nov	139.3	0.19	1.76	120.6	0.30	0.90
Dec	139.7	0.29	1.66	120.9	0.26	1.00
2004						
Jan	141.1	0.96	2.14	123.1	1.83	0.80
Feb	140.9	-0.14	1.80	120.8	-1.93	0.10
Mar	141.0	0.09	1.40	122.5	1.42	-0.50
Apr	141.3	0.20	1.90	123.8	1.09	1.30
May	142.4	0.78	2.40	126.8	2.37	4.40

Source: Croatian National Bank.

Table A4. Croatia: Indices of Real Net Wages and Salaries Per Employee, 1999-2003 1/

(1997=100)

	1999	2000	2001	2002	2003
Total	116.6	117.0	118.9	120.4	122.7
A. Agriculture, hunting and forestry	108.0	111.4	104.8	108.0	106.1
B. Fishing	104.0	78.0	85.3	87.2	93.8
C. Mining and quarrying	106.4	116.3	125.9	122.7	125.3
D. Manufacturing	109.3	113.3	119.5	122.1	125.1
E. Electricity, gas and water supply	115.5	111.4	110.8	110.4	114.4
F. Construction	107.6	102.0	107.5	116.8	121.6
G. Wholesale and retail trade	102.7	106.8	111.0	116.9	120.1
H. Hotels and restaurants	111.2	115.6	120.3	122.9	127.6
I. Transport, storage and communication	115.9	118.9	123.8	128.4	133.0
J. Financial intermediation	117.0	115.1	119.3	123.3	121.7
K. Real estate, renting and business activities	116.7	112.9	112.6	111.8	114.8
L. Public administration; social security	135.3	134.0	124.7	122.3	125.7
M. Education	129.1	131.6	132.6	130.8	133.5
N. Health and social work	129.9	133.0	130.6	126.5	127.1
O. Other community, social and personal service activities	110.4	110.0	111.1	111.7	115.3

Source: Central Bureau of Statistics.

1/ Excludes persons employed in crafts and trades, free-lancers, police and defense, as well as private farmers.

Table A5. Croatia: Composition of Employment, 1999-2003
(In thousands)

	1999	2000	2001	2002	2003
Total	1,349	1,339	1,352	1,363	1,398
A. Agriculture, hunting and forestry 1/	123	110	106	100	94
Active insured persons - private farmers	91	79	76	70	65
B. Fishing	1	1	1	1	2
C. Mining and quarrying	8	8	8	7	8
D. Manufacturing	264	256	252	247	248
E. Electricity, gas and water supply	27	27	28	27	27
F. Construction	71	65	66	72	78
G. Wholesale and retail trade	153	154	159	165	177
H. Hotels and restaurants	40	41	41	40	39
I. Transport, storage and communication	82	82	82	81	81
J. Financial intermediation	28	29	29	29	30
K. Real estate, renting and business activities	49	50	52	54	58
L. Public administration and defense; social security	120	122	121	118	116
M. Education	80	82	84	85	87
N. Health and social work	74	72	72	71	73
O. Other community, social and personal service activities	29	31	31	33	36
P. Private households with employed persons	...	...	...	...	...
Q. Extra-territorial organizations and bodies	...	...	...	...	...
R. Other 2/	199	207	220	232	246

Source: Central Bureau of Statistics.

1/ Includes active insured persons - private farmers measured mid-year. For 1999 and 2000 data are measured by end-year.

2/ Refers to persons employed in crafts and trades as well as free-lancers during mid-year. For 1999 and 2000 data are measured by end-year.

Table A6. Croatia: Exports by Destination, 1996-2003 1/
(In millions of U.S. dollars)

	1996	1997	1998	1999	2000	2001	2002	2003
Total	4,512	4,171	4,541	4,302	4,432	4,666	4,904	6,164
Developed countries	2,478	2,272	2,381	2,448	2,663	2,879	2,849	3,797
EU countries	2,303	2,074	2,161	2,110	2,416	2,526	2,584	3,363
Austria	198	223	247	276	292	268	366	480
Belgium	41	38	40	31	43	42	51	43
Denmark	4	6	5	7	10	11	11	17
France	84	80	102	108	126	163	159	175
Italy	949	787	802	775	989	1,105	1,114	1,628
Netherlands	69	62	53	50	50	47	42	49
Germany	839	746	767	676	632	690	612	733
Sweden	13	16	19	22	36	28	23	46
Great Britain	70	67	71	80	76	67	63	72
Other	35	49	54	85	162	105	145	121
EFTA countries	41	49	80	148	44	49	38	50
Norway	3	4	36	113	4	6	5	8
Switzerland	37	41	41	34	38	42	31	39
Other	1	4	3	1	2	2	2	3
Other developed countries	135	149	136	189	203	303	227	384
Australia	4	5	7	5	4	4	6	7
Japan	2	6	7	6	15	36	46	74
Canada	8	9	8	10	10	9	7	9
U.S.A.	89	97	89	87	90	107	86	164
Turkey	13	9	8	9	38	9	10	21
Other	19	23	17	72	45	139	72	109
Developing countries	2,034	1,899	2,165	1,855	1,769	1,787	2,055	2,367
Countries of former SFRY	1,219	1,253	1,167	1,091	…	1,189	1,364	1,665
Bosnia and Herzegovina	549	649	654	546	495	561	704	892
FYR of Macedonia	59	77	64	64	59	52	59	70
Slovenia	611	506	432	454	480	426	428	511
Yugoslavia	…	…	17	27	107	149	172	191
Other and unclassified	0	21	…	…	…	…	…	…
Countries of the former USSR	172	198	190	89	75	113	114	112
Other developing European countries	191	223	247	235	563	644	…	…
Czech Republic	40	46	39	31	29	34	40	46
Hungary	55	49	52	40	60	57	83	80
Poland	56	47	46	40	22	20	20	30
Slovakia	22	22	22	13	13	15	16	23
Other	17	59	88	113	…	…	…	…
Developing Middle East countries	64	11	35	24	24	27	34	50
Developing Asian countries	54	30	88	119	31	71	70	51
Developing countries of North Africa	39	29						
Developing other African countries	270	130	376	210	262	168	214	128
Developing countries in the Americas	24	24	48	85	46	17	66	16
Developing countries of Oceania	0	0	0	0	0	0	0	0

Sources: Central Bureau of Statistics and the Fund staff estimates.

1/ Data have not been revised in line with the 1998 balance of payments compilation methodology.
2/ Countries of the former USSR includes 14 countries. It does not include Belarus.
3/ Developing Middle East countries refer to the OPEC countries excluding Indonesia amd Venezuela.

Table A7. Croatia: Tourism—Overnight Stays, 1996-2004

(In thousands)

	Overnight Stays		
	Total	Domestic	Foreign
1996	21,455	4,909	16,546
1997	30,314	5,617	24,697
1998	31,287	5,285	26,002
1999	26,563	5,215	21,348
2000	38,406	5,099	33,307
2001	43,404	5,021	38,384
2002	44,692	4,981	39,711
2003	46,647	5,321	41,326
2001			
Jan	257	163	94
Feb	254	140	114
Mar	353	177	176
Apr	1,213	246	967
May	2,064	349	1,714
Jun	5,826	538	5,288
Jul	13,185	1,209	11,976
Aug	14,242	1,327	12,915
Sep	4,521	367	4,154
Oct	918	223	696
Nov	301	148	153
Dec	271	134	137
2002			
Jan	238	154	85
Feb	274	154	120
Mar	523	176	347
Apr	1,021	249	772
May	2,892	373	2,519
Jun	5,603	514	5,088
Jul	13,257	1,179	12,077
Aug	14,613	1,263	13,350
Sep	4,587	372	4,216
Oct	1,106	239	867
Nov	304	168	136
Dec	275	140	134
2003			
Jan	236	154	82
Feb	273	161	113
Mar	382	183	198
Apr	1,283	253	1,030
May	2,588	426	2,162
Jun	6,599	565	6,034
Jul	13,022	1,242	11,780
Aug	15,734	1,343	14,391
Sep	4,667	393	4,274
Oct	1,220	257	963
Nov	304	168	136
Dec	308	155	153
2004			
Jan	267	175	93
Feb	319	181	138
Mar	488	213	275
Apr	1,310	284	1,026
May	2,871	399	2,471

Source: Central Bureau of Statistics.

Table A8. Croatia: Imports by Origin, 1996-2003 1/
(In millions of U.S. dollars)

	1996	1997	1998	1999	2000	2001	2002	2003
Total	7,788	9,104	8,383	7,799	7,887	9,147	10,722	14,199
Developed countries	5,262	6,261	5,822	5,199	5,104	6,036	6,920	9,284
EU countries	4,625	5,412	4,980	4,415	4,368	5,224	5,984	8,032
Austria	597	709	612	558	529	631	710	940
Belgium	100	96	110	114	115	128	155	179
Denmark	48	62	61	65	63	73	92	117
France	199	293	401	393	436	398	555	749
Italy	1,421	1,705	1,500	1,240	1,311	1,657	1,850	2,581
Netherlands	176	170	161	142	130	164	201	273
Germany	1,602	1,841	1,616	1,441	1,298	1,583	1,742	2,219
Sweden	117	147	109	116	112	110	130	193
Great Britain	225	189	176	187	180	226	218	290
Other	139	200	232	160	195	254	330	490
EFTA countries	179	244	231	201	186	193	211	258
Norway	27	21	39	34	31	39	41	73
Switzerland	144	213	181	158	151	150	166	182
Other	8	10	11	9	4	5	4	3
Other developed countries	457	605	611	583	550	618	726	994
Australia	17	12	11	6	8	13	14	19
Japan	104	139	146	138	135	143	164	245
Canada	17	49	18	53	36	13	16	40
U.S.A.	213	266	278	241	239	297	309	366
Turkey	27	31	26	30	23	42	68	124
Other	79	108	133	116	110	111	156	200
Developing countries	2,526	2,844	2,561	2,600	2,782	3,112	3,802	4,915
Countries of former SFRY	866	942	953	808	794	941	1,113	1,434
Bosnia and Herzegovina	63	137	156	117	82	127	166	231
FYR of Macedonia	34	42	56	52	55	63	67	74
Slovenia	769	756	722	616	627	712	826	1,051
Yugoslavia	...	...	19	23	31	39	53	77
Other and unclassified	...	7						
Countries of the former USSR	253	498	407	711	672	654	114	112
Other developing European countries	571	640	572	511	892	933	…	…
Czech Republic	207	208	181	148	179	209	266	353
Hungary	193	239	212	174	184	238	318	424
Poland	50	59	63	73	94	111	149	213
Slovakia	84	81	65	47	61	51	97	141
Other	38	53	50	68	…	…	…	…
Developing Middle East countries	106	186	119	86	236	163	23	86
Developing Asian countries	301	213	250	274	303	472	739	1,067
Developing countries of North Africa	269	169			…	…	…	…
Developing other African countries	17	21	98	50	62	45	92	56
Developing countries in the Americas	143	174	134	152	94	121	153	179
Developing countries of Oceania	0	0	0	0	0	0	0	0

Source: Central Bureau of Statistics.

1/ Data have not been revised in line with the 1998 balance of payments compilation methodology.

Table A9. Croatia: External Debt, 1996-2004 1/
(In millions of U.S. dollars, unless otherwise stated)

	1996	1997	1998	1999	2000	2001	2002	2003	2004 March
1. Portfolio Investments	1,462	1,955	2,057	2,571	3,180	3,732	4,525	6,124	6,296
Bonds	1,462	1,955	2,048	2,554	3,170	3,704	4,525	6,083	6,252
Of which: London Club	1,462	1,428	1,405	1,381	1,255	1,106	957	796	715
Money Market Instruments	0	0	9	17	9	27	0	42	45
2. Other Investments	3,845	5,497	7,626	7,407	7,875	7,585	10,897	17,445	17,903
2.1 Currency and Deposits	499	790	615	538	433	634	1,976	3,745	3,772
2.2 Long Term	2,935	4,168	6,541	6,443	6,782	6,769	8,745	13,172	13,566
A) Public Creditors	1,890	1,867	2,306	2,158	2,269	2,230	2,606	3,284	3,227
1. International financial organizations	673	851	1,067	1,033	1,129	1,166	1,377	1,765	1,728
a) IMF	208	232	233	197	159	122	0	0	0
b) IBRD	188	295	345	396	418	469	611	773	776
c) IFC	0	0	31	29	72	86	132	109	103
d) EBRD	108	171	251	219	297	319	375	482	468
e) EUROFIMA	33	43	72	78	86	83	109	125	108
f) EIB	131	108	133	98	74	52	85	158	158
g) CEB	4	2	1	15	24	36	64	118	115
2. Governments and Government Agencies	1,217	1,016	1,239	1,125	1,141	1,064	1,229	1,519	1,499
a) Paris Club	1,014	853	885	772	687	622	630	632	593
b) Other	202	164	354	353	453	442	600	887	906
B) Private Creditors	1,045	2,301	4,235	4,285	4,513	4,539	6,138	9,888	10,339
1. Banks	736	1,833	3,302	3,367	3,398	3,478	4,680	8,022	8,419
Of which: Guaranteed by government agencies	192	167	198	441	635	734	686	630	609
2. Other Sectors	309	468	933	918	1,115	1,061	1,458	1,866	1,920
Of which: Guaranteed by government agencies	22	18	28	18	14	10	6	4	4
2.3 Short Term	411	539	471	426	661	182	176	528	566
A) Public Creditors	0	0	0	0	0	0	0	0	0
B) Private Creditors	411	539	471	426	661	182	176	528	566
1. Banks	279	370	289	247	486	62	44	269	285
Of which: Guaranteed by government agencies	0	0	0	0	0	0	0	0	0
2. Other Sectors	133	168	182	180	174	120	132	259	280
Of which: Guaranteed by government agencies	0	0	0	0	0	0	0	0	0
Total (1+2)	5,308	7,452	9,683	9,978	11,055	11,317	15,421	23,570	24,199

Sources: Croatian National Bank; and Fund staff estimates.

1/ Excludes nonreported principal payments. Includes short-term credits and currency and deposits.

Table A10. Croatia: Consolidated General Government Fiscal Operations by Economic Category, 1998-2003 1/
(In percent of GDP, GFS 1986 basis)

	1998	1999	2000	2001	2002	2003
Revenue and grants	51.1	48.4	46.2	44.0	44.5	44.3
Current revenue	50.9	48.3	46.1	43.9	44.5	44.3
Tax revenue	46.9	44.1	42.1	40.5	40.5	40.2
Personal Income tax	5.9	5.3	4.9	3.9	4.0	3.7
Social Security contributions	14.1	13.8	13.3	13.0	12.3	12.4
Profits tax	2.5	2.4	1.6	1.7	2.1	2.2
Real Estate Transactions tax	0.6	0.5	0.5	0.4	0.3	0.3
Taxes on goods and services	20.5	18.7	19.1	19.3	20.4	20.4
Value-added tax	14.7	14.0	14.0	14.0	14.5	14.6
Excises	4.3	4.4	4.8	5.0	5.5	5.4
Customs duties	3.0	3.0	2.5	1.9	1.1	0.9
Other	0.3	0.3	0.3	0.4	0.3	0.2
Non-tax revenue (incl. own revenues)	4.0	4.2	4.0	3.4	4.0	4.1
Capital revenue	0.0	0.0	0.0	0.0	0.0	0.0
Grants	0.2	0.1	0.1	0.0	0.0	0.0
Expenditure and net lending	54.6	56.6	52.7	50.7	49.6	50.6
Expenditure	53.8	55.5	51.9	50.0	49.1	50.3
Current expenditure	45.8	48.0	47.0	44.6	43.3	42.9
Expenditure on goods and services	26.3	25.1	24.5	22.0	20.5	20.1
Wages excl. employer's contributions	11.9	12.8	12.9	11.6	10.8	10.9
Other purchases of goods and services	14.3	12.3	11.6	10.4	9.7	9.2
Interest payments	1.6	1.7	2.0	2.2	2.1	2.1
Subsidies and other current transfers	18.0	21.1	20.5	20.5	20.7	20.7
Subsidies	2.9	2.9	2.9	2.7	2.8	3.3
Current transfers	15.1	18.2	17.6	17.8	17.9	17.4
Capital expenditure	7.9	7.5	4.9	5.3	5.9	7.3
Lending minus repayments	0.9	1.1	0.8	0.7	0.6	0.3
Consolidated general government balance	-3.5	-8.2	-6.5	-6.7	-5.2	-6.3
Primary balance	-1.9	-6.5	-4.5	-4.5	-3.1	-4.2

Sources: Ministry of Finance and staff estimates.

1/ On a GFS 1986 basis and with subnational government consisting of the 53 largest local governments.
2/ In 2000, includes 0.5 percent of GDP in back taxes.

Table A11. Croatia: Consolidated General Government Financial Operations by Economic Category, 2002-03 1/
(In percent of GDP, GFS 2001 basis)

	2002	2003 Prel.
REVENUE	46.3	46.4
Taxes	28.2	27.9
Taxes on income, profits, and capital gains	6.1	6.0
Payable by individuals	4.0	3.7
Payable by corporations and other enterprises	2.1	2.2
Taxes on property	0.3	0.3
Taxes on goods and services	20.4	20.5
o/w VAT	14.5	14.6
Excises	5.5	5.4
Taxes on international trade and transactions	1.1	0.9
Other taxes	0.3	0.2
Social security contributions	14.0	14.2
Other revenue and grants	4.0	4.2
EXPENSE	46.4	46.5
Compensation of employees	12.4	12.7
Use of goods and services	5.5	4.9
Interest	2.1	2.1
Subsidies	2.8	3.3
Grants	0.1	0.0
Social benefits	20.1	19.8
Other expense	3.4	3.7
Acquisition of non-financial assets (investment)	4.4	5.9
Net lending	0.6	0.3
OVERALL BALANCE	-5.0	-6.3

Sources: Ministry of Finance and staff estimates.

1/ On a GFS 2001 basis. There may be differences from historical data, which were on a GFS 1986 basis.

Table A12. Croatia: HBOR Operations by Economic Category, 1999-2003 1/
(In percent of GDP, GFS 1986 basis)

	1999	2000	2001	2002	2003
Revenue and grants	0.2	0.3	0.3	0.3	0.4
Revenue	0.2	0.3	0.3	0.3	0.4
Current revenue	0.2	0.3	0.3	0.3	0.4
Tax revenue	0.0	0.0	0.0	0.0	0.0
Non-tax revenue	0.2	0.3	0.3	0.3	0.4
Capital revenue	0.0	0.0	0.0	0.0	0.0
Grants	0.0	0.0	0.0	0.0	0.0
Expenditure and net lending	0.5	0.6	0.9	1.0	1.4
Expenditure	0.1	0.1	0.1	0.1	0.1
Current expenditure	0.1	0.1	0.1	0.1	0.1
Expenditure on goods and services	0.0	0.0	0.0	0.0	0.0
Wages and employer's contributions	0.0	0.0	0.0	0.0	0.0
Wages and salaries	0.0	0.0	0.0	0.0	0.0
Other purchases of goods and services	0.0	0.0	0.0	0.0	0.0
Interest payments	0.0	0.1	0.1	0.1	0.1
Lending minus repayments	0.4	0.5	0.8	0.8	1.3
Balance	-0.3	-0.3	-0.6	-0.7	-1.1
Financing	0.3	0.3	0.6	0.7	1.1
Foreign borrowing	0.1	0.5	0.4	0.6	0.6
Domestic borrowing	0.2	-0.1	0.2	0.1	0.5

Sources: Ministry of Finance, HBOR, and staff estimates.

1/ Unconsolidated before corrections for central budgetary transactions.

Table A13. Croatia: Debt Stock of Consolidated General Government, 1997-2003
(In percent of GDP)

	1997	1998	1999	2000	2001	2002	2003
Debt Stock	26.7	25.7	33.0	39.3	40.1	39.8	41.5
Domestic	12.5	11.0	12.5	14.7	15.8	16.7	17.1
External	14.1	14.7	20.6	24.5	24.3	23.2	24.3
Guarantees Stock	1.5	6.2	7.0	9.7	10.2	10.5	11.4
Domestic	0.9	0.0	0.0	2.2	3.6	2.5	3.0
External	0.6	6.2	6.9	7.4	6.6	8.0	8.2
Arrears Stock	3.4	5.0	5.7	1.5	0.5	0.4	0.3
Total debt and contingent liabilities	31.6	36.9	45.7	50.4	50.8	50.7	53.2

Sources: Croatian Central Bank, Ministry of Finance, and staff estimates.

Note: Guarantees stock prior to 2002 based on data provided by Croatian Central Bank and stock from 2002 based on data provided by the Ministry of Finance with smaller differences in total stock and larger differences in distribution between domestic and external guarantees.
Local government debt stock prior to 2002 was provided by Croatian Central Bank and from 2002 by the Ministry of Finance registering a generally higher level of local government debt.

Table A14. Croatia: Selected Public Enterprises, 2000-03 1/
(In thousands of kuna unless otherwise specified)

	2000	2001	2002	2003
Croatian Railways				
Operating balance	-304211	-426025	-836546	-779568
Net indebtedness	343550	852276	876112	1992647
Number of employees	19182	18428	16345	15375
Croatian Electricity Company				
Operating balance	-439660	-440758	-12313	89209
Net indebtedness	655180	371057	1146105	1415915
Number of employees	15905	15849	15025	14931
Croatian Forrest				
Operating balance	12262	34290	-6443	-31195
Net indebtedness	95254	182871	228276	240528
Number of employees	9908	9386	9698	9234
Jadrolinija Shipping Company				
Operating balance	16344	8152	26126	19326
Net indebtedness	40994	85028	52653	87175
Number of employees	1661	1693	1714	1759
Croatian Post				
Operating balance	-69579	87512	125691	....
Net indebtedness	43166	31402	21299	10865
Number of employees	12551	12262	11934	....
Croatian Airlines				
Operating balance	-17058	93433	143112	133250
Net indebtedness	31786	20020	12256	8377
Number of employees	838	901	992	1032
Croatian Radio and Television Company				
Operating balance	-106316	1010948	66707	....
Net indebtedness	58721	11548	57019	40996
Number of employees	3505	3487	3159	....
Croatian Insurance				
Operating balance	444855	906984	958345	1074045
Net indebtedness	0	0	0	0
Number of employees	2252	2224	2136	2146
Total				
Operating balance	-463363	1274536	464679	....
In percent of GDP	-0.3	0.8	0.3	....
Net indebtedness	1268651	1554202	2393720	....
In percent of GDP	0.8	0.9	1.3	....
Number of employees	65802	64230	61003	....

Sources: Ministry of Finance and staff calculations.

Table A15. Croatia: Deposit Money Banks' Accounts, 1996-2004 1/
(In millions of kuna; end-of-period)

	1996	1997	1998	1999	2000	2001	2002	2003 Mar.	2003 Jun.	2003 Sep.	2003 Dec.	2004 Mar.
Assets												
1. Reserves	4,410	5,046	5,908	8,988	10,589	15,003	20,373	19,993	21,492	23,679	26,784	30,014
1.1. In f/c	4,410	5,046	4,240	4,353	5,098	9,306	13,340	12,439	13,516	16,845	20,103	20,040
1.1. In kuna	-	-	1,668	4,635	5,491	5,697	7,034	7,555	7,976	6,834	6,680	9,975
2. Foreign assets	12,550	16,186	12,763	12,400	19,710	32,808	25,978	26,951	27,101	31,466	35,383	35,176
3. Claims on central government 2/	16,693	15,239	14,864	16,264	19,055	20,060	21,918	22,935	23,243	22,509	21,544	21,096
3.1 Bonds arising from blocked f/c deposits	8,291	6,714	5,802	5,420	4,484	3,420	2,473	2,047	1,999	1,518	1,532	994
3.2 Big bonds	2,438	2,292	2,103	1,322	1,476	1,659	...	...	...	...	...	...
3.3 Other claims	8,402	8,524	9,062	10,845	14,571	16,640	19,444	20,888	21,244	20,991	20,012	20,102
4. Claims on other domestic sectors	33,690	48,592	59,597	55,400	60,364	74,284	96,218	101,018	102,609	105,689	110,374	111,940
4.1 Claims on local government	145	309	654	906	1,175	1,280	1,422	1,307	1,279	1,274	1,563	1,580
4.2 Claims on enterprises	26,929	35,487	41,225	35,244	35,891	42,882	51,723	53,023	52,021	52,172	53,810	54,823
4.3 Claims on households	6,615	12,796	17,717	19,250	23,298	30,122	43,073	46,687	49,309	52,243	55,001	55,537
5. Claims on other banking institutions	-	-	0	45	69	170	219	214	209	456	432	600
6. Claims on other financial institutions	140	247	194	154	162	281	915	1,364	1,145	941	762	652
Total (1+2+3+4+5+6)	67,483	85,309	93,326	93,251	109,949	142,606	165,622	172,475	175,799	184,739	195,278	199,479
Liabilities												
1. Demand deposits	7,007	8,424	7,809	7,891	11,386	15,181	21,166	19,973	22,188	22,071	23,315	21,559
2. Savings and time deposits	3,387	5,599	5,684	5,398	7,651	10,213	13,001	15,057	15,826	18,263	18,371	19,678
3. Foreign currency deposits	21,817	31,278	37,971	36,966	46,902	71,837	72,055	74,069	71,104	75,416	76,035	74,070
4. Bonds and money market instruments	128	134	154	437	478	318	216	154	263	643	598	396
5. Foreign liabilities	12,467	13,807	16,177	17,209	17,810	21,858	35,023	37,457	40,456	41,442	49,932	52,252
6. Central government and funds' deposits	1,721	6,875	7,298	5,829	6,730	5,635	6,095	5,516	5,253	5,269	5,283	5,219
7. Credit from central bank	268	34	1,049	1,139	329	17	18	14	14	343	969	14
8. Restricted and blocked deposits	8,224	5,852	4,196	3,434	2,550	1,601	1,680	1,786	1,858	1,939	1,709	2,037
Of which: Households' blocked f/c deposits	7,171	4,574	3,419	2,743	1,695	770	319	258	242	177	168	111
9. Capital accounts	15,441	17,027	19,786	21,975	24,953	25,455	26,323	26,526	26,120	26,809	27,390	27,493
10. Other items (net)	-2,977	-3,720	-6,797	-7,026	-8,839	-9,508	-9,956	-8,076	-7,283	-7,456	-8,324	-3,239
Total (1+2+3+4+5+6+7+8+9+10)	67,483	85,309	93,326	93,251	109,949	142,606	165,622	172,475	175,799	184,739	195,278	199,479

Source: Croatian National Bank.

1/ From 1999 onwards, excludes assets and liabilities of banks declared bankrupt in April 1999. Changes in the statistical reporting system introduced a break in the data in July 1999.

2/ Includes all central government agencies and funds, and the Croatian Bank for Reconstruction and Development (HBOR).

Table A16. Croatia: Deposit Money Banks' Credit and Deposit Rates, 1996-2004 1/

(Monthly weighted average; in percent, annualized)

	On CNB Bills 35 days (In percent)	Interest Rates on Credits in Kuna	Interest Rates on Credits in Kuna Indexed to f/c	Interest Rates on Credits in f/c	Interest Rates on Deposits in Kuna	Interest Rates on Deposits in Kuna Indexed to f/c	Interest Rates on Deposits in f/c
1996 Dec	8.0	18.46	18.97	19.50	4.15	9.46	5.09
1997 Dec	8.0	14.06	14.40	13.61	4.35	7.63	4.77
1998 Dec	9.5	16.06	13.04	6.95	4.11	7.47	3.98
1999 Dec	10.5	13.54	12.53	6.75	4.27	6.62	4.23
2000 Jan	10.5	15.32	12.76	6.65	4.32	4.02	4.18
Feb	10.5	11.67	12.85	6.63	4.27	6.19	3.95
Mar	10.4	12.94	12.17	6.93	4.10	6.81	3.96
Apr	9.8	14.59	12.28	5.32	4.03	6.36	3.81
May	9.1	12.52	12.18	6.98	3.91	6.00	3.83
Jun	8.0	13.48	11.69	7.26	3.59	6.75	3.83
Jul	7.8	11.46	11.30	5.72	3.34	6.40	3.78
Aug	6.9	9.90	11.21	6.03	3.42	6.43	3.77
Sept	6.8	10.73	11.64	6.53	3.47	6.67	3.59
Oct	6.7	10.92	11.60	6.23	3.48	5.77	3.53
Nov	6.7	10.90	11.34	6.57	3.57	5.64	3.51
Dec	6.7	10.45	10.74	7.70	3.40	5.54	3.47
2001 Jan	6.6	10.81	10.26	7.83	3.45	5.19	3.13
Feb	6.6	10.89	10.27	6.48	3.60	5.22	3.27
Mar	6.6	8.98	9.82	6.80	3.60	5.64	3.26
Apr	6.4	8.99	9.81	6.83	3.54	5.40	3.13
May	6.3	9.32	10.34	7.15	3.32	5.94	3.09
Jun	5.5	9.88	10.15	6.80	3.18	5.69	2.98
Jul	-	9.39	9.31	6.50	3.04	5.29	2.93
Aug	4.1	9.27	9.64	6.51	3.11	4.63	2.96
Sept	5.0	9.46	9.81	6.44	3.10	4.98	2.83
Oct	5.0	8.53	9.37	5.93	3.06	4.58	2.75
Nov	4.5	9.56	9.68	5.61	2.99	4.40	2.59
Dec	3.4	9.51	9.29	5.94	2.76	4.58	2.60
2002 Jan	3.7	15.28	9.55	8.26	2.48	2.99	2.72
Feb	3.4	14.28	9.28	7.76	2.32	3.32	2.62
Mar	-	13.47	9.21	6.20	2.02	2.89	2.62
Apr	3.0	13.42	8.19	6.38	1.94	3.76	2.60
May	2.7	13.44	8.63	7.48	1.97	2.78	2.57
Jun	2.2	12.78	8.21	6.71	1.91	3.39	2.58
Jul	1.9	11.89	8.12	6.48	1.75	3.59	2.59
Aug	2.0	12.35	7.99	6.55	1.77	3.44	2.59
Sep	2.0	11.81	8.54	5.79	1.71	3.39	2.56
Oct	2.0	12.54	8.04	6.18	1.67	3.62	2.52
Nov	2.1	11.91	8.29	6.46	1.58	3.58	2.54
Dec	2.1	10.91	8.25	5.91	1.55	2.92	2.55
2003 Jan	2.1	11.26	8.09	6.19	1.61	3.61	2.54
Feb	2.1	11.43	8.55	6.33	1.64	3.30	2.50
Mar	2.2	11.30	8.41	5.70	1.44	3.61	2.37
Apr	2.2	11.41	8.03	6.55	1.40	3.52	2.36
May	2.3	11.58	8.07	4.60	1.35	2.98	2.26
Jun	2.4	11.55	7.68	5.84	1.37	3.61	2.24
Jul	2.5	11.15	8.05	4.74	1.36	3.25	2.22
Aug	2.5	12.08	7.96	6.19	1.50	3.14	2.17
Sep	2.6	11.71	8.12	4.77	1.79	3.40	2.22
Oct	-	12.00	8.09	5.73	1.70	3.37	2.20
Nov	-	12.00	7.39	5.58	1.50	3.25	2.14
Dec	-	11.45	7.07	5.62	1.66	3.48	2.22
2004 Jan	-	12.12	7.00	5.26	1.77	3.67	2.46
Feb	-	12.42	7.99	6.00	1.89	3.78	2.38
Mar	-	11.76	7.48	4.58	1.98	3.70	2.38

Source: Central Bureau of Statistics.