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BANKING REFORM AND DEVELOPMENT IN TRANSITION ECONOMIES

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prepared by

Steven Fries, Director of Policy Studies,
European Bank for Reconstruction and Development
Anita Taci, Economist,
European Bank for Reconstruction and Development

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Steven Fries, Director of Policy Studies,
European Bank for Reconstruction and Development
Anita Taci, Economist, European Bank for Reconstruction and Development

Abstract. *While development of sound, market oriented banking systems is fundamental to the transition, bank intermediation remains stunted after a decade or more of reform. This paper examines the impact of banking and enterprise reforms and other factors on banking development in transition economies at both the aggregate level and that of individual banks. A unique contribution of the paper is the analysis of a new panel data set of 515 banks in 16 transition economies for the years 1994 – 99. The analyses show that progress in banking reform is the sine qua non of banking development. However, even where banking reforms have advanced, the real expansion of bank loans has failed to keep pace with output growth. There is significant evidence that privatised banks and those with higher capital-asset ratios are expanding more rapidly than state-owned banks and ab initio private banks. Foreign-majority ownership is associated with neither stronger nor weaker real growth in customer loans. These results contrast sharply with evidence of relatively strong growth performance by ab initio private and foreign-owned enterprises in the non-financial sectors of the transition economies. Taken together, the findings point to the need for policies that can strengthen supply response of banks to progress in banking and enterprise reforms. These measures include the more effective regulation of the entry and exit of banks, removal of obstacles to the expansion of foreign-owned banks and the transfer of technology and banking skills that expand access to finance, particularly by small and medium-sized enterprises.*

JEL Classification Numbers: G21, G28, P34.

1. Introduction

The development of sound, market-oriented banking is fundamental to the post-communist transition. Banks in a market economy must provide monetary payments, without which markets can function only at high cost. Although this is taken for granted in industrialised market economies, there has been an unprecedented proliferation of non-monetary forms of payment in some transition economies (Seabright (2000)). Banks also must mobilise and allocate capital efficiently and prudently to facilitate the process of saving and investment and to promote long-term growth. But bank intermediation remains stunted even after a decade or more of reform (EBRD (1998), Chapter 5). These persistent symptoms raise concern that the banking reforms implemented so far have failed to spur adequately the development of banking in transition economies.

The transformation of socialist banking systems was bound to be difficult. While cement companies could still produce and sell cement, the services of socialist banks were of little use in a market economy. These institutions were primarily bookkeepers for the planned allocation of resources, providing "monetary" accounts for resource flows. However, these accounts differed fundamentally from bank deposits in a market economy. There were tight restrictions on the use of the monetary balances of enterprises and households, and interest rates on these balances were set administratively. Credits were allocated to enterprises on the basis of planned investment priorities, and the repayment of credits was subject to bargaining. Bankruptcy and legal enforcement of creditor rights were nonexistent. Moreover, to facilitate their role in the planning process, socialist banking systems were highly concentrated, with little separation of central banking and commercial banking activities. Some banks specialized by activity, particularly in industry, agriculture, foreign trade, and household savings.

Most transition economies have followed the same broad paradigm for transformation of the banking sector – a paradigm associated with, but not confined to, the policy advice of the International Monetary Fund (IMF) and the World Bank (see, among others, Calvo and Frenkel (1991), Fisher and Gelb (1991), Caprio and Levine (1994) and Fries and Lane (1994)). The so-called Washington consensus on banking transition called for separation of commercial banks from the central bank, abolition of restrictions on internal convertibility of money, liberalisation of interest rates, restructuring and privatisation of state banks and their enterprise borrowers, and entry of new private banks. At the same time, the state had to take on important new roles to provide effective prudential regulation and supervision of banks. This involved development of significant new state capacity in terms of the enactment of new banking laws and regulations and their effective enforcement by the supervisory authorities and the courts. Although most countries have followed this broad paradigm, the pace and sequencing of reforms have differed significantly.

The advocated reforms clearly were required to overcome some of the legacies of socialist banking, but have they been sufficient to spur the development of sound, market-oriented banking systems? A basic measure of the development of banks is the scale of their activity. The level and growth of lending and deposit taking are useful indicators of banking development because deposits and loans embody the payment and intermediation services provided by banks.

This paper assesses the development of banking in transition economies at both the aggregate level and that of individual banks. The aggregate analysis covers all countries of Central and Eastern Europe and the Commonwealth of Independent States (CIS) except Bosnia-Herzegovina, FR Yugoslavia, Georgia, Tajikistan, Turkmenistan and Uzbekistan (21 in all) for the years 1994–99. At the bank level, the paper focuses on 12 countries in Central and Eastern Europe (all except Albania, Bosnia-Herzegovina, and FR Yugoslavia) and four CIS countries – Belarus, Kazakhstan, Russia, and Ukraine – for the period 1994–99. This sample of banks is selective across and within countries, because it excludes those banks that do not disclose publicly their financial accounts – typically small banks or those that are chronically loss making. The banks included in the sample tend to be the larger commercial and savings banks in each country, and they account for the vast majority of the banking operations in their respective countries.

The paper finds at the aggregate level that expansion of banking activity, particularly loans to enterprises and households (that is, the non-governmental sector), was associated with progress in structural and institutional reforms and growth in output. Where there was little progress in structural and institutional reform and growth in output, there was little development of banks. Only about one-third of the countries in the region – primarily countries in Central Eastern Europe and the Baltic region that are more advanced in reform – saw over the period 1994–99 an increase in bank loans outstanding to the non-governmental sector relative to gross domestic product (GDP). However, in 1999 the ratio of total non-governmental credit to GDP in all transition economies remained below their estimated market-economy benchmarks for the provision of credit to the non-governmental sector. Evidence also points to crowding out of credit to the non-governmental sector by government borrowing.

The analysis of lending to enterprises and households at the level of individual banks allows for the influence of both country-level and bank-specific factors in a reduced-form model that includes variables expected to be associated with the demand for and supply of bank loans to customers. This analysis finds that progress in banking reforms and complementary enterprise reforms in areas such as bankruptcy and corporate governance has been the *sine qua non* of sound banking development. Where there has been little progress in these reforms, there is no significant association between the real growth in customer loans and the potential supply and demand factors.

Where banking reform has advanced, the real growth in bank lending displays a number of distinctive features. Output growth is significantly associated with real expansion of bank lending, although growth in lending has not on average kept pace with that of output. This finding is consistent with the evidence at the aggregate level of little increase in depth of transition banking systems. However, there is no significant association between the general government balance and real loan growth to enterprises and households. This finding is inconsistent with aggregate evidence that points to crowding out of bank lending to customers by government borrowing. With respect to the characteristics of individual banks, there is significant evidence that privatised banks and those that have relatively high ratios of reported capital to total assets grow more rapidly in real terms than do state-owned banks and *ab initio* (newly established) private banks. This suggests that the restructuring and privatisation of state banks helps to spur banking development and that financially stronger banks are attracting resources with which to expand. Surprising findings are that *ab initio* private banks expand significantly less rapidly than do other banks and that majority foreign-ownership is not significantly associated with real growth in customer loans.

The empirical findings suggest that, while progress in banking and enterprise reforms is supporting the sound, market-oriented development of banks in transition economies, the supply response of banks remains weak. Policies that could complement the consensus banking reforms and spur a strong supply response are discussed in the conclusion to the paper.

2. Implementation of banking and enterprise reforms

One measure of progress in reform of the banking sector is the transition indicator of the European Bank for Reconstruction and Development (EBRD) for banking reform. This indicator provides a ranking of progress in liberalisation and institutional reform of the banking sector, on a scale of 1 to 4* (4.3). A score of 1 represents little change from a socialist banking system apart from the separation of the central bank and commercial banks, while a score of 2 means that a country has established internal currency convertibility and has liberalised significantly both interest rates and credit allocation. A score of 3 means that a country has achieved substantial progress in developing the capacity for effective prudential regulation and supervision, including procedures for the resolution of bank insolvencies, and in establishing hardened budget constraints on banks by eliminating preferential access to concessionary refinancing from the central bank. A score of 4.3 represents a level of reform that approximates the institutional standards and norms of an industrialised market economy, as represented, for example, by the Basle Committee's Core Principles on Effective

Banking Supervision and Regulation. The scoring assessments are by EBRD country economists (see EBRD (2000), Chapter 2).

A second measure of the transformation of the role of state in the banking sector is the share of private banks in the total assets of the banking system. This indicates the extent to which the state has withdrawn from direct provision of banking services through the privatisation of state banks and entry of new private banks into the system. The measure also captures the potentially different rates of growth of private versus state banks.

While reform progress in the banking sector itself is necessary to encourage sound banking practices and instill confidence in banks and to attract deposits from customers, banks must also make commercial loans to enterprises and households with the attracted funds if they are to earn profits. This requires a level of reform in the enterprise sector that establishes basic rights of creditors and that promotes sound corporate governance and business practices. One measure of reform progress in these areas is the EBRD's transition indicator score for enterprise reforms. As with banking reform, the indicator score is on a scale of 1 to 4* (4.3). A score of 1 represents little or no progress in hardening enterprise budget constraints and in requiring sound corporate governance practices, while a score of 2 means that there has been some progress in curbing directed credits and producer subsidies but with little enforcement of bankruptcy laws. A score of 3 means a country has achieved substantial progress in establishing hardened budget constraints on enterprises with some enforcement of bankruptcy laws and in promoting sound corporate governance. A score of 4.3 represents a level of enterprise reform that approximates the norms of industrialised market economy.

With these two measures of the transformation of the role of the state in the banking sector, it is possible to show how the broad paradigm for banking reform was implemented. Chart 1 shows that, in Central Eastern Europe and the Baltic states (Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic, and Slovenia), liberalisation and institutional reform in the banking sector have advanced in step with the state's withdrawal from the direct provision of banking services and with progress in enterprise reforms. This approach is balanced in the sense that the state liberalised interest rates and developed the capacity for effective prudential regulation as the role private banks in the system expanded and as the legal and institutional framework to support lending to enterprises (and households) strengthened.

The countries of Southeastern Europe (Albania, Bulgaria, FYR Macedonia, and Romania) have followed a similar approach to banking reform, albeit at a slower pace and with less emphasis on bank privatisation and complementary enterprise reforms (see Chart 2). This reflects at least in part the more difficult economic and political conditions at the start of transition in these countries, particularly the misallocation of resources, macroeconomic imbalances, trade flows, geographic location, and turnover of old political elites (see de Melo, Denizer, Gelb and Tenev (1997) and EBRD (2000), Chapter 2). The banking systems in these countries remained a source of indirect subsidy for troubled enterprises well into the transition, which constrained the pace of banking reforms, such as the implementation of prudential regulations and bank privatisation. These practices ultimately culminated in banking crises (Bulgaria in 1997 and Romania in 1999) that eventually helped to spur a stronger pace of reform.

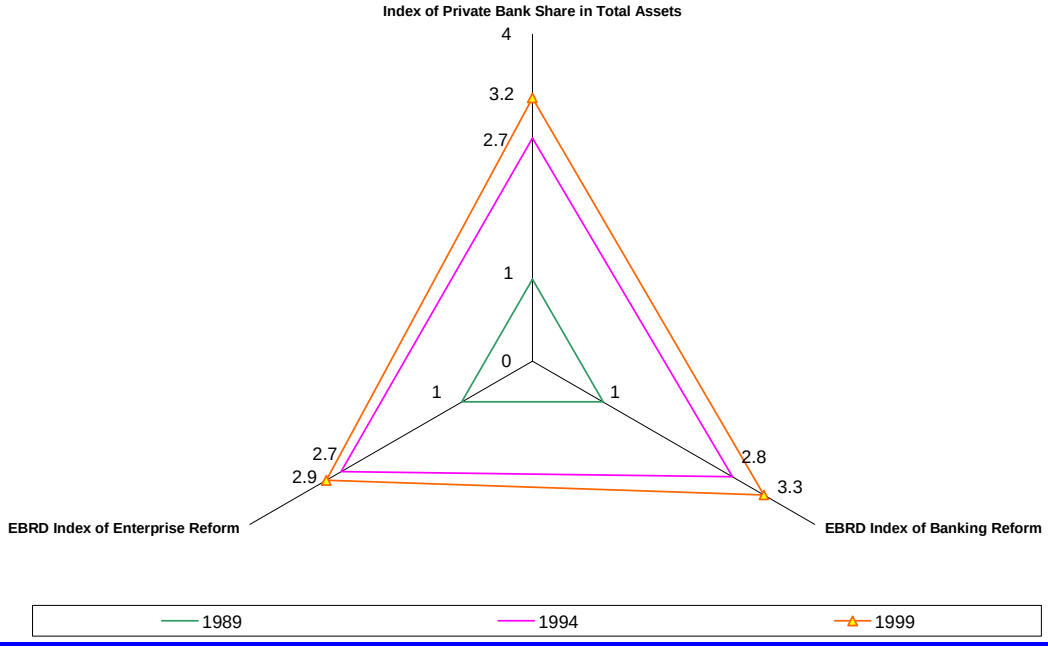
The transformation of banking in CIS countries, in contrast, has followed a markedly different sequence and pace. Chart 3 shows that the state withdrew more rapidly from its role in the direct provision of banking services in the CIS (except Georgia, Tajikistan, Turkmenistan, and Uzbekistan, where data are missing) than in Central and Eastern Europe. This reflects, in part, the political strategy of those seeking to break up the former Soviet Union by promoting the devolution of economic power away from the Soviet federal government largely through the spontaneous privatisation of state assets. Central to this strategy were the transfer of most state banks into private hands and the laissez-faire formation of new banks. However, the implications of this approach for other dimensions of banking reform have been problematic. The proliferation of nonviable banks and non-performing loans created significant interests that were opposed to sound prudential regulation and mechanisms for the exit of nonviable banks and enterprises. The slow pace of banking and enterprise reforms in these countries arose in part from this resistance to further reforms.

3. Development of banking systems

After a decade of extensive reform of the banking sectors of the region, it is time to take stock and to assess whether the Washington consensus on banking transition has succeeded. The measure of success, however, is not simply whether the policy prescription has been followed, but also the extent to which the tonic has proved to be the antidote to socialist banking and the spur to the provision of banking services to enterprises and households. At the most basic level, this includes the provision of deposit-taking and lending services. Measures of this activity can be used both at an aggregate level for banking systems as a whole and at the disaggregated level of individual banks. An advantage of disaggregation is that it reveals the process of adjustment by individual banks and the potential influence of some factors associated with the supply of banking services. At the same time, an aggregate analysis can help to identify factors at the country level that influence the development of banking, such as output growth and progress in structural and institutional reform.

CHART 1

Progress in banking and enterprise reforms and privatisation in central eastern Europe and the Baltic states



Source:

CHART 2

Progress in banking and enterprise reforms and privatisation in south eastern Europe

Source:

CHART 3

Progress in banking and enterprise reforms and privatisation in Commonwealth of Independent States

Source:

One aggregate measure of banking development is the ratio of domestic credit (or broad money) to GDP. Following EBRD (1998) Chapter 5, Table 1 shows the ratio of total domestic credit provided by banks to GDP for 21 transition economies together with the estimated ratio of total domestic credit relative to GDP for a market economy at a comparable level of development. This benchmark is calculated from the fitted regression relationship for a sample of 127 developing and industrialised market economies worldwide, excluding the transition economies with which this paper is concerned. The relationship is estimated by regressing the ratio of domestic credit to GDP in 1999 on the log of per capita gross national product (GNP) in international US dollars at purchasing power parity and its squared value. The table shows that in 1999 all transition economies except Albania lie below the market economy benchmark for the ratio of total domestic credit to GDP. Moreover, apart from a six countries (Estonia, Moldova, Romania, Russia, Slovenia and Ukraine), there is no convergence toward the benchmark between 1994 and 1999 through an expansion of total domestic credit in excess of output growth.

Table 2 shows that it is primarily the non-governmental sector that suffers from the persistent underdevelopment of the banking sector. It is bank credit to enterprises and households, rather than credit to the government, that is undersupplied relative to that in comparable market economies. Again, the table reports the ratio of total bank credit to the non-governmental sector relative to GDP together with the estimated ratio for a market economy at a comparable level of development. This benchmark is estimated by a nonlinear regression of the ratio of bank credit to the non-governmental sector to GDP on per capita GNP for a sample of 122 developing and industrialised market economies. The share of bank credit to the non-governmental sector is below the market economy benchmark in all countries in 1999. In addition, only in Estonia, Kazakhstan, Poland, the Slovak Republic and Slovenia is there an increase in the ratio of bank credit to the non-governmental sector relative to GDP between 1994 and 1999. In contrast, the share of bank credit to the public sector (not shown) is well above the market economy benchmark in 1999, and this ratio has tended to increase over time in many transition economies, reflecting fiscal pressures in transition.

This aggregate assessment of banking development shows that the expansion of credit to the non-governmental sector relative to GDP over the period 1994–99 is confined to four countries in Central and Eastern Europe and one CIS country. These Central and Eastern European countries are also those that have witnessed output growth and significant progress in structural and institutional reform over the period (see EBRD 2000, Chapters 2 and 3). The one CIS countries had relative little non-governmental sector credit outstanding in 1994 and therefore began the sample period with a low base value. The association with output growth and reform progress, including that in the banking sector itself, suggests that these factors contribute to the development of banking. However, there is little sign of rapid "catch-

Table 1.

The Ratio of Total Domestic Credit to GDP in Transition Economies and their Estimated Market Economy Benchmark Values
(in per cent of GDP)

	1994			1999			Change in the total credit to GDP ratio, 1994-99	Change in the distance from the benchmark, 1994-99
	Ratio of Total Credit to GDP	Market-Economy Benchmark	Distance from the Benchmark	Ratio of Total Credit to GDP	Market-Economy Benchmark	Distance from the Benchmark		
Central Eastern Europe and the Baltic Region								
Croatia	31.6	48.6	17.0	39.2	57.0	17.8	7.5	0.8
Czech Republic	68.3	70.0	1.7	62.6	76.5	13.9	-5.6	12.2
Estonia	12.8	48.7	36.0	34.8	59.0	24.2	22.0	-11.8
Hungary	93.1	60.0	-33.1	52.5	68.4	16.0	-40.7	na
Latvia	22.6	44.5	21.9	18.9	51.5	32.6	-3.7	10.7
Lithuania	19.0	45.7	26.6	15.3	53.5	38.1	-3.7	11.5
Poland	38.5	54.6	16.1	39.2	65.4	26.1	0.7	10.0
Slovak Republic	79.1	59.7	-19.4	68.6	70.0	1.4	-10.5	na
Slovenia	37.4	73.6	36.1	48.5	83.4	34.9	11.1	-1.3
Southeastern Europe								
Albania	51.3	34.0	-17.3	45.3	39.5	-5.8	-6.0	na
Bulgaria	103.4	51.1	-52.3	18.6	51.5	32.9	-84.8	na
FYR Macedonia	78.8	43.1	-35.7	22.2	45.2	22.9	-56.5	na
Romania	11.1	48.1	37.0	19.4	49.7	30.2	8.3	-6.8
CIS								
Armenia	14.9	34.4	19.5	10.9	41.3	30.4	-4.0	10.9
Azerbaijan	44.3	31.6	-12.7	10.0	34.7	24.7	-34.3	na
Belarus	31.3	31.1	-0.2	20.8	29.6	8.87	-10.5	na
Kazakhstan	29.1	45.6	16.5	10.6	46.6	35.9	-18.5	19.4
Kyrgyzstan	15.6	34.8	19.2	11.5	39.1	27.5	-4.1	8.3
Moldova	19.7	31.1	11.4	25.8	29.6	3.8	6.1	-7.6
Russia	31.7	51.1	19.4	32.7	50.3	17.5	1.0	-1.8
Ukraine	24.2	40.1	15.9	24.9	36.9	12.0	0.7	-3.9
Average	**40.9**	**46.7**	**5.9**	**30.1**	**51.4**	**21.2**	**-10.7**	**3.6**

Source: International Monetary Fund, International Financial Statistics and World Bank, World Development Indicators.

Note: The market economy benchmark is calculated for each transition economy using its GNP per capita in 1994 and 1999 (in international US dollars at purchasing power parity) and the estimated equation for the sample of 127 developing and industrialised market economies: y = 165.6 – 51.2*ln(x) + 4.5*(ln(x))^2, where x is GNP per capita and y is the market economy benchmark for the ratio of total domestic credit to GDP. The change in the distance from the market economy benchmark is not calculated for those countries with total domestic credit to GDP ratios that were above their benchmark values in 1994.

up" development of banking systems. At the rates of economic and banking sector development between 1994 and 1999, it would take Slovak Republic two years to close the gap with its benchmark value for the ratio of non-governmental sector credit to GDP, Estonia six years, Kazakhstan 19 years, Slovenia 28 years and Poland 141 years. For the other countries, past experience would point to widening gaps between the measure of banking development and their market-economy benchmark values. This finding points to the possibility that reforms within banking and enterprise sectors have been insufficient to spur a strong increase in the supply of and demand for banking services.

4. Real growth in bank loans to customers: panel data analysis

Given the significant and persistent under-provision of credit to the private sector at the aggregate level, an analysis of the real growth of customer loans to enterprises and households by individual banks can help to identify a

Table 2.

The Ratio of Total Non-governmental Sector Credit to GDP in Transition Economies and their Estimated Market Economy Benchmark Values
(in per cent of GDP)

	1994			1999			Change in private sector credit to GDP ratio, 1994-99	Change in the distance from the benchmark, 1994-99
	Ratio of private sector credit to GDP	Market economy benchmark	Distance from the benchmark	Ratio of private sector credit to GDP	Market economy benchmark	Distance from the benchmark		
Central Eastern Europe and the Baltic Region								
Croatia	31.5	39.4	7.9	38.5	46.9	8.4	7.0	0.5
Czech Republic	76.6	58.1	-18.5	61.4	63.5	2.1	-15.1	na
Estonia	15.4	39.5	24.1	35.8	48.7	12.9	20.4	-11.2
Hungary	26.2	49.6	23.4	25.7	56.8	31.1	-0.5	7.7
Latvia	18.4	35.6	17.2	16.5	42.0	25.5	-1.9	8.3
Lithuania	20.0	36.7	16.7	13.9	43.8	29.9	-6.1	13.2
Poland	18.6	44.9	26.3	28.8	54.2	25.4	10.2	-0.9
Slovak Republic	43.3	49.4	6.1	56.5	58.1	1.7	13.2	-4.4
Slovenia	23.3	61.1	37.7	37.0	69.1	32.1	13.7	-5.7
Southeastern Europe								
Albania	5.7	25.0	19.3	3.9	30.7	26.8	-1.7	7.5
Bulgaria	49.3	41.7	-7.6	17.9	42.1	24.2	-31.3	na
FYR Macedonia	45.3	34.2	-11.2	22.7	36.2	13.4	-22.6	na
Romania	19.1	38.9	19.9	10.7	40.4	29.7	-8.3	9.8
CIS								
Armenia	11.1	25.4	14.4	9.2	32.5	23.3	-1.9	8.9
Azerbaijan	40.0	22.4	-17.6	22.6	25.8	3.2	-17.4	na
Belarus	33.8	21.8	-12.0	15.0	20.1	5.1	-18.8	na
Kazakhstan	0.02	36.6	36.6	8.9	37.5	28.6	8.9	-8.0
Kyrgyzstan	na	25.8	na	5.1	30.2	25.1	na	na
Moldova	14.1	21.8	7.7	13.3	20.1	6.7	-0.8	-1.0
Russia	20.0	41.7	21.7	12.8	40.9	28.1	-7.2	6.5
Ukraine	16.5	31.2	14.7	10.3	28.0	17.7	-6.2	3.0
Average	**26.4**	**37.2**	**11.3**	**22.2**	**41.3**	**19.1**	**-3.3**	**2.3**

Source: International Monetary Fund, International Financial Statistics and World Bank, World Development Indicators.

Note: The market economy benchmark is calculated for each transition economy using its GNP per capita in 1994 and 1999 (in international US dollars at purchasing power parity) and the estimated equation for the sample of 122 developing and industrialised market economies: y = 34.7 – 20.1ln(x) + 2.5*(ln(x))^2, where x is GNP per capita and y is the market economy benchmark for the ratio of total non-governmental credit to GDP. The change in the distance from the market economy benchmark is not calculated for those countries with total non-governmental credit to GDP ratios that were above their benchmark values in 1994.

range of factors associated with banking development in transition economies. The observed rate of real growth in outstanding customer loans reflects the interaction over time of the demand for banking loans and their supply by individual institutions. Factors at the country level that are likely to influence the real demand for bank loans by customers (enterprises and households) are the growth of output and the competing demands for domestic savings by the government. The demand for investment and consumer durable goods and the debt-carrying capacity of enterprises and households are likely to increase with output and incomes and to decrease with competing demand for finance by government. The response of banks to the demand for loans is, in turn, likely to be influenced by a number of country-level factors, such as the confidence of depositors in banks and the protection of creditor rights. Both tend to increase with measures of progress in banking and enterprise reforms.

Observable factors at the level of individual banks, such as the size, extent of competitive pressures (market share), bank capitalisation, and the nature of ownership (*ab initio* private, privatised, or state-owned; with or without majority foreign participation) may also influence the supply response. For example, bank size may be related significantly to

real loan growth, with smaller banks registering higher rates of real loan growth than larger banks, even though in absolute terms the changes are small. Banks faced with greater competitive pressure may be more responsive to customer demands and offer more competitive terms on loans. Those banks with higher levels of equity capital relative to total assets are likely to be more financially sound and may instill greater confidence in depositors. Highly capitalised banks therefore may be better able to attract financial resources for growth, but not necessarily in the form of lower interest rates on deposits because of comprehensive deposit guarantees in most (but not all) countries. Bank ownership may be associated significantly with the quality of bank management and staff, reflecting in part the functioning of corporate governance and the process of selecting senior management. Of course, many other factors unobservable to researchers, such as the quality of bank management and staff and the extent of investment in information technology, are potentially significant as well.

Since the observed real growth of customer loans by banks arises from the interaction of demand and supply factors over time, it is possible to estimate a reduced-form equation that relates the real growth of bank loans to their customers to observable demand and supply factors. It is important to recognize, however, that the behavior of banks and their customers is not necessarily constant across countries and over time. In fact, there is reason to expect that the supply and demand for bank loans would vary systematically with progress in banking and enterprise reforms. These particular factors are likely to have a significant impact both on the confidence of banks in the repayment of loans by their borrowers and on the confidence of depositors in banks. In particular, where there is little progress in banking and enterprise reforms, the activities of banks are likely to remain stunted or distorted, both in terms of deposit taking and customer lending, even though other factors, such as output growth, may contribute to a rise in demand for bank services.

4.1 Modeling and estimations

The reduced-form equation for estimation is:

$$\dot{L}_{i,j,t} = \sum_j \alpha_j + \sum_j \beta_j X_{j,t} + \sum_j \delta_j Y_{i,j,t} ,$$

where $\dot{L}_{i,j,t}$ denotes real growth in customer loans of bank *i* in country *j* in year *t*, α_j are country intercept terms, $X_{j,t}$ is a vector of country-level explanatory variables, and $Y_{i,j,t}$ is a vector of bank-level explanatory variables. Real loan growth is measured as the percentage change in total customer loans outstanding, where the stock of customer loans is deflated using the consumer price index. The vector of country-level variables includes the annual rate of growth in real GDP lagged one year, the general government balance in the current year and the EBRD transition indicators of banking and enterprise reforms for the current year. The bank-level variables include bank size (defined as total assets in US dollars at market exchange rates), the share of the deposit market (defined as the ratio of a bank's customer deposits to total broad money in that country and year), bank ownership (dummy variables to represent majority state-ownership, privatised, *ab initio* private and foreign bank ownership stake above 50 percent), and bank capitalisation (ratio of equity to total assets lagged one year). This general specification allows for both country-specific intercept (country fixed effects) and country-specific slope terms.

Estimation of the reduced-form equation for the real growth of customer loans covers 515 banks from 16 countries over the years 1994–99. Of the total number of banks, 10 are in Belarus, 26 in Bulgaria, 45 in Croatia, 30 in the Czech Republic, 14 in Estonia, 12 in the FYR Macedonia, 36 in Hungary, 22 in Kazakhstan, 28 in Latvia, 13 in Lithuania, 52 in Poland, 29 in Romania, 118 in Russia, 21 in the Slovak Republic, 29 in Slovenia, and 30 in Ukraine. The data for individual banks and countries are annual. The source of data on bank balance sheets (loan growth and capitalisation) as well as on ownership is the BankScope database produced by the Bureau van Dijk. The BankScope data are supplemented with the data and information from annual reports of the banks and from EBRD staff research on bank ownership.

Aggregate data on their banking systems for use in calculating market shares in deposit-taking activities are from the central banks of the countries and from the International Monetary Fund, *International Financial Statistics*. Sources of the macroeconomic data for the countries (output growth, consumer price inflation, and general government deficits) are various issues of the *International Financial Statistics* and of the European Bank for Reconstruction and Development, *Transition Reports*. The measures of progress in banking and enterprise reforms are the EBRD transition indicators as published in the *Transition Reports*.

Two concerns about the quality of the data arise from the wide variation in practices regarding the writing off of non-performing loans and the lack of consistent information on the extent of non-performing loans across banks. First, the extent to which measured loan growth is distorted by this consideration depends on how the misreporting of total

loans net of write-offs changes over time for each bank. Second, any underprovisioning against nonperforming loans results in an overstatement of both bank equity and total assets. These potential data problems must be recognized when interpreting the regression results.

There is also a problem of multicolinearity between two variables – deposit market share and balance sheet size. These variables are highly correlated and, when entered together in the same model specification, lead to spurious statistical significance. Therefore, the tests of the reduced-form model of loan growth use either one of these variables, but not both together in the same equation. The results vary somewhat with the choice of variable, but the main conclusions are robust to alternative specifications.

The real loan growth equation is initially estimated for the entire panel of 515 banks over the period 1994–99. The general specification of model 1 is then tested against a version that restricts the country-specific slope terms to be the same across all countries. This model is:

$$\dot{L}_{i,j,t} = \sum_j \alpha_j + \sum \beta X_{j,t} + \sum \delta Y_{i,j,t} \ .$$

A Wald test comparing the two models strongly rejects the restricted version. This could reflect the fact that the restricted version of the model assumes that the behavior of banks and their customers is the same across countries and years, even though progress in banking and enterprise reforms varies considerably both across countries and over time. As suggested, there are strong reasons to expect this behavior to change with the progress in these reforms.

The data set is therefore partitioned into two subsamples, one for countries and years in which the EBRD transition indicator scores for both banking and enterprise reform are in the range 2.67 to 4.3 (a high-reform state) and the other for countries and years in which at least one of these indicator scores is less than 2.67 (a low-reform state). This is done by constructing a banking and enterprise reform dummy variable, *R*, which takes values of 1 when the EBRD transition indicator scores for banking and enterprise reforms indicate a high-reform state and 0 otherwise. This dummy variable takes on a value of 1 in the countries of Central Eastern Europe and the Baltic region for the years 1994 to 1999, except for Croatia, Latvia and Lithuania which have a high reform state only for the years 1996 to 1999. All other countries and years are in the low reform state.

To check whether the estimation coefficients (both intercepts and slope coefficients) differ for two reform states (high and low), the dummy variable is interacted with all coefficients in equation (2) to give a more general form:

$$\dot{L}_{i,j,t} = \sum_j \alpha_j + \sum_j \beta_j X_{j,t} + \sum_j \delta_j Y_{i,j,t} + R\left(\sum_j \phi_j + \sum_j \varphi_j X_{j,t} + \sum_j \gamma_j Y_{i,j,t} \right), \tag{3}$$

The *F*-test of the joint significance of the estimated coefficients on the terms interacted with the reform dummy variable, which compares models 3 and 1, does not reject the hypothesis that the behavior of real loan growth depends on the level of banking and enterprise reforms.

The general model 1 must therefore be estimated allowing the coefficients to differ for the two subsamples. Whether the model should be estimated in a single regression, as in model 3, or in two separate estimations of model 1 for each subsample depends on whether the variances of the error terms in the two estimates of model 1 differ significantly. If the variances of the error terms differ, pooling together the observations of the two subsamples in model 3 would bias the estimates of the variances of both error terms. In addition, the standard estimate of the variance-covariance matrix would be incorrect.

The likelihood ratio test of group-wise heteroskedasticity comparing the error variances of model 1 estimated over the two subsamples shows that they do in fact differ significantly. This estimation excludes the measures of banking and enterprise reforms as country-level explanatory variables, because there is relatively little variation in these variables within the subsamples, particularly for low-reform countries and years. Therefore, the reduced-form model of real loan growth is estimated separately for the two subsamples of states with "low" and "high" reforms. This allows the estimated parameters of the reduced-form model of real loan growth to vary across countries and over time, but in a way that is linked to progress in banking and enterprise reforms.

Using the two subsamples, the restricted model 2 is estimated. This allows for country-specific intercept terms (country fixed effects), but restricts the other slope coefficients to be constant across countries and over time. For both the high-reform and low-reform subsamples, it is not possible to accept the version of the model that restricts the constant term. In addition, a random-effects model is estimated for the two subsamples of high- and low-reform states. A random-effects model would allow for country-specific distribution of the error terms rather than for country intercept terms.

For the high reform subsample, a Hausman test indicates that the fixed-effects terms are not correlated with the other regressors when the deposit market share variable is used, thereby rejecting the random-effects model in favor of the fixed-effects model. The countries with significant (all positive) county-specific constant terms are Croatia, the Czech Republic, Estonia, Latvia and Lithuania. However, when the total assets variable is used, this test finds in favour of the random-effects specification rather the fixed-effects model. For the low reform subsample, a Hausman test finds in favour of the random-effects model when both the total asset and deposit market share variables are used. The results for both models are therefore reported for both subsamples.

4.2 Regression results

Tables 3 reports the results of the regressions for the subsample of high-reform countries and years for both the fixed-effects and random-effects specifications. The model estimations yield a number of significant results.

Loan growth is significantly and positively associated with growth in real GDP lagged one year, but the estimated coefficients are in the range 0.8 to 1.0. This means that, on average across countries and years in high-reform states, lending to customers is expanding less rapidly than growth in output, which is consistent with aggregate data showing little sign of financial deepening in transition economies. It is not possible to identify on the basis of this reduced-form estimation, however, whether failure of the real growth in bank loans to keep pace with output growth is due to a demand or a supply constraint.

In contrast to the aggregate data, there is no significant evidence that general government deficits crowd out real growth in customer lending. The estimated coefficients on the general government balance are correctly signed but small and insignificantly different from zero.

The total balance sheet size is negatively, but only weakly significantly, associated with real growth in customer lending. An increase in the total assets of a bank by US$ 1 billion reduces the real growth in outstanding loans by 0.3 percentage point. These associations may reflect several factors. The most simple is the effect of size in calculating percentage rates of loan growth, with a given absolute increase in real loans by a small bank implying a larger percentage increase than for a large bank. It is also the case that the larger banks tend to be state-owned banks and that the client base of these institutions tends to be concentrated in the declining sectors and enterprises in the real economy. Finally, a smaller bank is likely to face greater competitive pressure and therefore to be more responsive to customer demands for services.

The deposit market share is insignificantly different from zero. This finding and the previous one indicate that it is the absolute size of a bank rather than its share of particular market that is a significant factor in growth. Fries, Neven and Seabright (2001) provide evidence on the determinants of bank profitability transition economies for the same sample of banks. This analysis finds that market share and bank profits are significantly and positively associated. Taken together, these findings suggest that the profits derived from market power are not being used to fund loan growth.

Bank capitalisation lagged one year is positively and significantly associated with the real growth in customer loans. For example, an increase in a bank's capital-to-total-asset ratio to 10 per cent from eight per cent is on average associated with a 0.3 to 0.5 percentage point increase in the real annual growth of outstanding customer loans in the next period. On the surface, this association suggests that those banks that are more financially sound are attracting the resources that enable them to expand their customer loans. This is encouraging from the perspective of financial stability. Further, strong regulatory capital requirements may prevent thinly capitalised banks from expanding their lending activities to enterprises and households. However, there are potential problems with the measurement of bank capital: some troubled banks may have overstated their capital by not provisioning adequately against their problem loans and then expanded their lending to conceal or to overcome their bad loans.

There is significant evidence that *ab initio* private banks expand their real loans to customers less rapidly than do privatised banks. The estimated coefficients on the dummy variable for *ab initio* private banks are negatively signed and statistically. The coefficient values indicate that newly establish banks expand their real loans by on average by 3 to 4 percentage points less per annum than do privatised banks, other things being equal. This result stands in sharp contrast to a robust finding in the analyses of enterprise performance in transition economies that *ab initio* private firms in industry and nonfinancial services grow significantly faster than do either privatised or state-owned enterprises (see, for example, Djankov and Murrell (2000) and Carlin, Fries, Schaffer and Seabright (2001)). One interpretation of the finding for enterprises is that market selection has a strong effect on the performance of firms that remain in the market. In other words, the ability to enter and survive in the market is strongly associated with strong performance, at least as measured by growth. However, there is no evidence of such a market selection effect in transition banking. This may reflect the fact that the panel of banks allows for the entry and exit of banks from the sample, whereas the many cross-sectional studies of enterprises suffer from survivorship bias in the sample. It may also reflect the fact that the regulation

of bank entry through the application of minimum capital requirements and licensing tests and the exit of failed banks from banking systems through bankruptcy have not functioned well in many transition economies.

There is weakly significant evidence that state-owned banks expand their real loans to customers less rapidly than do privatised banks, but more rapidly than do *ab initio* private banks. The estimated coefficients on the dummy variable for state-owned banks is negatively signed and statistically significant in some – but not all – the regression equations. The coefficient values indicate that state-owned banks expand their real loans on average by 2 to 3 percentage points less per annum than do privatised banks, other things being equal. This finding suggests that banks which remain state-owned have tended to lose their loan market share over time to privatised banks, albeit gradually.

Table 3.

Real Growth in Bank Loans to Customers: Panel Estimation Results for Countries and Years in High Reform States

Explanatory variables	**Equation 1** Fixed Effects	**Equation 2** Random effects	**Equation 3** Fixed effects	**Equation 4** Random effects
Real GDP growth (in per cent, lagged one year)	0.88***	0.83***	0.96***	0.90***
	(3.32)	(3.67)	(3.59)	(4.05)
General government balance (in per cent)	0.11	0.16	0.09	0.01
	(0.31)	(0.57)	(0.26)	(0.64)
Total assets (in millions of US$)	-0.32*	-0.33*		
	(-1.91)	(-1.68)		
Deposit market share (in per cent)			-0.001	0.01
			(-0.02)	(0.17)
State-owned banks (dummy variable)	-1.92	-1.91	-2.56*	-2.58**
	(-1.36)	(-1.52)	(-1.77)	(-2.11)
Ab initio private banks (dummy variable)	-3.58**	-3.40***	-2.98*	-2.70**
	(-2.16)	(-2.65)	(-1.81)	(2.12)
Foreign-owned banks (dummy variable)	0.10	0.16	0.61	0.68
	(0.06)	(0.13)	(0.34)	(0.56)
Equity/total assets (in per cent, lagged one year)	0.24***	0.24***	0.17***	0.17***
	(4.38)	(8.06)	(4.18)	(5.12)
Croatia (dummy variable)	3.73**		4.21***	
	(2.33)		(2.74)	
Czech Republic (dummy variable)	4.77**		3.49*	
	(2.13)		(1.72)	
Estonia (dummy variable)	3.01***		2.74***	
	(2.91)		(2.63)	
Hungary (dummy variable)	0.31		-0.80	
	(0.18)		(-0.52)	
Latvia (dummy variable)	13.09***		12.88***	
	(6.20)		(6.12)	
Lithuania (dummy variable)	8.40***		7.29***	
	(3.38)		(3.07)	
Poland (dummy variable)	0.71		0.22	
	(0.55)		(0.18)	
Slovak Republic	0.77		0.63	
	(0.46)		(0.39)	
Constant	-2.72*	2.34	-2.41*	1.21
	(-1.79)	(1.60)	(1.66)	(0.57)
Number of observations	895	895	879	879
R-squared	0.18	0.10	0.16	0.07

Note: The dependent variable is real growth in outstanding loans to customers expressed in per cent, where nominal loans are deflated by the consumer price index. The numbers in parentheses are t-statistics (fixed-effects model) or z-statistics (random effects model) calculated on the basis of robust standard errors. A *** denotes statistical significance at the 1 per cent confidence level, ** at the five per cent level and * at the 10 per cent level. The shaded columns indicate the preferred model specification as indicated by a Hausman test.

There is no significant evidence that majority foreign ownership of banks is associated with higher – or lower – rates of loan growth. Foreign banks on average expand at the same rate as privatised or *ab initio* private banks. Majority foreign-owned banks might be expected to demonstrate superior performance, given their access to advanced technologies and banking skills. The absence of superior performance in terms of real growth in customer loans may reflect the fact that foreign-owned banks do not necessarily have an informational advantage in assessing the credit worthiness of local lending opportunities relative to domestic banks. This may be particularly true for lending to small and medium-sized enterprises, which are a key source of economic growth in transition economies (see again, Djanko

Table 4.

Real Growth in Bank Loans to Customers: Panel Estimation Results for Countries and Years in Low Reform States

Explanatory variables	**Equation 1** Fixed Effects	**Equation 2** Random effects	**Equation 3** Fixed effects	**Equation 4** Random effects
Real GDP growth (in per cent, lagged one year)	0.10	-0.04	0.07	0.07
	(0.41)	(0.03)	(0.21)	(0.07)
General government balance (in per cent)	0.03	0.04	0.11	0.11
	(0.03)	(0.02)	(0.14)	(0.06)
Total assets (in millions of US$)	-1.60	-0.95		
	(-1.19)	(-0.21)		
Deposit market share (in per cent)			0.17	0.17
			(0.18)	(0.19)
State-owned banks (dummy variable)	-2.54	-1.86	-4.77	-4.77
	(-0.28)	(-0.10)	(-0.32)	(-0.26)
Ab initio private banks (dummy variable)	-4.29	-3.21	-3.39	-3.39
	(-0.52)	(-0.21)	(-0.61)	(-0.22)
Foreign-owned banks (dummy variable)	37.17	37.72*	38.06	38.06*
	(0.95)	(1.86)	(0.96)	(1.89)
Equity/total assets (in per cent, lagged one year)	0.02	0.02	0.02	0.02
	(0.92)	(0.57)	(0.38)	(0.34)
Constant	11.48	2.34	10.59	10.59
	(0.91)	(1.60)	(1.33)	(0.63)
Number of observations	579	579	572	572
R-squared	0.01	0.01	0.01	0.01

Note: The dependent variable is real growth in outstanding loans to customers expressed in per cent, where nominal loans are deflated by the consumer price index. The numbers in parentheses are t-statistics (fixed effects model) or z-statistics (random effects model) calculated on the basis of robust standard errors. A *** denotes statistical significance at the 1 per cent confidence level, ** at the five per cent level and * at the 10 per cent level. The shaded columns indicate the preferred model specifications as indicated by a Hausman test. In the fixed effects model, the country specific intercept terms are jointly insignificant and therefore dropped from the estimation.

and Murrell (2000) and Carlin, Fries, Shaffer and Seabright (2001)). Nevertheless, majority foreign-owned banks may exhibit relatively strong performance along other dimensions. For example, Fries, Neven and Seabright (2001) find that, for the same sample of banks, majority foreign-ownership is significantly and positively associated with greater cost efficiency and bank profitability.

Table 2 reports the estimation results for the subsample of low-reform countries and years. These results stand in sharp contrast to those for the high-reform subsample. None of the estimated coefficients is significantly different from zero, with the exception of the majority foreign ownership variable. This suggests that the real growth of bank loans where there has been little progress in banking and enterprises reforms is not strongly associated with the demand and supply factors that could be expected to influence the growth of bank lending in a market economy, apart from the entry of foreign banks into the market. The estimated coefficients on this variable are correctly signed and weakly significant in some regression equations, although the estimated parameter values are high. The estimates indicate that banks with majority foreign ownership expand their real loans on average by of 35 to 40 per cent more per annum than do other banks. This result raises serious concern about the functioning of banking systems where progress in reform remains limited, particularly in Belarus, Russia and Ukraine among the countries covered by this analysis. Any expansion of bank lending in this environment appears to be significantly influenced by nonmarket factors, including possible government interference.

5. Conclusions and policy implications

A key findings of the analysis of the determinants of real growth in bank lending to customers is that progress in banking and enterprises reforms is the *sine qua non* of the sound development of banks. There is no gain in terms of banking development from the delayed implementation of banking and enterprise reforms and bank privatisation. Rather, comprehensive reforms are fundamental to development of a sound, market-oriented banking sector.

Even where banking reforms have advanced, however, banking development remains stunted. The real expansion of customer loans has failed on average to keep pace with output growth, while general government deficits may have crowded out some customer lending – at least according to aggregate data. While banking development has been relatively slow, there is significant evidence that privatised banks are expanding their customer loans at more rapidly than are state-owned and *ab initio* private banks. This suggests that the restructuring and privatisation of state banks has been an important step in banking development. Moreover, there is strong evidence that banking regulation and supervision, in particular capital adequacy requirements, are helping to establish a sound foundation for the expansion of customer loans. These efforts must be sustained and intensified. To this extent, the so-called Washington consensus on banking reform has succeeded.

Some variables expected to be associated with the supply response of banks, nevertheless, do not perform as expected. In contrast to extensive evidence on enterprise performance in transition economies, *ab initio* private banks do not grow more quickly than privatised or state-owned banks. In fact, they expand their real customer loans more slowly than do other types of banks. This may reflect inadequate regulatory control of entry into and exit from the banking sector. Although minimum capital and bank licensing requirements have been strengthened significantly in recent years in many transition economies, approaches to the resolution of failed banks remain often highly politicised and haphazard. A priority for both researchers and policy makers alike is to develop more cost-effective mechanisms for the resolution of failed banks and to strengthen the market selection mechanism in banking (see, for example, Aghion, Bolton and Fries (1999)).

Evidence also indicates that on average foreign banks expand their real loans to customers at the same pace as privatised and *ab initio* private banks, even though they have potential access to superior technology and banking skills. This may be due to an informational disadvantage in serving local market or, possibly, to artificially imposed barriers to their expansion. It is therefore important to foster development of institutions that improve access for all potential entrants into the banking market to information about the creditworthiness of potential borrowers, such as credit rating agencies, and that both foreign and domestic banks receive the same regulatory treatment. In addition, in those countries where banking and enterprise reforms continue to lag, foreign banks can contribute significantly to banking development, particularly where confidence in domestic institutions remains low.

Taken together, this evidence indicates not only to the success of banking and enterprise reforms and of restructuring and privatisation of state banks, but also to the need to strengthen the supply response of banks in transition economies. Measures that focus on strengthening the supply response of banks are essential complements to the Washington-consensus reforms and they include the more effective regulation of the entry and exit of banks, the commercial provision of information about the creditworthiness of potential borrowers and removal of obstacles to the expansion of foreign banks. It is also important to recognise that many profitable lending opportunities in transition economies are with small and medium-sized enterprises, which tend to show stronger growth performance than to privatised or state-owned enterprises. Measures aimed at building capacity for lending to small and medium-size enterprises could therefore accelerate the process of banking development. For example, the banking sector activities of the EBRD include facilities for local banks that are specially designed to provide finance for small and medium-size enterprises and to build the operational capacity for such lending activities.

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