Structure of Banking Systems in
Developed and Transition Economies

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INTRODUCTION

Modern banking institutions were virtually non-existent in the planned economies of central Europe and the former Soviet Union. In the early transition period, banking sectors began to develop during several years of macroeconomic decline and turbulence accompanied by repeated bank crises. However, governments in many transition countries learned from these tumultuous experiences and eventually dealt successfully with the accumulated bad loans and lack of strong bank regulation. In addition, rapid progress in bank privatization and consolidation took place in the late 1990s and early 2000s, usually with the participation of foreign banks. By 2005, the banking sectors in many transition countries had developed sufficiently to provide a wide range of services with solid bank performance. Recently, banks have switched their focus from lending to enterprises in a somewhat underdeveloped institutional environment to new collateralized lending to households, which accounts for much of the recent growth of credit in many transition countries.

The structure of a country’s banking system should evolve to a form that efficiently provides banking services, given the distinctive economic, demographic, financial, and geographic features of the country. Three main categories can be identified as:

1. Payment system services, which relate to the circulation of currency and the provision of demand deposit accounts and other forms of third party transfer.
2. Intermediation services, which expedite the transfer of financial resources from savers (who hold bank deposits) to investors (who take out bank loans).
3. Investment banking services, which may range from selling and managing mutual funds to providing financial services to firms.

In an efficient banking system, each of these services will be supplied up to the level at which the marginal benefit to bank customers equals the marginal cost to the bank of providing the service. This requires, of course, that the prices for bank services be set in free and competitive markets. Otherwise, banks with substantial market power may provide too few banking services, and banks constrained by regulations may provide too many banking services. Although bank competition in developed countries might not
always be characterized as vigorous, they are highly competitive relative to banking systems in developing countries.

Banking in the transition countries is particularly interesting because banks played no economic role in planned Soviet-style economies while financial sectors in most transition countries are now dominated by banks rather than equity markets. Hence in our study, we begin with the first phase of transition banking, an overview of the emergence of banking sectors from the planned economies. The birthing process was hardly smooth; it took place amidst massive macroeconomic collapse and considerable economic uncertainty. Not surprisingly, these nascent banking sectors experienced crises ranging from serious bad loan problems to total collapse.

The next section deals with the responses to the bad loan problem, the process of bank privatization, and the development of the necessary regulatory framework. The following section characterizes the second phase of transition banking, the remarkably rapid emergence of more mature banking institutions that are largely privatized with a dominant role played by foreign banks. Banking sectors in many transition economies developed and now look little different from their counterparts elsewhere except for the distinctive high percentage of foreign ownership.

The third phase of transition banking coincides with the financial crisis and global recession starting in 2008. The crisis tested the resilience of new institutions and regulatory structures and brought the issue of foreign ownership to the fore. The advantages of foreign ownership as a conduit for good banking practice is actively being weighed against the disadvantages associated with the international transmission of financial shocks. All in all, these banking sectors are not immune to problems and do not always provide sufficient impetus for economic development, which is problematic because most transition economies have bank-dominated financial sectors.

Our last section provides us with a statistical analysis of the development of the transition countries by calculating appropriate benchmarks from developed countries.
EMERGENCE OF BANKING INSTITUTIONS IN EARLY STAGES OF TRANSITION ECONOMIES

Banking sectors in the European transition economies were relatively underdeveloped compared with the real economies in these countries due mainly to the legacies of the pre-transition centrally planned economy. As examples of real sector development, Czechoslovakia had a relatively modern automobile industry, Hungary produced buses, and Bulgaria made computers and software for use within the Soviet bloc. However, in the planning framework capital was allocated through a system of directed credits to state-owned enterprises (SOEs) for both investment needs and budget allocations for the working capital necessary to meet the output plan. Credit evaluation and risk management were virtually absent in lending decisions. Cash issuances by enterprises were based on planned wage bills that were calibrated to the expected aggregate value of consumer goods sold to households at administered prices. Money was entirely passive in that it was used solely as a unit of account in enterprise transactions and as a medium of exchange between households and the state distribution sector. Household savings were collected by a state savings bank that operated an extensive branch network throughout the country.

Pre-transition banking sectors typically included a foreign trade bank that handled all foreign currency transactions in order to isolate these from the domestic financial system and often contained separate specialty banks to oversee the financing of the agricultural and construction sectors. In this environment, banking was segmented along functional lines and credit allocation was entirely subservient to the plan. Hence, structural segmentation, state control of banking activities, and high concentration ratios are the major legacies inherited from the planning period by the banking sectors in the European transition economies. Despite these commonalities, important differences among the experiences of countries both prior to and during the transition period yield unique characteristics. As an example, we begin with a brief discussion of banking in the SEE transition countries that were former republics of Yugoslavia because their sectors
inherited somewhat special legacies. We continue with a consideration of the initial developments in banking during the first half decade of the transition followed by a more detailed look at several European transition countries. This section concludes with a discussion of foreign bank participation in the early transition years.

In the 1950s, Yugoslavia established a two-tier banking system with a traditional central bank located in Belgrade and republic-level commercial banks. Banks were owned under the Yugoslavian system of self-management. Because Yugoslavia was a small, open economy, commercial banks made a significant number of loans denominated in foreign currency throughout the 1980s. However, these republic-level banks were required to remit most of their foreign exchange deposits to the NBY in exchange for credits in dinars. Hence, the balance sheets of republic-level banks exhibited a serious currency mismatch between assets and liabilities by the late 1980s. Upon the secession of Croatia and Slovenia in 1991, the NBY froze the forex deposits of the republic banks in these two countries creating large holes in their balance sheets. Although the legacies of segmentation and state-ownership found in the banking sectors of CEE transition economies were not initially present in Croatia and Slovenia, high concentration ratios and a substantial accumulation of problem loans were important legacies from the Yugoslavian past. Government rehabilitation policies that were designed to deal with bank insolvency led to the nationalization of most banks; hence, state-owned banks were created at the beginning of the transition in Slovenia and Croatia.

The first step in banking structure reform for most transition economies involved the creation of a two-tier system with commercial activities carved out of the portfolio of the national mono bank. The top tier consists of a traditional central bank that was charged with pursuing monetary policy, including exchange rate policy, and was given responsibility for supervising and monitoring the nascent banking sector. The second tier consists of the newly created state-owned commercial banks (SOCBs), the state-owned specialty banks, which themselves morphed into SOCBs, any operating foreign and joint-venture banks, and all private domestic banks, including those that entered after the political change. As a rule, lax entry requirements led to the creation of many new private
banks, some of which were of dubious quality, or even fraudulent, and virtually all of which were severely undercapitalized. In the former republics of Yugoslavia, this entry occurred well prior to transition, in the late 1970s, when the establishment of many internal company banks led to excessive numbers of small unhealthy and undercapitalized banks. Hence, the seeds for a banking crisis were planted at the beginning of the transition, or even before, in virtually all transition countries due partly to the adoption of lax entry requirements with the intent of fostering competition for state-owned banks in highly segmented banking sectors. Moreover, the nascent regulatory systems were overwhelmed by the mismatch between their capabilities, which were severely restricted by a lack of human capital, and their mandates provided by quickly adopted standard financial rules and regulations, especially given the inherited loan portfolios of the SOCBs.

Although each country’s financial restructuring program involved hiving off the commercial bank portfolio of the national bank to establish the two-tier system, different approaches were taken toward the creation of SOCBs, all of which were established initially as wholly state-owned joint-stock entities. In Hungary, the commercial portfolio was divided along sectoral lines, e.g., industry, agriculture, and infrastructure plus the nascent small business sector, to create three SOCBs. In Poland, the commercial portfolio was divided along regional lines to create nine SOCBs from regional offices of the national monobank. The commercial portfolio of the Czechoslovak national monobank was separated into two parts regionally to create two SOCBs, a Czech and a Slovak one. After the Velvet Divorce, each new country had a single large SOCB. Similarly, in Romania, only one SOCB was created from the entire commercial portfolio of the national monobank. All CEE countries and Russia had specialty banks that obtained universal banking licenses and, thus, became SOCBs after the transition.

At the opposite extreme, full separation of all commercial activities from the Bulgarian national bank’s balance sheet occurred in 1990 when each of its 145 branch offices was granted a universal banking license that allowed it to pursue commercial business either as an individual entity or in combination with other branches. Again, the intent of this
policy was to foster competition. As a result, 59 SOCBs were formed and, in 1992, the Bank Consolidation Company was established to oversee and orchestrate the eventual consolidation of the Bulgarian banking sector by the government. By 1995, 41 banks were operating in Bulgaria and the two largest SOCBs were the former state foreign trade bank and the former state savings bank.

In Russia, then the Soviet Union, the two-tier banking system was established in 1987 with the separation of all commercial bank functions from the national monobank and the creation of sectoral banks by enterprises or former branch ministries. As in Bulgaria, branches of the national bank became independent entities and then regrouped into larger banks. In addition, new entry into Russian banking was dramatic. By 1995, about 2,300 banks were licensed and operating in Russia. Most of the newly created banks were small and poorly capitalized. Some of them were merely internal or house banks owned by industrial enterprises.

Policies toward foreign bank participation, both in establishing subsidiaries and in purchasing equity stakes in SOCBs, differed considerably across the transition countries. In some countries, policies that invited entry, e.g., providing tax holidays, encouraged Greenfield foreign operations. In others, licensing was restrictive and foreign banks were limited to taking minority stakes in SOCBs or to participating in the resuscitation of ailing smaller domestic banks. Most governments viewed foreign participation in the banking sector initially as a vehicle for importing banking expertise and training to augment the scarce domestic human capital in the sector. Even before the political change, the Hungarian government pursued a liberal licensing policy toward foreign financial institutions. The Central-European International Bank Ltd. was founded as an off-shore joint-venture bank by six foreign banks and the Hungarian National Bank in 1979; in 1986, Citibank Budapest Ltd. began operations as a foreign-majority-owned, joint-venture bank. By 1995, foreign-owned financial institutions held over one-third of banking assets in Hungary due in large part to the privatization of two SOCBs to foreign owners and a similar percentage in Slovakia which opened up to foreign bank penetration rapidly after the Velvet Divorce. In contrast, the Czech Republic and Poland restricted
new licenses for foreign Greenfield operations and invited foreign owners to take only minority equity positions in existing banks. These governments followed a more protected strategy, taking an infant industry approach according to which domestic banks are nurtured to become strong enough to fend off foreign competition when it arrives. By 1995, only about 16% and 4% of the banking assets in the Czech Republic and Poland, respectively, were owned by foreign financial institutions.

For the most part, governments in transition countries succeeded in establishing the foundations for building commercial banking sectors early in the transition period. However, developing efficient banking structure required the completion of three interrelated tasks namely, the resolution of non-performing loans, the privatization of the SOCBs, and the establishment of effective regulatory institutions. By 2000, the foreign asset share in most of the CEE and SEE as well as in the Baltic States exceeded 65%. The other FSU countries, Russia and the Ukraine, were the notable exceptions along with Slovenia, which disallowed foreign ownership, and Serbia, which was still relatively unstable.

**DEVELOPMENT OF MODERN BANKING STRUCTURE**

As described in the previous section, the typical banking sector in a transition economy consisted initially of state-owned banks that were carved out of the planned economy structure along with newly established small private domestic banks. Some countries began to privatize the large SOCBs quickly and also opened up to foreign bank entry early in the transition. However, the creation of market-based legislation and institutions did not lead automatically to good banking practices. To the contrary, the SOCBs and the newly created banks often did not behave like proper commercial banks due to distorted incentives.

First, the SOCBs continued to maintain banking relationships with their large clients, i.e., state owned enterprises (SOEs). Such lending was either politically mandated or simply the result of long-standing relationships between clients having little experience in
choosing viable projects and banks unable to evaluate the risk of loans. Second, in many countries, fresh banks were created without adequate regulatory oversight. As a result, some fresh banks were used to channel loans improperly to their owners, many of which were enterprises so that these banks acted as pocket banks for their owners. Entry requirements for fresh domestic banks were initially very lenient because policy was based on the mistaken notion that competition would be enhanced by easy entry. The proliferation of new, often undercapitalized, banks placed an added burden on an underdeveloped regulatory structure. Although most countries adopted modern banking and regulatory legislation immediately, effective supervision did not follow automatically due partially to the scarcity of knowledgeable staff.

Not surprisingly, bad loans were a serious problem for all transition economies due partly to the inherited legacies but also to continuing lending practices. The ratio of non-performing loans to total loans in 1995 averaged 27.2% in the four CEE countries. The reported ratio in 1995 was smaller for the SEE countries with the notable exception of Romania. However, information about the performance of borrowers in a rapidly changing environment is revealed only slowly under the best of circumstances so that these measures are only illustrative of the serious overall problem of bad loans that were only revealed when banking Most governments responded to failing banks with efforts to save them from closure by recapitalization and the removal of bad loans from their balance sheets. For small insolvent banks, mergers with state-owned banks were used commonly. Repeated problems were inevitable because recapitalizations addressed only the stock of existing bad loans.

In the absence of independent market-oriented banking institutions, the flow of new bad loans continued to accumulate. Regulators did not have proper incentives, the requisite expertise, or sufficient independence to cope with this problem. To some extent the bad loan problem was unavoidable because transition recessions and the dissolution of trading relationships within the Soviet bloc generated severe real sector shocks that were mirrored on the balance sheets of the banks. Nonetheless, even though the roots of this problem were difficult to resolve, the average ratios of non-performing loans to total
loans fell sharply.

The Hungarian government began to clean up the portfolios of its banks in the early 1990s when it enacted strong bankruptcy laws, new accounting regulations, and a new banking law. At the time, the Hungarian government provided guarantees to cover a portion of the debts of SOEs. However, firms continued to accumulate debts in arrears so that a second policy to address bad loans was introduced in 1992. The government replaced non-performing loans on bank balance sheets with government securities and transferred these assets to a government collection agency. Further recapitalizations introduced an element of moral hazard into the banking relationship. The situation changed when the authorities began to pursue an aggressive strategy of selling controlling stakes of the large SOCBs to foreign investors, signaling a credible commitment to no further bailouts. However, such a privatization strategy was not without difficulties as exemplified by an early transaction. The sale of a controlling stake in Budapest Bank, the third largest SOCB in Hungary, to GE Capital in 1995 was controversial because the buyer was given the right to off load bad loans that were uncovered after the sale. Nonetheless, the banking expertise and discipline imposed by foreign owners of the three major SOCBs in Hungary led to rapid improvements in the banking environment. By the end of the 1990s, the Hungarian banking sector was well capitalized, loan quality had improved, claims on the state were a declining share of bank assets, bank staffing declined, bank margins narrowed and, incidentally, bank regulation improved markedly.

The government in the Czech Republic developed an explicit and detailed plan for privatization of most state-owned institutions, including SOCBs, using vouchers rather than direct sales. Initially in 1991, bad loans were removed from bank balance sheets and replaced with government bonds while the bad assets were taken over by a newly established hospital bank, Konsolidacni Bank. Placing a minority stake of bank stock in the voucher program privatized these resulting recapitalized large SOCBs. However, non-state ownership of these partially privatized banks was dispersed with the largest stakes held by bank-related investment funds. Furthermore, the bank-related funds held ownership interests in their unstructured industrial clients so that the large banks
continued to lend to SOEs, which resulted in more bad loans. Hence, the key problems in the Czech Republic were interconnectedness between banks and their clients resulting from voucher privatization and the lack of independence of bank governance from a state holding controlling stakes in the banks. As a result, the resolution of bad loans required several rounds of recapitalization by the government, which increased the state’s stake further and necessitated a second round of privatization. In this final round, foreign investors were allowed to take majority stakes in the large Czech banks and bank behavior changed accordingly. The continuing efforts to restructure the Czech banks over the first decade of transition were expensive with total costs amounting to more than 25% of 1998 GDP.

In other countries, banking structure crises reached systemic proportions and severely impeded the overall transition to a market economy. In Bulgaria, weak bank governance and poor regulation of the many small SOCBs created from the commercial portfolio of the original mono bank resulted in considerable asset stripping and insider lending. In addition, the macroeconomic shock of transition in Bulgaria was severe; in 1996, real GDP declined by 10%. Repeated rounds of recapitalization of banks resulted in a total cost to the government at 42% of 1998 GDP, which made the Bulgarian banking crises one of the most costly of all transition countries. A currency board introduced in 1997 restored macroeconomic stability in Bulgaria and the banking system was rationalized quickly thereafter. In Romania, the dominant SOCBs accumulated large portfolios of bad loans and also required massive capital injections from the government. Non-performing loans peaked at 58% in 1998. In both of these SEE countries, severe macroeconomic shocks led to serious banking and sustainable economic growth resumed only after these crises were resolved.

After a decade and a half of transition, privatization of SOCBs is largely completed in CEE and SEE, although the situation is different in many countries emerging from the former Soviet Union. As the Czech and Hungarian experiences indicate, the privatization process differed considerably across the European transition countries. In Poland, the first bank privatizations utilized a combination of domestic initial public offerings (IPOs) and
tenders to sell non-majority stakes to a strategic foreign investor. The Polish stock market was not very large; trading was not very extensive and bank stocks were the largest issues traded. Thus, bank IPOs were difficult to price and accusations of market manipulation lead to the political defeat of one of the early governments. The new government developed a bank consolidation program as an alternative approach to privatization and attempted to force mergers and acquisitions of banks but not without controversy. In one case, the attempt to include an already partially privatized bank (BPH) in the program caused a public uproar. Delays in privatization followed; almost a quarter of Polish bank assets remained in state hands as late as 2005. The two large banks that were still state-owned in that year, PKO (Zloty Savings Bank) and BGZ (Agricultural Bank), had not participated in either consolidation or the privatization program.

Most of the later bank privatization programs in Romania, Bulgaria, Croatia, and the Czech Republic involved negotiated deals between the government and a single foreign bank, sometimes after a tender. In most transition countries, state ownership basically disappeared over a five-year period around the turn of the century. For the four CEE countries, average assets in state-owned banks were 27.1% of the total in 2000 and 5.9% five years later. For the four SEE countries, the average was 45.6% in 2000 and 8.0% in 2005. However, both the method, e.g., attracting a strategic foreign investor, and the timing of privatization matter to bank performance.

The surprising aspect of banking in the transition countries is not the depth of the crises after the end of communism but the speed with which financial restructuring took place subsequently. The rapid changes in the last decade can be attributed to two related phenomenon. First, the desire of European transition countries to qualify for EU membership was a strong force for reform, not only in the eight original transition accession countries but also in the later joiners and in countries still hoping to join. Thus, improvements in bank regulation and investments in the banking sector took place rapidly. Second, the prospect of EU membership (and ultimately the adoption of the Euro) made these under-serviced banking markets attractive to European banks once macroeconomic stability was attained and reasonable regulations were in place. However,
the governments in many transition countries were reluctant to allow foreign ownership for all the common arguments that attempt to show that foreign direct investment (FDI) in banking, unlike all other FDI, is dangerous. The usual claims that foreign-owned banks would facilitate capital flight and fail to provide credit for local economic development were made. As noted earlier, Hungary was the exception in that foreign banks were allowed to operate even before the transition and SOCBs were sold to foreign investors early in the transition. However, other transition governments took longer to realize that privatization to foreign buyers is not only a source of revenue but also a means of improving bank performance.

The proportion of assets in foreign-owned banks rose from virtually zero in the early 1990s to more than half in most countries a decade later. By 2005, the average share of assets in foreign-owned banks was 84.5% in the four CEE countries and 61.9% in the four SEE counties. In most cases, privatization by itself was not sufficient to improve bank performance; rather joint ownership with foreign strategic investors was the crucial determinant in behavioral change. The FSU countries are an exception; foreign banks are not a major factor in Russia or in any other former Soviet republic, except for the Baltic countries. To some extent, this outcome follows from banking regulations that inhibit foreign entry and from reluctance on the part of many governments to accept foreign dominance of the banking sector. For example, although Russia has relaxed its limits on the overall size of the foreign banking sector, it sets minimums for the number of Russian employees and board members in foreign banks. In addition, unstable supervisory environments and weak legal protection have deterred foreign interest in such investments. The characteristics of banking in Russia differ considerably from patterns found in CEE and SEE. In addition to three dominant SOCBs, Russia has a large number of mostly very small private commercial banks and many pocket banks having industrial owners. Some of these banks were involved in speculative activity and many were insolvent when the Russian government defaulted on its debt in 1998. At the time, weak bankruptcy laws and poor regulation made it difficult to close institutions so that the managers or owners were able to strip banks of any remaining good assets. The severe crisis in the banking sector did not have too large an impact on the real economy because
the credit to GDP ratio was considerably lower in Russia than such ratios in the CEE transition countries and cash was used widely for transactions throughout the FSU. Exacerbating the economic crisis in 1998 was uncertainty about the economic and legal environment.

Since the crisis, the Russian banking sector has shown some signs of improvement. In addition, the influence of foreign banks is increasing as three foreign-controlled banks (including Citibank) are among the 15 largest banks in Russia. Moreover, financial intermediation has increased, as the bank asset to GDP ratio is double its level before 1998, though still lower than in the European transition countries. Nonetheless, some of the private banks still operate as private financial services institutions for their energy-sector owners and provide little overall intermediation. The banking system is still fragmented with many small and poorly capitalized institutions characterized by poor governance, inadequate risk management and high operating costs. Although deposits have increased, household savings are still largely held in the state savings bank, Sberbank, or in cash. Sberbank and Vneshtorgbank, the former foreign trade bank, have begun to provide credit to the private sector even though the government has no current plans to privatize either of these SOCBs. Sberbank was the dominant bank in Russia holding more than 25% of all banking assets at the end of 2005. The next two largest banks in Russia were also SOCBs; Vneshtorgbank had about 7% market share and Gazprombank had 4.5% market share. At that time, no other Russian bank had a market share above 2.4%.

In all countries, successful restructuring and privatization in the financial sector depend on the establishment of an effective institutional and legislative infrastructure to support proper regulation. In addition to developing an arms-length legislative framework for banking regulation and supervision, bankruptcy laws and international accounting standards are required to change the behavior of economic agents who are accustomed to operating in a non-market environment. Moreover, training of bank supervisors and other types of professional human capital development are needed to promote effective implementation of the legislation. Although the basic legal framework for modern
banking was established early in the transition, additional related elements that are crucial for its effective functioning took more time to develop. In particular, a modern banking sector needs a functioning credit information system, which includes a credit registry and ratings agencies, and a reliably functioning court system to mediate contract disputes. Hungary took the lead among the transition countries in promoting such institutional development with a legislative shock therapy program in 1992. In January, the government promulgated new, modern banking legislation, instituted international accounting standards, and revised its bankruptcy law to include a draconian trigger that resulted in a large number of company insolvencies. In addition, Poland developed a computer-supported system of bank oversight at the beginning of the transition and had in place rather stringent bankruptcy legislation for private firms even before the political change. Other countries took considerably longer to address these problems and, as a consequence, bank restructuring and privatization took longer to complete.

**MATURATION OF TRANSITION BANKING STRUCTURE**

The distinctive characteristic of the rationalization of banking sectors discussed in virtually all transition countries is the rapid emergence of foreign-dominated ownership. The asset share of foreign-owned banks was less than 50% in 1999 in all ten of the countries listed, except for Hungary and Poland. By 2005 the Russian and Slovenian banking sectors exhibited such a small level of foreign participation. The asset share of foreign-owned banks in CEE and SEE countries is now among the highest of any banking sector in the world with Croatia, the Czech Republic, and Slovakia recording percentages above 90% and Hungary not far behind at 84% in 1995. In addition, Serbian banking experienced a remarkable transformation over a five-year period; foreign ownership increased from a negligible amount in 2000 (0.5%) to 66% in 2005. Russia and Slovenia remain outliers on this measure with foreign participation at only about 11% and 23%, respectively, in 2005. However, the asset share of state-owned banks was lower in Slovenia at 12% than in Russia (38%), Serbia (24%), and Poland (21.5%). Hence, Slovenia appears to be an anomaly among European transition economies with respect to the ownership structure of its banking sector.
Regarding the pace of restructuring, the results from 1995 to 1999 are mixed. The EBRD index of banking reform increased for six of the countries but it actually decreased for Russia and Romania with no change in the index recorded for Serbia and Slovakia. By 1999, only Hungary had a rating of 4.0 on a scale from 1.0 to 4+, where the highest score reflects full convergence to performance norms and regulation standards of advanced industrial economies. By 2005, the Czech Republic and Croatia joined Hungary with scores of 4.0 while six of the seven other countries recorded an increase in the index from 1999. Hence, banking sectors in most transition countries had reached, or were rapidly approaching, their counterparts in developed market economies with one major difference, namely, an extremely high foreign bank presence. Russia and Slovenia were considered as the outliers on both counts.

Based on the legacy of segmented sectors and exacerbated by consolidation programs, banking concentration is high in most transition countries. In 2005, the three-firm concentration ratio ranged from a high of over 65% in the Czech Republic to about 33% in Bulgaria, with six of the ten countries listed in Table 3 having a ratio above 40%. Moreover, the five-firm concentration ratio in all SEE countries was 50% or above. Only Poland and Russia had five-firm ratios below this threshold. However, high concentration ratios have not prevented competition from developing in many of these banking sectors. As Table 4 indicates, interest rate spreads declined considerably since the beginning of the transition, which may be attributable more to reduced risk in the macroeconomic environment than to increased banking competition.

Considerable differences exist among countries with respect to interest rate spreads. In 2005, Hungary had the lowest spread while Romania and Serbia still had spreads above 10%. Of these ten countries, only Hungary, Slovakia, and Slovenia had average spreads from 2001 to 2005 under 5%, which we take to indicate a reasonably competitive banking sector. Interestingly, the Czech Republic, Croatia, and Poland had lower average inflation rates during this period but higher interest rate spreads. By 2005, Bulgaria joined the countries having interest rate spreads below 5%. Of these four countries, Croatia and Slovenia have relatively high three-firm concentration ratios at over 50%. 
Regarding foreign participation in the banking sector, Slovenia is the outlier with less than 23% of assets in foreign-owned banks in 1995. Moreover, the Czech Republic and Poland have high percentages of banking assets in foreign banks and low inflation rates but relatively high interest rate spreads. Thus, the experiences of the European transition countries indicate that neither high foreign participation in the banking sector nor low inflation is a sufficient condition for competitive interest rate spreads.

The ratio of bank deposits to GDP is a measure of both banking sector development and public confidence in the banking system. We find considerable differences across countries in this ratio and in its changes from 1999 to 2005. In the Czech Republic and Slovakia, the ratio of bank deposits to GDP was fairly high in 2005 although it had decreased considerably since 1999, which may suggest some decline in public confidence. In Croatia, the ratio of bank deposits to GDP increased dramatically to the highest of any of the ten countries by 2004, which reflects both a credit boom and increased confidence in banks. The 2005 ratios for Hungary, Romania, and Russia show modest growth of around five percentage points from 1999 while Poland experienced virtually no change in this ratio. Both Bulgaria and Serbia experienced considerable increases in deposits to GDP from 1999 to 2005. Public confidence in banks is important to a well-functioning banking system in any transition economy. Based on the ratio of deposits to GDP, the evidence is mixed but the laggards are improving rapidly.

According to the EBRD Transition Report of 2006, the banking sectors of transition economies have exhibited considerable growth and diversification since 2000, although further progress in financial deepening is considered to be both feasible and desirable. On the lending side, four of the ten transition countries experienced increases in the ratio of loans to GDP of more than 20% from 1999 to 2005. Ratios in 2005 (or 2004 when indicated) in Slovenia and Croatia were around 56%, which equaled the worldwide average of domestic credit to the private sector as a percent of GDP. Hungary at about 45% and Bulgaria at about 35% have the next highest ratios. Of the other six transition countries, only Slovakia had a ratio of loans to GDP above 30% by 2005 with the other five between 21% (Romania) and 28% (Czech Republic and Poland). As a further basis
for comparison, the EU average for this measure of financial depth was 86% in 2005. Hence, even the four leading transition countries are well below the EU average in providing credit to the private sector.

In the same document, the EBRD reports that the share of loans to households increased sharply in CEE and SEE countries with much of the increase due to mortgage lending. By 2005, domestic credit to the household sector as a percent of GDP ranged from a high of over 34% in Croatia to less than 10% in Romania, Russia, and Serbia. Retail credit accounted for well over half of all loans in Croatia and around half of the total in the Czech Republic and Poland. Mortgage lending as a percent of GDP in 2005 ranged from highs of around 12% in Croatia and Hungary to moderate levels of about 8% in the Czech Republic and around 5% in Bulgaria and Poland to virtually nothing in Romania and Russia. Non-mortgage household credit is particularly large in Croatia (22.3% of GDP).

To what extent the recent explosion of retail credit in some transition countries will lead to instability in the banking sector is yet to be determined but it will be influenced considerably by the use to which credit has been put and the possibility of real estate bubbles occurring.

Household credit, in particular mortgage lending, depends on well-defined property rights over collateral and an effective legislative infrastructure to facilitate the collection of collateral in case of default. Hence, the dramatic growth of both types of lending in many transition countries reflects significant improvements in supportive institutions. Nonetheless, differences in retail lending ratios across these ten countries are large. Consistent with the other measures of financial intermediation, retail credit data indicate considerable progress in banking in Bulgaria, Croatia, and Hungary. More sluggish development in the Czech Republic, Slovakia, and Poland may be inferred from the intermediation data. Romania, Russia, and Serbia appear to be either laggards or late starters in all areas of banking sector reform. Finally, Slovenia is an anomaly in that its ratio of loans to GDP is near the top of all ten countries in 2005 but retail credit, and especially mortgage lending, lag well behind these activities in many other countries.

Credit growth throughout the region slowed in 2007 and 2008 as the international
financial crisis affected economies, particularly those that were closely integrated with
the Euro area (Hungary and the Baltics) or vulnerable to swings in energy prices (Russia
and Kazakhstan). Countries with macroeconomic imbalances were particularly
vulnerable to the world wide credit crunch that reduced volume in international bond and
syndicated loan markets. However, the banks in the transition countries were relatively
unaffected in the initial stages of the crisis. They did not experience large write offs and
short term funding from parent banks seemed to hold up through 2008. However, the
resiliency of transition banking does not mean that the sector will be immune to the
upheaval in world financial markets.

Hungary was among the first emerging market countries to suffer the fall out of the
global credit crunch. It was vulnerable because of a large fiscal deficit, its reliance on
external financing and the extent of domestic, particularly household, borrowing in
foreign currency. The credit crunch led to pressure on the florint and an increase in the
country risk premium. In October 2008, the IMF, the World Bank and the EU joined
forces to provide a $25 billion support program. Importantly, the program included
provisions for preemptive additions to bank capital and guarantees for the interbank
market. That is, the macroeconomic issues and financial sector stability are inseparable
problems.

The Russian banking system encountered serious liquidity problems late in 2008. The
problems in the banking system stem from the fall in oil prices and the depreciation of the
Ruble while many institutions borrowed abroad in foreign currencies. The central bank
eased its refinancing terms and extended deposit insurance coverage and the government
offered support to enterprises in trouble. The Russian banking system is much stronger
than it was before the 1998 crisis but it is still vulnerable to large macroeconomic shocks.

EVALUATION OF BANKING IN TRANSITION ECONOMIES AND FUTURE
PROSPECTS

Although banks in the transition countries had made rapid strides in improving
performance and services since the early 1990s, the banking sectors in the European transition economies still do not possess the financial depth of their EU counterparts nor are banking services as well developed in these countries. Nonetheless, with few exceptions (primarily in the FSU), the transition in banking is complete. Privately owned, market-oriented, well-capitalized banking institutions that are independent from the government and from state-owned clients have replaced state mono banking structures. The legal environment has improved with respect to bankruptcy laws, collateral laws, and confidence in the application of the law. Furthermore, banking regulatory and supervisory capabilities have developed considerably. Thus, any evaluation of the structure of banking in transition countries must be positive. However, banking conduct is a somewhat different matter; any evaluation of what banks are doing and how they are contributing to economic performance in the transition economies must be more nuanced.

The ratio of bank credit to GDP depends on the financial structure of a country; it will be larger in bank-centered financial systems than in countries having more-developed capital markets. For the transition countries, the financial depth ratio is well below industrial country levels, although the numbers are not unusual for countries having similar GDP levels. In some CEE countries, this ratio has fallen as bad loans have been removed from balance sheets while GDP has grown. Deepening has occurred in the major FSU countries with the achievement of financial stability and the resulting return of public confidence in banks. Financial deepening or increasing intermediation has been shown to be associated with more rapid economic growth in cross-country studies. Thus, the increased credit ratios in the SEE should be viewed as a positive development even though they have been met with concern in some countries, i.e., in Croatia where the ratio went from 35.7 to 55.8 in five years as Tables 2 and 3 indicate and in Bulgaria where it increased from 10.7 to 34.9 over the same period. The main concern is that credit deepening has come in the form of rapid growth in mortgage lending and other forms of consumer credit.

Lending to households has grown rapidly in many countries. In 2005, it was more than one-half of total bank lending in Croatia and in the Czech Republic. Despite rapid
increases in household credit, ratios of household credit to GDP are still not large by
developed country standards. However, the ratio of household credit to the financial
wealth of the consumer sector is high in Croatia and elsewhere suggesting some
vulnerability of consumers to economic shocks (EBRD Transition Report, 2006).
Although rapid credit increase might have long term growth benefits in general, it could
also be a sign of excessive risk taking and financial vulnerability.

The expansion of household lending in transition countries may be related to the
dominance of foreign-owned banks. Once the legal environment is in place, lending to
households is a commodity business that can be entered easily through the application of
banking technology from abroad. In contrast, lending to enterprises requires developing
client relationships and having the ability to evaluate unique situations, both of which
require expertise that is generally lacking in foreign banks. Using a EBRD survey,
Haselmann and Wachtel (2006) show that banks in many transition economies have
shifted their asset portfolios out of government securities towards mortgages and
consumer credit. Foreign banks in particular have increased consumer lending and only
maintained the existing level of lending to enterprises. The EBRD/World Bank surveys
of enterprises in transition countries indicate that many firms are financially constrained
in the sense that they are unable to obtain bank lending. Based on these surveys, the
EBRD concludes that despite some regional variation, bank loans still play a limited role
in enterprise financing. Since lending to enterprises is important to support economic
growth, this finding has important implications for any evaluation of the conduct of
banking in transition countries.

Foreign banks have had a positive influence on the banking environment by introducing
technology, operational efficiencies, and new products and services. However,
Haselmann and Wachtel observe that foreign banks have focused on lending to
households and large firms. In addition, the EBRD surveys provide little evidence of
increased lending to small and medium enterprises (SMEs). To some extent, the lack of
SME lending in a foreign-bank-dominated country is understandable because such
lending requires local knowledge. However, mergers and acquisitions of local entities
created the large foreign banks so that this knowledge should not be prohibitively difficult to acquire. Moreover, the surveys suggest that improvements in the legal environment for banking have been associated with greater risk taking and more credit extended to SMEs. Frequently, the survey respondents indicate that a lack of creditworthy borrowers and difficulty in evaluating risks were the main reasons for slow loan growth. In their lending activity, banks in transition countries tend to favor large firms and foreign affiliates currently. However, improvements in the legal and regulatory institutions are expected to induce more SME lending. Hence, environmental improvements such as good bankruptcy laws, efficient ownership structures, reliable court systems for their application, credit registries, and defined legal rights to collateral should lead to more lending to SMEs and more support of local entrepreneurs in the future.

Moreover foreign bank ownership makes banking systems more vulnerable to the worldwide credit crunch. Although, there are no reports of transition country banks suffering large losses on U.S. mortgage securities, their European parent banks may have. In this case, the parent banks may be less willing to provide funding to their transition subsidiaries and credit standards may tighten as the parent banks reduce risk exposures across the border. Further it is not clear that every transition country central bank would be able to maintain liquidity in the banking sector and confidence in domestic institutions if the foreign parent banks withdrew support.

Overall the growth in banking in transition countries has increased considerably the availability of financial services, many of which were simply not obtainable before. Whether banks can become formidable engines of sustainable economic growth in transition economies is an open question. Many large enterprises, particularly in the EU new member states, are able to take advantage of recent increases in European capital market integration and obtain financing from abroad. However, these sources of funding fell with the global credit crunch starting in 2007. Furthermore, non-bank financial institutions are emerging in the transition economies. Nonetheless, the rapid expansion of credit in some countries has become a source of concern because of the accompanying
potential increases in risk to the banking sectors. In addition, much of the lending by banks in some transition countries, particularly the SEE countries that experienced hyperinflation in the 1990s, is denominated in foreign currencies and many deposits are denominated in non-national currencies as well. Thus, the balance sheets of banks in these countries are exposed to foreign exchange risk. In Croatia, 70% of mortgages are denominated in Euros. Even though the deposit base of these banks is also in Euros, foreign exchange risk is not eliminated by this matching because a domestic slowdown or exchange rate shock would affect the ability of domestic borrowers to repay in Euros.

These risks and indeed many of the problems, faced by banks in transition countries are familiar to banks in small, open, emerging-market economies around the world. Moreover, the tradeoff between bank consolidation and bank concentration is relevant to other small banking sectors. Although consolidation eliminates inefficient and undersized institutions, it also increases concentration, which may limit competition and create systemic risks. To some extent, free entry and foreign bank participation can mitigate this anti-competitive tendency. Although foreign bank penetration is a worldwide phenomenon in emerging-market economies, it is more prevalent and more concentrated in a subset of home countries in transition economies. European banks, mainly from the Netherlands, Italy, and Austria, are most active due to particularly strong trading relationships or to a desire to enter expanding new markets close to their own countries.

Overall, foreign-owned banks have maintained their lending activities in the presence of local shocks, although their aggressive growth targets may be a source of instability in the future.

The relationship between parent banks and their local partners is a mixed blessing. In some cases, the parent bank provides assistance for a troubled local institution. In addition, ownership changes in the parent bank can affect the structure of banking in the host country. When HVB joined the Unicredito banking group, several Polish subsidiaries were merged to create the largest bank in Poland with a market share in excess of 25% despite objections from the Polish authorities. These close connections with specific foreign banking sectors combined with high concentration in local banking may leave some transition countries vulnerable to economic shocks in other countries.
Banking regulation in the European Union follows the home country principle in that the home country regulators supervise the consolidated balance sheet of multinational banks. At the same time, the host country regulators have responsibility over the local subsidiaries. Hence, a potential for conflict arises if a home country regulator does not have sufficient interest in a foreign subsidiary that is a small part of a multinational bank but an important player in the financial sector of the host country. Unfortunately, the lack of explicit coordination of bank regulation across borders is a problem that is overdue for attention. For example, the British authorities were not prepared to deal with the failure of the Icelandic banks that had large UK subsidiaries. It is unclear how authorities in both home and host countries would respond to the failure of any parent bank with subsidiary operations in the transition countries. Since foreign owned banks dominate some of the transition banking systems, the potential for systemic crisis is clear.

In summary, considerable strides have been made in developing mature banking sectors in virtually all European transition countries. However, this positive evaluation must be tempered by some concerns about future stability due to the dominance of foreign banks from a handful of countries. The less-advanced transition countries, largely the smaller republics of the FSU, are just beginning to create modern banking sectors. These countries now have models to emulate; hence, their progress toward achieving mature and effective banking institutions warrants careful watching to see if the relevant lessons have been learned.

Banks in the transition economies have become part of the competitive global financial industry. As such, they are exposed to the shocks of the world financial crisis and the macroeconomic shocks affecting many transition countries. It remains to be seen how resilient the banks will be to these challenges. The experience of transition banks and banking authorities in this era will increase our understanding of the role of openness, performance and ownership in banking.
Since the early 1980’s systematic banking sector and structure problems have emerged repeatedly all over the world. The need to understand the connection between banking fragility and economy is all the more important. Numerous case studies have indicated that the experience may vary from country to country however there are factors, which may be common. Studies have shown that banking crisis tend to happen when macroeconomic environment is weak; in particular low GDP growth is highly correlated with increased risk to the banking sector. Vulnerability to aggregate output shocks is not necessarily a sign of an inefficient banking system, but banks by its very nature involves some kind of risk taking. Banks could possibly hedge some of the credit risk due to fluctuations of domestic economy. Hence from this perspective cross-border banking activities should improve the strength of banks. Small developing nations whose output is typically more volatile should especially benefit from internationalization.

Considerable attention in the financial crisis literature has been devoted to macroeconomic and institutional causes of banking crises. In particular, unsustainably high growth of lending to the private sector, poor prudential regulations and bank supervision, the entry of excessive numbers of new banks which spread the available pool of skilled bankers too thinly, and premature capital account liberalization were identified as major contributing factors. Having said that, some of the most common sources of banking structure crises are microeconomic in nature, which includes the following -

- Excessive optimism about lending to rapidly expanding manufacturing firms and speculative property developers, whose booming output and rapidly rising collateral values gave banks a false sense of security and allowed firms to become highly leveraged.
- Insufficiently diversified loan books made specialist banks over dependent on the particular region or sector served.
- Credit assessment by banks was often very poor, and banks often made loans to related companies or state-owned enterprises, frequently at the behest of governments.
• Management incentives were often inappropriate: top management was unduly concerned with increasing the banks. Overall size, and loan officers typically were rewarded for the volume of loans made rather than repaid.

• The risks from excessive maturity and currency mismatches were not fully appreciated. While banks' direct exposure to foreign exchange risk was limited by prudential regulations, banks neglected the exposure of their customers to such risks. As a result, when large devaluations occurred and weakened the ability of the corporate sector to service foreign currency loans, banks were suddenly faced with enormous credit risk.

Entry by foreign banks could also be more beneficial by increasing competition and putting pressure on local authorities to improve the institutional framework for banking activities. It will be good to see a study on establishing relationship between volatility, country size and banking structure fragility. Studies have shown that increased risk of banking structure problem may be one of the consequence of a high rate of inflation, possibly due to the fact that high and volatile interest rates associated with high inflation rates makes it difficult for the banks to perform maturity transformation. Thus restrictive monetary policies that keep inflation in check are indeed desirable from the point of view of banking sector stability. However it may lead to a sharp increase in real interest rates, which may in turn increase the chances of banking crisis. This requires a careful evaluation of the impact of such policies on the domestic banking system and the benefits should be weighed against the possible crisis associated with it. Regression studies have also indicated the presence of explicit deposits schemes to increase the probability of systematic banking problems. However most of the studies have several limitations and a study limited to smaller set of countries with more structural variables may lead to interesting results.

In the context of regional and international integration, the development of the economy requires the acceleration of restructuring and modernization of the banking system. Strictly following governance principles and enhancing banking governance efficiency is always banking sector’s utmost concern and is considered a prerequisite for the sector’s
stability and growth. In general, this has a positive correlation with a stable development of enterprises. This also has positive impact on the economy as a whole. The governance system should be examined from various perspectives, including objective versus strategy, organization versus operation, and systemic risk governance in particular.

Restructuring should be in line with establishing regulations in accordance with development and integration process. Building up concrete management regulations in compliance with international standards for basic operation of banks also contributes to the development of the financial system. Besides these issues, the banking and financial system of these developing economies also need to put in place the mechanism to prevent new bad debts, accounting and financial management under international standards. Cross-border payment systems form an integral part of the overall banking and financial system and are an essential part of the trade finance infrastructure. A payment system is a set of institutions, laws, regulations and other mechanisms needed for a buyer to make a payment and a seller to receive that payment. An effective payment system should be designed to meet the financial needs of buyers and sellers. For importers and exporters, this means that the payment system must be capable of providing for accurate, secure, efficient and affordable international payments. Corporate governance, establishment of a reliable credit culture and information sharing among all participants is crucial in maintaining the stability of the financial system. The government authorities need prompt, accurate, and comprehensive data in order to effectively monitor and supervise the system. Since further economic development cannot be achieved in transitional economies without efficient and productive financial intermediary functions, each country should speed up its bank restructuring in a precise manner.
DATA ANALYSIS AND INTERPRETATION

(A) AN EMPIRICAL MODEL

As per standard economics in an efficient banking system, each of the banking services will be supplied up to the level at which the marginal benefit to bank customers equals the marginal cost to the bank of providing the service. This requires, of course, that the prices for bank services be set in free and competitive markets. Otherwise, banks with substantial market power (concept of monopoly) may provide too few banking services, and banks constrained by regulations may provide too many banking services. Although bank competition in developed countries might not always be characterized as vigorous, they are highly competitive relative to banking systems in developing countries. With competitive markets and a shared technology across countries for providing banking services, the demand for banking services is the primary determinant of the quantity supplied on a cross-country basis. The demand depends in turn on the more fundamental economic, demographic, and geographic features of each country. To capture the differences across countries that may affect the demand for banking services we use five exogenous variables:

GDP: Gross domestic product (in US $ Billion)
Pop: National population (in thousands)
Area: Size of country (in square kilometers)
Public Debt: Total public Debt in USD $ Billion
GSR Gross saving ratio (the ratio of gross savings to GDP)

We use four variables to measure banking system structure:

Assets: Value of banking assets (in US $ millions)
Banks: Number of banking institutions
Branches: Number of full-service banking offices
Employees: Number of banking employees (in thousands)

Data for the measures of banking structure come from a sample of 31 OECD countries for the year 2008. We have chosen the OECD data because it represents the most
complete and comparable data set for our four banking system measures. Banking data for each country cover all banking organizations, including commercial banks, savings banks (including savings and loan associations and building societies), and cooperative banks, but excluding credit unions. The data are described more completely in the appendix.

(B) BANKING STRUCTURE IN DEVELOPED COUNTRIES

Simple ratios provide us with the starting point for illustrating the relationship across the 31 developed OECD countries. In Figure 1 not only does Luxembourg stand out but it also indicates that this ratio is not enough to determine the economic growth of a country.

Figure 1: Bank Assets to GDP Ratio for OECD Developed Countries

Figure 2 shows the ratio of total banking system assets to the number of banks, that is, the average bank size. The average size of banks varies widely across the OECD sample, ranging from $1 billion per bank in Iceland to almost $70 billion per bank in Japan, suggesting the important role of regulatory and political factors.

Figure 3 shows the ratio of the number of bank branches to GDP (in US $ billions) for the OECD sample. This ratio also covers a very wide range, suggesting that there is no simple proportionality relationship between GDP and the number of branches, as would
be indicated by constant ratio across countries. Specifically, the two richest countries, Japan and the United States, have the highest GDP but a comparatively lower branch to GDP ratio, emphasizing that the number of branches does not rise proportionately with income.

Figure 2: Avg. Bank Assets per Bank for OECD Developed Countries

Figure 3: Bank branches to GDP for OECD Developed Countries

Figure 4 shows that the employee to branch ratio ranges from a low of 6 employees per branch in Spain to almost 120 employees per branch in Luxembourg. This wide variation across countries may reflect differences in the type of banking services demanded in each country.
In this section, we estimate multivariate regressions for the various measures of banking system structure in developed countries. All of the equations are estimated over the cross-section sample of 31 developed OECD countries for the year 2008.

<table>
<thead>
<tr>
<th>Exogenous Variables</th>
<th>Dependent Variables</th>
<th>Assets</th>
<th>Institutions</th>
<th>Branches</th>
<th>Employees</th>
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</thead>
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<td>-158.54</td>
<td>3,567.77</td>
<td>8,405.95</td>
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<td>GDP in USD Billion</td>
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<td>2.59</td>
<td>1.75</td>
<td>84.06</td>
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<td>GSR</td>
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<td>728.05</td>
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<td>0.</td>
<td>0.01</td>
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<td>POPULATION IN 1000's</td>
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<td>-0.04</td>
<td>0.33</td>
<td>1.56</td>
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<td>PUBLIC DEBT in USD</td>
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<td>-0.78</td>
<td>-1.47</td>
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<tr>
<td>Billion</td>
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<td>R2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.66609</td>
<td>0.92923</td>
<td>0.86078</td>
<td>0.99505</td>
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</table>

Table 1: Bank Structure Variables versus 5 Exogenous Variables

Table 1 shows estimated equations for each of the four banking structure variables as a function of all 5 exogenous variables. The equations for Institutions and Employees fit the data well, with adjusted R2 above 0.90. The sign and significance of the key...
coefficients reflect our expectations, with two notable exceptions.

One exception is the effect of Area, with an insignificant coefficient in all equations, which may be especially unexpected in the Branches and Employees equations. The lack of significance for the physical size of the country was a consistent result across various specifications. We conclude that in physically large countries (such as Canada, the United States and Australia) much of the additional square mileage is best viewed as empty space, creating no major demand for banking services beyond the effects already captured in population.

The other odd result occurs in the equation for Institutions where GDP is the only significant coefficient with a positive sign. There could be a possibility for few other factor which could be affecting the number of Bank institutions in a country. For example, within the United States, states that had in-state branching restrictions also had a larger number of banking firms, with stand-alone banks taking the place of branches. This could have been important in determining the number of banking firms in the United States.

The equation for Assets has a significant lower R2 ie. .66 when compared to any other equation. This suggests that other factors have a strong influence on the bank assets. Our ultimate goal is to create benchmarks for banking sector structure in transition economies. The fact that banks in the developed economies now operate in relatively free and competitive markets compared to most transition economies allows us to use the observed structure of banking systems in the former as a standard for measuring the efficiency of the banking systems in the latter. If the structure and function of banking sectors in transition economies ultimately come to resemble those in more developed countries, relationships among the variables should be similar to those in the OECD sample of developed economies.

What we can see is GDP has an important role to play in all 4 banking structures. It can be concluded that a percentage increase in GDP leads to less number of percentage
increase in banking assets when compared to bank branches and employees. Population and Gross Saving Ratio are other two parameters, which could affect the measures, however since they are ratios hence the results are not proportional. Subsequently an increase in Public Debt leads to a decrease in banking assets, Institutions and bank branches. We could possibly drill down within the Debt factor to see if it is Foreign debts which are impacting the banking structure or the is it the internal debts; which would further require authenticated data for evaluation which is currently not available for the OECD countries.

(D) BENCHMARK FOR STRUCTURE IN TRANSITION ECONOMIES

We now apply our regression estimates to compute benchmark values for the banking structure in a sample of 21 transition economies. In Table 2, the columns titled BM (Benchmark) summarize the results of applying actual data for the exogenous variables from the 21 transition economies into the final regression equations shown in Table 2. The benchmarks show what would it be if the banking sector in the transition economy looked like that in a developed country with similar characteristics and size.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Actual</th>
<th>BM</th>
<th>Actual</th>
<th>BM</th>
<th>Actual</th>
<th>BM</th>
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<td>Assets</td>
<td>Institutions</td>
<td>Branches</td>
<td>Employees</td>
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<td></td>
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<td></td>
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<td>1560.89</td>
<td>48</td>
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<td>17</td>
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<td>29289</td>
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</table>

Table2: Banking Structure measure for Transition Economies (Actual vs Benchmark)
This is just a direct substitution into the equation derived from regression analysis of the data obtained from developed economies, although several data issues do arise. The actual transition economy data shown in Table 2 has come primarily from IMF, OECD, and Helgi library, and details have been provided in the Data Appendix. Data for the number of bank branches and bank employees are much more sketchy. Using the benchmark and actual data, we can create measures of convergence which tells us how close the actual results for each country are to the corresponding benchmark value.

(E) CONVERGENCE AND CORRELATION

Thereby three important questions can be raised.

- Whether the observed degree of convergence between actual bank structure and the benchmarks is a function of how advanced each country is in the transition process?
- Whether our convergence measures correlate closely with other available measures of banking sector development in the transition economies?
- Whether a higher degree of banking structure convergence correlates with higher economic growth for the transition economy?

We begin with Bank Asset ratio where we calculate

\[
1 - \text{ABS}\left(\frac{\text{Benchmark} - \text{Actual}}{\text{Actual}}\right)
\]

The asset ratio is thus a measure of the percentage change in bank assets from the current level that would be required to achieve convergence to the benchmark value; a country with perfect convergence (Actual = Benchmark) receives an asset ratio of 1.0. Negative values for the asset ratio indicate that the current deviation is more than 100 percent of the current actual. The actual is lower than the benchmark in all cases while the other ratio that we have calculated completely is the Branch Ratio. We calculate the other convergence too however due to limited data availability we will concentrate on the Asset and Branch Ratios.
<table>
<thead>
<tr>
<th>Countries</th>
<th>Asset Ratio</th>
<th>Institution Ratio</th>
<th>Branch Ratio</th>
<th>Population Ratio</th>
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</thead>
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<td>Albania</td>
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Table 3: Convergence data for banking measure for Transition Economies

The countries in Table 4 have been placed in rank order based on the asset ratio in Column (3). The data in Columns (4) to (6) of Table 4 provide additional information for gauging the comparative progress of the transition economies. Column (2) shows a clear regional pattern, where the greatest convergence of banking structure to the benchmarks has occurred in Commonwealth Independent State, Central and Eastern Europe and the Baltic States, while the least convergence has been in Central Asia and Caucasus. This is consistent with the general impression that the Baltics and Central and Eastern Europe have made the greatest overall progress in the transition process. The remaining columns of Table 4 provide alternative quantitative measures of the progress each country has made in various aspects of the transition process. Columns (4) to (6) provide data taken from the 2012 Transition Report published by the European Bank for Reconstruction and
Simple correlations with the asset ratio are shown at the bottom of each column. For columns (4) through (6), we expect a positive correlation between the asset ratio and each measure of general progress in the transition process, under the hypothesis that progress in banking sector transition also requires progress in the general transition process. The results for simple correlations bear out this expectation with an almost no correlation with Small Privatization. Overall, we interpret these results as confirmation that our asset ratio provides meaningful information concerning the convergence of transition country banking systems toward developed economy standards.

The benchmark values for the number of branches in the transition economies are shown in the third pair of columns of Table 2. For some of the transition economies the actual number of branches exceeds our benchmark values, suggesting a systematic overshooting in the transition process. Table 5 provides an expanded set of data for analyzing the
relationship between the actual and benchmark values of the number of bank branches. Taken together, Tables 4 and 5 suggest that banking systems in the transition countries generally have too many banks and relatively low total banking assets, at least given the size and other characteristics of those economies. With both a large number of banks and relatively low aggregate assets, the average size of the banks in many transition economies is extremely small.

The transition economies may generally be well advanced in translating the demand for banking services into the supply of bank branches and bank employees. This is consistent with a higher degree of convergence in bank branches and employees than in bank assets or number of banks.

Table 5: Correlation with respect to Branch Ratio

<table>
<thead>
<tr>
<th>Countries</th>
<th>Region</th>
<th>Branch Ratio</th>
<th>EBRD Large Scale Privatization</th>
<th>EBRD Small Scale Privatization</th>
<th>Competition policy</th>
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<td>CIS</td>
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<td>3.7</td>
<td>2.7</td>
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<td>-17.94</td>
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</table>

Correlation of Column (Branch Ratio) with 0.4 0.162 0.530

Table 5: Correlation with respect to Branch Ratio

(F) BANKING STRUCTURE AND GDP per CAPITA
If efficient banking systems yield economic benefits, then countries with banking systems closer to the benchmarks should have faster growth. However, the transition process is at such an early stage in most of the countries, and the process has been so uneven, that income measures such as per capita GDP may be more informative than any measure of growth. Table 6 presents several regressions to explore the relationship between income and various measures of banking system structure.

<table>
<thead>
<tr>
<th>Exogenous Variables</th>
<th>GDP per Capita</th>
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</thead>
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<tr>
<td></td>
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<td>Branch Ratio</td>
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<tr>
<td>Adjusted R2</td>
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</table>

Table 6: Regression output for GDP per Capita for Transition Economies

In Equation 1, GDP per capita is regressed on both the asset ratio and the branch ratio, from Tables 4 and 5. Each variable has a positive effect, although only the branch ratio is significantly different from zero. Equation 2 shows the impact of adding the EBRD banking rating; this measure of banking system structure also is significantly and positively related to income, and the adjusted R2 rises to 0.62 from 0.31. However, the branch ratio remains significant compared to asset ratio, suggesting that the branch ratio and the EBRD rating are capturing similar elements of the transition process with regard to banking. The last Equation 3 shows the effect if the asset ratio is dropped altogether. The regression results indicate that, of the banking structure benchmarks we have been able to construct and test, the branch ratio is most closely related to the progress of economic development. It appears to measure important aspects of banking system development, aspects that are wholly captured by more subjective measures such as the EBRD ranking. The significant positive relationship with per capita GDP provides additional evidence of the importance of an efficient banking system in the overall development process.
CONCLUSION

The goal of this study has been to characterize the relationship between the banking systems in developed countries and various economic and other features of those countries, and then to use this characterization to develop benchmarks for the structure of banking systems in transition economies. The methodology requires that the estimated equations for the developed economies represent dependable relationships between the four measures of banking system structure and our set of exogenous economic, demographic, debt, and geographic variables. Care must be taken, of course, in applying all of these equations to the transition economies. One caveat is that some of the variables we treat as "exogenous", such as GDP and the savings rate, actually are endogenous to the development process. As the transition continues, these variables are likely to change, and the banking structure benchmarks also will change. However, this is also a strength of the regression approach, since the benchmarks can be recomputed easily with new values of the variables.

A second important caveat is that the benchmarks reflect the structure of the banking structure, as it would be if these countries followed the general pattern of the developed OECD countries. Some of the transition economies may be approaching equilibrium, in which case the benchmarks can be directly compared with the actual banking systems in these countries. This may be true, for example Hungary. The relatively close fit of our benchmarks with the actual banking systems in this country creates further confidence in our methodology, as well as suggesting that the banking systems in these countries have an appropriate structure. On the other hand, the banking systems in many of the other transition countries are clearly still “in process”. Our estimates on benchmark are an effort towards which the banking systems should evolve in the longer run, but do not necessarily represent where their banking systems should be today. Thus, in cases where the current structure falls short of the benchmark, this should not be interpreted as a sign that our privatization has failed. Instead, our benchmark estimates should be used to monitor the progress of these countries as they adjust toward a western-style banking system.
DATA APPENDIX

Main Project Work Sheet – This is the main project sheet, which contains all necessary data computation

Regression output for dependent Variables

Assets-Reg.xls Institution-Reg.xls Branches-Reg.xls Employees-Reg.xls

Regression output for GDP per capita

GDP per Capita 1.xls GDP per Capita 2.xls GDP per Capita 3.xls

Raw Economic Data – This sheet contains raw data as downloaded from various sites like IMF, OECD database and Helgi Library

Workbook12 (version 1).xlsx
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b Berkley Research Center, New York University, New York, NY 10012, USA
c Finance and Business Economics, GBA, Fordham University, 113

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