



**Remittances in Transition Economies: Measurement,  
Determinants, and Implications for the Financial System**

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**Remittances in Transition Economies: Measurement,  
Determinants, and Implications for the Financial System**

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**PhD Thesis**

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**MIA (Columbia), BEcon (Hons) (TSIOS)**

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## **Abstract**

Both labour migration and the associated remittances are increasing in scale and significance. As a result, they receive close attention from policy makers and international organizations. This thesis explores the issues related to the measurement of remittances, the determinants of remittances, and the impact of remittances on the financial system in the transition countries of Central and Eastern Europe and the former Soviet Union.

The encompassing theme of the thesis is the empirical interplay between remittances, various economic parameters, and financial systems. The paucity of research on the role of remittances in the economies of transition countries has prevented the development of a meaningful policy response to this massive inflow of funds into the economies of these countries. This thesis contributes towards filling this gap in the research and presents four studies, which provide insights into the methodology of estimating remittances, as well as the relationships between remittances, the transaction costs associated with sending remittances, the economy, and the financial system.

The aim of the first study of the thesis is to provide a comprehensive review of existing remittance measurement methodologies. Moreover, practical methods to adjust the Central Bank of Russia data to derive more accurate remittance estimates for selected countries of the former Soviet Union is proposed. These selected economies have been major recipients of remittances among transition economies and account for as much as 10 per cent of remittances worldwide. There have been attempts to provide this type of estimation in individual countries; however, there have been no studies proposing a general methodology for the region. Thus, the main contribution to

the literature of the first study is the development of a complete methodology for estimating remittances in the former Soviet Union. The findings of this study have recently been published as a book chapter in “Neo-Transitional Economics” in the International Finance Review series of Emerald Publishing.

The second study investigates the determinants of remittances in the former Soviet Union. Focusing on this region allows the use of data which was not available for previous studies in this area. Remittances may enter the financial systems of less developed countries via formal or informal channels. In the case of the former Soviet Union formal channels predominantly consist of bank and money transfer operator (MTO) transfers. Informal channels mainly include cash, money carried by third parties (friends, relatives, other couriers, and migrants themselves), and transfers similar to “hawala”.<sup>1</sup> It is assumed that the higher the share of formal channels, the greater the benefits of remittances for the financial system. The financial system stands to gain from transfer fees and, if it is effective enough, may attract new deposits from the beneficiaries of transfers. Furthermore, channelling remittances through official channels permits monitoring to deter money laundering and the financing of terrorist activities. The first important finding is that the impact of the variable of main interest for this study, - transfer fees, – appears to be especially strong and remains significant even after correcting for endogeneity using an instrumental variable estimator. Moreover, the study also finds a significant inverse relationship between formal remittances and money outside depository corporations, emphasizing the importance of lowering transfer fees in order to curb the size of the underground economy. These two findings represent

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<sup>1</sup> Hawala, also known as hundi, is an informal value transfer system widely used in the Middle East, North Africa, the Horn of Africa, and the Indian subcontinent, operating outside of, or parallel to, traditional banking, financial channels, and remittance systems.

important contributions to the literature by presenting insights into the role of the transfer fees of remittances and of remittances themselves in the economies of transition countries.

The third study compares the recent developments in the banking and financial sectors of distinct subgroups of countries within Central and Eastern Europe and the former Soviet Union. The body of research devoted to analyzing the transition progress in transition countries has been critical of the reform performance of a group of countries of the former Soviet Union. In contrast, the results of banking sector restructuring in the former communist countries of Central and Eastern Europe and the Baltic States have been evaluated more favorably. Seven countries of the Commonwealth of Independent States (CIS) were separated from the rest of the transition countries by multilateral agencies as facing a “particularly difficult transition period” and a special term CIS-7 was coined. These seven countries are Armenia, Azerbaijan, Georgia, Kyrgyz Republic, Moldova, Tajikistan, and Uzbekistan and these countries are the main focus of attention of the third study. The progress in financial sector development and intermediation among the different transition economy subgroups is compared utilizing various econometric estimations as well as financial indicators and ratios. The contribution of this study to the literature is that, overall, despite some encouraging signs of positive changes in curbing excessive market powers of the sector, improvements in stability indicators, and certain progress in institutional reforms, the gap in the development levels of the financial sectors of CIS-7 (transformed in this research into *CIS 6 + Georgia* due to Georgia’s exit from the CIS) and the most advanced transition countries is still significant. Policy targets in the area of further reforms in the banking sector should be aimed at further limiting the market powers of banks balanced against

maintaining safe concentration levels in the banking sector, improving credit risk evaluation systems, along with transparency and quality of accounting systems, and further institutional reforms.

The fourth and final study of this thesis uses data on remittance flows to 27 countries of the former communist bloc during 1996-2012, and three distinct empirical approaches to study the impact of remittances on financial sector development. In particular, the research focuses on the links between remittances and total credit to the economy, claims on other sectors, and the private sector. In addition, the study also investigates the association between remittances and total deposit, demand deposits, and saving deposits. Econometric techniques used to estimate these links are fixed effects, dynamic system Generalized Method of Moments (GMM), and instrumental variable estimations. This is an important issue for the region considering the fact that economic theory documents the growth-enhancing and poverty-reducing effects of financial development. This study contributes to the literature by providing evidence of a robust, significant and positive link between remittances and financial development.

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## Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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Jakhongir Kakhkharov

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# **Chapter 1. Introduction**

This chapter consists of three main parts. Section 1.1 presents an overview and rationale of the thesis research in the context of recent global and regional developments in remittances. The formulation of the rationale is followed by a brief discussion of each research question and elaboration of the reasons why each of these research questions are important in Section 1.2. Section 1.3 presents the research methodology. The chapter concludes with a brief presentation of the thesis structure in Section 1.4.

## **1.1 Motivation, Overview and Rationale**

The stock of international migrants in the world has been estimated at 247 million in 2013, and is expected to surpass 250 million in 2015 (Ratha et al. 2015). It is also estimated that remittance flows to developing countries exceeded US\$436 billion in 2014, up 4.4 per cent from 2013. India, China, Philippines, and Mexico lead the world in terms of the amount of remittances, receiving in 2014 US\$70 billion, US\$64 billion, US\$28 billion, and US\$25 billion respectively (Ratha et al. 2015).

Migration and remittances in transition economies of Central and Eastern Europe and especially the former Soviet Union countries have increased rapidly over the past decade. Remittances to Central and Eastern Europe mainly flow from developed Western economies. The main source country for remittance recipients in the former Soviet Union is Russia. In some countries of the former Soviet Union, remittances have reached staggering levels. Due to the decline in

oil prices and the impact of sanctions against Russia, the total amount of outgoing transfers made by Money Transfer Operators (MTOs) from Russia to the Commonwealth of Independent States (CIS) countries dropped to US\$18.3 billion in 2014 compared with US\$20.8 billion in 2013 (Central Bank of Russia 2014, 2015). Most of the remittances were sent by migrant workers from the CIS countries to their respective home countries. Table 1.1 below shows the breakdown of remittances from Russia via MTOs to the post-Soviet Republics and information about the average amount of remittances for each country in the region in 2013 and 2014.

**Table 1.1 Cross-Border Remittances via MTOs from Russia to post Soviet Republics in 2013 and 2014**

<b>Former Soviet Republics</b>	<b>Total amount of transfers from Russia, in millions of US\$ in 2013</b>	<b>Average amount of one transfer in 2013</b>	<b>Total amount of transfers from Russia, in millions of US\$ in 2014</b>	<b>Average amount of one transfer in 2014</b>
<b>Uzbekistan</b>	6 633	593	5 581	563
<b>Tajikistan</b>	4 155	337	3 831	295
<b>Ukraine</b>	3 078	488	2 247	357
<b>Kyrgyzstan</b>	2 080	324	2 026	314
<b>Armenia</b>	1 597	545	1 416	446
<b>Azerbaijan</b>	1 232	644	1 221	626
<b>Moldova</b>	1 261	446	1 215	396
<b>Georgia</b>	789	623	696	560
<b>Kazakhstan</b>	455	647	480	665
<b>Belarus</b>	249	358	244	333
<b>Lithuania</b>	27	934	18	840
<b>Latvia</b>	46	681	32	604
<b>Turkmenistan</b>	40	564	31	524

Source: Central Bank of Russia

Despite this decline in remittances from Russia in 2014, migrant remittances in the former Soviet Union are still important for these transitional economies. The growth rate of remittances before the Russian economic slowdown over the past decade was remarkable. In some countries of the former Soviet Union, remittances have reached staggering levels. However, because this rapid rise in remittances is a relatively recent trend and obtaining reliable data is difficult, this area of research has been underexplored.

Data availability improved in 2006 when the Central Bank of Russia (CBR) began publishing bilateral data on money transfers from Russia through money transfer operators (MTOs) by recipient countries. Moreover, the CBR publishes the cross-border transactions of individuals (both residents and non-residents) conducted through all credit institutions (including MTOs). The statistics demonstrate that the largest proportion of remittances is channeled through MTOs. The datasets published by the Central Bank of Russia allow estimation of the volume of remittances from Russia to the former Soviet republics. As Russia is the major source of remittances for these economies, the estimation and analysis of these flows is very important for economic policy making in the transitional economies.

## **1.2 Key Research Questions**

This section reviews the research questions addressed in this thesis. A separate study is devoted in the thesis to answer each of the research questions formulated in this section.

### ***Research Question 1. What is the optimal methodology for estimation of remittances from Russia to the former Soviet Republics?***

The statistics regarding remittances and the number of migrant workers requires major improvements and is far from perfect. This is mainly due to the fact that measurement of remittances globally is a difficult task given the number of transfer mechanisms that exist to send funds across the borders. Many scholars such as Chami (2008); Lerch et al. (2008); Mughal (2007) note the necessity to apply a variety of indicators and measurement tools (surveys, BoP (Balance of Payments) data, econometric estimations and others)

depending on the focus of a study and the expected impact on the economic variable(s) being researched and which are influenced by remittances.

In the countries of the former Soviet Union with a predominantly visa-free travel regime, most labour migrants use unofficial channels to move to foreign countries. Therefore, it is hard to evaluate the real situation with respect to labour migration and remittances. The data is especially hard to source for Turkmenistan and Uzbekistan. However, many experts agree that Uzbekistan's labour migrant population is the largest among Central Asian countries in absolute numbers (Eurasian Development Bank 2012). RBC, a large Russian media group headquartered in Moscow, reported with reference to the Federal Migration Service of Russia that estimated 2,104,000 citizens of Uzbekistan were in the territory of Russia in April 2015 (Opalev 2015). The vast majority of labour migrants work seasonally, travel abroad only during the warm summer season and come from rural areas or the Karakalpakstan autonomous republic. Given the scarcity of data, it is no surprise that the effect of remittances on different economic variables in the former Soviet Union and Central Asia is grossly under researched.

The first research question which is explored in the thesis is related to the issue of the measurement of remittances. In the case of the former Soviet Union, there are differences and peculiarities in measuring remittances which makes the region distinct from the other remittance receiving countries. Due to these circumstances, the measurement of remittances may represent quite a challenge for a researcher. One of the major impediments for measuring remittances is the existence of multiple transfer channels. However, the review of literature, interviews and a survey conducted by the author indicate that the share of informal channels is gradually decreasing. This is a result of increased

competition among MTOs, which has reduced the transfer fees, and the expansion of the branch network of MTOs creating convenience for beneficiaries. It comes as no surprise that a greater number of migrants have started to opt for a safer way of transferring funds back home, despite presence of confidence issue in the banking sector. Obvious advantages of using the formal channels from the view point of public policy are better ability to measure and monitor the situation with remittances, as well as the creation of the platform to channel the remittance flow into the financial system.

As of the mid-2000s, the Russian Central Bank began to publish data on remittances from Russia to major recipients of transfers abroad via MTOs. It is argued that in the case of the former Soviet Republics, this dataset mainly captures the remittances of labour migrants to their families. Small-scale trade transactions could constitute a smaller part of the reported transfers. The present research aims to be one of the first original studies to investigate the complexity of the issue of measuring remittances and to suggest optimal measurement methodology using the data from the Russian Central Bank.

***Research Question 2. What are the main determinants of remittances in the former Soviet Union and, particularly, how the remittance transfer fees affect formal remittances? What is the link between formal remittances and the underground economy?***

Previous cross-country studies (Buch and Kuckulenz 2010; Chami 2008; Ratha 2003; Singer 2010) show that the total amount of remittances in the majority of remittance recipient countries considerably exceed foreign loans and FDI. As remittances bear no interest, do not have to be repaid, and their use is not tied to particular investment projects with a high import content, they should have a more positive impact on the balance of payments than do other

monetary inflows (such as direct investments or loans). Some other advantages of transfers from labour migrants are budget relief resulting from payments of lesser amounts for social allowances and the creation of a “monetary safety cushion” in case of crisis with the help of migrants’ money. Remittances are also pro-poor because they are better targeted to the needs of the poor than official aid or foreign direct investment (Ratha 2007). However, these are all empirical observations and conclusions from cross-country research which depicts a general picture. For policy making in each country or region, it could be more expedient to know the circumstances and impact in that country or region.

Understanding the main determinants of remittances and how they impact economic activities is vital for policy making in the area of remittances. If the ultimate goal is to use remittances for development and to prevent the flow of remittances to undesirable activities, it is necessary to investigate what impacts formal remittances. The variable of main interest in answering this research question is transfer fees – fees charged for making transfers through MTOs to the former Soviet republics.

To answer this research question information rich datasets were obtained from Russian statistical authorities. The datasets allowed variables to be used in this study, which were of limited availability for previous research in the area of remittances. Data on bilateral transfers from Russia to each of the remittance recipient countries; annual data on the flows of migrants from a particular country in Russia; the number of branches of money transfer operators in Russia; and time series data on transfer fees charged by MTOs; are all new variables used in this panel study. The use of these datasets

provided a rich analysis of the determinants of remittances specifically relevant for the transition countries of the former Soviet Union.

***Research Question 3. A quarter of century on the transition path, how do the financial systems, especially the banking systems (main conduits and, potentially, beneficiaries of remittances) of Central and Eastern Europe and the former Soviet Union compare?***

The financial/banking systems of Central and Eastern Europe and the former Soviet republics have made considerable progress after the collapse of the communist bloc at the end of the 20<sup>th</sup> century. The banking sectors of these transition economies started from different initial conditions and made substantial steps forward in adjusting to market conditions. However, analysts report that the progress has not been even across the board. Since the financial/banking system is one of the main conduits for the flow of remittances to the economy, it is worth investigating the progress made by the sector in the different groups of countries, which are recipients of remittances.

Migrant remittances represent an attractive potential source of funds for the financial systems of recipient countries even though much of those funds are used for consumption purposes. On the other hand, lack of trust in banking systems and certain policy constraints inherited from the communist past may hinder full utilization of this potential. Building trust and offering tailor made instruments and marketing approaches toward migrants may create more favourable conditions for taking greater advantage of remittance flows. Anecdotal evidence suggests that money transferred back home by migrants to their relatives and close friends are currently spent on consumer goods and are rarely invested in productive activities. Most scholars agree that even if remittances are spent in the country of residence, this will positively affect the

economy by propping up the demand and stimulating supply, which leads to economic growth (Ang 2007; Aslan 2011; Marat 2009). However, the multiplier effect from investments into the productive and infrastructure sectors of the economy would have much greater positive impact. In other words, if a greater share of these funds, intermediated and facilitated by the financial/banking sector, were designated for investment purposes, this would facilitate the growth of economies better.

***Research Question 4. Do remittances have an impact on the financial systems of Central and Eastern Europe and the former Soviet republics? Is this impact significant?***

There has been some research into the cross-country impact of remittances on the financial systems of the remittance receiving countries as well as some regional and country studies in this area, such as Aggarwal et al. (2011), Mohapi and Motelle (2007), Gupta et al. (2009). However, there is a lack of literature that attempts to estimate the impact of remittances on the financial sector of the net remittance recipient countries in the post-communist countries of Central and Eastern Europe and the former Soviet Union. In fact, this is an interesting area of research that has never been studied before and is investigated in the present research. Moreover, the uniqueness of this research is further amplified by the fact that it studies the relationships where both donor and recipients are transition economies (former Soviet Union) and where the flow of remittances comes from developed economies to the transition economies (Central and Eastern Europe). Given the nature of the relationship between donor and recipient countries and taking into account the long common history of these countries where the culture and language are

intertwined, it is reasonable to expect the results might be different from the case of remittances from developed to developing world.

These are the questions which the current body of research on remittances and its impact have overlooked so far. This is rather surprising given the fact that, by alternative estimates (Orozco 2007), over a fifth of global remittances flow to former transition economies, and almost 13 per cent of this flow go to the CIS economies. A few explanations for this lack of research include unavailability of remittance data for some of the CIS countries and the relatively recent nature of this trend. To avoid measurement problems which plague remittance statistics, the answer to this research question is sought for different groups of remittance recipient countries in Central and Eastern Europe and the former Soviet Union and for the whole sample of transition economies in the present thesis using remittance data from the IMF. Moreover, an important part of this research is the estimation of the impact of remittances from Russia on the financial systems of the republics constituting the former Soviet Union using alternative data on remittances the Russian Central Bank. It should be noted that the former Soviet republics also receive remittances from other countries as well. However, Russia accounts for at least 50-60 per cent of the total remittances of each recipient country. Since Russia is responsible for a large part of the total remittances flowing into the former Soviet republics, remittances from Russia may have a substantial impact on the financial systems of the recipient countries.

### **1.3 Research Methodology**

This section provides a general overview of the research techniques used throughout this thesis. This PhD thesis will employ several different approaches

to address the four distinctive research questions formulated in the previous section.

To answer **research question 1 study 1** used qualitative research methodology with the purpose of identifying issues related to the measurement of remittances. By comparing different estimation techniques, those which are most applicable to the circumstances of the former Soviet Union have been selected. These applicable methodologies are then used to estimate remittances in the selected countries of the former Soviet Union.

The baseline regression model used to tackle **research questions 2, 3, and 4** was a panel fixed effects model. The general equation for the fixed effects model is the following:

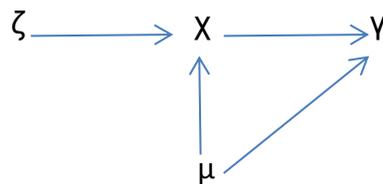
$$Y_{it} = \alpha_i + \beta X_{it} + u_{it}$$

where the subscript *i* on the intercept term implies that the intercepts may actually vary. It is assumed that there are *n* number of cross-sections, *T* number of time observations and *K* number of explanatory variables. This model is a fixed-effects model. The term ‘fixed’ is due to the fact that the intercept does not change over time and it is constant for each cross-sectional unit. The fixed-effect model is useful since it is easy to apply and allows the unobservable individual (cross-sectional) effects to be correlated with the given variables and, in this sense, it is superior to random-effects model. On the down side, it may result in loss of degrees of freedom when there are a significant number of cross-sectional units (Akimov et al. 2009).

**In study 3 to address research question 3**, the financial ratio analysis was also applied. Aggregate financial ratios quantify many aspects of the

financial sector in the transition economies. There are a number of standard ratios, which could be used to evaluate the overall financial condition of the banking sector or any other business. In the present thesis, financial ratios are used to compare the strengths and weaknesses, as well as the dynamics of development of the financial sectors in the various groups of transition countries.

To address endogeneity concerns present in many economic applications when correlation between the explanatory variables and the error term is suspected, instrumental variable (IV) regressions have been applied in **studies 2 and 4**. Such correlation may occur when the dependent variable impacts the independent variable of main interest, in addition to independent variable influencing dependent variable. This may happen when there are relevant explanatory variables which are omitted from the model, or when the covariates are measured with error. In such cases, econometric estimations may produce biased and inconsistent estimates. However, if a strong instrument is available, consistent estimates may be obtained. An instrument is a variable that does not itself belong on the right-hand side of the model as an explanatory variable. It is not correlated with the regression error term, but is strongly correlated with the endogenous explanatory variable, conditional on the other independent variables (Lim et al. 2011). The impact diagram for instrumental variable regressions (Figure 1.1) may be depicted as follows:



**Figure 1.1 Impact diagram for instrumental variable regressions**

The diagram shows that instrumental variable  $\zeta$  is associated with  $X$  but not with  $\mu$ . It is possible that that  $\zeta$  and  $Y$  will be correlated, but the only way this correlation takes place is through the indirect path of  $\zeta$  being correlated with  $X$  which, in turn, determines  $Y$ . The more direct path of  $\zeta$  being an independent variable in the model for  $Y$  is ruled out (Cameron and Trivedi 2005).

Since in many social phenomena lags of the dependent variable are correlated with the idiosyncratic error, traditional static panel data model estimators such as the fixed effects estimators may be inconsistent. This could be due to the presence of endogenous regressors. Unlike static panel data models, dynamic panel data models include lagged levels of the dependent variable as regressors. The empirical analysis of remittances using static models could also be problematic because the share of remittances to GDP might be persistent, i.e. the current values might depend on the past values. Therefore, a dynamic model specification may be required. Hence, **in study 4** the Arellano–Bond estimator, which is a generalized method of moments estimator applied in dynamic panel data models (Arellano and Bond 1991), has been used.

Finally, in **studies 2 and 3**, the ordinary least squares (OLS) estimator has also been used to compare the results of OLS estimation with the results of baseline fixed effects estimations. It is well known that ordinary least squares is

a method for estimating the unknown parameters in a linear regression model, with the goal of minimizing the differences between the observed responses in a dataset and the responses predicted by the linear approximation of the data. The OLS estimator is consistent when the covariates are exogenous and there is no perfect multicollinearity. OLS requires very strong assumptions and conditions for it to be an optimal estimation strategy. For example, OLS is a good estimation strategy when the errors are homoscedastic and serially uncorrelated. Under these conditions, the method of OLS provides minimum-variance mean-unbiased estimation when the errors have finite variances. Under the additional assumption that the errors be normally distributed, OLS is the maximum likelihood estimator.

In sum, this thesis used a number of qualitative and quantitative approaches to analyse various facets of remittances. This variety is necessary, given the complexity of the phenomenon. Application of a range of methods allows for decreasing the possibility of error in conclusions on implications and determinants of this important financial flow.

#### **1.4 Thesis Structure and Research Contributions**

The final section of this introductory chapter outlines the structure of the thesis. This thesis consists of seven chapters, the main body of which conceptually could be divided into three parts – *Description, Understanding Remittances, and Remittances and Financial System* (see Figure 1-2). The *Description* part presents theories and literature explaining migration and remittances. Two chapters are devoted to the part *Understanding Remittances*, which attempts to evaluate measurement methods and determinants of remittances. The

*Remittances and Financial System* part analyses the financial systems of the remittance recipient countries and the interaction of the remittances with therein.

The next chapter discusses the theory of migration and empirical literature on labour migration and remittances, which provides the contextual framework for the research considered in this thesis. This discussion extends across disciplines of economics, finance, sociology, geography, and demographics, as it considers scholarly contributions to such a complex matter as migration and remittances.

Chapter 3 of the thesis provides a thorough examination of existing remittance measurement methodologies. Moreover, feasible techniques to modify the data from the Central Bank of Russia to derive more precise remittances estimates in selected countries of the former Soviet Union are also proposed. The significance of the issue at hand could be demonstrated by the fact that these selected economies are major recipients of remittances among transition economies and account for approximately 10 per cent of remittances worldwide. This is an innovative approach, given that there have been attempts to provide this type of estimation in individual countries; however, there have been no studies, to the knowledge of the author, that propose a general methodology for the region.

Chapter 4 is the first empirical contribution and examines the determinants of remittances in the former Soviet Union. The focus of attention is on the transaction costs associated with transferring remittances from Russia to the remittance-recipient countries of the former Soviet republics. Using OLS, fixed effects, and instrumental variable estimations, the study reveals that transfer fees are the most statistically significant determinant of remittances.

The decrease in the transfer fees is associated with increases in remittances via MTOs. Moreover, further estimations indicate that an increase in remittances via MTOs also result in a decrease in money outside depository corporations. If we assume that, *ceteris paribus*, the size of the money outside depository corporations is a proxy for the size of the underground economy and is negatively linked to the level of intermediation in an economy, an important conclusion is that an increase in remittances via MTOs contributes to the decline of the underground economy and facilitates financial intermediation. In other words, the decrease in transfer fees leads to an increase in recorded remittances at the expense of a reduction in the size of the underground economy; simultaneously, influencing favourably financial intermediation.

Chapter 5, using datasets *World Development Indicators* (WDI) of the World Bank, *International Financial Statistics* (IFS) of IMF, *Database of Financial Development and Structure*, *BankScope*, *World Governance Indicators* (World Bank), and the author's own new estimates, evaluates the financial development in Central and Eastern Europe and the former Soviet Union. The main aim is to identify the causes of differences in the financial development of the transition economies which could be relevant for the next empirical study of the thesis devoted to investigating the effect of remittances on financial development in the former communist bloc. The chapter uses a mix of methodologies consisting of a financial ratio analysis and econometric estimation methods (fixed effects and OLS), to examine the financial sectors of the various groups of transition countries. These groupings of countries are created based on the similarity of the level of economic development, and replicates analytical groupings created by the international financial institutions (World Bank, European Bank for Reconstruction and Development) as well as

scholarly work done in this area (Berglof and Bolton 2002; De Nicoló et al. 2003; McNulty and Harper 2012). The results of the analysis indicate that an economically backward region, comprising six countries of the CIS and Georgia (the leading recipients of remittances), despite closing the gap in financial development, still lags in many parameters measuring the level of financial development. In this study the causes of this lag are traced back to the lower level of competition and higher market power of banks, distrust in the financial system related to institutional shortcomings, lower macroeconomic stability, and higher tax/regulatory burden in these economies of the CIS 6 + Georgia.

Chapter 6 is the fourth and final study of the thesis and examines the impact of remittances on the financial development in Central and Eastern Europe and the former Soviet Union using three distinct econometric methods. The econometric methods used are fixed effects, dynamic system generalized system of moments (GMM), and instrumental variable regressions using external instruments. The study finds that remittances are positively linked with a number of proxies for financial development including the ratios of deposits to GDP, credit to GDP, and the private sector credit to GDP. This study also finds that remittances are positively associated with the money outside depository corporations, confirming the need for an increase in recorded remittances by lowering the transfer fees in order to facilitate the shift of funds from the informal sector to the formal sector.

Chapter 7 provides a synopsis of the thesis, along with the discussion of limitations associated with the research. This final section offers a summary of conclusions and avenues for further research.

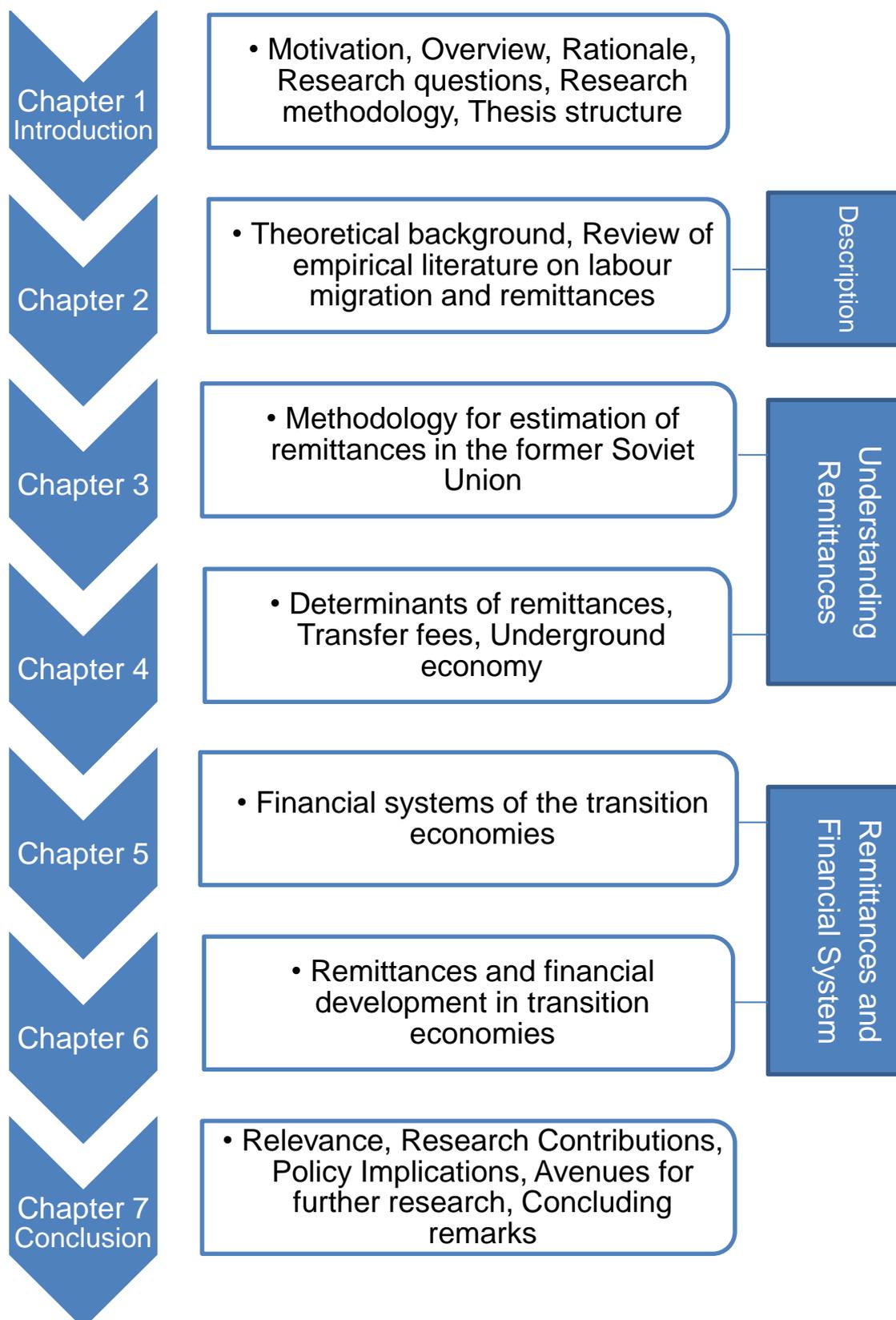


Figure 1.2 Structure of the thesis

## **Chapter 2. Theoretical background and empirical literature on labour migration and remittances**

### **2.1 Introduction**

The goal of this chapter is to introduce the main theories and empirical literature on labour migration and remittances. Literature on labour migration and its consequent remittances have expanded over the last three decades, which reflects an increased significance of the topic. The main theories provide a foundation for analysis in the framework of this inquiry into this subject area, whereas majority of the instruments of the empirical research will be extensively used in the thesis. This chapter briefly outlines the major theories of labour migration, literature on remittances measurement as well as literature on the impact of remittances on the financial systems. Section 2.2 reviews the main theories of labour migration from economic, sociologic, and geographic perspectives. This reflects interdisciplinary character of the research in this field where methods and insights of several established disciplines and traditional fields of study are applied. Section 2.3 outlines the two major theoretical models describing potential macroeconomic effects of remittances – Keynesian and Mundell-Fleming models as well as recent literature on the impact of remittances on economic growth and poverty levels. Section 2.4 presents the literature on the measurement of remittances. Section 2.5 provides an overview of the empirical research on the impact of remittances on the financial system. Finally, the chapter ends with brief concluding remarks.

## 2.2 Theories of Labour Migration

A brief overview of the most significant labour migration theories developed by scholars of various disciplinary backgrounds is presented in Table 2.1.

**Table 2.1 Theoretical research on labour migration**

Author(s)	Paper title	Methodology	Conclusion
Stark (1991)	The Migration of Labor	Empirical tests on the relationship between remittance behavior and home family characteristics	The empirical research results in working out of the New Economics of Labor Migration (NELM). According to NELM, labor migration is a household decision. Migration can be viewed as a result of risk aversion on the part of a household that has insufficient income.
Harris and Todaro (1970)	Migration, Unemployment and Development: A Two-Sector Analysis	Analytical two-sector model of rural-urban migration.	The migration decision is based on expected income differentials between rural and urban areas rather than just wage differentials.
Zipf (1946)	The P1P2/D Hypothesis: On the Intercity Movement of Persons	Equations and notions of classical physics are used to seek simplified insights of migrant behaviour.	The number of migrants from one city to another is a function of the distance separating the cities, since the effort and cost required to cover greater distances would increase with the distance travelled.
Piore (1979)	Birds of Passage: Migrant Labor and Industrial Societies.	Qualitative analyses of a framework built around the notion of circular migration through the secondary sector of a dual labor market	Three possible explanations for the demand for foreign workers in modern industrial societies: general labour shortages, the need to fill the bottom positions in the job hierarchy, and labour shortages in the secondary segment of a dual labour market.
Lee (1966)	A Theory of Migration	Qualitative analyses of factors causing migrations.	There are sets of "push" factors at origin and "pull" factors at destination, which influence a migration decision.
Wallerstein (1974)	The rise and future demise of the world capitalist system: concepts for comparative analysis	Qualitative analyses, which traces the rise of the world system from the 15th century, when European feudal economy suffered a crisis and was transformed into a capitalist one	Migration is a natural consequence of economic globalization and market penetration across national boundaries
Sjaastad (1962)	The costs and returns of human migration.	Equation analyses to identify the costs and returns to migration.	Migration should be viewed as an investment in human capital.

Microeconomic research on labour migration tends to focus on reasons for migration whereas research on microeconomics of remittances focuses on explaining money transfer behaviour. “Raw material” for microeconomic research is usually household level data from various types of surveys, such as Living Standards Measurement Surveys (LSMS), Household Budget Surveys (HBS), population census and etc.. One of the major problems in microeconomic level research into migration and remittances is the difficulty to disaggregate different motives for migration and remittance behaviour. In many cases the same motives could be accountable for the same type of migration and remittance behaviour. For instance, a person in migration remitting money back home may be doing this based on purely altruistic considerations or to repay the loan taken to finance his/her migration. Alternatively, the same person may be motivated by the possibility of inheritance or making a reciprocal payment in exchange for various services that the household back home is fulfilling for him/her. While microeconomic research attempts to discriminate empirically between these quite distinct motives, in practice this distinction is very subtle and fuzzy, especially given the fact that the survey data at hand is not always elaborate and detailed.

Macroeconomic research, on the other hand, explores the impact of labour migration and remittances on the economic growth, economic structure, financial sector development, inequality and some other macroeconomic variables. There are no unequivocal findings on the possible impact of major variables and contrasting conclusions regarding the implications of migration and remittances are not unusual. This could be due to poor quality data as suggested by Rapoport and Docquier (2006) or peculiarities of different countries where remittances take place.

The first step in understanding the impact of remittances is to explain why people migrate and what motivates them to make remittances. Basic definition of human migration is a physical movement of people from one area to another. Migration existed from the ancient times when it was predominantly nomadic in nature. Today this type of human migration has virtually disappeared. Current definition of migration is understood to cover all cases where the decision to migrate is taken freely by an individual and without intervention of an external compelling factor. Therefore, migration could be defined as the movement of people to another country or region to improve their own or their families' material or social conditions. One of the pioneers of studying the concepts of migration as understood today was Ernst Georg Ravenstein, who published his famous paper entitled "The Laws of Migration" in 1885 (Ravenstein 1885, pp. 167-235). He stated the following collection of empirical regularities:

1. Most migration moves are over a short distance;
2. Migration occurs in steps;
3. Long-range migrants usually move to urban areas;
4. Each migration produces a movement in the opposite direction (although not necessarily of the same volume);
5. Rural dwellers are more migratory than urban dwellers;
6. Within their own country females are more migratory than males, but males are more migratory over longer distances;
7. Most migrants are adults;
8. Large towns grow more by migration than by natural growth;
9. Migration intensifies with economic development;
10. Migration is mostly due to economic causes.

Although these observations were far from becoming a theory of migration, these findings stimulated further work on migration issues. One stream of the early migration models used the physical concept of gravity, analogous to Newton's law of gravity, and explained migration as a function of the size of the origin and destination populations and predicted migration to be inversely related to distance (Isard 1960; Stewart 1941; Zipf 1946). One of the first neoclassical macroeconomic migration theories developed in 1950s predicts migration and capital movements when there is a wage differential between two economies, one characterized by a surplus of labour and the other has a surplus of capital (Lewis 1954). Harris and Todaro (1970) developed the neoclassical model of migration further by assuming that a migration decision is based on expected income differentials between rural and urban areas rather than just wage differentials. This implies that rural-urban migration in a context of high urban unemployment can be economically rational if expected urban income exceeds expected rural income. This means that migration is a disequilibrium phenomenon, which ceases as soon as the equilibrium is reached. This model over-emphasizes the significance of mercantile-pragmatic considerations and fails to explain return migration from a higher wage country (e.g. return of Turkish migrants from Europe to Turkey) as well as the presence of the migration flow when there is no significant wage differential. Another representative of the neoclassical school Sjaastad (1962) pointed out the link between migration and investment in human capital. According to the author, a prospective migrant makes a rational cost-benefit calculation of the expected discounted returns of migration over future time periods and chooses the destination which maximizes the present value of lifetime earnings. Since expected returns from migration are discounted, the age of the migrants

obviously plays a significant role. Therefore, the model predicts that the young and educated are usually the first to migrate. In this model information is freely available, which is obviously not the case in many developing countries.

The dual labour market theory explains migration as the result of a temporary pull factor, namely strong structural labour demand in developed countries (Piore 1979). According to Piore (1979), the labour markets in developed countries consist of two segments: primary, which requires high-skilled labour, and secondary, which is very labour-intensive but requires low-skilled workers. The local population moves to more attractive professions in the primary segment, while immigrants take up the '3D' (dirty, dangerous, and demeaning) jobs. Thus migration from less developed countries into more developed countries is a result of a pull created by a need for labour in the developed countries in their secondary market. At a first glance it seems that this model suits the reality well – we observe that in majority of cases migrants from developing countries take on '3D' jobs. However, it seems too narrow to focus only on one factor instigating migration. Besides that the model does not take into account social-family patterns of migrant decision making.

The World Systems Theory models migration from the global perspective (Wallerstein 1974). This model assumes that international migration is associated with the advances of the capitalist system and global markets, not only in the world's economic 'core', but also in semi-peripheral and peripheral regions. On the one hand, land consolidation, new capitalist farming methods and manufacturing plants have created a socially uprooted population with weakened attachments to their land, which is more prone to migration. On the other hand, there is an increasing demand for low skilled labour in the core

regions, where jobs in the manufacturing sector become less and less desirable for the local population, following the shift towards the service-based economy. Thus, this theory makes steps forward to admitting structural roots of migration. However, just like many other models, it neglects social and individual aspects of the migration decision.

Lee (1966) was the first to divide factors causing migrations into two groups of factors: push and pull factors. His theory explains that migration is determined by the presence of attracting (pull) factors at destination, such as job opportunities, better living conditions, political/religious freedom, education, better medical care, security and etc. as well as repelling (push) factors at origin, such as not enough jobs, few opportunities, primitive conditions, political fear of persecution, poor medical care, natural disasters, death threats, lack of political or religious freedom, pollution, discrimination, war, etc. These factors are mediated by intermediary hurdles, such as migration laws and are affected by personal factors, e.g. how the migrant perceives the factors. The Lee (1966) approach represents more a grouping of factors affecting migration, without considering the exact causal mechanisms (Hagen-Zanker 2010).

American sociologist Merton (1968) was one of the first who used the terms 'relative deprivation' and "reference group." Further the concept of relative deprivation was applied to migration theory by Stark (1991). This model states that awareness of the income difference between neighbours or other households in the migrant-sending community is an important factor in migration. The incentive to migrate is a lot higher in areas that have a high level of economic inequality. In the short run, remittances may increase inequality, but in the long run, they may actually decrease it. There are two stages of

migration for a worker: first, they invest in human capital formation, and then they try to capitalize on their investments. In this way, successful migrants may use their new capital to provide for better schooling for their children and better homes for their families. Successful high-skilled emigrants may serve as an example for neighbours and potential migrants who hope to achieve that level of success.

The New Economics of Labour Migration (NELM) developed by Stark (1991) in collaboration with a number of other economists in the 1980s admits the relevance of other theories of migration – the income differential of the neoclassical model as well as relative deprivation matter. However, migration flows and patterns cannot be explained solely at the level of individual workers and their economic incentives, as these theories of migration suggest. The NELM proposes to take into account wider social entities such as household members. In fact, according to the NELM, the migration decision is a “calculated strategy” of a household aimed at improving the well-being of the whole family and not an “act of desperation or boundless optimism” (Stark 1996, p. 26). According to the NELM, by sending a member of a household to migrate, a household maximizes joint income, status and minimizes risks. Thus the NELM makes another important insight into the migration decision by linking labour migration decision with public policy and capital market failures in the labour source countries. In making the decision on migration, households design their own strategy to cope with absence of appropriate credit, insurance instruments and public protection. Remittances from a family member abroad provide with an additional source of funding, insurance in case the main source of family income falters, and financial protection in case of rainy days. As such, migration can be viewed as a result of risk aversion on the part of a household that has

insufficient income. In general, the NELM proved to be an innovative, realistic, useful and widely applied in recent migration studies. Critics of the NELM, such as Hagen-Zanker (2010), point out its strong assumptions of rationality, whereas others, such as Aslan (2011), criticize NELM for its neglect of the role of informal institutions as non-rational and non-economic determinants of human motivation and behaviour. In the context of Central Asia, these informal institutions and social network seem to play a significant role in migration decisions.

Massey et al. (1993, 1999) attempt to unify various migration theories and to develop further Taylor's (1984) idea that a very important pull factor for migration is the presence of interpersonal migrant networks in the receiving country, which are comprised of people sharing kinship, friendship or origin. This theory argues that migrants are attracted by the fact that other migrants from the same ethnic group are present in the countries of destination, thus allowing for the network externalities to facilitate migration. According to Massey et al. (1999) the factors that influence migration to commence could be very different from the conditions that make migration to continue, i.e. perpetuate. After the initial phase of pioneer migration, migration acquires snowball effect in the community, with more and more people following the current migrants and getting their assistance until migration becomes self-sustaining. The main role of networks is to reduce various costs, not only monetary but also psychological, and also reduce the risks associated with migration. Moreover, networks help facilitate the flow of migrants between the origin and destination countries. This theory seems to describe the current stage of migration flows of migrants from Uzbekistan to Russia, Kazakhstan, and Turkey, very well where migrant flows are facilitated by presence of sizeable migrant communities.

These migrant communities help new migrants to travel to, find jobs, and settle in the destination countries.

### **2.3 Macroeconomics of Remittances**

As Rapoport and Docquier (2006) rightly point out, from the view point of macroeconomic effects of migration there is no difference how the money earned by migrants is brought to the migrant-sending country – via remittances or in the form of savings. Therefore, in the analysis that follows, remittances are just a common label for the funds brought to the economy by migrants.

It is generally recognized that in the long-run remittances can generate output growth either by increasing consumption or by increasing investment. In the short run the impact of remittances on receiving economies could be mixed. In some countries outflows of workers (especially skilled workers) can reduce growth in the country of origin, which is not a problem for countries with excess unskilled labour, such as Uzbekistan, Tajikistan, Kyrgyzstan, and etc.. Remittances may also induce recipient households to choose more leisure than labour, with adverse effects on growth (Chami et al. 2003). However, the potentially positive multiplier effects of remittances may well promote growth, as, for instance, when remittances are used to purchase domestically produced goods and services (Das and Serieux 2010; Stahl and Habib 1989). Thus, in the Central Asian context, taking into account the relatively high marginal propensity to consume for low income households, the significant multiplier effect of households' consumption decisions should not be underestimated.

The most popular theoretical frameworks used to assess the macroeconomics of remittances are the Keynesian and Mundell-Fleming

models (Fleming 1962; Keynes 1937; Mundell 1963). Under the assumptions of sticky prices, fixed exchange and interest rates, and in the absence of supply constraints, the Keynesian model predicts that any shock on the demand side has an effect on the national output. According to the model, the magnitude of this impact depends on the Keynesian multiplier (which, in turn, depends on several parameters such as the marginal propensity to import), and on the size of the transfer shock (which depends on the amounts received and on the recipients' marginal propensity to consume remittances and marginal propensity to save). Applying the Keynesian model to Uzbekistan, for instance, the lack of expenditure data on GDP precludes any numerical assessment of the marginal propensity to save, although low consumer bank deposits and quick withdrawals of remittances suggest that saving is either very small or mainly held outside the formal financial system. On the other hand, booming imports (most of which is smuggled (Kaminski and Raballand 2009)), in parallel with growing inflows of remittances, suggest that a significant part of remittances is spent on (imported) consumption. If these assumptions are correct, the effect of remittances on "official" economic growth could be small. Although, as discussed later, unofficially invested and saved remittances may have a significant impact on the "underground" economy and indirectly on the "official" economy.

Whereas the Keynesian model could be more appropriate for large closed economies, the Mundell-Fleming model of an open economy with fixed prices and a single composite good seems better suited for analysis of the short-run economy-wide consequences of remittances. In essence, the Mundell-Fleming model extends the Keynesian model to a small open economy. According to Mundell-Fleming model, the impact of international

transfers on GDP growth depends on the degree of capital mobility and the prevailing exchange-rate regime. In economic conditions with perfect capital mobility and a flexible exchange-rate regime, the equilibrium level of GDP is fully determined on the financial markets and, hence, is unaffected by international transfers. Therefore, according to this model, an increase in the aggregate amount of remittances may stimulate national expenditure, but this effect is compensated by a currency appreciation. Hence, with the exchange rate adjustment, GDP will fall back, with virtually no eventual net effect on the GDP level. In an economy with a pure fixed exchange-rate regime, on the other hand, the equilibrium of the balance of payments is obtained through changes in the money supply, when the authorities do not sterilise reserve flows generated by remittances. Thus it is only in the economy with fixed exchange rates that a rise in the aggregate amount of remittances may induce an increase in national income. Therefore, in accordance with the Mundell-Fleming model, the impact of any shock induced by remittances depends on the degree of capital mobility and on the exchange-rate regime. However, the presence of expectations as an endogenous factor in the determination of wages and prices alters the outcomes of the model. If remittances induced expenditure shocks are expected by wage-setters, the effect on the level of activity would depend on the extent to which wages and prices are flexible. If prices are flexible, then there should be no effect on output due to the fact that only unexpected shocks may change the natural output level. If prices or wage adjustments are sluggish, temporary real effects could be obtained. It should be noted at this point that the Keynesian model seems to be more appropriate for the case of Uzbekistan, since it is a small open economy with relatively strong restrictions on capital

mobility where the foreign exchange regime could be described as a managed float with gradual depreciation of local currency.

Kireyev (2006, p. 1) evaluated the impact of remittances in Tajikistan using Keynesian Model, Mundell-Fleming Model, and Rybcshinsky theorem (1955) and concludes "...that the overall macroeconomic impact of remittances is likely to be ambiguous. The impact depends on the structural characteristics of the receiving country, in particular its consumption and investment patterns, and its capacity to manage large financial inflows."

Some of the recent literature, including Acosta et al. (2007) suggested positive relationships between capital accumulation from remittances and poverty reduction in recipient countries. Though the results seem varied and the poverty reduction impact is heterogeneous in different countries, most of the econometric models utilized cross-country data and therefore there is a need to validate this research further using country-specific case studies. Straubhaar (1992, p. 126) analysed the impact of emigration in the 1960's and in the beginning of 1970s for the Turkish economy and argued that "on an aggregated national level, emigration was a weak economic power and its overall effects are rather marginal.... However, the simulation exercise suggests a positive contribution of emigration to the overall economic growth of the Turkish economy".

Global studies on the effect of remittances on economic growth have shown mixed results. For instance, Barajas et al. (2009) found that remittances have a negative effect on economic growth. However, their analysis was based on data from 84 developing countries and was good for making conclusions about average impact. When it comes to country-specific studies, Siddique et

al. (2012), analysed time series data over a 25 year period for Bangladesh, India, and Sri Lanka using the Granger causality test under a Vector Auto Regression (VAR) framework and came to the conclusion that remittances have positive impact on economic growth in Bangladesh. In India, they found no causal relationship between growth in remittances and economic growth, whereas in Sri Lanka, a two-way directional causality was found. That is economic growth influences growth in remittances and vice-versa. A study on the Philippines by Burgess and Haksar (2005) validated the finding of A. Barajas et al. (2009) that there is negative correlation between growth of remittances and economic growth. Ang (2007), generally followed the same framework as Burgess and Haksar (2005) but instead of using growth in per capita income, used real change in the GDP variable. He showed that economic growth had a positive and significant relationship with remittances growth. Giuliano and Ruiz-Arranz (2005) found significant negative relationship terms and interpreted these results as supportive of a credit constraint hypothesis: remittances appear to have positive effects on growth only in countries with small financial sectors, where their arrival serves to relax credit constraints. This diversity of results may be due to several reasons. The data for measuring remittances is much less reliable compared to other economic indicators (Lerch et al. 2008). Another reason for diverse findings may be the differing time periods and sets of countries included, which vary greatly among these studies. Yet another source of disparity could be the wide variation in the choice of variables used a proxy for remittances flows.

As to the impact of remittances on poverty, Adams and Page (2005), based on analysis of data from 71 countries, found that remittances have a positive effect on poverty reduction - their empirical study suggests that a 10 per

cent increase in the percentage of international remittances leads to a 1.6 per cent reduction on average in the size of the local population living in poverty. According to World Bank (2007) migration patterns in East European and former Soviet countries were such that richer households receive greater remittances than do poorer households. However, Koechlin and Leon (2007) found that as migrant communities form close networks in a foreign country, the cost of migration falls and remittances no longer reinforce inequalities in the recipient country. This seems to be the case for the former Soviet Union and, especially Central Asia, – labour migrants form informal networks in Russia and Kazakhstan (Aslan 2011; Juraev 2012), which allows greater size and composition of the migrant sending countries' population to participate in the labour migration. Juraev (2012) and Aslan (2011) also find anecdotal evidence of wider participation in labour migration leading to a decrease in inequality.

## **2.4 Measurement Issues and Remittance Channels**

As Chami (2008) notes, the magnitude and uniqueness of remittances may have a considerable macroeconomic effects. Therefore, researchers must take care to properly define remittances and collect suitable data to accurately measure remittances. However, the measurement of remittances is still marred with measurement discrepancies because of the variety of concepts and methodologies used (Lerch et al. 2008). Even though the new IMF framework BPM6 (Balance of Payments and International Investment Position Manual, 6<sup>th</sup> edition), applied from August 2012, have made a significant progress in capturing remittances, precise measurement of remittances to identify its relevant impact on the economic variables of interest is still problematic.

In general, migrants' remittance transfer channels could be divided into formal and informal channels. Formal or official channels utilize money transfer operators (MTOs) sometimes termed remittance service providers (RSPs). These include such globally popular services as Western Union, MoneyGram and regional players, such as Contact, Unistream, Anelik, and others. Competition among Western Union, MoneyGram and local services providers has been very intensive in the region with more than 20 MTOs competing in the market. Even telecommunications companies, such as MTS and Evroset entered the market as partners of Zolotaya Korona (one of the leading MTOs in the region). This brought the costs of official transfers down even further. In addition, labour migrants transfer significant amount of their earnings via informal channels including friends, community members, or bring money themselves, using a system similar to "hawala", in kind, and etc.. The presence of informal channels complicates the measurement of remittances.

According to the World Bank's Remittance Prices Worldwide database, the average remittance cost, weighted by bilateral remittance flows, has been constantly declining. Average cost to make remittances fell from 8.8 per cent in 2008 to 7.3 per cent in the third quarter of 2011 (World Bank 2013d). This trend definitely increased the flow of remittances via official channels making the measurement of remittances more reliable. However, there is still a potential for further improvements. There are several policy options available to governments of the migrant-sending countries to promote further reductions of fees for remittances. These include fostering competition among RSPs to reduce their fees, establishing migrant bank accounts with incentives for remitting or investing in the home country, or simply working to extend financial services to the large unbanked migrant population (Levitt and De La Dehesa

2003). The level of integration of migrants into the host country's society may also be relevant in the choice of transmission channels as better integrated migrants are more likely to use official channels and to influence recipients in the remittance receiving country to use banking system. However, Siegel (2010) in her research on the choice of remittance channels of six largest migrant groups in the Netherlands (Surinamese, Antilleans, Moroccans, Turks, Somalis, Ghanaians) found that immigrant integration was not the only factor in the remittance channel decisions of these migrant groups. Turks working in the Netherlands remit, to a large extent, through banks despite the fact that they are one of the less integrated migrant groups in the Netherlands. Siegel (2010) explains this by the fact that they are mostly served by their native Turkish banks in the Netherlands. This finding implies that groups that were less integrated could still remit formally because the formal transfers were strongly embedded in their culture or society.

Hernandez-Coss et al. (2006) emphasized the following factors that constrained the expansion of the formal remittances in the Italy-Albania remittance corridor and encouraged the physical transfer of cash: limited access to bank services by remittance-recipient households in Albania and senders in Italy, lack of trust in the Albanian banking system, limited number of remittance banking products, cost considerations, and the black market for foreign exchange. It appears that most of these factors are relevant for the former Soviet Union too. However, a closer look reveals rather different outcomes at the individual country level. For instance, the black market for foreign exchange, despite its significant size in Uzbekistan, does not seem to affect the functioning of the remittance corridors between Uzbekistan and migrant recipient countries because all remittances by MTOs in Uzbekistan deliver cash to the beneficiaries

in hard currency. Lack of trust in the banking system seems to be offset by trust in MTOs because of the short-term nature of holding funds with the providers. A limited number of remittance banking products is not a major concern for unsophisticated Uzbek migrants and their families either. Although commercial banks in Uzbekistan sometimes struggle with disbursing hard currency and even extort bribes from users for their services rendered (Ozodlik 2015), these seem to happen only in the end of year. End of year is the time when Uzbek households' expenditures increase many times in preparation for new festivities and the amount of remittances also increase. Apparently, MTOs temporarily lose control over increased influx and are not able to deliver the necessary amount of hard currency on time.

In the case of former Soviet republics, many scholars note an increase in the volume of formal channels (Mughal 2007; Muradova 2009; Roberts and Banaian 2004). In the case of Tajikistan, a 2009 survey of 1,267 households indicated that 87 per cent of migrants sent remittances through formal channels and 12 per cent send money with other people (Poghossian et al. 2010). One of the main reasons for such a high level of use of official channels is the relatively small transaction costs associated with intensive competition among MTOs and with the entry of the low cost money transfer operators to the Commonwealth of Independent States (CIS)<sup>2</sup> market.

Grace (2005) pointed out that the entry of credit unions into the remittance business in the North American hemisphere resulted not only in lowering the fees but also led to a partial integration of unbanked senders and receivers into the financial system. The remittance services enable credit unions to leverage their existing infrastructures to offer money transfers and develop

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<sup>2</sup> CIS is a regional organization whose participating countries are former Soviet Republics

new relationships. Unlike MTOs which offer the only one product (money transfers), credit unions offer a range of products encompassing savings, credit, and insurance products, and therefore can set lower prices than for-profit money transfer companies and may generate revenue on the relationships and cross-selling. Grace (2005, p. 169) noted that "...credit unions in the United States offer remittance services at prices well below the competition for key markets such as Mexico and Central America. For example, it costs only US\$10 to send up to US\$1,000 to El Salvador, Guatemala, or Honduras through participating credit unions" as opposed to US\$60-65 charged by market leaders in remittance service in the same remittance corridor.

Bielefeld and Koning (2005) emphasized problems related to market information which remitting migrants face in making the decision how to send money home. Most frequently they rely on the experience of other migrants in this decision making process. However, the transmission channel choice of other migrants may not be the most correct and efficient one all the time.

Maimbo and Passas (2005) discussed issues related to regulation and supervision of activities of informal money transfer systems such as *Hawala*, *Hundi*, *Fei Chien*, *Phoe Kuan* and etc.. They stress that these issues became especially urgent under the spotlight after the events of 11 September 2001. They pointed at *Hawala* as more vulnerable to abuse by criminal organizations and militants and noted that the major challenges are difficulty in detecting criminal activities. This is due to the fact that legal activities in many cases comingle with illegal operations. Therefore, it is difficult to target illegal activities without disrupting numerous innocent customers or transactions that these systems serve. Maimbo and Passas (2005, p. 223) emphasized that it is vital to

consider “specific domestic circumstances and legal systems” while measures should to be taken to improve transparency of these systems. Thus, although the informal money (or value) transfer systems have their own very special role in certain circumstances and in the case of certain countries with virtually non-existent financial system (e.g. Somali and Afghanistan), the use of formal systems to send remittances significantly enhances the development potential of remittances and promotes greater transparency in the market (Ratha 2003).

Hernandez-Coss (2005) identified a remittance sender’s perceived incentives to use formal or informal systems and described a number of successful bilateral initiatives and formal products and services designed to encourage flow of remittances through formal channels. The perceived incentives for using informal transfer channels include anonymity and secrecy, cultural familiarity with informal transfer channels, personal contacts with operators of these transfer channels, simpler dispute resolution mechanisms, accessibility (both time wise and geographically), speed, and cost.

## **2.5 Empirical Literature on Determinants of Remittances**

One of the controversial topics in the discourse on determinants of remittances is the role of education in the remittance decisions of a migrant. For instance, an inquiry into the determinants of international remittances by Adams Jr (2009), using an instrumental variable approach in cross-sectional dataset, concluded that countries which “send” a larger share of educated migrants receive less per capita remittances than countries which delegate a larger proportion of low-skilled migrants. Faini (2007), employing pooled OLS, tobit, and instrumental variable techniques, found that skilled migration is associated

with a smaller propensity to remit in a cross-country dataset. This is because highly skilled migrants come from predominantly wealthy families, spend a longer time abroad and reunite with their families in the host country thereby weakening their ties with their home country, and are less likely to return to the country of origin. Durand et al. (1996), using the bivariate probit model, also found that as education increases the likelihood of remittances among Mexican migrants in the US falls. However, their OLS estimator indicates that “migradollars” increase with each year of schooling. More importantly, in the same OLS estimation the amount of repatriated funds decline with age, marriage, US settlement and attainment of a stable job in the US. This leads to the conclusion that, based on Durand et al. (1996) research, while educated migrants are less likely to remit, the amount of remittances among better educated migrants is higher, while controlling for job stability. Therefore, it is still likely that remittances from better educated *permanent* migrants are much smaller. In a similar vein, considering this issue through the prism of the co-insurance motive and applying tobit regressions in the case of the Mexico-US remittance corridor, Amuedo-Dorantes and Pozo (2006) conclude that for relatively young, unskilled migrants with large families at home and who are under greater income risk, the co-insurance motive may prevail and they have higher propensity to remit. Hoddinott (1994), Banerjee (1984), and Lucas and Stark (1985), on the other hand, found a positive relationship between migrants’ education levels and the level of remittances.

It is believed that under certain circumstances, when the education level positively influences remittances, it could be a sign of the loan-repayment motive driving up remittance levels. Remittances are also a means for the educated migrants to pay back the investment in their education by their

parents in countries, where loan markets are not well developed, to fulfil their role of financier. However, the authors who found a positive relationship between education levels and remittances did this in the case of predominantly internal rural-urban migration in Kenya, India, and Botswana respectively. Migration and remittance patterns in international migration could be quite different. Therefore, in cross country analysis it appears that poor, unskilled migrants tend to remit more than rich and skilled ones. It should be noted that even if the education level adversely impacts remittances, there is at least one positive externality associated with skilled migration. It is noted that skilled migration may encourage investments in the education sector, if other potential migrants see success stories of educated migrants and, therefore, increase demand for good quality education (Beine et al. 2003; Mountford 1997; Stark et al. 1998).

Schiopu and Siegfried (2006), using bilateral panel data for remittance recipient countries close to the European Union also come to the conclusion that a higher share of low skilled immigrants lowers remittances. One common shortcoming of all these studies of international migration is related to data coverage and quality. Adams Jr (2009) and Faini (2007) use data on the education level of migrants compiled by Docquier and Marfouk (2005), which includes only OECD countries and only officially recorded migrants. Schiopu and Siegfried (2006) also utilize OECD data on legal migrants. This may have resulted in a certain selection bias. All other authors use cross-sectional survey data, with its own limitations and biases in each case.

Another debate in the macroeconomic context, which is related to patterns of migration and remittances in the former Soviet Union, is a discourse

on the pro-cyclical, acyclical, or counter-cyclical character of remittances. This has some important implications for investment and poverty alleviation policies of each country. There is a strand of literature which, employing panel techniques, finds evidence of counter-cyclicity in the case of remittances, both worldwide (Chami et al. 2003) and in Sub-Saharan Africa (Singh et al. 2010). However, there are also a number of studies unveiling the pro-cyclical character of remittances (Sayan and Tekin-Koru 2012). Since pro-cyclicity and counter-cyclicity could serve as evidence of opposing motives for remittances - investment and altruism respectively, - it is surprising to observe the presence of both in the same country – Turkey - albeit at different periods of time and when dealing with data of different frequencies (Akkoyunlu and Kholodilin 2008; Alper and Neyapti 2006; Aydas et al. 2005). A simple explanation to this anomaly is that although the stock of Turkish migrants in Germany stabilized in early 1970s, the migrants' ties with their own country were different in different periods. In the period from the 1960s to the mid-1990s, the Turkish migrants considered their work in Germany as temporary, maintained close ties with their families in Turkey, and remitted on altruistic motives to smooth consumption of households left behind. Starting from the late 1980s Turkish migrants started to settle down, families of Turkish migrants re-unified in Germany, ties with households back in Turkey faded and self-interest (investment) motive started to take an upper hand. Thus, in general, empirical studies agree that temporary migrants and those facing higher risks are more likely to remit than permanent migrants (Amuedo-Dorantes and Pozo 2006; Djajić 1989; Glytsos 1997; Sayan and Tekin-Koru 2012).

As migrants achieve job security, this may result not only in different motives for remittances as noted above, but also in “remittance decay”

(Banerjee 1984; Funkhouser 1995). Remittance flows may still continue but these flows will be motivated by investment considerations rather than consumption smoothing (Sayan & Tekin-Koru 2012). An interesting finding from Orozco et al. (2006) is that female migrants tend to remit more counter-cyclically (altruistic motive) when compared to men. The altruism of male migrants increases when their spouses are left behind in the home country. Analysing business cycles and remittance patterns of USA-Mexico and Germany-Turkey remittance corridors, Sayan and Tekin-Koru (2007) note that counter-cyclicality of the former and pro-cyclicality of the latter is probably at least partly associated with a higher level of illegal migration and its temporary character in the case of USA-Mexico corridor and the predominantly legal and permanent (since 1980s) character of migration from Turkey to Germany. Exposed to higher risk, as a result of being illegal, and separated from their families, Mexican migrants see their future back in Mexico and remit from the USA counter-cyclically.

While Mexico and Turkey appear to have comparable income levels, another explanation for these differences in motives for remittances is the fact that remittance decisions could be different for different income level countries. Investigating a sample of six low income and six lower-middle-income countries by computing unconditional correlations between detrended remittances and detrended real GDP, Sayan (2006) finds that in two of the lower-middle-income countries remittances were pro-cyclical; for two low-income countries they were countercyclical; and remittances were acyclical for the rest of the countries. Therefore, there is some ground for arguing that for low income countries remittances are counter-cyclical (altruistic) and for the lower-middle income country group remittances become pro-cyclical (investment motive). Yet,

another possibility is that host and home economies cycles could be moving in synchrony, which would not allow workers in the host economy to increase their remittances during economic slowdown in both countries even if they were motivated to do so. Finally, in some of the remittance dependent countries the economic growth or slowdown could be caused by an increase or decrease respectively in the flow of remittances (Sayan 2006).

Since migration in the former Soviet Union is dominated by low skilled temporary migration with a substantial share of illegal migrants and the majority of migrants are young males coming from poor families, it is reasonable to expect a greater propensity to remit (Aslan 2011; Juraev 2012; Mughal 2007; Opalev 2015; Rustamov 2008; UNDP 2008). Given strong interconnections between the Russian Federation and other former Soviet Union countries, it is also expected that remittances are pro-cyclical in this part of the world.

Vargas-Silva and Huang (2006), using a Vector Error Correction Model to address endogeneity problem between remittances and other macroeconomic variables, found that host country conditions (USA) are more important than home country conditions (Brazil, Colombia, Dominican Republic, El Salvador and Mexico) conditions for remittance flows. While these authors found host country conditions to be more important in stable conditions, the recent downfall in remittances from Russia to the CIS countries could confirm this with a rather extreme example. The slowdown in Russian economic growth as a result of falling prices for minerals and sanctions against Russia for its role in Ukrainian turmoil brought down remittances sent from Russia to all CIS countries by up to 50 per cent of their value in the first quarter of 2015 as compared with the first quarter of 2014.

Contrary to Vargas-Silva and Huang (2006) findings, Sayan and Tekin-Koru (2012) argue that in the case of the Germany-Turkey corridor, remittance flows are more responsive to developments in the home economy. In contrast, the International Monetary Fund (2005) argues that, in a way, host and home countries must compete for the part of remittances designated for investment purposes because a greater potential return to assets in the host country may induce migrants to invest in the host country instead of their home country. Thus, while host country variables are important, the high cost of remittances and non-conducive business environment in the home country may have detrimental consequences and result in lost opportunities for home countries. A number of studies found proof of the positive link between political stability in home countries and remittances, e.g. in the case of Turkey (Aydas et al. 2005; Sayan and Tekin-Koru 2012; Straubhaar 1986). In contrast, Schrooten (2005), considering the case of transition countries found that remittances increase during wars. It appears that this difference could be again due to the nature of migration: temporary versus permanent. It appears that temporary migration is a dominant type in transition countries.

It is also worth noting that there is evidence that low-skilled migrants are more likely to return home (Stark 1995) and less successful migrants have a higher propensity to return (Borjas 1989; Borjas & Bratsberg 1994). Although in the case of the former Soviet Union, the return of migrants is not necessarily because they failed to succeed in the host country. In this case, migrants travel to Russia usually with no intention to settle in Russia but rather return to their homeland. Thus, in most circumstances, the return of migrants in this region is planned beforehand. Intention to return increases remittances (Ahlburg and Brown 1998; Dustmann and Mestres 2010; Sinning 2011).

On the other hand, migrants are more likely to send remittances to entrepreneurially vibrant communities (Durand et al. 1996). This puts emphasis on creating a favourable business environment in the home countries. In addition, hardship also increases remittances (Bouhga-Hagbe 2006). Therefore, from the viewpoint of policy making, the low-skilled migration to Russia and difficult living conditions of migrants in the home countries should increase the return rates as well as remittances. To this end Havolli (2011), using household survey data for Kosovo and applying OLS, tobit and probit estimators, shows that perceptions about the business environment among migrants are very important determinants of the level of remittances. Woodruff and Zenteno (2001) using a survey of more than 6000 self-employed workers and small firm owners located in 44 urban areas of Mexico, estimated the impact of access to remittances on capital investment in micro-enterprises. The analysis indicates that remittances are responsible for more than one-quarter of the capital invested in micro-enterprises throughout urban Mexico. In the Mexican states with the highest rates of migration to the United States, they estimate that more than 40 per cent of the capital invested in microenterprises is associated with remittances. A non-parametric estimator based on monthly exchange rate returns used by Higgins et al. (2004) shows that the migrants are sensitive to the potential economic returns for their remittances. El-Sakka and McNabb (1999) maintain that the size of the black market and interest rate differential (important consideration in investing in home economy) between host and home countries affect remittances negatively. However, since these authors employ time series methodologies and do not mention any tests or adjustments with regards to stationarity of the variables, the results of this paper must be treated with caution.

## **2.6 Empirical Literature on the Impact of Remittances on Financial System**

Giuliano and Ruiz-Arranz (2005) studied how the level of development of the financial sector in the developing countries influenced the developing countries' capacity to take advantage of remittances. The surprising conclusion from this research covering about 100 developing countries was that remittances boost growth in countries with less developed financial system by providing an alternative way to finance investments. In contrast in countries with developed financial systems, the remittances did not seem to magnify economic growth. The research also indicated that the investments triggered by remittances are pro-cyclical – increasing with the number of profitable investment opportunities in countries with shallow financial system. The authors applied the Generalized Method of Moments method, where they utilized various proxies for financial sector development (M2/GDP, Deposits/GDP, Claims on Private Sector/GDP, Bank Credit/GDP). They tested financial development variables on a range of independent variables, such as remittances and investments. However, Giuliano and Ruiz-Arranz (2005) findings should be treated with caution because the authors do not take into account a host of other factors (peculiarities of business environment, institutional aspects, migrant skills acquired during migration and many others) which may account for the link between remittances and growth. Moreover, this global cross-country research does not explore the peculiarities of each individual country or region, for which a country case study or a time series analysis is more applicable. An alternative approach could be to focus on an economically, politically, geographically, historically, and culturally homogeneous region with similar initial economic and

political conditions at the outset of remittance flow to the region. The case of the former Soviet republics receiving remittances from Russia provides a perfect natural experimental case for this type of research.

Fritz et al. (2008), in their qualitative review, criticized the findings of Giuliano and Ruiz-Arranz (2005) on the grounds that their research does not take into account the existence of informal remittances, the volume and share of which in total remittances could be very high in countries with weakly developed financial systems. In fact, this is one more proof of the dangers of making generalizations as a result of cross-country analyses in the research devoted to remittances, given the shortcomings of data discussed above and the fact that statistics do not always capture all remittances. This also points to the necessity for deeper country or regional case studies. On the other hand, cross-country studies provide a view on general trend, which is useful to get a 'bird's-eye view' on a phenomenon. When augmented with a country or regional case study, the cross-country research may be a powerful tool of investigation for such complex phenomena as labour migration and remittances.

Bettin and Zazzaro (2012) concentrate on the choice of traditional quantity based measures of financial development employed by Giuliano and Ruiz-Arranz (2005) and point out the inadequacy of these indicators for properly measuring financial sector or development efficiency. Efficiency is a very different concept. They used a quality-based indicator of financial development, namely an inefficiency index of the national banking system built on the basis of the widely employed cost to income ratio. Analysing a panel of 66 developing countries for the period 1991-2005, they showed that an efficient banking system complements the positive effect of remittances on GDP growth. Bettin

and Zazzaro (2012) argued that remittances not only relax liquidity constraints and guarantee access to credit, but can also contribute, when mediated by an efficient banking system, to funding growth-enhancing projects.

Aggarwal et al. (2011), using panel estimations over 99 developing countries for the 1975–2003 period, showed that remittances are associated with higher ratios of both banking deposits and credit to GDP (the latter to a lesser degree). This is also confirmed by Fajnzylber and Lopez (2007), who stress the importance of differences between countries in the degree of correlation between remittances and credit. According to Aggarwal et al. (2011), their research supports the concept that remittances promote financial development in developing countries, although they admit that they are not able to give a definite answer to the question of causality. Unlike many scholars, they do not claim general validity for their findings, because individual countries or regions may have experiences that differ from the aggregate results they present. Nevertheless, the study of Aggarwal et al. (2011) provides a good background launch for a closer look at the link between remittances and financial sector development at the regional and country level.

Pería et al. (2008) investigate the relationship between remittances and financial development in Latin America at the macro level using the cross-country analyses and at the micro level using the household survey data. The former is based on the approach of Aggarwal et al. (2011) and the latter is based on the survey data for 11 countries of Latin America. They compare the Latin American experience with the experience of other developing countries. The authors augment their cross-country research with case studies of the correlation between remittances and financial development in El Salvador and

Mexico. These case studies investigate the relationship between remittances and financial development in detail, attempting to correct for potential endogeneity biases. The authors also incorporate qualitative research in their investigation by including facts gathered during interviews with officials of banks in Latin America. Pería et al. (2008) conclude that remittances have a positive impact on the financial development of developing countries overall, but this effect is smaller for Latin American countries. In addition, the research reveals the likelihood of using deposit accounts is higher among remittances recipients, and deposit markets are more developed in areas where a larger percentage of the population receives remittances. However, the increased level of financial intermediation did not lead to bank loan and credit expansion.

Gupta et al. (2009) assessed the impact of remittances on poverty and financial development in sub-Saharan Africa (SSA) and came to conclusion that remittances have a poverty mitigating effect and promote financial development in the region. Thus, this research represents a good example of a relatively homogeneous regional study of the impact of remittances. The authors investigate the impact of remittances on financial development in SSA countries using an unbalanced panel of 44 countries and six time periods, composed of five-year averages from 1975 through 2004. The model of this study can be expressed with the following equation:

$$FD_{it} = \beta_1 Rem_{it} + \beta_2 X_{it} + \alpha_i + u_{it}$$

where  $i$  identifies the cross-section and  $t$  the time period,  $Rem$  is the remittances,  $X$  is the vector of control variables,  $\alpha_i$  captures the country-specific effect, and  $u_{it}$  is the error term.

The authors use both the random and the fixed effects panel regressions. In all instances remittances are significant as a positive determinant of financial development. To address endogeneity issue authors adopt three instrumental variables from Aggarwal et al. (2011) based on macroeconomic conditions in source countries. In general, even using the instrumental variables the estimated effect of remittances on financial development in SSA is still positive.

However, the impact of remittances on the financial sector may not be favourable in every region or country. The results of estimations may also vary depending on methodology applied. For instance, Motelle (2011), using the Granger causality test instead of GMM and data for remittances in Lesotho during the 1996-2008 period comes to conclusion that remittances do not cause financial development in the case of Lesotho. However, the opposite holds true – financial deepening leads to greater remittances through official channels.

Mundaca (2009) analyses the impact of both remittances and financial deepening on economic growth in the case of Latin America and Caribbean (LAC) countries using panel data for the period of 1970-2002. The author divides 25 LAC countries into 4 groups to test if the effect of remittances on growth in upper-middle income countries depends on the level of the remittances and on how poor the country is assuming that the economy consists of a sequence of three-period-lived, overlapping generations.

The core equation of Mundaca's model is represented by the following relation:

$$\Delta y_{it} = \xi y_{it-1} + \theta_1 Invpc_{it} + \theta_2 Rem_{it-1} + \theta_3 Fl_{it-1} + \lambda X_{it} + u_i + \varepsilon_{it}$$

where  $\Delta y_{it}$  is the per capita output growth rate for country  $i$  in year  $t$ ,  $X_{it}$  is the matrix containing demographic variables such as human capital and population growth for country  $i$  in year  $t$ .  $Invpc_{it}$  denotes gross fixed capital formation

(investment) per capita in logs, for each country at the beginning of year  $t$ .  $Rem_{it-1}$  is remittances as a percentage of GDP for country  $i$  at  $t - 1$ , and  $FI_{it-1}$  is the indicator of the degree of financial market development for country  $i$  at  $t - 1$ ,  $u_i$  is the unobserved country time-invariant effect which allows for heterogeneity in the means of the  $\Delta y_{it}$  series across countries and  $\varepsilon_{it}$  is the error term that is assumed to be independent across countries.

Mundaca estimates the impact of remittances and financial intermediation by applying the First-Difference GMM adding explanatory variables one by one. The author tests whether remittances have larger effects on growth with and without financial intermediation and finds that increases in *fixed capital investment per capita* will cause higher growth per capita, independent of which conditioning variables we include in the econometric model. *Remittances* have significant effects on per capita growth in all groups considered; the coefficients are numerically and statistically significant at any reasonable level.

Acosta et al. (2009) also apply GMM methodology and follow a framework similar to the one used by Aggarwal et al. (2011) and Gupta et al. (2009) to research the relationship between remittance inflows, financial sector development, and the real exchange rate movements. The authors use a panel data for 109 developing and transition countries for 1990-2003 to estimate whether financial sector development can prevent appreciation of the real exchange rate. In particular, they show that well-developed financial sectors can channel remittances into investment opportunities more effectively. The natural effect of remittances on the exchange rate (to appreciate the currency of a recipient country) is mitigated in countries with deeper and more sophisticated financial markets.

Noman and Uddin (2012) explore the relationships between remittances, banking sector development, and GDP in the cases of India, Sri-Lanka, Pakistan, and Bangladesh. For this research they use multivariate Granger causality tests, based on Error Correction Models and WDI data spanning 1976 to 2005. Noman and Uddin (2011) note that remittances and banking sector development do have an impact on growth. Nevertheless, in contrast to the conclusions of Motelle (2011), the development of the domestic banking sector does not have a significant impact on remittances in the case of these four countries of South Asia.

## **2.7 Conclusion**

The literature on labour migration, remittances and determinants thereof, return migration and their impact on financial system is growing. Although prior studies use different models and methodologies, the data on remittances in most of the cases comes from the same source (World Bank). The focus of these studies has been various: from a country case study to global studies of these impacts. Given the diversity of models and methodologies applied it comes as no surprise that the findings of these studies are diverse and quite contrary to each other in some cases. Another factor which influences the findings of research in this area is the quality of data on remittances. Notwithstanding significant progress in the measurement of remittances, the quality of remittance data is still inferior compared to measurement of other economic indicators.

Despite the notable increase in the body of research that has taken place, the research investigating the impact of remittances with a particular regional or country focus is still thin. Moreover, studies of the impact of migration and remittances on the financial sector and entrepreneurship with a

regional focus on Central and Eastern Europe, the former Soviet Union and especially Central Asia are even scarcer. This became one of the motivations of this research.

## **Chapter 3. Estimating Remittances in the Former Soviet Union: Methodological Complexities and Potential Solutions<sup>3</sup>**

### **3.1 Introduction**

Migrant remittances in the former Soviet region are a relatively recent trend. However, they became an important element of transitional economies since the beginning of the 2000s. The growth rate of remittances over the past decade is remarkable. In some countries of the former Soviet Union, remittances have reached staggering levels. For example, in Armenia, Kyrgyzstan, Moldova, Tajikistan, and Uzbekistan remittances now account for over 10 per cent of GDP, with Tajikistan leading the pack with annual remittances of approximately 50 per cent of GDP. Remittances in this group of economies now exceed foreign direct investment (FDI) and foreign assistance. Because this rapid rise in remittances is a relatively recent trend and obtaining reliable data is difficult, this area of research has been underexplored.

The situation changed in 2006 when the Central Bank of Russia (CBR) began publishing data on money transfers from Russia through money transfer operators (MTOs) by recipient country. Moreover, the CBR publishes the cross-border transactions of individuals (both residents and non-residents) conducted through all credit institutions (including MTOs). The statistics demonstrate that the largest proportion of remittances is channeled through MTOs. In 2012, the total volume of cross-border flows to the Commonwealth of Independent States (CIS) countries via all credit institutions equaled \$19.2 billion, whereas money transfers through MTOs amounted to US\$18.2 billion. Approximately 80 per cent of this US\$1 billion difference is due to transfers to Ukraine, Armenia, and

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<sup>3</sup> Major findings of this chapter were published in Jakhongir Kakhkharov and Alexandr Akimov, 'Estimating Remittances in the Former Soviet Union: Methodological Complexities and Potential Solutions', in Yusaf H. Akbar Rustam Jamilov (ed.), *Neo-Transitional Economics* (International Finance Review, 16: Emerald Group Publishing Limited, 2015), 337-62.

Georgia – countries with more developed financial systems<sup>4</sup>. Remittances to these countries are often sent using bank wire transfers. The fact that the majority of remittances are conducted via MTOs is unfortunate because remittances sent through the banking sector are more likely to be retained within the banking sector in the form of deposits and therefore possess greater potential for economic development.

The datasets published by the Central Bank of Russia allow estimation of the volume of remittances from Russia to the former Soviet republics. Because Russia is the major source of remittances for these economies, the estimation and analysis of these flows is very important for economic policy making in transition economies. The aim of this chapter is to undertake a comprehensive review of existing knowledge on the scope, scale and estimation methodologies applicable to ex-Soviet republics, as well as contemporary challenges. Moreover, this chapter suggests a potential method to improve the accuracy of remittances estimation, by adjusting data published by the Central Bank of Russia. Global financial crisis had a significant term impact on remittances from Russia. However, despite its continuous drag on the global financial markets, decline in remittances from Russia was very brief. In 2009, remittances from Russia bounced back and currently greatly exceed pre-crisis levels. Some post-Soviet economies are major recipients of remittances and as a group account for as much as 10 per cent of remittances worldwide. There have been attempts to provide this type of estimation in individual countries; however, there have been no studies, to the best of author's knowledge, which provide a comprehensive analysis of remittances and their estimation problems, and

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<sup>4</sup> As measured by EBRD banking sector development indicators, *Transition Report* (London: EBRD, 2012).

propose ways to improve estimation accuracy for the region. Remittances in this region frequently flow through unofficial channels. Moreover, a large share of petty trade is disguised as remittances, which makes the accurate estimation of remittances difficult (Ibragimova et al. 2008; Mughal 2007; Rustamov 2008). Therefore, adjusting the official statistics to account for informal remittances and petty trade is proposed.

This chapter consists of seven sections. Section 3.2 briefly introduces the institutional setting in which the flow of remittances to the post-Soviet region takes place. This section also describes the trends, magnitude and importance of these flows for the economies of the former Soviet Union. Section 3.3 reviews the concept of remittances as defined in the 5<sup>th</sup> and 6<sup>th</sup> editions of the IMF Balance of Payments (BoPs) Manuals. Although the most recent 6<sup>th</sup> edition significantly revised the concept of remittances, its definition is still hampered by practical and methodological problems. Section 3.4 describes the problems involved in the estimation of remittances in the former Soviet Union. Section 3.5 analyzes and briefly evaluates some alternative methods to estimate remittances utilized by practitioners and researchers. In section 3.6, adjustments to more accurately estimate remittances from Russia to selected former Soviet countries is proposed. Finally, section 3.7 summarizes the major findings of the chapter. This section also provides suggestions to improve the remittance measurement framework.

## **3.2 The Institutional Setting for Remittances in the Post-Soviet**

### **Region**

In 2012, the Russian Federal Migration Service (FMS) estimated the number of labor migrants entering the country to be approximately 11-14 million people per year. According to the FMS, 77 per cent of these migrants come from the CIS (Rossiyskoe Informatsionnoe Agentstvo - Novosti 2012). Following this migration flow in the 2000s, the scale of remittances in the post-Soviet region has also increased dramatically. Russia is the largest migrant receiving country and the main source of remittances into the other members of the CIS. According to the Central Bank of Russia, the total amount of money transfers sent from Russia to other CIS states increased by a factor of 36 between 1999 and 2012, that is, from US\$0.5 billion to US\$19.205 billion (Central Bank of Russia 2012c).

The main recipients of remittances in the post-Soviet region are Uzbekistan, Tajikistan, Ukraine, Kyrgyzstan, Moldova, Armenia, Georgia, and Azerbaijan. Although there are no precise estimates, it is a stylized fact (common belief/knowledge) that remittances from Russia constitute the majority of remittances in these economies. Financial transfer channels between the major remittance recipient countries in the former Soviet Union and Russia can be divided into two categories: “formal” or “official” and “informal” or “unofficial” remittance channels. The official channels utilize banks and money transfer operators. Unofficial channels utilize friends, relatives, methods similar to “hawala”, exchange through electronic accounts and transporting money themselves.

Armenia provides a good example of the disarray in the estimation of remittances. Tumasyan et al. (2008), based on a survey of 3000 respondents in Armenia, estimated total remittances to Armenia at US\$381 million in 2006. However, IMF Balance of Payments statistics estimated total remittances at US\$505 million in the same year. The Central Bank of Russia reported that Russia alone transferred US\$604 million in remittances via MTOs and postal offices to Armenia in 2006<sup>5</sup> (Shelburne and Palacin 2007b). The survey conducted by Tumasyan et al. (2008) indicated that 58 per cent of all remittances were received through banks and MTOs. That same survey reported that 76.9 per cent of all remittances originated in Russia. However, another survey conducted by Central Bank of Armenia in 2005 suggests that 78 per cent of all remittances were received via banks and MTOs (Central Bank of Armenia 2006).

Different estimates of remittances to Azerbaijan are also difficult to reconcile. A survey conducted with funding from the Asian Development Bank (ADB) estimated total remittances to Azerbaijan at US\$428 million in 2006, whereas the balance of payments data for Azerbaijan suggests workers' remittances and migrant transfers through MTOs and banks of US\$679 million (Rustamov 2008). The same survey found that transfers through MTOs and banks accounted for 32 per cent of remittances to Azerbaijan in 2006, which increases the total amount of remittances to Azerbaijan to US\$2.1 billion. Data from the Russian Central Bank suggest remittances from Russia through MTOs and postal offices alone of US\$440 million (Shelburne and Palacin 2007b).

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<sup>5</sup> Data for remittances via MTOs is utilized for 2006 because data for total remittances in 2006 are not available by country for the entire year. Data are available for the last three quarters of 2006 only.

Russia was the source of 83 per cent of all remittances to Azerbaijan in 2006 (Rustamov 2008).

Despite the aggravation of political relations between Georgia and Russia in 2006, Russia continues to generate a significant flow of remittances to Georgia. The Russian Federation accounted for 56 per cent of remittances to Georgia in 2010 (Melkadze 2012). This same study noted data from the National Bank of Georgia estimating that the total amount of remittances sent through official channels to Georgia in 2011 reached US\$940 million, which represents approximately 8.1 per cent of the GDP of Georgia. The Central Bank of Russia estimated remittances to Georgia via MTOs and banks of US\$754 million (Central Bank of Russia 2011).

An ADB funded study by Ibragimova et al. (2008) estimated remittances in 2006 to Kyrgyzstan at US\$253 million, whereas the Kyrgyz National Bank estimate for the same year indicates that remittances exceeded US\$730 million. The Russian Central Bank reported remittances to Kyrgyzstan from Russia for the same year of US\$438 million (Shelburne and Palacin 2007b). Russia accounted for 82 per cent of remittances to Kyrgyzstan in 2006 (Ibragimova et al. 2008). This report also found that nearly 78 per cent of all remittances to Kyrgyzstan were transferred through banks and MTOs in 2006. Mogilevsky and Atamanov (2008) noted that large (\$10,000–50,000) and very large (more than \$50,000) transactions made up 22 per cent and 72 per cent of all remittances, respectively, and concluded that the majority of funds in these types of transactions are actually the revenues of shuttle traders and repayments of loans for trade deals.

Luecke et al. (2009) estimated that the total value of remittances to Moldova was approximately US\$1.5 billion and US\$1.9 billion in 2007 and 2008, respectively. The Russian Central Bank report on cross-border transfers via MTOs and postal offices estimated remittances from Russia to Moldova of US\$832 million and US\$1.143 billion in 2007 and 2008, respectively (Central Bank of Russia 2007, 2008).

Brown et al. (2008), utilizing data from the National Bank of Tajikistan (NBT), estimated that the value of remittances through official channels to Tajikistan was US\$1.13 billion in 2006. The data from the Russian Central Bank suggest that the value of remittances from Russia through MTOs and postal offices was equal to US\$957 million in the same year (Shelburne and Palacin 2007b). Brown et al. (2008) estimated that Russia was the source of 83 per cent of total remittances to Tajikistan in 2006, and approximately 10-15 per cent of remittances via official channels were related to shuttle trade. Citing NBT representatives, Brown et al. (2008) note that 10-15 per cent of remittances were transferred to Tajikistan informally in 2006. Mughal (2007) estimates a slightly higher share, 18.5 per cent, of informal transfers based on Khatlon Living Standards Survey and notes that this share should be further adjusted for in-kind transfers valued at approximately 7 per cent of total transfers.

The following balance of payments data from the National Bank of Ukraine, presented in Table 3.1, was prepared according to the 6<sup>th</sup> edition of the IMF Balance of Payments and International Investment Manual of IMF:

**Table 3.1 Remittances to Ukraine in millions of US\$**

<b>Description</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
Total remittances	6,177	5,370	5,862	7,019	7,526
Through informal channels	805	713	777	963	1035
From the Russian Federation	NA	NA	1,619	1,988	2,350
Remittances as a % of GDP	3.4	4.6	4.3	4.3	4.3

Source: NBU (2013)

Kupets (2012) reports estimates of remittances to Ukraine ranging from US\$1.7 billion to US\$54 billion and highlights alternative estimates of the proportion of transfers occurring through informal channels, which range from 15 to 200 per cent of official remittances. Table 3.2 presents the data from the Russian Central Bank for remittances to Ukraine originating in Russia.

**Table 3.2 Remittances from Russia to Ukraine in millions of US\$**

<b>Description</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
Remittances from Russia to Ukraine	2,201	2,758	3,162

Source: The Central Bank of Russia (2010, 2011, 2012)

The State Committee for the Republic of Uzbekistan on Demonopolization (2006) draws data from the Ministry of Labor to note that approximately 75 per cent of the total workforce migrating from Uzbekistan traveled to the Russian Federation (State Committee for the Republic of Uzbekistan on Demonopolization 2006). Uzbekistan has been the top recipient of remittances from Russia through MTOs since the Central Bank of Russia began publishing these data in 2006.

### **3.3 Review of Remittances Measurement Methodologies**

To understand the challenges encountered in measuring remittances, it is useful to define the major concepts. The sixth edition of the IMF Balance of

Payments and International Investment Position Manual (International Monetary Fund 2009, p. 272) notes that “remittances represent household income from foreign economies arising mainly from the temporary or permanent movement of people to those economies.” Remittances include cash and noncash items that flow through formal channels, such as wire transfers, or through informal channels, such as money or goods carried across borders. Remittances consist primarily of funds and noncash items from individuals who have migrated to a new country and became residents there; these funds also include the net compensation of border, seasonal, or other short-term workers who are employed in an economy in which they are not resident. According to the IMF (2009, p. 272), “The two items in the balance of payments framework that substantially relate to remittances are “compensation of employees” and “personal transfers.” Both of these standard components are recorded in the current account.”

Total remittances encompass personal remittances, which consist of the compensation of employees, personal transfers, and capital transfers between households and social benefits. Social benefits include “benefits payable under social security funds and pension funds. They may be in cash or in kind” (International Monetary Fund 2009, p. 213). Thus, the total amount of remittances includes income from individuals working abroad for short periods, from individuals residing abroad and sending transfers, and from social benefits from abroad.

The most notable change in the new edition of BPM6 that is relevant to remittances is in “personal transfers,” which replaces the concept “workers’

remittances” in the BPM5. In addition, the new manual includes transferrable social benefits in the definition of remittances.

Many authors have previously criticized the definition of “workers’ remittances” for its link to the UN’s concept of a long-term migrant, which consists of residents staying for 12 months or more (Alfieri et al. 2006). This concept excluded seasonal migrants and second generation migrants. The exclusion of seasonal migrants and their remittances in the former Soviet Union was especially misleading because labor migration in this region is predominantly seasonal. Furthermore, the previous definition of remittances included only officially recorded migrants and their families. However, it is estimated that majority of labor migrants from former Soviet Union countries working in Russia are not frequently given formal labor agreements by their employers. In some cases, remittances might be channeled through employers and acquaintances in Russia. Therefore, these payments are not captured in the BoP statistics on remittances.

The distinctive feature of the IMF’s new definition is the absence of the concept of “migrant”. Rather, new definitions are based on the concept of “residence”, a broader concept that incorporates a larger migration process. The manual stipulates that personal remittances include transfers originating from individuals who are not migrant workers. In other words, transfers from second-generation and naturalized citizens are included in the new version of the manual. Another improvement is that the definition of personal transfers, consistent with the 1993 System of National Accounts’ definition, encompasses all transfers from residents to non-residents whatever the source of income, the relationship between them, and the purpose of the transfer. In addition, the

BPM6 also extends the concept of total remittances and transfers to non-profit institutions serving households (NPISHs). This item is the sum of personal remittances, social benefits (defined as "disposable income from abroad"), and current transfers to NPISHs. The BPM6 significantly broadens and improves the conceptualization of remittances in previous definitions. However, the revision further complicates the measurement of remittances. For instance, practical problems in identifying particular population groups, such as second generation migrants, utilizing survey data often prevent their inclusion in measurement (Lerch et al. 2008). Therefore, many countries either do not report remittances in BoP or provide extremely inaccurate estimates.

As noted above, some migrant workers (in case of labor migration in the CIS, most likely the majority of workers) reside in a recipient country temporarily and seasonally. Upon returning home, many migrants bring personal assets that will be owned by the household of origin. However, this type of asset is nearly impossible to account for in balance of payments transactions; therefore, these are not recorded as transfers. These in-kind transfers resemble imports of foreign goods. Unlike cash transfers that can be invested or utilized to purchase locally produced goods, these imports have, at best, no effect on GDP. In some cases, they may even have a negative substitution effect.

Furthermore, the new definitions include the compensation of employees in the measure of remittances and do not suggest a methodology for separating the part of compensation of short-term workers sent or returned to the country of origin. Obviously, not all of the income that individuals earn while working abroad will be transferred to the country of origin, and some of this money will be spent in the recipient country. For instance, Shelburne and Palacin (2007b),

referring to a World Bank survey, note that workers from Tajikistan spent approximately half of the income they earned in Russia for living expenses in Russia.

The propensity to spend in a host country might differ for migrants from various countries. Migrants from countries with levels of higher per capita income might be inclined to spend more in a host country compared to those from a country with a lower level of per capita income.

The underreporting of received remittances in surveys is observed in many countries (Shonkwiler et al. 2011). Possible reasons for this underreporting include: (i) the perceived risk of taxation of remittance income by the less educated population and (ii) the fear that a substantial amount of remittances may affect eligibility to receive payments or benefits from state and foreign aid organizations. Shonkwiler et al. (2011) note another potential reason – understating wealth/income to limit the demands of poorer relatives and neighbors for informal loans and advances to support their livelihood.

Thus, despite major improvements to the definition of remittances in the IMF (2009) Manual on the Balance of Payments (BOP), additional room for improvement exists. More precise measurement of remittances requires some adjustments. This precision is important to the proper evaluation of the impact of remittances on various types of economic activities in countries receiving these remittances. Current remittance measurement tools, econometric models, and worldwide surveys suffer from serious problems. These methods are unlikely to measure remittances with a high degree of accuracy not only because migration and remittances are an infrequent, although growing

phenomena, but also because of various complex issues entailed in migration and remittances (Lerch et al. 2008)(Lerch et al., 2008).

In cases where the data is sufficient to produce reliable estimates of the size of official transfers (e.g., Russia-CIS remittances where the outflow of workers' remittances is calculated utilizing data provided by MTOs and special banks), it is possible to estimate the total amount of remittances if the ratio of informal to formal remittances is known. This calculation is based on the assumption that labor migrants and their families have little incentive to lie about which channel they utilize to remit funds (Mughal 2007). However, even in such cases, not all of the transfers are related to migrants' transfers because some of them could be related to trade. In other words, part of the transfers via MTOs must be classified as the export receipts of shuttle traders. This ratio may vary significantly for transfers from different migrant receiving countries. The proportion of remittances transferred through MTOs for neighboring countries such as Kazakhstan-Uzbekistan or Russia-Belarus might seem insignificant because migrants prefer to carry cash themselves when returning to their country of origin. The ratio of informal to formal remittances is unlikely to remain constant over time and is very sensitive to transfer commission fees charged by MTOs, MTO branch network both in host and home countries, migrants' literacy in using financial services, as well as legal complexity/documentation requirements for sending and receiving funds using MTOs.

In general, the definition of remittances in this research encompasses both transfers through financial system as well as cash returned to the home country. In-kind transfers appear to be associated with a small scale trade, and a sizeable share of small scale trade is disguised as remittances in the CIS,

which are excluded from estimates of total remittances. In the next section, the relationship between formal and informal transfers in the former Soviet Union is discussed in greater detail.

### **3.4 Remittances and Remittance Transfer Channels in the former Soviet Union**

Until very recently, it was customary to transfer money through a network of relatives and acquaintances, train and airplane crews, bus drivers, and delivery services. However, evidence from the Khatlon Living Standards Survey (KLSS) in Tajikistan analyzed by Mughal (2007), as well as research conducted by Ibragimova et al. (2008), Luecke et al. (2009), Poghossian et al. (2010), Tumasyan et al. (2008), and a small-scale survey in Uzbekistan conducted by the author reveals that the utilization of informal channels is gradually decreasing.

According to the Central Bank of Russia (2012b), Uzbekistan and Tajikistan are the two largest recipients of remittances from Russia. It is believed that the greater volume of remittances from Russia is transferred through MTOs today than a few years ago. For example, a survey conducted by the author in 2009 as part of a consulting project with the assistance of the Tashkent Regional Bureau of Employment of Citizens Abroad revealed that 74.8 per cent of funds transferred home by respondents are transmitted through formal channels and only 25.2 per cent of funds are transmitted through informal channels. The data of this survey was collected via contact interviews based on a standard questionnaire. A standard questionnaire has been used because it is more effective method to cover a large scope of migrants and it

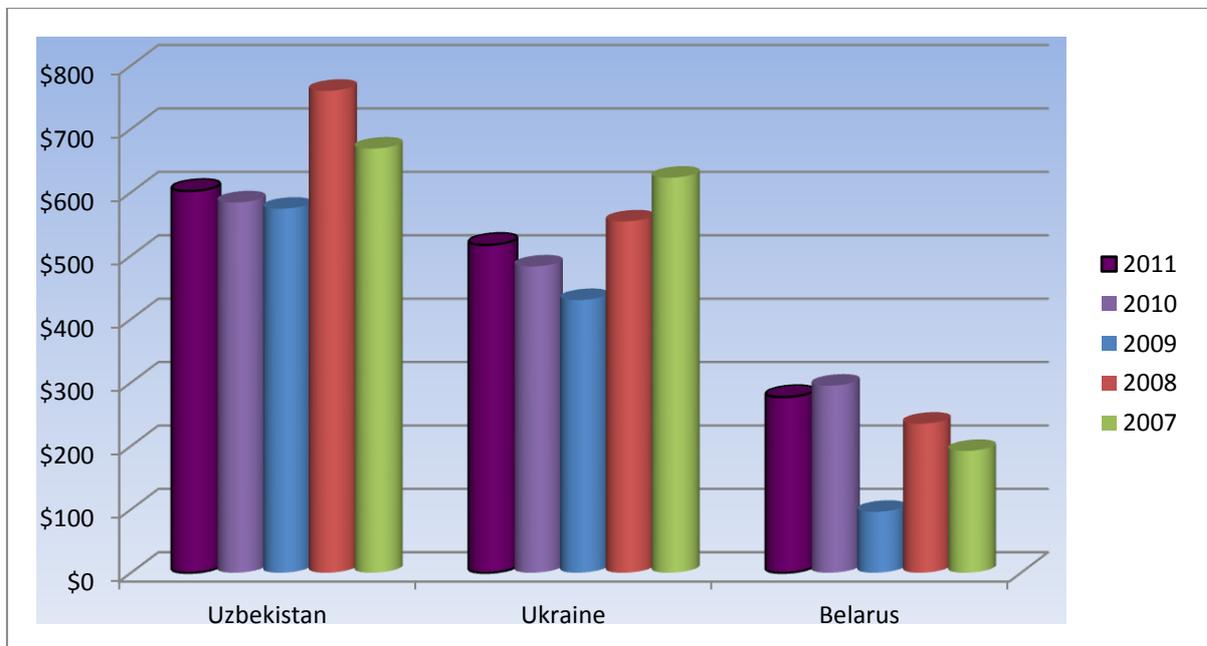
was less time consuming. The questionnaires were distributed to the migrants in Tashkent area (mainly at the airport and the train stations) through Tashkent Regional Bureau of Employment of Citizens Abroad. Some interviews were conducted through phone or personally. In total 85 people were interviewed in Tashkent. Sixty eight per cent (59 people) of the sample were urban residents and 32 per cent (26 people) were rural population. Sixty four per cent of respondents were male and 36 per cent female. In terms of regional distribution, the respondents represented a good mix coming from all 12 regions of Uzbekistan and Karakalpakstan Autonomous Republic, although 51 per cent of interviewed were from Tashkent or Tashkent region. The average age of respondents was 34 years old and 29 per cent of respondents possessed university degree qualifications.

Post-Soviet Republics, with the exception of Georgia, do not tax remittances, which combined with the favorable regulation of MTOs, encouraged the development of the remittance market. MTOs offer nearly instant transactions (de Luna-Martinez 2005). They promise the receipt of funds in another country within a few minutes to a few hours.

Migrant workers from the former Soviet Republics rarely utilize bank accounts because opening a bank account is often costly and time consuming. Moreover, many migrant workers may face legal obstacles to opening an account in the host country due to their undocumented status there. Therefore, account-to-account transfers are less convenient than instant cash money transfers.

Figure 3.1 provides a comparison of transfer patterns within the CIS. The figure indicates that the average amount transferred to Uzbekistan is

significantly higher than the average amount transferred to Ukraine and Belarus. Ukraine and Belarus were selected for this comparison because these countries supply migrants that are typically more skilled than those from Uzbekistan and consequently earn higher wages than Uzbek migrants.



**Figure 3.1 Average Remittance Value for Uzbekistan, Belarus, and Ukraine**

(Average value of remittances in US\$ is on the vertical axis)

Source: Central Bank of Russia (2007, (2008, (2009b, (2010, (2011)

Several explanations exist for this phenomenon. Transfers to Uzbekistan are frequently consolidated, that is, several persons combine their savings and transfer the funds to a person who distributes this amount among several beneficiaries. Gusman (2007) and Zykova (2008) observed that migrants utilized two primary channels to remit funds: documented migrants transferred money themselves, whereas undocumented migrants utilized the assistance of an intermediary. This logic implies that the level of undocumented migration can be estimated by comparing the number of senders and the number of recipients. At the beginning of 2009, the number of recipients per sender

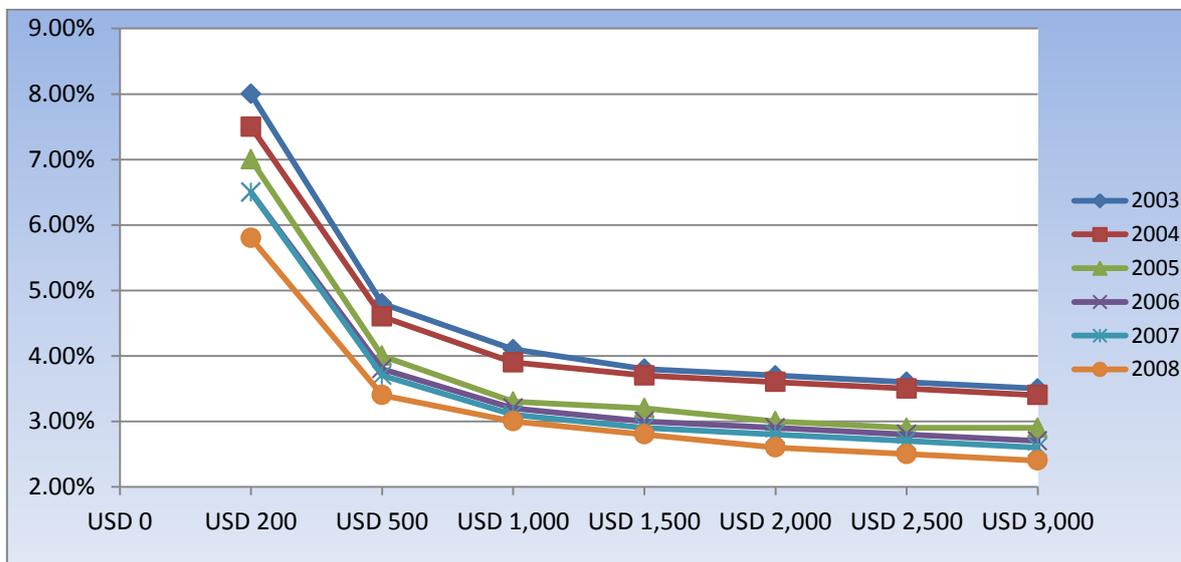
decreased, which indicates a decrease in the level of undocumented migration (RusSlavBank 2009). In other words, the GFC-related crisis in Russia and job losses mainly affected undocumented migrants and a significant number of these workers returned home. Most documented migrants were unaffected and continued to work in Russia. This difference could also result from the process described by the gravity model of workers' remittances developed by Lueth and Ruiz-Arranz (2008). These authors find that reported remittances through MTOs to a country that shares a border are approximately 50 per cent of the level of remittances for the equivalent country that does not share a border. In other words, reported remittances are usually lower because a higher percentage of transfers are conducted through informal channels<sup>6</sup>. The higher level of remittances from Russia to Uzbekistan compared to Ukraine and Belarus could reflect differences in the levels of per capita income in these countries. The higher the per capita income in a country, the lower the amount transferred home (Lueth and Ruiz-Arranz 2008).

Toward the end of the 1990s and the beginning of the 2000s, the majority of transfers from Russia were made through informal channels. Tyuryukanova (2005) found in a study sponsored by the International Labor Organization that 75 per cent of surveyed migrants transmitted money through informal channels and only 10 per cent utilizes services provided by MTOs and banks. A survey conducted in Moldova in 2004 reported that 30 per cent of labor migrants utilized official channels and 70 per cent utilized unofficial channels. This survey also indicated that 70 per cent of migrants from Moldova were undocumented (Black et al. 2007).

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<sup>6</sup> Carrying cash upon returning home is considered to be an informal channel of remittance.

Recent reductions in rates by MTOs could be a competitive response to the global economic slowdown in 2009. For example, the average fee for remittances was slightly over 10 per cent in 2002 when only three MTOs were operating in Uzbekistan. By 2005, ten companies were operating and the average fee dropped to 4-5 per cent (State Committee for the Republic of Uzbekistan on Demonopolization, 2006). By 2009, the average transfer fees had decreased to 2-3 per cent. The total value of transfers from Russia to Uzbekistan in 2009 was approximately US\$3 billion, and Uzbek migrants saved approximately US\$90 million in fees in 2009 compared to 2005. These savings provided a good incentive to switch from informal to formal channels of transferring funds. However, 15 per cent of respondents continued to cite high transfer fees as the single most important reason for not utilizing MTO services in 2009. Figure 3.2 depicts the downward trend in fees for different sizes of transfers.



**Figure 3.2 Average Fee for Remittances from Russia to the CIS via MTOs.**

(The average fees in percentages for remittances is on the vertical axis)  
 Source: Central Bank of Russia (2008)

Thus, surveys and research in various countries of the former Soviet Union, despite differing from each other in terms of their focus, suggest that informal remittances as a percentage of formal remittances are decreasing over the years. Below is Table 3.3 which sums up these surveys and their results.

**Table 3.3 Various Survey Based Estimates of Formal and Informal Remittance Channels across the CIS region**

Year	Per cent formal remittances in total remittances	Country	Source	Share of households receiving via MTO/Bank <sup>7</sup>	Migrant	Third party
2003	56	Moldova	Ghencea and Gudumac (2004)	48% (72.2%)		
2004		Tajikistan	Migration, Remittances and Living Standards in Tajikistan (Mughal 2007)	59% (41%)		
2005		Tajikistan	Migration, Remittances and Living Standards in Tajikistan (Mughal 2007)	64% (36%)		
2006	58	Armenia	ADB (Tumasyan et al. 2008)	69% (31%)	27.9	12
2006	29.91	Azerbaijan	ADB (Rustamov 2008)	32.12% (68%)	47.23	22.92
2006	77.8	Kyrgyzstan	ADB (Ibragimova et al. 2008)		3.3	18,6
2006	58.7	Tajikistan	ADB (Brown et al. 2008)	80.3% (74%)	34.6	6.7
2006		Moldova	IOM-CBSAXA (Luecke et al. 2009)	49% (51%)		
2006		Georgia	Georgia's National Public Opinion Survey	64%(total for world), 76% (from Russia)		
2007		Armenia	CRRC Data Initiative Team (2007)	85% (33%)		
2007		Azerbaijan	CRRC Data Initiative Team (2007)	62% (90%)		
2007		Georgia	CRRC Data Initiative Team (2007)	72% (45%)		
2008		Moldova	IOM-CBSAXA (Luecke et al. 2009)	63% (37%)		
2009		Tajikistan	ILO Migrant remittance to Tajikistan (Poghossian et al. 2010)	87% (13%)		
2009	75	Uzbekistan	GIZ small scale survey			
2012		Moldova	Fetiniuc (2013)	76.76% (23.23%)		

<sup>7</sup> The share of households receiving some part of remittances through the informal channels is in brackets. It seems that for some countries and for certain periods of time, the division between receipt of remittances via formal and informal channels was dichotomous, whereas for others a significant percentage of households received remittances from both channels. Whereas the use of multiple channels seem to be more plausible, the dichotomy may be stemming from misinterpretation of survey results or deficiencies in formulating survey questions.

### **3.5 Estimation Methods**

The goal of this section is to undertake the analysis of the remittances estimation challenges in post-Soviet countries and discuss applicability of existing remittances estimation methods that may help to overcome some of those challenges. Ultimately, the aim is to put forward a method which will provide us more accurate data on remittances in the former Soviet republics.

Both the small-scale survey conducted by the author and other studies in this area indicate that most funds are currently transferred through MTOs. However, there is still a significant fraction of remittances made using informal channels, which is not captured by official statistics. Moreover, inaccuracies may arise by treating some transfers as remittances whereas they are, in fact, payments for small-scale shuttle trade. Therefore, a researcher attempting to study the effects of remittances on these economies should make appropriate adjustments to the data to improve its accuracy.

Accurate estimation of remittances in this region is further hampered by the fact that the majority of the former Soviet economies do not publish remittance data consistent with IMF methodological guidelines. Some countries, such as Uzbekistan and Turkmenistan, either publish very limited statistics or do not publish remittances statistics at all. In other cases, data quality is questionable, and different methodologies hamper verification of the data on remittances from other sources (Shelburne and Palacin 2007b). This problem is not limited to this region; the quality of remittance data is poor globally (Kapur 2004; Lerch et al. 2008; Shelburne and Palacin 2007b). In contrast, some of the former Soviet republics, such as Kazakhstan, Tajikistan, Moldova, and Russia, provide more statistics on remittance senders and recipients than most

countries in the world. However, data problems exist and policy makers, central banks, and scholars examining remittances resort to particular measurement methods or surveys to produce estimations.

One estimation methodology, a gravity model, traditionally utilized to explain trade and foreign direct investment (FDI), can also be applied to explain variations in bilateral remittances as in the work by Lueth and Ruiz-Arranz (2008). Elaborating on concepts developed by Zipf (1946) and utilizing data for 11 countries in Asia and Europe, Lueth and Ruiz-Arranz (2008) found that flows are larger between larger countries. Larger countries receive and send larger volumes of remittances in dollar terms. They also find that the greater the distance between two countries, the smaller the flow of remittances. In addition, the study found that other variables such as the partner countries' GDP, a common border, and a common language explain over 50 per cent of the variation in remittance flows across time and countries. Thus, the study predicts that remittance flows increase as the source country gets richer and recipient country gets poorer. Specifically, the empirical results of the gravity model argue that doubling the per capita GDP of the recipient country is likely to reduce remittances by a factor of four. If this finding holds after controlling for other factors (such as GDP, distance, etc.), Uzbekistan would receive 16 times the remittances from Russia than are received by Kazakhstan from Russia because Uzbekistan's per capita income is one eighth that of Kazakhstan based on the market exchange rate. In addition, as noted above, remittances transmitted through formal channels to a country that shares a border are one-half of what they would be otherwise. Note that this prediction in the gravity framework is confirmed for the Kazakh-Uzbek remittance corridor. Todoroki (2011), utilizing data from the National Bank of Kazakhstan, notes that total

transfers via MTOs from Kazakhstan to Uzbekistan in 2009 and 2010 were US\$189 million and US\$212 million respectively. Todoroki (2011) estimates at least 330,000 migrants from Uzbekistan were working in Kazakhstan in 2010. Makhmutova et al. (2008) estimate that remittances to Uzbekistan from Kazakhstan amount to approximately US\$1,522 per migrant per year, an amount equal to at least US\$500 million a year in remittances to Uzbekistan. This estimate is consistent with the Makhmutova et al. (2008) estimate for total remittances to Uzbekistan per year in 2003-2004. Therefore, remittances to Uzbekistan via MTOs constitute approximately 40 per cent of total remittances. The author's small-scale survey indicates that informal remittances from Russia (which does not share a border with Uzbekistan), constitute approximately 25 per cent of total remittances to Uzbekistan from Russia. Thus, the estimates based on the gravity model are roughly consistent with the proportion of formal to total remittances ratio for remittances from Russia and Kazakhstan to Uzbekistan.

The World Bank methodology for estimating remittances is based on migration data (Ratha and Shaw 2007). However, data on migration within the former Soviet Union are of poor quality for both estimating yearly flows and the stocks of migrants from each country. Moreover, data on the stock of migrants in the former Soviet Union include a large number of permanent migrants. These are people returning to their country of origin rather than labor migrants. Permanent migrants have little motivation to remit unless some family remains in the home country. The majority of migrants in the former Soviet Union enjoy visa-free travel and can reside and work without undergoing a proper registration process, which makes the estimation of their numbers very difficult. These might explain why the World Bank did not provide an estimate of

remittances for some Central Asian countries until recently, when the Russian Central Bank began to publish datasets on remittances in the CIS and the rest of the world, including transfers via MTOs.

Mughal (2007) estimates remittance flows to Tajikistan in 2004 and 2005 utilizing the ratio of informal to formal transfers. Data on formal worker remittances were drawn from the National Bank of Tajikistan. The author made a 10 per cent adjustment to these formal workers' remittances because these data include small scale trade. The ratio of informal to formal transfers is identified from the Khatlon<sup>8</sup> Living Standards Survey conducted in 2005. According to Mughal (2007), Russia was the destination for 99 per cent of migrants from Tajikistan. However, Brown et al. (2008) find that 83 per cent of incoming remittances from abroad were sent from Russia. The ratio of informal to formal transfers in Tajikistan had been declining since the Mughal (2007) research was conducted because of lower transfer costs, better access to MTO services and simpler transaction procedures.

Lerch et al. (2008) described other methodologies utilized to account for remittances by agencies in Switzerland and in the USA. For example, the Swiss National Bank (SNB) utilizes extrapolation to calculate the outflow of remittances from Switzerland. The number of documented foreign workers is multiplied by mean wage to calculate the earnings of migrants. Residents are divided into those who reside and work in Switzerland with short-term, one-year, and permanent permits. Then, the SNB, without providing a justification, assigns fixed percentages of the average wage that these three groups of

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<sup>8</sup> One of five regions, and the poorest, in Tajikistan.

migrants send home – 25 per cent, 12 per cent and 5 per cent. In addition, border workers are assumed to remit 100 per cent of their earnings. Thus, this very simple model does consider differences in the transfer behavior of migrants from various countries. According to Lerch et al. (2008), the US Bureau of Economic Analysis utilizes a more sophisticated model based on data from the US Census and the annual American Community Survey. These two sources collect data on all foreign-born residents, including undocumented migrants. This model incorporates many other factors important to the remittance decision, such as duration of residence, presence of children, and macroeconomic data for the recipient countries.

### **3.6 The Adjustment Methodology and its Application to Remittances in the former Soviet Republics**

The previous section of this chapter reviewed several methodologies for estimating remittances. Some of these methodologies, e.g., the gravity model and the model of the US Bureau of Economic Analysis, yield quite reasonable estimates of remittances but fail to include shocks such as economic crises and differences in remittance transferring behavior of labor migrants from different countries; most importantly, these estimates lack precision. Other methodologies, such as the World Bank and Swiss National Bank methodologies are not applicable to the former Soviet Union, where migration data are unreliable and borders are porous. However, the importance of remittance flows for many countries of the former Soviet Union is increasing. Thus, to increase the effectiveness of policy-making decisions, there is a need

for a more precise methodology to estimate remittances in the former Soviet Union.

This section provides sample applications of how adjustments to Central bank of Russia may produce more accurate estimates of remittances from Russia to the selected countries of the former Soviet Union. In particular, the adjustments are made for small-scale trade, informal transfers and the border effect discussed previously.

The example of remittances from Russia to Uzbekistan in 2012 is utilized for illustration. According the Central Bank of Russia, remittances to Uzbekistan from Russia through MTOs and banks reached US\$5.693 billion in 2012 (CBR, 2012). Based on the authors' interviews with migrants and their families, policy makers, and representatives of international organizations, approximately 10 per cent of this amount represents small-scale trade. To adjust for small-scale trade, we subtract 10 per cent from the amount of total remittances reported by the Central Bank of Russia. After this adjustment, remittances to Uzbekistan drop to US\$5.1 billion. The next step is to make adjustments for informal remittances and the border effect. Because Russia and Uzbekistan do not share a border, we do not make adjustments for the border effect; however, we adjust for informal remittances so that they constitute 13.91 per cent of total remittances. This estimate of informal remittances is based on the small-scale survey conducted by the authors in Uzbekistan in 2009 and further decrease in the share of informal remittances after 2009. This decrease in the share of informal remittances is associated with decrease in remittance fees, rapidly expanding branch network, improved literacy of migrants in relation to MTO procedures, which have been taking place simultaneously. Table 3.4 below

summarizes the remittance fees applicable for average amount of transfer for respective years based on data from Central Bank of Russia and associated with it decrease in the share of informal remittances estimated by authors. We source the data for share of informal remittances from existing surveys (see, Table 3.4) and link the rate of annual decline in the share of informal remittances with the reduction in transfer fees.

**Table 3.4 Estimated Decrease in the Share of Informal Remittances Associated with Decrease in Remittance Fees**

<b>Year</b>	<b>Remittance fees for average amount of remittance</b>	<b>Informal remittances as a share of total remittances</b>
2006	3.7%	40%
2007	3.3%	33.48%
2008	3.03%	29.08%
2009	2.78%	25%
2010	2.44%	19.46%
2011	2.3%	17.17%
2012	2.1%	13.91%

Source: Data on remittance fees and average amount of remittance for each year is from Central Bank of Russia.

These adjustments produce an estimate of US\$5.952 billion in remittances to Uzbekistan in 2012. Because remittance transfer fees have decreased over time and awareness of the decrease spread gradually, the adjustment factor for informal channels has fallen gradually from 40 per cent for 2006 to 13.91 per cent in 2012. Table 3.5 below summarizes these calculations for Uzbekistan.

**Table 3.5 Remittances from Russia to Uzbekistan in Millions of US\$**

Year	Reported Remittances	Share of small scale trade in reported remittances	Share of informal transfers in total remittances	Adjustment for border effect	Remittances adjusted for small-scale trade, informal transfers and border effect
2006 <sup>9</sup>	1,080	-10%	40%	-	1620
2007	1,693	-10%	33.48%	-	2291
2008	3,007	-10%	29.08%	-	3816
2009	2,071	-10%	25%	-	2485
2010	2,858	-10%	19.46%	-	3194
2011	4,276	-10%	17.17%	-	4646
2012	5,693	-10%	13.91%	-	5952

Sources: Data from 2007 to 2012 are from the Central Bank of Russia (Central Bank of Russia 2007, 2008, 2009b, 2010, 2011, 2012b).

Consider the example of remittances from Russia to Azerbaijan. Based on a survey of 3900 households, Rustamov (2008) estimates that only 32 per cent of total remittances were received via banks and MTOs in 2006. Thus, approximately 68 per cent of all remittances to Azerbaijan occurred through informal channels in 2006. The share of informal transfers in Azerbaijan is much higher than Uzbekistan. This difference is consistent with the gravity model, which predicts higher volumes of informal transfers for countries with common borders. In fact, consistent with the gravity model estimates of Lueth and Ruiz-Arranz (2008), remittances to a country that shares a border are one-half of what would be expected. Because transfer fees have fallen in the former Soviet Union in the same pattern, it is assumed that the share of informal transfers has also been changing in a fashion similar to the pattern observed in Uzbekistan. Table 3.6 below summarizes the calculations for Azerbaijan. Note that, according to this calculations, the share of reported remittances through banks

<sup>9</sup> Data for the last three quarters of 2006 are also from the Central Bank of Russia. However, the first quarter data for 2006 are not available and were estimated to add to the available three quarters data for 2006.

and MTOs in 2006 was 40 per cent of total remittances - a number that is very close to the estimate from the survey conducted by Rustamov (2008).

**Table 3.6. Remittances from Russia to Azerbaijan in Millions of US\$**

<b>Year</b>	<b>Reported Remittances</b>	<b>Share of small scale trade in reported remittances</b>	<b>Share of informal transfers in total remittances</b>	<b>Adjustment for border effect</b>	<b>Remittances adjusted for small-scale trade, informal transfers and border effect</b>
2006 <sup>10</sup>	645	-10%	40.00%	200%	1935
2007	814	-10%	33.48%	200%	2203
2008	1,061	-10%	29.08%	200%	2693
2009	748	-10%	25.00%	200%	1795
2010	881	-10%	19.46%	200%	1969
2011	1,159	-10%	17.17%	200%	2519
2012	1,230	-10%	13.91%	200%	2572

Sources: Data from 2007 to 2012 are from the Central Bank of Russia (Central Bank of Russia 2007, 2008, 2009b, 2010, 2011, 2012b).

It is clear that the estimation methods applied in this research are not perfect. For example, in case of Azerbaijan, despite having a common border with Russia, anecdotal evidence suggests that the majority of Azerbaijani labor migrants reside in Moscow or Saint Petersburg which is far away from the border of Russia with Azerbaijan. Therefore, it is probably more convenient for them to transfer funds to Azerbaijan than bringing cash home in their pockets. However, the fact that the results of the estimations in this study coincide with the survey estimations of Rustamov (2008) suggest that the above presented methodology is good enough to make meaningful estimations. All in all, it

<sup>10</sup> Data for the last three quarters of 2006 are also from the Central Bank of Russia. However, the first quarter data for 2006 are not available and were estimated to add to the available three quarters data for 2006.

seems that in the case of remittances from the CIS, this methodology makes reasonably precise estimations.

Thus, this Chapter made substantial adjustments to the estimates of remittances produced by Shelburne and Palacin (2007b) prior to 2007 and to the data published by the Central Bank of Russia. These new estimates substantially change the value of remittances in some cases and could be used to analyze the impact of remittances in the economies of major recipients. Because remittances from Russia are by far the most significant source of remittances within the CIS, these data approximate the total amount of remittances that these countries receive.

### **3.7 Conclusion**

This Chapter has provided a comprehensive review of existing remittance measurement methodologies relevant to the countries of the former Soviet Union. This study also discussed problems with the IMF BoP framework and inaccuracies and weaknesses in other data sources.

The empirical evidence suggests that the share of formal remittance channels is growing at the expense of informal channels in the CIS. Labor migrants understand that carrying cash is risky – the money could be stolen or corrupt customs and passport control officers could expropriate part or all of this money. If a migrant sends earnings with another person, there is a risk that the money courier may deceive the sender.

The utilization of formal and informal channels also varies according to the distance separating the sending and receiving countries. Interviews and

surveys also suggest that other factors can determine the choice of formal over informal channels: the education level of the migrant, the nature of employment, the presence of a migrant community/network, the average salary level, etc. More educated and white collar migrants tend to send more money via MTOs.

The sheer size and significance of remittances makes harnessing this economic phenomenon to benefit the economy a reasonable undertaking. Policies to increase the share of the funds transferred through formal channels rather than informal channels would be a first step in this direction. However, the eventual success of this first step depends on the institutional capacity of the financial/banking sector to transform the development potential of remittances into benefits for the country.

The aim of this chapter was to review the remittance estimation methodologies and challenges in post-Soviet region as well as to propose some adjustments that may improve accuracy of remittance estimations. It is believed this goal has been achieved. Despite its deficiencies, the methods have reasonable empirical confirmation from existing surveys. This new methodology has a potential to be utilized in other regions and countries experiencing similar data challenges.

## **Chapter 4. Remittances and Transfer Fees: How do they Influence the Informal Sector?**

### **4.1 Introduction**

Remittances became a buzzword for economists and development specialists in many transition and developing countries. The phenomenal increase in their flow raised questions about their role in various types of economic activities. Even though the immediate purpose of remittances, from the viewpoint of households, has been to smooth consumption and alleviate budget constraints, the financial system and entrepreneurship also appear to be the immediate beneficiaries of this windfall.

Being the major conduit for the flow of remittances, an efficient financial system, at the very least, should be able to generate some additional revenue from a remittance business. This increase in the revenues of the financial institutions should also, ideally, result in a trickling down of additional funds for entrepreneurship in the form of loans. Therefore, many development economists studying remittances now focus on issues related to exploring how the financial system and the economy in general, can benefit most from this flow of funds.

This research investigates the determinants of remittances in the countries of the former Soviet Union. Focusing on this region allows the use of data which previous studies in this area could not access. Data on annual bilateral transfers from Russia to each of the remittance recipient countries; annual data on the flows of migrants from a particular country to Russia; annual data on the number of branches of money transfer operators in Russia; and

time series data on transfer fees charged by MTOs are all new variables used in this panel study. Although the new dataset is not extensive and the sample size is limited, the results of the research appear to be robust. The findings of this chapter provide a rich analysis of the determinants of remittances specifically relevant for the transition countries of the Soviet Union – the set of countries with common past, language, culture, mentality and similar patterns of development after the collapse of the Soviet Union.

Remittances flow to the less developed countries via formal or informal channels. In the case of the former Soviet Union transition economies formal channels predominantly consist of bank and MTO transfers. Informal channels mainly include cash carried by migrants and third parties (friends, relatives, and other couriers), as well as transfers similar to “hawala”. It is assumed that the higher the share of formal channels, the greater the benefits of remittances for the economy as a whole. The financial system stands to gain from transfer fees and, if it is effective enough, may attract new deposits from the beneficiaries of transfers. Furthermore, channelling remittances through official channels renders it to monitoring to deter money laundering and financing of terrorist activities.

The study finds that the primary determinant of official remittances in the former Soviet Union is the transfer fees. The impact of the variable of main interest for the present study - transfer fees – appears to be especially strong and remains significant even after correcting for endogeneity using an instrumental variable estimator. Furthermore, the study also finds a significant negative link between formal remittances and money outside depository

corporations, confirming a positive relationship between the level of transfer fees and informal remittances.

The chapter is organized as follows. Section 4.2 briefly reviews the literature. Section 4.3 presents the setting for migration and remittances in the former Soviet Union transition economies. Section 4.4 reviews the dataset and the methodology of the present research. Section 4.5 uses the new dataset to econometrically examine the determinants of remittances in the former Soviet Union and investigate the link between formal remittances and money in the informal sector. Finally, Section 4.6 draws conclusions and recommendations for policy-making.

## **4.2 Literature on Determinants of International Remittances**

Studies exploring determinants of remittances may conceptually be divided into two categories. On the one hand, micro-level research uses household level surveys to investigate the remittance decisions of individuals. On the other hand, macro-level inquiry resorts to macroeconomic indicators to understand determinants of remittances in the economy as a whole. Although there is no shortage of studies in the area of micro-level determinants of remittances, empirical inquiry into macro-level determinants of remittances had been rather limited before a burst in interest in last two decades.

Micro-level determinants of remittances in empirical research could be divided into three categories: i) effects related to migrants, such as migrant income, gender, marital status, age, education level, and risk level; ii) effects related to households, including income, wealth, number of family members, number of dependents, education level, age, and negative shocks; iii) effects

related to conditions surrounding migration, for example, the cost of migration, whether a spouse/family is together with the migrant, presence of other migrants in the household.

Macro-level research has found a number of factors which have influenced the amount of remittances each country receives. Among these are differences in the group of macroeconomic variables between host and home countries, such as relative income/wage levels, economic growth, interest rate gap, macroeconomic stability, and variations in business cycles. There are also a number of other macroeconomic factors, which could be considered on a stand-alone basis or in relation to their dynamics in both host and home countries, such as exchange rate related variables (fluctuations, dual exchange rate systems, restrictions, existence of a black market), political risk and institutional development, unemployment, demographics, infrastructure to transfer funds, the business environment, and financial sector development.

Linked to the interplay of these empirical determinants are the motives of remittances, which most frequently include altruism (increase in remittances in response to declines in family income at home), self-interest (e.g. inheritance or bequest, investments in the home economy, which migrant can profit from after return), co-insurance against income shocks, loan-repayment, exchange motives (provision of child care for migrants children left in home country by other members of the household), and strategic behaviour (remittances designated to keep other potential migrants at home so that these potential migrants do not come to the host country and create competition). There is also a strand in the literature on determinants of remittances, which includes the demographic/social factors and combines micro and macro factors in a model

(Adams Jr 2009; Buch and Kuckulenz 2010). These demographic/social factors include the number of children in a family, the ratio of females in the population of the host country as well as among migrants, and literacy rates.

Naturally, in most cases, various motives are in action at the same time. Which motive is prevalent depends on specific circumstances and the characteristics of each country or region. For instance, Ahlburg and Brown (1998) note that the inheritance motive is not so important in Polynesia, where inheritance rights are quite clear. In Polynesia, all males in a family, even those living overseas, have an equal right for inheritance as long as they maintain connections with their family back home. In Central Asia and Caucasus, the regions which dominate the migration and remittance scene in the former Soviet Union, this motive appear to be not so important either. The region's laws generally state that inheritance is to be divided equally among heirs. However, among the majority of ethnic groups, particularly in rural areas, custom and tradition require the inheritance issues to be settled in a certain way (Weissleder 1978). For instance, in Central Asia, the youngest son is usually designated as a sole heir.

Freund and Spatafora (2008) were the first to include transaction costs in the estimation of formal remittances and contrasted this estimation with a relationship between formal remittances and a measure for informal remittances (Net Errors and Omissions in the Balance of Payments). However, the estimations of Freund and Spatafora (2008) were limited to data on remittance transaction costs available for just one year and confined to using the determinants of transaction costs as a proxy in their panel estimations. The authors found that while the stock of migrants was the primary determinant of

official remittances, transaction costs also had a significant impact on recorded remittances. In that study, data on the stock of migrants was also limited to two periods and only covered migrants residing in the OECD. Schiopu and Siegfried (2006) used bilateral migration and remittance flows and also attempted to incorporate remittance transfer costs in their estimations but the bilateral transfer costs were substituted by proxies for them calculated in terms of availability of remittance services in sending and receiving countries. In addition, data on migrant stocks were available only for a few country pairs in their sample. Consequently, transfer costs proxied by remittance infrastructure do not have a significant impact on remittances in the whole sample and are significant only for remittance flows between countries without common borders. Another research by Lueth and Ruiz-Arranz (2006) utilizes a bilateral remittance flows dataset collected from the central banks of the remittance recipients. It includes a rather eclectic set of 11 countries from Asia, Europe, and the Middle East and found evidence of pro-cyclicality of remittances.

Migration and remittances in the former Soviet Union represent a good testing ground to consistently investigate the relationships between transfer fees and informality. Over time average remittance fees have been falling triggered mainly by competition. The stock of migrants has been dynamic responding to comparative changes in the economic environments of both Russia and their home countries, and barriers for travel remained quite low.

Schrooten (2005, (2006), applying the first-differenced GMM estimator for transition economies of Eastern Europe and the Commonwealth of Independent States (CIS), comes to contradicting conclusions. In the case of transition countries of Eastern Europe, remittances increase with

unemployment, and the size of the interest rate differential, and are inversely related to domestic credit. A rise in GDP per capita and the degree of openness of economies decreases remittances. The role of institutions as measured by indicators of quality of institutional framework developed by the European Bank for Reconstruction and Development (EBRD), is not statistically significant (Schrooten 2005). On the other hand, in the sample consisting of the CIS countries only, quality of institutions has a positive influence on remittances. GDP per capita and unemployment do not affect remittances. In addition, both the openness of an economy and domestic credit are positively associated with remittances. This is despite the fact that the CIS countries constitute a part of a larger sample of transition countries of Eastern Europe. This inconsistency in the results could be the consequence of different factors determining remittances in the two groups of transition countries, the factors being inferior quality of data and/or important missing variables. Applying Tobit models to empirically analyse household survey data for Moldova, Hagen-Zanker and Siegel (2007) find significant results for the loan repayment motive with regard to the repayment of migration loans, while they also admit that there could be some other reasons to remit. Affirming the hypothesis related to diversity of reasons to remit, Piracha and Saraogi (2012), utilizing the two-part and Heckman selection models, deduce a presence of both altruistic and investment motives.

In sum, the review of literature on the determinants of remittances in various regions is not conclusive and yields mixed results. This is due to the fact that the remittance decision is a very complex one, depending on the status, education, intentions, gender, family ties, age, and many other characteristics. This could also be due to endogeneity problem and/or uniqueness of each

region/country. Therefore, the analysis of the determinants of remittances requires case by a case approach in each region/country. However, this uniqueness should not preclude cross country examination of the determinants of remittances for homogeneous country sets. In fact, one of the remarkable shortcomings of literature on the determinants of remittances is a very limited availability of panel studies for groupings of countries with similar characteristics.

### **4.3 Backdrop for Remittances from Russia in the former Soviet**

#### **Union**

The analysis in this chapter focuses on the determinants of remittances flowing from the Russian Federation to the rest of the former Soviet republics. Some of the former Soviet countries are among world leaders based on Remittances to GDP ratio. In fact, four of the world's top ten remittance recipients, measured in terms Remittances to GDP ratio, are located in this region, as shown in Table 4.1.

**Table 4.1 Top Recipients of Personal Remittances in the World in 2014**

<b>Country</b>	<b>Remittances in millions</b>	<b>GDP (current in millions of US\$)</b>	<b>Per cent of GDP</b>
<b>Tajikistan</b>	3,835	9,241	41.4
<b>Kyrgyz Republic</b>	2,246	7,404	30.3
<b>Nepal</b>	5,875	19,636	29.9
<b>Tonga</b>	114	434	26.3
<b>Moldova</b>	1,981	7,944	24.9
<b>Lesotho</b>	456	2,088	21.8
<b>Armenia</b>	2,159	10,882	19.8
<b>Lebanon</b>	8,899	45,731	19.5
<b>Honduras</b>	3,329	19,385	17.7

Source: Calculations of the author based on data for bilateral remittances (World Bank 2014c) and GDP data from World Development Indicators

As evident from Table 4.2 below, the share of remittances from Russia in total remittances received by countries included in the estimations of this study varies from overwhelmingly large for some countries and quite sizeable for others. This is despite yawning differences in the post-Soviet transition path of these economies – Baltics joining EU, resource rich economies, including Azerbaijan, Kazakhstan, and Turkmenistan, enjoying relative prosperity and the rest of the group, consisting of poor countries of the former Soviet Union, stagnating. Only in the cases of Kazakhstan and Turkmenistan, remittances from Russia do not constitute a significant share of GDP. Of these two, Turkmenistan is not included in the estimations due to the lack of data. Kazakhstan, on the other hand, turned into a net remittance sending country due to its resource-induced strong economic growth.

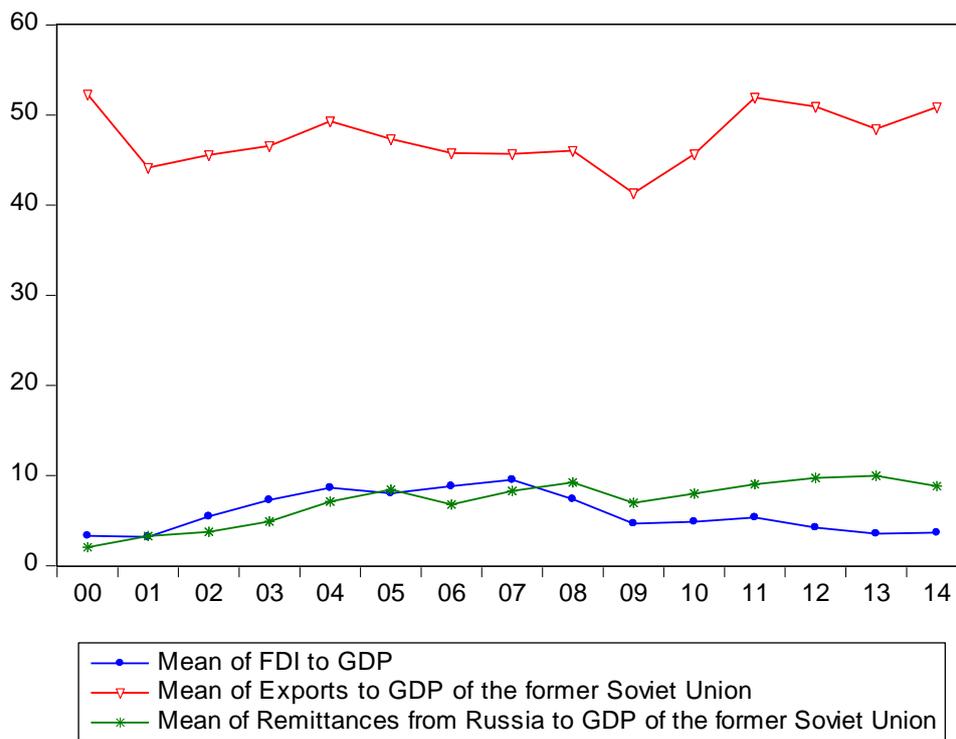
It should be noted that the data on bilateral remittances from the World Bank used in constructing Tables 4.1 and 4.2 is not without ambiguities. For instance, according to World Bank estimations, Uzbekistan receives remittances only from Russia, whereas anecdotal evidence as well as a small number of surveys, indicate that migrant stock of both legal and illegal Uzbek labourers in South Korea, Turkey, USA, and especially Kazakhstan is also sizeable. For example, Makhmutova et al. (2008), based on an Asian Development Bank financed survey, estimate that in 2004, remittances from Kazakhstan to Uzbekistan stood at about US\$500 million.

**Table 4.2 Share of Remittances from Russia in Total Remittances and GDP of the former Soviet Republics in 2014**

<b>Indicator</b>	<b>Total remittances</b>	<b>Remittances from Russia</b>	<b>Per cent of Russia in total</b>	<b>Per cent of total in GDP</b>
<b>Country</b>				
<b>Armenia</b>	2,159	1,380	64%	20%
<b>Azerbaijan</b>	1,898	1,107	58%	2.5%
<b>Belarus</b>	1,258	576	46%	1.7%
<b>Estonia</b>	476	137	29%	1.8%
<b>Georgia</b>	2,065	1,233	60%	12.5%
<b>Kazakhstan</b>	209	133	64%	0.1%
<b>Kyrgyzstan</b>	2,246	1,735	77%	30%
<b>Latvia</b>	790	193	24%	2.5%
<b>Lithuania</b>	2,399	269	11%	5%
<b>Moldova</b>	1,981	656	33%	25%
<b>Tajikistan</b>	3,835	2,952	77%	42%
<b>Turkmenistan</b>	30	30	100%	0.1%
<b>Ukraine</b>	7,587	3,936	52%	5.8%
<b>Uzbekistan</b>	5,588	5,588	100%	9%

Source: Calculations of the author based on data for total remittances and bilateral remittances from Russia (World Bank 2014)

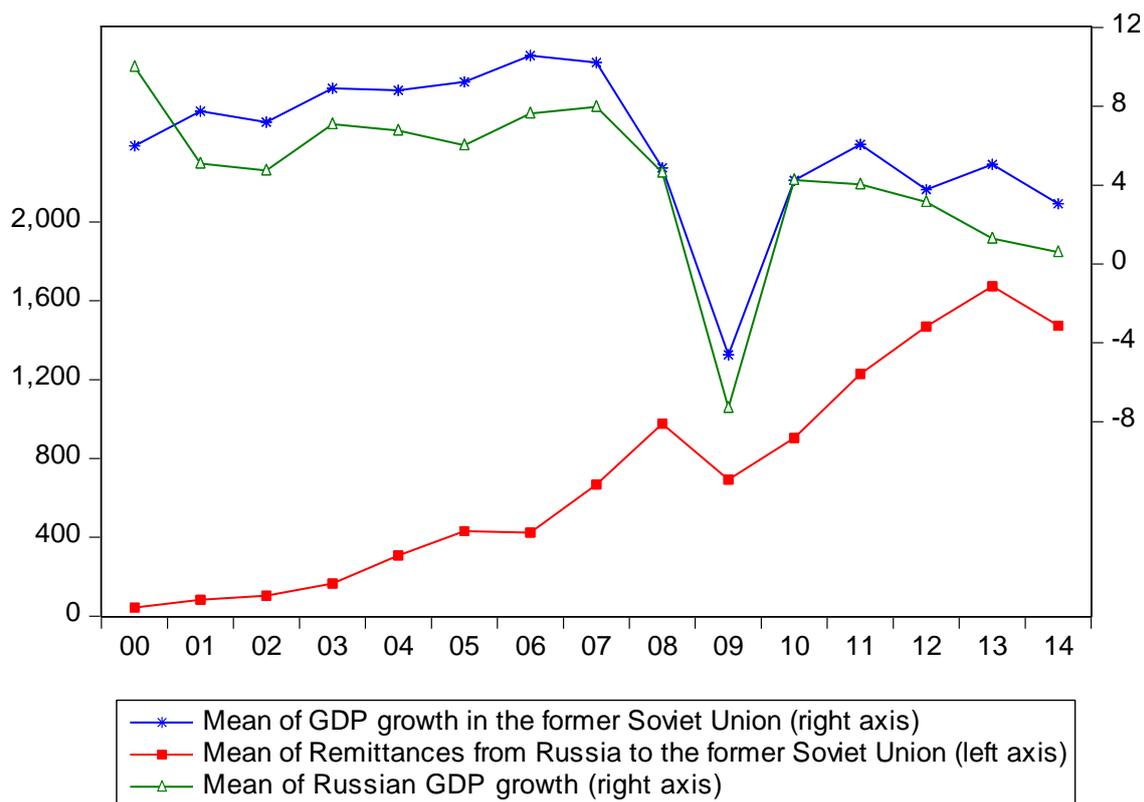
Remittances from Russia are a more stable source of foreign exchange in the former Soviet Union countries. In terms of its importance as a source of foreign exchange, remittances from Russia compete with FDI. However, the ratio of remittances to GDP is much smaller than compared with the ratio of exports to GDP in these countries, as depicted in Figure 4.1.



**Figure 4.1 Remittances from Russia, Exports, and FDI to GDP in the former Soviet Union (2000-2014)**

(The GDP percentages are on the vertical axis)  
 Data Source: World Development Indicators (World Bank).

Despite more than 20 years of independent development, interdependencies between Russian and former Soviet economies are still strong. Figure 4.2 below also illustrates that remittances are very sensitive to changes in economic conditions in Russia. Whereas the global financial crisis hit the world economy in general, the slowdown in Russian economic growth had a particularly severe impact on the former Soviet Union economies. As a result, remittances and economic growth declined significantly in the former Soviet Union.



**Figure 4.2 Remittances from Russia, FDI, and Exports (in % of GDP) 2000-2014**

(Remittances from Russia to the former Soviet Union countries in US\$ is on the left (primary) vertical axis and GDP growth in percentages is on the right (secondary) vertical axis).

Data Source: World Development Indicators (World Bank)

#### 4.4 Data Description

This research uses bilateral macroeconomic and demographic panel data to estimate determinants of remittances in the former Soviet Union. Sometimes it is argued that cross-country studies that estimate average coefficients may potentially produce erroneous results because this methodology may cover up diverse remittance flow patterns received by each country in a sample (Sayan 2006). This might be a reason why in the literature on determinants of remittances, preference is given to country case studies. Case studies focus on unique motivations to remit by diverse types of migrants from the same country (Hagen-Zanker and Siegel 2007). Indeed, the cross-country studies of

determinants of remittances to date typically bundled all developing countries in one huge pile in a race to increase the degrees of freedom at the cost of reduced homoscedasticity. This heterogeneity has been unavoidable given stark differences in factors explaining remittances discussed in the literature review section of this chapter. Moreover, panel estimations had to work with unreliable data on remittances sourced mainly from International Financial Statistics of the IMF and lacked some of the key determinants of remittances, such as flow of migrants and transfer costs over extended periods of time.

Panel data used in this research overcomes these shortcomings of the previous research and includes an unbalanced data set of repeated observations for bilateral remittances from Russia to the same set of countries in the former Soviet Union over 11 to 15 year period in 2000 - 2014. Since the sample includes countries with a common past, culture, mentality, and, in some cases, a similar trajectory of development, the heterogeneity problem is largely mitigated. Taking first differences between variables, it also becomes possible to eliminate many of the biases that arise from endogeneity and omitted variables, simultaneously addressing concerns about stationarity (Adams Jr 2009).

In addition to the above mentioned homogeneity, this data set is different compared with many existing cross-country studies in three important dimensions. First, previous research has relied on IMF data on remittances with some errors and inconsistencies (Kakhkharov and Akimov 2014). The remittances series used in this chapter use data from the Central Bank of Russia, collected from money transfer operators in Russia on bilateral remittances for each of the countries of the CIS and believed to be more

reliable. The Central Bank of Russia publishes two sets of data on remittances from Russia – the total remittances of individuals from Russia to each of the CIS countries and remittances implemented through MTOs. The difference between these two series is not significant. However, since the labour migration from the CIS countries to Russia is predominantly seasonal and illegal, most migrants use MTOs. This is because the requirements for documentation that migrants need to produce are minimal when transferring via MTOs. Besides, the data on transfers from individuals is more prone to capture some transactions, which should not be classified as remittances. Such transactions may include transfers of tourists, gifts, and/or trade related transactions. The only case when the difference between the series on remittances of physical persons and the series on remittances through MTOs is strikingly different is the case of Latvia, where remittances of individuals reached US\$2.9 billion in 2014, whereas remittances through MTOs stood at US\$32 million. Incidentally, this also exceeds, by about 4 times, the total volume of remittances received by Latvia in 2013, as reported in World Development Indicators (WDI). This is probably due to the fact that Latvia is considered as an offshore heaven for many businesses in Russia as well as the CIS and many transactions of individuals may actually be business transactions or even money laundering schemes. Therefore, we use series on MTO transfers in this study in order to capture labour migrant remittances in this empirical study.

The data on annual remittances from Russia via MTOs covers the period from 2006 to 2014. This study also uses the bilateral remittance data for the period from 2000 to 2005, which was estimated by Shelburne and Palacin (2007a) based on data for bilateral remittances in 2006 and the total amount of transfers via MTOs from Russia to the CIS during this period. This series is not

available for Estonia, for which the pro rata share of remittances from Russia is calculated based on IMF data on remittances to Estonia and the World Bank estimate of the share of remittances from Russia.

The second distinctive feature of the dataset used in this research is that it uses data on the number of migrants from each country of the former Soviet Union collected by the Federal Migration Service of Russia.<sup>11</sup> Since, as mentioned above, labour migration to Russia is dominated by temporary, seasonal migration and affected by economic conditions as well as regulations in Russia, the number of migrants fluctuates quite substantially. It needs to be noted that this indicator probably does not reflect the total number of labour migrants very accurately due to the difficulties in measuring illegal migration and due to constant changes in the regulations governing labour migration in Russia. However, the series represent a good proxy for capturing fluctuations in the migrants flow. Third, this research uses data on transfer costs of US\$200 from the Russian Federation for the period 2003-2013 collected by the Central Bank of Russia as a result of regular surveys of MTOs operating in Russia.<sup>12</sup> In addition, the study also uses data on the number of service points of MTOs implementing cross-border transfers from Russia in instrumental variable estimations. These data were collected from two reports of the Russian Central Bank (Central Bank of Russia 2009a, 2012a).

The above literature on determinants of remittances also finds that the business cycles, income levels, interest rates, and business environment are important factors for remittance flows. What matters for remittance decisions are the differences in these factors between the host and home countries.

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<sup>11</sup> Sincere gratitude is expressed for provision of this information to the Federal State Statistics Service (Rosstat) of the Russian Federation.

<sup>12</sup> Sincere gratitude is expressed for provision of this information to the Central Bank of Russia.

Therefore, in all estimations of remittance flows the differences between GDP growth, GDP per capita, and real interest rates between Russia and other countries of the former Soviet Union are used as proxies for the business cycle, income level, and business environment differences. All these series are sourced from the *World Development Indicators*.

A number of studies cited in the literature review section of this chapter empirically indicate that foreign exchange rates of the host and home countries, the development level of their financial sectors and the macroeconomic instability in the home country are relevant to remittances. The recent economic recession in Russia, accompanied with the dramatic depreciation of the Russian rouble, decimated the migrants' real earnings. Nominal US\$ exchange rates of the Russian rouble and former Soviet republics' currencies are included in estimations as control variables. Financial sector development is expressed in terms of the ratio of credit to GDP and comes from the International Monetary Fund (IMF) publication, *International Financial Statistics (IFS)*. Since inflation is perceived as a sign of macroeconomic instability, a GDP deflator from *World Development Indicators* is also included in estimations as a proxy for the rate of inflation.

Another control variable used in the study is the age dependency, which is calculated as a ratio of dependents (people younger than 15 or older than 64) to the working-age population (those aged 15-64). The data for this variable is sourced from the *World Development Indicators*. A number of qualitative variables, such as multiple exchange rate regimes, economic crises, and ease of crossing borders are also included in estimations. Exchange rate regimes and existence of a black market for currency exchange in the home countries

may play a critical role in channelling remittances through official channels (Aydas et al. 2005; El-Sakka and McNabb 1999). In addition, an economic crisis in the host country, Russia, may stop labour migrants from coming to the host country and decrease the amount of remittances. Therefore, this variable represents a dummy equal to 1 for the periods when Russia's economic growth slowed down. Finally, the existence of common borders may facilitate informal remittances and depress formal remittances (Lueth and Ruiz-Arranz 2006). This is because having common borders and a visa free regime makes it easy to travel to Russia and back, carrying the income earned in Russia in the pockets of migrants. However, having a common border may not necessarily make crossing the border with Russia easy because not all of the former Soviet Union enjoys a visa free regime with Russia. Estonian, Latvian, and Lithuanian citizens need a preapproved visa to visit Russia. Although Russia imposed a visa regime with Georgia back in 2000, the relations with Georgia deteriorated in 2008 in the wake of the South Ossetia conflict and the visa regime was toughened. For other CIS countries, procedures for obtaining a work permit in Russia are much simpler compared to the non CIS countries. Since Estonia, Latvia, and Lithuania have never been members of the CIS and Georgia exited the CIS in 2009, the citizens of these countries are subject to different treatment in Russia when applying for a work permit. Therefore, in the binary variable "Border", despite having physical borders with Russia, the non CIS countries of Estonia, Latvia, Lithuania, and Georgia (since 2008) are assigned a category of not having a border along with Armenia, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan – the countries which do not share a physical border with Russia. Finally, since remittances have experienced a spectacular growth in the territory

of the former Soviet Union, time trend variable incorporated in all estimations as well.

An additional set of variables is used in investigating relations between informal remittances, the underground economy, and official remittances. To follow the impact of remittances on monetary mass outside the financial system, which is closely linked to the underground economy and informal remittances, the IFS indicator – money outside depository corporations – is also used as a dependent variable in the estimations. The majority of control variables for these estimations - Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, and Rule of Law, and Control of Corruption - are derived from the World Bank dataset *Worldwide Governance Indicators*, 2014 (World Bank 2014b). A summary of methodology for calculating these indicators is provided in Kaufmann et al. (2011). These indicators of governance quality are deemed to be relevant to the size of the underground economy because poor governance and institutions usually result in an increase in the size of the shadow economy (Loayza 1996; Torgler and Schneider 2007). In these regressions, we also control for the share of exports in the GDP as a measure of the openness of the economy and GDP of each country. The full description of variables used in this study is provided in Appendix 1.

Descriptive statistics of the indicators used in the model are presented in Table 4.3 below.

**Table 4.3 Descriptive statistics**

<b>Variable</b>	<b>Observations</b>	<b>Mean</b>	<b>Median</b>	<b>Standard deviation</b>
Remittances (in millions of US\$)	179	758.56	295.1	1099.5
Remittances to GDP (%)	179	7.32	1.93	10.88
Transfer costs (%)	141	3.3	3.4	1.24
GDP growth in home countries (%)	184	6	6.8	5.97
GDP growth in Russia (%)	183	4.49	5.09	4.21
GDP per capita in home countries (current US\$)	184	4385.2	2097.1	4914.7
GDP per capita in Russia (current US\$)	184	8382.8	8615.7	4443.1
Real interest rate home countries (%)	149	6.48	6.73	11.1
Real interest rate in Russia (%)	184	-1.56	-2.95	5.59
Foreign exchange rate in home country (local currency per US\$, period average)	180	456.6	11.85	1332.8
Foreign exchange rate in Russia (Rouble per US\$, period average)	171	29.12	29.38	2.16
Unemployment in home countries (% of total labour force) (modelled ILO estimate)	171	10.35	9.6	5.39
Age dependency (% of working age population)	184	50.07	47.67	9.1
Credit provided by financial sector (% of GDP)	169	36.69	31.07	26.34
Migrants	171	3089.5	903	7451.4
Inflation (GDP deflator, %)	184	13.22	9.6	17.88
Dual exchange rates	173	0.12	0	0.33
Economic crises	184	0.14	0	0.35
Border	184	0.37	0	0.48
Money outside depository corporations (% of GDP)	116	8.29	7.45	4.03
Voice and accountability (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	161	-0.72	-0.99	0.96
Rule of law (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	161	-0.53	-0.76	0.74
Government effectiveness (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	161	-0.38	-0.64	0.68
Regulatory quality (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	161	-0.25	-0.37	0.87
Control of corruption (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	161	-0.6	-0.79	0.6
Political stability and absence of violence/terrorism (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	161	-0.29	-0.28	0.69
Exports of goods and services (% of GDP)	182	47.44	46.96	16.58
GDP in constant prices (2005) in millions of US\$	143	24816	15225	27166

It is remarkable that the mean GDP growth rate in the former Soviet Republics is higher than in Russia. Nevertheless, the difference in per capita income remains substantially higher in Russia.

Table 4.4 below presents correlation matrix of the model for determinants of remittances:

**Table 4.4 Correlation matrix of the model for determinants of remittances**

Variables	Remittances	Remittances to GDP	Transfer fees	GDP growth in home countries	Russian GDP growth	GDP per capita in home countries	Russian GDP per capita	Foreign exchange rate of Russian GDP	Russian foreign exchange rate	Unemployment	Dependency ratio	Interest rates in home countries	Russian interest rates	Credit to GDP	Migrants	Inflation	Dual exchange rates	Economic crises
Remittances	1																	
Remittances to GDP	0.6	1																
Transfer fees	-0.39	-0.1	1															
GDP growth in home countries	-0.03	0.06	0.22	1														
Russian GDP growth	-0.14	-0.01	0.29	0.66	1													
GDP per capita in home countries	-0.41	-0.51	-0.29	-0.28	-0.13	1												
Russian GDP per capita	0.46	0.12	-0.85	-0.26	-0.29	0.33	1											
Foreign exchange rate of home countries	-0.2	-0.19	-0.12	-0.03	-0.04	0.037	0.12	1										
Russian foreign exchange rate	0.14	0.01	-0.27	-0.36	-0.67	-0.02	0.15	0.11	1									
Unemployment	0.03	0.19	0.08	0.04	0	-0.15	-0.11	-0.12	0.09	1								
Dependency ratio	0.22	0.69	0.23	0.12	0.13	-0.24	-0.24	-0.23	-0.03	0.34	1							
Interest rates in home countries	0.21	0.21	-0.02	-0.14	-0.38	-0.25	-0.06	-0.46	0.39	0.32	0.12	1						
Russian interest rates	0.11	-0.01	-0.2	-0.55	-0.88	0.1	0.21	0.05	0.61	-0.01	-0.09	0.38	1					
Credit to GDP	-0.14	-0.48	-0.26	-0.44	-0.19	0.72	0.29	-0.08	0.03	-0.24	-0.35	-0.2	0.16	1				
Migrants	0.86	0.55	-0.46	-0.04	-0.19	-0.26	0.51	0.07	0.29	-0.04	0.16	0.16	0.19	-0.15	1			
Inflation	0.02	0.06	0.08	0.15	0.3	-0.15	0.02	0.57	-0.29	-0.25	0.03	-0.81	-0.32	-0.15	0.08	1		
Dual exchange rates	0.36	-0.01	-0.28	-0.16	-0.21	-0.15	0.29	-0.1	0.26	0	-0.1	0.13	0.16	0.17	0.3	-0.06	1	
Economic crises	-0.05	-0.04	0.02	-0.56	-0.89	0.04	-0.07	-0.03	0.39	0.02	-0.06	0.35	0.83	0.11	-0.05	-0.27	0.08	1
Border	-0.03	-0.45	0.12	0.21	0.09	-0.16	-0.12	0.35	-0.05	-0.36	-0.42	-0.24	-0.07	-0.06	-0.01	0.32	0.05	-0.05

Correlation matrix of the model for the money outside depository corporations in provided below in Table 4.5.

**Table 4.5 Correlation matrix of the model for the money outside depository corporations**

Variables	Money outside depository	Voice and accountability	Rule of law	Government effectiveness	Regulatory quality	Control of corruption	Stability	Inflation	Exports to GDP	Migrants	GDP in constant prices of 2005	Border
Money outside depository corporations	1											
Voice and accountability	-0.19	1										
Rule of law	-0.08	0.92	1									
Government effectiveness	-0.13	0.89	0.96	1								
Regulatory quality	-0.03	0.9	0.96	0.98	1							
Control of corruption	-0.22	0.87	0.93	0.91	0.87	1						
Stability	-0.12	0.49	0.64	0.57	0.56	0.6	1					
Inflation	-0.16	-0.4	-0.35	-0.40	-0.43	-0.26	-0.03	1				
Exports to GDP	-0.07	0.22	0.38	0.27	0.22	0.4	0.48	0.25	1			
Migrants	0.29	-0.43	-0.41	-0.4	-0.4	-0.44	-0.36	0.11	-0.3	1		
GDP in constant prices of 2005	0.21	-0.54	-0.28	-0.27	-0.3	-0.31	0.15	0.31	0.29	0.12	1	
Border	-0.04	-0.71	-0.65	-0.63	-0.67	-0.59	-0.32	0.38	0.19	0.05	0.63	1

#### 4.5 Estimation Strategy and Results

In this section the new data are used to analyse the determinants of remittances in the former Soviet Union applying three different techniques. Initially, the determinants of remittances were estimated using OLS to set the general direction of the investigation. Then a panel data fixed effects model is used to account for unobserved time-invariant heterogeneity. Finally, to tackle the issue of endogeneity in a systematic way, instrumental variables were applied. To control for endogeneity and to account for the existence of a possible lag in response to changes in the influencing factors, all independent variables in the baseline estimations are lagged for one period, except for those which affect remittances immediately (foreign exchange rates in the home and host countries, as well as binary variables). In all estimations, standard errors are

robust with regard to autocorrelation and heteroscedasticity. The basic relationship, which is investigated in this study can be written as

$$\Delta Rem_{i,t} = \beta_0 + \beta_1 \Delta Cost_{it-1} + \lambda_2 \Delta X_{it-1} + \varepsilon_{it} \quad (1)$$

where  $Rem$  is the annual amount (in US dollars) of remittances from Russia measured in volume; or remittances per capita; or the ratio of remittances to GDP received by country  $i$  at period  $t$ ,  $X_{it}$  is a vector of control variables, which cover demographic, economic, and financial/political factors, respectively, for country  $i$  at time  $t$ , and  $\varepsilon$  is an error term. All variables, except for dummy variables, are in first differences.

For fixed effects estimations, the following basic model is used:

$$\Delta Rem_{it} = \alpha_i + \beta_1 \Delta Cost_{it-1} + \lambda_2 \Delta X_{it-1} + \varepsilon_{it} \quad (2)$$

Where  $\alpha_i$  denotes the country-specific fixed effects. Equations (1) and (2) are estimated and presented in Table 4.6. Columns 2, 3, and 4 present estimated results based on Equation 1, where the dependent variable changes the form - Remittances to GDP, Remittances (volume), and Remittances per Capita respectively. Columns 5, 6, and 7 present estimated results based on Equation 2, where the dependent variable changes the form - Remittances to GDP, Remittances (volume), and Remittances per Capita respectively.

**Table 4.6 Determinants of Remittances. Pooled and Fixed Effects Panel Regression Results**

Explanatory variables (1)	Dependent variable (2)	Dependent variable (3)	Dependent variable (4)	Dependent variable (5)	Dependent variable (6)	Dependent variable (7)
	<u>Remittances to GDP</u>	<u>Remittances</u>	<u>Remittances per capita</u>	<u>Remittances to GDP</u>	<u>Remittances</u>	<u>Remittances per capita</u>
	<i>Pooled model</i>	<i>Pooled model</i>	<i>Pooled model</i>	<i>Fixed effects</i>	<i>Fixed effects</i>	<i>Fixed effects</i>
Transfer costs	-0.73** (-2.78)	-39.7** (-2.48)	-5.98** (-2.08)	-0.75*** (-2.61)	-35.58** (-2.18)	-5.51** (-2.52)
GDP growth differential	0.028 (0.8)	0.03 (0.01)	-0.08 (-0.21)	0.03 (1.03)	1.33 (0.65)	0.12 (0.31)
Income differential	-0.0001 (-0.44)	0.02 (0.54)	-0.001 (-0.17)	-0.0003 (-0.84)	0.005 (0.18)	-0.003 (-0.37)
Interest rate differential	-0.03 (-1.63)	-1.94 (-1.24)	-0.42** (-2.01)	-0.03 (-1.47)	-0.37 (-0.47)	-0.29 (-1.15)
Foreign exchange rate in home country	0.00003 (0.38)	-0.03** (-2.77)	-0.001 (-0.88)	-0.0002 (-0.92)	-0.005 (-0.31)	-0.002 (-0.51)
Foreign exchange rate in host country	-0.29** (-2.07)	-41.09*** (-3.43)	-6.06*** (-4.4)	-0.24 (-1.32)	-56.56*** (-6.6)	-8.39*** (-6.42)
Unemployment in home country	0.03 (0.75)	6.55 (0.55)	4.21 (1.41)	0.04 (0.93)	12.55 (1.28)	5.48 (1.59)
Age dependency	-0.89 (-1.4)	-73.32 (-1.55)	-17.21** (-2.03)	-1.50 (-1.23)	85.19* (1.81)	4.92 (0.49)
Credit to GDP	-0.0002 (-0.008)	-2.14 (-1.51)	0.24 (0.46)	0.01 (0.47)	-3.43** (-2.54)	0.02 (0.04)
Migrants	0.00003 (0.002)	0.03** (2.02)	0.001 (0.50)	-0.0001 (-0.46)	0.005 (0.32)	-0.001 (-0.35)
Inflation	0.005 (0.24)	0.14 (0.11)	0.21 (0.98)	0.01 (0.52)	-0.66 (-0.61)	0.15 (0.46)
Dual exchange rates	0.44 (1.03)	75.8 (1.47)	2.76 (0.53)	-0.15 (-0.22)	90.22 (1.41)	14.28 (1.61)
Economic crises	-2.74 (-1.61)	-163.9 (-1.10)	-64.16 (-1.62)	-3.66 (-1.7)*	-150.61 (-1.04)	-59.47 (-1.29)
Border	-0.99 (-2.19)	15.89 (0.68)	-19.14** (-2.56)	-0.33 (-0.41)	77 (1.15)	14.79 (0.78)
Trend	0.29** (2.15)	40.43** (2.63)	6.76*** (3.1)	0.44*** (4.68)	29.97 (3.05)	5.36** (2.90)
Constant	5.89 (1.6)	872.16*** (2.7)	134.13*** (3.82)	2.9 (0.5)	1517.4*** (6.94)	218.99*** (4.94)
Observations	91	91	91	91	91	91
Number of countries	11	11	11	11	11	11
R-squared	0.31	0.52	0.56	0.35	0.65	0.64

Note: \*\*\*, \*\*, \* denote significance at, respectively, the 1, 5, and 10 percent level. Absolute values of robust t-statistics are in parentheses.

Interpretation of the coefficients, derived from both the OLS and fixed effects estimations, results in a reasonably consistent story. Transfer costs have the most persistent, strongest, and statistically significant impact on remittances, no matter which measure of remittances is used. The foreign exchange rate in Russia is another important driver of remittances - with a fall of the rouble, remittances plunge. The anecdotal evidence of this phenomena

taking place in Russia today are plentiful and it is notable that this effect is statistically significant in 5 out of 6 regressions. Another indicator which is expected to have a positive sign is the trend variable. As noted above, over time, remittances from Russia to the former Soviet Union increased substantially. Therefore, it is not surprising that this variable has a positive sign and its effect is statistically significant in 5 out of 6 regressions. Unexpectedly, and in contradiction to many other studies in the area (Freund and Spatafora 2008; Singh et al. 2010), the number of migrants in Russia does not appear to be impacting on remittances statistically significantly. Among the effects of other variables it is worth mentioning that the size of the coefficient for economic crises is the highest among coefficients of all other variables, indicating that economic crises have had overall, the strongest diminishing effect on remittances, albeit this effect is not statistically significant in this sample.

Despite robust results of OLS and fixed effects estimations pointing at transfer costs as the main determinant of remittances in the former Soviet Union, it is still possible that the transfer costs are endogenous to remittances. Reverse causality may be taking place: remittances may be affecting the transfer costs, while, in addition, transfer costs may be affecting remittances. Although fixed effects estimations in first differences decreased the biases, reverse causality may still persist. One potential solution to this problem is to use Instrumental Variable (IV) estimations. Proper external instrumental variables that are correlated with the endogenous explanatory variable, but uncorrelated with the outcome variable applied in a panel model, may eliminate many biases that arise from endogenous variables, simultaneously controlling for unobserved country characteristics.

However, the main challenge is finding proper instruments. Within the scope of this study five appropriate instruments were identified. One of these instruments is sourced from Russia and this is the number of service points of MTOs in Russia. Many banks and other financial institutions seized this opportunity and entered the money transfer market, decreasing the transfer fees. The number of MTOs in Russia increased from just a few in the 1990s to more than 20 in the 2000s, facilitated by liberal policies toward MTOs on the side of Russian regulators as well as those in the majority of the former Soviet Union. This increase in demand, matched with a more than proportionate increase in supply of services and competition, must decrease the fees. This variable is a good instrument because an increase in the number of service points of MTOs is a sign of growing competition among MTOs in the remittance transfer market. This increased competition drives down the remittance fees charged by MTOs. Therefore, it is expected that the number of service points of MTOs will be negatively correlated with transfer costs.

The other four instruments are related to the features of the financial system in the former Soviet Union, which are deemed to influence the transfer fees. These are the ratio of current deposits to GDP, the level of bank concentration, the number of bank branches per 100,000 adults, and the number of ATMs per 100,000 of adults in the former Soviet Union. The second instrument for the transfer costs, the ratio of current deposits to GDP, is a proxy to the level of trust in the banking sector, which facilitates the transfer of remittances through official channels, thereby affecting the transfer fees. Therefore, a greater ratio of transferrable deposits should have a negative impact on such costs. The large number of bank branches creates convenience for families of labour migrants - beneficiaries of remittances – thereby

increasing the demand for transfers through MTOs. This may result in higher fees. However, the net effect on transfer fees may be ambiguous because the increased number of bank branches extends the possibilities for market penetration of MTOs, decreasing transfer fees. Bank concentration is an important indicator of the competition level in the banking sector and the literature on remittances finds it as a factor relevant to transfer costs (Freund and Spatafora 2008). A high level of bank concentration may result in stifling of competition and lead to higher transfer costs. The number of ATMs per 100,000 of adult population is another factor similar to the number of bank branches and measures the banking services penetration rate, hence relevant to transfer fees with ambivalent net effect. Again, to address stationarity concerns, all instruments are taken in first differences. All estimations include country fixed effects.

**Table 4.7 First-stage IV estimates for transfer costs of remittances from Russia to the former Soviet Union**

<b><i>Instruments</i></b>	
The number of service points of MTOs in Russia	-0.00002*** (-4.77)
Bank branches per 100,000 adults	0.04 0.58
3-Bank concentration ratio	0.007*** (3.72)
The ratio of transferable deposits to GDP	-0.006 -0.29
ATMs per 100,000 adults	-0.02 (-1.33)
<b><i>Included exogenous variables</i></b>	
GDP growth differential	0.02*** (3.26)
Income differential	-0.0001 (-0.14)
Interest rate differential	-0.006 (-1.32)
Foreign exchange rate in home country	0.00007 (1.18)
Foreign exchange rate in host country	-0.47*** (-6.15)
Unemployment in home country	-0.072 (-1.02)
Age dependency	-0.19 (-0.32)
Credit to GDP	0.0006 (0.33)
Migrants	0.000006 (1.36)
Inflation	-0.009** (-2.58)
Dual exchange rates	-0.24 (-0.76)
Economic crisis	2.36** (2.78)
Border	-0.22 (-0.73)
Trend	0.79*** (9.00)
Constant	9.25*** (7.11)
Observations	56
Number of countries	11
R-squared	0.89

Note: \*\*\*, \*\*, \* denote significance at, respectively, the 1, 5, and 10 percent level. Absolute values of robust t-statistics are in parentheses.

Table 4.7 presents the first-stage results for the instrumented variable (transfer costs). Two instrumental variables out of five are significant for

prediction of transfer costs. As expected, growth in the number of MTOs decreases the transfer fees and high bank concentration works in the opposite direction. In accordance with the preliminary expectations, the sign for the ratio of transferrable deposits to GDP is negative, although this effect is statistically insignificant. The other two variables, the number of bank branches and the number of ATM's per 100,000 adults, are also statistically insignificant, albeit having different signs. However, the ambiguity in these effects is not surprising either. In general, these results suggest instrument relevance. Therefore, these instruments are used in the second stage estimations. Table 4.8 presents the second-stage IV results.

**Table 4.8 Determinants of remittances. IV estimates of the impact of transfer costs on remittances from Russia to the former Soviet Union**

<i><b>Instrumented endogenous variable</b></i>	<b>Dependent variable: Remittances to GDP</b>
Transfer costs	-0.47*** (-2.69)
<i><b>Exogenous regressors</b></i>	
GDP growth differential	0.07 (1.6)
Income differential	-0.0003** (-2.84)
Interest rate differential	0.04** (-2.14)
Foreign exchange rate in home country	-0.0003 (-1.14)
Foreign exchange rate in host country	0.61** (2.41)
Unemployment in home country	0.07* (1.72)
Age dependency	-2.18 (1.6)
Credit to GDP	0.015* (1.64)
Migrants	-0.0003** (-2.62)
Inflation	0.03* (1.78)
Dual exchange rates	-0.75** (-1.05)
Economic crisis	-6.2** (-2.81)
Border	-0.02 (-0.02)
Trend	0.25 (1.41)
Observations	58
Number of countries	11
Centered R-squared	0.42
Kleibergen-Paap (underidentification test)	19.27
Cragg-Donald Wald F statistic (weak identification test)	15.42
Kleibergen-Paap rk Wald F statistic (weak identification test)	39.87
Hansen J-statistic (overidentification test)	5.40
P-value Hansen test	0.24

Note: \*\*\*, \*\*, \* denote significance at, respectively, the 1, 5, and 10 percent level. Absolute values of robust z-statistics are in are in parentheses.

In IV estimations, the coefficient for transfer costs has dropped in comparison with OLS and fixed effects regressions. This leads to the conclusion that the effect of transfer fees in the baseline estimation might have been

overestimated. However, this impact is still persistent, negative, and statistically significant. Various tests confirm the validity of the identification strategy used for the IV estimations. The Cragg and Donald (1993) and Kleibergen and Paap (2006) tests for weak instruments are used to check the identification of the model, and the test statistics – 15.42 and 39.87 exceed the rule-of-thumb score of 10, indicating suitable correlations between the instruments and the transfer costs. Another test used to check the validity of instruments used in this estimation is the overidentification test developed by Hansen (1982). This procedure tests the null that the instrument is uncorrelated with the error term and is correctly excluded from the regression equation. If null hypothesis is rejected in this test, this will raise doubts over the exogeneity of instruments. Fortunately, the Hansen test applied to this estimation does not reject the null. This is in accordance with the assumption of causality hypothesized in this model whereby changes in economic conditions and the financial sector take place exogenously causing variations in transfer fees, which in turn affect remittances.

Thus, the above estimations demonstrate that transfer fees are the most important among factors which influence the flow of remittances through formal channels (MTOs) in the sample. However, for policy makers it is probably even more essential that the remittances are likely to be diverted from informal channels to formal channels. The rise in official remittances generated by the lower transfer fees does not preclude the possibility that remittances also continued to feed the informal sector. Indeed, the overall absence of a clear relationship between the number of migrants and formal remittances in the estimations may have hinted at a persistent flow of informal remittances. In other words, the total stream of remittances might have been so large that it

was sufficient to feed both the formal and informal flow of remittances. Therefore, this study makes further inquiry into the link between formal and informal remittances.

One way of determining if the increase in recorded remittances results in crowding out of informal money transfers is to examine the relationship between formal remittances and money outside the formal financial system. A good proxy for the funds outside the formal financial system is the variable “money outside depository corporations”, available from the IFS of IMF. If increases in formal remittances stem from a move out of informal channels then there must be a negative contemporaneous relationship between recorded remittances and money outside depository corporations. If total remittances continue feeding both formal and informal sectors, then both formal remittances and money outside depository corporations are likely to move in the same direction, resulting in a positive correlation between formal remittances and money outside depository corporations. Following this logic, it seems reasonable to assume that as long as the growth in formal remittances is associated with crowding out of informal flows, money outside depository corporations will be negatively correlated with remittances.

Evidently, remittances are only one of the factors which may impact money outside depository corporations. The literature on the size of the informal sector in economies of various countries has found a number of determinants of the size of the informal sector. Some of the factors found to impact the informal sector are related to the quality of government institutions, which is negatively related to the size of the informal sector, and to excessive tax burdens and labour market restrictions, which are deemed to have a positive correlation with

the informal sector (Loayza 1996; Webb et al. 2009). The nature of the legal framework (Dabla-Norris et al. 2008; Webb et al. 2009) and corruption are also found to be the main culprit in some studies (Friedman et al. 2000). Johnson et al. (1998) assert that over-regulation, excessive tax burden, and the rule of law are correlated with the informal sector. Fortuna and Prates (1989) discovered a link between exports and the informal sector in the case of Uruguay. A number of studies, posit that there is a relationship between the informal sector and economic cycles using a sample of transition economies (Árvay and Vértes 1995; Johnson et al. 1999).

For estimation of the link between remittances and money outside depository corporations, the data for variables related to different facets of institutional quality (Voice and Accountability, Rule of Law, Government Effectiveness, Regulatory Quality, Corruption, and Stability), all deemed to be correlated with the informal sector, came from the World Bank *Worldwide Governance Indicators (WGI)* (World Bank 2014b). This project constructs aggregate indicators of six broad dimensions of governance: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. These six aggregate indicators are based on 31 underlying data sources reporting the perceptions of governance of a large number of survey respondents and expert assessments worldwide. Details on the underlying data sources, the aggregation method, and the interpretation of the indicators, can be found in the WGI methodology paper: Kaufmann et al. (2011). Detailed description of the variables and their scores is provided in Appendix 1.

Also included in the estimations are inflation, exports as a share of GDP, GDP in constant prices, and the share of migrants in the population. In addition, baseline estimations include a categorical indicator “Border” and a time trend. Inflation is included on the grounds that this is a proxy for macroeconomic stability, which may impact informality. The share of exports in GDP is a measure of openness of an economy and it is assumed that a greater openness results in the decrease in the informal sector. GDP in constant prices and the share of migrants in a country’s population is included to control for scale effects. As in all previous estimations, to address stationarity concerns, all variables are in first differences except for the qualitative variable accounting for border effect, and regressions run controlling for country and year fixed effects.

**Table 4.9 Remittances as a determinant of money outside depository corporations. Fixed effects panel regression results**

<b>Dependent variable:</b> Money outside depository corporations	(1)	(2)	(3)	(4)	(5)	(6)
<b>Explanatory variables:</b>						
Remittances to GDP	-0.07*** (-3.16)		-0.06*** (-3.04)		-0.06*** (-3.07)	
Remittances		-0.001* (-1.92)		-0.001* (-1.77)		-0.001* (-1.94)
Voice and Accountability	-2.3 (-1.58)	-2.37* (-1.7)	-2.44 (-1.6)	-2.53* (-1.7)		
Rule of law	-0.61 (-0.38)	-0.15 (-0.09)	-0.48 (-0.28)	-0.07 (-0.04)		
Government effectiveness	-1.97 (-1.64)	-2.14* (-1.78)	-1.77 (-1.4)	-1.9 (-1.47)	-1.56 (-1.33)	-1.92* (-1.7)
Regulatory quality	-1.01 (-0.75)	-1.08 (-0.77)	-0.81 (-0.58)	-0.9 (-0.64)	-1.37 (-0.99)	-1.59 (-1.25)
Corruption	-0.33 (-0.2)	-0.33 (-0.2)	-0.31 (-0.19)	-0.34 (-0.21)	-0.9 (-0.58)	-0.93 (-0.59)
Stability	0.17 (0.21)	0.11 (0.14)	0.09 (0.11)	0.02 (0.02)	0.09 (0.13)	0.14 (0.18)
Inflation	-0.03* (-1.83)	-0.03* (-1.79)	-0.03* (-1.83)	-0.03* (-1.79)	-0.03* (-1.67)	-0.02 (-1.5)
Export	0.05 (1.08)	0.05 (1.05)	0.06 (1.05)	0.05 (1.02)	0.04 (0.85)	0.04 (0.83)
Share of migrants in population	0.001*** (2.93)	1.4*** (4.11)	0.001*** (3.43)	0.002*** (4.79)	1.35** (2.8)	0.001*** (3.02)
GDP in constant prices	0.00003 (1.5)	0.00006** (2.88)	0.00002 (1.15)	0.00004** (2.4)	0.00003** (2.5)	0.00007*** (3.87)
Border	0.73 (1.32)	0.82 (1.47)				
Time trend	0.73 (1.32)	0.05* (1.66)				
Constant	-0.36 (-0.88)	-0.49 (-1.42)	0.26*** (5.11)	0.3*** (5.05)	0.27*** (3.93)	-0.52 (-1.78)
Observations	97	97	97	97	97	97
Number of countries	11	11	11	11	11	11
R-squared	0.17	0.18	0.16	0.17	0.15	0.15

Note: \*\*\*, \*\*, \* denote significance at, respectively, the 1, 5, and 10 percent level. Absolute values of robust t-statistics are in are in parentheses.

Table 4.9 reports the results of regressing money outside depository corporations on remittances and a number of control variables deemed to be relevant for formation of the informal economy. Columns 1, 3, and 5 report estimations using remittances to GDP as the independent variable of main interest, and in columns 2, 4, and 6, the independent variable of main interest is the volume of remittances. Columns 1 and 2 are baseline estimations including all control variables. Columns 3, 4, 5, and 6 represent robustness tests, where some of the variables are dropped from estimations. The results virtually do not change with the exclusion of some of the variables, pointing at a robust link between remittances and money in the informal sector. In all estimations an increase in remittances is associated with a decline in money outside depository corporations. It is also notable that, as expected, virtually all variables measuring institutional quality also negatively correlated with money outside depository corporations, albeit this relationship is statistically significant only for some measures and for some estimations. This could be due to the existence of multicollinearity in the indicators measuring governance quality, which dilutes their individual effects. Overall, these outcomes validate the hypothesis that while an increasing trend in migration seems to be associated with a rise in money outside depository corporations, increases in official (recorded) remittances are linked to a shift of funds out of the informal sector to the formal sector.

#### **4.6 Conclusion**

One of the attractive characteristics of remittances is the fact that these transfers are unilateral transfers that do not require an explicit payback.

However, another broadly accepted consensus that remittances are a relatively stable source of foreign exchange flow (Aydas et al. 2005; Buch and Kuckulenz 2010; Ratha 2003), may not hold, which appears to be the case of the former Soviet Union. The recent drastic cut back in remittances as a result of the Russian economic slowdown hurt especially badly the economies of the former Soviet Union dependent on the Russian remittances. This observation should warn against complacency among decision-makers in the transition economies of the former Soviet Union. As remittances might be a rather volatile boon, policymakers should prop up remittances with sound macroeconomic policies and a favourable business environment in order to maximize the potential benefits offered by this short term opportunity.

One way of increasing gains from remittances is to create incentives to channel the remittances to the formal sector of the economy so that foreign exchange flows go to transparent and legitimate investment projects instead of letting the informal sector activities use these funds. An important finding of this chapter is that formal remittances are negatively associated with the transfer costs in the former Soviet Union. However, this unsurprising result may have only hinted at the possibility that a statistically significant a negative correlation between remittances and transfer fees may lead to channelling funds to the formal sector at the cost of shrinking the informal sector. Therefore, this chapter further investigates the link between remittances and informal flows and finds negative contemporaneous correlation between these two, controlling for a host of other factors which the literature deems influential for the informal sector. The negative association between remittances and money outside depository corporations suggests that reductions in transfer fees not only facilitate formal remittances, but also shift the funds from the informal sector to the formal one.

There are many policy implications of these findings. First of all, a reduction in transfer fees resulting in an increase in formal remittances and a shift from the informal sector to the formal sector may facilitate transparent formal investments in the economy by capitalizing formal financial institutions and creating formal savings in the formal economy. Obviously, to achieve this goal, prudent efficient regulation of the financial system and a favourable business environment must be in place. Second, increasing the ranks of formal remittance senders and beneficiaries of remittances will also likely improve the “bankability” of the population. In other words, this could be the first step for beneficiaries of remittances to start using banking services in countries of the CIS where the penetration of banking services is still low. This opportunity should be augmented by a corresponding intelligent relationship management strategy aimed at retaining these beneficiaries within the financial system. Third, a shift from the informal to the formal sector also allows measuring remittances more accurately, which, in turn, permits a better estimation of funds available for investment in the economy. In addition, this makes an empirical inquiry into the effects of remittances more reliable. Fourth, despite the fact that lower transfer fees may result in a decrease in fee revenues per transfer, the overall revenues of the system may increase on the back of an increased volume of remittances flowing through the formal channels. Last but not least, the shift from informality to formality is a profound issue of the modern day international security landscape. The ever increasing threat of terrorism necessitates the close monitoring of the international flow of funds, which is considerably easier to accomplish when funds flow through transparent formal channels.

## **Chapter 5. Comparing the Financial Development of Transition Countries of Central and Eastern Europe and the Former Soviet Union**

### **5.1 Introduction**

One of the ground-breaking events of the 20<sup>th</sup> century was the demolition of the Berlin Wall, which signalled the beginning of the transition to market economy for the former communist countries of Central and Eastern Europe. Observers believe that one of the core foundations of the market economy has been the banking system. By channelling funds from savers to borrowers and fulfilling a number of other important roles, a well-functioning financial/banking system contributes a great deal to the economic development of any country.

The progress of reforms in the financial systems of transition economies has been uneven. Many commentators, such as Berglof and Bolton 2002; De Nicoló et al. 2003, are critical of the reform performance of the Soviet countries. In contrast, the literature evaluates the results of banking sector restructuring in the former communist countries of Central and Eastern Europe and Baltic states more favourably (Buiters and Taci 2005; De Nicoló et al. 2003; McNulty and Harper 2012). Seven countries of the Commonwealth of Independent States (CIS) were identified from the rest of the transition countries by multilateral agencies as facing a “particularly difficult transition period” (International Monetary Fund 2003, p. 1). For these countries a special term “CIS-7” was coined. These seven countries are Armenia, Azerbaijan, Georgia, Kyrgyz Republic, Moldova, Tajikistan, and Uzbekistan. Since Georgia left the CIS in 2008, this group of countries would be more appropriately referred to as *CIS 6 + Georgia*. Incidentally, or perhaps not, these are the countries, which are the major recipients of remittances in the post-Soviet space.

This study compares the recent developments in the banking and financial sectors of the distinct groups of countries within Central and Eastern Europe and the former Soviet Union. The focus of attention is the CIS 6 and Georgia. The progress in financial sector development and intermediation is compared with the assistance of various indicators and ratios. Since generating profits is one of the main goals of any business activity and may have an impact in many other related indicators of financial development, a special consideration is given to analysis of the profitability ratios. This is important for policy making because a policy response must take into account “a complete picture” of the problem. The study finds that despite certain progress made in bridging the gap between advanced transition countries and those lagging behind, further steps targeting measures to improve competition and banking practices are required in the latter group of countries.

The rest of this chapter is organized in the following way. The next section briefly reviews data and methodology. Section 5.3 is devoted to literature on financial development in the transition economies of Central and Eastern Europe and the former Soviet Union. Section 5.4 compares the macroeconomic and financial sector development indicators of different regions covered by the present study. Section 5.5 examines various indicators of access to financial services in respective groupings. Profitability ratios of the banking sector in the same transition regions are assessed in section 5.6. Indicators relevant to stability, stock market development, and institutional quality are discussed in sections 5.7, 5.8 and 5.9 respectively. Finally, section 5.10 draws conclusions.

## **5.2 Financial development in the transition economies of Central and Eastern Europe and the former Soviet Union**

The academic literature of the 1980s and 1990s on the role of the financial and banking sector in the economy finds ample evidence of the positive role which the sector plays in economic development (King and Levine 1993a, 1993b; Levine 1997, 2005; Rousseau and Wachtel 1998). Many cross-country studies of the period indicate that economic growth is facilitated by the financial sector in cases when the sector properly accomplishes its functions of mobilizing savings, expediently allocating resources, and enforcing corporate governance (T. Beck and Levine 2002; King and Levine 1993b; Levine 2004). Furthermore, banks contribute to development by providing essential services, such as payments between individuals and institutions, payments in international trade transactions, hedging services, and diversifying and pooling the risks (Pagano 1993). A study by Akimov et al. (2009) finds a robust positive link between financial development and economic growth in transition economies. Furthermore, economic research also finds some evidence of the causal relationships running from economic growth to financial development (Gurley and Shaw 1967; Jung 1986), or a two-way causality between growth and finance (Calderón and Liu 2003; Demetriades and Hussein 1996; Hassan et al. 2011). In other words, it is possible that an increasing demand for financial services might induce expansion in the financial sector as the real economy grows.

However, until recently, comparative studies of the financial systems in transition focused on mainly Central and Eastern Europe and European countries of the former Soviet Union (Berglof and Bolton 2002; Bonin and

Wachtel 2003; Bonin et al. 2005, 2014; De Haas and Van Lelyveld 2006; De Haas et al. 2012; Hermes and Lensink 2000). The financial systems of the poorer countries of the post-Soviet Union remain largely understudied, with the exception of papers by Ruziev and Majidov (2013) and Akimov (2015). The lack of reliable data can be a reason for such neglect.

### **5.3 Data and methodology**

Recent improvements in data accessibility and coverage offered by the expanded *Database of Financial Development and Structure* produced by the World Bank, *BankScope*, and the EBRD database *Life in Transition*, sparked efforts to study these so called “slow transition countries”. Some of the comparative research on the financial sector of the former Soviet Union (excluding the Baltics) and Central Asia comes to an unequivocal conclusion that the development of the financial systems of these countries is lagging behind the most advanced transition countries in the region (De Nicoló et al. 2003; McNulty and Harper 2012).

Unlike previous studies, this research concentrates on less developed countries of the CIS by analysing the differences in the trajectory of development of the financial sector in this set of countries. A closer look reveals issues with the quality of data for these countries. The study refers to field experience and research to identify these issues, and attempts to clarify the real situation. The main methodology of the study is the financial ratio analysis of an extensive list of indicators, including measures of institutional quality. This approach should help us to make a comprehensive comparison between

various groupings of transition countries. The study also utilizes econometric estimations using fixed effects and OLS.

#### **5.4 Macroeconomic and financial sector development indicators**

In this section, macroeconomic indicators (GDP per capita, annual GDP growth rate) for each transition country/groupings of countries are juxtaposed against financial sector development indicators, including ratios of M2 to GDP, bank deposits to GDP, bank credit to private sector to GDP. These indicators are considered to be key indicators of economic development and the level of financial development of a country/grouping. Since the prevailing opinion in the literature is that there is a link between economic growth and financial development, the expectation is that this relationship holds in the countries under consideration in this study.

For the purposes of this research, the transition economies of Central and Eastern Europe and the former Soviet Union are divided into four groups. “*CIS 6 + Georgia*”, formerly known as “*CIS-7*”, comprises the least developed countries of the region – Armenia, Azerbaijan, Georgia, Kyrgyz Republic, Moldova, Tajikistan, and Uzbekistan. “*Other CIS*” included larger economies of the former Soviet Union – Belarus, Kazakhstan, Russia, and Ukraine. The third group “*SEE*” consists of the transition economies of South Eastern Europe – Albania, Bosnia & Herzegovina, Bulgaria, Kosovo, Macedonia, Montenegro, Romania, and Serbia. Finally, the most advanced group “*CEE + Baltics*” incorporates Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, and Slovenia. The transition countries are divided into these subgroups based on their development level and divisions assessed by

previous scholarly research (Berglof & Bolton 2002; De Nicoló et al. 2003; McNulty & Harper 2012). *CIS 6 + Georgia* is considered to be the most backward and poor grouping, while *CEE + Baltics* is the most developed and affluent. *Other CIS* and *SEE* are groupings between the above two extremes of the transition countries. The choice of these comparators is motivated by the fact that these countries have the same communist past and started from similar initial conditions. Therefore, it is worthwhile studying the trajectory of the financial/banking sector development and how it has diverged during the past quarter of century transition.

***GDP and GDP per capita.*** The growth rates of GDP and GDP per capita in *CIS 6 and Georgia* over the period of 1996-2013 were significantly higher compared to all other regions in the sample. This bodes well with catching up theory which asserts that the countries starting from a lower foundation grow faster to catch up with more advanced ones (Gerschenkron 1962; Solow 1956). However, even within this group significant differences are beginning to emerge. Thus growth in GDP and GDP per capita in oil-rich Azerbaijan during the period from 1996 to 2013 outstripped similar indicators for the rest of the group by multiples of two or more. Armenia and Georgia's economic performance has also been solid. Tajikistan started its economic rebuilding on the ruins of civil war, which is why this country's economic record looks more impressive than some of their neighbours. However, despite this notable growth, the gap in per capita GDP between *CIS 6 + Georgia* and *CEE + Baltics* is still significant. Tables 5.1 and 5.2 illustrate the main economic growth indicators: GDP per capita and annual GDP growth rate for transition countries of *CIS 6 + Georgia*, *Other CIS*, *SEE*, and *CEE + Baltics*.

Table 5.1 GDP per capita (in constant 2005 US\$), 1996 – 2013

	Average (1996- 2000)	Average (2001- 2005)	Average (2006- 2010)	Average (2010- 2013)	Average annual growth rate (1996- 2013)
<b>CIS 6 + Georgia</b>					
Armenia	802	1288	2034	2212	12.4
Azerbaijan	750	1199	2731	3152	22.1
Georgia	941	1264	1768	2069	9.1
Kyrgyz Republic	392	456	540	596	4.1
Moldova	598	722	930	1077	4.7
Tajikistan	216	299	389	459	7.4
Uzbekistan	423	496	668	846	7.0
<b>Average for CIS 6 + Georgia</b>	<b>589</b>	<b>818</b>	<b>1294</b>	<b>1487</b>	<b><u>9.5</u></b>
<b>Other CIS</b>					
Belarus	1863	2611	4027	4858	11.9
Kazakhstan	2114	3203	4465	5211	9.6
Russia	3505	4669	6255	6801	5.7
Ukraine	1152	1583	2038	2106	4.7
<b>Average for Other CIS</b>	<b>2158</b>	<b>3017</b>	<b>4196</b>	<b>4744</b>	<b><u>8</u></b>
<b>SEE</b>					
Albania	1800	2496	3384	3995	7.8
Bosnia and Herzegovina	1929	2553	3246	3371	8.1
Bulgaria	2494	3283	4371	4629	5.4
Kosovo	1514	2023	2512	2839	6.5
Macedonia	2548	2676	3245	3513	2.6
Montenegro	3261	3425	4399	4636	2.6
Romania	3395	4100	5576	5900	3.7
Serbia	2584	3021	3749	3925	3.5
<b>Average for SEE</b>	<b>2441</b>	<b>2947</b>	<b>3810</b>	<b>4101</b>	<b><u>4.4</u></b>
<b>CEE + Baltics</b>					
Croatia	7656	9261	10818	10556	2.5
Czech Republic	9939	11565	14110	14242	2.4
Estonia	6274	8803	11206	11818	7.0
Hungary	8239	10161	11407	11334	2.8
Latvia	4017	5960	8096	8405	8.6
Lithuania	4753	6613	9111	10092	8.4
Poland	6229	7403	9348	10602	5.2
Slovak Republic	8785	10459	13966	15166	4.9
Slovenia	14099	16903	19795	18964	2.5
<b>Average for CEE + Baltics</b>	<b><u>7777</u></b>	<b><u>9681</u></b>	<b><u>11984</u></b>	<b><u>12353</u></b>	<b><u>4.1</u></b>

Source: World Bank, *World Development Indicators*

**Table 5.2 Annual GDP growth rate, 1996-2013**

	Average growth rate (1996-2000)	Average growth rate (2001-2005)	Average growth rate (2006-2010)	Average growth rate (2010-2013)	Average growth rate for the period (1996-2013)
<b>CIS 6 + Georgia</b>					
Armenia	5.1	12.2	4.4	5.1	6.9
Azerbaijan	7.1	13.7	16.9	2.7	10.9
Georgia	5.9	7.4	5.3	5.6	6.1
Kyrgyz Republic	5.6	3.8	4.5	5.5	4.8
Moldova	-2.3	7.1	3.3	5.0	3.1
Tajikistan	0.5	9.8	6.6	7.4	5.9
Uzbekistan	3.9	5.4	8.5	8.2	6.3
<b>Average for CIS 6 + Georgia</b>	<b>3.7</b>	<b>8.5</b>	<b>7.1</b>	<b>5.6</b>	<b><u>6.3</u></b>
<b>Other CIS</b>					
Belarus	6.4	7.5	7.3	2.7	6.4
Kazakhstan	2.6	10.4	6.3	6.2	6.4
Russia	1.8	6.1	3.7	3.0	3.7
Ukraine	-1.8	7.7	1.4	2.4	2.4
<b>Average for other CIS</b>	<b>2.2</b>	<b>7.9</b>	<b>4.7</b>	<b>3.6</b>	<b><u>4.7</u></b>
<b>SEE</b>					
Albania	5.8	5.4	5.1	1.9	4.8
Bosnia and Herzegovina	30.8	5.0	3.2	0.7	11.0
Bulgaria	0.9	5.2	3.0	1.2	2.7
Kosovo		8.2	4.4	3.1	5.6
Macedonia	3.0	1.6	3.6	1.8	2.6
Montenegro	-0.5	2.8	4.6	1.3	2.5
Romania	-1.2	5.9	3.0	2.1	2.5
Serbia	1.5	6.2	2.7	1.0	3.1
<b>Average for SEE</b>	<b>5.8</b>	<b>5.0</b>	<b>3.7</b>	<b>1.6</b>	<b><u>4.5</u></b>
<b>CEE + Baltics</b>					
Croatia	3.4	4.5	0.6	-1.1	2.2
Czech Republic	1.8	3.9	2.5	0.2	2.3
Estonia	6.8	7.1	0.1	4.9	4.7
Hungary	3.0	4.2	-0.1	0.6	2.1
Latvia	5.7	8.2	-0.1	4.8	4.6
Lithuania	4.5	7.8	1.4	4.3	4.5
Poland	5.4	3.0	4.7	2.7	4.1
Slovak Republic	3.6	5.0	4.8	1.9	4.0
Slovenia	4.3	3.6	1.9	-1.0	2.5
<b>Average for CEE + Baltics</b>	<b>4.3</b>	<b>5.3</b>	<b>1.8</b>	<b>1.9</b>	<b><u>3.5</u></b>

Source: World Bank, *World Development Indicators*

Based on the above discussion of the complex link between economic growth and financial development, accelerated economic growth in *CIS 6 + Georgia* would be expected to be associated with faster development of the financial sector in these countries. There are a number of traditional measures of financial sector development: M2 to GDP, Deposits to GDP, Central bank assets to GDP, and Deposit money bank assets to GDP.

**M2 to GDP.** As shown in Table 5-3, the growth rate of M2 to GDP in *CIS 6 + Georgia* in the period from 1996 to 2013 is the second highest behind the other CIS countries. While this indicator for Tajikistan and Uzbekistan are much lower than the average, the ratio for Moldova is almost the same as in *SEE* and close to the *CEE + Baltics* levels. This confirms that a significant level of divergence among *CIS 6 + Georgia* exists. Despite the fact that, in general, *CIS 6 + Georgia* still trails behind the most advanced transition countries in the region in the average values of this indicator, the positive growth rate in this indicator is opposed to the negative growth rate which De Nicoló et al. (2003) noted based on data available at the end of 2002.

Worth remarking is that in most high-income countries with well-developed banking sectors, the ratio of broad money to GDP is much higher than in the transition countries examined in this research. For example, according to *World Development Indicators*, M2/GDP in the Eurozone countries was not less than 150 per cent during the period from 2007 to 2013.

Table 5.3 M2 to GDP, 1996-2013<sup>13</sup>

	Average ratio for country (1996-2000)	Average ratio for country (2001-2005)	Average ratio for country (2006-2010)	Average ratio for country (2010-2013)	Average annual growth rate in %
<b>CIS 6 + Georgia</b>					
Armenia	10.6	14.9	22.5	33.2	18.9
Azerbaijan	12.8	14.5	21.8	30.4	10.9
Georgia	8.2	13.7	24.8	32.0	24.3
Kyrgyz Republic	13.4	17.0	28.9	31.6	10.3
Moldova	20.5	32.8	50.2	56.1	13.4
Tajikistan	8.1	10.2	17.8	20.1	8.3
Uzbekistan	15.9	12.1	18.1	24.3	1.1
<b>Average for CIS 6 + Georgia</b>	<b><u>12.8</u></b>	<b><u>16.5</u></b>	<b><u>26.3</u></b>	<b><u>32.5</u></b>	<b><u>10.2</u></b>
<b>Other CIS</b>					
Belarus	19.1	16.5	25.9	32.7	6.3
Kazakhstan	11.5	23.0	38.8	34.3	13.0
Russia	20.7	28.9	44.1	53.0	11.9
Ukraine	15.1	33.5	53.2	56.6	24.7
<b>Average for Other CIS</b>	<b><u>16.6</u></b>	<b><u>25.5</u></b>	<b><u>40.5</u></b>	<b><u>44.2</u></b>	<b><u>13.3</u></b>
<b>SEE</b>					
Albania	58.5	66.2	76.7	83.5	4.0
Bosnia and Herzegovina	24.5	39.9	52.3	58.4	9.5
Bulgaria	39.1	46.1	66.2	77.8	0.8 <sup>14</sup>
Kosovo	-	20.8	35.1	41.5	11.8
Macedonia	15.1	32.8	49.1	58.1	23.8
Mongolia	18.7	33.2	44.1	55.4	12.9
Montenegro	-	14.8	51.5	50.7	30.2
Romania	32.9	29.9	35.6	38.3	0.6
Serbia	12.2	20.4	38.4	44.7	19.0
<b>Average for SEE</b>	<b><u>30.4</u></b>	<b><u>33.9</u></b>	<b><u>50.6</u></b>	<b><u>56.6</u></b>	<b><u>6.1</u></b>
<b>CEE + Baltics</b>					
Croatia	34.5	55.8	68.2	76.0	8.1
Czech Republic	59.4	55.9	65.4	73.7	1.2
Estonia	23.0	42.9	58.1	66.9	14.4
Hungary	45.4	48.3	58.6	61.7	1.7
Latvia	24.6	35.8	45.1	44.6	5.6
Lithuania	19.2	32.4	45.3	47.3	10.8
Poland	37.4	42.4	50.8	57.7	4.3
Slovak Republic	61.0	58.2	54.9		-5.6
Slovenia	38.9	51.9	67.2	75.3	6.3
<b>Average for CEE + Baltics</b>	<b><u>38.1</u></b>	<b><u>47.1</u></b>	<b><u>57.1</u></b>	<b><u>62.9</u></b>	<b><u>4.0</u></b>

Sources: World Bank, *World Development Indicators* and Asian Development Bank, *Key Indicators*

<sup>13</sup> Data for the Slovak Republic covers period 1996-2008.

<sup>14</sup> The ratio for Bulgaria was 73.3 in 1996 and that is why average annual growth is so small

**Deposits to GDP.** As demonstrated in Table 5.4, a similar trend is observed in the case of another indicator of financial sector development, Deposit money bank assets to GDP. Bank assets ratio in the GDP of *CIS 6 + Georgia* has been growing at a faster rate than that of *SEE* and *CEE + Baltics*. Again, *CIS 6 + Georgia* seem to have improved their performance in contrast to what was noted by De Nicoló et al. (2003) based on data from 1995 through 2002. De Nicoló et al. (2003) demonstrated that this ratio has grown more slowly in *CIS 6 + Georgia* compared with the more successful transition countries of *CEE + Baltics*. Nevertheless, despite ranking second behind the other CIS countries in terms of the growth rates of this indicator, the bank assets in GDP ratio of *CIS 6 + Georgia's* is smaller than that of other regions in absolute terms. Moreover, the difference in the absolute value of the ratio in these countries and *CEE + Baltics* has widened, indicating that the higher growth was mainly due to the fact that the deposit growth in these economies started at very low levels. The ratio of deposit money bank assets to GDP in *CIS 6 + Georgia* is also significantly smaller than that of the most developed economies in the world, in which this indicator exceeds 100 per cent (World Bank 2013a).

**Table 5.4 Deposit money bank assets-to-GDP ratio, 1996-2011**

	<b>Average ratio for country (1996-2000)</b>	<b>Average ratio for country (2001-2005)</b>	<b>Average ratio for country (2006-2011)</b>	<b>Average annual growth rate in %</b>
<b>CIS 6 + Georgia</b>				
Armenia	8.0	8.7	21.0	27.9
Azerbaijan	12.1	8.8	17.0	3.6
Georgia	4.6	9.2	27.9	48.4
Kyrgyz Republic <sup>15</sup>	6.0	5.7	11.0	2.5
Moldova	16.5	20.9	35.2	7.0
Tajikistan <sup>16</sup>	11.9	12.6	19.5	9.1
Uzbekistan	-	-	-	-
<b>Average for CIS 6 + Georgia</b>	<b><u>9.8</u></b>	<b><u>11.0</u></b>	<b><u>21.9</u></b>	<b><u>13.3</u></b>
<b>Other CIS</b>				
Belarus	11.7	16.5	38.3	23.8
Kazakhstan	7.5	22.2	45.8	35.0
Russia	19.2	24.1	40.4	10.7
Ukraine	9.2	20.9	61.2	47.7
<b>Average for Other CIS</b>	<b><u>11.9</u></b>	<b><u>20.9</u></b>	<b><u>46.4</u></b>	<b><u>24.5</u></b>
<b>SEE</b>				
Albania	36.5	34.5	54.7	3.2
Bosnia and Herzegovina	-	-	52.7	7.0
Bulgaria	28.3	28.2	56.4	-0.1
Kosovo	-	10.1	27.4	59.9
Macedonia	23.5	22.0	40.4	4.5
Mongolia	-	-	65.7	21.2
Montenegro	15.5	14.2	38.5	10.3
Romania	28.7	24.8	43.3	10.3
Serbia	<b><u>26.5</u></b>	<b><u>22.3</u></b>	<b><u>47.4</u></b>	<b><u>4.6</u></b>
<b>Average for SEE</b>				
<b>CEE + Baltics</b>				
Croatia	46.3	53.8	79.7	8.4
Czech Republic	64.6	48.7	56.0	-1.8
Estonia	28.4	49.0	93.1	24.0
Hungary	34.3	49.3	71.9	8.8
Latvia	15.9	42.2	82.9	41.7
Lithuania	15.9	25.9	54.1	22.2
Poland	30.4	37.9	47.2	5.1
Slovak Republic	74.4	64.1	59.5	0.5
Slovenia	38.4	51.7	90.3	12.1
<b>Average for CEE + Baltics</b>	<b><u>38.7</u></b>	<b><u>47.0</u></b>	<b><u>70.5</u></b>	<b><u>9.5</u></b>

Source: World Bank, *Global Financial Development Database*

<sup>15</sup> Data for Kyrgyz Republic available only for period 1996-2007

<sup>16</sup> Data for Tajikistan available only for period 2000-2006

One of the most important indicators of trust in the banking system is the sector's ability to attract deposits. The ultimate purpose of attracting deposits is considered to be asset transformation. On the other hand, in an economy in which asset transformation capacities are limited due to scarcity of profitable investment opportunities and/or a sluggish economic environment, the incentives to attract deposits are very low.

As shown in Table 5.5, the growth rate of bank deposits to GDP in *CIS 6 + Georgia* has again been the highest of all transition countries. However, this ratio of *CIS 6 + Georgia* constituted only 34 per cent of that of *CEE + Baltics*, 40 per cent of *SEE*, and 60 per cent of *Other CIS* for the last observed period of 2006-2011. Moreover, in absolute terms, the *CIS 6 + Georgia* countries now lag further behind all the other three groups. As noted above, the rate of overall economic growth in *CIS 6 + Georgia* has been higher compared to the other transition countries. Therefore, this increase in divide is not due to weaker economic growth but rather due to the shortage of profitable investment opportunities and/or lack of trust in banks. However, the number of attractive investment projects in a growing economy should also increase. Some other possibilities are misleading statistics and state owned sector led economic growth. Since it is unlikely that statistics bodies of all countries under consideration can coordinate simultaneous statistical fabrications, and given a constant increase in the share of the private sector (Turley and Luke 2011), it appears that lack of trust is the main culprit, and institutional issues which result in this lack should be investigated. Indeed, as shown further in this chapter, *CIS 6 + Georgia* performed considerably worse than other transition groups on a number of institutional quality indicators.

**Table 5.5 Bank deposit-to-GDP ratio**

	<b>Average ratio for country (1996-2000)</b>	<b>Average ratio for country (2001-2005)</b>	<b>Average ratio for country (2006-2011)</b>	<b>Average annual growth rate in %</b>
<b>CIS 6 + Georgia</b>				
Armenia	4.8	8.3	13.2	36.7
Azerbaijan	5.7	8.0	10.3	8.2
Georgia	3.0	6.8	16.9	62.3
Kyrgyz Republic	4.6	6.1	9.7	15.1
Moldova	9.6	18.8	34.5	19.5
Tajikistan		3.6	9.0	35.6
Uzbekistan	-	-	-	-
<b>Average for CIS 6 + Georgia</b>	<b><u>5.5</u></b>	<b><u>9.6</u></b>	<b><u>16.9</u></b>	<b><u>24.8</u></b>
<b>Other CIS</b>				
Belarus	10.0	11.4	20.0	10.5
Kazakhstan	5.9	14.6	27.5	26.9
Russia	12.5	18.0	31.3	14.2
Ukraine	7.3	17.6	33.6	28.6
<b>Average for Other CIS</b>	<b><u>8.9</u></b>	<b><u>15.4</u></b>	<b><u>28.1</u></b>	<b><u>18.0</u></b>
<b>SEE</b>				
Albania	35.6	44.1	56.9	9.7
Bosnia and Herzegovina			36.3	6.5
Bulgaria	27.5	30.0	54.0	2.1 <sup>17</sup>
Kosovo		19.8	32.6	17.6
Macedonia	10.2	24.6	41.7	33.3
Montenegro			46.5	8.9
Romania	17.8	18.5	28.7	5.2
Serbia	7.9	15.0	34.4	31.5
<b>Average for SEE</b>	<b><u>19.8</u></b>	<b><u>25.3</u></b>	<b><u>41.4</u></b>	<b><u>6.1</u></b>
<b>CEE + Baltics</b>				
Croatia	31.4	48.4	62.9	15.2
Czech Republic	55.0	59.6	62.0	0.7
Estonia	20.5	31.1	49.2	15.2
Hungary	36.8	38.5	46.0	1.3
Latvia	14.3	24.5	37.6	14.2
Lithuania	12.2	22.1	35.8	15.4
Poland	29.2	36.3	43.0	6.1
Slovak Republic	53.0	53.3	51.5	0.1
Slovenia	36.3	50.0	53.4	5.3
<b>Average for CEE + Baltics</b>	<b><u>32.1</u></b>	<b><u>40.4</u></b>	<b><u>49.1</u></b>	<b><u>5.0</u></b>

Source: World Bank, *Global Financial Development Database*

<sup>17</sup> The ratio for Bulgaria was 45.5 in 1996 and that is why the average annual growth rate is so small

**Private credit to GDP.** Bank credit to private sector as a ratio of GDP is probably the most important indicator of how the financial system is fulfilling its main function of channelling the funds of savers to productive investment opportunities. The study by Djankov et al. (2007) concludes that legal creditor rights as well as private and public credit registries are linked to higher ratios of private credit to gross domestic product. It is the private sector which has become the main engine of economic success in industrialized countries. Macroeconomic stabilization, reforms and privatization in the financial sector, and legal reforms are critical determinants of growth in credit to the private sector (Backé and Zumer 2004).

As demonstrated in Table 5.6, the other CIS countries, in particular Ukraine, are leaders among the transition economies in terms of growth in the share of private sector bank credit to GDP. In *CIS 6 + Georgia*, this ratio is 3 times smaller than in *CEE+ Baltics*, half of *SEE*'s ratio for the period of 2006-2011. Moreover, the lag of the former from all other three groups has increased over the period of 1996 to 2011. Since macroeconomic stabilization has been achieved in all countries in the sample, delays in the privatization of the financial sector as well as legal reforms may account for this phenomenon. Furthermore, the above noted slower growth in the Bank Deposit-to-GDP Ratio may have also curtailed the availability of funds to the private sector.

**Table 5.6 Bank credit to private sector to GDP ratio**

	Average for country (1996-2000)	Average for country (2001-2005)	Average for country (2006-2011)	Average annual growth rate in %
<b><i>CIS 6 + Georgia</i></b>				
Armenia	6.9	6.6	18.3	35.0
Azerbaijan	2.5	6.3	14.0	92.0
Georgia	4.5	8.4	26.6	44.8
Kyrgyz Republic	5.4	4.9	10.0	2.1
Moldova	9.1	16.9	31.3	23.1

Tajikistan		12.1	16.0	8.0
Uzbekistan	-	-	-	-
<b>Average for CIS 6 + Georgia</b>	<b><u>5.7</u></b>	<b><u>9.2</u></b>	<b><u>19.4</u></b>	<b><u>34.2</u></b>
<b>Other CIS</b>				
Belarus	6.2	9.4	26.3	35.0
Kazakhstan	6.2	19.6	43.2	33.1
Russia	10.1	18.0	36.6	26.6
Ukraine	4.7	18.6	55.3	264.1
<b>Average for Other CIS</b>	<b><u>6.8</u></b>	<b><u>16.4</u></b>	<b><u>40.4</u></b>	<b><u>89.7</u></b>
<b>SEE</b>				
Albania	3.5	7.4	30.1	76.8
Bosnia and Herzegovina			48.9	6.1
Bulgaria	17.4	23.1	51.3	6.5
Kosovo		10.1	27.4	59.7
Macedonia	21.6	18.8	37.0	5.1
Montenegro			61.9	22.3
Romania	7.9	11.1	32.9	23.7
Serbia	25.1	22.6	38.9	8.1
<b>Average for SEE</b>	<b><u>15.1</u></b>	<b><u>15.5</u></b>	<b><u>41.0</u></b>	<b><u>26.0</u></b>
<b>CEE + Baltics</b>				
Croatia	32.7	41.8	63.2	11.3
Czech Republic	59.8	33.5	42.7	-2.1
Estonia	27.1	47.2	90.9	25.1
Hungary	23.1	38.4	58.3	16.9
Latvia	11.9	36.8	79.2	89.2
Lithuania	12.0	20.6	50.4	30.9
Poland	20.7	27.1	36.0	12.5
Slovak Republic	48.3	35.1	43.2	1.7
Slovenia	27.8	41.0	80.7	17.4
<b>Average for CEE + Baltics</b>	<b><u>29.3</u></b>	<b><u>35.7</u></b>	<b><u>60.5</u></b>	<b><u>22.5</u></b>

Source: World Bank, *Global Financial Development Database*

In sum, the economic growth rate of *CIS 6 + Georgia's* during the last decade has been impressive. This economic success has translated into some progress in monetization of their economies and financial development, measured by the deposit money bank assets-to-GDP ratio. However, the dynamics of the bank credit to private sector to GDP ratio demonstrates that the private sector benefited less than could have been expected. Institutional quality related issues, lack of trust, delays in the privatization of the financial sector as well as legal reforms might have been the reasons for this phenomenon.

## 5.5 Indicators of access to financial services

The previous section observed that despite notable macroeconomic progress in *CIS 6 + Georgia*, the gap in financial development between this group and more advanced transition countries in the region remains significant, probably due to lack of trust related to institutional issues. In this section, thorough consideration is given to indicators of access to the financial services of firms and individuals because access issues may also hinder the degree of financial development in the final leg of delivering financial products and services. The World Bank *Financial Development and Structure Database* includes a number of indicators measuring access to financial services. These are (i) branch and ATM density in the banking sector, (ii) average loan and deposit size, (iii) loan and deposit accounts per capita, (iv) percentage of households with bank accounts, (v) collateral needed for loan, and others (T. Beck et al. 2010).

**ATM penetration.** Table 5.7 below illustrates that *CIS 6 + Georgia* has very low ATM services penetration rates. ATMs per 1,000 of population are especially low in Uzbekistan and Tajikistan. However, even without these two countries, the ratio remains noticeably lower than South Eastern Europe, the second worst region in terms of ATM penetration.

**Table 5.7 ATMs per 100,000 of population**

	2004	2005	2006	2007	2008	2009	2010	2011
<b>CIS 6 + Georgia</b>								
Armenia	3.0	4.8	7.5	13.9	22.0	28.5	32.0	40.9
Azerbaijan	-	-	16.6	19.8	22.1	24.0	26.4	29.8
Georgia	1.9	5.2	12.1	23.1	36.6	37.2	40.4	42.2
Kyrgyz Republic	0.6	1.0	1.2	2.4	4.7	8.4	7.3	12.1
Moldova							25.8	28.7
Tajikistan	0.7	0.7	1.4	2.2	3.0	4.0	5.1	7.7
Uzbekistan	0.9	1.0	1.0	0.9	0.9	1.9	2.5	4.5
<b>Average for CIS 6 + Georgia</b>	<b><u>1.4</u></b>	<b><u>2.5</u></b>	<b><u>6.6</u></b>	<b><u>10.4</u></b>	<b><u>14.9</u></b>	<b><u>17.3</u></b>	<b><u>19.9</u></b>	<b><u>23.7</u></b>
<b>Average for CIS 6 + Georgia without Tajikistan and Uzbekistan</b>	<b><u>1.8</u></b>	<b><u>3.7</u></b>	<b><u>9.3</u></b>	<b><u>14.8</u></b>	<b><u>21.3</u></b>	<b><u>24.5</u></b>	<b><u>22.8</u></b>	<b><u>30.7</u></b>
<b>Other CIS</b>								
Belarus	10.8	15.2	18.7	25.3	30.0	33.4	38.0	41.1
Kazakhstan	10.0	14.8	19.5	37.1	52.4	57.0	61.7	65.8
Russia	16.2	22.8	32.5	45.2	65.6	76.6	130.1	152.9
Ukraine	20.1	28.2	36.7	52.4	70.4	73.2	76.6	83.8
<b>Average for Other CIS</b>	<b><u>14.3</u></b>	<b><u>20.3</u></b>	<b><u>26.9</u></b>	<b><u>40.0</u></b>	<b><u>54.6</u></b>	<b><u>60.1</u></b>	<b><u>76.6</u></b>	<b><u>85.9</u></b>
<b>SEE</b>								
Albania	4.1	8.8	13.1	18.2	26.6	30.3	31.1	32.5
Bosnia and Herzegovina	-	-	15.5	20.6	28.3	42.5	34.4	37.6
Bulgaria	26.2	34.1	54.2	66.6	78.7	80.1	81.3	82.4
Kosovo	-	-	-	-	-	-	-	-
Macedonia		9.6	18.0	31.8	45.5	49.3	51.2	51.6
Montenegro		13.9	25.4	39.2	51.9	58.8	62.9	65.0
Romania	-	-	-	-	-	-	-	-
Serbia		13.8	22.2	34.3	41.3	45.2	47.6	47.1
<b>Average for SEE</b>	<b><u>15.1</u></b>	<b><u>16.1</u></b>	<b><u>24.8</u></b>	<b><u>35.1</u></b>	<b><u>45.4</u></b>	<b><u>51.0</u></b>	<b><u>51.4</u></b>	<b><u>52.7</u></b>
<b>CEE + Baltics</b>								
Croatia	-	61.8	70.6	79.9	89.0	95.8	101.0	105.8
Czech Republic	31.9	34.7	37.7	38.3	38.5	39.9	41.5	43.5
Estonia	68.4	73.6	80.3	87.6	89.3	88.4	88.3	87.0
Hungary	38.7	41.4	44.7	50.2	54.1	55.6	56.8	57.5
Latvia	44.5	44.5	48.4	58.5	65.2	67.9	70.6	62.6
Lithuania	35.7	37.2	40.3	46.9	51.8	54.4	56.1	46.6
Poland	25.4	27.5	31.0	35.9	42.9	48.4	50.6	53.8
Slovak Republic	38.4	41.5	44.4	47.8	49.4	49.7	50.8	52.2
Slovenia	81.3	86.8	88.2	94.6	99.5	101.7	102.8	104.6
<b>Average for CEE + Baltics</b>	<b><u>45.5</u></b>	<b><u>49.9</u></b>	<b><u>54.0</u></b>	<b><u>60.0</u></b>	<b><u>64.4</u></b>	<b><u>66.9</u></b>	<b><u>68.7</u></b>	<b><u>68.2</u></b>

Source: World Bank, *Global Financial Development Database*

**Number of bank accounts.** Data on bank accounts per 1,000 adults is not available for South Eastern Europe. It seems abnormal that Uzbekistan

ranked worst in ATM penetration rates but boasts the second highest number of bank accounts per 1,000 adults. Most probably this is due to deficiencies in recording this statistic in Uzbekistan. Some transactions in Uzbekistan require opening one or two bank accounts for essentially one-off transactions – purchase of a car using foreign currency, or conversion of a local currency into a foreign currency. These accounts become dormant after the transaction is completed. Besides this phenomenon, a part of the salaries in Uzbekistan are transferred to debit cards via bank accounts, even though the customers never use these bank accounts for any transactions. These accounts are needed to accomplish the transfer of funds to debit cards only and are not used on a daily basis. Therefore, although the purpose and the use of these bank accounts resemble the purpose and the use of bank accounts in any other country, in Uzbekistan these bank accounts are severely underutilized. Overall, as demonstrated in Table 5.8, *CIS 6 + Georgia* also compares unfavourably in the indicator of banking services accessibility with other transition countries.

**Table 5.8 Bank accounts per 1,000 adults**

	2004	2005	2006	2007	2008	2009	2010	2011
<b>CIS 6 +</b>								
<b>Georgia</b>								
Armenia	212.2	356.3	365.2	454.1	461.4	521.3	586.1	711.4
Azerbaijan		91.1	140.0	188.7	255.0	295.7	352.0	398.2
Georgia	187.8	314.2	385.7	430.5	480.4	509.8	571.7	650.8
Kyrgyz Republic						74.6	100.9	155.2
Moldova	788.6	847.5	903.9	1015.6	1096.7	1134.2	1208.4	1167.0
Tajikistan	183.4	212.9	353.5	263.2	262.7	365.5	413.7	474.9
Uzbekistan	520.7	679.5	816.4	869.2	886.9	900.4	942.3	959.2
<b>Average for CIS 6 +</b>	<b><u>396.2</u></b>	<b><u>402.3</u></b>	<b><u>448.7</u></b>	<b><u>522.2</u></b>	<b><u>573.4</u></b>	<b><u>507.1</u></b>	<b><u>538.8</u></b>	<b><u>616.5</u></b>
<b>Georgia</b>								
<b>Other CIS</b>								
Belarus	-	-	-	-	-	-	-	-
Kazakhstan	722.4	831.0	883.3	976.2	946.8	886.5	859.2	1038.9
Russia	-	-	-	-	-	-	-	-
Ukraine		2707.2	2861.4	3012.5	3103.5	3216.1	3241.0	3335.1
<b>Average for Other CIS</b>	<b><u>722.4</u></b>	<b><u>1769.1</u></b>	<b><u>1872.3</u></b>	<b><u>1994.3</u></b>	<b><u>2025.1</u></b>	<b><u>2051.3</u></b>	<b><u>2050.1</u></b>	<b><u>2187.0</u></b>
<b>CEE +</b>								
<b>Baltics</b>								
Croatia	-	-	-	-	-	-	1407.7	1419.0
Czech Republic	-	-	-	-	-	-	-	-
Estonia					1694.9	2088.4	1997.7	2040.3
Hungary	-	-	-	-	-	-	-	-
Latvia	920.1	930.7	1022.4	1158.8	1195.3	1210.9	1296.2	1168.2
Lithuania	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-
Slovak Republic	-	-	-	-	-	-	-	-
Slovenia	-	-	-	-	-	-	-	-
<b>Average for CEE +</b>								
<b>Baltics</b>	<b><u>920.1</u></b>	<b><u>930.7</u></b>	<b><u>1022.4</u></b>	<b><u>1158.8</u></b>	<b><u>1445.1</u></b>	<b><u>1649.7</u></b>	<b><u>1567.2</u></b>	<b><u>1542.5</u></b>

Source: World Bank, *Global Financial Development Database*

**Bank branches per 100,000 of adults.** As Table 5.9 demonstrates, the bank branch penetration ratio puts *CIS 6 + Georgia* in the third spot in some respectable distance from in the region's worst performer, *Other CIS*. The growth rate in this ratio for the region seems to be steady and stable. However, a close look at this statistic indicates that the leading countries in the region in this parameter are Bulgaria and Uzbekistan. In terms of number of bank

branches, these countries were ahead of Germany (15.7), USA (35.43), and France (41.58). However, the number for Uzbekistan may be erroneous again and may include small cashiers and foreign exchange desks as well as very small mini-bank branches consisting of 2-3 bank employees. To confirm the possibility of an error, the website of each major bank was checked. The bank with the most extensive network in Uzbekistan (Halk Bank) has only 202 branches. The majority of the other 25 banks in Uzbekistan have only a few branches. Even if all other Uzbekistan banks can be assumed to have at least the same number of branches as Halk Bank, and given the *WDI* estimates for the total population of Uzbekistan at about 30 million, and for adult population at 22.5 million, the number of branches per 100,000 adults would be 22.4. Excluding Uzbekistan, the number of bank branches per adult population of the region fares significantly worse compared with the rest of the transition countries. If Uzbekistan is excluded from the sample, this ratio for *CIS 6 + Georgia* drops to 11.5 – almost equal to the ratio of worst performer, *Other CIS*.

**Table 5.9 Bank branches per 100,000 of adults**

	2004	2005	2006	2007	2008	2009	2010	2011	Average 2004-2007	Average 2008-2011
<b>CIS 6 +</b>										
<b>Georgia</b>										
Armenia	10.7	12.0	13.3	15.2	16.5	16.8	17.4	18.8	12.8	17.4
Azerbaijan	6.4	6.6	7.1	8.0	8.9	9.5	9.6	9.9	7.0	9.5
Georgia	9.2	10.3	12.1	15.4	19.3	17.8	17.8	19.6	11.7	18.6
Kyrgyz Republic	5.1	5.3	5.3	6.4	6.9	6.9	6.1	7.3	5.6	6.8
Moldova	7.3	7.8	8.3	9.2	10.7	10.2	10.4	11.3	8.1	10.6
Tajikistan	5.3	5.5	5.6	5.6	6.0	5.9	6.2	6.7	5.5	6.2
Uzbekistan	39.4	40.3	42.7	44.8	45.8	46.8	46.8	47.7	41.8	46.8
<b>Average for CIS 6 +</b>	<b>7.7</b>	<b>8.4</b>	<b>9.2</b>	<b>10.8</b>	<b>12.4</b>	<b>12.2</b>	<b>11.2</b>	<b>13.4</b>	<b><u>13.2</u></b>	<b><u>16.5</u></b>
<b>Georgia</b>										
<b>Other CIS</b>										
Belarus	6.0	5.7	5.5	4.8	4.4	3.7	3.2	2.1	5.5	3.3
Kazakhstan	3.7	3.9	3.1	3.3	3.5	3.4	3.3	3.4	3.5	3.4
Russia	26.7	28.4	30.5	33.9	35.8	35.0	35.5	37.1	29.9	35.8
Ukraine	3.7	3.9	3.9	3.9	3.7	3.2	2.3	1.6	3.8	2.7
<b>Average for Other CIS</b>	<b>10.0</b>	<b>10.5</b>	<b>10.7</b>	<b>11.5</b>	<b>11.9</b>	<b>11.3</b>	<b>11.1</b>	<b>11.0</b>	<b><u>10.7</u></b>	<b><u>11.3</u></b>
<b>SEE</b>										
Albania	9.3	11.2	13.1	17.4	21.8	22.1	22.0	22.2	12.8	22.0
Bosnia and Herzegovina		27.0	27.9	31.4	33.4	31.7	30.8	31.3	28.7	31.8
Bulgaria	84.3	84.8	84.2	88.4	92.7	90.8	90.4	58.6	85.4	83.1
Kosovo										
Macedonia	17.4	16.5	18.9	20.0	24.4	25.4	25.7	24.3	18.2	25.0
Montenegro	20.6	24.5	26.6	33.8	40.8	42.7	39.0	39.6	26.4	40.5
Romania										
Serbia	5.7	6.0	7.4	9.2	10.3	9.9	10.2	9.6	7.1	10.0
<b>Average for SEE</b>	<b>27.5</b>	<b>28.3</b>	<b>29.7</b>	<b>33.4</b>	<b>37.2</b>	<b>37.1</b>	<b>36.4</b>	<b>30.9</b>	<b><u>29.8</u></b>	<b><u>35.4</u></b>
<b>CEE + Baltics</b>										
Croatia	28.8	30.7	30.8	32.6	34.2	35.4	34.8	34.8	30.7	34.8
Czech Republic	21.1	21.5	22.0	21.7	22.9	22.8	22.5	23.1	21.6	22.8
Estonia	18.6	21.0	22.7	24.0	23.8	20.2	19.4	18.6	21.6	20.5
Hungary	13.8	14.8	16.1	17.2	17.8	17.5	16.6	15.7	15.5	16.9
Latvia	30.8	30.9	32.2	35.9	35.0	33.5	31.9	30.0	32.5	32.6
Lithuania	23.4	24.9	27.0	28.7	28.5	28.2	27.7		26.0	28.2
Poland	26.6	26.5	27.6	29.6	32.6	32.8	31.9	32.3	27.6	32.4
Slovak Republic	25.3	25.7	26.3	25.9	27.6	26.3	26.0	25.8	25.8	26.4
Slovenia	41.1	40.2	39.8	40.3	39.4	39.6	38.7	38.3	40.3	39.0
<b>Average for CEE + Baltics</b>	<b>25.5</b>	<b>26.3</b>	<b>27.1</b>	<b>28.4</b>	<b>29.1</b>	<b>28.5</b>	<b>27.7</b>	<b>27.3</b>	<b><u>26.8</u></b>	<b><u>28.2</u></b>

Source: World Bank, *Global Financial Development Database*

***Borrowers from commercial banks (per 1,000 adults).*** The dataset for the number of borrowers from commercial banks is fragmented and is not available for *Other CIS*. The available data in Table 5.10 shows that some countries of *CIS 6 + Georgia*, such as Kyrgyz Republic, Moldova, Tajikistan, and Uzbekistan, have the lowest ratios of borrowers to 1,000 adults among the transition economies. Only Kosovo's ratio is lower than these countries' ratio. The low ratio for borrowers in Uzbekistan indirectly confirms the conjecture that the figures for bank branch penetration of this country may be erroneous. One of the main purposes of a high branch penetration must be an increase in the borrowers' ratio as lending is still considered one of the main functions of banking activity. It should also be noted that Georgia made significant progress in this ratio over the period starting in 2004, immediately after the "Rose revolution".<sup>18</sup> Overall, most of *CIS 6 + Georgia*, appear to fare remarkably worse than the rest of the transition countries.

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<sup>18</sup> The **Revolution of Roses** (often translated into English as the **Rose Revolution**) refers to a change of power in Georgian November 2003, which took place after widespread protests over the disputed parliamentary elections.

**Table 5.10 Borrowers from commercial banks (per 1,000 adults)<sup>19</sup>**

	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>CIS 6 + Georgia</b>									
Armenia	69.4	92.9	114.4	159.8	190.4	162.7	201.0	258.4	
Azerbaijan		20.0	33.4	58.1	76.4	68.1	81.1	109.6	151.3
Georgia	32.1	48.5	90.7	160.0	210.2	239.9	288.2	386.6	405.9
Kyrgyz Republic						22.6	29.1	36.7	40.3
Moldova	15.6	27.9	37.6	60.1	64.0	43.4	38.0	37.1	41.5
Tajikistan	3.5	7.9	12.0	24.3	29.3	18.0	21.0	24.4	30.0
Uzbekistan			12.6	21.5	24.9	26.9	36.5	39.8	44.5
<b>Average for CIS 6 + Georgia</b>	<b>39.0</b>	<b>47.3</b>	<b>69.0</b>	<b>109.5</b>	<b>135.2</b>	<b>107.3</b>	<b>109.7</b>	<b>165.7</b>	<b>159.7</b>
<b>SEE</b>									
Albania	13.4	30.5	61.6	71.8	100.2	98.5	117.3	128.3	140.1
Bosnia and Herzegovina							252.2	265.5	265.0
Bulgaria									
Kosovo	0.3	0.4	0.5	0.6	0.8	0.9	1.0	1.1	1.2
Macedonia	11.6	17.9	27.1	64.9	257.0	274.0	286.6	293.9	301.3
Montenegro				260.4	281.1	245.6	225.2	217.5	212.7
Romania					231.7	227.8	220.3	213.3	214.9
Serbia				172.4	170.4	170.8	185.2	187.5	190.3
<b>Average for SEE</b>	<b>8.4</b>	<b>16.3</b>	<b>29.7</b>	<b>114.0</b>	<b>173.5</b>	<b>169.6</b>	<b>184.0</b>	<b>186.7</b>	<b>189.4</b>
<b>CEE + Baltics</b>									
Croatia							686.1	677.3	671.8
Czech Republic									
Estonia					475.5	543.0	543.8	512.8	529.5
Hungary									608.1
Latvia					318.7	308.4	330.8	323.7	320.7
Lithuania									
Poland	126.4	130.9	163.2	199.7	229.2	211.6	196.9	178.9	148.8
Slovak Republic									
Slovenia									
<b>Average for CEE + Baltics</b>	<b>126.4</b>	<b>130.9</b>	<b>163.2</b>	<b>199.7</b>	<b>341.1</b>	<b>354.4</b>	<b>439.4</b>	<b>423.2</b>	<b>455.8</b>

Source: World Bank, *World Development Indicators*

***Firms using banks to finance investments (per cent of total).***

Percentage of firms using banks to finance investments is another indicator

<sup>19</sup> Data for borrowers from commercial banks is not available for *Other CIS*

measuring access to finance that businesses enjoy in different countries. As shown in Table 5.11, *CIS 6 + Georgia* lags behind in this indicator too, but the divide between *CIS-6 + Georgia* and the rest of the transition countries is not large. The averages for this indicator shrunk since 2005 compared with *CEE + Baltics*, which has recorded small growth over the same period. As to the other groups of economies (*Other CIS* and *SEE*), the differences in this indicator have fluctuated considerably throughout the observation period. Notably, the number of firms using banks to finance investments fell significantly in the aftermath of the Global Financial Crisis in 2013 in almost all of the transition countries.

**Table 5.11 Firms using banks to finance investments (per cent of total)**

	<b>2002</b>	<b>2005</b>	<b>2008/2009</b>	<b>2013</b>
<b>CIS 6 + Georgia</b>				
Armenia	5.6	44.6	31.9	18.6
Azerbaijan	3.9	0.4	19.0	27.6
Georgia	23.4	40.0	38.2	22.0
Kyrgyz Republic	9.0	13.6	17.9	18.5
Moldova	26.6	27.0	30.8	19.7
Tajikistan	4.3	1.3	21.4	13.4
Uzbekistan	1.4	8.2	8.2	16.2
<b>Average for CIS 6 + Georgia</b>	<b><u>13.7</u></b>	<b><u>25.1</u></b>	<b><u>23.9</u></b>	<b><u>19.4</u></b>
<b>Other CIS</b>				
Belarus	11.0	18.9	35.8	27.3
Kazakhstan	16.4	33.9	31.0	16.3
Russia	10.9	15.8	30.6	
Ukraine	8.4	25.0	32.1	30.4
<b>Average for Other CIS</b>	<b><u>11.7</u></b>	<b><u>23.4</u></b>	<b><u>32.4</u></b>	<b><u>24.7</u></b>
<b>SEE</b>				
Albania	10.9	37.0		11.2
Bosnia and Herzegovina	24.7	38.1	59.7	38.1
Bulgaria	19.8	37.7	34.7	23.5
Kosovo			25.3	33.3
Macedonia	9.8	17.7	47.0	20.6
Montenegro			75.8	29.5
Romania	20.6	31.4	37.3	28.0
Serbia	9.8	30.2	42.8	25.9
<b>Average for SEE</b>	<b><u>15.9</u></b>	<b><u>32.0</u></b>	<b><u>46.1</u></b>	<b><u>26.3</u></b>
<b>CEE + Baltics</b>				
Croatia	35.8	45.8		27.1
Czech Republic	22.1	20.8	33.4	34.3
Estonia	26.6	25.0	41.5	32.8
Hungary	22.6	32.8	48.7	22.6
Latvia	30.0	27.9	37.3	8.0
Lithuania	14.4	21.8	47.4	28.0
Poland	30.0	33.3	40.7	30.6
Slovak Republic	13.0	23.8	33.5	40.8
Slovenia	13.6	47.3	52.2	30.4
<b>Average for CEE + Baltics</b>	<b><u>23.1</u></b>	<b><u>30.9</u></b>	<b><u>41.8</u></b>	<b><u>28.3</u></b>

Source: World Bank, *World Development Indicators*

**Loans requiring collateral (per cent of total).** The high percentage of firms required to pledge collateral to borrow funds from banks may be an explanation for why there is a difference in the ratio of bank credit to the private sector to GDP, and in percentages of firms using banks to finance investments

between *CIS 6 + Georgia* companies and other transition countries. While collateral seems to be a dominant feature of loan agreements in virtually all of the transition countries, this percentage is higher in the former Soviet Union, with the exception of the Baltics. For many SMEs in transition countries, collateral may become an insurmountable hurdle in obtaining funds. As illustrated in Table 5.12, the share of loans requiring collateral has decreased significantly over time in *CEE + Baltics* and *SEE*. Although this ratio decreased in *CIS-6 + Georgia* as well, the decline has been marginal. For example, the percentage of loans requiring collateral decreased from 87.2 per cent to 86.1 per cent in *CIS 6 + Georgia*, whereas, in *CEE + Baltics* the reduction was from 79.8 per cent to 72.9 per cent.

One of the main reasons why collateral is still prevalent in some of the transition countries is the acuteness of asymmetric information giving rise to moral hazard problems in these countries. Low accounting standards make it difficult to undertake a proper credit risk assessment of clients (Burns and Needles 2014). Therefore, banks prefer to rely on tangible collateral instead of credit risk analysis.

**Table 5.12 Loans requiring collateral (per cent of total)**

	<b>2002</b>	<b>2005</b>	<b>2008/2009</b>
<b>CIS 6 + Georgia</b>			
Armenia	84.6	73.3	85.9
Azerbaijan	85.2	82.1	87.2
Georgia	91.1	91.4	87.3
Kyrgyz Republic	76.5	93.2	85.1
Moldova	98.5	92.3	85.1
Tajikistan	67.4	76.5	84.1
Uzbekistan	83.5	75.6	98.7
<b>Average for CIS 6 + Georgia</b>	<b><u>87.2</u></b>	<b><u>86.5</u></b>	<b><u>86.1</u></b>
<b>Other CIS</b>			
Belarus	93.5	91.7	86.4
Kazakhstan	84.8	93.3	94.4
Russia	79.0	92.0	
Ukraine	85.0	81.8	86.8
<b>Average for Other CIS</b>	<b><u>85.6</u></b>	<b><u>89.7</u></b>	<b><u>89.2</u></b>
<b>SEE</b>			
Albania		96.5	
Bosnia and Herzegovina	76.7	96.2	81.3
Bulgaria	96.8	88.8	83.4
Kosovo			85.5
Macedonia	79.5	95.8	84.6
Montenegro			89.8
Romania	97.5	93.8	75.5
Serbia	76.3	91.8	60.8
<b>Average for SEE</b>	<b><u>85.4</u></b>	<b><u>93.8</u></b>	<b><u>80.1</u></b>
<b>CEE + Baltics</b>			
Croatia	77.2	77.6	
Czech Republic	88.4	87.7	73.2
Estonia	81.8	87.0	71.6
Hungary	91.8	91.5	84.8
Latvia	84.9	91.0	75.2
Lithuania	89.2	81.7	83.4
Poland	73.3	83.3	62.5
Slovak Republic	83.0	86.4	77.5
Slovenia	49.0	56.4	55.0
<b>Average for CEE + Baltics</b>	<b><u>79.8</u></b>	<b><u>82.5</u></b>	<b><u>72.9</u></b>

Source: World Bank, *Global Financial Development Database*

Overall, *CIS 6 + Georgia* turned out to be a poor performer in virtually all indicators of access to financial services in the region. The only indicator in which this group of countries is among the leaders is the percentage of loans requiring collateral. However, leading in this category is, in fact, a sign of

problems faced by the financial sector in *CIS 6 + Georgia*. It seems that this lower access has adversely affected the financial development indicators of *CIS 6 + Georgia*. As noted in section 4, these indicators of *CIS 6 + Georgia*, despite remarkable progress to date, are still worse than those of the other transition economies in the region.

## **5.6 Profitability**

This section reviews profitability ratios in the transition countries of Central and Eastern Europe and the former Soviet Union. These profitability indicators are strongly connected with the lending levels to the private sector reported in section 3 and may partially explain variations in the lending levels. One of these indicators is the lending-deposit spread.

**Spread.** De Nicoló et al. (2003) note that the size of the spread depends on funding, operating, and regulatory costs, as well as market power, which in turn is related to competition in the sector, and the credit risk level. Inflation is also a factor that may impact the spreads (Hanson 1986). McNulty and Harper (2012) argued that the spreads could be high mainly because of high interest rates, although high interest rates do not always result in high spreads. High spreads in a high interest rate environment curtail lending and discourage investments. High spreads in a low interest rate environment, in turn, discourage savers. The net effect is lower intermediation. A number of studies analysed the size of the spreads in developing countries. For example, Jayaraman and Sharma (2003) empirically investigated the reasons why interest rate spreads are high in Fiji. They found that the main contributor to interest rate spreads were administrative costs, including wages and

housekeeping costs. Adolfo Barajas et al. (1999) research on spreads in the Columbian banking sector showed that financial taxation, credit risk, and operational expenses were the chief determinants of spreads.

Estimations run in this study use the explanatory variables utilized in the research on determinants of profitability as measured by spread, net interest margin, and return on assets. These variables include bank concentration levels, bank costs, interest rates, and the inflation rate (Molyneux and Thornton 1992). In addition, following the footsteps of Demirgüç-Kunt and Huizinga (1999), a proxy for the taxation level (tax revenue as a share of GDP) and financial structure (expressed as the ratio of bank assets to GDP) are also included in regressions. Furthermore, since risk levels in the transition economies are volatile and may influence return on assets, the risk premium on lending is also among the control variables in some of these estimations. The basic model used is:

$$Spread_{it} = \alpha_i + \beta_1 FinStruc_{it} + \beta_2 Bank Conc_{it} + \beta_3 Inflation_{it} + \beta_4 Costs_{it} + \beta_5 Int_{it} + \beta_6 Tax_{it} + \beta_7 Risk_{it} + \varepsilon_{it}$$

Where  $\alpha_i$  denotes the country-specific fixed effects;  $Spread_{it}$  is the bank lending-deposit spread;  $FinStruc_{it}$  denotes the financial structure measured by the ratio of bank assets to GDP;  $Bank Conc_{it}$  is 3-bank concentration rate;  $Inflation_{it}$  is inflation rates (GDP deflator);  $Costs_{it}$  denotes the bank costs to income ratio;  $Int_{it}$  denotes the real interest rates;  $Tax_{it}$  denotes the taxation rate measured by the ratio of tax revenue to GDP; and  $Risk_{it}$  is the risk premium on lending respectively, for country  $i$  at time  $t$ , and  $\varepsilon_{it}$  is an error term. All variables are sourced from *WDI*. Below, in Table 5.13, are the results of the estimations

of these major factors on spreads in the transition economies of the Central and Eastern Europe and former Soviet Union. Modifications of this model are used in the following estimations in this section as well.

**Table 5.13 Determinants of spreads. Fixed effects panel regression results**

<b>Dependent variable: Spread</b>	<b>Fixed effects</b>	<b>Fixed effects</b>	<b>Pooled model</b>	<b>Pooled model</b>
<b>Explanatory variables:</b>				
Bank assets to GDP	-0.04*** (-6.68)	-0.06*** (-6.23)	-0.06*** (-4.53)	-0.05*** (-6.0)
3-bank concentration	-0.03 (-1.35)	0.05*** (2.63)	0.02 (0.72)	0.01 (0.74)
Inflation	0.26*** (4.34)	0.17*** (6.01)	0.34*** (3.87)	0.2*** (5.58)
Bank cost to income ratio	0.004 (0.48)	-0.03 (-1.41)	-0.02* (-1.66)	0.02** (2.34)
Real interest rates	0.23*** (3.68)	0.32*** (4.5)	0.45*** (4.81)	0.48*** (5.38)
Tax	-0.29*** (-2.83)	-0.28*** (-3.55)	-0.23* (-1.79)	-0.29*** (-4.81)
Risk premium on lending	0.06 (0.97)		-0.10 (-1.28)	
Observations	122	213	122	213
Number of countries	16	23	16	23
R-squared	0.94	0.86	0.64	0.67

Note: \*\*\*, \*\*, \* denote significance at, respectively, the 1, 5, and 10 percent level. Absolute values of robust t-statistics are in are in parentheses.

The estimations above reveal that inflation and real interest rates have a positive, strong and statistically significant impact on bank spreads in Central and Eastern Europe. This seems to be consonant with some other studies in this area (Gelos 2006; Honohan and Lane 2003). It appears that banks in these transition countries are successful in transferring the higher costs associated with inflation and real interest rates to their clients. Since accomplishing this transfer in a competitive environment is rather difficult, this is a sign of market power. Moreover, an increase in financial structure, associated with higher competition, decreases spreads. The estimations indicate that a tax rate has an inverse relationship with the spread, possibly due to efforts of the banks to

provide positive after-tax real returns to the depositors and maintain competitive position in the lending market. There is also some evidence from a cross-country study covering many economies of the world that corporate tax burden is passed onto customers (Demirgüç-Kunt and Huizinga 1999). Apparently, initially increased costs associated with higher taxes are split between banks and customers and overtime are passed on customers. This hypothesis needs further investigation, which is outside the scope of this research. As demonstrated in Table 5.14 below, despite declining at the second highest rate among the transition country groups of this study, spreads in *CIS 6 + Georgia* have remained the highest in the region.<sup>20</sup> Another tendency has been the reduction in the difference in absolute terms, *vis a vis* all other transition regions except for *SEE*. Notwithstanding these positive developments, still persistent high spreads could be attributed to comparatively higher inflation and real interest rates. In addition, as evidenced from the estimation results above, higher spreads in *CIS 6 + Georgia*, appear to be caused by a lesser level of competition and the market power of banks in *CIS 6 + Georgia*.

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<sup>20</sup> World Bank's WDI defines this indicator as the interest rate charged by banks on loans to private sector customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits. The terms and conditions attached to these rates differ by country, however, limiting their comparability.

**Table 5.14 Bank lending-deposit spread**

	Average (1996-2000)	Average (2001-2005)	Average (2006-2010)	Average (2011-2013)	Average annual growth rate in % p.a.
<b>CIS 6 + Georgia</b>					
Armenia	22.2	12.6	10.5	7.3	-4.6
Azerbaijan	7.1	8.2	7.9	8.2	0.8
Georgia	26.9	20.5	11.8	8.1	-4.8
Kyrgyz Republic	26.9	20.3	20.0	17.5	-3.3
Moldova	9.4	7.1	5.5	5.9	-3.1
Tajikistan	34.5	10.1	12.3	15.9	-3.9
Uzbekistan	-	-	-	-	-
<b>Average for CIS 6 + Georgia</b>	<b><u>21.2</u></b>	<b><u>13.1</u></b>	<b><u>11.3</u></b>	<b><u>10.5</u></b>	<b><u>-3.6</u></b>
<b>Other CIS</b>					
Belarus	23.2	7.1	0.5	-1.2	-5.8
Kazakhstan					
Russia	35.1	9.3	5.8	3.8	-5.3
Ukraine	34.3	13.4	6.7	6.5	-4.9
<b>Average for Other CIS</b>	<b><u>30.9</u></b>	<b><u>9.9</u></b>	<b><u>4.3</u></b>	<b><u>3.0</u></b>	<b><u>-5.3</u></b>
<b>SEE</b>					
Albania	9.9	7.5	7.1	5.9	-1.2
Bosnia and Herzegovina	16.0	6.9	3.9	4.1	-0.7
Bulgaria	9.9	6.3	5.9	6.8	-2.5
Kosovo			10.2	9.3	-2.8
Macedonia	9.0	7.8	4.7	3.3	-3.3
Montenegro			5.3	6.4	0.8
Romania	18.6	15.3	6.7	5.9	-3.7
Serbia	48.8	17.1	8.5	8.1	-5.0
<b>Average for SEE</b>	<b><u>18.7</u></b>	<b><u>10.2</u></b>	<b><u>6.5</u></b>	<b><u>6.2</u></b>	<b><u>-2.5</u></b>
<b>CEE + Baltics</b>					
Croatia	11.6	9.3	7.9	7.8	-3.0
Czech Republic	4.8	4.6	4.6	4.4	-1.6
Estonia	6.4	3.4	3.7	5.0	-2.4
Hungary	5.2	3.4	2.2	3.2	-3.1
Latvia	9.8	4.1	6.0	5.6	-3.3
Lithuania	7.4	4.8	2.4		-2.9
Poland	6.0	4.8	3.3		-4.2
Slovak Republic	5.6	4.1	3.5		-4.4
Slovenia	6.2	4.9	3.5		-2.8
<b>Average for CEE + Baltics</b>	<b><u>7.0</u></b>	<b><u>4.8</u></b>	<b><u>4.1</u></b>	<b><u>5.2</u></b>	<b><u>-2.3</u></b>

Source: World Bank, *World Development Indicators*

As the estimation results indicate, inflation rates are an important factor influencing the spreads. Table 5.15 below illustrates declining inflation rates (measured by GDP deflator) in all transition regions compared with the earliest

period of 1996-2000. Inflation rates in *CIS-6 + Georgia* also decreased substantially, but they still remain the second highest in the region. Although taming the inflation and achieving a greater macroeconomic stability could be some of the driving forces of shrinking spreads, there seems to be a certain association between comparatively higher inflation rates and spreads in *CIS 6 + Georgia*.

**Table 5.15 Inflation rates**

	<b>Average (1996- 2000)</b>	<b>Average (2001-2005)</b>	<b>Average (2006-2010)</b>	<b>Average (2011-2013)</b>
<b>CIS 6 + Georgia</b>				
Armenia	9.3	4.1	5.0	2.1
Azerbaijan	9.9	7.2	11.0	8.3
Georgia	14.2	6.2	6.9	3.3
Kyrgyz Republic	25.7	5.1	12.1	11.0
Moldova	23.5	10.8	10.4	6.5
Tajikistan	126.6	20.6	20.2	9.8
Uzbekistan	55.6	30.9	21.1	14.7
<b>Average for CIS 6 + Georgia</b>	<b><u>37.8</u></b>	<b><u>12.1</u></b>	<b><u>12.4</u></b>	<b><u>8.0</u></b>
<b>Other CIS</b>				
Belarus	140.8	39.4	12.3	55.2
Kazakhstan	18.3	12.3	16.4	10.7
Russia	37.9	17.1	12.6	9.8
Ukraine	29.3	12.6	18.6	7.9
<b>Average for Other CIS</b>	<b><u>56.6</u></b>	<b><u>20.3</u></b>	<b><u>15.0</u></b>	<b><u>20.9</u></b>
<b>SEE</b>				
Albania	12.9	3.9	2.9	1.4
Bosnia and Herzegovina	6.3	2.9	4.4	1.1
Bulgaria	220.4	4.8	6.3	2.6
Kosovo		0.8	3.4	3.4
Macedonia	3.8	2.9	4.3	1.1
Montenegro		8.4	6.7	1.0
Romania	68.2	22.2	9.6	4.3
Serbia	48.2	28.7	9.0	7.1
<b>Average for SEE</b>	<b><u>60.0</u></b>	<b><u>9.3</u></b>	<b><u>5.8</u></b>	<b><u>2.7</u></b>
<b>CEE + Baltics</b>				
Croatia	5.4	3.8	3.5	1.4
Czech Republic	6.6	2.5	1.5	1.0
Estonia	10.2	5.3	5.9	3.4
Hungary	14.7	6.5	4.0	2.8
Latvia	7.0	5.2	8.1	3.8
Lithuania	6.7	1.7	4.8	3.2
Poland	11.2	2.7	3.0	2.2
Slovak Republic	6.2	4.5	1.2	1.1
Slovenia	7.8	5.4	2.6	1.0
<b>Average for CEE + Baltics</b>	<b><u>8.4</u></b>	<b><u>4.2</u></b>	<b><u>3.8</u></b>	<b><u>2.2</u></b>

Source: World Bank, *World Development Indicators*

Another potential source of changes comes from changes in spreads is deposit rates. Therefore, the deposit rates prevalent in transition countries are examined in Table 5.16. Deposit rates are an indicator of the market power of

banks (Dermine and Hillion 1992). Banks with market power are capable of mobilizing deposit funds in the deposit market at lower costs. Deposit rates in *CIS 6 + Georgia* have come down significantly and they are lower than in *Other CIS*. However, it is important to compare the real deposit rates, i.e. taking into account the inflation rates.

**Table 5.16 Nominal deposit rates**

	Average (1996-2000)	Average (2001-2005)	Average (2006-2010)	Average (2011-2013)
<b>CIS 6 + Georgia</b>				
Armenia	25.7	8.4	7.3	9.7
Azerbaijan <sup>21</sup>	12.5	8.9	11.6	10.3
Georgia	9.9	6.8	10.5	10.7
Kyrgyz Republic	33.2	7.2	4.6	5.5
Moldova	24.6	15.2	13.5	7.5
Tajikistan <sup>22</sup>	10.1	9.0	9.2	7.5
Uzbekistan	-	-	-	-
<b>Average for CIS 6 + Georgia</b>	<b><u>19.3</u></b>	<b><u>9.2</u></b>	<b><u>9.4</u></b>	<b><u>8.5</u></b>
<b>Other CIS</b>				
Belarus	24.7	20.1	8.9	18.6
Kazakhstan				
Russia	21.8	4.4	5.9	5.2
Ukraine	21.7	8.5	10.0	10.5
<b>Average for Other CIS</b>	<b><u>22.8</u></b>	<b><u>11.0</u></b>	<b><u>8.3</u></b>	<b><u>11.5</u></b>
<b>SEE</b>				
Albania	17.6	7.3	6.2	5.2
Bosnia and Herzegovina <sup>23</sup>	32.4	4.0	3.5	3.0
Bulgaria	26.2	3.0	4.3	3.0
Kosovo <sup>24</sup>		2.9	3.8	3.2
Macedonia	11.7	7.9	5.9	5.1
Montenegro		4.9	4.3	3.1
Romania	41.9	15.0	8.1	5.5
Serbia	24.3	3.5	7.5	9.2
<b>Average for SEE</b>	<b><u>25.7</u></b>	<b><u>6.0</u></b>	<b><u>5.4</u></b>	<b><u>4.7</u></b>
<b>CEE + Baltics</b>				
Croatia	4.5	2.0	2.4	1.7
Czech Republic	6.1	1.7	1.3	1.0
Estonia	5.7	2.7	3.8	0.8
Hungary	14.3	8.2	7.0	4.6
Latvia	6.5	3.5	5.2	0.3
Lithuania <sup>25</sup>	7.3	1.9	4.5	
Poland <sup>26</sup>	16.6	5.7	2.2	
Slovak Republic <sup>27</sup>	12.4	5.0	3.7	
Slovenia <sup>28</sup>	11.2	6.2	3.0	
<b>Average for CEE + Baltics</b>	<b><u>9.4</u></b>	<b><u>4.1</u></b>	<b><u>3.7</u></b>	<b><u>1.7</u></b>

Source: World Bank, *World Development Indicators*

<sup>21</sup> Data for Azerbaijan is available since 1998

<sup>22</sup> Data for Tajikistan is available since 1997

<sup>23</sup> Data for Bosnia & Herzegovina is available since 1998

<sup>24</sup> Data for Kosovo is available since 2004

<sup>25</sup> Data for Lithuania is available from 1996 till 2010

<sup>26</sup> Data for Poland is available from 1996 till 2006

<sup>27</sup> Data for Slovak Republic is available from 1996 till 2008

<sup>28</sup> Data for Slovenia is available from 1996 till 2009

As illustrated in Table 5.17, real deposit rates in *CIS 6 + Georgia* are comparable with those observed in *CEE + Baltics*, higher than in *Other CIS*, and lower than in *SEE*. However, a closer look at the composition of these averages indicates that there are two distinct outliers in the CIS samples – Tajikistan and Belarus. These two countries are infamous for the degree of state intervention in the economy and financial markets, which may have resulted in extreme negative interest rates in both countries.

**Table 5.17 Real deposit rates**

	<b>Average (1996- 2000)</b>	<b>Average (2001- 2005)</b>	<b>Average (2006- 2010)</b>	<b>Average (2011- 2013)</b>
<b>CIS 6 + Georgia</b>				
Armenia	16.4	4.3	2.2	7.6
Azerbaijan	2.6	1.7	0.7	2.0
Georgia	-4.3	0.6	3.6	7.3
Kyrgyz Republic	7.5	2.1	-7.5	-5.5
Moldova	1.1	4.4	3.1	1.0
Tajikistan	-116.5	-11.6	-11.0	-2.3
Uzbekistan	-	-	-	-
<b>Average for CIS6 + Georgia</b>	<b>-2.4</b>	<b>0.2</b>	<b>-1.5</b>	<b>1.7</b>
<b>Other CIS</b>				
Belarus	-116.1	-19.3	-3.5	-36.6
Kazakhstan	-	-	-	-
Russia	-16.1	-12.7	-6.7	-4.6
Ukraine	-7.6	-4.1	-8.6	2.6
<b>Average for Other CIS</b>	<b>-46.6</b>	<b>-12.0</b>	<b>-6.3</b>	<b>-12.8</b>
<b>SEE</b>				
Albania	4.6	3.3	3.2	3.8
Bosnia and Herzegovina	26.1	1.1	-1.0	1.9
Bulgaria	-194.3	-1.8	-2.0	0.4
Kosovo		2.1	0.3	-0.2
Macedonia	7.9	4.9	1.6	4.1
Montenegro	0.0	-3.5	-2.4	2.1
Romania	-26.3	-7.2	-1.5	1.2
Serbia	-23.9	-25.1	-1.5	2.2
<b>Average for SEE</b>	<b>-29.4</b>	<b>-3.3</b>	<b>-0.4</b>	<b>1.9</b>
<b>CEE + Baltics</b>				
Croatia	-0.9	-1.7	-1.1	0.3
Czech Republic	-0.5	-0.8	-0.2	0.0
Estonia	-4.6	-2.6	-2.1	-2.6
Hungary	-0.4	1.7	3.0	1.8
Latvia	-0.5	-1.7	-3.0	-3.4
Lithuania	0.6	0.2	-0.2	
Poland	5.3	3.0	-0.8	
Slovak Republic	6.2	0.5	2.4	
Slovenia	3.4	0.8	0.3	
<b>Average for CEE + Baltics</b>	<b>0.9</b>	<b>-0.1</b>	<b>-0.2</b>	<b>-0.8</b>

Source: World Bank, *World Development Indicators*

To neutralize the effect of outliers, Table 5.18 depicts the average real deposit rates without Tajikistan and Belarus. In addition, Kazakhstan is also excluded from the table due to an absence of data. Without outliers, comparing for the same periods, the real deposit rates in *CIS-6 + Georgia* appear to be the

highest in the region behind *SEE*, but the difference is not as sizeable as the difference reported by De Nicoló et al. (2003). It is remarkable that despite paying the highest deposit rates the region, *CIS 6 + Georgia* still maintains the highest spread in the region. Probably, banks in *CIS 6 + Georgia* are able to charge hefty interest rates on their loans to obtain those spreads. This seems possible only in the loan markets in which borrowers do not have many alternatives for borrowing. This also explains the above noted low share of private credit to GDP and intermediation. It is also notable that despite offering the highest deposit rates, the ratio of deposit rates to GDP of *CIS 6 + Georgia* is the lowest in the region. This appears to be a sign of distrust in the banking sector. It plausible that it is due to this distrust that banks in *CIS 6 + Georgia* cannot mobilize sufficient funds despite offering the highest deposit rates in the region. Having raised too little funds in the deposit market, banks charge high interest rates for loans and achieve high spreads.

**Table 5.18 Real deposit rates without Tajikistan, Kazakhstan, and Belarus**

	<b>Average (1996- 2000)</b>	<b>Average (2001- 2005)</b>	<b>Average (2006- 2010)</b>	<b>Average (2011-2013)</b>
<b>CIS 6 + Georgia</b>				
Armenia	16.4	4.3	2.2	7.6
Azerbaijan	2.6	1.7	0.7	2.0
Georgia	-4.3	0.6	3.6	7.3
Kyrgyz Republic	7.5	2.1	-7.5	-5.5
Moldova	1.1	4.4	3.1	1.0
<b>Average for CIS 6 + Georgia</b>	<b>4.7</b>	<b>2.6</b>	<b>0.4</b>	<b>2.5</b>
<b>Other CIS</b>				
Russia	-16.1	-12.7	-6.7	-4.6
Ukraine	-7.6	-4.1	-8.6	2.6
<b>Average for Other CIS</b>	<b>-11.9</b>	<b>-8.4</b>	<b>-7.7</b>	<b>-1.0</b>
<b>SEE</b>				
Albania	4.6	3.3	3.2	3.8
Bosnia and Herzegovina	26.1	1.1	-1.0	1.9
Bulgaria	-194.3	-1.8	-2.0	0.4
Kosovo		2.1	0.3	-0.2
Macedonia	7.9	4.9	1.6	4.1
Montenegro	0.0	-3.5	-2.4	2.1
Romania	-26.3	-7.2	-1.5	1.2
Serbia	-23.9	-25.1	-1.5	2.2
<b>Average for SEE</b>	<b>-29.4</b>	<b>-3.3</b>	<b>-0.4</b>	<b>1.9</b>
<b>CEE + Baltics</b>				
Croatia	-0.9	-1.7	-1.1	0.3
Czech Republic	-0.5	-0.8	-0.2	0.0
Estonia	-4.6	-2.6	-2.1	-2.6
Hungary	-0.4	1.7	3.0	1.8
Latvia	-0.5	-1.7	-3.0	-3.4
Lithuania	0.6	0.2	-0.2	
Poland	5.3	3.0	-0.8	
Slovak Republic	6.2	0.5	2.4	
Slovenia	3.4	0.8	0.3	
<b>Average for CEE + Baltics</b>	<b>0.9</b>	<b>-0.1</b>	<b>-0.2</b>	<b>-0.8</b>

Source: World Bank, *World Development Indicators*

Credit risk is another determinant of spreads (Adolfo Barajas et al. 1999). The risk premium charged on top of the treasury bill rates is an important measure of risk in an economy. Typically, this has a direct impact on spreads. *Ceteris paribus*, high risk levels push up interest rates and increase spreads. Faced with higher risks, banks are forced to ration their credit and/or charge higher interest rates. Table 5.19 below indicates that despite improvements in

macroeconomic parameters, risk levels in *CIS 6 + Georgia* have not decreased. Moreover, in Tajikistan and Azerbaijan, the risk premium has increased. However, based on the econometric estimations above, which do not reveal a statistically significant relationship between credit risk and spreads in the model for the transition economies, it is concluded that the higher credit risk levels have not contributed noticeably to keeping the spreads higher in *CIS 6 + Georgia*.

**Table 5.19 Risk premium on lending (lending rate minus treasury bill rate, per cent)**

	<b>Average (1999-2000)</b>	<b>Average (2001-2005)</b>	<b>Average (2006-2010)</b>	<b>Average (2011-2013)</b>
<b>CIS 6 + Georgia</b>				
Armenia	-4.5	9.7	10.1	7.5
Azerbaijan	2.1	6.9	12.2	16.3
Georgia		-7.8	9.1	7.3
Kyrgyz Republic	16.7	18.3	17.0	16.6
Moldova	6.2	11.8	7.2	5.5
Tajikistan			16.1	18.3
<b>Average for CIS 6 + Georgia</b>	<b><u>5.1</u></b>	<b><u>7.8</u></b>	<b><u>12.0</u></b>	<b><u>11.9</u></b>
<b>Other CIS</b>				
Russia	12.3	5.4		
<b>SEE</b>				
Albania	7.7	7.1	7.2	6.1
Bosnia and Herzegovina				
Bulgaria	7.6	6.0	6.9	9.1
Kosovo				10.0
Macedonia				
Montenegro			7.5	6.0
Romania	-3.3	7.3	6.0	5.2
Serbia		-2.6	4.8	6.5
<b>Average for SEE</b>	<b><u>4.0</u></b>	<b><u>4.5</u></b>	<b><u>6.5</u></b>	<b><u>7.0</u></b>
<b>CEE + Baltics</b>				
Croatia				
Czech Republic	1.7	3.2	3.7	4.8
Estonia				
Hungary	1.6	1.4	1.7	2.2
Latvia	7.5	3.9	5.5	5.1
Lithuania	2.4	3.3	2.2	
Poland	3.3	2.5	1.3	
Slovak Republic				
Slovenia	4.3	4.3	3.4	
<b>Average for CEE + Baltics</b>	<b><u>3.5</u></b>	<b><u>3.1</u></b>	<b><u>3.0</u></b>	<b><u>4.0</u></b>

Source: World Bank, *World Development Indicators*

**Net interest margin.** Net interest margin is an indicator similar to spread, and measures the efficiency and profitability of the banking sector (Koch and MacDonald 2014). High interest margins are considered to be a sign of success for individual banks compared to other banks, as this would signal higher relative profitability. On the contrary, high interest margins attributable to the banking sector as a whole are a cause for concern regarding the health of

the sector, which could be suffering from inefficiencies. The net interest margin takes into account the impact of average assets involved in generating interest income. A downward trend in the net interest margins is a common feature of all transition countries. However, the net interest margins are significantly higher in *CIS 6 + Georgia* compared to *Other CIS*, *SEE*, and *CEE + Baltics*, hinting that a stronger market position of banks in *CIS 6 + Georgia* allows them to yield higher net interest margins. The determinants of interest rate margins are similar to the determinants of spread: bank characteristics, macroeconomic conditions, taxation, overall financial structure, and underlying legal and institutional indicators. Bank interest margins may depend on the market power of banks, the operating costs, the degree of credit risk, and the degree of interest rate risk (Wong 1997). Demirgüç-Kunt and Huizinga (1999) found that a larger ratio of bank assets to gross domestic product and a lower market concentration ratio, together lead to lower margins, controlling for differences in bank activity, leverage, and the macroeconomic environment. Similarly, Maudos and Solís (2009) research in Mexico's case finds that high margins could be explained by market power as well as operating costs. A scholarly inquiry in the region also finds evidence of the link between market power and high net interest margins (Dabla-Norris and Floerkemeier 2007). The results of econometric estimations in Table 5.20, using the same model as in section 5.1 and substituting dependent variable *Spread* with the *Net interest margin*, indicate that the risk level has a negative and strong impact on this measure of profitability. This result is surprising and in dissonance with academic literature on this matter. A possible reason for this could be an inadequate ability to assess credit risk.

**Table 5.20 Determinants of net interest margin. Panel estimates for net interest margin**

<b>Dependent variable:</b> Net interest margin	<b>Fixed effects</b>	<b>Fixed effects</b>	<b>Pooled model</b>	<b>Pooled model</b>
<b>Explanatory variables:</b>				
Bank assets to GDP	-0.04*** (-8.41)	-0.02*** (-4.11)	-0.06*** (-14.05)	-0.058*** (-8.77)
3-bank concentration	0.0003 (0.02)	-0.01 (-1.04)	-0.02 (-1.52)	0.0004 (0.04)
Inflation	0.09*** (2.93)	0.05*** (5.83)	0.24*** (7.66)	0.07*** (10.8)
Bank cost to income ratio	-0.04*** (-3.36)	-0.02*** (-2.98)	-0.06*** (-4.43)	-0.04*** (-2.7)
Real Interest rates	0.01*** (3.05)	0.06** (2.08)	0.26*** (6.1)	0.13*** (6.03)
Tax	0.03 (0.45)	-0.16* (-1.95)	0.12** (2.3)	-0.03 (-0.37)
Risk premium on lending	-0.17*** (-3.12)		-0.22*** (-3.81)	
R-squared	0.83	0.79	0.68	0.53
Observations	118	204	118	204
Number of countries	16	23	16	23

Note: \*\*\*, \*\*, \* denote significance at, respectively, the 1, 5, and 10 percent level. Absolute values of robust t-statistics are in are in parentheses.

The above estimations also demonstrate that financial structure and bank costs are negatively linked, and real interest and inflation rates are positively associated with *net interest margin*. These results are consistent with earlier estimations of the impact of these variables on *Spread*. Therefore, the higher interest margins observed in *CIS 6 + Georgia* and evidenced from Table 5.21 below, are most likely to be a result of a combination of factors consisting of comparatively higher macroeconomic instability (inflation) and real interest rates. Lower competition levels and a stronger market position of banks associated with a lower level of financial structure in *CIS 6 + Georgia* also appear to contribute to higher net interest margins.

**Table 5.21 Bank net interest margin, per cent**

	<b>Average (1999-2000)</b>	<b>Average (2001-2005)</b>	<b>Average (2006-2010)</b>	<b>2011</b>
<b>CIS 6 + Georgia</b>				
Armenia	9.3	7.0	7.7	6.9
Azerbaijan	6.7	7.8	7.7	5.0
Georgia	17.0	12.9	9.9	9.1
Kyrgyz Republic		4.5	8.3	11.1
Moldova	9.5	9.1	6.6	6.3
Tajikistan		13.7	8.5	3.0
Uzbekistan	6.4	6.2	4.5	3.8
<b>Average for CIS 6 + Georgia</b>	<b><u>9.8</u></b>	<b><u>8.7</u></b>	<b><u>7.6</u></b>	<b><u>7.9</u></b>
<b>Other CIS</b>				
Belarus	15.6	8.1	6.8	4.4
Kazakhstan	7.3	5.7	4.9	5.8
Russia	5.4	5.7	4.6	4.0
Ukraine	8.0	6.4	6.3	6.6
<b>Average for Other CIS</b>	<b><u>9.1</u></b>	<b><u>6.5</u></b>	<b><u>5.6</u></b>	<b><u>5.2</u></b>
<b>SEE</b>				
Albania	3.7	3.8	4.8	4.4
Bosnia and Herzegovina	6.0	5.7	4.4	4.5
Bulgaria	5.0	5.0	5.0	4.1
Kosovo				
Macedonia	6.3	5.2	5.1	4.3
Montenegro		9.4	3.7	5.4
Romania	12.9	8.2	5.3	5.0
Serbia	6.6	7.3	7.4	5.4
<b>Average for SEE</b>	<b><u>6.8</u></b>	<b><u>6.4</u></b>	<b><u>5.1</u></b>	<b><u>4.7</u></b>
<b>CEE + Baltics</b>				
Croatia	4.4	3.8	3.5	3.7
Czech Republic	2.6	3.1	3.1	3.0
Estonia	4.3	3.3	2.5	2.3
Hungary	4.2	4.9	4.2	3.3
Latvia	5.0	3.3	2.6	2.1
Lithuania	5.9	3.5	2.3	1.9
Poland	4.5	4.0	3.5	3.1
Slovak Republic	3.7	3.1	2.8	4.5
Slovenia	4.3	3.6	2.4	2.2
<b>Average for CEE + Baltics</b>	<b><u>4.3</u></b>	<b><u>3.6</u></b>	<b><u>3.0</u></b>	<b><u>2.9</u></b>

Source: World Bank, *Global Financial Development Database*

**Return on equity.** Return on equity is the amount of net income returned as a percentage of shareholders equity. Return on equity for a bank measures a bank's profitability by revealing how much profit a bank generates with the

money shareholders have invested. The equity ratio is an investment leverage ratio which measures the proportion of assets that are financed by the investments of shareholders by comparing the total equity in the company to the total assets. In general, a bank with a higher equity ratio will struggle to achieve a similar return to equity compared to a bank with lower equity ratio due to the fact that the former has to “feed” a greater number of equity holders. One way of achieving this is by maximizing return on assets. As shown further in Table 5-24, the banking sector of *CIS 6 + Georgia* has the second highest equity ratio after *Other CIS*. However, return on equity as well as return on assets in *CIS 6 + Georgia* is higher compared to the levels observed in *CEE + Baltics*. This could be achieved with the help of strong bank management or significant market powers which banks possess. Rarely is this a combination of both, because in markets where some banks have exceptional market powers, the management may lose incentives for good management due to moral hazard issues. Taking into account that foreign-owned banks are considered to be more efficient than local banks in transition countries (Bonin et al. 2005), the management of local banks has much to learn from their foreign counterparts. Moreover, in some countries of the CIS and to a lesser extent in certain other transition countries, corruption in the banking sector still continues to be a significant problem, pointing to weaknesses in the corporate governance of the banking industry (Bonin et al. 2014; Suhir and Kovach 2003). Training sessions conducted by the author in Uzbekistan also indicate the low credit analysis skills of personnel. Therefore, in the case of the banking sector of *CIS 6 + Georgia*, the dominant power of the banking sector appears to manifest in both of these ratios.

Just like in the rest of the transition countries, there is a clear declining trend in return on equity, as evidenced by Table 5.22 below. This decline could be associated with improved competition in the respective banking sectors. It also could be related to declining inflation and interest rates.

**Table 5.22 Bank return on equity (per cent, before tax)**

	<b>Average (1999-2000)</b>	<b>Average (2001-2005)</b>	<b>Average (2006- 2010)</b>	<b>2011</b>
<b>CIS 6 + Georgia</b>				
Armenia	16.4	20.1	16.3	12.3
Azerbaijan	2.2	18.9	16.3	2.0
Georgia	21.5	23.4	7.7	-0.4
Kyrgyz Republic		14.0	19.7	31.6
Moldova	28.0	26.0	15.9	12.5
Tajikistan		26.2	15.4	-2.3
Uzbekistan	19.1	13.8	13.3	13.0
<b>Average for CIS 6 + Georgia</b>	<b><u>17.5</u></b>	<b><u>20.3</u></b>	<b><u>14.9</u></b>	<b><u>11.4</u></b>
<b>Other CIS</b>				
Belarus	14.0	8.2	22.1	8.4
Kazakhstan	17.9	21.5	52.7	8.6
Russia	29.5	16.9	15.7	13.6
Ukraine	16.7	11.8	-10.1	-29.9
<b>Average for Other CIS</b>	<b><u>19.5</u></b>	<b><u>14.6</u></b>	<b><u>20.1</u></b>	<b><u>0.2</u></b>
<b>SEE</b>				
Albania	26.0	17.0	18.9	9.5
Bosnia and Herzegovina	1.5	6.9	5.6	8.7
Bulgaria	20.7	20.0	17.8	6.6
Kosovo				
Macedonia	3.6	5.2	12.0	3.4
Montenegro		10.5	-2.4	-7.0
Romania	33.0	18.7	15.9	2.9
Serbia	10.8	0.0	7.5	5.6
<b>Average for SEE</b>	<b><u>15.9</u></b>	<b><u>11.2</u></b>	<b><u>10.8</u></b>	<b><u>4.3</u></b>
<b>CEE + Baltics</b>				
Croatia	11.5	17.9	11.6	8.4
Czech Republic	-2.0	26.1	23.1	17.1
Estonia	13.6	18.2	10.6	33.4
Hungary	15.1	28.5	18.6	2.6
Latvia	14.3	22.3	-2.3	1.8
Lithuania	7.5	9.2	0.7	18.4
Poland	19.8	6.5	17.6	13.7
Slovak Republic	16.3	14.7	10.1	2.5
Slovenia	13.4	14.5	8.8	-15.4
<b>Average for CEE + Baltics</b>	<b><u>12.2</u></b>	<b><u>17.6</u></b>	<b><u>11.0</u></b>	<b><u>9.2</u></b>

Source: World Bank, *Global Financial Development Database*

**Return on assets.** Another measure of profitability of the banking sector is the return on assets. A prevailing trend in transition countries is the decrease in the returns on assets. However, in the case of *CIS 6 + Georgia*, the bank

returns on assets have been higher compared to the rest of the transition countries. Typically, a higher return on assets for individual banks is associated with higher efficiency. Abnormally high, as well as, abnormally low returns on assets for the whole sector may be symptoms of problems in the banking industry. The two major sources of high return on assets before taxes could be either high net interest income or low burden (operating expenses – non-interest income). In other words, this could be achieved by an increase in revenues and/or a decrease in expenses. To maintain a relatively high return on assets, banks must be able to support high levels of revenue or low levels of expenses, or be in control of both of the two major components of return on assets. Empirical research indicates that this could be achieved mainly due to dominant market position (Dabla-Norris and Floerkemeier 2007; Molyneux and Thornton 1992). The results of panel estimations in Table 5.23 conducted using the sample of transition countries, confirm these findings.

**Table 5.23 Determinants of return on assets (ROA). Panel estimates for return on assets**

<b>Dependent variable:</b> Net interest margin	<b>Fixed effects</b>	<b>Fixed effects</b>	<b>Pooled model</b>	<b>Pooled model</b>
<b>Explanatory variables:</b>				
Bank assets to GDP	-0.03*** (-5.08)	-0.04*** (-6.34)	-0.03*** (-6.12)	-0.04*** (-8.62)
3-bank concentration	0.006 (0.42)	-0.007 (-0.71)	0.003 (0.51)	-0.008* (-1.69)
Bank cost to income ratio	-0.09*** (-6.27)	-0.08*** (-6.2)	-0.08*** (-6.9)	-0.08*** (-8.23)
Tax	-0.17*** (-3.11)	-0.18*** (-5.58)	-0.005 (-0.18)	-0.07*** (-2.79)
Real interest rate	-0.01 (-0.46)	-0.03** (-2.12)	0.06** (2.14)	-0.03 (-1.31)
Inflation	0.008 (0.32)	-0.008** (-2.02)	0.09*** (8.52)	-0.002 (-0.36)
Risk premium on lending	-0.03 (-0.8)		-0.06* (-1.91)	
R-squared	0.77	0.73	0.54	0.5
Observations	118	204	118	204
Number of countries	16	23	16	23

Note: \*\*\*, \*\*, \* denote significance at, respectively, the 1, 5, and 10 percent level. Absolute values of robust t-statistics are in are in parentheses.

These estimations indicate that, in the case of the transition economies of Central and Eastern Europe and the former Soviet Union, bank costs and financial structure have the most statistically significant negative impact on return on assets. While a negative association between bank costs and return on assets is self-explanatory, the negative coefficient for the ratio of bank assets to GDP probably reflects the evolving intense interbank competition in the transition economies. Despite the fact that the coefficient for bank concentration remains positive in all regressions, this impact is not statistically significant. Thus, the higher return on assets in *CIS 6 + Georgia* compared to *Other CIS, SEE, and CEE + Baltics*, demonstrated in Table 5.24 below, appears to be associated with better control over costs and, despite increased competition over the years, less intense competition among banks in *CIS 6 + Georgia* compared to other transition regions.

**Table 5.24 Bank return on assets (per cent, before tax)**

	<b>Average (1999-2000)</b>	<b>Average (2001-2005)</b>	<b>Average (2006-2010)</b>	<b>2011</b>
<b>CIS 6 + Georgia</b>				
Armenia	1.6	2.9	3.4	2.3
Azerbaijan	0.7	3.0	2.7	0.3
Georgia	5.3	5.5	1.5	-0.1
Kyrgyz Republic		2.8	3.5	5.1
Moldova	6.1	5.5	2.9	2.3
Tajikistan		6.1	2.5	-0.3
Uzbekistan	3.1	3.6	1.6	1.3
<b>Average for CIS 6 + Georgia</b>	<b><u>3.4</u></b>	<b><u>4.2</u></b>	<b><u>2.6</u></b>	<b><u>1.9</u></b>
<b>Other CIS</b>				
Belarus	3.8	2.4	3.6	1.3
Kazakhstan	3.8	2.9	-5.3	-1.7
Russia	3.8	3.0	2.1	1.7
Ukraine	1.8	1.6	-1.5	-3.2
<b>Average for Other CIS</b>	<b><u>3.3</u></b>	<b><u>2.5</u></b>	<b><u>-0.3</u></b>	<b><u>-0.5</u></b>
<b>SEE</b>				
Albania	8.8	1.4	1.5	1.1
Bosnia and Herzegovina	0.3	0.3	0.5	1.1
Bulgaria	4.3	2.7	2.0	0.9
Kosovo				
Macedonia	0.7	0.9	1.6	0.4
Montenegro		2.1	-0.3	-0.8
Romania	5.2	2.8	1.5	0.3
Serbia	1.8	0.0	1.5	1.1
<b>Average for SEE</b>	<b><u>3.5</u></b>	<b><u>1.5</u></b>	<b><u>1.2</u></b>	<b><u>0.6</u></b>
<b>CEE + Baltics</b>				
Croatia	1.3	1.6	1.4	1.2
Czech Republic	-0.1	2.0	1.9	1.6
Estonia	2.1	2.6	0.9	4.4
Hungary	1.2	2.8	1.9	0.3
Latvia	1.3	2.0	-0.3	0.2
Lithuania	0.9	0.9	-0.1	1.7
Poland	1.9	0.7	1.7	1.4
Slovak Republic	0.7	1.1	0.7	0.2
Slovenia	1.3	1.3	0.7	-1.3
<b>Average for CEE + Baltics</b>	<b><u>1.2</u></b>	<b><u>1.7</u></b>	<b><u>1.0</u></b>	<b><u>1.1</u></b>

Source: World Bank, *Global Financial Development Database*

**Bank Cost-to-Income ratio.** As shown in Table 5.25, the bank cost-to-income ratio, which measures the ability of banks to control their operating costs, in *CIS 6 + Georgia* is lower compared to all other regions for the whole

but the last sample period. Apparently, this fact also contributed to a higher return on assets in *CIS 6 + Georgia*. This is also in consonant with the observation of De Nicoló et al. (2003) that operating costs of banks in *CIS-6 + Georgia* are not higher than in other transition countries. In general, the indicators of Bank Cost-to-Income in *CIS 6 + Georgia* appear to be very stable. In contrast, banks in *CEE + Baltics* were able to decrease their costs from almost 70 per cent to about 54 per cent over the period from 1996 to 2011. Havrylchuk and Jurzyk (2011) attribute this trend in Central and Eastern Europe to the transfer of ownership in the local banks to foreign banks. The authors found that banks in Central and Eastern Europe became more profitable owing to cost minimization and a better risk management after the foreign takeover. They also argue that the banks which were managed by foreign banks prioritized gaining a market share by passing their lower cost of funds to borrowers in terms of lower lending rates, which could also partially explain the lower spreads, net interest margin, and risk premium on lending in this region.

**Table 5.25 Bank cost-to-income ratio**

	Average for country (1996-2000)	Average for country (2001-2005)	Average for country (2006-2011)
<b>CIS 6 + Georgia</b>			
Armenia	58.9	52.9	57.1
Azerbaijan	66.8	62.3	53.9
Georgia	53.6	50.9	56.4
Kyrgyz Republic	58.7	65.4	55.0
Moldova	53.4	51.1	54.3
Tajikistan		66.7	71.4
Uzbekistan	55.7	61.9	70.0
<b>Average for CIS 6 + Georgia</b>	<b><u>57.9</u></b>	<b><u>58.7</u></b>	<b><u>59.7</u></b>
<b>Other CIS</b>			
Belarus	70.6	69.8	63.2
Kazakhstan	64.3	49.2	51.7
Russia	51.3	55.9	84.3
Ukraine	57.4	62.6	72.9
<b>Average for Other CIS</b>	<b><u>60.9</u></b>	<b><u>59.4</u></b>	<b><u>68.0</u></b>
<b>SEE</b>			
Albania	71.4	57.2	55.6
Bosnia and Herzegovina	66.9	65.0	64.8
Bulgaria	55.5	57.9	49.0
Kosovo			
Macedonia	49.0	61.1	58.7
Montenegro		77.2	66.2
Romania	84.5	81.2	81.9
Serbia	55.6	58.7	75.6
<b>Average for SEE</b>	<b><u>63.8</u></b>	<b><u>65.5</u></b>	<b><u>64.5</u></b>
<b>CEE + Baltics</b>			
Croatia	64.4	59.7	54.5
Czech Republic	74.5	61.5	46.3
Estonia	87.3	56.3	45.5
Hungary	72.2	59.8	59.3
Latvia	73.5	59.3	52.8
Lithuania	77.7	75.6	54.7
Poland	62.8	70.9	56.0
Slovak Republic	57.6	75.4	61.8
Slovenia	56.4	59.9	57.1
<b>Average for CEE + Baltics</b>	<b><u>69.6</u></b>	<b><u>64.3</u></b>	<b><u>54.2</u></b>

Source: World Bank, *Global Financial Development Database*

**Bank equity to assets ratio.** The bank equity to assets ratio (Table 5.26 below), as well as financial risk ratios,<sup>29</sup> are good indicators of the burden of regulatory costs (Admati et al. 2011). While safety considerations are

<sup>29</sup> Some of the financial ratios that are most commonly used by investors and analysts to assess financial risk level and overall financial health are the debt-to-capital ratio, the debt/equity ratio, the interest coverage ratio and the degree of combined leverage.

necessary, excessive reserve and capital requirements usually result in either low interest margins or passing the costs onto borrowers through higher lending rates. Given the fact that all other profitability ratios of banks in *CIS 6 + Georgia* are higher than in other transition countries, it seems that the banks of this region are accomplishing the latter.

Relatively stable bank equity to assets ratio of Kazakhstan and Russia during, and in the aftermath, of the GFC may appear rather unexpected. Barisitz et al. (2010) attribute this to the timely measures undertaken by the governments and central banks in these countries to recapitalize the largest commercial banks and provide liquidity assistance to struggling sectors. These countries, unlike many other countries in the region, also benefited from being resource rich economies which could fall back on their accumulated reserves.

**Table 5.26 Bank equity to assets ratio**

	Average for country (1998-2000)	Average for country (2001-2005)	Average for country (2006-2011)	2012
<b>CIS 6 + Georgia</b>				
Armenia	11.1	29.5	26.3	20.4
Azerbaijan	37.0	26.8	19.9	17.1
Georgia	25.7	23.5	21.7	19.5
Kyrgyz Republic	26.2	22.1	21.0	20.6
Moldova	20.5	26.9	24.2	18.5
Tajikistan		29.4	19.1	11.5
Uzbekistan	26.4	25.3	16.5	12.0
<b>Average for CIS 6 + Georgia</b>	<b><u>24.5</u></b>	<b><u>26.2</u></b>	<b><u>21.2</u></b>	<b><u>19.2</u></b>
<b>Other CIS</b>				
Belarus	21.0	20.3	22.1	17.4
Kazakhstan	28.1	29.4	27.0	28.2
Russia	24.0	22.4	22.8	22.0
Ukraine	19.1	16.2	12.9	23.6
<b>Average for Other CIS</b>	<b><u>23.1</u></b>	<b><u>22.1</u></b>	<b><u>21.2</u></b>	<b><u>22.8</u></b>
<b>SEE</b>				
Albania	12.2	10.0	11.9	13.0
Bosnia and Herzegovina				
Bulgaria	19.7	15.7	13.2	14.4
Kosovo		8.8	11.1	10.6
Macedonia	33.8	31.1	20.6	13.2
Montenegro		24.4	19.2	17.7
Romania	18.9	17.4	9.0	11.0
Serbia	16.8	24.8	23.1	18.8
<b>Average for SEE</b>	<b><u>20.3</u></b>	<b><u>18.9</u></b>	<b><u>15.4</u></b>	<b><u>14.1</u></b>
<b>CEE + Baltics</b>				
Croatia	15.1	9.3	12.6	14.0
Czech Republic	12.2	9.0	11.1	6.0
Estonia	10.8	18.4	19.7	13.8
Hungary	11.6	16.0	11.9	11.1
Latvia	16.9	11.8	11.6	12.5
Lithuania	15.3	11.2	7.7	10.3
Poland	17.6	17.7	11.7	13.1
Slovak Republic	12.8	15.7	14.7	18.7
Slovenia	11.6	10.2	7.7	7.3
<b>Average for CEE + Baltics</b>	<b><u>13.8</u></b>	<b><u>13.2</u></b>	<b><u>12.1</u></b>	<b><u>11.9</u></b>

Source: *Bankscope*

The estimations and analysis conducted in this section show that the profitability ratios in the transition countries of Central and Eastern Europe and the former Soviet Union are negatively affected by the bank assets to GDP ratio – a proxy for competition. Bank costs also decrease the profitability. Inflation and real interest rates increase the spread and net interest margins, but their

impact on the return on assets is inconclusive. It is remarkable that in all regressions the coefficient for inflation drops if risk premium is removed from the model. This could be due to the fact that the effect of inflation is especially high for the countries with a higher level of risk, in this case *CIS 6 + Georgia*.

## **5.7 Stability**

In the previous section, the higher profitability ratios of banks in *CIS 6 + Georgia* were concluded to emanate from lower competition and the higher market power of these banks. In this section, the stability of the banking sector is closely examined and special attention is devoted to the implications of these ratios with respect to the market position of banks. An extensive body of research has focused on analysing the implications of various levels of bank asset concentration from different perspectives.

**Concentration.** There is some contention on the effect of bank concentration on the stability of the banking system. There is evidence from cross country research involving 69 countries in the period from 1980 to 1997, which shows that a high bank concentration results in stability of the financial system (T. Beck et al. 2006). T. Beck et al. (2006) also find that the banking systems, where the majority of entry applications are denied, possibly leading to higher concentration, as well as those systems where banks' engagement in non-loan making activities is restricted have a greater likelihood of experiencing a systemic crisis. In addition, the authors suggest that the countries where competition is fostered are less likely to suffer systemic banking crises. They also contend that high concentration and competitiveness in the banking system can co-exist and are positively related to banking stability. Unfortunately, this

intriguing and seemingly contradictory result is not explored further by examining the channels through which concentration and competitiveness of the financial system impact stability.

Boyd and De Nicolo (2005) argue that higher bank concentration encourages banks to take more risks. The mechanism behind this increase in risk works through the ability of banks to increase interest rates for their loans as competition declines. This in itself results in a higher bankruptcy risk for borrowers reinforced by a further desire of borrowers to take on extra risks to cover higher interest costs. According to the World Bank (2013c), competition nurtures efficiency in the banking industry without undermining the stability of the system, whereas market power (e.g. less competition) results in an increase in systemic risks. For example, in Australia, the country that was almost unscathed by the GFC but has a highly concentrated banking sector, the issues of concentration and competition recently returned to the fore of the policy agenda. The Australian Senate Economics References Committee concluded that it would be concerned with any further increases in concentration and would seek ways to foster competition by increasing the number of players in the market (Senate Economics References Committee 2011).

Evidence from developing countries speaks in favour of the concentration – stability argument. Higher concentration is accompanied by increased profits, albeit at the expense of significant losses in cost efficiency (Ariss 2010). Yeyati and Micco (2007), using a bank-level balance sheet database for eight Latin American countries, found that while concentration did not reduce competition in the industry, foreign ownership in the banking sector led to less competitive banking sectors. The authors explained this

phenomenon by the perception of the national banks in Latin America as inferior to foreign banks stemming from the implicit insurance by the parent bank, reputation and strength of the brand name, as well as the range of products offered by the latter. De Nicoló et al. (2003) argue that market power captured by bank concentration measures usually leads to the higher lending-deposit spreads as banks can extract rents from borrowers and/or depositors.

Although the impact of bank concentration on spread in the baseline estimations is not statistically significant, it is possible that part of the influence of the concentration variable was captured by the bank assets to GDP ratio. This is possible for two reasons: both of these variables measure the competition level; and taking into account a measurement error. The estimation results below in Table 5.27 demonstrate that the concentration variable becomes significant when the bank assets to GDP ratio and tax variables are omitted from the model.

**Table 5.27 Determinants of spread and net interest margin. Panel estimates for return on assets**

	<b>Fixed effects</b>	<b>Fixed effects</b>	<b>Fixed effects</b>
<b>Explanatory variables:</b>	<b>Dependent variable: Spread</b>	<b>Dependent variable: Spread</b>	<b>Dependent variable: Spread</b>
3-bank concentration	0.06*** (4.07)	0.02* (1.82)	-0.01 (-0.78)
Risk premium on lending	0.04 (0.9)	0.11* (1.9)	0.08 (1.4)
Inflation	0.16*** (4.4)	0.36*** (11.0)	0.28*** (4.94)
Bank cost to income ratio	0.02 (0.68)	-0.009 (-0.57)	0.02*** (2.99)
Real interest rate		0.37*** (8.22)	0.28*** (4.44)
Tax			-0.36*** (-4.36)
Bank assets to GD			
R-squared	0.82	0.9	0.92
Observations	193	193	136
Number of countries	18	18	16

Note: \*\*\*, \*\*, \* denote significance at, respectively, the 1, 5, and 10 percent level. Absolute values of robust t-statistics are in are in parentheses.

Tables 5.28 and 5.29 below using two different measures of bank concentration may provide an additional explanation of why spreads and interest margins for banks in *CIS 6 + Georgia* are higher than those in other transition countries. Both indicators of concentration in the banking sector show that bank concentration and the associated market power of banks is stronger in *CIS 6 + Georgia* compared to other groups. These indicators of concentration include – 5-Bank Asset Concentration (assets of the five largest banks as a share of total commercial banking assets) and 3-Bank Asset Concentration (assets of the three largest banks as a share of total commercial banking assets).

**Table 5.28 5- Bank asset concentration**

	Average for country (1998-2000)	Average for country (2001-2005)	Average for country (2006-2011)
<b>CIS 6 + Georgia</b>			
Armenia	96.3	96.5	68.5
Azerbaijan	85.2	64.5	62.9
Georgia	89.9	94.4	96.5
Kyrgyz Republic	100.0	100.0	100.0
Moldova		85.7	67.5
Tajikistan			100.0
Uzbekistan	100.0	94.4	91.6
<b>Average for CIS 6 + Georgia</b>	<b><u>94.3</u></b>	<b><u>89.3</u></b>	<b><u>83.9</u></b>
<b>Other CIS</b>			
Belarus	95.8	98.5	92.1
Kazakhstan	77.8	75.5	74.7
Russia	65.8	43.6	35.6
Ukraine		93.0	96.7
<b>Average for Other CIS</b>	<b><u>79.8</u></b>	<b><u>77.7</u></b>	<b><u>74.8</u></b>
<b>SEE</b>			
Albania			86.3
Bosnia and Herzegovina	67.0	72.0	70.0
Bulgaria	89.2	76.2	73.1
Kosovo			
Macedonia	91.2	87.9	84.5
Montenegro		93.9	92.8
Romania	84.5	81.2	81.9
Serbia	98.2	68.4	53.2
<b>Average for SEE</b>	<b><u>86.0</u></b>	<b><u>79.9</u></b>	<b><u>77.4</u></b>
<b>CEE + Baltics</b>			
Croatia	68.3	74.0	75.7
Czech Republic	82.1	80.7	78.8
Estonia	100.0	100.0	99.7
Hungary	76.0	82.7	90.9
Latvia	65.0	69.1	69.7
Lithuania	94.0	91.5	87.9
Poland	77.2	79.0	62.6
Slovak Republic	77.6	92.4	88.8
Slovenia	82.3	86.7	67.9
<b>Average for CEE + Baltics</b>	<b><u>80.3</u></b>	<b><u>84.0</u></b>	<b><u>80.2</u></b>

Source: World Bank, *Global Financial Development Database*

**Table 5.29 3-Bank concentration**

	Average for country (1998-2000)	Average for country (2001-2005)	Average for country (2006-2011)
<b>CIS 6 + Georgia</b>			
Armenia	69.5	80.5	48.8
Azerbaijan	68.3	48.8	45.4
Georgia	69.1	83.2	88.6
Kyrgyz Republic	78.3	84.7	91.5
Moldova		73.3	47.6
Tajikistan		100.0	96.7
Uzbekistan	98.3	84.5	80.5
<b>Average for CIS 6 + Georgia</b>	<b><u>76.7</u></b>	<b><u>79.3</u></b>	<b><u>71.3</u></b>
<b>Other CIS</b>			
Belarus	85.9	91.3	80.4
Kazakhstan	58.1	59.3	60.2
Russia	56.3	34.8	27.1
Ukraine		74.4	80.8
<b>Average for other CIS</b>	<b><u>66.8</u></b>	<b><u>65.0</u></b>	<b><u>62.1</u></b>
<b>SEE</b>			
Albania	96.3	96.0	67.7
Bosnia and Herzegovina	50.1	55.0	52.9
Bulgaria	81.2	61.3	51.4
Kosovo			
Macedonia	81.0	79.4	73.5
Montenegro		76.4	75.6
Romania	74.6	68.5	67.5
Serbia	85.3	54.2	38.8
<b>Average for SEE</b>	<b><u>78.1</u></b>	<b><u>70.1</u></b>	<b><u>61.1</u></b>
<b>CEE + Baltics</b>			
Croatia	57.1	56.0	56.3
Czech Republic	72.2	69.6	66.0
Estonia	98.3	96.4	96.5
Hungary	64.0	70.6	75.3
Latvia	52.3	55.2	53.7
Lithuania	85.4	79.3	72.7
Poland	68.0	69.5	49.3
Slovak Republic	57.6	79.2	69.3
Slovenia	69.0	69.5	54.8
<b>Average for CEE + Baltics</b>	<b><u>69.3</u></b>	<b><u>71.7</u></b>	<b><u>66.0</u></b>

Source: World Bank, *Global Financial Development Database*

**Non-performing loans (NPLs).** NPLs mean additional costs to banks, which they in turn try to pass on to other lines of business, including borrowers and depositors. Some studies identify the main determinants of NPLs to be real GDP growth, share prices, the exchange rate, and the lending interest rate (R. Beck et al. 2013). High NPLs could also signal issues with supervision, regulation, lending practices, and slow pace of bank reforms, which may affect

the quality of bank lending adversely (De Nicoló et al. 2003). A recent study of a relationship between NPLs and macroeconomic conditions such as GDP growth, unemployment, and inflation in Central, Eastern, and South Eastern Europe indicates that the level of NPLs could be attributed to both macroeconomic conditions and bank specific factors (N. Klein 2013). The recent increase in NPLs in Central, Eastern, and South Eastern Europe, as illustrated in Table 5.30 below, may have slowed down the pace of economic recovery after the global financial crisis.

On the surface, NPL levels in *CIS 6 + Georgia* appear low compared to other transition regions. However, at least one country in the region (Uzbekistan) is infamous for improper classification of NPLs resulting in their severe underestimation. One of the reasons for this is the general preference of banks to roll over or restructure problematic loans rather than classify them as non-performing (Akimov and Dollery 2009). The World Bank, with reference to Moody's, reported that the actual level of NPLs was about 10 percent in Uzbekistan (World Bank 2014a). Another reason could be a prevalence of collateralized loans in this group, which should improve loan repayment but may have an adverse effect on total loans.

**Table 5.30 Bank nonperforming loans to total gross loans (per cent)**

	<b>Average (1998-2000)</b>	<b>Average (2001-2005)</b>	<b>Average (2006-2010)</b>	<b>Average (2011- 2014)</b>
<b>CIS 6 + Georgia</b>				
Armenia	10.5	8.7	3.4	4.4
Azerbaijan		16.3	4.1	5.4
Georgia		5.0	3.6	3.7
Kyrgyz Republic	24.0	11.5	7.8	6.9
Moldova	20.6	7.9	8.6	12.2
Tajikistan			7.7	10.9
Uzbekistan		3.0	1.7	0.4
<b>Average for CIS 6 + Georgia</b>	<b><u>18.4</u></b>	<b><u>8.7</u></b>	<b><u>5.3</u></b>	<b><u>6.3</u></b>
<b>Other CIS</b>				
<b>Without Uzbekistan</b>	<b><u>18.4</u></b>	<b><u>9.9</u></b>	<b><u>5.9</u></b>	<b><u>7.2</u></b>
Belarus	10.8	6.7	2.8	4.7
Kazakhstan		7.0	10.4	20.0
Russia	12.8	4.5	5.3	6.3
Ukraine	32.7	32.7	28.1	14.7
<b>Average for Other CIS</b>	<b><u>18.8</u></b>	<b><u>12.7</u></b>	<b><u>11.7</u></b>	<b><u>11.4</u></b>
<b>SEE</b>				
Albania		3.7	7.5	21.6
Bosnia and Herzegovina	21.2	9.7	5.5	14.0
Bulgaria	20.1	2.7	5.0	16.2
Kosovo			5.8	7.5
Macedonia	36.3	22.2	8.7	10.5
Montenegro		5.3	9.6	17.2
Romania	43.2	4.7	5.4	19.2
Serbia		22.9	11.3	20.7
<b>Average for SEE</b>	<b><u>30.2</u></b>	<b><u>10.2</u></b>	<b><u>7.3</u></b>	<b><u>15.8</u></b>
<b>CEE + Baltics</b>				
Croatia	9.7	8.0	6.7	14.5
Czech Republic	23.9	6.9	3.7	5.3
Estonia	1.4	0.6	2.6	2.7
Hungary	4.0	2.6	4.9	15.6
Latvia	5.5	1.6	6.7	8.6
Lithuania	12.2	3.8	11.1	13.8
Poland	13.1	17.4	4.9	5.0
Slovak Republic	23.0	6.3	3.9	5.3
Slovenia	5.7	4.0	4.5	13.7
<b>Average for CEE + Baltics</b>	<b><u>10.9</u></b>	<b><u>5.7</u></b>	<b><u>5.5</u></b>	<b><u>9.4</u></b>

Source: *World Development Indicators*

**The liquid assets ratio.** This ratio is important to assess the capacity of the banking system to cover a sudden deposit outflow or a cut off in short term funding. Liquid assets also assist in situations where banks cannot anticipate new loan demand and do not have quick access to sources of cash. Table 5.31 below illustrates that banks in *CIS 6 + Georgia* have a larger ratio of liquid

assets to deposits and short term funding and thus hedged better against liquidity risk compared to other transition regions. In fact, it is possible that the banking sector in this region might have preferred a lower level of liquid assets ratio but the sector does not have access to a cheap interbank lending market. Therefore, the banks in the region have to build up these reserves.

**Table 5.31 Liquid assets to deposits and short term funding (per cent)**

	<b>Average (1998-2001)</b>	<b>Average (2001-2005)</b>	<b>Average (2006-2009)</b>	<b>Average (2010-2011)</b>
<b>CIS 6 + Georgia</b>				
Armenia	44.8	66.3	39.7	32.5
Azerbaijan	48.3	45.0	37.8	29.4
Georgia	46.0	47.6	36.8	23.5
Kyrgyz Republic	67.0	75.6	59.2	59.5
Moldova	45.2	40.9	31.6	23.6
Tajikistan		53.6	43.2	28.2
Uzbekistan	32.7	52.4	38.7	42.2
<b>Average for CIS 6 + Georgia</b>	<b><u>47.3</u></b>	<b><u>54.5</u></b>	<b><u>41.0</u></b>	<b><u>34.1</u></b>
<b>Other CIS</b>				
Belarus	34.8	36.1	31.1	34.7
Kazakhstan	57.8	35.9	39.0	25.0
Russia	35.7	36.5	48.1	50.0
Ukraine	37.8	29.2	23.4	26.7
<b>Average for Other CIS</b>	<b><u>41.5</u></b>	<b><u>34.4</u></b>	<b><u>35.4</u></b>	<b><u>34.1</u></b>
<b>SEE</b>				
Albania	87.0	71.3	35.2	21.5
Bosnia and Herzegovina	60.4	46.3	37.1	28.7
Bulgaria	90.5	53.0	33.9	25.2
Kosovo				
Macedonia	50.6	48.8	34.7	32.1
Montenegro		57.0	28.2	35.2
Romania	63.0	50.6	38.8	22.2
Serbia	93.0	48.2	47.4	24.2
<b>Average for SEE</b>	<b><u>74.1</u></b>	<b><u>53.6</u></b>	<b><u>36.5</u></b>	<b><u>27.0</u></b>
<b>CEE + Baltics</b>				
Croatia	56.3	47.8	34.1	21.9
Czech Republic	57.9	53.2	34.3	26.6
Estonia	40.3	26.7	22.6	26.0
Hungary	56.2	38.0	30.2	27.3
Latvia	38.0	39.8	30.2	44.9
Lithuania	55.1	41.4	22.7	25.2
Poland	29.4	29.6	26.4	12.4
Slovak Republic	39.7	36.2	41.0	12.7
Slovenia	47.7	43.1	17.3	9.8
<b>Average for CEE + Baltics</b>	<b><u>46.7</u></b>	<b><u>39.5</u></b>	<b><u>28.8</u></b>	<b><u>23.0</u></b>

Source: *Bankscope*

All in all, the indicators of stability, such as the concentration levels, NPL, and the liquidity ratio may point to higher stability of the banking sector in *CIS 6 + Georgia*. However, the relevant literature demonstrates that concentration may positively impact stability through competition, with which concentration may coexist. This does not seem to be the case in *CIS 6 + Georgia* judging

from the low financial structure levels (expressed with the help of deposit money bank assets-to-GDP ratio) demonstrated in Section 5.4. In addition, the methodology of calculating NPL in some countries of the region may underestimate the problem with NPLs.

## **5.8 Stock Market**

Although there is well-documented empirical evidence of the importance of the stock market for economic growth (Atje and Jovanovic 1993; Levine and Zervos 1998), a number of studies point to the negative influence of the stock market on economic development, which is manifested by stimulating investments predominantly in short-term projects (Stein 1989). Furthermore, liquid stock markets may facilitate hostile takeovers, which decrease the efficiency of resource allocation (Levine 1997). Given the small size of the economies of the majority of the transition countries, some authors argue that stock markets are unlikely to make a significant contribution to financial market development (Bonin and Wachtel 2003).

Despite a quarter of a century long transition, stock markets play a very minor role in allocating funds in all of the transition countries, as illustrated in Table 5.32 below. Evidence suggests that transition economies typically choose a bank-led financial system, because stock markets require strong institutions (Akimov and Dollery 2008). However, in *CIS 6 + Georgia*, the stock markets are very small even compared with other transition countries. It was noted that this ratio is the highest among those countries where the privatization process has made significant progress and this may give a misleading indicator of the maturity of the equity market (Bonin and Wachtel 2003). It should also be noted

that there is some evidence that a higher level of financial openness spurs equity market development only if a threshold level of legal development has been attained. Chinn and Ito (2006) also found that the development of the banking system is a precondition for equity market development. As will be demonstrated below, by many counts of institutional development, including legal development, *CIS 6 + Georgia* lag significantly behind.

**Table 5.32 Stock market capitalization to GDP (per cent)**

	<b>Average (2000-2005)</b>	<b>Average (2006-2010)</b>	<b>2011</b>
<b><i>CIS 6 + Georgia</i></b>			
Armenia	0.6	1.3	1.4
Azerbaijan	-	-	-
Georgia	3.4	7.3	6.8
Kyrgyz Republic	0.9	2.1	2.0
Moldova	-	-	-
Tajikistan	-	-	-
Uzbekistan	-	-	-
<b>Average for <i>CIS 6 + Georgia</i></b>	<b><u>1.6</u></b>	<b><u>3.6</u></b>	<b><u>4.4</u></b>
<b><i>Other CIS</i></b>			
Belarus	-	-	-
Kazakhstan	7.4	35.6	28.5
Russia	37.2	71.4	49.2
Ukraine	10.1	31.5	20.1
<b>Average for <i>Other CIS</i></b>	<b><u>18.2</u></b>	<b><u>46.2</u></b>	<b><u>32.6</u></b>
<b><i>SEE</i></b>			
Albania	-	-	-
Bosnia and Herzegovina			
Bulgaria	7.4	24.9	14.9
Kosovo	-	-	-
Macedonia	5.2	14.8	6.1
Montenegro	-	76.3	79.5
Romania	9.5	19.0	15.0
Serbia	10.5	33.6	22.1
<b>Average for <i>SEE</i></b>	<b><u>8.1</u></b>	<b><u>33.7</u></b>	<b><u>27.5</u></b>
<b><i>CEE + Baltics</i></b>			
Croatia	18.3	55.6	38.7
Czech Republic	20.4	29.1	19.7
Estonia	33.4	19.9	9.1
Hungary	22.2	26.0	17.1
Latvia	9.4	8.9	4.3
Lithuania	17.3	19.7	11.8
Poland	19.1	34.1	32.6
Slovak Republic	5.9	6.4	4.8
Slovenia	20.2	32.6	16.4
<b>Average for <i>CEE + Baltics</i></b>	<b><u>18.5</u></b>	<b><u>25.8</u></b>	<b><u>17.2</u></b>

Source: World Bank, *Global Financial Development Database*

## 5.9 Indicators of Institutional Quality

The quality of institutions, characteristics of governance, and efficiency of regulatory environments and policies might have a tremendous impact on economic growth, including performance of the financial/banking sector (Acemoglu et al. 2005). Therefore, the focus of this section is on the indicators of institutional quality, which may have had an impact on financial development in transition countries. Demirgüç-Kunt and Detragiache (1998) argue that financial liberalization increases the probability of a banking crisis, but less so where the institutional environment, measured by the rule of law, a low level of corruption, and good contract enforcement is strong. These findings imply that a cautious approach to financial liberalization is necessary where institutions are weak, even if macroeconomic stabilization has been achieved and maintained. Institutional infrastructure for intermediation is also identified as the source of “institutional” credit risk, which is one of the main causes of high spread and interest margin (De Nicoló et al. 2003). Furthermore, Djankov et al. (2007), in their analysis of legal reforms, indicate that credit rises after improvements in creditor rights and information sharing. Moreover, the authors conclude that public credit registries benefit private credit markets in developing countries.

The averages and the 2014 indicator for strength of legal rights index, as shown in Table 5.33, reflect that there is a divide among different countries constituting *CIS 6 + Georgia*. This coefficient has been particularly low for Uzbekistan and Tajikistan. In the case of Azerbaijan a regress over the period 2004 – 2014 is also notable. Other countries of the group fare quite well in comparison with other transition country groups. On the other hand, significant

progress by *CIS 6 + Georgia* has been witnessed in the depth of credit information index. The region is ranked second as of 2014 among other transition countries in this department.

**Table 5.33 Strength of legal rights index (0=weak to 12=strong) and Depth of credit information index (0=low to 8=high)**

	Strength of legal rights index			Depth of credit information index		
	Average (2004-2008)	Average (2009-2013)	2014	Average (2004-2008)	Average (2009-2013)	2014
<b><i>CIS 6 + Georgia</i></b>						
Armenia	5.6	5.8	5.0	2.0	6.0	8.0
Azerbaijan	5.0	4.4	2.0	0.0	5.2	6.0
Georgia	5.2	7.8	9.0	0.0	6.4	8.0
Kyrgyz Republic	6.6	9.6	8.0	0.0	4.2	5.0
Moldova	8.0	8.0	8.0	0.0	0.0	6.0
Tajikistan	3.0	2.2	1.0	0.0	0.0	6.0
Uzbekistan	2.0	1.8	1.0	0.0	2.8	7.0
<b>Average for <i>CIS 6 + Georgia</i></b>	<b><u>5.1</u></b>	<b><u>5.7</u></b>	<b><u>4.9</u></b>	<b><u>0.3</u></b>	<b><u>3.5</u></b>	<b><u>6.6</u></b>
<b><i>Other CIS</i></b>						
Belarus	2.0	2.6	2.0	0.0	5.2	6.0
Kazakhstan	2.0	2.4	3.0	2.6	5.4	7.0
Russia	5.0	4.8	4.0	0.8	5.4	7.0
Ukraine	8.2	8.8	8.0	0.0	3.8	7.0
<b>Average for <i>Other CIS</i></b>	<b><u>4.3</u></b>	<b><u>4.7</u></b>	<b><u>4.3</u></b>	<b><u>0.9</u></b>	<b><u>5.0</u></b>	<b><u>6.8</u></b>
<b><i>SEE</i></b>						
Albania	9.0	8.8	7.0	1.0	5.2	6.0
Bosnia and Herzegovina	4.6	5.4	7.0	5.0	4.8	6.0
Bulgaria	9.0	9.0	9.0	3.6	5.0	5.0
Kosovo		7.2	8.0		5.2	6.0
Macedonia	6.0	6.0	6.0	0.8	5.4	7.0
Montenegro	10.0	10.4	12.0	1.3	4.6	6.0
Romania	8.4	9.2	10.0	2.4	5.4	7.0
Serbia	6.6	6.6	5.0	2.4	5.4	7.0
<b>Average for <i>SEE</i></b>	<b><u>7.7</u></b>	<b><u>7.8</u></b>	<b><u>8.0</u></b>	<b><u>2.4</u></b>	<b><u>5.1</u></b>	<b><u>6.3</u></b>
<b><i>CEE + Baltics</i></b>						
Croatia	5.8	6.6	5.0	1.2	4.8	6.0
Czech Republic	6.8	5.8	7.0	4.8	5.4	7.0
Estonia	6.0	6.8	7.0	5.0	5.4	7.0
Hungary	7.0	6.8	10.0	3.0	4.6	5.0
Latvia	10.0	9.8	9.0	0.0	4.2	5.0
Lithuania	5.0	5.2	6.0	4.0	6.4	8.0
Poland	8.0	8.6	7.0	4.6	6.4	8.0
Slovak Republic	8.0	7.8	7	2.8	4.4	6
Slovenia	4.8	3.8	3.0	0.0	1.8	4.0
<b>Average for <i>CEE + Baltics</i></b>	<b><u>6.8</u></b>	<b><u>6.8</u></b>	<b><u>6.8</u></b>	<b><u>2.8</u></b>	<b><u>4.8</u></b>	<b><u>6.2</u></b>

Source: World Bank, *World Development Indicators*

Well-functioning institutions and governance systems are crucial not only for financial development but also for economic growth. Some of the features of

these institutions include intervention from the government limited by voice and accountability, which balance a wide variety of expectations and demands, as well as a legal system capable of protecting property rights and enforcing contracts. Since corruption and red tape are considered to be extremely detrimental to the functioning of an economy and increase the likelihood of a banking crisis (Barth et al. 1998; Mauro 1998), they should be kept at bay. In addition, a special role belongs to taxation and regulation and these should not become a burden or excessively restrict the financial system. The relevance of legal rules and law enforcement to the development of efficient financial markets was shown by seminal work of La Porta et al. (1997). According to their study, legal systems, which provide greater protection to creditors and investors, facilitate access to external finance and corporate governance.

Demirgüç-Kunt and Maksimovic (1998) investigate how differences in legal and financial systems affect firms' use of external financing to fund growth. The authors show that in countries with better legal systems, a greater proportion of firms use long-term external financing. The study also argues that established firms in countries with well-functioning institutions have lower profit rates. T. Beck et al. (2005) researched the effect of financial, legal, and corruption problems on firms' growth rates. They found that size matters and the smallest firms are most constrained. The paper also found evidence that corruption of bank officials constrains firm growth.

Practically, in all indicators of governance provided in tables 5.34 and 5.35 below, *CIS 6 + Georgia* score lower than advanced transition countries. The only country in the region which is making some progress on governance indicators is Georgia. This backwardness in the capacity of governing could be

one of the decisive factors which is still deterring development of the banking sector in *CIS 6 + Georgia*.

**Table 5.34 Governance indicators**

Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)

	Voice and Accountability			Political Stability			Government Effectiveness		
	Average (1996- 2003)	Average (2004- 2008)	Average (2009- 2013)	Average (1996- 2003)	Average (2004- 2008)	Average (2009- 2013)	Average (1996- 2003)	Average (2004- 2008)	Average (2009- 2013)
<b>CIS 6 +</b>									
<b>Georgia</b>									
Armenia	-0.50	-0.70	-0.72	-0.45	-0.07	0.07	-0.39	-0.20	-0.05
Azerbaijan	-1.00	-1.16	-1.26	-0.99	-0.85	-0.43	-0.93	-0.73	-0.68
Georgia	-0.39	-0.20	-0.10	-1.43	-0.80	-0.69	-0.68	-0.14	0.44
Kyrgyz Republic	-0.97	-0.91	-0.78	-0.58	-1.05	-0.91	-0.48	-0.77	-0.71
Moldova	-0.29	-0.40	-0.12	-0.18	-0.29	-0.21	-0.55	-0.79	-0.55
Tajikistan	-1.38	-1.25	-1.38	-1.66	-1.12	-1.06	-1.32	-1.03	-0.99
Uzbekistan	-1.72	-1.99	-2.04	-1.10	-1.57	-0.67	-1.13	-1.07	-0.80
<b>Average for CIS 6 + Georgia</b>	<b><u>-0.89</u></b>	<b><u>-0.94</u></b>	<b><u>-0.91</u></b>	<b><u>-0.91</u></b>	<b><u>-0.82</u></b>	<b><u>-0.56</u></b>	<b><u>-0.78</u></b>	<b><u>-0.67</u></b>	<b><u>-0.48</u></b>
<b>Other CIS</b>									
Belarus	-1.25	-1.67	-1.56	0.20	0.29	0.04	-0.74	-1.12	-1.05
Kazakhstan	-0.99	-1.09	-1.12	0.03	0.32	0.02	-0.84	-0.53	-0.44
Russia	-0.46	-0.78	-0.93	-1.15	-1.05	-0.89	-0.56	-0.40	-0.42
Ukraine	-1.72	-1.99	-2.04	-0.36	-0.12	-0.25	-0.72	-0.61	-0.72
<b>Average for Other CIS</b>	<b><u>-1.10</u></b>	<b><u>-1.38</u></b>	<b><u>-1.41</u></b>	<b><u>-0.32</u></b>	<b><u>-0.14</u></b>	<b><u>-0.27</u></b>	<b><u>-0.71</u></b>	<b><u>-0.66</u></b>	<b><u>-0.66</u></b>
<b>SEE</b>									
Albania	-0.30	0.07	0.07	-0.49	-0.33	-0.13	-0.70	-0.45	-0.27
Bosnia and Herzegovina	-0.13	0.10	-0.14	-0.51	-0.41	-0.62	-0.99	-0.66	-0.62
Bulgaria	0.43	0.58	0.44	0.24	0.24	0.29	-0.06	0.07	0.13
Kosovo	-0.97	-0.43	-0.21		1.04	-0.77		-0.36	-0.47
Macedonia	-0.30	0.07	0.03	-0.89	-0.71	-0.43	-0.57	-0.15	-0.10
Montenegro	-0.17	0.22	0.22		0.34	0.59		0.01	0.10
Romania	0.34	0.47	0.37	0.21	0.11	0.20	-0.41	-0.26	-0.26
Serbia	-0.66	0.08	0.27	-1.25	-0.61	-0.31	-0.76	-0.22	-0.08
<b>Average for SEE</b>	<b><u>-0.22</u></b>	<b><u>0.15</u></b>	<b><u>0.13</u></b>	<b><u>-0.45</u></b>	<b><u>-0.04</u></b>	<b><u>-0.15</u></b>	<b><u>-0.58</u></b>	<b><u>-0.25</u></b>	<b><u>-0.20</u></b>
<b>CEE + Baltics</b>									
Croatia	0.21	0.48	0.47	0.20	0.55	0.59	0.23	0.51	0.64
Czech Republic	0.91	0.94	0.99	0.78	0.91	1.01	0.74	0.97	0.91
Estonia	0.99	1.06	1.10	0.75	0.62	0.61	0.70	1.06	1.04
Hungary	1.11	1.06	0.82	1.03	0.84	0.67	0.94	0.80	0.66
Latvia	0.72	0.77	0.76	0.50	0.60	0.43	0.36	0.60	0.75
Lithuania	0.88	0.85	0.89	0.56	0.76	0.71	0.38	0.72	0.77
Poland	1.04	0.88	1.01	0.58	0.46	0.99	0.62	0.46	0.63
Slovak Republic	0.80	0.93	0.92	0.84	0.85	1.01	0.59	0.88	0.83
Slovenia	1.17	1.06	1.02	1.10	1.07	0.89	0.87	1.00	1.04
<b>Average for CEE + Baltics</b>	<b><u>0.87</u></b>	<b><u>0.89</u></b>	<b><u>0.89</u></b>	<b><u>0.70</u></b>	<b><u>0.74</u></b>	<b><u>0.77</u></b>	<b><u>0.60</u></b>	<b><u>0.78</u></b>	<b><u>0.81</u></b>

Source: World Bank, *World Governance Indicators*

**Table 5.35 Governance indicators (continued)**

	Regulatory Quality			Rule of Law			Control of Corruption		
	Average (1996- 2003)	Average (2004- 2008)	Average (2009- 2013)	Average (1996- 2003)	Average (2004- 2008)	Average (2009- 2013)	Average (1996- 2003)	Average (2004- 2008)	Average (2009- 2013)
<b>CIS 6 +</b>									
<b>Georgia</b>									
Armenia	-0.08	0.21	0.28	-0.40	-0.41	-0.41	-0.61	-0.63	-0.56
Azerbaijan	-0.85	-0.48	-0.39	-1.01	-0.79	-0.80	-1.09	-1.03	-1.08
Georgia	-0.67	-0.06	0.63	-1.24	-0.49	-0.12	-0.97	-0.30	0.05
Kyrgyz Republic	-0.20	-0.52	-0.29	-0.78	-1.18	-1.22	-0.69	-1.16	-1.14
Moldova	-0.27	-0.34	-0.10	-0.42	-0.45	-0.40	-0.56	-0.67	-0.66
Tajikistan	-1.29	-1.09	-1.02	-1.39	-1.15	-1.21	-1.14	-1.04	-1.17
Uzbekistan	-1.85	-1.54	-1.58	-1.21	-1.27	-1.31	-1.00	-1.00	-1.24
<b>Average for CIS 6 + Georgia</b>	<b>-0.74</b>	<b>-0.55</b>	<b>-0.35</b>	<b>-0.92</b>	<b>-0.82</b>	<b>-0.78</b>	<b>-0.87</b>	<b>-0.83</b>	<b>-0.83</b>
<b>Other CIS</b>									
Belarus	-1.53	-1.41	-1.14	-1.00	-1.18	-0.99	-0.71	-0.75	-0.63
Kazakhstan	-0.49	-0.37	-0.34	-1.10	-0.89	-0.63	-1.03	-0.96	-0.92
Russia	-0.35	-0.28	-0.36	-0.95	-0.92	-0.78	-0.90	-0.87	-1.04
Ukraine	-0.55	-0.47	-0.59	-0.98	-0.76	-0.81	-1.03	-0.76	-1.02
<b>Average for Other CIS</b>	<b>-0.73</b>	<b>-0.63</b>	<b>-0.61</b>	<b>-1.01</b>	<b>-0.93</b>	<b>-0.80</b>	<b>-0.92</b>	<b>-0.84</b>	<b>-0.90</b>
<b>SEE</b>									
Albania	-0.32	-0.07	0.21	-1.04	-0.73	-0.52	-0.91	-0.69	-0.61
Bosnia and Herzegovina	-0.61	-0.31	-0.08	-0.58	-0.49	-0.29	-0.35	-0.31	-0.30
Bulgaria	0.27	0.64	0.58	-0.27	-0.14	-0.12	-0.30	-0.10	-0.24
Kosovo		0.02	-0.03		-0.85	-0.59		-0.58	-0.61
Macedonia	-0.18	0.02	0.31	-0.55	-0.40	-0.25	-0.77	-0.36	-0.03
Montenegro		-0.19	-0.02		-0.25	0.01		-0.37	-0.19
Romania	0.03	0.39	0.60	-0.16	-0.12	0.05	-0.41	-0.19	-0.23
Serbia	-0.75	-0.41	-0.05	-1.17	-0.65	-0.38	-0.92	-0.36	-0.29
<b>Average for SEE</b>	<b>-0.26</b>	<b>0.01</b>	<b>0.19</b>	<b>-0.63</b>	<b>-0.45</b>	<b>-0.26</b>	<b>-0.61</b>	<b>-0.37</b>	<b>-0.31</b>
<b>CEE + Baltics</b>									
Croatia	0.10	0.47	0.50	-0.23	0.04	0.19	-0.27	0.09	-0.01
Czech Republic	1.01	1.10	1.20	0.79	0.83	0.98	0.41	0.33	0.26
Estonia	1.33	1.35	1.41	0.62	1.04	1.13	0.52	0.93	0.96
Hungary	1.08	1.18	1.00	0.86	0.90	0.68	0.61	0.56	0.30
Latvia	0.89	0.99	0.99	0.24	0.66	0.77	-0.22	0.23	0.17
Lithuania	0.99	1.07	1.02	0.38	0.64	0.76	0.09	0.14	0.26
Poland	0.70	0.78	0.98	0.64	0.41	0.71	0.49	0.21	0.48
Slovak Republic	0.68	1.13	1.00	0.24	0.51	0.50	0.19	0.38	0.17
Slovenia	0.90	0.82	0.71	1.03	0.90	1.01	0.99	0.96	0.86
<b>Average for CEE + Baltics</b>	<b>0.85</b>	<b>0.99</b>	<b>0.98</b>	<b>0.51</b>	<b>0.66</b>	<b>0.75</b>	<b>0.31</b>	<b>0.43</b>	<b>0.38</b>

Source: World Bank, *World Governance Indicators*

To sum up, for virtually all governance indicators, *CIS 6 + Georgia* performs worse than other groups. The only area where the group of countries achieved some progress has been the depth of credit information. However, the advancement in this indicator, apparently, has not been enough to offset institutional backwardness in other indicators. There seems to be a strong association between the lag in institutional development and earlier noted distrust in the banking sector of *CIS 6 + Georgia*.

### **5.10 Conclusion**

A review of macroeconomic indicators for transition countries demonstrates that *CIS 6 + Georgia* have achieved significant progress in economic growth and an increase in per capita GDP, accompanied with subdued inflation pressures. It would be natural to expect similar progress in ratios measuring the development of the financial sector.

Indeed, the growth rates in the ratios of M2 to GDP, Bank assets to GDP, and Bank deposit to GDP in *CIS 6 + Georgia*, despite the presence of discernible divergence among the countries in the group, has been one of the highest in the region since 1996. This represents a significant achievement compared with what was observed at the beginning of the century (De Nicoló et al. 2003). Nevertheless, the gap between these countries and the countries which performed best in the region is still yawning, even though the number of multiples in which this gap is measured has fallen.

Data related to measuring the level of access to financial services became available since 2004. These series of data suffer from a certain degree of measurement errors. In a few cases, the measures appear to overestimate

the level of access to financial services. In some other measures of access, such as ATM penetration and the ratio of borrowers from commercial banks, the divide between Central Asian countries and the rest of *CIS 6 + Georgia* is noticeable and persistent. When the measurement error is taken into account, *CIS 6 + Georgia* does not fare favourably with other transition countries. In a few cases, the gap between the sluggish and early reformers even increased. In some other cases when the divide between *CIS 6 + Georgia* and the most advanced countries decreased, the magnitude of this decrease is not substantial.

Two key efficiency indicators, bank lending-deposit spread and net interest margin, have declined in *CIS 6 + Georgia* substantially. However, both indicators remain the highest in the region. The two most important components of these indicators are deposit and interest rates. The analysis of real deposit rates adjusted for inflation and outliers demonstrates that the difference between *CIS 6 + Georgia* and the other groups of transition economies is not as significant as it used to be a decade ago. Further estimations of the efficiency coefficients show that one of the main sources of higher spreads among the transition countries remains competition level, measured by the ratios of bank assets to GDP. Inflation, real interest rates, and bank costs also impact the profitability ratios. Since inflation and real interest rates in *CIS 6 + Georgia* are higher compared to other groups, it appears that banks in *CIS 6 + Georgia* are successful in transferring the costs of higher prices and interest rates to their clients. For banks it could be difficult to raise interest rates without a significant degree of market power, as measured by bank concentration ratios. These ratios are higher for *CIS 6 + Georgia*. Furthermore, high bank equity to assets ratio appears to be a symptom of excessive regulatory burden, which stifles the

banking sector of *CIS 6 + Georgia*. However, banks in *CIS 6 + Georgia* seem to be able to pass these regulatory costs to their customers in the form of higher interest rate loans as well. Banks in *CIS 6 + Georgia* also enjoy higher return on assets and equity compared to *CEE + Baltics* and *SEE*, whereas the bank cost-to-income ratio appears to be comparable with that of other regions. This rare combination may have been possible due to the existence of market power. However, the recent declines in the spreads, net interest rate margins, return on assets and equity might be a sign of deterioration in the market power of banks in *CIS 6 + Georgia*. While this could be good news for borrowers, entrepreneurs, and credit expansion, possible negative consequences for the banking sector, in the form of higher systemic risks, need also be assessed and addressed by regulatory and supervisory bodies in respective countries.

Stock markets continue to play a negligible role in the channelling of funds in all transition countries. Their significance in *CIS 6 + Georgia* is especially small. It should be noted that the size of the market in the majority of transition countries may be prohibitively small rendering their further development a daunting task (Bonin and Wachtel 2003).

A number of indicators measuring stability of the banking system in transition countries were analysed in the present research. In *CIS 6 + Georgia*, NPLs' share in total loans was falling from the end of the 1990s till 2010. These ratios became comparable with those in *CEE + Baltics* and lower than the figures for the other two regions – *Other CIS* and *SEE*. Banks in *CIS 6 + Georgia* also have a higher share of liquid assets to deposits and short term funding, which, coupled with higher concentration ratios, makes these banking systems more stable.

Indexes measuring institutional quality exhibit contradicting characteristics of the institutional progress of transition countries in Central and Eastern Europe and the former Soviet Union. *CIS 6 + Georgia* achieved a remarkable progress in the depth of credit information index and are now one of the leading groups judged by this coefficient. However, the performance of *CIS 6 + Georgia* in terms of strengthening legal rights of borrowers and lenders is mixed. A majority of the countries in this group have good scores, and Georgia became the most improved country in this parameter. In contrast, Tajikistan and Uzbekistan are the two countries with the worst index ratings. As to the governance indicators, Georgia became the only country among the *CIS 6 + Georgia* group, which improved its governance ratings. The divide between *CIS 6 + Georgia* and the other groups of countries in transition is still wide and no significant signs of bridging are in sight.

Overall, despite some encouraging signs of positive changes with respect to curbing excessive market powers of the sector, improvements in stability indicators, and certain limited progress in institutional reforms, the gap in development levels of the banking sectors of *CIS 6 + Georgia* and most other advanced transition countries is still significant. This might have had an impact on productive utilization of potential benefits offered by remittances. Policy targets in the area of further reforms in the banking sector should be aimed at further limiting market powers of banks balanced against maintaining safe concentration levels in the banking sector, improving credit risk evaluation systems along with transparency and quality of accounting systems, and further institutional reforms.

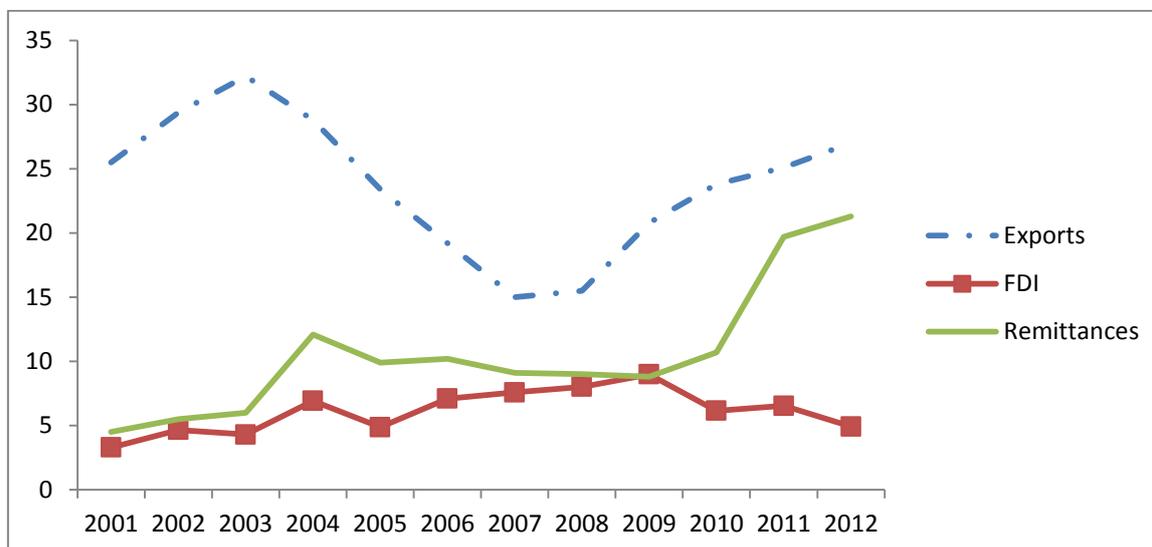
## **Chapter 6. Remittances and Financial Development in Transition Economies of the Former Communist Bloc**

### **6.1 Introduction**

The enormous scale and remarkable growth of remittances to developing and transition economies in the last decade have attracted the attention of policy-makers and scholars. Ten years ago recorded remittances to the developing world stood at US\$145 billion (World Bank 2006). By 2013, the inflow of recorded remittances to developing countries had almost tripled and reached US\$404 billion. Furthermore, growth in recorded remittance flows to developing countries is expected to accelerate to an annual average of 8.4 per cent over the next three years, raising flows to US\$436 billion in 2014, and US\$516 billion in 2016 (World Bank 2014d). In some developing countries, recorded remittances now exceed foreign direct investment (FDI) and compete with exports. This is despite the fact that a sizeable part of total remittances is not recorded (Freund and Spatafora 2008).

A broad region where remittances have been growing and having a significant impact on local economies is Central & Eastern Europe, and the former Soviet Union. Remittance flows to the developing countries of Europe and Central Asia reached US\$43 billion in 2013 (World Bank 2014d) and accounted for about 10 per cent of the total remittance flows to the developing countries. Although the growth rate of remittances in the region has been uneven in recent years, in 2013 the developing countries of Europe and Central Asia posted a rate of growth in remittances of 13 per cent (World Bank 2014d). In many of these transition economies of Europe and Asia, remittances

constitute a significant part of GDP, as evidenced by Figure 6.1 below, and may have had a noticeable impact on various aspects of economic development.



**Figure 6.1 Inflows to Central & Eastern Europe, Mongolia, and the former Soviet Union (per cent of GDP), 2001-2012**

Migration and remittances have been an important part of the transition process in Central and Eastern Europe. Growth in migration and remittances in the former Soviet Union in recent years has been especially spectacular. Cross border transfers, only from Russia to ten countries of the Commonwealth of Independent States (CIS) and Georgia, reached US\$21.6 billion in 2013. In 2007, the transfers to this group of countries amounted to US\$8.6 billion.<sup>30</sup> By the end of the first decade of the 21<sup>st</sup> century, Russia had become one of the top 5 remittance sending countries (World Bank 2011) in the world, and some remittance corridors from Russia to former Soviet countries are among the largest “south-south” remittance corridors (Ratha 2006).

<sup>30</sup> Russia is the main source of remittances for CIS countries and Georgia, accounting for about 60-90% of the total remittances. See for details Jakhongir Kakhkharov and Alexandr Akimov, 'Estimating Remittances in the Former Soviet Union: Methodological Complexities and Potential Solutions', in Alexandr Akimov (ed.), *Discussion Paper Series in Finance, Griffith University* (2014-03; Australia: Griffith University, 2014).

The direct impact of remittances in the former Soviet republics has been on easing budget constraints of households (Ahunov 2015). Remittances also have facilitated the development of the financial sector in the former Soviet Union by prompting the development of sophisticated money transfer operators. Opening money transfer markets for foreign and regional players has fostered healthy competition, and the cross-border money transfer fees are among the lowest in the region. However, according to some expert rough estimates, the contribution of remittances to the development of the national economies was less notable (Marat 2009). Anecdotal evidence suggests that opening a small retail outlet, buying an apartment and renting it out, opening small internet cafes, restaurants, and buying cars and using them as taxi cabs are the usual limits of investment for migrants in the former Soviet Union. On the surface, it seems that local industries, big business, and infrastructure receive little benefit. Nevertheless, even if remittances do not have a direct effect on borrowing and lending, they may have an indirect effect on credit expansion. For instance, a family may buy a car or other assets using proceeds from remittances and use the car as collateral to borrow money.

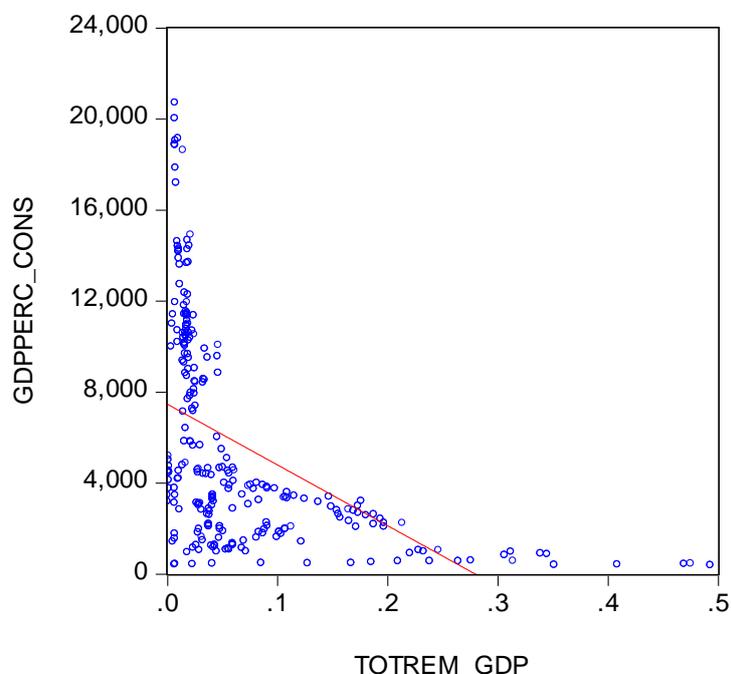
The main aim of this chapter is to empirically estimate the impact of remittances on the financial development of Central and Eastern Europe, Mongolia, and post-Soviet countries. This chapter investigates the link between remittances and financial development by employing three empirical methods. The range of panel data techniques employed to undertake the task suggests that remittances have a significant positive impact on financial development. This impact is especially strong in countries with a high share of remittances to GDP ratio.

The rest of the chapter is organized as follows. Section 2 describes the institutional framework for modelling the impact of remittances on the financial system of the remittance recipient economies in Central and Eastern Europe and the former Soviet Union. Section 3 reviews data and methodology used. Section 4 presents and discusses the results of the study. Finally, section 5 draws conclusions based on the empirical findings.

## **6.2 Remittances and the financial system in transition countries of Central and Eastern Europe and the former Soviet Union.**

The significance of remittances for the individual countries in the region varies across the transition countries. Moreover, it is discernibly different for the two major subgroups in the region: CIS (including Georgia) and the rest of the transition economies. According to the World Bank remittance database, the smallest share of remittances to GDP in 2013 was observed in Kazakhstan (0.1 per cent), whereas the largest share is in Tajikistan – 52 per cent. In Central and Eastern Europe, the Czech Republic's share of remittances in GDP was the smallest, with only 1 per cent, and Bosnia-Herzegovina had the highest share of remittances in GDP with 10.8 per cent (World Bank 2014c). Examining remittance inflows in Central and Eastern Europe and the former Soviet Union, Shelburne and Palacin (2008) came to the conclusion that the share of remittances as a percentage of GDP is mainly associated with the per capita income of the country. In other words, poorer countries have greater remittance inflow compared to richer ones. The scatter plot in Figure 6.2 below depicts the relationship between GDP per capita in constant prices of 2005

(GDPPER\_CONS) on the vertical axis, and the ratio of remittances to GDP (TOTREM\_GDP) on the horizontal axis, in Central and Eastern Europe, Mongolia, and former Soviet Union; each dot represents a country in a certain year.



**Figure 6.2 Scatter plot of a relationship between GDP per capita in constant prices (GDPPER\_CONS and the ratio of remittances to GDP (TOTREM\_GDP), 1995-2012**

In this chapter the entire sample and one subsample are analysed separately. Averages for remittance to GDP ratio are presented in Table 6.1 below

**Table 6.1 Average share of remittances in GDP, 1996-2013**

<b>Subgroups Indicators</b>	<b>Central and Eastern Europe, former Soviet Union, and Mongolia (complete sample)</b>	<b>The CIS and Georgia (excluding Uzbekistan and Turkmenistan)</b>
Mean	6.66%	9.76%
Median	3.26%	4.79%

Source: Author's calculation based on data from IFS of IMF and WDI of World Bank.

A brief examination of the World Bank database of bilateral remittances (World Bank 2013b) tends to show that sources of remittances for the two

regions are also quite different. While Russia is by far the most important remittance sending country for the former Soviet Union, for the rest of the transition countries in the sample, the sources of remittances in most of the countries are quite diverse. The main sources of remittances for Central and Eastern Europe and Mongolia are Germany, USA, UK, Greece, Italy, Canada, Australia, Spain, and Turkey.

There are differences in the pattern of transferring money to their home countries among the various groups of migrant workers. Transfers through money transfer operators (MTOs), such as Western Union, MoneyGram, and especially the regional market players in the money transfer market, have become dominant, most convenient, and the cheapest transfer mode in the CIS countries (Kakhkharov and Akimov 2014; Shelburne and Palacin 2008). In Central and Eastern Europe, the use of other channels for transferring funds through banks, and particularly informal transfers, seem to be more popular, accounting for up to 50 per cent of total transfers (de Luna-Martinez et al. 2006; Raul Hernandez-Coss 2006; Raul Hernandez-Coss et al. 2006; Mansoor and Quillin 2006).

Although economists disagree on the role of finance in economic growth, the prevailing opinion is that financial development positively influences economic growth. There is a preponderance of empirical evidence which suggests that both financial intermediaries and markets have a positive link to economic growth, and that reverse causality alone is not driving this relationship (Levine 2005). Recent empirical research has found evidence of this positive link in the case of transition countries (Akimov et al. 2009).

A decade ago, Berglof and Bolton (2002) suggested a growth in 'Great Divide' between advanced transition countries and those lagging behind. Looking at the roots of this divide, Dow et al. (2008) note that in the majority of the former Soviet economies, the trust of the population in the banking system is still weak and that most of these countries remain highly cash-based economies. Seven of the eight economies which are the main recipients of remittances from Russia also constitute the so called 'CIS-7'<sup>31</sup>. De Nicoló et al. (2003) attempted to analyse and evaluate the roots of financial underdevelopment in these countries compared with the more advanced transition economies of Central and Eastern Europe and Baltic states. These authors find the roots of the backwardness of the financial system of CIS-7 in the weaknesses of their institutional infrastructure which results in low depositor trust and a high level of credit risk. Underdevelopment of the financial system may have a decisive impact on the ability of the financial system of CIS-7 to utilize the opportunities for development of the financial system created by a windfall of remittances in these countries.

Empirical research on the link between remittances and financial development finds ample evidence of the presence of a relationship between these two. Although there are some reservations regarding the favourable impact of remittances on economic growth (A. Barajas et al. 2009; Chami et al. 2003), many researchers have found evidence of the positive relationship between remittances and financial development in cross-country studies (Aggarwal et al. 2011; Gupta et al. 2009). Some researchers have found

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<sup>31</sup> These are the countries that lag behind in their market reforms. The term CIS-7 was officially forged at a conference in London in 2002 and aimed at promoting poverty reduction, economic growth, and debt sustainability among low-income countries of the CIS: Armenia, Azerbaijan, Georgia, Kyrgyz Republic, Moldova, Tajikistan, and Uzbekistan. In the previous Chapter this group of countries was referred to as *CIS 6 + Georgia*.

empirical evidence of economic growth being facilitated by the positive impact of remittances in combination with well-developed financial systems (Bettin and Zazzaro 2012; Mundaca 2009; Noman and Uddin 2011). In terms of geographical and regional focus, these studies cover Latin America, Sub-Saharan Africa, and Asia. However, there are no known empirical studies which analyse the link between remittances and financial development in the economies of the former Eastern bloc.

The financial systems of the countries under investigation in this study have developed from one common ground: the ruins of the communist system where the monobank financial system was prevalent. However, unlike other post-communist countries of Central and Eastern Europe, the post-Soviet republics, with the exception of Baltic states, had undergone longer exposure to the monobank system, which resulted in much worse initial conditions for the beginning of financial reforms (Akimov and Dollery 2007; Ruziev and Ghosh 2009). Although most of the post-Soviet economies have gradually embraced the reforms in the financial sector, the degree of success differs from country to country. Tables 6.2 and 6.3 below illustrate the differences in the financial sector development of transition economies.

**Table 6.2 Financial sector transition indicators of selected former Soviet transition countries in 2012**

<b>Countries/financial sectors</b>	<b>Banking</b>	<b>Insurance and other financial services</b>	<b>MSME finance</b>	<b>Private Equity</b>	<b>Capital markets</b>
Armenia	2+	2	2+	1	2
Azerbaijan	2	2	2	1	2-
Georgia	3-	2	3-	1	2-
Kyrgyzstan	2	2-	2-	1	2-
Moldova	2+	2+	2	2-	2+
Russia	3-	3-	2	2+	4-
Tajikistan	2	2-	1	1	1
Ukraine	3-	2+	2	2	3-
Uzbekistan	1	2	1	1	1

Source: Transition Report (EBRD 2012)

Note: The transition indicators range from 1 to 4+, with 1 representing little or no change from a rigid centrally planned economy, and 4+ representing the standards of an industrialised market economy.

**Table 6.3 Financial sector transition indicators of selected Central and Eastern European transition countries in 2012**

<b>Countries/financial sectors</b>	<b>Banking</b>	<b>Insurance and other financial services</b>	<b>MSME finance</b>	<b>Private Equity</b>	<b>Capital markets</b>
Albania	3-	2	2+	1	2-
Bulgaria	3	3+	3-	3-	3
Hungary	3+	3	3	3	3+
Poland	4-	4-	3	3+	4
Romania	3	3+	3-	3-	3
Slovak Republic	4-	3+	3+	2+	3
Slovenia	3	3	3	3-	3

Source: Transition Report (EBRD 2012)

Note: The transition indicators range from 1 to 4+, with 1 representing little or no change from a rigid centrally planned economy, and 4+ representing the standards of an industrialised market economy.

Scoring lower for transition indicators, countries of the former Soviet Union enjoy a greater level of remittances compared to other countries from the communist camp. Whether this higher level of remittances translates into positive changes in financial development is the main research question of the present chapter.

### **6.3 Data and Methodology**

The data sample for this study consists of 27 countries and the period covered is from 1996 to 2013. The main data sources for this study are the Balance of Payments statistics (IMF), International Financial Statistics (IMF), and World Development Indicators (World Bank).

The Balance of Payments statistics are reportedly plagued with inconsistencies and errors. Therefore, the data from the Central Bank of Russia on bilateral remittances from Russia to the CIS countries and Georgia via MTOs and postal services are used for the robustness check of the baseline fixed effects estimations. Surveys indicate that Russia is the main source of remittances for these countries, and money transfers from Russia via MTOs constitute 70-95 per cent of remittances through financial intermediaries (Brown et al. 2008; Ibragimova et al. 2008; Kakhkharov and Akimov 2014; Tumasyan et al. 2008). The data on annual remittances from Russia covers the period from 2006 to 2012. This study also uses the bilateral remittance data for the period from 2000 to 2005, which was estimated by Shelburne and Palacin (2007b) based on data for bilateral remittances in 2006 and the total amount of transfers from Russia to the CIS during this period. Russia is not included in these estimations, despite being not only one of the largest sources of remittances, but also one of the significant recipients of remittances, because the Russian unemployment rate is used in the instrumental variable estimations.

In addition, due to variance in the importance of remittances for economies and in order to track down the regional differences in the sample, different subsamples are used to identify the effects separately for these subsamples. In particular, estimations are run using IMF data on remittances for

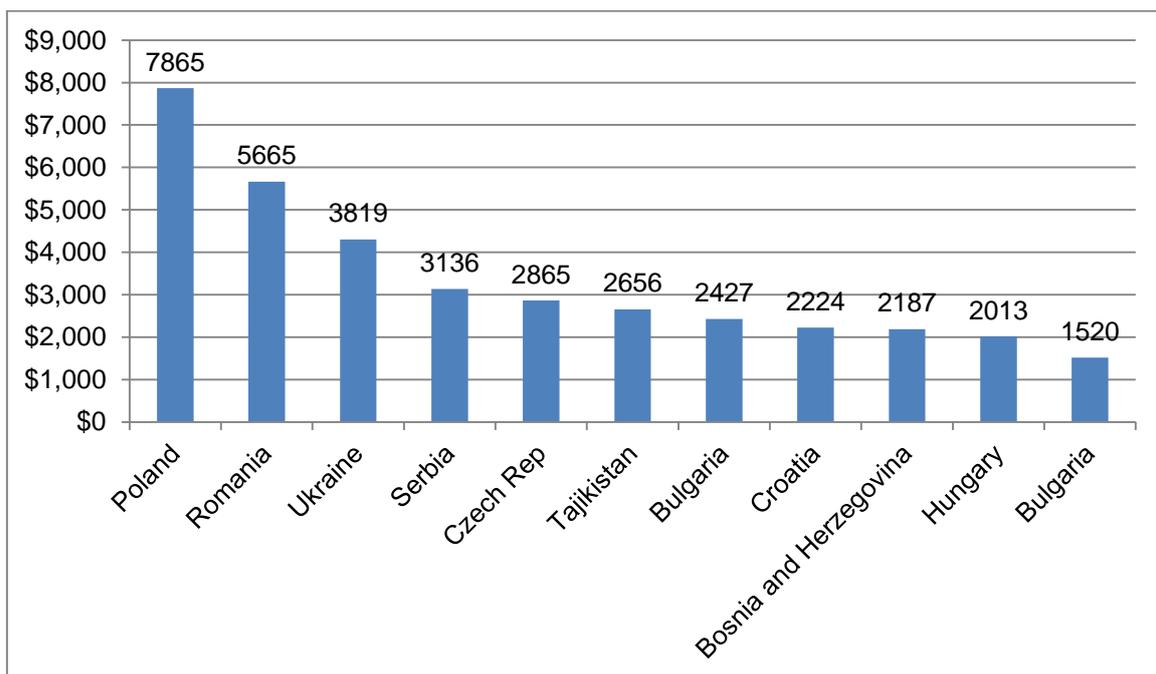
separate sub-samples consisting of the entire region, and the CIS (including Georgia).

The periods for each country in the whole sample and subsamples were selected so that no changes in recording and reporting the data took place during the period under investigation. Therefore, the data are consistent and there is no break in the analytical comparability of data. Assuming the quality of data gathering and reporting has been improving over time, the use of only recent time periods should also contribute to the reliability of the estimations of this research.

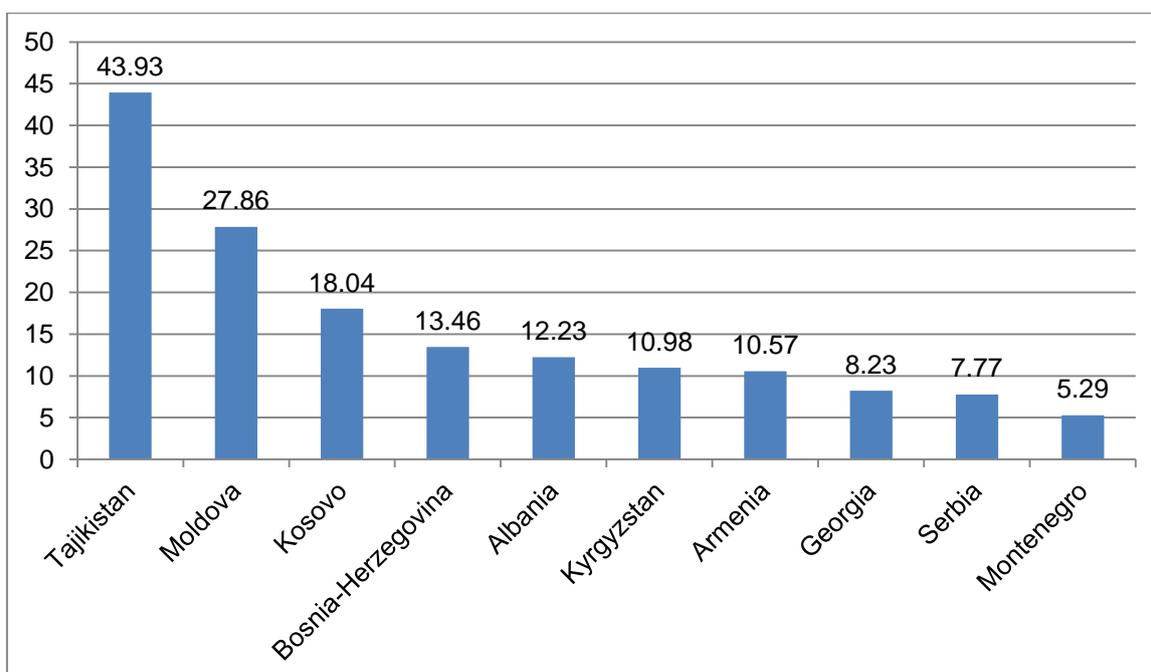
Financial development is measured in this study by a number of indicators which serve as a proxy for financial development. These include the ratios of transferable deposits to GDP, other deposits to GDP, total deposits to GDP, credit to GDP, private credit to GDP, and other claims to GDP. In addition, to follow the impact of remittances on monetary mass outside the financial system, the IFS indicator – money outside depository corporations – is also used as a dependent variable in the estimations. It is assumed that this indicator proxies the effect of remittances on informal economic activities. These indicators (with the exception of monetary mass outside the financial system) are various modifications of the standard measures of financial depth used by the literature on the role of financial development (King and Levine 1993b; M. W. Klein and Olivei 2008; Levine 1997). Data sources for these indicators are the International Financial Statistics (IMF) and the World Development Indicators (World Bank). The Appendix Table 2 provides definitions and sources for each of the variables related to financial development in the estimated regressions.

The availability of data varies from country to country, variable to variable. Therefore, the number of observations in estimations differs. For example, data for the ratio of credit to GDP is available for 27 countries, whereas data on the ratio of private credit to GDP is available for only 18 cross sections. The complete list of countries and years is given in Appendix Table 1.

The independent variable of main interest for this research is remittances. To control for the size of economies in the sample, the ratio of remittances to GDP is used. The data on remittances are from the Balance of Payments statistics of IMF. The leading countries of the region in terms of the total volume of remittances and relative importance of remittances for countries in the sample are shown in Figures 6.3 and 6.4 below.



**Figure 6.3 Ten top recipients of remittances in the entire sample (in billions of US\$), 1995-2012 (average for the period)**



**Figure 6.4 Ten top recipients of remittances in the entire sample (per cent of GDP average for the period on the vertical axis), 1995-2012**

It is notable that in absolute amounts, countries of Central and Eastern Europe are the top countries in the region. However, countries of the CIS and Georgia and smaller South European economies are at the top of the rankings when the significance of remittances expressed by proportion of remittances in GDP is taken into account.

Control variables to evaluate the impact of remittances on the financial system used in this study are the ratio of foreign direct investment (FDI) to GDP, and GDP level, both sourced from the World Bank WDI. The ratio of FDI to GDP is a good proxy to measure capital account openness known to influence financial development (M. W. Klein and Olivei 2008). Although it is a prevailing conclusion that financial development results in economic growth (Levine 2005), it is also true that financial sector development requires paying fixed costs which are sensitive to the size of the economy (Aggarwal et al. 2011). Therefore, GDP is included as a control variable. This study does not

use a dummy for dual foreign exchange regime, as none of the countries in the sample had a dual foreign exchange regime in the observation period.

A number of other variables which are found to have an impact on financial development are also used as control variables. These include inflation measured by the GDP deflator and openness of the economy measured by the ratio of exports to GDP. In addition, estimations were also made using other World Bank indicators measuring credit information sharing, such as the depth of credit information index, index of legal rights of borrowers, public registry and private credit bureau coverage of borrowers, as well as the EBRD index of finance/banking sector development. However, these indicators are available for only a limited period and decrease the size of the sample significantly. Therefore, they are omitted in this chapter.

Descriptive statistics of the indicators used in the model are presented in Table 6.4 below.

**Table 6.4 Descriptive Statistics**

<b>Variable</b>	<b>Observations</b>	<b>Mean</b>	<b>Median</b>	<b>Standard deviation</b>
Credit to GDP	288	45.31	43.17	24.43
Other claims to GDP	277	43.08	40.94	23.46
Private sector credit to GDP	189	33.27	33.82	18.09
Transferrable deposits to GDP	289	14.26	12.14	8.47
Other deposits to GDP	279	22.53	21.89	12.98
Total deposits to GDP	289	36.63	37.90	16.94
Money outside depository corporations to GDP	255	7.99	7	3.98
Remittances to GDP	273	6.63	3.26	8.62
GDP per capita (in thousands US\$)	324	5.035	3.376	4.596
GDP (in constant prices of 2005 in billions of US\$)	297	9.8	9.8	1.41
Inflation	297	13.21	4.89	65.72
Exports to GDP (%)	287	47.33	44.88	17.22
Foreign Direct investment (FDI) inflows to GDP (%)	288	7.16	5.13	8.15

The average ratio of all credit related ratios for the region is higher than the one reported for the world (25.5) by Aggarwal et al. (2011). The total deposits to GDP ratio also exceed a similar indicator for the world (31.4). This could be an indicator of a higher than average financial development in the region. However, standard deviation seems to be significant allowing for diversity across countries in the sample.

Table 6.5 below presents a correlation matrix of the sample

**Table 6.5 Correlation matrix**

Variables	Credit to GDP	Other claims to GDP	Private credit to GDP	Transferable deposits to GDP	Other deposits to GDP	Total deposits to GDP	Money outside depository corporations	Total remittances to GDP	Remittances from Russia to GDP	GDP in constant prices	GDP per capita	Inflation	Exports to GDP	FDI inflows to GDP
Credit to GDP	1													
Other claims to GDP	0.93	1												
Private credit to GDP	0.94	0.98	1											
Transferable deposits to GDP	0.82	0.76	0.78	1										
Other deposits to GDP	0.83	0.86	0.86	0.86	1									
Total deposits to GDP	0.85	0.86	0.86	0.93	0.99	1								
Money outside depository corporations	0.47	0.33	0.40	0.37	0.42	0.42	1							
Total remittances to GDP	-0.13	-0.15	-0.11	-0.14	-0.02	-0.06	0.26	1						
Remittances from Russia to GDP	-0.26	-0.24	-0.20	-0.30	-0.18	-0.22	0.17	0.96	1					
GDP in constant prices	0.69	0.70	0.68	0.54	0.57	0.58	0.25	-0.51	-0.48	1				
GDP per capita	0.28	0.47	0.37	0.26	0.32	0.31	-0.37	-0.62	-0.57	0.55	1			
Inflation	0.17	0.32	0.18	0.11	0.26	0.23	-0.15	-0.08	-0.06	0.31	0.39	1		
Exports to GDP	0.26	0.34	0.22	0.32	0.36	0.36	-0.04	-0.53	-0.59	0.51	0.57	0.53	1	
FDI inflows to GDP	-0.20	-0.21	-0.18	-0.16	-0.17	-0.17	-0.16	-0.17	-0.17	-0.14	-0.08	-0.07	0.09	1

As expected, there is a significant degree of correlation among the dependent variables of the model. Among other correlations it is notable that data for remittances from Russia via MTO to the CIS and Georgia are strongly correlated with data for remittances from the Balance of Payments statistics.

The empirical approach adopted in this chapter closely follows the framework employed by Aggarwal et al. (2011). As in many macroeconomic models, endogeneity is an issue in studying the impact of remittances on

financial development. In fact, in the case of remittances and financial development, there is an array of issues related to endogeneity: measurement error, reverse causality, and omitted variables. Accounts related to remittances in the Balance of Payment statistics are especially prone to measurement error (Alfieri et al. 2006).<sup>32</sup> As in any complex phenomenon, there could be a number of factors affecting remittances and financial development, which are impossible and/or difficult to measure, or are simply not measured. For example, strength of intra-family ties, norms, traditions, habits, informal economic activities, and social networks may play a certain role in shaping the patterns and amounts of remittance flows, and impact financial development in different ways for different countries. This may result in an empirical econometric model prone to omitted variable bias. Finally, reverse causality is also a factor because improvements in the financial infrastructure as a result of financial development stimulated by structural reforms in transition countries, as well as lower transfer fees charged by banks and MTOs, may result in increased remittance flows through these recorded official channels, leaving the total remittances flow, which includes unofficial channels as well, relatively unchanged.

To address these endogeneity biases, a range of econometric techniques is used in this chapter. In the first empirical approach, this study applies the fixed effects panel data analysis techniques. When using fixed effects, it is assumed that some characteristics within the countries may impact or bias the outcome variables, and there is a need to control for this. Using fixed effects, the effect of time-invariant characteristics is removed so that the net effect of the predictors on the outcome variable can be assessed. Another

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<sup>32</sup> Issues related to measurement of remittances in the example of the former Soviet Union are discussed in detail in Kakhkharov and Akimov, 'Estimating Remittances in the Former Soviet Union: Methodological Complexities and Potential Solutions'.

important assumption of the fixed effects model is that those time-invariant characteristics are unique to the country. Each country is different; therefore, the country's error term and the constant should not be correlated with the others. The general equation for the fixed effects model used to estimate the impact of remittances on financial development is the following:

$$FD_{i,t} = \beta_1 Rem_{i,t-1} + \beta_2 X_{i,t-1} + \alpha_i + u_{i,t} \quad (1)$$

where FD is a proxy for financial development,  $i$  identifies the cross-section (country),  $t$  the time period,  $Rem$  is the remittances,  $X$  is the vector of control variables,  $\alpha_i$  captures the country-specific effect, and  $u_{i,t}$  is the error term. The term 'fixed' is due to the fact that the intercept does not change over time and it is constant for each cross-sectional unit. The fixed-effects model is useful since it is easy to apply and allows the unobservable individual (cross-sectional) effects to be correlated with the given variables. On the down side, this model may result in the loss of degrees of freedom when there are a significant number of cross-sectional units. This is known as the incidental parameters problem.

A major area of concern in studying the impact of remittances on financial development is the presence of reverse causality. To address this issue, in the second stage, the research employs dynamic system Generalized Method of Moments (GMM) regressions adopted from Arellano and Bover (1995), using lagged explanatory variables as instruments. The following equation is estimated in the dynamic system GMM framework:

$$FD_{i,t} = \gamma FD_{i,t-1} + \beta_1 Rem_{i,t-1} + \beta_2 X_{i,t-1} + \alpha_i + u_{i,t} \quad (2)$$

The present study uses instruments to tackle the potential endogeneity of the explanatory variables (including remittances), and to address the fact that the error term is correlated with the lagged dependent variables. Therefore, lagged (two and higher) values of the difference of regressors are used as instruments to estimate the equation (2).

While employing dynamic system GMM can ease concerns about endogeneity, the method's results may be biased due to measurement error. If the independent variable of main interest and other explanatory variables are measured with error, it is quite possible that the lagged values of these explanatory variables suffer from the same measurement error. Therefore, in the final third stage, the instrumental variable estimations (IV) are conducted to address the issues related to measurement error, omitted variables, and reverse causality simultaneously. The study adopts one instrumental variable from Aggarwal et al. (2011) related to macroeconomic conditions affecting remittances in the main remittance sending countries. This instrument is the unemployment rate in the remittance-sending countries. This instrumental variable is related to economic conditions in the main remittance sending countries, and is deemed to be relatively more exogenous to financial development in remittance receiving countries compared to remittances. The unemployment level in host countries has a strong effect on remittances. High unemployment lowers the amount of remittances to migrant sending countries because migrants find it more difficult to find jobs earning income to send home.

In the IV regressions of this study, the unemployment rate in Russia is used as the instrumental variable for remittances to the CIS and Georgia, because Russia is responsible for 60-90 per cent of remittances to these

countries. For Central and Eastern Europe and Mongolia, the study constructs IVs by multiplying, respectively, the GDP per capita in the top five remittance-sending countries by the share of remittances sent by each of these five countries. These top remittance-sending countries are identified based on the bilateral remittance matrix created by the World Bank (2013b). The World Bank estimates these bilateral flows based on the stock of migrants in each of the migrant receiving countries.

#### **6.4 Results and Discussion**

Tables 6.6, 6.7, and 6.8, present fixed effects estimations for different subsamples. Table 6.6 reports the results of regressions estimating the impact of remittances for the entire sample with country and time effects for the different variations of credit to GDP (total credit to GDP, other claims to GDP, and private credit to GDP), and the share of different types of deposits to GDP (transferable deposits to GDP, other deposits to GDP, and total deposits to GDP). In addition, the effect of the independent variables on the money outside depository corporations is reported in the last column. Table 6.7 depicts estimates for the same variables but taking a smaller sample consisting of only CIS and Georgia. The CIS and Georgia are deemed to be quite distinct from the rest of the region in terms of their economic development and their higher dependence on remittances compared to the other subregions in the sample. Table 6.8 includes the estimations made using remittances only from Russia to the CIS and Georgia. Proxy for remittances from Russia is the bilateral remittance data through MTOs and postal services as reported by the Central Bank of Russia. Control variables in all regressions include GDP per capita in constant 2005 prices, the GDP level in constant 2005 prices, the ratios of

exports to GDP, and the share of foreign direct investment (FDI) inflows to GDP. All estimations are run by lagging independent variables one period to partially address the issue of reverse causality.

**Table 6.6 Central and Eastern Europe, former Soviet Union, and Mongolia**

Fixed effects estimations. Estimated equation is  $FD_{i,t} = \beta_1 Rem_{i,t-1} + \beta_2 X_{i,t-1} + \alpha_i + u_{i,t}$  where  $i$  identifies the cross-section (country);  $t$  is the time period;  $Rem$  is the remittances measured as a percentage in GDP;  $X$  is the vector of control variables including **GDP per capita**, measured in constant dollars, **GDP** stated in constant dollars, **Inflation**, defined as the % change in the GDP deflator, **Exports to GDP** measured as the share of total exports in GDP, **FDI inflows to GDP**, foreign direct investment as % of GDP.  $\alpha_i$  captures the country-specific effects and  $u_{i,t}$  is the error term. FD refers to financial development measured by several indicators, such as the % of credit to GDP, % of other claims to GDP, % of private credit to GDP, % of transferable deposits to GDP, other deposits to GDP, and total deposits to GDP. The impact of remittances on money outside depository corporations also estimated using the model. t-statistics are in brackets. \*, \*\*, and \*\*\* denote significance at the 10, 5, and 1% levels, respectively.

Variables	Credit to GDP	Other claims to GDP	Private credit to GDP	Transferable deposits to GDP	Other deposits to GDP	Total deposits to GDP	Money outside depository corporations to GDP
Total remittances to GDP	0.29 [1.38]	0.40*** [2.73]	0.68*** [3.77]	0.22** [2.53]	0.02 [0.51]	0.24*** [2.65]	0.13*** [2.99]
GDP per capita	10.38*** [7.72]	10.64*** [9.16]	13.67*** [4.17]	0.85 [1.22]	4.11*** [8.85]	4.94*** [4.81]	0.77*** [2.71]
GDP in constant US\$ 2005	0.0001 [1.45]	0.0003 [0.45]	-0.0007 [0.18]	0.0008*** [2.92]	-0.0004* [1.86]	0.00004 [0.94]	-0.0002 [0.1]
Inflation	0.02 [0.24]	0.02 [0.34]	-0.08 [1.02]	-0.12*** [5.57]	-0.04* [1.86]	-0.17*** [6.34]	-0.03** [2.34]
Exports to GDP	-0.29** [2.10]	-0.26** [2.05]	-0.24*** [2.65]	0.13** [2.14]	0.002 [0.04]	0.12 [1.31]	0.03** [2.13]
FDI inflows to GDP	0.13* [1.84]	0.22*** [3.16]	0.39*** [6.36]	0.01 [0.50]	0.05** [2.03]	0.06 [1.58]	-0.07*** [3.37]
Constant	-3.95 [0.64]	-8.4 [1.93]	-4.66 [0.79]	-0.62 [0.19]	2.62 [1.08]	2.05 [0.41]	1.89** [1.98]
Observations	248	238	159	249	240	249	224
Number of countries	27	26	18	27	26	27	24
R-squared	0.89	0.88	0.85	0.90	0.91	0.92	0.82

**Table 6.7 Fixed effects estimations for CIS and Georgia**

Variables	Credit to GDP	Other claims to GDP	Private credit to GDP	Transferable deposits to GDP	Other deposits to GDP	Total deposits to GDP	Money outside depository corporations to GDP
Total remittances to GDP	1.02*** [3.01]	1.11*** [5.01]	1.15*** [5.08]	0.30*** [3.27]	0.37*** [3.83]	0.7*** [6.81]	0.05 [0.87]
GDP per capita	4.83* [1.83]	12.12*** [3.18]	9.8*** [3.12]	0.93** [2.11]	4.45*** [3.24]	5.34*** [3.47]	2.49*** [3.06]
GDP in constant US\$ 2005	0.007** [2.37]	0.001 [0.29]	0.0009 [0.23]	0.0005 [1.17]	0.0003 [0.25]	0.0001 [0.77]	-0.00009 [-1.19]
Inflation	0.17*** [3.02]	0.12*** [2.99]	0.04 [0.61]	-0.08*** [3.47]	0.004 [0.16]	-0.06*** [2.41]	-0.004 [-0.97]
Exports to GDP	-0.65*** [-3.7]	-0.61*** [-4.67]	-0.58*** [-4.58]	0.04 [1.20]	-0.09 [-1.55]	-0.07 [1.16]	-0.04 [-0.9]
FDI inflows to GDP	0.07 [0.72]	0.15 [1.58]	0.13 [1.3]	0.07** [2.89]	0.08* [1.88]	0.14** [2.59]	-0.13** [-2.17]
Constant	18.61** [2.57]	15.57** [2.25]	16.95** [2.13]	1.21 [0.7]	3.17 [1.28]	5.75 [2]	7.1** [2.06]
Observations	91	91	86	87	91	91	79
Number of countries	9	9	9	9	9	9	8
R-squared	0.86	0.88	0.82	0.81	0.91	0.89	0.88

**Table 6.8 Fixed effects estimations for CIS and Georgia using remittances from Russia as an independent variable**

<b>Variables</b>	Credit to GDP	Other claims to GDP	Private credit to GDP	Transferable deposits to GDP	Other deposits to GDP	Total deposits to GDP	Money outside depository corporations to GDP
Remittances from Russia to GDP	0.50 [1.61]	0.55** [2.47]	0.63** [2.77]	0.34*** [4.79]	0.18 [1.51]	0.52*** [3.67]	0.14** [2.35]
GDP per capita	6.13* [1.77]	13.67*** [3.01]	11.21** [2.79]	0.79 [1.43]	5.03*** [3.41]	5.82*** [3.07]	2.27*** [2.8]
GDP in constant US\$ 2005	0.0007** [2.06]	0.001 [0.21]	0.0008 [0.19]	0.001 [1.27]	0.0001 [0.12]	0.0008 [0.53]	-0.0003 [0.64]
Inflation	0.06 [0.81]	0.13* [1.73]	0.02 [0.19]	-0.06*** [3.8]	0.01 [0.35]	-0.05 [1.17]	-0.002 [0.06]
Exports to GDP	-0.47** [2.41]	0.58*** [3.86]	-0.51*** [4.03]	0.03 [1.1]	-0.09 [1.19]	-0.06 [0.64]	-0.04 [0.86]
FDI inflows to GDP	0.17** [2.01]	0.22** [2.27]	0.22** [2.25]	0.05** [2.16]	0.11** [2.17]	0.17** [2.76]	-0.14** [2.28]
Constant	13.18* [1.8]	17.51** [2.58]	16.88** [2.4]	1.29 [0.79]	4.39** [1.32]	5.69 [1.51]	6.66** [1.95]
Observations	86	86	86	86	86	86	79
Number of countries	9	9	9	9	9	9	8
R-squared	0.83	0.83	0.78	0.83	0.89	0.88	0.89

An absolute majority of estimations indicates that remittances have a strong and positive impact on various measures of financial development, but the impact is especially strong and significant in the case of the sample which includes the CIS and Georgia. Particularly notable is the fact that this effect of remittances in the CIS and Georgia stays robust to using remittance data from IMF Balance of Payment Statistics and data from the Central Bank of Russia on bilateral remittances from Russia to the CIS and Georgia via MTOs and postal services. This is despite the decrease in the size of this subsample which constitutes only one third of the original sample.

In general, the effect of remittances on credit related indicators is stronger than that on deposit related indicators of financial development. The share of private sector credit in GDP seems to be the most positively affected by remittances. The coefficient measuring the impact of remittances on private sector ranges from 0.59 to 1.15 depending on the sample specification and remittance data source. The impact of remittances on total deposits is also significant, ranging in strength from 0.24 to 0.7.

However, not all of the control variables in the estimations have the expected signs for coefficients. As expected, the estimations show that per capita GDP is positively associated with indicators of financial development. In general, the size of a country's economy in this sample measured by GDP in constant prices and the share of FDI inflows to GDP indicating capital account openness are also positively associated with financial development, but not as firmly as remittances and the level of income.

Nevertheless, the measure of current account openness represented by the share of exports to GDP, contrary to the literature on this subject, seems to have a negative correlation with financial development indicators, especially those related to credit. This could probably be explained by the fact that exports decrease the need for additional funding for enterprises engaged in exports by allowing the businesses to generate their own internal funds out of this export revenue stream. The higher cost of financing in Central and Eastern Europe and especially the CIS and Georgia, compared to the developed markets, also discourages the use of external funding from banks.

Economic literature predicts that inflation is negatively correlated with financial development. However, the present estimations indicate that the effect of inflation on credit related measures of financial development is positive in a few estimations for the CIS and Georgia. One possible explanation for this phenomenon is that in the CIS and Georgia, an administrative system of setting interest rates and credit allocation (as well as sticky interest rates) is still prevalent. In these conditions, borrowers have a greater incentive to borrow during the periods of high inflation to realize a gain when paying off their loans at lower real interest rates. In addition, if higher inflation results in devaluation of

the local currency in dollarized economies where transactions are indexed in hard currency, the borrowers also make an extraordinary foreign exchange gain by paying off debt in devalued local currency.

Remittances also seem to have a positive effect on money outside depository corporations, confirming the hypothesis that a considerable part of remittances feeds the underground economy as shown in chapter 4 of this dissertation, which is regarded as sizeable in most of the countries of the region.

Although lagging explanatory variables partially addresses the issue of reverse causality, it does not eliminate it completely. Therefore, the study also estimated the impact of remittances on financial development in the framework of dynamic system GMM estimations adopted from Arellano and Bover (1995). Multiple lags of the explanatory variables are employed as instruments for the variables in the baseline model. Dynamic system GMM estimations were run for the main sample consisting of all countries in the region, and for the subsample consisting of CIS and Georgia. In addition, GMM estimations were made with the data from the Russian Central Bank on bilateral remittances to the CIS and Georgia. However, only the results of the regression for the CIS and Georgia using the Balance of Payments data on remittances indicate some discernible degree of positive link between remittances and various measures of financial development. Other results are mixed and inconclusive. Dynamic system GMM estimations for the CIS and Georgia using data on remittances from the IMF are reported in Table 6.9 below.

**Table 6.9 GMM dynamic system estimations**

Results reported below are obtained by estimating the following system equations  $FD_{i,t-1} = b_1 (FD_{i,t-1} - FD_{i,t-2}) + b_2 (Rem_{i,t-1} - Rem_{i,t-2}) + b_3 (X_{i,t-1} - X_{i,t-2}) + u_{i,t} - u_{i,t-1}$ . FD is the financial development indicator measured as the % of credit to GDP, other claims to GDP, private credit to GDP, transferable deposits to GDP, other deposits to GDP, total deposits to GDP. *Rem* stands for remittances in GDP measured as the share of remittances as % of GDP. *X* is the matrix of controls inclusive of **GDP per capita** in constant US\$; **GDP** in constant US\$; **Inflation**, defined as the % change in the GDP deflator; **Exports to GDP** measured as percentage of exports in GDP; **FDI inflows to GDP**, foreign direct investment expressed as % of GDP. Z-statistics are in brackets. \*, \*\*, and \*\*\* denote significance at the 10, 5, and 1% level, respectively.

Variables	Credit to GDP	Other claims to GDP	Private credit to GDP	Transferable deposits to GDP	Other deposits to GDP	Total deposits to GDP	Money outside depository corporations
Remittances to GDP	0.15 [1.35]	0.23** [2.02]	0.48*** [2.78]	0.09 [1.5]	0.13** [2.04]	0.13 [1.18]	-0.41 [0.95]
GDP per capita	-0.03 [0.03]	0.2** [2.02]	0.03** [2.26]	-0.7* [1.81]	0.02 [0.53]	0.02 [0.03]	0.05 [1.32]
GDP in constant prices	0.0002*** [4.76]	0.0002*** [4.4]	0.0002* [4.65]	0.0003 [1.26]	0.0007*** [3.36]	0.0008** [2.38]	-0.002 [0.92]
Inflation	-0.08 [1.4]	-0.05 [0.29]	-0.15 [2.52]	-0.05** [2.31]	0.02 [1.22]	-0.08*** [2.6]	-0.01 [0.84]
Exports to GDP	-0.05 [0.64]	-0.21** [2.21]	0.11 [1.05]	0.06 [1.57]	0.02 [0.45]	0.08 [1.32]	0.008 [0.32]
FDI inflows to GDP	0.03 [0.31]	0.06 [0.79]	0.16 [1.64]	-0.005 [0.14]	0.03 [0.7]	0.03 [0.73]	-0.06 [1.79]
Lag 1 of Credit to GDP	1.03*** [10.71]						
Lag 2 of Credit to GDP	-0.22 [1.32]						
Lag 3 of Credit to GDP	-0.14 [1.12]						
Lag 1 of Other Claims to GDP		1.18*** [12.87]					
Lag 2 of Other Claims to GDP		-0.43*** [2.74]					
Lag 3 of Other Claims to GDP		-0.1 [0.94]					
Lag 1 of Private credit to GDP			1.14 [11.34]				
Lag 2 of Private Credit to GDP			-0.36** [2.05]				
Lag 3 of Private Credit to GDP			0.2 [1.7]				
Lag 1 of Transferable deposits to GDP				0.91*** [8.19]			
Lag 2 of transferable deposits to GDP				-0.1 [0.58]			
Lag 3 of transferable deposits to GDP				0.03 [0.16]			
Lag 1 of other deposits to GDP					0.9*** [9.59]		
Lag 2 of other deposits to GDP					0.02 [0.12]		
Lag 3 of other deposits to GDP					-0.24** [2.01]		
Lag 1 of total deposits to GDP						0.86*** [8.51]	
Lag 2 of total deposits to GDP						0.012 [0.08]	

Lag 3 of total deposits to GDP						-0.16 [1.22]	
Lag 1 of money outside depository corporations to GDP							0.97*** [8.29]
Lag 2 of money outside depository corporations to GDP							0.27 [1.42]
Lag 3 of money outside depository corporations to GDP							0.14 [0.79]
Constant	0.06 [1.56]	0.08** [2.41]	-0.009 [0.17]	0.03 [0.02]	0.002 [0.09]	0.004 [0.17]	0.01 [1.02]
Observations	65	65	59	65	65	65	55
Number of countries	9	9	9	9	9	9	8
Sargan test for over-identifying restrictions	61.58	56.15	49.81	54.04	71.65	64.47	40.15
P-value Sargan test	0.49	0.62	0.48	0.75	0.18	0.39	0.75

The dynamic system GMM estimations reported above confirm the positive link between remittances and indicators of financial development for only one subsample: the CIS and Georgia. This result is somewhat surprising, taking into account the fact that the CIS financial transition indicators trail behind those of the rest of the sample. However, it should be noted that the average ratio of remittances to GDP in this subsample is higher than in the entire sample and almost the same as in the subsample consisting of remittance dependent economies of the region. This probably indicates that the impact of remittances on financial development is more pronounced when the ratio of remittances to GDP is larger.

The next stage of the present study attempts to address an issue of endogeneity in a more elaborate way by using IV estimations. Although the lagging of the independent variables as well as dynamic system GMM estimations partially address the issues of endogeneity and reverse causality, the use of IV methodology addresses these problems in a more comprehensive and

systemic way. IV estimations could potentially tackle the measurement error bias which is considered to be endemic in remittance related data. The current study uses economic conditions in remittance-sending countries as instruments. Particularly, the unemployment rate in the top five remittance sending countries, weighted by the share of remittances sent from each of the top five remittance-sending countries, is used to proxy for economic conditions in remittance sending countries in the case of Central and Eastern Europe and Mongolia. For the CIS and Georgia, the unemployment rate in Russia is used as the instrumental variable. Table 6.10 presents the results of the first stage IV estimations.

**Table 6.10 First stage IV estimations**

Results are first-stage estimates of the equation  $FD_{i,t} = \beta_1 Rem_{i,t-1} + \beta_2 X_{i,t-1} + \alpha_i + u_{i,t}$  where  $i$  identifies the cross-section (country);  $t$  is the time period;  $Rem$  is the remittances measured as a percentage in GDP;  $X$  is the vector of control variables including: **GDP per capita**, measured in constant dollars, **GDP** stated in constant dollars, **Inflation**, defined as the % change in the GDP deflator; **Exports to GDP**, measured as the share of total exports in GDP, **FDI inflows to GDP**, foreign direct investment as % of GDP,  $\alpha_i$  captures the country-specific effect, and  $u_{i,t}$  is the error term. FD refers to financial development measured by several indicators, such as the % of credit to GDP, % of other claims to GDP, % of private credit to GDP, % of transferable deposits to GDP, other deposits to GDP, and total deposits to GDP. First-stage estimates are obtained by running  $Rem_{i,t-1} = d_1 Z_{i,t-2} + d_2 X_{i,t-1} + a_i + e_{i,t}$ , where  $Z$  is an IV, namely, the unemployment rate in the remittance sending countries. t-statistics are in brackets. \*, \*\*, and \*\*\* denote significance at the 10, 5, and 1% level, respectively.

Variables	Dependent variable: Share of remittances in GDP	
	CEE, former Soviet Union, and Mongolia	CIS and Georgia
Unemployment in remittance-sending countries	-1.42*** [6.38]	-1.64*** [3.13]
GDP Per Capita	-1.05*** [3.21]	2.10 [0.91]
GDP in constant prices	0.0001 [1.08]	-0.00001 [0.02]
Inflation	-0.07* [1.77]	-0.14*** [2.9]
Exports to GDP	0.23*** [4.73]	0.41*** [6.13]
FDI inflows to GDP	0.02 [1.07]	0.31*** [3.52]
Constant	11.52*** [3.6]	-0.54 [0.06]
Observations	226	89
Number of countries	26	9
R-squared	0.86	0.89

Table 10 illustrates that remittances to Central and Eastern Europe, the former Soviet Union, and Mongolia are associated with economic conditions in remittance-sending countries. As expected, higher unemployment rate in remittance-source countries affects remittances negatively. Therefore, this external indicator is used to run the second stage instrumental variable estimations with the two samples. The results of the second stage instrumental variable estimations are presented in Tables 6.11 and 6.12 below and point to the strong impact of remittances on the majority of measures of financial development.

**Table 6.11 Central and Eastern Europe, former Soviet Union, and Mongolia**

Tables 11 and 12 are results of second stage IV estimations of the equation  $FD_{i,t} = b_1 Rem_{i,t-1} + b_2 X_{i,t-1} + \alpha_i + u_{i,t}$  where  $i$  identifies the cross-section (country);  $t$  the time period;  $Rem$  is the remittances measured as a percentage in GDP;  $X$  is the vector of control variables including: **GDP per capita**, measured in constant dollars, **GDP** stated in constant dollars, **Inflation**, defined as the % change in the GDP deflator; **Exports to GDP**, measured as the share of total exports in GDP, **FDI inflows to GDP**, foreign direct investment as % of GDP,  $\alpha_i$  captures the country-specific effect, and  $u_{i,t}$  is the error term. FD refers to financial development measured by several indicators, such as the % of credit to GDP, % of other claims to GDP, % of private credit to GDP, % of transferable deposits to GDP, other deposits to GDP, and total deposits to GDP. The unemployment rate in the top five remittance-sending countries, weighted by the share of remittances sent from each of the top five remittance-sending countries, are used as instruments. t-statistics are in brackets. \*, \*\*, and \*\*\* denote significance at the 10, 5, and 1% level, respectively.

Variables	Credit to GDP	Other claims to GDP	Private credit to GDP	Transferable deposits to GDP	Other deposits to GDP	Total deposits to GDP	Money outside depository corporations
Remittances to GDP	1.96* [1.86]	2.1** [1.9]	2.6*** [2.82]	1.19*** [3.05]	-0.38 [1.15]	0.88 [1.26]	0.69*** [4.2]
GDP Per Capita	9.99*** [6.62]	9.77*** [7.17]	16.79*** [4.26]	0.69 [0.91]	4.55*** [8.71]	5.19*** [4.55]	0.88*** [2.91]
GDP in constant prices	0.0001 [1.43]	0.0003 [0.45]	-0.49 [1.18]	0.0001*** [2.86]	-0.0006** [2.21]	0.00003 [0.65]	-0.00003 [0.22]
Inflation	0.06 [0.7]	0.06 [0.81]	-0.06 [0.6]	-0.1** [2.77]	-0.07** [2.39]	-0.16*** [4.54]	-0.04*** [3.52]
Exports to GDP	-0.35** [2.11]	-0.31* [1.94]	-0.35*** [2.65]	0.11 [1.34]	0.02 [0.44]	0.12 [1]	0.03** [2.39]
FDI inflows to GDP	0.09 [1.02]	0.17* [1.94]	0.32*** [4.38]	0.005 [0.17]	0.05* [1.89]	0.05 [0.96]	-0.07*** [4.64]
Constant	-6.9 [1.01]	-9.52 [1.33]	-11.51 [1.1]	-4.36 [1.17]	2.42 [0.92]	-2.23 [0.51]	-1.62 [1.2]
Observations	219	210	139	220	212	220	202
Number of Countries	26	25	17	26	25	26	24
Kleibergen-Paap F statistic for weak instruments	16.38	16.29	12.27	15.86	16.26	15.86	15.3
Kleibergen-Paap under-identification test	20.44	10.35	7.2	10.19	10.26	10.19	9.5
P-value of Kleibergen-Paap under-identification	0.00	0.00	0.01	0.00	0.00	0.00	0.00

test							
R-squared	0.86	0.86	0.79	0.83	0.92	0.92	0.75

**Table 6.12 CIS and Georgia**

Variables	Credit to GDP	Other claims to GDP	Private credit to GDP	Transferable deposits to GDP	Other deposits to GDP	Total deposits to GDP	Money outside depository corporations
Remittances to GDP	2.4* [1.75]	2.5** [2.18]	3.37* [1.85]	1.28** [2.55]	0.37 [1.32]	1.84** [2.79]	4.73 [0.42]
GDP Per Capita	0.73 [0.13]	8.64 [1.14]	3.23 [0.35]	-2.56 [0.97]	6.09** [2.99]	2.73 [0.67]	-0.01 [0.36]
GDP in constant prices	0.0006* [1.91]	-0.0004 [0.07]	-0.0004 [0.09]	0.0001 [1.29]	-0.0008 [-0.58]	0.00002 [0.11]	0.003 [0.35]
Inflation	0.33** [2.44]	0.27** [2.31]	0.25 [1.38]	0.11 [0.17]	-0.01 [0.31]	0.05 [0.67]	0.26 [0.43]
Exports to GDP	-0.93*** [3.02]	-0.86*** [3.17]	-0.96** [2.48]	-0.12 [0.85]	-0.04 [0.52]	-0.24* [1.67]	-0.57 [0.44]
FDI inflows to GDP	-0.28 [0.84]	-0.22 [0.7]	-0.48 [1.02]	-0.16 [1.05]	0.14* [1.76]	-0.09 [0.46]	-1.06 [0.5]
Constant	29.32** [2.37]	27.5** [2.25]	34.46* [1.88]	6.08 [0.88]	1 [0.38]	10.62* [1.71]	16.83 [0.58]
Observations	83	83	78	79	83	83	71
Number of Countries	9	9	9	9	9	9	8
Kleibergen-Paap F statistic for weak instruments	4.31	4.31	3.8	4.3	4.31	4.31	0.11
Kleibergen-Paap under-identification test	3.4	3.4	2.8	3.4	3.4	3.4	0.12
P-value of Kleibergen-Paap under-identification test	0.07	0.07	0.09	0.07	0.07	0.07	0.73
R-squared	0.81	0.83	0.68	0.25	0.92	0.81	-6.91

The values of the Kleibergen-Paap statistic for weak instruments and Kleibergen-Paap under-identification test indicate that the external variable does not perform very strongly as an instrument in the case of the CIS and Georgia sample, although both indicators are above critical values. Negative R-squared for the variable *money outside depository corporations* in the CIS and Georgia sample probably indicates that the chosen model with its constraints fits the data poorly in this case. Nevertheless, it is well known that the R-squared has no statistical meaning in the context of IV.

Overall, IV estimations indicate an even stronger effect of remittances on measures of financial development. Virtually all coefficients measuring the positive link between remittances and financial development indicators increased. A large part of this increase could be attributed to the measurement error omnipresent in all methods of collecting remittance data. The coefficient for the impact of remittances on the private sector continues to be the highest, indicating that private sector credit is the most positively influenced among different measures of financial depth. The effect of control variables on financial development exhibits patterns similar to the ones observed in the results of the baseline fixed effects estimations. The IV estimations also continue to indicate that the impact of remittances on financial development in the CIS and Georgia is stronger compared to the entire sample consisting of the transition economies of Central and Eastern Europe, former Soviet Union, and Mongolia.

## **6.5 Conclusions**

This research fills an important gap in empirical studies devoted to the impact of remittances in the transition economies of Central and Eastern Europe, former Soviet Union, and Mongolia. Despite working with a relatively small sample, the findings of the chapter indicate that there is a positive link between remittances and financial development. Particularly notable is the fact that the positive impact of remittances on financial development stays the most stable and robust compared to other control variables in various estimation methods in both samples used in this research. This link is especially strong in the countries with a higher share of remittances in GDP. These results are in line with the conclusions of research conducted with larger cross country

datasets. Measuring the effect of remittances on several measures of financial development, the present research also finds that the impact of remittances on private credit is especially strong and significant. Given the fact that some of the transitional economies in the former Soviet Union are still struggling to nurture viable private sector development, this finding is important for policy-making oriented to increasing the private sector development impact of remittances in transition countries.

The fact that the rise in the remittances ratio is associated with an increase in the money outside depository corporations may indicate that a sizeable portion of remittances flows to the black economy. This represents lost funding opportunities for the banking sector.

Another insight from this study is that the impact of remittances in the CIS and Georgia seems to be more pronounced and greater compared to the entire sample. This is despite the fact that the financial system of the CIS and Georgia is considered backward and lagging behind compared to those of Central and Eastern Europe. The fact that the ratio of remittances to GDP is higher in these countries seems to outweigh the effect of the weak financial systems.

## **Chapter 7. Conclusion**

### **7.1 Introduction**

This thesis has examined the issues related to the measurement of remittances, determinants of remittances, and the impact of remittances on the financial system in the transition countries. Initially, Chapter 2 reviewed the theoretical framework and existing literature on labour migration and remittances with the purpose of setting the stage for further qualitative and empirical analysis. Chapter 3, which forms the basis for the first study, considered existing methodologies and proposed a new methodology of accounting for and estimating remittances. Chapter 4 (study 2) then empirically investigated determinants of formal remittances and the link between the formal remittances and the money outside depository corporations. Chapter 5 (study 3) examined the financial systems of various groups of countries in Central and Eastern Europe and the former Soviet Union, since the collapse of the communist bloc, in order to identify the differences as well as their root causes. Finally, Chapter 6 (study 4), using quantitative methods, explored the influence of remittances on the financial systems of the countries analysed in the third study. Thus, throughout these studies, the thesis has focussed on remittances and their impact on various economic variables.

A contribution to the literature on labour migration and remittances - the new methodology proposed in the first study - could be applied to other regions and countries. However, since the methodology in this thesis was proposed in the context of the former Soviet Union, its application to other regions and countries requires careful case-by-case analysis, and may need some

adjustments and alterations. This methodology allows a significant improvement in measuring remittances, which could prove to be vital for the estimation of the effects of remittances on various economic and financial parameters.

Having addressed the methodology for measuring remittances, the second study considered the determinants of remittances. The study showed corroborating evidence that transfer fees are the main determinants of remittances in the former Soviet Union. More importantly, the estimations demonstrate the existence of an inverse link between the formal remittances and the money outside depository corporations. This is an indication of the capacity of the formal remittances to remove the funds from the informal sector of economy in favour of the formal sector.

The third study analyses the financial systems of the various groups of the transition economies, before the fourth study proceeds with estimating the impact of remittances on the financial systems of these countries. The review of financial development indicators conducted in this study shows that a group of countries of the former Soviet Union termed *CIS 6 + Georgia*, consisting of major recipients of remittances, has made steady progress in improving macroeconomic conditions and developing the financial sector. However, despite closing the gap in financial development, this region still lags significantly behind the other groups of the transition countries in some crucial financial sector development indicators. The financial ratio analysis, combined with the econometric estimation techniques, reveal a number of bottlenecks, which still hinder further financial development. Among these bottlenecks are higher inflation rates, lack of trust, excessive market powers, institutional backwardness, and a lower level of competition.

The fourth study represents a rigorous empirical inquiry into the effects of remittances on the financial system of the transition countries. Using fixed effects, dynamic system GMM, and instrumental variable regressions as well as a number of measures of financial development, a conclusion was reached that the remittances positively affect the financial development. This impact is especially strong in the countries, which lag in financial development and the major recipients of remittances. Thus, it could be concluded that, in the case of the transition economies, remittances are able to influence the financial sector positively, regardless of the level of financial development. In addition, the estimations indicate that remittances influence the money outside depository corporations positively. This seems to be in contrast with the results of the second study, where the negative association between remittances and the money outside depository corporations was demonstrated. However, it needs to be taken into account that in the fourth study, all independent variables are lagged and the control variables are the ones relevant to the financial development, not the informal economy. When controlling for the factors relevant to the informal sector activities, the link between formal remittances and the money outside depository corporations is negative. An important conclusion is that remittances have the potential to flow into the informal sector, if the role of a favourable institutional framework in stimulating their flow to the formal sector is not taken into account. In other words, the quality of governance institutions is important for the channelling of remittance funds into the formal sector of the economy.

## **7.2 Relevance**

Recent global trends in remittances make it necessary to pay greater attention to the measuring of remittances, as well as estimating the impact of remittances on various aspects of economic activities. Despite these trends, there is still a lack of research in this field. Certain regions, including the former Soviet Union, have slipped the attention of researchers because labour migration and remittances are a relatively new trend or because of the absence of data. The unique case where remittances flow from one transition country to several other transition countries united by a common recent past makes this region an interesting object of study. Moreover, a rapid rate of growth of remittances makes this study an important one from a policy-making point of view.

Improving access to formal remittance channels and effectively using remittance funds for development has been one of the priority areas in the development assistance. The Addis Ababa Action Agenda of the 3rd International Conference on Financing for Development recognizes the role of remittances in sustainable development (United Nations 2015). The Addis Ababa Action Agenda also contends that remittances are vital in improving the livelihoods of millions of people in the developing world, including the developing transition countries. The remittances contribute to the welfare, food security, and health of recipient families, and support families to invest in local businesses, creating jobs and accelerating local economic development (United Nations 2015). Thus, the findings of this research provide new insights, which are relevant to devising strategies for development of the financial sector and the economies of the transition countries.

In 2014, G20 leaders, during their meeting in Brisbane, Australia, committed to reduce the average cost of transferring remittances to five per cent and agreed to a G20 plan to facilitate remittance flows (G20 2014). It is envisioned that in 2015, each G20 member will develop a National Remittance Plan to strengthen the efforts to facilitate remittance flows. Both sending and receiving countries will need to equally scale efforts towards reducing transfer costs, by promoting competition of money transfer operators and encouraging innovation. This is particularly critical for developing countries, where remittances, as shown in this thesis, contribute significantly to financial development and the formal sector of the economy. Low transfer costs, along with technological and other innovations can enable individuals, even in the most rural areas, to be engaged in the formal financial sector. As the financial systems and institutions develop, this could further help overcome remittance transfer challenges.

### **7.3 Research Contributions**

This thesis makes a number of contributions to the existing labour migration and remittance literature:

1. Conventional remittance measurement methodologies suffer from a number of significant shortcomings. The thesis proposed an alternative approach to measure remittances more accurately by making necessary adjustments for the border effect, small-scale trade, and the ratio of formal to informal remittances. This methodology could be useful for researchers, statisticians, and policy makers, who have a vested interest in improving the measurement methodologies for remittances.

2. Furthermore, the relationship between transfer costs and the formal remittances as well as the formal remittances and the underground economy are critical for understanding the role of remittances. The finding from the econometric estimations that transfer costs have statistically significant impact on remittances demonstrated that transfer costs are essential for formal remittances and influence them positively. The discovery that the formal remittances are also negatively linked with the money in the informal sector, while controlling for factors relevant to underground economic activities, further reinforced the importance of reductions in the transfer costs.
3. In the study devoted to the comparison of the financial systems (Chapter 6), we examined the current state of the financial sector development in a number of different groups of transition economies. The meticulous financial ratio and econometric analysis revealed that the adverse development outcomes for the economically lagging countries of the region are mainly caused by adverse macroeconomic conditions, excessive market powers of banks, lack of trust, and institutional weaknesses. This research contributed to the understanding of the differences in the financial development among the transition economies.
4. The impact of remittances on the financial system in the transition countries is strong and significant. It remains strong and robust in a number of econometric estimations and even for the countries performing worse in financial development than the other more advanced countries in the region. An important take away of this study to the body of research on remittances and migration is that the financial system stands to gain from remittances regardless of its state of development in

comparison with the financial systems of countries with a similar trajectory of development and economic system.

#### **7.4 Policy Implications**

The key policy implications from this study relate to the better understanding of the behaviour of the migrants and the role of remittances in the financial systems of the transition economies. More specifically, the findings from this thesis have important implications for policy making in the area of financial sector regulation/supervision and economic policy makers. The thesis provides evidence to suggest that migrants are sensitive to transfer fees, the financial system as well as the informal sector of the economy stand to gain from the flow of remittances, and the encouragement of formal remittances leads to a reduction in the funds circulating outside the depository corporations.

The modern literature argues that financial development is an important corner stone of economic growth. Therefore, although this is not the focus of this thesis, it could be concluded that the contribution of remittances to the economic growth is also significant. The possible next step for policy makers is to consider policies aimed at lowering transfer fees, the creation of favourable economic conditions for migrants to invest remittances by giving micro loans, micro-grants, lifting taxes, building trust for banks and encouraging bank savings, and reducing barriers to trade. In order to create these conditions, it needs to be realized that migrant remittances in some respects are similar to foreign investment. In other words, migration should be treated as an economic opportunity that has the potential to become a powerful driver of national development.

## 7.5 Avenues for Future Research

The findings from the studies of the thesis instigate a number of interesting opportunities for further research. The thesis has focused on the measurement issues of remittances, transfer fees, and the impact of remittances on the financial system. Although it has been noted that remittances may impact economic growth through their positive impact on the financial system, a rigorous empirical investigation of the link between remittances of labour migrants and the economic growth in the transition economies may be a worthwhile research question to consider. While there has been a number of interesting studies on the significance of remittances for the economic growth focussing on various regions as well as worldwide - some of this research is cited in the chapter 2 of the thesis - there is a paucity of research focused on the transition economies.

Another research area for future consideration would be to explore the effects of remittances on business and entrepreneurship. Access to finance remains one of the most daunting obstacles to the growth of SMEs in the developing world. According to the World Bank's *Enterprise Survey*, most businesses in surveyed countries list the problem as one of the three main obstacles to growth. On the other hand, remittances sent by labor migrants from abroad could be an important source of financing for SMEs in the former Soviet republics. Transforming remittances and savings from labor migrants into productive investment opportunities and an additional source of financing for entrepreneurship and other development projects is the focus of the migration policies of many governments in migrant sending countries. Remittances and

the savings of labor migrants play an increasingly important role globally in the economies of the majority of the “Global South.”<sup>33</sup> However, the extent and impact of these funds as a source of funding for SMEs is still unclear. The aim of this avenue for further research could be to identify and measure the impact of remittances from labor migrants on easing the financial constraints of SMEs. Policy implications of this research are paramount. The research will shed light on the significance of remittances and savings of labor migrants for SMEs. Small businesses, in turn, are believed to be crucial for job creation and economic development. If a strong and measurable link between remittances and SME investment is revealed as a result of this research, this would offer a whole new look at the role of remittances in development. Remittances will cease being viewed as just a survival strategy of households; they may finally be perceived as a vital driver of economic development in developing countries.

One more area for further research would be to have a closer look at the link between remittances and the underground economy. The present thesis have identified that this link exists. However, detailed exploration of the link using different econometric techniques and household expenditure data would be of great interest. Particularly, inquiry into the types of underground economic activities as well as the share of remittances in financing them may give food for thought for policymakers.

## **7.6 Conclusion**

In summary, the findings of this thesis are important as they contribute to the empirical understanding of the behaviour of labour migrants and the impact of

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<sup>33</sup> The Global South is made up of Africa, Latin America and developing Asia including the Middle East

remittances. This thesis has presented new empirical evidence to suggest that transfer costs matter most among determinants of remittances, that the financial system benefits from the inflow of remittances, and that there exists a complex interaction between remittances and the informal economic activities. The thesis also proposed a new methodology for measuring remittances. Whilst the empirical findings of the thesis are broadly in conformity with the majority of the empirical research conducted in other countries, regions, or worldwide, first and foremost, the results reflect the circumstances of the transition economies.

In closing, this thesis has a number important policy implications. In the development context, it demonstrated that remittances may flow into the formal or underground economy. Fortunately, there are ways to encourage channelling the flow through official channels. As estimations show, the role of transfer fees is vital in this process. The financial system, particularly, credit to the private sector provided by the financial system, emerges as one of the main beneficiaries of remittances. Although the research shows that this beneficial influence does not depend on the level of financial development, the volume of formal remittances appears to be of paramount significance.

## Appendix 1

### Variable definitions

Variable	Definition	Source
Transfer costs	Transfer costs applicable for a transfer of \$200 from the Russian Federation for the period 2003-2013	Collected by the Central Bank of Russia in regular surveys of MTOs operating in Russia
GDP growth differential	Difference in GDP growth indicator between Russia and respective home countries of migrants.	GDP data from World Development Indicators (WDI)
Income differential	Difference in GDP per capita between Russia and respective home countries of migrants.	GDP per capita data from WDI
Interest rate differential	Difference in real interest rates between Russia and respective home countries of migrants. Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability.	Real interest rate data is from WDI
Foreign exchange rate in home country	Official exchange rate refers to the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on monthly averages (local currency units relative to the U.S. dollar).	WDI
Foreign exchange rate in host country	Idem	Idem
Unemployment in home country total (per cent of total labour force) (modelled ILO estimate)	Unemployment refers to the share of the labour force that is without work but available for and seeking employment.	Idem
Age dependency (per cent of working-age)	Age dependency ratio is the ratio of dependents--people younger than 15 or older than 64--to the working-age population--those ages 15-64. Data are	Idem

population)	shown as the proportion of dependents per 100 working-age population.	
Credit to GDP	Deposit money banks' credit extended to the private sector expressed as a percentage of GDP	International Financial Statistics, IMF
Migrants	The number of citizens from the former Soviet Union who came to Russia to work	Federal Migration Service of the Russian Federation
Inflation (per cent)	GDP deflator (annual per cent)	WDI
Dual exchange rates	Dummy equals to 1 indicates the presence of multiple exchange rates.	Annual Report on Exchange Arrangements and Exchange Restrictions (IMF)
Economic crisis	Dummy equals to 1 for years when economic growth in Russia was negative (2009) or close to zero (2014)	Data on GDP growth of Russian Federation from WDI
Border	Dummy equals to 1 for countries which border with Russia. Estonia, Latvia, Lithuania, and Georgia are assigned 0 despite having border due to existence of visa regime with Russia.	Visa policy of Russia - <a href="http://www.russianvisa.org/">http://www.russianvisa.org/</a>
The number of service points of MTOs in Russia	Number service points of MTOs implementing crossborder transfers from Russia	Central Bank of Russia
Bank branches per 100,000 adults	Commercial bank branches are retail locations of resident commercial banks and other resident banks that function as commercial banks that provide financial services to customers and are physically separated from the main office but not organized as legally separated subsidiaries.	Global Financial Development Database, World Bank
3-Bank concentration ratio	Assets of three largest commercial banks as a share of total commercial banking assets. Total assets include total earning assets, cash and due from banks, foreclosed real estate, fixed assets, goodwill, other intangibles, current tax assets, deferred tax assets, discontinued operations and other assets.	Idem
The ratio of transferable deposits to GDP	Deposit money banks' transferrable deposits expressed as a percentage of GDP. Transferable deposits comprise all deposits that are (a) exchangeable on demand at par, without penalty or restriction; (b) freely transferable by	International Financial Statistics, IMF

	cheque or giro-order and (c) otherwise commonly used to make payments.	
ATMs per 100,000 adults	Automated teller machines are computerized telecommunications devices that provide clients of a financial institution with access to financial transactions in a public place.	Global Financial Development Database, World Bank
Remittances	Bilateral remittances for each of the countries of the former Soviet Union implemented through MTOs for period 2006-2014. The bilateral remittance data for the period from 2000 to 2005 is estimated by Shelburne and Palacin (2007a) based on data on MTO remittances from Russia for 2006.	Central Bank of Russia and Shelburne and Palacin (2007a)
Remittances per capita	Bilateral remittances for each of the countries of the former Soviet Union divided by population of each country.	Population data from WDI
Remittances to GDP	Bilateral remittances for each of the countries of the former Soviet Union divided by GDP of each country.	GDP data from WDI
Voice	Reflects perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	The Worldwide Governance Indicators (WGI), World Bank
Rule of law	Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	Idem
Government effectiveness	Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	Idem

Regulatory quality	Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	Idem
Corruption	Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	Idem
Stability	Reflects perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	Idem

## Appendix 2

### Countries and Periods

Table shows the countries and periods included in the regressions. The countries with an asterisk next to their name are those for which data on bilateral remittances from Russia via MTOs is available and used in this research.

<b>Country</b>	<b>Years</b>	<b>Country</b>	<b>Years</b>
Albania	2002-2013	Latvia	2003-2013
Armenia*	2001-2013	Lithuania	2004-2013
Azerbaijan*	2001-2013	Macedonia	2003-2013
Belarus*	2004-2013	Moldova*	2005-2013
Bosnia & Herzegovina	2006-2013	Mongolia	2005-2013
Bulgaria	2001-2013	Montenegro	2007-2013
Croatia	2001-2013	Poland	2004-2013
Czech Republic	2002-2013	Romania	2005-2013
Estonia	2004-2013	Serbia	2007-2013
Georgia*	2001-2013	Slovak Republic	2003-2013
Hungary	2003-2013	Slovenia	2004-2013
Kazakhstan*	2003-2013	Tajikistan*	2008-2013
Kosovo	2004-2013	Ukraine*	2002-2013
Kyrgyzstan*	1995-2007		

## Appendix 3

### Variables

Variable	Definition	Source
Credit to GDP	Credit to GDP is the ratio of Domestic Claims to GDP. IFS contain data on the Central Bank and other depository corporations consolidated into a Depository Corporations Survey (Section 30). Major accounts on the assets side are Net Foreign Assets (line 31n), which are disaggregated as Claims on Non-residents (line 31) less Liabilities to Non-residents (line 36c), and Domestic Claims (line 32). Domestic Claims, in turn, consist of Net Claims on Central Government (line 32an) and Claims on Other Sectors (line 32s).	International Financial Statistics, IMF
Other claims to GDP	The ratio of claims on other sectors to GDP. Other Claims comes from line 32s of IFS Claims on Other Sectors which consists of Claims on Other Financial Corporations (line 32g) Claims of State and Local Governments (line 32b), Claims on Public Nonfinancial Corporations(line 32c), and Claims on Private Sector(line 32d).	International Financial Statistics, IMF
Private credit to GDP	The ratio of private credit to GDP.	International Financial Statistics, IMF
Transferable deposits to GDP	The ratio of transferable deposits to GDP. Transferable deposits consist of demand deposits (transferable by check, giro order, or similar means), Bank checks (if used as a medium of exchange), Traveller's checks (if used for transactions with residents), and Deposits otherwise commonly used to make payments.	International Financial Statistics, IMF
Other deposits to GDP	The ratio of other deposits to GDP. Other deposits include Non-transferable savings deposits Term deposits (i.e., time, or fixed,	International Financial Statistics, IMF

	deposits) and others	
Total deposits to GDP	The sum of transferable and other deposits to GDP	International Financial Statistics, IMF
Money outside depository corporations to GDP	The ratio of currency outside depository corporations to GDP. Currency Outside Depository Corporations includes notes and coins issued by Central Bank less the amounts held by other depository corporations. If an economy is partially or completely “dollarized”, this account may include estimated amount of foreign currency	International Financial Statistics, IMF
Remittances to GDP	Ratio of remittances to GDP. Data for total remittances comes from Balance of Payments Statistics of IMF collected or converted in accordance with Balance of Payment Manual 6 (BPM6). The main components of total remittances are Compensation of employees, credit (1CA000 C XA) and Personal Transfers, and credit (1DF000 C OA). During conversion from Balance of Payments Manual 5 (BPM5) to BPM6, an account related to remittances that was impacted became “Migrants transfers”. In the process of conversion IMF included “Migrants Transfers” in “Other capital transfers – financial corporation, nonfinancial corporations, households, and NPISHs (Non for Profit Institutions Serving Households)”. Although migrants transfers should not be included in the balance payments accounts under BPM6, the elimination of this account was not possible without impacting net errors and omissions, which was avoided.	Balance of Payments Statistics, IMF
GDP per capita (in thousands US\$)	GDP per capita in thousands constant 2005 US\$	World Development Indicators (WDI), World Bank
GDP (in millions of	GDP in constant 2005 US\$	World Development

constant US\$)		Indicators (WDI), World Bank
Inflation (per cent)	GDP deflator (annual per cent)	World Development Indicators (WDI), World Bank
Exports to GDP	Total exports expressed as percentage of GDP	World Development Indicators (WDI), World Bank
FDI inflows to GDP (per cent)	Foreign direct investment flows as a percentage of GDP	World Development Indicators (WDI), World Bank
Unemployment in remittance-sending countries	Unemployment rate of the five principal remittance-sending countries for each Central and Eastern European country and Mongolia, weighted by their share of remittances sent to these countries. To illustrate, if remittance sending country is Z, and assuming that the top five remittance-sending countries to Z are countries A, B, C, D and E, the weighted unemployment is constructed as: $\text{Sum over } i[\text{Unemployment for } i \cdot (\text{remittances from } i \text{ to } Z) / (\text{sum of remittances received by } Z \text{ from } A \text{ through } E)]$ , where $i = A \text{ to } E$ . Since Russia accounts for 60-90 per cent of remittances inflow for the countries of the former Soviet Union (with the exception of Baltics States), the unemployment rate in Russia is used as an IV for this set of countries.	Bilateral remittance data from World Bank (2013b), GDP per capita from WDI (World Bank)

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