

**UNIVERSITÀ DEGLI STUDI DI SIENA**

**QUADERNI DEL DIPARTIMENTO  
DI ECONOMIA POLITICA**

**Simona Benedettini**

On Convergence across Transition Economies'  
Financial Markets: the Role of Creditor Rights

**n. 580 – Novembre 2009**



**Abstract** - Although twenty years have elapsed since the beginning of transition, Eastern European and Central Asian countries are still characterized by remarkably heterogeneous levels of economic development. In the light of the established causal relationship between finance and growth, we perform an absolute and conditional convergence analysis with reference to credit markets' development to understand whether the lack of convergence in economic performances may also be a side - effect of persistently diversified financial architectures in these transition economies. Our investigation highlights: (i) the occurrence of absolute and conditional convergence; (ii) the existence of appreciable intra - distribution dynamics in the convergence process; and that, when conditioning for cross - country measures of the legal protection of creditors' rights, (iii) the bankruptcy laws and their enforcement strongly boost credit markets' average period growth rates.

**Keywords:** convergence, financial market development, investor protection, rule of law.

**JEL Classification:** G15, K22, O16, O47, P51.

**Simona Benedettini**, Department of Economics, University of Siena  
E-mail: sbenedettini@gmail.com

# I Introduction

After more than ten years of research, the empirical literature on finance and growth seems to agree on the fact that financial market development is a fundamental determinant of economic growth and that, in particular, causality runs only in this direction. Indeed, even though some scholars claim the existence of a bidirectional link (see e.g. Calderon and Liu (2003)), more recent studies show that causality runs only from financial market development to growth ( Beck and Levine (2004), Christopoulos and Tsionas (2004), Arestis et al. (2008)), and that this relationship is not driven by potential biases induced by endogeneity or unobserved country - specific characteristics ( Beck and Levine (2004)).

The channels through which stock and credit markets' performances affect economic growth are several: (i) an increase in the rate of human and physical capital accumulation ( King and Levine (1993), Levine and Zervos (1998), and Benhabib and Spiegel (2004)); (ii) an increment in the rate of the total factor productivity growth ( Benhabib and Spiegel (2004)); (iii) an improvement in the efficiency with which capital is used in the economy ( King and Levine (1993), and Fisman and Love (2007)); (iv) an improvement in the productivity growth ( Levine and Zervos (1998)); (v) a reduction in the external cost of finance, and thus an increase in the innovation process through the establishment of a greater number of firms ( Rajan and Zingales (1998), and Claessens and Laeven (2003)).

New findings, however, stress the existence of a non - linear relationship between financial and economic development (see, respectively, Fung (2009), and Rioja and Valev (2004)). The aim as well as the merit of these studies is not to challenge the existence of a link between finance and growth, but rather to point out under which conditions the development of financial markets is particularly needed to enhance economic growth. In fact, according to Fung (2009), the link between financial development and economic growth appears to be stronger in the early phase of economic development, while it tends to weaken as economic growth becomes persistent. Moreover, it is shown that once critical levels of financial market development are achieved, the catching - up process between poorer and richer countries is promoted ( Fung (2009), and Aghion et al. (2005)). Indeed, considering a sample of forty - one economies<sup>1</sup> observed during the period 1960 - 1995, Aghion et al. (2005) find the existence of a concave relationship between credit market development (as measured by the variable *Credit provided by financial intermediaries to private sector/GDP*) and the per capita GDP. Specifically, they show that economies above a critical level of credit market development should converge in growth rates, and that in such countries financial development has a positive but eventually vanishing effect on steady - state GDP. Similarly, Fung (2009) argues that “low - income countries with a relatively well - developed financial sector [ , as measured by the variables *Credit allocated to the private sector/GDP per capita* and *Quasi - money/GDP per capita*,] [...] are more likely to catch - up to their middle - and high - income counterparts. [Conversely,] the very poorest countries with a relatively - under - developed financial sector tend to experience a slower growth in both per capita GDP and financial development, and are more likely to be trapped in poverty”. Consistently with these results are the findings of Rioja and Valev (2004) which show that financial development has a large effect on growth in economies characterized by an amount of *Private credit provided by banking sector/ GDP per capita* ranging between fourteen and thirty percent, while in

---

<sup>1</sup>The sample they analyze does not include Eastern European and Central Asian countries.

those economies displaying values greater and lower than, respectively, fourteen and thirty percent, additional improvements in financial markets have correspondingly an uncertain and a positive, but smaller, effect on growth.

In this paper we analyze convergence in credit markets' development levels (absolute and conditional, see e.g. Barro and Sala - i - Martin (1992)), and its institutional determinants, i.e. the legal protection of creditors' rights and their enforcement, in a sample of twenty - two transition economies: i.e. Eastern European, South - Eastern European, and Commonwealth of Independent States countries. Specifically, using as proxies of financial market development the ratio *Domestic credit to private sector to GDP* we: (i) run traditional cross - section convergence regressions; (ii) carry out a descriptive analysis of countries' time series for the relative levels of credit markets' development; (iii) estimate the corresponding densities at the beginning and the end of the period. Step (i) aims at identifying not only whether convergence occurred in transition economies' financial architectures, but also its potential institutional determinants. Steps (ii) and (iii) allow us to recognize patterns of intra - distribution dynamics in the convergence process ( Quah (1997)) and, therefore, to overcome the limits of simple cross - sectional regressions which capture only the behavior of a conditional average.

The motivations for this exercise, which refers to the period 1994 - 2006, are twofold. The first one straightforwardly emerges from what has been outlined above about the relationship between finance and growth. Financial market development is an important source of economic growth and transition economies still show, despite the passing of twenty years from the beginning of transition, unsatisfactory<sup>2</sup> and, as it appears from Fig. 1, remarkably heterogeneous growth performances. Understanding whether a catching - up process is underway in the levels of credit market development also enables us to understand whether the lack of economic convergence may be a potential side - effect of a parallel lack of convergence in the levels of financial advancement. Whatever the answer to this question is, it may open the way for further investigations and more precise policy implications about the link between finance and growth in transition economies. For example, if convergence in the levels of financial market development appears to occur, one could investigate whether it does not show a parallel with economic convergence, i.e. with convergence of per capita GDP levels, because the steady state of credit market development toward which transition economies are converging is lower than a critical threshold at which positive spillovers can be produced on that convergence (see e.g. Aghion et al. (2005)). Moreover, the analysis of the institutional determinants potentially affecting the catching - up process may also provide more precise suggestions about the policies to be implemented in order to affect (other things being equal) the steady state of financial development toward which these economies are converging and to consequently approach the eventual existing threshold that should be trespassed so that positive spillovers are produced on economic convergence. Similar remarks apply in the case where a reduction in the heterogeneity of countries' financial market development levels also appears not to occur. Indeed, the employment of cross - country measures of the outside investors' legal protection, as conditional variables in the convergence regressions, helps to

---

<sup>2</sup>For an insight into transition economies' disappointing growth performances and their potential determinants see, e.g., Godoy and Stiglitz (2007), and Beck and Laeven (2006). The latter observe that: "Growth in GDP per capita over the sample period [1992 - 2004] varied between -5.2% in Tajikistan to 5.6% in Albania, with an average of 0.8% and a standard deviation of 2.7%", ( Beck and Laeven (2006), p. 173). For a comprehensive survey of the literature on transition economies' economic growth see Campos and Coricelli (2002).

understand whether this protection may be an effective tool to improve countries' credit markets' period average growth rates and thus to foster a catching - up process.

Secondly, the present work aims at filling the gap in the literature on transition economies in two directions: (i) by providing a convergence analysis on credit markets' development levels since, to the best of our knowledge, convergence analyses of transition economies relate to outcomes different from financial market development. Among other, we refer to Kutan and Yigit (2004) - who study, respectively, convergence in growth rates in industrial production, price levels, M1, and interest rates' spreads; Beck and Laeven (2006) - who in their analysis of the institutional determinants of transition economies' growth performances control also for convergence in the levels of GDP per capita - and Kočenda (2001) who investigates convergence in prices and output; (ii) by studying, from a long - run perspective, the role of the outside investors' legal protection, both *de jure* and *de facto*, on financial market advancement. The pioneering work on the role of minority shareholders' and creditors' rights in enhancing financial market development is due to La Porta et al. (1998), who however do not include transition economies. Pistor et al. (2000), on whose endeavors the present work builds, fill the gap by analyzing the same relationship for Eastern European and Central Asian countries. However, the latter investigate the institutional determinants of financial market development in transition economies at a given point in time. In contrast, we look at the potential effects the outside investors' rights can produce on the dynamics of credit markets' long term growth performances.

Our main findings are the followings: (i) a tendency toward convergence clearly occurs in credit markets' development levels; (ii) there is evidence of remarkable intra - distribution dynamics in the convergence processes; (iii) the legal provisions concerning the creditors' control rights in the bankruptcy process, and their enforcement, are a strong predictor of the average period growth rates of credit market development.

Section II provides a description of the data used in the econometric analysis. Section III presents the results of the regression analysis. Section IV further investigates the evidence illustrated in Section II through a descriptive overview of transition economies' credit markets' development dynamics, including the density estimations. Section V concludes.

## II Description of the data

We are interested in investigating the appearance of a catching - up process in credit market development levels for a sample of twenty - two transition economies: Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, the Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, and Ukraine. To this end, we examine the occurrence of absolute and conditional convergence ( Barro and Sala - i - Martin (1992)) with reference to the variable *Domestic credit to private sector/GDP* ( $DC/GDP$ , henceforth) which is our preferred measure of financial development.

The employment of this specific measure of financial advancement, which is commonly used in the literature to capture the extent to which firms' access to external finance, is motivated mainly by the choice of the conditional variables for the conditional convergence analyses: the indicators given by Pistor et al. (2000) of the quality of the legal protection of creditors' rights. Indeed, given that our dependent variable is the period average growth rate of

$DC/GDP$ , our work can be considered, in a sense, an extension of that of Pistor et al. (2000). Actually, while they look at the link between law and finance for transition economies at a given point in time, we examine it from a long - run perspective: i.e. by studying whether and in what way the extensiveness and the effectiveness of several types of creditors' rights affect the average period growth rate of our measure of financial development. Thus, in order to more precisely ascribe the results of this extension, we prefer to adhere as much as possible to the empirical investigation of Pistor et al. (2000), consequently using their same measure of financial development.

Table I provides a detailed description of the variables used in the econometric analysis. In the following we provide for each of them a brief overview.

As argued previously, the variable  $DC/GDP$  is a fairly traditional measure of financial development. Specifically, since we are also interested in studying the institutional determinants of credit markets' period average growth rate, this variable provides quite reliable information on the extent to which firms rely on external finance. Precisely, the ratio  $DC/GDP$  represents the amount of financial resources provided by banks to the private sector. Data on financial markets' development are collected from the "World Development Indicators" dataset published by the World Bank in 2008. For our sample of countries, the dataset allows us to collect data on these variables only until 2006.

As mentioned previously in this Section, we exploit the dataset of Pistor et al. (2000) for cross - country measures of the legal protection of the creditors' rights. In developing their original and exhaustive indicators assessing the quality of the outside investors' rights, Pistor et al. (2000) focus on several scenarios which may potentially shape these rights.

Precisely, by building on the measure of La Porta et al. (1998) assessing creditors' rights in the bankruptcy and reorganization procedures, the index  $LLSVCR$  assesses the quality of the bankruptcy and reorganization laws. More precisely, it considers whether secured creditors are ranked first in the distribution of the proceeds resulting from the disposition of the assets of a bankrupt firm, whether the creditors' consent is required when filing for reorganization, etc. The index  $CREDCON$  measures the quality of the bankruptcy laws as well but it has been constructed by considering only some of the aspects involved in  $LLSVCR$ . In fact, according to Pistor et al. (2000) in none of the examined transition economies is there a clear separation between liquidation and reorganization procedures. Thus, the index evaluates all the provisions considered in the measure of La Porta et al. (1998) but excludes "the requirement of the creditors' consent to file for reorganization as opposed to liquidation", and takes into account the presence of two more provisions: the existence of an automatic trigger to go into bankruptcy, and the requirement of creditors' consent for adopting a liquidation or reorganization procedure. The variable  $COLLAT$  evaluates the existence of legal rules on security interests. For example, it examines whether the possibility of establishing a register for security interests exists, whether the possibility of establishing a security interest in land exists, etc. The index  $REMEDY$  measures the capability of creditors to sanction managers. For example, it analyzes whether creditors can hold managers liable in case they violate rules of insolvency laws, whether creditors can pierce the corporate veil, etc. To measure the extent to which creditors' property rights are enforced, the *Rule of law* index ( $ROL$ , henceforth) developed by Kaufmann et al. (2008) is employed.

That property rights institutions, e.g. outside investors' rights, are a fundamental determinant of financial development and that they are relatively more important to this aim

**Table I**  
**Description of the Variables**

Variables	Description
<i>DC/GDP</i>	<i>Domestic credit provided to private sector/GDP.</i> Domestic credit to private sector refers to financial resources provided to the private sector, such as through loans, purchases of non - equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. <i>Source:</i> World Bank (2008).
<i>LLSVCR</i>	<i>La Porta et al. (1998) 'Creditor rights' index.</i> The index varies from 0 to 4. It is formed by adding 1 when: (1) restrictions, such as creditors' consent, are imposed to file for reorganization as opposed to liquidation; (2) secured creditors are ranked first in the distribution of the proceeds resulting from the disposition of the assets of a bankrupt firm; (3) the debtor does not retain the administration of its property pending the resolution of the reorganization; (4) secured creditors are not stayed in the bankruptcy procedure. <i>Source:</i> La Porta et al. (1998).
<i>CREDCON</i>	<i>Pistor et al. (2000) measure of creditors' rights in the bankruptcy process.</i> The index varies from 0 to 5. It is formed by adding 1 when: (1) secured creditors are ranked first in the distribution of the proceeds resulting from the disposition of the assets of a bankrupt firm; (2) the debtor does not retain the administration of its property pending the resolution of the reorganization; (3) secured creditors are not stayed in the bankruptcy procedure; (4) automatic trigger to file bankruptcy is established; (5) the adoption of a reorganization or liquidation plan requires creditors' consent. <i>Source:</i> Pistor et al. (2000).
<i>COLLAT</i>	<i>Pistor et al. (2000) measure of the rules on security interests.</i> The range for the index is from 0 to 3. It is formed by adding 1 when: (1) the establishing of a security interest in movable asset does not require the transfer of the asset; (2) a register for security interests in movable asset is established; (3) a security interest in land may be established. <i>Source:</i> Pistor et al. (2000).
<i>REMEDY</i>	<i>Pistor et al. (2000) measure of the creditors' ability to sanction management.</i> The range for the index is from 0 to 3. It is formed by adding 1 when: (1) management is hold liable in case it violates rules of insolvency laws; (2) transactions preceding the opening of bankruptcy procedures may be declared null and void; (3) creditors may pierce the corporate veil. <i>Source:</i> Pistor et al. (2000).

than e.g. contracting institutions, has been clearly demonstrated by recent researches, (see e.g. Acemoglu and Johnson (2005)) and extensively explored in the literature in past years (see Beck and Levine (2005) for an exhaustive and critical review on the law and finance literature). Since the seminal paper of La Porta et al. (1998), it has been stressed that the differences in the quality of the legal protection of outside investors' rights', as well as in its enforcement, explain differences in the level of countries' stock and credit market advancement. Specifically, well protected creditors' and minority shareholders' rights enhance financial market development by reducing the cost of external finance to firms. In fact, in the hypothesis of divergent interests between insiders, i.e. managers and blockholders, and outsiders of the firm, i.e. minority shareholders and creditors, the law may exert positive effects on the company's ability to raise external funds in two directions: (i) by narrowing the set of the possible expropriation technologies insiders can use; (ii) by reducing the costs outsiders bear in trying to reduce moral hazards and adverse selection problems (i.e. using the terminology of Jensen and Meckling (1976), *monitoring*, *bonding*, and respectively, for shareholders and creditors, *residual losses*, and *reorganization* and *bankruptcy costs*).

As pointed out by La Porta et al. (1998), the differences appearing in countries' legal systems, and thus in their level of financial development, vary systematically across legal origins<sup>3</sup> and

---

<sup>3</sup>Specifically, they show that common - law countries protect both creditors' and minority shareholders' rights

also reflect, to the same extent, differences in how far outside investors' rights are enforced. Actually, economies belonging to those legal families characterized by less shareholders and creditors - friendly legislations, and thus less advanced financial markets, are also characterized by legislation less friendly to shareholders and creditors, and thus with less advanced financial markets, are also characterized by weak enforcement of outsiders' rights. In other words, enforcement cannot substitute for law on the books: where the law does not effectively protect outside investors' rights, alternative systems of protection, i.e. effective enforcement mechanisms, have not been developed.

For transition economies, the relationship between financial development and outside investors' legal protection seems to be controversial. The main works on the topic are the pioneering paper of Pistor et al. (2000), and that of Slavova (1999). Actually, Pistor et al. (2000) find that, for transition economies, what really matters in enhancing financial markets' development is not the relative extent of the outside investors' rights, as it emerges from countries' law on the books, but rather their enforcement. Conversely, Slavova (1999) confirms only in part the results of Pistor et al. (2000) arguing that countries' credit market performance is not affected by the relative extent of banking sector regulation, but only by its enforcement, while the quality of regulation of the stock markets appears to influence their development.

By building on Pistor et al. (2000), i.e. by using the indicators they develop and their same proxy of credit market development, in this paper we extend the analysis of the effects of extensiveness of the outside investors' legal protection on the financial markets' development, in the following ways: (i) by investigating this relationship in a convergence analysis framework which, as far as we know, it has never been explored; and consequently, (ii) by performing a long - run analysis. Indeed, by using the indicators of Pistor et al. (2000) as conditional variables in the convergence regressions, we are allowed to see whether the law on the books is a determinant of the average period growth rates of our measure of credit market development.

These features distinguish our analysis from that of Pistor et al. (2000) and Slavova (1999) not only because of the different type of relationship we are interested in, i.e. they look at the *level* of credit market development in a given point in time, while we look at the *average period growth rate*, but also because of the extent of the period covered by our analysis. In contrast with these analyses, which are conducted with reference to a specific year, our investigations involves a cross - section analysis relative to a period of twelve years. In this way, we are able to: (i) dilute any effects the privatization processes may have exerted on the dependent variable, i.e. the period average growth rate of our measure of financial development, which may happen when the latter is examined at a given point in time and especially at the outset of the transition; (ii) focus on long - run dynamics which are probably of more interest to us.

In the following Section we present the results of the convergence regressions. Our findings mainly highlight a tendency toward convergence in the levels of credit market development and that the quality of the bankruptcy laws plays an important role in fostering this tendency.

---

the most , while the French and the German - civil - law countries protect them the least, with the former performing slightly worse than the latter, especially with reference to creditors' rights.



### III Convergence in financial markets' development levels: the role of creditors' legal protection

This Section presents the results of the regressions performed to investigate the occurrence of a reduction in the heterogeneity of transition economies' credit markets' development levels. In addition, we focus on the role played by the legal protection of creditors' rights on convergence.

#### *Regression results*

Table II provides the results of the convergence analysis with reference to credit markets for a sample of twenty - two countries examined during the period 1994 - 2006. Given that the indicators of Pistor et al. (2000), which we use as conditional variables, are developed solely for the years 1992, 1994, 1996, and 1998, and that, for some of our economies, data on our measure of credit development are not available in the early 1990s, our observation period starts in the year in which two conditions are contextually met: (i) the possibility to use at least one year of the time series of Pistor et al. (2000)' s indicators; (ii) to have, given condition (i), the largest possible number of observations, for the dependent variable, so as to achieve the maximum feasible number of degrees of freedom, given the number of controls employed in the regressions. The first year between 1992 - 1998 for which these conditions are contextually satisfied is, indeed, 1994 when evidence on *DC/GDP* and quality of the law on the books is available for a balanced panel of nineteen countries: Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Kazakhstan, Latvia, Lithuania, Macedonia, Moldova, Poland, Russia, Slovakia, Slovenia, and Ukraine. In addition, we include countries like Georgia and Kyrgyzstan for which data are available only from 1995, and Romania for which data are available since 1996. In the Appendix we provide the results for the balanced panel of nineteen countries, i.e. those for which data are available for the whole period 1994 - 2006, and we show that the results are not affected at all by the changes in the sample composition.

We estimate the following models:

$$DC/GDP_{GR} = \alpha + \beta_1 \text{Log}(DC/GDP_{IN}) + u_i \quad (1)$$

to test the occurrence of absolute convergence (column (I) of Table II), and:

$$DC/GDP_{GR} = \gamma + \beta_2 \text{Log}(DC/GDP_{IN}) + \beta_3 \text{LOB} + \beta_4 \text{ROL} + \epsilon_i \quad (2)$$

to test the occurrence of conditional convergence (columns (II) - (V) of Table II).

Where: (i) *DC/GDP<sub>GR</sub>* is the period average growth rate of our proxy of credit market development; (ii) *DC/GDP<sub>IN</sub>* is the value of *DC/GDP* at the beginning of the period; (iii) *LOB*, which stands for *law on the books*, accounts for the alternative cross - country measures developed by Pistor et al. (2000) to assess creditors' rights; and (iv) *ROL* which stands for *rule of law*, is our proxy for property rights' enforcement.

Table II provides evidence of the occurrence of both absolute and conditional convergence in the levels of credit market development. A better qualification of the results suggests that: (i) looking at the absolute convergence specification, the magnitude of convergence is slightly smaller than that appearing in the specifications relative to the conditional convergence analysis; (ii) the quality of the law on the books in protecting creditors' rights during the bankruptcy procedure, as measured by the *LLSVCR* and *CREDCON* indicators, enhances the period average growth rate. In this regard it is important to observe that different measures of the quality of the bankruptcy regulation lead to different results. In fact, looking at the measure of La Porta et al. (1998), *LLSVCR*, creditors' rights appear to strongly affect the dependent variable. By contrast, looking at the indicator of Pistor et al. (2000), *CREDCON*, which better adapts the measure of La Porta et al. (1998) to transition economies, the effect seems to be much weaker<sup>4</sup>; (iii) the effectiveness of the enforcement mechanisms, as proxied by the *ROL* index, exerts a positive and statistically significant effect on the period average growth rate as well, and precisely when the law on the books turns out to be not statistically significant.

In Fig. 2 we provide a straightforward picture of the occurrence of convergence in credit market development levels. In the Appendix we present the same pictures for the balanced sample of nineteen transition economies.

The econometric analysis performed provides a very clear picture about the relative performances of Eastern European and Central Asian countries' financial markets and also offers important suggestions about the growth and finance relationship for these countries. Precisely, it makes possible to answer the question we ask at the beginning of this article: whether, in the light of the link between finance and growth, the apparent non - convergence in the levels of economic development could be considered a side - effect of an eventual non - convergence in financial development levels. In this regard, our investigations suggest that, during the period considered, a tendency toward the reduction in the heterogeneity of these countries' financial performances has occurred, and that therefore there is no parallel between financial and economic development dynamics. Obviously, this does not mean that a link between these two phenomena does not exist at all. Rather, our findings might open the way to future investigations. For example, one could argue, and then investigate, whether a reduction in the heterogeneity of financial markets' development levels is not accompanied by a similar scenario for the levels of economic development because the steady state of financial advancement toward which these countries are converging is lower than a critical threshold needed so that positive effects on the economic convergence are produced ( Aghion et al. (2005)). As argued at the beginning of this work, it could be worthy to use the framework developed by Aghion et al. (2005) - which investigates the role of financial market development in promoting countries' convergence to the growth rate of the world technology frontier - to study whether the lack of convergence in terms of GDP per capita that transition economies are experiencing is due to the fact that the steady state of financial development toward which they are converging is such that less developed transition economies are not allowed to converge to most advanced transition countries' level of economic development. Our findings provide suggestions also in this direction. Indeed, by controlling in our specifications for some of the possible determinants of the steady state, i.e. outside investors' rights and their enforcement, it emerges that the creditors' rights during the bankruptcy

---

<sup>4</sup>See Table I for details on the composition of the two indexes.

procedures and their enforcement affect the steady state in a statistically significant way.

In the next Section we provide a descriptive analysis of the time series of countries' relative values of the level of credit market development, and of the density estimations of these relative values at the beginning and end of the period. These analyses contribute to testing the robustness and scrutinizing more deeply the convergence process highlighted in the present section.

**Table II**

**Absolute and conditional convergence in credit market development levels**

Cross - section regressions on a sample of 22 transition economies. The dependent variable is the average growth rate of the variable  $DC/GDP$ . The independent variables are: (1)  $Log(DC/GDP_{TN})$ ; and the period average values of: (2)  $LLSVCR$ ; (3)  $CREDCON$ ; (4)  $COLLAT$ ; (5)  $REMEDY$ ; (6)  $ROL$ .

Standard errors in parentheses. Levels of significance: \*\*\* at 1%, \*\* at 5%, \* at 10%.

	(I)	(II)	(III)	(IV)	(V)
$Log\ DC/GDP$	-.05*** (.01)	-.05*** (.01)	-.06*** (.01)	-.07*** (.01)	-.07*** (.02)
$LLSVCR$		.03*** (.01)			
$CREDCON$			.01* (.01)		
$COLLAT$				.01 (.01)	
$REMEDY$					.01 (.02)
$ROL$		.02 (.01)	.02 (.02)	.04*** (.02)	.04*** (.02)
$Intercept$	.20*** (.03)	.14*** (.05)	.19*** (.05)	.24*** (.04)	.25*** (.04)
Observations	22	22	22	22	22
Adjusted $R^2$	0.50	0.75	0.67	0.62	0.62
F - statistic	21.70	22.06	15.22	12.55	12.66

## IV Patterns of development

This Section aims to test the robustness of our regressions' results: i.e. the occurrence of a tendency toward the reduction of the heterogeneity in the levels of credit market development. In particular, given that cross - country regressions capture solely the behavior of a conditional average, ( Quah (1997)), we want to be sure that our findings are not driven by the behavior of a particular group of economies. To this aim, we: (i) look at the countries' time series of the relative levels of our measure of credit market development; (ii) perform a density estimation of this measure at the beginning and at the end of the period. The former analysis supplies preliminary evidence of the occurrence of convergence and, overall, tests for the presence of intra - distribution dynamics in the evolution over time of transition economies' financial development. Step (ii) gives further confirmation of the reduction in the dispersion of credit market development levels.

The fact that transition economies, despite the fast progress they experienced at the outset of transition, still possess underdeveloped credit markets, with reference both to

more advanced and to emerging economies, is unquestioned in the literature. After twenty years from the beginning of the transition, there has been a plethora of papers assessing the financial (non - ) advancement of these economies and its relative determinants. To this purpose an exhaustive analysis is provided by Bonin and Wachtel (2002).

Today, the situation appears to be almost the same. In fact, it is possible to note that the economies we consider are still characterized by underdeveloped financial markets if compared to both more advanced <sup>5</sup> and emerging countries, (see Fig. 3).

Despite the common feature of poor financial performances, transition economies' convergence process appears to be characterized by remarkable differences. Indeed, our analysis of the dynamics of countries' relative values of credit market development highlights, in addition to the occurrence of a tendency toward convergence, : (i) the presence of appreciable intra - distribution dynamics; and, using the words of Berglöf and Bolton (2002); (ii) that despite a tendency toward convergence, some countries appear as to have still to cross the divide, as their remarkably lower levels of financial development show.

In the following, we illustrate these results in more details.

#### *Credit markets' patterns of development*

Fig. 5 provides the density estimation of the relative values of the variable  $DC/GDP$  at the beginning and the end of the considered period for a sample of twenty - two transition economies<sup>6</sup>. Confirming the results of the regressions performed, these economies appear to convergence in their levels of credit market development. In fact, Fig. 5 shows the occurrence, at the end of the period, of a reduction in the dispersion of the relative levels of  $DC/GDP$ .

Evidence of a notable reduction in the heterogeneity of the levels of credit market development also emerges from the analysis of the countries' time series of the relative values of  $DC/GDP$  (see Fig. 4) <sup>7</sup>. And indeed, if at the beginning of the period there were countries showing levels of credit market development more than three times the sample average (i.e. the Czech Republic, Slovakia and Bulgaria, with the Czech Republic being an outlier), at the end of the period the differences in the level of credit market development are much smaller and they do not overcome the threshold of twice the sample average.

Fig. 4 also provides evidence of intra - distribution dynamics in the convergence process. Actually, we observe that: (i) relative positions at the bottom end appear essentially stable, so that the reduction in dispersion seems to be ascribable to the reduction in the margin by which countries starting at above - average values in 1994 exceed the average; (ii) Poland, Slovenia, and Croatia show an inverted U - shaped dynamic; (iii) Latvia, and similarly Ukraine, perform outstandingly, showing an initial level of  $DC/GDP$  less than the sample average and ending with a value around twice the sample average.

In addition, it is possible to note that: (i) countries like Latvia, Estonia, Croatia and Slovenia reach slightly higher levels of credit market development (their respective value of the variable  $DC/GDP$  in 2006 are: 86.79%, 78.39%, 68.78%, and 68.73%), being thus responsible for the tendency to bimodality appearing in Fig. 5; (ii) countries like Kyrgyzstan, Armenia, Georgia, Albania, and Azerbaijan show substantially lower levels of credit market development than the rest of the sample (their final levels of  $DC/GDP$  are respectively: 10.52%, 8.83%, 19.51%, 21.83%, and 12.38%)

---

<sup>5</sup>In 2006 OECD countries showed average values for the variable  $DC/GDP$  of 164%. The average values for our sample of transition economies was 22% .

<sup>6</sup>The initial level of the variable  $DC/GDP$  is considered to be that of 1994 for all countries except Georgia and Kyrgyzstan whose data are available only from 1995. In the Appendix we provide the same graph with respect to the balanced sample of nineteen transition economies.

<sup>7</sup>In the Appendix we provide the same analysis with respect to the balanced sample of nineteen transition economies.

with Kyrgyzstan and Armenia showing persistence in their corresponding dynamics (indeed, their initial levels of  $DC/GDP$  was, respectively, equal to 12.54%, and 11.08%); (iii) in 2000 there is a clear separation between economies that, despite starting from similar levels of financial development, go on to reach remarkably different positions. Actually, we find that economies like Lithuania, Moldova, Kazakhstan, Russia, Bulgaria, and Croatia set themselves apart from countries like Armenia, Belarus, Georgia, Romania, and Azerbaijan by reaching, later, higher levels of credit market development; (iv) countries that apparently had still to cross the divide ten years after the beginning of the transition process, i.e. Bulgaria, Romania, Russia, and Ukraine ( Berglöf and Bolton (2002), p. 82), today appear to have successfully done it. Indeed, as Fig. 4 shows, these countries' credit markets experienced high growth rates which allowed them to close the gap with the more advanced countries of the sample. However, for these countries succeeding in crossing the divide, there are others which have still to do this (see point (ii)).

The descriptive investigations presented in this Section appear to confirm the evidence of the convergence regressions: i.e. the occurrence of a tendency toward a reduction of the heterogeneity in the levels of financial market development. However, they also point out that the convergence dynamic seems to occur with substantial differences between countries, as well as that there exists a gap with more advanced and other emerging economies to be filled. Actually, despite the improvement in the performances of many countries, some others like e.g. Armenia and Kyrgyzstan, seem to have still to cross the divide.

## V Conclusions

Although twenty years after the beginning of the transition process have been elapsed, Eastern European and Central Asian economies are still experiencing unsatisfactory and heterogeneous economic performances. In the light of the link between finance and growth, in this paper we ask whether the heterogeneity in economic development may be a consequence of equally diversified levels of financial market development.

If in the literature it is unquestioned that transition economies' credit markets are, after all, displaying patterns of underdevelopment (thus probably explaining part of their poor economic achievements), a different scenario occurs with reference to the heterogeneity in countries' financial performances.

Actually, our analysis highlights that transition economies are experiencing a tendency toward convergence with reference to credit market development levels, even though remarkable intra - distribution dynamics appear to occur in this convergence process.

Moreover, we have shown that the extent to which creditors' rights are protected and enforced in the bankruptcy procedure significantly fosters the catching - up process with reference to credit markets.

Our findings open the way for future directions of research, especially with reference to the link between growth and finance for transition economies. Indeed, given the negative answer to the question opening the present paper, i.e. whether a non - reduction in the heterogeneity of economic performances may be considered a side - effect of the non - reduction in the heterogeneity of financial development, it would be worth knowing whether the level of financial advancement toward which transition economies are converging is not yet sufficiently high to produce positive effects on economic convergence.

In addition, a further research direction that might be pursued is to extend our analysis by considering convergence in the level of financial advancement with more developed countries like, in particular, Western Europe economies.

The policy implications of this work are straightforward. To improve the quality of creditors' rights as well as their enforcement appears to be worthwhile in promoting credit market growth

rates and, accordingly to the theoretical framework behind our convergence analysis, to affect the credit market steady - state toward which convergence is occurring.

## VI Figures

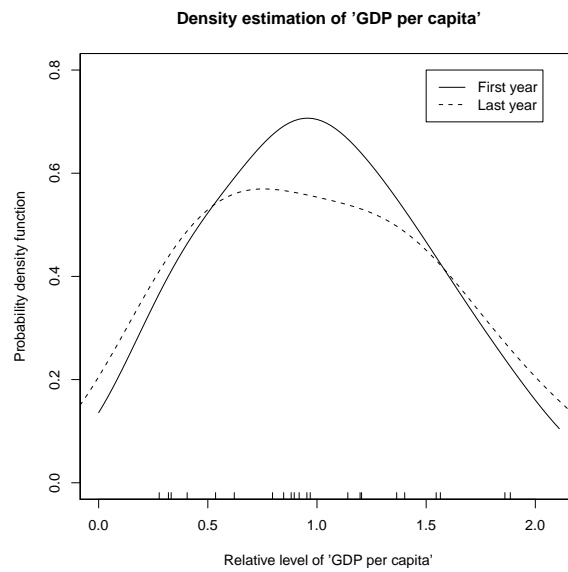


Figure 1: Density estimation of the relative values of the *real per capita GDP* in 1991 and 2006 for a sample of twenty - two transition economies. This figure clearly shows an increase in the dispersion of the values of the *real GDP per capita* at the end of the period.

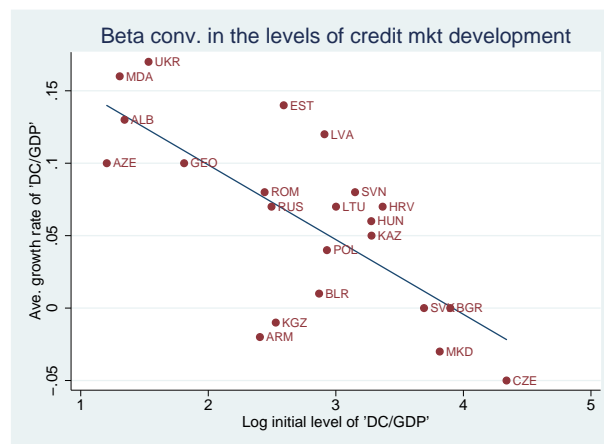


Figure 2: Beta convergence in credit markets' development levels for a sample of twenty - two countries.

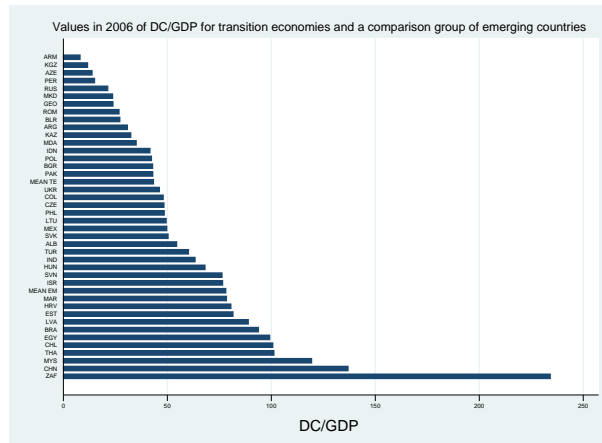


Figure 3: Credit market development in 2006: comparison with a sample of emerging markets.

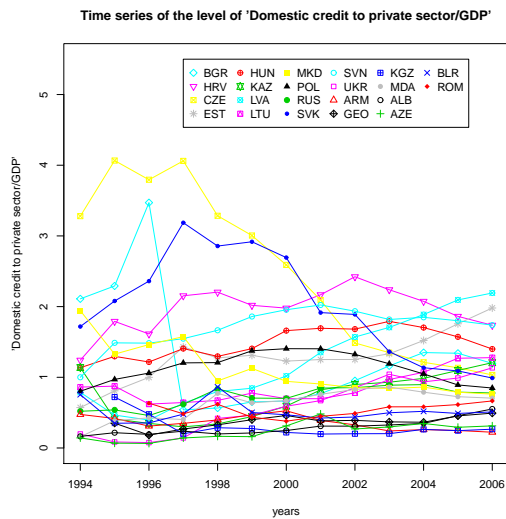


Figure 4: Countries' time series of the relative values of 'DC/GDP' for a sample of twenty - two economies.

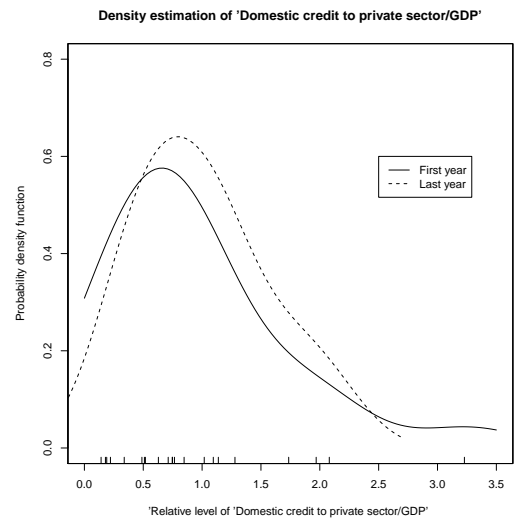


Figure 5: Density estimation of the relative values of 'DC/GDP' at the beginning and end of the period for a sample of twenty - two economies.



## VII Appendix

Table III

### Absolute and conditional convergence in credit market development levels for the balanced panel of 19 countries

The dependent variable is the average growth rate of the variable  $DC/GDP$  during the period 1994 - 2006. The independent variables are: (1)  $\text{Log } DC/GDP$  in 1994; and the period average values of: (2)  $LLSVCR$ ; (3)  $CREDCON$ ; (4)  $COLLAT$ ; (5)  $REMEDY$ ; (6)  $ROL$ .

Standard errors in parentheses. Levels of significance: \*\*\* at 1%, \*\* at 5%, \* at 10%.

	(I)	(II)	(III)	(IV)	(V)
$\text{Log } DC/GDP$	-.05*** (.01)	-.05*** (.01)	-.06*** (.01)	-.07*** (.01)	-.07*** (.01)
$LLSVCR$		.03** (.01)			
$CREDCON$			.01 (.01)		
$COLLAT$				.01 (.01)	
$REMEDY$					.01 (.02)
$ROL$		.01 (.02)	.04** (.02)	.04** (.02)	.04** (.02)
$Intercept$	.14** (.05)	.19*** (.06)	.24*** (.06)	.24*** (.04)	.24*** (.04)
Observations	19	19	19	19	19
Adjusted $R^2$	0.55	0.74	0.66	0.63	0.64
F – statistic	22.64	19.98	12.57	11.21	11.44

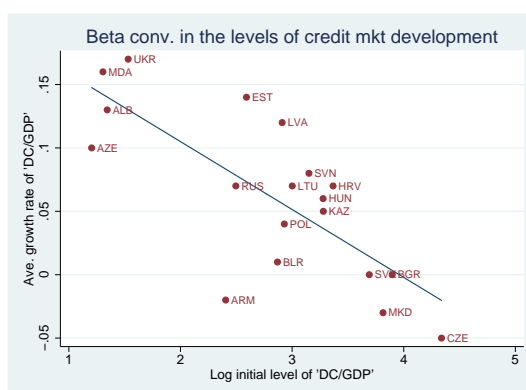


Figure 6: Beta convergence in credit market development levels for a sample of nineteen countries.

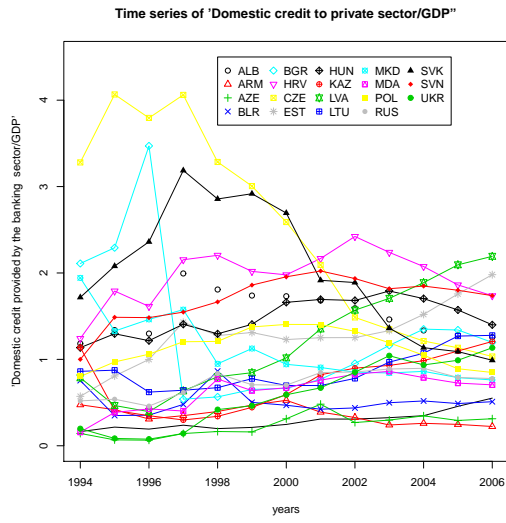


Figure 7: Countries' time series of the relative values of ' $DC/GDP$ ' for a sample of nineteen transition economies.

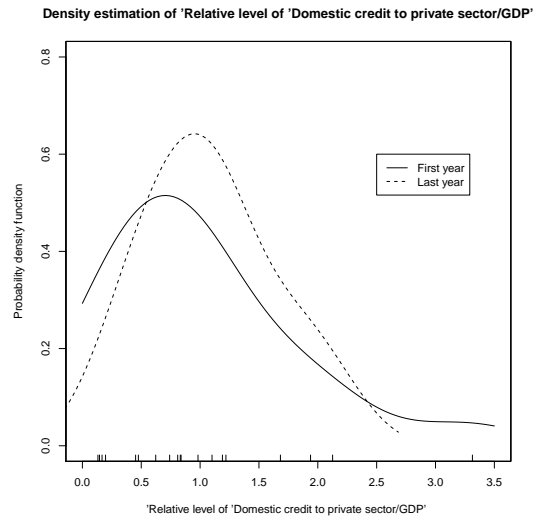


Figure 8: Density estimation of the relative values of ' $DC/GDP$ ' in 1994 and 2006 for a sample of nineteen transition economies.

## References

- Acemoglu D., and S. Johnson, (2005). "Unbundling institutions", *Journal of Political Economy*, 113 (5), pp. 949 - 995.
- Aghion P., P. Howitt, and D. M. Foulkes, (2005). "The effect of financial development on convergence: theory and evidence", *Quarterly Journal of Economics*, 120 (1), pp. 173 - 222.
- Arestis P., P. O. Demetriades, K. B. Luintel, (2008). "Financial structure and economic growth", *Journal of Development Economics*, 86 (1), pp. 181 - 200.
- Barro R., and X. Sala - i - Martin, (1992). "Convergence", *Journal of Political Economy*, 100 (2), pp. 223 - 251.
- Beck T., and L. Laeven, (2006). "Institution building and growth in transition economies", *Journal of Economic Growth*, 11 (2), pp. 157 - 186.
- Beck T., and R. Levine, (2004). "Stock markets, banks, and growth: panel evidence", *Journal of Banking and Finance*, 28 (3), pp. 423 - 442.
- Beck T., and R. Levine, (2005). "Legal institutions and financial development", in *Handbook for New Institutional Economics*, Claude Ménard and Mary M. Shirley Eds, Kluwer Academic Publishers, Norwell, MA.
- Benhabib J., and M. M. Spiegel, (2004). "The role of financial development in growth and investment", *Journal of Economic Growth*, 5 (4), pp. 341 - 360.
- Berglöf E., and P. Bolton, (2002). "The great divide and beyond: financial architecture in transition", *Journal of Economic Perspectives*, 16 (1), pp. 77 - 100.
- Bonin J., and P. Wachtel, (2002). "Financial sector development in transition economies: lessons from the first decade", Bank of Finland Institute for Economies in Transition, Discussion paper n.9.
- Calderon C., and L. Liu, (2003). "The direction of causality between financial development and economic growth", *Journal of Development Economics*, 72 (1), pp. 321 - 334.
- Campos N. F., and F. Coricelli, (2002). "Growth in transition: what we know, what we don't, and what we should", *Journal of Economic Literature*, 40 (3), pp. 793 - 836.
- Christopoulos D.K., and E.G. Tsionas, (2004). "Financial development and economic growth: evidence from panel unit root and cointegration tests", *Journal of Development Economics*, 73 (1), pp. 55 - 74.
- Claessens S., and L. Laeven, (2003). "Financial development, property rights, and growth", *Journal of Finance*, 58 (6), pp. 2401 - 2436.
- Fisman R., and I. Love, (2007). "Financial dependence and growth revisited", *Journal of the European Economic Association*, 5 (2 - 3), pp. 470 - 479.
- Fung M. K., (2009). "Financial development and economic growth: convergence or divergence?", *Journal of International Money and Finance*, 28 (1), pp. 56 - 67.
- Godoy S., and J. E. Stiglitz, (2007). "Growth, initial conditions, law, and speed of privatization in transition countries: 11 Years Later", in *Transition and Beyond*, S. Estrin et al. Eds., Palgrave Macmillan, Hampshire, England, pp. 89 - 117.
- Jensen M., and W. Meckling, (1976). "Theory of the firm: managerial behavior, agency costs and capital structure", *Journal of Financial Economics*, 3 (4), pp. 305 - 360.
- Kaufmann D., A. Kraay, and M. Mastruzzi, (2008). "Governance matters VII: aggregate and individual governance indicators, 1996 - 2007", World Bank Policy Research Working Paper No. 4654, Washington, DC.

- King R. G., and R. Levine, (1993). "Finance and growth: Schumpeter might be right", *Quarterly Journal of Economics*, 108 (3), pp. 717 - 737 .
- Kočenda, E., (2001). "Macroeconomic convergence in transition countries", *Journal of Comparative Economics*, 29 (1), pp. 1 - 23.
- Kutan, A. M., and T. M. Yigit, (2004). "Nominal and real stochastic convergence of transition economies", *Journal of Comparative Economics*, 32 (1), pp. 23 - 36.
- La Porta R., F. Lopez - de - Silanes, A. Shleifer, and R. Vishny, (1998). "Law and finance", *Journal of Political Economy*, 106 (6), pp. 1113 - 1155.
- Levine R., and S. Zervos, (1998). "Stock markets, banks, and economic growth", *American Economic Review*, 88 (3), pp. 537 - 558.
- Pistor K., M. Raiser, and S. Gelfer, (2000). "Law and finance in transition economies", *Economics of Transition*, 8 (2), pp. 325 - 368.
- Quah, D., (1997). "Empirics for growth and distribution: stratification, polarization, and convergence clubs", *Journal of Economic Growth*, 2 (1), pp. 27 - 59.
- Rajan R., and L. Zingales, (1998). "Financial dependence and growth", *American Economic Review*, 88 (3), pp. 559 - 586.
- Rioja F., and N. Valev, (2004). "Does one size fit all?: a reexamination of the finance and growth relationship", *Journal of Development Economics*, 74 (2), pp. 429 - 447 .
- Slavova, S. (1999). "Law and finance in transition economies", London School of Economics and Political Science, LSE Financial Markets Group, Special Paper Series No. 121, pp. 1 - 48.
- World Bank, (2008). "World Development Indicators", Washington D.C., World Bank..