Ancestry, Diversity & Finance
Evidence from Transition Economies

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Ancestry, Diversity & Finance: Evidence from Transition Economies*

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Abstract: In this paper, we analyze the growth effects of historical and biological ancestry, diversity and financial development in transition economies. We show that the common indicators of ethnolinguistic fractionalization, state history and genetic distance yield significant results and to some extent transform the impact of finance on growth in East-Central Europe and the former Soviet Union. Deep ethnolinguistic cleavages produce insignificant results, whereas at intermediate and lower levels of aggregation diversity is likely to significantly improve the effect of finance on growth. Similarly to finer ethnolinguistic cleavages, genetic distance from the United States also favorably increases the relevance of financial development for growth. However, state history as a proxy for long-run ancestral exposure to institutions, political organization and centralization reinforces the negative growth effect of financial development. We argue that financial development is inclined to resolve problems arising from coordination failures and absence of trust in diverse societies by easing liquidity constraints and offering incentives for entrepreneurship to minority groups. In contrast, long state history is likely to generate extractive institutions that facilitate the provision of soft budget constraints. Genetic distance from the United States induces higher reliance on continental rather than Anglo-Saxon financing practices, and therefore increases dependence on banks rather than bonds or equity for external liquidity purposes.

Keywords: financial development, economic growth, state history, ethnolinguistic diversity, genetic distance, transition economies

JEL Codes: G21, O15, O43, P26, P51, Z10

1. Introduction

This paper analyzes the long-run effects of diversity and ancestry on the growth-finance relationship in post-socialist countries. We focus on the conditional effect of the banking sector given that capital markets are underdeveloped and relatively unimportant in transition economies. We identify structural breaks in the growth impact of banking sector development along three major legacy variables: ethnolinguistic fractionalization (at different aggregation levels), state history and genetic distance from the world technology frontier, the USA. These measures have gained considerable leverage in research on contemporary economic development. However, their possible effects on the growth-finance nexus have not been investigated yet. To our knowledge, we are the first to do this. The motivation behind this area of focus for our study is the historical flux which has naturally characterized the financial systems of transition countries since the collapse of socialism. The financial sector of transition economies has been transformed from a one-tier state-controlled banking system into an overwhelmingly bank-based and intermediately developed market financial system in

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the last two and a half decades. This unparalleled dynamic provides fertile soil to explore the effects of diversity and ancestry on the growth-finance relationship.

Spolaore and Wacziarg (2009, 2012, 2013) offer a path-breaking theory of ancestry to explain long-run patterns of economic growth on a global scale. Similarly, Alesina et al. (2003) and Desmet et al. (2009) identify the crucial role of ethnolinguistic diversity for GDP per capita growth and redistribution. In this paper, we offer a comprehensive theory of ancestry and diversity in order to analyze the finance-growth nexus in transition economies. We argue that deeper ethnolinguistic cleavages do not matter for the growth impact of finance, whereas finer ones are conducive to the positive effect of financial development on long-run economic performance. Financial institutions are considered to be in a position to resolve problems of coordination and distrust in diverse societies and allow the development of the private sector, also for minorities that lack access to political office and lobbying. Moreover, the genetic distance to the world technology frontier, the US economy, positively enhances the impact of banking sector development on growth. Our results suggest that the *diffusion of development* hypothesis of Spolaore and Wacziarg (2009) holds for the financial sector as well. Larger genetic distance to the Anglo-Saxon countries operates as an obstacle to the diffusion of all those norms, values and jurisdictions which promote the evolution of market-based financial systems. This implies a relatively larger reliance on, and thus a more positive effect of, the banking sector in transition countries with genealogically less relatedness to the USA.

In contrast to diversity and genetic distance, state history seems to adversely affect the leverage of financial development on growth. We argue that state history as a proxy for ancestral exposure to centralization, political organization and institutions facilitates the provision of soft budget constraints as a result of moral hazard and rent-seeking institutions. Ang (2013) argues that state history has a positive effect on financial development around the globe and this could have significant implications for the growth paths of contemporary states. What he proposes is that state history is associated with more efficient financial transactions, bureaucracies and taxation (ibid.). In contrast, we concentrate on transition economies and propose that, in this case, state history strengthens the negative growth effect of financial development. This pivotal distinction between Ang's paper (2013) and our paper lies in the following reasons. First, the institutional legacies of central planning, such as soft budget constraints and bureaucratic rent-seeking under conditions of imperfect monitoring, also perpetuate in the post-transition period. Second, Ang (2013) is much less conclusive about the finance-growth nexus, as his main results underscore the significant and positive effect of state history on financial development *per se*.

It is important to stress here that our contribution to the current body of literature is two-fold. On the one hand, we expand the literature on the deep roots of economic development by offering a finance-growth perspective. On the other hand, we enrich the finance-growth literature along two dimensions.[3] First we provide a study that elaborates on the transition economies and their institutions. Second, we offer a new channel of nonlinear finance. The nonlinear effect of financial development on economic growth is an innovative, new strand of the general growth-finance literature initiated by Rosseau and Wachtel (2002) and Deiddaa and Fattouh (2002). Three potential channels of nonlinearity have been already identified. Rioja and Valev (2004b) and Huang and Lin (2009) argue that the effect of finance on growth depends on the stage of economic development. A second line of the literature emphasizes the nonlinearity according to the size of the financial sector (e.g. Rioja and Valev, 2004a; Law and Singh, 2014; Samargandi et al., 2015; Arcand et al. 2015). Finally, the conditioning effect of institutions (policies) on the growth-finance nexus is emphasized in Rousseau and Wachtel (2002), Demetriades and Law (2006) and Law et al. (2013). Beyond these (development/finance/institutional) perspectives, our paper establishes a fourth perspective in nonlinear finance by using diversity and ancestry threshold variables: *the legacy perspective.*[4]

The key transition debates on the optimal sequencing of economic reforms and the welfare differences between shock therapy and gradualism have missed the important role of financial development and its linkages to ancestral institutions and diversity. In our paper, we argue that the relative successes and failures in economic transformation, stabilization and subsequent catching-up of East-Central Europe and the former Soviet Union also depend on the ways that state history, genetic distance and ethnolinguistic fractionalization have shaped the finance-growth channel.

The paper is structured as follows. Sections 2 and 3 provide an overview of the literature on finance and growth in transition economies, as well as on ancestry, diversity and long-run economic performance. Section 4 presents the data and empirical strategy of the paper. In section 5, we present the results and perform relevant robustness checks. Section 6 offers an informed discussion of our results in the light of institutions, finance and long-run growth in transition economies. Section 7 concludes.

2. Finance & Growth in Transition Economies

Koivu (2002) was among the first to research the growth-finance nexus in transition. Her results show that the bank lending-deposit interest rate spread (henceforth interest rate spread, or IRS) negatively affects growth, while the amount of private credit does not exert any significant effect. Koivu and Sutela (2005) corroborate these findings based on the same sample. Dawson (2003) reveals that liquid

[3] For an overview of the general growth-finance literature see, e.g., Levine et al. (2000) and Levine (2005).

[4] The legacy perspective has already had some presence in the finance literature. La Porta et al. (1998) and Beck et al. (2003) provide invaluable insights into the decisive role of legal origin for financial development. Harper and McNulty (2008) demonstrate that legal origin is also relevant to the financial development of transition economies. Grosjean (2011) presents evidence on the historical legacy of the Ottoman empire on financial development in Southeastern Europe. Nevertheless, all these works constrain themselves to explaining the level of financial development and do not consider the growth-finance nexus.

liabilities were not a relevant growth determinant during the nineties in 13 transition countries. Botric and Slijepcevic (2008) also point out the negative effect of the interest rate spread on growth in South-East European economies. Moreover, they are unable to uncover any significant explanatory power of non-performing loans in relation to economic growth. Djalilov and Piesse (2011), focusing on 27 transition countries, conclude that credit to the private sector is not relevant for growth, while the interest rate spread affects growth negatively. They consider the average of the EBRD financial transition indicators as an overall composite measure for financial development as well. Their results show quite surprisingly that this overall measure is negatively correlated with growth. In contrast to the latter, Caporale et al. (2015) find that, in line with the predictions of theory, the average level of the financial transition indicators exerts large positive effect on growth. They also present some evidence on the positive effect of the financial sector size on growth. The recent study of Cojocaru et al. (2016) considers a larger set of proxies on the efficiency of the financial sector. Beyond the interest rate spread, they also include the concentration rate and the overhead costs of the banking sector in their analysis. According to their results, efficiency is superior to size when it comes to the growth effect of financial development, at least in transition economies.

These papers underscore the importance of financial development for economic growth in post-socialism: efficiency measures of the financial sector (e.g. interest rate spread, overhead costs) are important for growth, while size measures (e.g. private credit, liquid liabilities) are less so.[5] The literature provides three, one general and two transition-related, explanations about this robust finding. According to the general reasoning, the increase in the size of the financial sector can have different growth effects in the short- and the long-run. For example, Loayza and Rancière (2006) point out that the abrupt rise in private credit might result in financial turmoil thereby plaguing the short-term growth-finance relationship. Indeed, the results of Gaffeo and Garalova (2014) bolster the legitimacy of this timeframe argument in the case of transition economies as well. These authors estimate the short- and long-run growth effects of financial development with an error-correction model. According to their results, the size of the financial sector exerts a positive influence on growth in the long-run, while the short-run effect is less favorable and much more ambiguous.

Regarding the transition-specific reasons, Koivu and Sutela (2005) emphasize two possible explanations for the striking absence of any robust growth promoting effect of the size of the financial sector. First, targeted loans by state-owned banks, state subsidies and soft-budget constraints continued to prevail in some transition economies even several years after the collapse of the Soviet bloc. Under such circumstances, the increase in the amount of credit devoted to the private sector

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[5] Contrary to the experience of post-socialist transition countries, Zhang et al. (2012) unravel a robust positive growth effect in relation to several size-based financial development measures in China. However, considering its very special way of economic transition, the results on China are not really authoritative for other transition economies.

does not automatically entail the proliferation of efficient private investments. Second, banking crises were natural concomitants of economic transition during the nineties, which introduced temporary negative shocks into the growth-finance relationship (IMF 2014). The leverage of these arguments has certainly petered out for the 2000s and so recent studies based on more recent samples are less exposed to them.

The main body of the literature on transition economies almost completely ignores the most recent research issues of the general growth-finance literature. Indeed, there are only very few studies which consider the possible nonlinear effect of finance in transition countries. The most authoritative papers are Masten et al. (2008), Fink et al. (2009), Coricelli and Masten (2004) and Gillman and Harris (2004).

Masten et al. (2008) investigate both the effect of financial development and financial integration on growth. In their paper, size-based measures of financial development are relevant for growth in neither transition nor non-transition economies. In contrast, integration into global financial markets is beneficial for growth, at least in transition economies. Moreover, these authors manage to reveal nonlinearity in the relationship between growth and financial integration along the level of financial development. They conclude that financial development, as a proxy for the absorptive capacity of an economy, is conducive for the unfolding of the positive growth effect of financial integration.

Fink et al. (2009) pose the question of whether the major segments of the financial sector, i.e. the bond, stock and banking market, have different effects on growth at different stages of economic development. They split their sample arbitrarily into high, middle and low-income countries, where the latter group is composed primarily of post-socialist countries. By running the estimations on the three sub-samples separately, the authors come to the conclusion that indeed the effect of the individual financial segments on growth depends on the stage of economic development. Furthermore, they find that the development of the financial sector is most beneficial in transition economies.

Coricelli and Masten (2004) introduce the interaction of private credit growth with the average of EBRD financial transition indicators into their growth regression. According to their results, the growth of private credit exerts a negative direct effect and a positive indirect effect on economic growth. Consequently, the overall growth impact of a credit expansion depends on the institutional quality of the financial sector. Gillman and Harris (2004) also apply interaction to control for nonlinearity in the growth-finance nexus. However, their focus is set on inflation as a conditioning factor. Quite surprisingly, their results show that in transition countries the effect of financial development on economic growth improves with a higher inflation rate. This runs counter to the findings of the general finance literature (Rousseau and Wachtel 2002).

To sum up, the transition literature has revealed considerable positive growth effects in relation to the typical efficiency measures of the financial sector, such as the interest rate spread and overhead costs. However, it has failed to prove the importance of the other key dimension of financial development, the size of the financial sector, in the growth process. The most frequent and relevant size measure, the amount of (domestic/private) credit, proved to be overwhelmingly irrelevant in growth regressions. Beyond the previously discussed considerations (i.e. the timeframe argument, the soft-budget constraint, the banking crises), another explanation for the missing *growth - financial sector size* link can be the ignorance of possible nonlinearities in the growth-finance relationship when it comes to transition economies. The results of the very few papers which consider nonlinearity in transition countries are suggestive from that point of view. Both in Gillman and Harris (2004) and Coricelli and Masten (2004) the main effect of the considered financial sector size measure is negative on growth, while its indirect effect embodied by the interaction term is positive. Moreover, in Koivu (2002), private credit becomes a relevant growth determinant in CIS countries after splitting the sample arbitrarily.[6]

3. Ancestry, Diversity & Long-Run Economic Performance

The role of long-term factors in economic development has shifted the focus of the literature from contemporaneous levels of institutional development toward deeply rooted cultural, historical and biological factors. Bockstette et al. (2002) construct the state history indicator of early development, which provides a composite measure of population exposure to centralized statehood and organized institutional and societal framework on the territory of a given country. They suggest that state history as a proxy for state capacity, ethnic homogeneity and dense population has a positive effect on economic growth.[7] In their study on transition economies, Iliev and Putterman (2007) observe that within the Eurasian socialist group of states, societies with longer state history, higher geographic proximity to Western Europe or East Asia, and lower levels of ethnic diversity tend to perform better than others. This is the case both under socialism and in transition. In contrast to previous studies, Putterman and Weil (2010) adjust state history according to the ancestral affiliation of the present population based on their 1500 AD. origins. They argue that countries with populations originating from states with a longer history of agricultural and political development tend to be wealthier than others. Moreover, they find that population heterogeneity also induces higher economic growth, but, at the same time, stronger rates of income inequality as well. Ancestry as a factor of economic growth is linked with growth-spillover effects between groups with different state histories; the authors recognize the limits of providing a fully convincing story of why this is the case (ibid.). While state history is generally considered to be conducive to growth, Borcan et al. (2014) show that excessive state experience can be detrimental to economic performance due to the emergence of deeply

[6] For a concise overview of the studies discussed in this section, see table A5 in the appendix.
[7] On the relationship between state history and economic growth, see also Chanda and Putterman (2005, 2007).

entrenched extractive institutions. This indicates a concave rather than a linear relationship between economic development and state history (ibid.).

Spolaore and Wacziarg (2013) provide a detailed overview on the effects of cultural, historical and geographic factors on economic growth and development. On the one hand, they share the arguments of Olsson and Hibbs (2005) and Ashraf and Galor (2013) on the positive role of favorable Neolithic conditions for productivity. On the other hand, they argue that genealogical relatedness between populations (also in Spolaore and Wacziarg, 2009) can offer a solid basis for the transmission of technological progress and economic growth spillovers. At the same time, they do not make a case for genetic and cultural determinism in economic outcomes. It is clear that development policies can reduce the significance of historical barriers, but in order to do so the existence of the latter must first be identified (Spolaore and Wacziarg, 2013). East-Central Europe, Southeastern Europe and the former Soviet Union constitute an extremely diverse cultural and genealogical space whose characteristics can also account for divergent financial development and growth paths. Furthermore, in their more recent work, Spolaore and Wacziarg (2015) argue that countries with more closely related population groups in terms of religious, linguistic and genetic distances are more likely to engage in war across their borders. This is a very interesting thesis since it means, contrary to the Huntingtonian concept of the clash of civilizations, countries that are culturally dissimilar have been less inclined to be involved in militarized conflict over territory.[8]

Ethnic and cultural diversity as drivers of contemporary socio-economic outcomes have been introduced by Alesina et al. (2003) and Fearon (2003). Alesina and La Ferrara (2005) observe that social conflict, coordination failures and lack of trust are generally negative consequences of fragmented societies. However, diversity can facilitate economic development through the skill complementarity channel. The difference between micro- and macro-levels of socio-economic organization is also significant in this respect. There is a growing body of literature pointing out that ethnic and cultural diversity are likely to be positive for growth at subnational levels (see discussion below).

Desmet et al. (2012) also explore the key relationship between ethnolinguistic diversity and political economy outcomes such as the onset of civil war, redistributive policies and public goods provision. Their path-breaking contribution lies in the differential effect of diversity at different levels of linguistic aggregation (from 1 to 15). Deeper cleavages, where the aggregation levels for polarization and fractionalization are the highest, have a higher propensity toward civil war and redistribution (ibid.). However, finer linguistic differences start to matter when it comes to economic growth and public goods provision. In this case, diversity has a negative effect on growth and on

[8] For the relationship between genetic distance and propensity to conflict in the form of fractionalization or polarization, see Arbatli et al. (2015).

coordination of the delivery of basic government services. In addition, linguistic fractionalization seems to matter consistently more than polarization (ibid.).

Continuing the discussion in the direction of imperial and long-run institutional legacies, BenYishay and Grosjean (2014) propose that the divide between Russian and Ottoman imperial legacies, on the one hand, and German and Habsburg legacies, on the other, can powerfully explain divergent transition outcomes in the post-socialist region. In former Russian and Ottoman provinces, energy entrepreneurs were much more successful in opposing or capturing liberalization compared to former German and Habsburg provinces. This propensity to successfully resist liberalization is, according to BenYishay and Grosjean (2014), what explains different levels of concentration in the natural resource sector at the beginning of transition and, therefore, divergent long-run economic outcomes. Harper and McNulty (2008) observe a negative effect of Russian legal origin on levels of financial development in transition economies. La Porta et al. (2008) empirically corroborate the findings of their first theoretical paper (Djankov et al., 2003) on the significance of legal origins for economic performance. Nevertheless, their theory does not explicitly consolidate the superiority of common law over civil law, as it could have been argued earlier, but it also contends that civil law may dominate common law in terms of economic growth when the problem of disorder in a society is not so severe (as opposed to dictatorship). Still, they regard the market-supporting regulation of common law as more appropriate for economic growth under conditions of globalization than the policy-implementing nature of civil law, which reveals a clear preference for disorder rather than dictatorship. With respect to post-communist democratization, historical legacies seem to have captured divergent regime outcomes in Eastern Europe, Russia and Eurasia (Pop-Eleches, 2007).

4. Data & Empirical Strategy

We estimate typical Barro-regressions extended with a financial development measure and the interaction of the latter with a quantile dummy which controls for the potential regime effect of the underlying ancestry/diversity threshold variable. Our objectives are twofold. First, we intend to find evidence of the presence of a structural break in the growth-finance nexus along some deep-rooted ancestry and diversity determinants of economic development (henceforth deep-rooted development (DRD) variables). Second, we intend to reveal the differential nature of the effect of financial development on growth in the imputed lower and upper regimes of the distribution of the considered deep-rooted development variables. Hence, we build on the following baseline model specification:

$$(1) \qquad \ln(y_{it}) = \alpha_i + \beta_1 FD_{it} + \beta_2 DRD_i + \beta_3 (FD_{it} \cdot DRD(\#)_i) + \overline{\gamma}^T \left[conditioning\ set_{it} \right] + \varepsilon_{it}\,,$$

where the idiosyncratic disturbances are supposed to be non-correlated within and across units but their variance is allowed to be country-specific: $\varepsilon_{it} \sim N(0,\sigma_i^2)$, $Cov(\varepsilon_{it},\varepsilon_{il}) = 0 \ \forall \ t \neq l$ and $Cov(\varepsilon_{it},\varepsilon_{jl}) = 0 \ \forall \ i \neq j$. In equation (1), *i* indexes the countries, *t* indexes the time, *ln(y)* is the log GPD per worker, α_i is the fixed country effect, *FD* denotes financial development, *DRD* is the deep-rooted development variable and *DRD(#)* is a dummy which indicates the position of a country in the distribution of transition countries along the given deep-rooted development variable. The value of *DRD(#)* is set to 1 if the country falls into the upper (100 – #) percent of the distribution, and it is set to zero otherwise. For example, in the case of # = 30, *DRD(30)* is 1 if the country disposes of a quantile value related to the deep-rooted development variable which is larger than 30 percent. If this is not the case, that is, if the value of the deep-rooted development variable falls into the lower 30 percent of the underlying distribution, then *DRD(30)=0*. Note that by virtue of its construction *DRD(#)* is just a quantile dummy.

We consider three financial development measures in our estimations, the *FI* index of Svirydzenka (2016), the amount of credit granted by deposit money banks to the private sector (private credit, or *PCB*) and the difference between the average lending and deposit interest rates in the banking sector (interest rate spread, or *IRS*). The *FI* index is a composite measure of the development of financial institutions (practically the banking sector) embracing both their size, efficiency and accessibility (see below). In contrast to the FI index, the *PCB* considers only the size, whereas the *IRS* only the efficiency, of banking activity. We pull these financial development measures into our regressions one-by-one. Therefore, following the financial development measures, equation (1) has three sub-specifications.[9]

With respect to the deep-rooted development variable, five different measures are considered: the first, the third and the sixth level of the ethnolinguistic fractionalization index of Desmet et al. (2012) (*ELF1, ELF3, ELF6*); the ancestry adjusted state-history (state history, or *SHadj*) of Putterman and Weil (2010); and the weighted genetic distance from the USA (genetic distance, or *GDw*) in Spolaore and Wacziarg (2013).[10]

The covariates (conditioning) set consists of the following usual policy, structural and production factor measures: 1. the first-order lag of the dependent variable (ln(y)(-1)), 2. the (logged) gross enrolment ratio into tertiary education (ln(TER)), 3. the (logged) gross fixed capital formation (ln(GFCF)), 4. the inflation rate (Inflation), 5. natural resource rents (NR_rents), 6. the quality of

[9] We also performed the estimations when private credit and interest rate spread were jointly included in the model so that only private credit was interacted with the *DRD*(#) quantile dummy. Moreover, we also considered other size- and efficiency-based measures of financial development to which the growth-finance literature traditionally resorts to. These were the average overhead costs of banks, the domestic (i.e. private and public) credit to the private sector and the deposit money banks' assets. The results, available upon request, are very similar to the default ones and do not offer any further insight into the growth-finance nexus.

[10] The estimations were also performed using the unadjusted state history and the unweighted genetic distance indexes of the same sources. The results are very similar to the default ones and available upon request.

institutions measured by the arithmetic average of the six Worldwide Governance Indicators (WGI) and 7. a period dummy to control for the external shock caused by the global economic crisis (GlobalCrisis: 1 for 2009-11, 0 otherwise). Other policy and structural variables were also considered but they proved to be insignificant (see below).

Our emphasis is placed on the *FD*DRD(#)* interaction term. Namely, its introduction into the model splits the sample arbitrarily into two parts depending on the effect of financial development on output per capita. In the lower # percent of the sample distribution of the deep-rooted development variable, where *DRD(#)=0*, the marginal effect of financial development on GDP is β_1, which is simply the main effect of *FD* in equation (1). On the other hand, in the upper (100 – #) percent of the sample distribution, where *DRD(#)=1*, the marginal effect of financial development on economic output is $(\beta_1 + \beta_3)$, that is, the sum of *FD*'s main effect and indirect effect conditioned on the deep root of economic development. If the coefficient of the interaction term differs from zero, there is a clear break in the growth-finance relationship based on the underlying deep-rooted development variable. Therefore, in our analysis we primarily focus on the t-test of the β_3 coefficient. The estimations are performed for three threshold values, # = 30, 50 and 70; that is, we split the sample at the 30^{th}, 50^{th} and 70^{th} percentile of the *DRD* threshold variable.

We estimate equation (1) for each *FD-DRD-DRD(#)* combination, which sums up to 45 different model specifications. The default estimation method used is the system GMM developed by Arellano and Bover (1995) and Blundell and Bond (1998).[11] The right-hand-side variables in equation (1) are considered to be endogenous to contemporary idiosyncratic shocks, with the exception of the global crisis dummy, the deep-rooted development variable and the natural resource rents, all of which are treated as strictly exogenous regressors.

The relatively low number of cross-sectional observations in our sample suggests applying GMM in the following way. First, we prefer first-step GMM over two-step GMM. Second, we constrain the number of GMM instruments by setting their maximum lag order to 2 at the (transformed) first-differenced equation.[12] Two-step GMM is asymptotically more efficient than one-step GMM. Nevertheless, the estimation of the optimal weighting matrix, that is, the second moments of the empirical moment conditions, is a source of considerable uncertainty with regard to the finite sample superiority of the former over the latter. In fact, Monte Carlo studies tend to show that, on the one hand, two-step GMM does not outperform one-step GMM in terms of accuracy and precision, while, on the other hand, the supposed efficiency gain of going one-step further is tiny in moderate samples

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[11] The system GMM estimations are conducted by the *xtabond2* command, developed by Roodman (2009a), in Stata.
[12] We exploit the following moment conditions: $E\left[\overline{x}_{i(t-2)}\Delta\varepsilon_{it} \mid t\right] = 0$ and $E\left[\Delta\overline{x}_{i(t-1)}\varepsilon_{it} \mid t\right] = 0 \ \forall \ \text{t} \geq 3$, where $\overline{x}$ is the vector of the right-hand-side variables in equation (1) with the exception of '*GlobalCrisis*', '*DRD*' and '*NR_rents*'.

and almost non-existent in such small samples as ours (Blundell and Bond, 1998; Windmeijer, 2005; Soto, 2009). The small sample size causes another serious problem at system GMM, the proliferation of instruments (Roodman, 2009b). Instrument proliferation has many costs (e.g., the overfitting of the endogenous variables and the low power of the Hansen test of instrument validity), and so its mitigation is highly recommended (ibid.). To sum up, the containment of the number of instruments and the preference of one-step over two-step estimation are common in the (system) GMM literature in the case of small samples (e.g., Bond et al., 2001; Beck and Levine, 2004). Nevertheless, we check the robustness of the results with respect to the estimation methodology later.

Another peculiarity of our GMM estimations is that in addition to the standard system GMM instruments (i.e., the lagged level/differenced right-hand-side variables), we also involve additional external non-GMM instruments, which are traditionally used to control for the exogenous evolution of financial development, in the instrument matrix. These instrumental variables are related to the legacies of empires and legal origin (see, e.g., La Porta et al., 2008; Grosjean, 2011). The imperial legacy instruments are composed of dummy variables which indicate the imperial affiliation of post-socialist countries in 1900.[13] The legal origin instruments embrace a French legal origin dummy from La Porta et al. (2008) and a '*CIS&MNG*' dummy (1 for Mongolia and the Commonwealth of Independent States, 0 otherwise) to control for the potentially differential effect of Russian legal origin on financial development discussed in Harper and McNulty (2008).

Data & Sample

This section introduces the data and the related descriptive statistics. Table 1 summarizes the basic information with regard to the notations, units of measurement and data sources.[14] We briefly comment only on those variables which might not be evident from the table. Natural resource rents are intended to cover the rents coming from the oil and natural gas sectors. Rents are understood as the estimated revenue in excess of the costs of extraction including the normal return on capital.

The *ELF#* index is a fractionalization index typically used in the literature to gauge the probability that, when choosing any two members of the society randomly, they will belong to different (ethnolinguistic) groups.[15] The index is maximized (at one) when each member of the society belongs to a different group. In contrast, it takes on a value of zero in a completely homogenous population.

[13] We use separate dummies for the Austro-Hungarian, German, Russian and Ottoman empires. The independent countries and the countries not affiliated to any of the previous four empires in 1900 constitute the control group. In those cases, when the present territory of a country was partitioned by more than one empire in 1900, the respective dummies are set to 1 jointly. In other words, the dummies are not adjusted according to the proportion of territory ruled by the individual empires. For example, in the case of Poland, the Austro-Hungarian, the German and the Russian empire dummies are both set to 1. For more details on the imperial legacy and legal origin dummies, see table 1 in the online appendix.

[14] Although we focus on the banking sector, this section provides some data on stock market development as well.

[15] The index is calculated as follows: $ELF\# = 1 - \sum_{i=1}^{i=N} s_i^2$, where s_i is the population share of group i and N is the number of groups (see Alessina et al., 2003).

Desmet et al. (2012) measure diversity at different levels of linguistic aggregation. Using language trees, they distinguish 15 different levels. The highest aggregation level (level 1) embraces the deepest cleavages in a society, which cleavages go back several thousand years. Moving down the aggregation level, the measured diversity captures finer and finer ethnolinguistic ruptures. In transition countries, fractionalization practically does not change beyond the sixth aggregation level, which accounts for our decision not to consider lower *ELF#* levels in our analysis.

State history measures the exposure to an organized state framework from 1 to 1950 AD. It provides a composite value on the existence, independence and territorial coverage of statehood within the present borders of a country (Bockstette et al., 2002). The index is maximized at one when an independent (domestic) state power controlled the majority of the present territory of a country without any major break during the first two millennia. On the other hand, if no organized statehood existed in that period, the index swings to the other extreme, zero. We use ancestry-adjusted state history as per Putterman and Weil (2010), which is calculated as the weighted average of the (1-1950 AD) state history of the year-1500 AD origin countries of the current population.[16] The adjustment according to ancestry controls for the large post-1500AD population flows and the imputed heterogeneity with respect to the historical exposure to organized statehood. Nonetheless, we have to stress that in most cases unadjusted state history falls close to the adjusted one in transition countries because of the relatively minor population movements in the region after 1500 AD.

Genetic distance is intended to capture the genealogical relatedness of countries. It is a "molecular clock" which approximates the time elapsed since two populations have separated, that is, the distance from their most recent common ancestor (Spolaore and Wacziarg, 2009). After their split, the human genomes of two populations start to drift away either randomly or as a result of natural selection. The genetic distance data of Spolaore and Wacziarg (based on the original data collection of Cavalli-Sforza et al., 1994) consider exclusively the random drifts by focusing only on differences in *neutral genes* and neglecting those related to genes responsible for fitness and survival. This is motivated by the authors' intention to use genetic distance as a composite measure of differences in the vertically transmitted beliefs, traits and habits which might emerge as barriers to the diffusion of ideas and technologies.[17] We use the F_{ST} index of genetic distance to the USA from Spolaore and Wacziarg

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[16] More precisely, the *X* migration matrix is multiplied by the vector of unadjusted state history indexes (*sh)* of origin countries from the right. The rows in the migration matrix contain the proportions of year-1500 origin countries of countries' present population. The unadjusted state history index, with a discount factor of 5 percent, is calculated as follows: $sh = \left(\sum_{t=0}^{39} 1.05^{-t} * s_t\right) / \left(\sum_{t=0}^{39} 1.05^{-t} * 50\right)$, where s_t is the state history variable of the *t*-th half-century going backward in time from 1950 to 0. For example, *t=0* refers to 1950-1901 and *t=1* refers to 1851-1900 etc. The s_t state history variable takes on a maximum value of 50 if the majority of the present territory of the country (i.e., >50%) was ruled by domestically located, independent government in the given half-century. For more details, consult Putterman and Weil (2010).

[17] As Spolaore and Wacziarg (2013, pp.342) put it: "… since genetic distance is based on neutral change, it is not meant to capture differences in specific genetic traits that can directly matter for survival and fitness. Hence, we emphasize that empirical work using genetic distance provides *no evidence* for an effect of specific genes on income or productivity. …

(2013), weighted by the ancestral composition of the countries' present population. The theoretical minimum of F_{ST} (i.e., zero) corresponds to the case when the allele (i.e., the variant of a gene) distributions are identical across two populations. In contrast, it reaches its maximum (i.e., one) in the hypothetical case when all individuals within each population have the same alleles (gene variants at the given loci) and these alleles differ completely across the two populations. The higher the differences in the allele distributions across two populations, the larger the genetic distance between them is (Spolaore and Wacziarg, 2014). The selection of the USA as the point of comparison is motivated by its technological frontier status. Genetic distance is calculated at the population (ethnolinguistic group) level. However, countries are usually inhabited by more than one ethnolinguistic group. To take account of population diversity, we resort to the ancestry-weighted genetic distance of transition countries to the USA, which gives the expected genetic distance between two randomly chosen individuals, one from the USA and from the underlying transition country.[18]

The *FI* index is a composite measure of the development of financial institutions including banks, insurance companies, pension funds and mutual funds (Svirydzenka, 2016). It is the average of the depth of financial intermediation by financial institutions, the efficiency of financial institutions and the accessibility to their services. The index is normalized to the interval of [0; 1] and is so constructed that higher *FI* means higher overall development of financial institutions.[19]

Our panel data covers the period between 1993 and 2014 and includes 26 transition countries. These countries are Albania, Armenia, Azerbaijan, Belarus, Bosnia and Hercegovina, Bulgaria, Croatia, Czech Republic, Estonia, FYR Macedonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Mongolia, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Tajikistan and Ukraine. The descriptive statistics, tailored to the major regions, and the correlation matrix of the annual observations are depicted in tables 2 and 3. Furthermore, in figure 1 we present the distribution of deep-rooted development variables in the post-socialist region. Note that they are fixed in time. Figure 2 introduces the evolution of average financial development in the main transition regions.

Rather, it can serve as evidence for the importance of intergenerationally transmitted traits, including traits that are transmitted culturally from one generation to the next."

[18] The weighted index is calculated as follows: $GDw = \sum_i \sum_j s_{TC,i} \times s_{USA,j} \times GD_{ij}$, where $GD_{i,j}$ is the F_{ST} genetic distance between (ethnolinguistic) group *i* and *j*, while $s_{TC,i}$ and $s_{USA,j}$ are the share of group i/j in transition country TC and the USA, respectively.

[19] Technically, the *FI* index is the weighted average of the depth of intermediation (*FID*), the efficiency (*FIE*) and the accessibility (*FIA*) sub-indexes related to financial institutions. These sub-indexes are constructed from several indicators of the underlying dimension of financial development just in the same way as the *FI* index. The *FID* sub-index comprises the amount of private credit and insurance premiums and the assets of pension funds and mutual funds. The *FIE* sub-index embraces, among others, the return on assets and the overhead costs of financial institutions and the interest rate spread. Finally, the *FIA* sub-index involves the bank branches and the ATMs per 100,000 adults.
In the original dataset, both missing financial sectors/markets and missing data are encoded by zero. As the banking sector was certainly not missing in any transition countries, neither at the onset of market economy transformation nor later, we treated the *FI=0* observations as missing in our sample. There are six such data points between 1994 and 2014 (GEO – 1994, KGZ – 1994, BIH – 1994, TJK – 1994-96).

Table 1. Data description and sources

Variable	Notation	Unit	Data source	Notes
GDP per worker	y	USD (PPP, 2011 prices)	PWT9.0	Own calculation based on the series of '*rgdpna*'[1] and '*emp*'[2].
Enrollment ratio into tertiary education	TER	%	UIS	gross ratio, both sexes
Gross fixed capital formation	GFCF	% of GDP	WDI	
Inflation	Inflation	%	WEO	Change of consumer prices (annual average)
Natural resource rents	NR_rents	% of GDP	WDI	Sum of '*Oil rents*' and '*Natural gas rents*'
Global crisis dummy	GlobalCrisis	1 for 2009-2011, 0 otherwise		
Average Worldwide Governance Indicators	WGI	index [-2.5 ; 2.5] [4]	Worldwide Governance Indicators (World Bank)	Arithmetic average of the 6 WGIs
Ethnolinguistic fractionalization	ELF#	index [0 ; 1] [4]	Desmet et al. (2012)	Aggregation level # = 1, 3 and 6
Ancestry-adjusted state history	SHadj	index [0 ; 1] [4]	*X*: World Migration matrix, 1500-2000 (v.1.1) *sh*: State Antiquity Index (v.3.1) ('*statehistn05v3*') Putterman and Weil (2010)[3]	Own calculation based on Putterman and Weil (2010): $X * \overline{sh}$, where $\overline{sh}$ is the vector of the *sh* state antiquity (history) indexes for the period 1-1950AD with a discount factor of 5% and normalized to [0 ; 1].
Weighted genetic distance to the USA	GDw	index [0; 10,000] [4]	Spolaore and Wacziarg (2013) ('*fst_weighted_usa*')	The original weighted F_{ST} index ($\in [0; 1]$) is multiplied by 10,000 in Spolaore and Wacziarg (2013) in order to facilitate the readability of estimated coefficients
Private credit by deposit money banks	PCB	% of GDP	GFDD	
Interest rate spread	IRS	percentage points	GFDD	Bank lending-deposit spread
Development of financial institutions	FI	index [0 ; 1] [4]	Svirydzenka (2016)	Composite index of the size, efficiency and accessibility of financial institutions. Zeros in the original dataset are treated as unavailable observations.
Stock market capitalization	STC	% of GDP	GFDD	Value of shares listed at the stock exchange

Notes: [1] Real GDP using national-accounts growth rates, [2] Number of persons engaged, [3] The *Migration matrix* and the *State Antiquity Index* are available on Louis Putterman's website (http://www.brown.edu/Departments/Economics/Faculty/Louis_Putterman/), [4] Government Quality/ Fractionalization /State history /Genetic Distance /Financial Development increases with the index.
Abbreviations: PWT9.0 – Penn World Table 9.0 (Feenstra et al., 2015), UIS – UNESCO, Institute for Statistic, WDI – World Development Indicators (The World Bank), WEO – World Economic Outlook (April 2016, IMF), GFDD – Global Financial Development Database (June 2016, The World Bank)

According to each measure, financial development is at the highest level in Central Europe, followed by South-East Europe. The financial sector of East-European, Caucasus and Central Asian countries is equally developed on the regional average but lag behind their Western post-socialist counterparts significantly. The amount of private credit and the overall development of financial institutions are considerably lower, while the lending-deposit bank interest rate spread is substantially higher in the Soviet successor states. This relative ranking of transition regions characterized the whole period under consideration (figure 2).

Regional patterns are also observable with respect to the deep-rooted development variables (figure 1). Ethnolinguistic fractionalization at each aggregation level tends to be higher in the eastern part than in the western part of the post-socialist bloc. The same relation holds for (ancestry-adjusted) state history but in the opposite direction. People are more accustomed to an organized state framework in Central and South-East Europe than in most post-Soviet countries. Genetic distance from the USA is expected to increase with longitude based on the supposition that the Asian population is less related to the US population than the Central-European one is. This premise largely holds, but a few outlier countries, notably Hungary, the Baltics and Tajikistan, obscure the big picture (see figure 1).

Regarding pairwise correlations, we discuss only the relationship of financial development and deep-rooted development variables. First, state history is negatively correlated with ethnolinguistic fractionalization and genetic distance to the USA. Indeed, this is the direction one might reasonably expect. In more diverse populations, which are also more polarized up to a certain level of fractionalization, social conflicts are more prevalent, making it harder to establish and cement centralized state power. Furthermore, larger genetic distance obstructs the adoption of those institutions and both legal and tacit societal rules of developed western countries which facilitate the solidification of a centralized state framework.

Financial development is negatively correlated with ethnolinguistic fractionalization. In more diverse transition economies, the amount of private credit and stock market capitalization tend to be lower, while the lending-deposit interest rate spread tends to be higher. State history is positively related to the development of the banking sector, matching the result of Ang (2013). From among the financial development measures, genetic distance correlates significantly only with stock market capitalization. The relationship between them is negative, and this will be of importance during the discussion of our results. Finally, the four financial development measures move in the same direction, meaning that the development of the banking sector and the capital markets have gone hand in hand in transition countries.

Annual data are noisy because of business cycles. To address this problem, the growth literature operates with multiple-year – typically 5-year – periods. However, time series on transition countries are naturally constrained to the last two and a half decades. In order to maintain a reasonably long time dimension for our panel sample, we work with 3-year periods (1994-96, 1997-99, 2000-02, 2003-05, 2006-08, 2009-11, 2012-14), which enables t=7 time observations. Thus, our 3-year panel sample consists of 182 data points. Most of the variables in regression (1) are period averages, meaning that at time *t* they take the average value of the underlying period. The only exceptions are, on the one hand, the time-invariant deep-rooted development variables and, on the other hand, the (log) GDP per worker, with the GDP per worker at time *t* referring to the end-year of the underlying period.[20]

[20] In fact, the reason for the inclusion of the year 1993 in the dataset is to already have observations on the lag dependent variable in the first 3-year period.

Table 2. Descriptive statistics tailored to the major country groups (annual data: 1994-2014)

		CEB (=8 countries)[1]					SEE (=7 countries)[2]					EE + Caucasus (=7 countries)[3]					Central Asia (=4 countries)[4]				
		Obs	Mean	SD	Min	Max	Obs	Mean	SD	Min	Max	Obs	Mean	SD	Min	Max	Obs	Mean	SD	Min	Max
	y	168	42654	10622	17762	62802	147	32780	12289	9548	57569	147	20623	11174	4665	48592	84	16692	11261	5054	47879
Conditioning set	TER	166	54.1	19.7	17.0	88.5	131	38.0	15.3	10.2	71.3	132	47.9	20.0	16.8	91.0	70	34.3	13.5	12.8	64.3
	GFCF	164	24.8	4.7	14.3	37.1	144	22.4	6.4	5.4	40.5	147	23.7	7.5	2.6	57.7	83	22.3	8.0	7.4	48.4
	Inflation	164	6.6	7.5	-1.2	47.7	140	21.0	92.6	-1.6	1061.2	146	102.7	498.6	-8.5	5273.4	84	51.9	174.1	0.9	1402.0
	WGI	128	0.778	0.181	0.245	1.214	112	-0.143	0.348	-1.222	0.447	112	-0.587	0.297	-1.099	0.391	64	-0.671	0.427	-1.659	0.211
	NR_rents	158	0.17	0.24	0.00	1.12	141	1.22	1.49	0.00	6.80	143	10.71	17.08	0.00	68.35	82	7.64	13.08	0.00	44.52
FD variables	PCB	166	41.8	20.5	6.7	102.5	138	33.2	18.6	2.8	73.3	146	18.7	15.5	0.9	73.9	79	17.9	13.8	3.7	57.2
	IRS	143	5.41	3.03	0.26	24.18	133	10.62	9.52	2.42	58.92	133	13.41	14.12	0.03	91.76	57	19.20	11.84	4.67	59.75
	FI	168	0.462	0.125	0.127	0.743	146	0.381	0.139	0.169	0.693	146	0.248	0.111	0.078	0.551	80	0.224	0.127	0.072	0.576
	STC	149	22.9	27.6	1.4	210.4	88	15.3	16.5	0.0	83.4	67	17.0	22.0	0.0	100.8	49	7.5	8.5	0.3	40.8
DRD variables	ELF1	168	0.101	0.151	0.000	0.455	147	0.079	0.070	0.000	0.172	147	0.161	0.156	0.003	0.435	84	0.334	0.187	0.027	0.501
	ELF3	168	0.239	0.183	0.023	0.531	147	0.258	0.150	0.078	0.566	147	0.307	0.178	0.126	0.574	84	0.466	0.192	0.162	0.634
	ELF6	168	0.272	0.181	0.060	0.595	147	0.297	0.151	0.087	0.566	147	0.412	0.142	0.174	0.589	84	0.542	0.152	0.331	0.701
	SHadj	168	0.487	0.096	0.338	0.597	147	0.576	0.062	0.467	0.652	147	0.468	0.065	0.397	0.581	84	0.454	0.077	0.336	0.528
	GDw	168	668.7	299.0	318.8	1100.4	126	493.6	29.3	457.7	530.1	147	521.1	195.7	391.5	989.6	84	717.3	310.9	197.0	1003.7

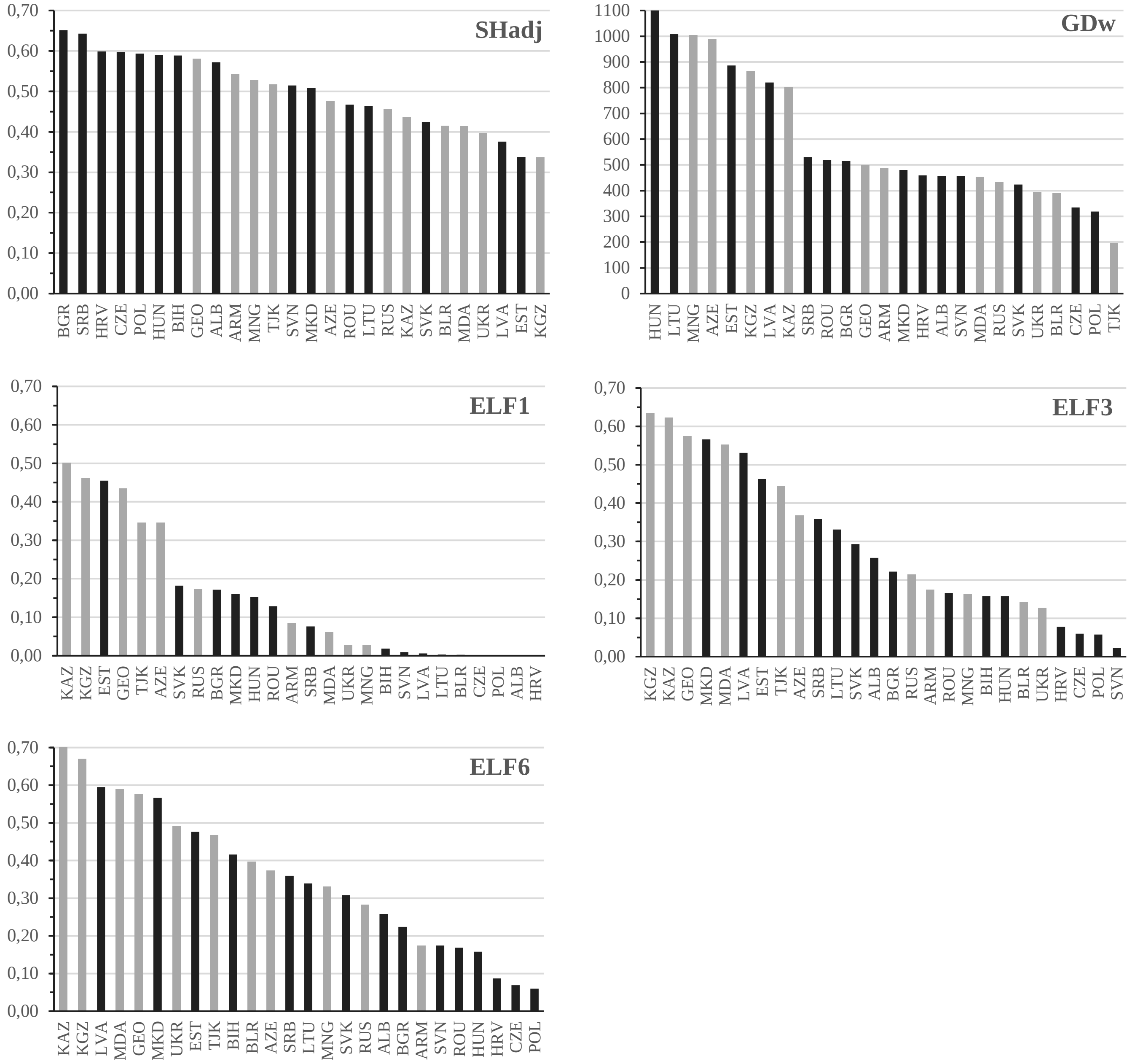
Notes: SD is standard deviation. Data on genetic distance (*GDw*) are not available for Bosnia and Hercegovina. In the case of the *FI* index, zeros in the original dataset are treated as unavailable observations (GEO:1994, KGZ:1994, BIH:1994, TJK:1994-96). [1] Central Europe and the Baltics (CZE, HUN, POL, SVK, SVN, EST, LVA, LTU), [2] South-East Europe (ALB, BGR, BIH, HRV, MKD, ROM, SRB), [3] Eastern-Europe and the Caucasus (BLR, MDA, RUS, UKR, ARM, AZE, GEO), [4] (KAZ, KGZ, MNG, TJK)

Table 3. Correlation matrix (all countries, annual data: 1994-2014)

	y	TER	GFCF	Inflation	WGI	NR_rents	PCB	IRS	FI	STC	ELF1	ELF3	ELF6	SHadj
TER	0.5482*	1.000												
GFCF	0.1188*	0.1702*	1.000											
Inflation	-0.1667*	-0.110	-0.032	1.000										
WGI	0.6950*	0.3822*	0.1344*	-0.2650*	1.000									
NR_rents	-0.046	-0.067	0.072	0.015	-0.3671*	1.000								
PCB	0.7286*	0.5656*	0.1497*	-0.1324*	0.5994*	-0.1988*	1.000							
IRS	-0.4856*	-0.3060*	-0.2780*	0.4225*	-0.4112*	-0.011	-0.4310*	1.000						
FI	0.8108*	0.5831*	0.1931*	-0.1445*	0.7383*	-0.1970*	0.8742*	-0.5154*	1.000					
STC	0.4296*	0.2319*	0.119	-0.088	0.1774*	0.115	0.2725*	-0.2726*	0.3815*	1.000				
ELF1	-0.2849*	-0.2210*	-0.084	0.014	-0.2941*	0.3881*	-0.1839*	0.101	-0.3069*	-0.052	1.000			
ELF3	-0.3957*	-0.2371*	-0.1299*	-0.019	-0.3290*	0.1700*	-0.2249*	0.064	-0.3774*	-0.1658*	0.6874*	1.000		
ELF6	-0.4450*	-0.094	-0.105	0.001	-0.4677*	0.1578*	-0.2220*	0.1556*	-0.4282*	-0.1729*	0.5555*	0.8689*	1.000	
SHadj	0.1936*	-0.1828*	-0.1213*	-0.019	0.115	-0.1695*	0.1237*	-0.056	0.2459*	-0.017	-0.3324*	-0.4507*	-0.5948*	1.000
GDw	0.027	0.042	0.1734*	-0.034	0.1900*	0.2820*	0.001	-0.068	0.003	-0.1791*	0.2735*	0.2749*	0.2321*	-0.2592*

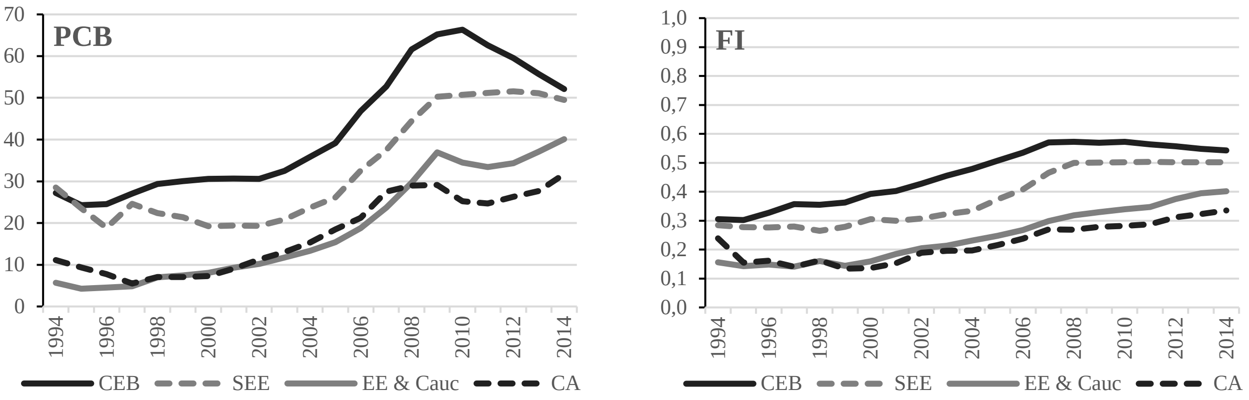
Notes: * significant at the 1 percent level.

Figure 1. The distribution of deep-rooted development variables in post-socialist countries



Source: Own graphs. For the data source, see table 1.
Notes: Black columns depict CEB and SEE countries, while grey columns depict Eastern European, Caucasus and Central Asian countries. Genetic Distance is not available for Bosnia and Hercegovina.

Figure 2. The evolution of financial development in major transition regions



Source: Own graphs. For the data source, see table 1.
Notes: CA refers to Central Asia.

5. Results

We present the estimation results of equation (1) in tables 4A-E. The specifications in each table include one of the following deep-rooted development variables: ethnolinguistic fractionalization at the 1st, 3rd and 6th levels of aggregation, adjusted state history and weighted genetic distance to the United States. Each table consists of three parts, which vary only in the financial development measure. For each *FD-DRD* combination four estimations are presented: the linear (no-break) specification and the nonlinear (or piecewise-linear) models broken at the 30th, 50th and 70th percentiles of the *DRD* threshold variable. Thus, each table contains 12 regressions. Before proceeding to the discussion of the nonlinear estimations, we can derive some general conclusions based on these tables.

First, the tests on the first and second order residual autocorrelation of the (transformed) first-differenced equations (AR(1) and AR(2)) show that model specification is correct and the GMM moment conditions are not violated because of autocorrelated idiosyncratic shocks in equation (1). The Hansen test results in a 100 percent p-value in each case, which clearly indicates that the test is artificially deflated by the number of instruments still being too large and so cannot be trusted. Nevertheless, the Sargan tests and basic economic reasoning suggest the validity of our instrument set.[21,22] This suggestion is further corroborated by the Hansen tests of those estimations which operate with very much constrained GMM instruments in the robustness checks (see below).

Second, the coefficients of the usual covariates have the expected sign and are mostly significant with the sole exception of the human capital proxy, the tertiary enrolment ratio. Another observation is that the significance of these traditional growth determinants deteriorates somewhat when the interest rate spread is the preferred financial development measure.

Third, the direct growth effects of financial development, ancestry and diversity are in line with the literature. Larger fractionalization and genetic distance decrease economic growth, whereas longer state history increases it. These results are profoundly established on a global scale in the seminal papers of Alesina et al. (2003), Desmet et al. (2012), Putterman and Weil (2010) and Spolaore and Wacziarg (2013). We can therefore conclude that evidence from transition economies is in line with conventional wisdom in the economic development literature. Notwithstanding, two remarks are worth noting. First, the negative effect of ethnolinguistic fractionalization on growth gains significance only at lower aggregation levels. This parallels the results of Desmet et al (2012).

[21] Recall that only those variables which are hardly impacted by the idiosyncratic shocks to economic output (‘*GlobalCrises*’, ‘*DRD*’ and ‘*NR_rents*’) are treated as being strictly exogenous. Similarly, reverse causation is certainly not an issue for legal origin and imperial affiliation dummies.

[22] The Sargan test statistic is equivalent to the objective function of 1-step GMM when disturbances are bound to be spherical, that is, non-correlated and homoskedastic (Sargan, 1958). If this assumption on the error structure holds, the Hansen test (Hansen, 1982) and the Sargan test are asymptotically equivalent. However, if disturbances are non-spherical, the Sargan statistic is an inconsistent estimate of the (weighted) moment conditions, and so is not capable of assessing instrument validity in a reliable way. Nevertheless, as it is not plagued by instrument proliferation, in contrast to the Hansen test, it is indicative in our case (Roodman, 2009a).

Second, in all but one *FD-DRD* specification, the *DRD* variable is significant only when the potential nonlinear effect of finance in the form of interactions is taken into account. This suggests that artificially imputed linearity might obscure the real effect of these deep-rooted development variables.

With respect to the effect of financial development on growth in the linear model, both the *PCB* and the *IRS* coefficients have negative signs and the latter tends to be mostly significant whereas the former does not. This is in line with the results of the finance literature on transition economies, according to which the interest rate spread is a crucial dimension of financial development, but the amount of private credit less so. Thus, our results confirm the widespread notion that what we need is better, and not necessarily more, finance. Concerning the results on the *FD=FI* specifications, the overall effect of financial development on growth is significantly negative, which is striking. However, this result is not robust to the estimation methodology, and so we do not pay any particular significance to it (see later).

In table 4A, we find that ethnolinguistic fractionalization at the highest aggregation level (*ELF1*) is not a relevant threshold variable for the growth-finance nexus: the *FD*ELF1(#)* coefficients are always insignificant at standard levels, usually with very high p-values. The estimated effects of financial development in the bottom and the upper *ELF1* regimes fall close to each other in the majority of cases. However, there are some exceptions when the effect of financial development seems to switch statistical significance, or even change sign between the two regimes.[23] Of course, even in these controversial cases the ultimate decision with regard to the differential effect of finance on growth hinges upon the statistical significance of the interaction term.

The results on *ELF3* and *ELF6* in tables 4B and 4C suggest that ethnolinguistic fractionalization tends to condition the effect of financial development on growth in a decisive way. There is a clear break in the growth-finance nexus both along *ELF3* and *ELF6*. When private credit or the overall development of financial institutions (*FI*) are the preferred financial development measures, the *FD*DRD(#)* interactions are relevant with a positive sign when splitting the sample at the 30th and 50th percentiles of ethnolinguistic fractionalization. As a result, the effects of private credit and the overall development of financial institutions change pattern from being significantly negative in the lower percentiles to being neutral in the upper ones. Indeed, the calculated *FD_upper* coefficients are not statistically different from zero, except in one case. A similar structural break in the effect of interest rate spread is observable only at the lowest aggregation level of ethnolinguistic fractionalization. The

[23] For example, at the "PCB_ELF1_70" specification the estimated effect of private credit in the bottom 70 percent of the sample distribution of *ELF1* is negative $(\hat{\beta}_1 = -0.0011)$ and significant at the 5 percent level. The interaction term estimates the *PCB* coefficient to be larger by $0.0014(=\hat{\beta}_3)$ for the upper 30 percent of the distribution but the related t-test shows the insignificance of this difference. Thus, theoretically, private credit exerts the same effect in the two regimes: $\beta_1 = (\beta_1 + \beta_3)$. However, contrary to the case for the bottom regime, private credit with its estimated tiny effect $(\hat{\beta}_1 + \hat{\beta}_3 = 0.0003)$ proves to be irrelevant in the upper regime. This contradiction is a statistical artifact relating to the indirect derivation of the *FD_upper* coefficient.

significant negative coefficient of the *IRS*ELF6(#)* interaction term when splitting the sample at the 30^{th} and 70^{th} percentiles shows that the improvement of banking efficiency (i.e., a decrease in the interest rate spread) has larger growth reward in more fractionalized societies, at least when finer cleavages are considered. To sum up, larger ethnolinguistic fractionalization at lower aggregation levels improves the growth effect of financial development in post-socialist countries: on the one hand, it renders financial development less detrimental and, in fact, neutral when it comes to size-based or overall financial development measures and, on the other hand, it reinforces the beneficial effect of finance when it comes to the efficiency-based measure, the interest rate spread.

Looking at state history (table 4D), there are significant breaks in the growth-finance relationship at standard levels only when financial development is measured either by private credit or the *FI* index. In these cases, the *FD*SHadj(#)* interactions have negative coefficients and are significant at the 5 percent level when the sample is split at the 50^{th} percentile of sample distribution. On the other hand, the interactions have positive coefficients in the case of the interest rate spread but they are marginally insignificant at the 10 percent level. All in all, a longer state history is detrimental to the effect of financial development on growth. Indeed, the negative effect of overall development of financial institutions on economic output is more enhanced in the upper percentiles of the state history distribution. Private credit is growth-neutral with a relatively short state history, but becomes a growth-constraining factor when state history is too long. Moreover, the interest rate spread tends to lose significance with relatively long state history.

In table 4E, we report our results on the relevance of the (weighted) genetic distance to the United States. The interaction terms suggest conclusions similar to those for ethnolinguistic fractionalization. They have significant positive coefficients at each sample splitting when financial development is measured either by the amount of private credit or the *FI* index. Therefore, genetic distance improves the effect of financial development on growth by transforming both the overall financial development measure and the amount of private credit from growth-decreasing into growth-neutral factors. The case of *IRS* is less straightforward. On the one hand, the *IRS*GDw(70)* interaction is negative and statistically significant. This means that the effect of a one percentage point decrease in the interest rate spread is more positive for growth in countries belonging to the upper 30 percent of the sample distribution of genetic distance than in countries in the bottom 70 percent of the distribution. On the other hand, in the two other cases these interactions have positive but insignificant coefficients, which just correspond to the opposite of the previous threshold effect. To sum up, there is clear evidence on the existence of threshold effects in the growth-finance nexus along genetic distance according to which genetic distance above the threshold level improves the effect of financial development on growth.

Table 4A. GMM estimation results – Ethnolinguistic fractionalization, aggregation level 1

FD variable	**FI**				**PCB**				**IRS**			
Break (percentile)	*Ø break*	*30th*	*50th*	*70th*	*Ø break*	*30th*	*50th*	*70th*	*Ø break*	*30th*	*50th*	*70th*
ln(y)(-1)	0.9273***	0.9246***	0.9264***	0.9214***	0.9085***	0.9093***	0.9103***	0.9055***	0.8669***	0.8718***	0.8655***	0.8626***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln(TER)	0.0193	0.0213	0.0184	0.0164	0.0043	0.0040	0.0032	0.0092	-0.0095	-0.0058	-0.0128	-0.0124
	(0.433)	(0.387)	(0.460)	(0.498)	(0.854)	(0.858)	(0.888)	(0.683)	(0.637)	(0.742)	(0.539)	(0.556)
ln(GFCF)	0.0954**	0.0995**	0.1000**	0.0919**	0.0891*	0.0962**	0.0905**	0.0677*	0.0559	0.0505	0.0475	0.0579
	(0.042)	(0.030)	(0.022)	(0.023)	(0.065)	(0.019)	(0.031)	(0.083)	(0.205)	(0.255)	(0.292)	(0.217)
Inflation	-0.0007**	-0.0007**	-0.0007**	-0.0007**	-0.0007**	-0.0007**	-0.0007**	-0.0007**	-0.0004	-0.0005	-0.0004	-0.0004
	(0.017)	(0.019)	(0.022)	(0.019)	(0.018)	(0.019)	(0.021)	(0.018)	(0.282)	(0.218)	(0.315)	(0.265)
NR_rents	0.0033***	0.0034***	0.0033**	0.0033***	0.0031**	0.0030**	0.0030**	0.0032***	0.0042***	0.0040***	0.0042***	0.0037***
	(0.008)	(0.007)	(0.010)	(0.005)	(0.010)	(0.015)	(0.015)	(0.009)	(0.000)	(0.000)	(0.000)	(0.002)
GlobalCrisis	-0.0535***	-0.0529***	-0.0531***	-0.0545***	-0.0498***	-0.0491***	-0.0494***	-0.0507***	-0.0683***	-0.0678***	-0.0670***	-0.0644***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)	(0.002)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
WGI	0.0522*	0.0586**	0.0522*	0.0415	0.0416	0.0418	0.0412	0.0328	0.0444	0.0342	0.0436	0.0382
	(0.060)	(0.035)	(0.073)	(0.144)	(0.126)	(0.117)	(0.131)	(0.225)	(0.132)	(0.298)	(0.134)	(0.187)
FD	-0.2372***	-0.2631***	-0.2433***	-0.2187**	-0.0009	-0.0010	-0.0009	-0.0011**	-0.0042*	0.0007	-0.0042	-0.0036
	(0.004)	(0.008)	(0.004)	(0.012)	(0.146)	(0.169)	(0.141)	(0.049)	(0.085)	(0.866)	(0.184)	(0.196)
ELF1	-0.1293	-0.1458	-0.1423	-0.2178	-0.1182	-0.1163	-0.1119	-0.2184	-0.1248	-0.0796	-0.1037	-0.0421
	(0.206)	(0.226)	(0.266)	(0.213)	(0.279)	(0.330)	(0.420)	(0.209)	(0.261)	(0.493)	(0.470)	(0.764)
FD*ELF1(30)		0.0318				0.0000				-0.0044		
		(0.549)				(0.963)				(0.194)		
FD*ELF1(50)			0.0178				-0.0001				-0.0008	
			(0.738)				(0.906)				(0.810)	
FD*ELF1(70)				0.1214				0.0014				-0.0029
				(0.359)				(0.240)				(0.390)
Sargan test (pv)	0.543	0.748	0.700	0.749	0.389	0.581	0.613	0.755	0.013	0.245	0.015	0.016
Hansen test (pv)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
AR(1) (pv)	0.106	0.107	0.105	0.104	0.095	0.095	0.093	0.099	0.071	0.074	0.076	0.081
AR(2) (pv)	0.330	0.338	0.343	0.349	0.336	0.348	0.332	0.343	0.597	0.627	0.637	0.738
n(instruments)	74	84	84	84	74	84	84	84	74	84	84	84
n	174	174	174	174	174	174	174	174	161	161	161	161
FD_upper		-0.2313***	-0.2254***	-0.0973		-0.0009	-0.0010	0.0003		-0.0037	-0.0049*	-0.0065***
		(0.002)	(0.006)	(0.587)		(0.151)	(0.225)	(0.845)		(0.111)	(0.091)	(0.009)

For notes, see Table 4E.

Table 4B. GMM estimation results - Ethnolinguistic fractionalization, aggregation level 3

FD variable	**FI**				**PCB**				**IRS**			
Break (percentile)	*Ø break*	*30th*	*50th*	*70th*	*Ø break*	*30th*	*50th*	*70th*	*Ø break*	*30th*	*50th*	*70th*
ln(y)(-1)	0.9250***	0.9369***	0.8805***	0.9254***	0.9139***	0.9212***	0.9056***	0.9309***	0.8550***	0.8580***	0.8542***	0.8638***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln(TER)	0.0203	0.0239	0.0213	0.0069	0.0077	0.0061	0.0094	0.0085	-0.0133	-0.0151	-0.0110	0.0096
	(0.447)	(0.386)	(0.457)	(0.807)	(0.759)	(0.810)	(0.711)	(0.733)	(0.544)	(0.500)	(0.607)	(0.685)
ln(GFCF)	0.1094**	0.0845*	0.0956**	0.0731*	0.1002**	0.0866**	0.0909**	0.0611	0.0635	0.0739	0.0869**	0.0951**
	(0.022)	(0.065)	(0.030)	(0.092)	(0.038)	(0.024)	(0.035)	(0.144)	(0.158)	(0.120)	(0.022)	(0.030)
Inflation	-0.0006**	-0.0006**	-0.0006**	-0.0007**	-0.0006**	-0.0006**	-0.0006**	-0.0007**	-0.0002	-0.0002	-0.0002	-0.0003
	(0.024)	(0.023)	(0.020)	(0.022)	(0.024)	(0.025)	(0.022)	(0.023)	(0.425)	(0.433)	(0.425)	(0.272)
NR_rents	0.0029**	0.0026**	0.0031***	0.0029**	0.0026**	0.0024**	0.0025***	0.0023**	0.0039***	0.0038***	0.0039***	0.0035***
	(0.011)	(0.028)	(0.001)	(0.013)	(0.015)	(0.029)	(0.007)	(0.049)	(0.001)	(0.000)	(0.000)	(0.001)
GlobalCrisis	-0.0542***	-0.0565***	-0.0567***	-0.0543***	-0.0483***	-0.0498***	-0.0506***	-0.0463***	-0.0658***	-0.0659***	-0.0641***	-0.0665***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.003)	(0.002)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)
WGI	0.0508	0.0519**	0.0339	0.0312	0.0420	0.0388	0.0214	0.0252	0.0436	0.0403	0.0464	0.0509*
	(0.101)	(0.031)	(0.219)	(0.381)	(0.157)	(0.162)	(0.404)	(0.409)	(0.206)	(0.206)	(0.126)	(0.080)
FD	-0.2091**	-0.3303***	-0.1631*	-0.2284***	-0.0010	-0.0019***	-0.0020***	-0.0020***	-0.0062***	-0.0063**	-0.0056**	-0.0023
	(0.019)	(0.006)	(0.057)	(0.007)	(0.101)	(0.008)	(0.001)	(0.001)	(0.009)	(0.030)	(0.023)	(0.432)
ELF3	-0.0888	-0.1679	-0.3313*	-0.2413	-0.0783	-0.1473	-0.2839*	-0.2009	-0.1080	-0.1052	-0.1071	0.0489
	(0.289)	(0.101)	(0.057)	(0.150)	(0.381)	(0.178)	(0.057)	(0.140)	(0.244)	(0.302)	(0.308)	(0.591)
FD*ELF3(30)		0.1333**				0.0013*				0.0001		
		(0.040)				(0.064)				(0.962)		
FD*ELF3(50)			0.2875**				0.0026**				0.0002	
			(0.034)				(0.015)				(0.954)	
FD*ELF3(70)				0.1919				0.0018*				-0.0059
				(0.195)				(0.079)				(0.129)
Sargan test (pv)	0.141	0.538	0.377	0.471	0.100	0.338	0.506	0.592	0.000	0.001	0.000	0.008
Hansen test (pv)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
AR(1) (pv)	0.102	0.101	0.093	0.101	0.095	0.090	0.103	0.097	0.056	0.055	0.057	0.076
AR(2) (pv)	0.318	0.282	0.264	0.319	0.327	0.301	0.290	0.289	0.808	0.837	0.810	0.715
n(instruments)	74	84	84	84	74	84	84	84	74	84	84	84
n	174	174	174	174	174	174	174	174	161	161	161	161
FD_upper		-0.1970*	0.1244	-0.0365		-0.0006	0.0006	-0.0002		-0.0062***	-0.0054	-0.0082**
		(0.068)	(0.460)	(0.826)		(0.390)	(0.544)	(0.840)		(0.007)	(0.110)	(0.013)

For notes, see Table 4E.

Table 4C. GMM estimation results - Ethnolinguistic fractionalization, aggregation level 6

FD variable	**FI**				**PCB**				**IRS**			
Break (percentile)	*Ø break*	*30th*	*50th*	*70th*	*Ø break*	*30th*	*50th*	*70th*	*Ø break*	*30th*	*50th*	*70th*
ln(y)(-1)	0.9111***	0.8961***	0.8790***	0.9101***	0.8969***	0.8851***	0.8869***	0.9032***	0.8523***	0.8823***	0.8572***	0.8597***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln(TER)	0.0318	0.0373	0.0355	0.0288	0.0139	0.0178	0.0267	0.0123	-0.0007	0.0079	-0.0045	0.0251
	(0.234)	(0.191)	(0.197)	(0.282)	(0.592)	(0.505)	(0.307)	(0.644)	(0.976)	(0.730)	(0.848)	(0.340)
ln(GFCF)	0.0981**	0.0801*	0.0907**	0.0938**	0.0880**	0.0679	0.0732*	0.0892**	0.0559	0.0937**	0.0781*	0.0696
	(0.023)	(0.071)	(0.033)	(0.041)	(0.040)	(0.126)	(0.055)	(0.049)	(0.208)	(0.026)	(0.064)	(0.119)
Inflation	-0.0006**	-0.0006**	-0.0006**	-0.0006**	-0.0006**	-0.0006**	-0.0006**	-0.0006**	-0.0002	-0.0004	-0.0002	-0.0004
	(0.023)	(0.023)	(0.022)	(0.026)	(0.024)	(0.024)	(0.023)	(0.024)	(0.364)	(0.128)	(0.405)	(0.220)
NR_rents	0.0030***	0.0028**	0.0033***	0.0030***	0.0028**	0.0027**	0.0030***	0.0026**	0.0038***	0.0041***	0.0036***	0.0035***
	(0.007)	(0.012)	(0.000)	(0.008)	(0.011)	(0.018)	(0.001)	(0.016)	(0.000)	(0.000)	(0.000)	(0.002)
GlobalCrisis	-0.0528***	-0.0549***	-0.0512***	-0.0535***	-0.0507***	-0.0540***	-0.0484***	-0.0511***	-0.0666***	-0.0719***	-0.0670***	-0.0689***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.001)	(0.004)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)
WGI	0.0475	0.0528*	0.0552**	0.0437	0.0374	0.0390	0.0442*	0.0327	0.0389	0.0205	0.0322	0.0471
	(0.136)	(0.054)	(0.042)	(0.162)	(0.238)	(0.161)	(0.082)	(0.296)	(0.253)	(0.550)	(0.332)	(0.108)
FD	-0.2042**	-0.2817***	-0.2541***	-0.2036**	-0.0007	-0.0019***	-0.0020***	-0.0010	-0.0059***	0.0034	-0.0058***	-0.0017
	(0.025)	(0.003)	(0.004)	(0.023)	(0.361)	(0.003)	(0.002)	(0.106)	(0.003)	(0.420)	(0.009)	(0.567)
ELF6	-0.1368	-0.2813*	-0.3606**	-0.1843	-0.1198	-0.2771*	-0.2805*	-0.1661	-0.1234	0.0425	-0.1080	-0.0097
	(0.171)	(0.074)	(0.024)	(0.159)	(0.265)	(0.067)	(0.054)	(0.191)	(0.231)	(0.687)	(0.295)	(0.919)
FD*ELF6(30)		0.2043**				0.0023**				-0.0084**		
		(0.042)				(0.012)				(0.021)		
FD*ELF6(50)			0.2797**				0.0022**				-0.0004	
			(0.025)				(0.016)				(0.852)	
FD*ELF6(70)				0.0779				0.0009				-0.0049*
				(0.433)				(0.232)				(0.069)
Sargan test (pv)	0.202	0.439	0.522	0.362	0.154	0.335	0.554	0.354	0.000	0.007	0.000	0.004
Hansen test (pv)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
AR(1) (pv)	0.101	0.104	0.109	0.101	0.091	0.102	0.109	0.091	0.054	0.060	0.047	0.064
AR(2) (pv)	0.297	0.248	0.271	0.304	0.296	0.248	0.251	0.302	0.751	0.836	0.852	0.644
n(instruments)	74	84	84	84	74	84	84	84	74	84	84	84
n	174	174	174	174	174	174	174	174	161	161	161	161
FD_upper		-0.0774	0.0256	-0.1257		0.0004	0.0003	-0.0001		-0.0050**	-0.0063***	-0.0066***
		(0.553)	(0.873)	(0.300)		(0.698)	(0.810)	(0.919)		(0.011)	(0.005)	(0.002)

For notes, see Table 4E.

Table 4D. GMM estimation results - Adjusted state history

FD variable	**FI**				**PCB**				**IRS**			
Break (percentile)	*Ø break*	*30th*	*50th*	*70th*	*Ø break*	*30th*	*50th*	*70th*	*Ø break*	*30th*	*50th*	*70th*
ln(y)(-1)	0.9133***	0.9132***	0.8793***	0.9173***	0.8927***	0.8985***	0.8783***	0.8990***	0.8459***	0.8537***	0.8797***	0.8368***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln(TER)	0.0695**	0.0628**	0.0723**	0.0688**	0.0343	0.0376	0.0430	0.0377	0.0144	0.0311	0.0059	0.0086
	(0.039)	(0.030)	(0.024)	(0.047)	(0.168)	(0.159)	(0.115)	(0.145)	(0.563)	(0.224)	(0.790)	(0.721)
ln(GFCF)	0.0922**	0.0917***	0.1065***	0.0704*	0.0680*	0.0640*	0.0780**	0.0538	0.0455	0.0558	0.0352	0.0646*
	(0.014)	(0.006)	(0.001)	(0.074)	(0.083)	(0.062)	(0.014)	(0.132)	(0.261)	(0.185)	(0.339)	(0.090)
Inflation	-0.0007**	-0.0007**	-0.0006**	-0.0007**	-0.0007**	-0.0007**	-0.0006**	-0.0007**	-0.0003	-0.0003	-0.0003	-0.0003
	(0.019)	(0.020)	(0.020)	(0.021)	(0.019)	(0.020)	(0.020)	(0.022)	(0.330)	(0.337)	(0.378)	(0.239)
NR_rents	0.0037***	0.0039***	0.0035***	0.0036***	0.0032***	0.0033***	0.0032**	0.0031**	0.0045***	0.0039***	0.0044***	0.0046***
	(0.003)	(0.004)	(0.003)	(0.005)	(0.008)	(0.007)	(0.011)	(0.013)	(0.000)	(0.000)	(0.000)	(0.000)
GlobalCrisis	-0.0488***	-0.0481***	-0.0473***	-0.0521***	-0.0487***	-0.0439***	-0.0478***	-0.0506***	-0.0696***	-0.0706***	-0.0761***	-0.0628***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.002)	(0.006)	(0.003)	(0.002)	(0.000)	(0.000)	(0.000)	(0.001)
WGI	0.0823**	0.0767**	0.0910**	0.0830**	0.0574*	0.0591*	0.0669**	0.0598*	0.0565*	0.0509*	0.0371	0.0476*
	(0.016)	(0.016)	(0.011)	(0.017)	(0.066)	(0.051)	(0.047)	(0.073)	(0.072)	(0.085)	(0.190)	(0.071)
FD	-0.3935***	-0.2694**	-0.1805	-0.3417***	-0.0011*	-0.0005	-0.0001	-0.0009	-0.0049**	-0.0067**	-0.0063**	-0.0055***
	(0.001)	(0.039)	(0.218)	(0.001)	(0.074)	(0.472)	(0.861)	(0.159)	(0.033)	(0.011)	(0.016)	(0.001)
SHadj	0.4080**	0.6171**	0.8333**	0.5366**	0.2661	0.4897*	0.6041*	0.3991	0.2675	0.1100	0.0503	0.0602
	(0.049)	(0.031)	(0.018)	(0.046)	(0.163)	(0.061)	(0.051)	(0.114)	(0.138)	(0.532)	(0.796)	(0.781)
FD*SHadj(30)		-0.1494				-0.0016*				0.0037		
		(0.153)				(0.078)				(0.137)		
FD*SHadj(50)			-0.2445**				-0.0020**				0.0033	
			(0.041)				(0.035)				(0.159)	
FD*SHadj(70)				-0.1062				-0.0011				0.0077
				(0.218)				(0.182)				(0.131)
Sargan test (pv)	0.632	0.836	0.890	0.866	0.319	0.678	0.690	0.617	0.001	0.001	0.008	0.027
Hansen test (pv)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
AR(1) (pv)	0.128	0.123	0.134	0.122	0.100	0.107	0.109	0.097	0.064	0.053	0.040	0.055
AR(2) (pv)	0.304	0.316	0.367	0.284	0.269	0.282	0.296	0.247	0.586	0.503	0.498	0.940
n(instruments)	74	84	84	84	74	84	84	84	74	84	84	84
n	174	174	174	174	174	174	174	174	161	161	161	161
FD_upper		-0.4188***	-0.4250***	-0.4479***		-0.0022***	-0.0022***	-0.0020***		-0.0030	-0.0030	0.0022
		(0.001)	(0.001)	(0.000)		(0.007)	(0.001)	(0.006)		(0.238)	(0.282)	(0.680)

For notes, see Table 4E.

Table 4E. GMM estimation results – Weighted genetic distance to the USA

FD variable	**FI**				**PCB**				**IRS**			
Break (percentile)	*Ø break*	*30th*	*50th*	*70th*	*Ø break*	*30th*	*50th*	*70th*	*Ø break*	*30th*	*50th*	*70th*
ln(y)(-1)	0.9209***	0.9208***	0.9188***	0.9303***	0.8965***	0.9003***	0.9003***	0.9213***	0.8627***	0.8491***	0.8591***	0.8472***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln(TER)	0.0243	0.0461*	0.0246	0.0112	0.0126	0.0262	0.0154	0.0060	-0.0011	0.0239	0.0039	0.0001
	(0.328)	(0.064)	(0.334)	(0.631)	(0.597)	(0.214)	(0.491)	(0.781)	(0.959)	(0.400)	(0.863)	(0.996)
ln(GFCF)	0.1049**	0.0888**	0.1117**	0.1001**	0.1011**	0.0808**	0.1061**	0.0932**	0.0763	0.0643	0.0784	0.1155***
	(0.022)	(0.045)	(0.011)	(0.020)	(0.034)	(0.042)	(0.015)	(0.038)	(0.167)	(0.258)	(0.105)	(0.009)
Inflation	-0.0007**	-0.0007**	-0.0007**	-0.0007**	-0.0007**	-0.0007**	-0.0007**	-0.0007**	-0.0004	-0.0003	-0.0003	-0.0007
	(0.017)	(0.017)	(0.018)	(0.018)	(0.019)	(0.025)	(0.024)	(0.021)	(0.271)	(0.322)	(0.240)	(0.165)
NR_rents	0.0035**	0.0044**	0.0042***	0.0037**	0.0035**	0.0038**	0.0040**	0.0036**	0.0045***	0.0056***	0.0049***	0.0042***
	(0.036)	(0.011)	(0.007)	(0.023)	(0.031)	(0.019)	(0.014)	(0.032)	(0.003)	(0.000)	(0.000)	(0.006)
GlobalCrisis	-0.0531***	-0.0512***	-0.0515***	-0.0543***	-0.0476***	-0.0438***	-0.0428***	-0.0445***	-0.0667***	-0.0666***	-0.0667***	-0.0568***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.005)	(0.008)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)
WGI	0.0680*	0.0888**	0.0852***	0.0598*	0.0617*	0.0697**	0.0759**	0.0519	0.0599	0.0716**	0.0626*	0.0653*
	(0.068)	(0.013)	(0.005)	(0.093)	(0.085)	(0.037)	(0.016)	(0.145)	(0.149)	(0.045)	(0.077)	(0.096)
FD	-0.2357***	-0.4573***	-0.3591***	-0.2683***	-0.0009	-0.0023***	-0.0024***	-0.0021***	-0.0037*	-0.0060**	-0.0050***	0.0004
	(0.004)	(0.003)	(0.006)	(0.002)	(0.166)	(0.001)	(0.001)	(0.002)	(0.095)	(0.011)	(0.002)	(0.889)
GDw	-0.0001	-0.0002**	-0.0002***	-0.0002*	-0.0001	-0.0001	-0.0002**	-0.0002*	-0.0001	-0.0001	-0.0001	0.0001
	(0.201)	(0.028)	(0.009)	(0.080)	(0.262)	(0.108)	(0.026)	(0.052)	(0.335)	(0.109)	(0.222)	(0.523)
FD*GDw(30)		0.1618**				0.0012*				0.0042		
		(0.034)				(0.053)				(0.201)		
FD*GDw(50)			0.1865***				0.0019***				0.0025	
			(0.005)				(0.005)				(0.444)	
FD*GDw(70)				0.1900*				0.0019**				-0.0078**
				(0.081)				(0.013)				(0.030)
Sargan test (pv)	0.564	0.906	0.910	0.829	0.485	0.798	0.897	0.883	0.014	0.009	0.016	0.880
Hansen test (pv)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
AR(1) (pv)	0.115	0.131	0.127	0.112	0.107	0.114	0.122	0.115	0.082	0.074	0.074	0.107
AR(2) (pv)	0.294	0.252	0.297	0.311	0.316	0.252	0.305	0.316	0.510	0.417	0.474	0.622
n(instruments)	74	84	84	84	74	84	84	84	74	84	84	84
n	169	169	169	169	169	169	169	169	156	156	156	156
FD_upper		-0.2955***	-0.1726	-0.0783		-0.0011*	-0.0005	-0.0002		-0.0018	-0.0025	-0.0074***
		(0.007)	(0.201)	(0.557)		(0.088)	(0.574)	(0.864)		(0.568)	(0.448)	(0.001)

Notes to tables 4A-E: 1-step system GMM estimation of equation (1) with a maximum lag order of GMM level instruments set to 2. The constant term is not presented. Legal origin and imperial legacy dummies are used as standard instruments. Asterisks denote the significance level (*: 10%, **: 5%, ***: 1%). P-values of the t-tests are in parenthesis and are calculated according to standard errors which are robust to heteroskedasticity across and the arbitrary pattern of autocorrelation within countries. In the model statistics, only the p-values (pv) are presented. The number of complete observations in untransformed data and the number of instruments are denoted by *n* and *n(instruments)*, respectively. *FD_upper* refers to the marginal effect of financial development on output in the upper $\left(100-30/50/70\right)$ percent of the sample distribution of the respective *DRD* variable. It is the sum of the coefficients of *FD* and *FD*DRD(#)*: $\hat{\beta}_1+\hat{\beta}_3$. The standard error of the calculated *FD_upper* coefficient is as follows: $SE\left(\hat{\beta}_1+\hat{\beta}_3\right)=\sqrt{Var\left(\hat{\beta}_1\right)+Var\left(\hat{\beta}_3\right)+2Cov\left(\hat{\beta}_1,\ \hat{\beta}_3\right)}$.

We summarize our findings as follows:

1. Large ethnolinguistic fractionalization is advantageous to the growth effect of financial development at intermediate and lower levels of aggregation.
2. Long state history is disadvantageous to the growth effect of financial development.
3. Large genetic distance to the USA is positive for the growth effect of the banking sector.
4. The breaks in the growth-finance relationship along these *DRD* threshold variables seem to be more pervasive in the case of size-based (private credit) and composite (FI) measures than in the case of the efficiency measure (interest rate spread) of financial development.

Our findings run counter to conventional wisdom. First, the results of the economic development literature on the main effect of state history, fractionalization and genetic distance would predict exactly the opposite effect of these deep-rooted development variables on the growth-finance nexus.

In contrast with findings (1) to (3), we would expect smaller fractionalization, smaller genetic distance and longer state history to enhance the positive effect of finance on growth. The second puzzle relates to the findings on the effect of financial development. As we have already noted, the baseline linear models reflect the already established results in the literature according to which the interest rate spread affects output negatively, whereas private credit tends to be irrelevant in transition countries.[24] However, it is striking that even when nonlinear finance is taken into account, the best we can expect from private credit in transition countries is not to hinder long-run economic growth. Nonetheless, we note that our findings on transition economies are in line with those in Gillman and Harris (2004) and Coricelli and Masten (2004) in the sense that the main effect and the conditional indirect effect of size-based financial development measures were found to be negative and positive, respectively, in their papers too.

Robustness Checks

This section investigates the robustness of our results. In advance, the main conclusion of the section is that the results are robust to all sensitivity checks. The results on ethnolinguistic diversity are consistent for the different aggregation levels in the sense that level one retains its insignificance while levels three and six retain their significance with respect to the growth-finance relationship. We therefore concentrate only on the finest cleavages and omit the results of the *DRD=ELF1* and *DRD=ELF3* specifications in order to save space. Moreover, for each regression only those coefficients which stand at the centre of our interest in the given sensitivity scenario are depicted in the tables.[25] The summary tables of the estimations are presented in the appendix.

First, we check robustness with respect to the selected estimation method. Our default method can be criticized on three bases. First, GMM is a large sample technique where the beneficial asymptotic properties materialize only with panels with a large number of cross-sectional units. Our sample of 26 transition countries naturally does not conform to this requirement. Second, 2-step GMM is usually preferred to 1-step GMM. Third, although the number of instruments is already constrained in the default estimations, it is still very high, amounting to three times that of the panel units. In other words, instrument proliferation is mitigated but, as the weak Hansen tests also indicate in tables 4A-E, obviously not cancelled out by the maximization of the lag order of GMM level instruments. These concerns are legitimate, and we address them by estimating equation (1) using four alternative methods. First, we run pooled OLS estimations with panel-corrected robust standard errors

[24] The results on FI cannot be judged in this way because of the lack of any counterpart in the literature owing to the short history of the index. Moreover, as we already noted, the significant negative growth effect of the FI index is not robust to the estimation methodology.

[25] For the details, consult the notes attached to the tables. The complete estimation results and the sensitivity analyses of the *ELF1* and *ELF3* specifications are provided upon request.

(henceforth PCSE) following Beck and Katz (1995). The criticisms related to the small size of our sample would be eased if the PCSE results were to convey the same conclusions on the presence and the nature of nonlinearity in the growth-finance nexus. Second, we run 1-step system GMM in accordance with two alternative approaches to instrument containment suggested in Roodman (2009b). The first method collapses the instrument matrix, meaning all the available lags of GMM level instruments are retained but they are constrained to having the same coefficients in each period when projecting the regressors onto them. The second method merges the previous two approaches of instrument containment by collapsing the instruments and, at the same time, maximizing the lag order of GMM level instruments at 2.[26] As a final check of robustness to the estimation methodology, we run 2-step GMM estimations with the most parsimonious set of GMM instruments (collapsed instrument matrix and lag order of GMM level instruments maximized at 2).

Table A1 presents the results in a block-wise structure and each *FD-DRD-DRD(#)* specification is framed by a dashed line. Each block consists of five estimations, one default and four alternative. The alternative estimations overwhelmingly support the default results.[27] Clearly, there is no evidence that any of the four alternative estimations could systematically undermine the significance of ethnolinguistic fractionalization, state history and genetic distance as threshold variables. Moreover, the main effects of ancestry and diversity as well as of the financial development variables are also mostly consistent across different estimations with respect to their sign and significance. The only exception is the *FI* index, which generally preserves its negative coefficient, but loses significance in the alternative estimations. A further interesting by-result is that the Hansen tests continue to result in considerably large *p*-values even when the weakness of the tests is already less of a concern (‘maxL&cl’ estimations). This observation corroborates the validity of our instruments in the other estimations too. We conclude that our major findings are not driven by the chosen estimation methodology, and so in this sense they are certainly not biased.[28]

The second robustness check focuses on contemporary threshold effects related to the stage of economic development, the quality of institutions and the size of the financial sector, which are

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[26] Beyond the moment conditions related to the standard instruments (legal origin, imperial affiliation) and the strictly exogenous regressors, we exploit the following moment conditions in the case of collapsing the instrument matrix: $E\left[\overline{x}_{i(t-l)}\Delta\varepsilon_{it}\,|\,l\right]=0\;\forall\; l\geq 2$ and $E\left[\Delta\overline{x}_{i(t-1)}\varepsilon_{it}\right]=0$ where $t\geq 3$. Recall that $\overline{x}$ is the vector of the right-hand-side variables in equation (1) with the exception of ‘*GlobalCrisis*’, ‘*DRD*’ and ‘*NR_rents*’. When the lag order of the collapsed GMM instruments is also constrained, the moment conditions related to the transformed (first-differenced) equation changes to $E\left[\overline{x}_{i(t-2)}\Delta\varepsilon_{it}\right]=0$, while the moment conditions related to the level equation remain unchanged.

[27] Out of the 27 *FD-DRD-DRD(#)* specifications depicted in the table, in ten instances the alternative estimations unanimously deliver consistent results with respect to the presence/absence of structural breaks in the growth-finance nexus. In another ten instances, there is always only one outlier which upsets the full consistency of the results on structural breaks.

[28] All the following robustness checks were also performed using a 1-step system GMM based on the most parsimonious instrument set (collapsed instruments and lag order of GMM level instruments maximized at 2). Neither of the conclusions were affected. The estimations are available upon request.

traditionally the focus of the nonlinear growth-finance literature. We augment our basic regression with suitable interaction terms to control for these channels. In the case of the institutional quality channel, the *FD*WGI* interaction is included in the model. The *FD*ln(y)(-1)* interaction controls for the development channel. Finally, we augment the model with the quadratic effect of the underlying financial development measure to take into account the financial channel. Table A2 presents the results in the usual block-wise structure. We only present the results on private credit and the *FI* index when the sample is split at the median (# = 50) of the deep-rooted development variable. The most important observation is that the *FD*DRD(50)* terms are hardly affected by the inclusion of contemporary thresholds. They preserve their sign, magnitude and significance robustly. These results confirm that breaks in the growth-finance relationship observed in our basic estimations are caused by deep roots of economic development and are not driven by omitted contemporary threshold effects.[29]

The third robustness check disentangles the genuine deep root of nonlinear growth-finance in transition countries. The reasoning behind it is provided by the observation that ethnolinguistic fractionalization, state history and genetic distance are highly correlated with each other. Therefore, it might well be the case that only one or two of them represent really important threshold effects. In order to unravel this issue, we introduce the omitted deep-rooted development variables and the related *FD*DRD(50)* interaction terms into the regressions one-by-one. The results are presented in table A3. The block-wise style is retained, each block representing an *FD-DRD-DRD(#)* specification. The individual blocks encompass three models: one default and two augmented models.[30]

The results in table A3 fully confirm our *a priori* intuition that ethnolinguistic fractionalization, state history and genetic distance are important separate sources of nonlinear finance in transition countries. For each deep-rooted development variable, at least in one of the related *FD-DRD-DRD(#)* specifications, the *FD*DRD(#)* interaction retains its sign, magnitude and significance consistently after controlling individually for the effects of the two other deep-rooted development variables. None of the three *DRD* variables is systematically disqualified by its counterparts as a relevant threshold

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[29] There are other interesting side-results in table A2. First, the introduced interactions are mostly insignificant which suggest that the usual contemporary threshold effects can be less important in transition finance. Second, the sign of the estimated interaction coefficients is more or less in line with the predictions of the general growth-finance literature. The negative quadratic *FD* term suggests that a saturation effect at financial sector size might be at work in transition countries as well (Law and Singh, 2014; Arcand et al., 2015). The negative coefficient of the *FD*ln(y)(-1)* interaction provides some corroboration with the notion that financial development is more beneficial in less developed (transition) countries (see, e.g., Huang and Lin, 2009). As regards the institutional channel, the negative *FD*WGI* coefficient predicts that better institutions erode the effect of finance on growth, which is hard to interpret and reconcile with previous results. Regarding the strong positive correlation between output and institutional quality, a possible explanation is that this interaction only takes the effect of the development channel.

[30] In order to save space, the results on the interest rate spread and the split at the 70th percentile of the *DRD* threshold variables are omitted. Note that the augmented model specification entails two breaks in the growth-finance relationship: one always at the 50th percentile of the additional *DRD* variable, and one at the #th percentile of the main *DRD* variable. The latter represents the threshold effect being in focus and moved according to the setting of the threshold value (#), while the former represents the steadily controlled-for threshold effect.

variable in the growth-finance relationship. Furthermore, the major findings of our baseline estimations are also unaffected by the compounding of the deep-rooted threshold effects: state history continues to be significantly negative, whereas fractionalization and genetic distance continue to be significantly positive with respect to the effect of financial development.

The fourth robustness check investigates robustness with respect to the sample. We rerun the estimations on six constrained subsamples which omit the major regions of the post-socialist bloc – i.e., Central Asia, the Caucasus, Eastern Europe, the Baltic, Central Europe and South-Eastern Europe – one at a time. Here we discuss only the results on private credit.[31] Table A4 presents the estimated *PCB*DRD(#)* coefficients from the underlying regressions.[32] We find no evidence that the threshold effect of any of the three deep-rooted development variables would hinge upon the inclusion of a small number of countries into the sample. Of course, the estimated interaction coefficients vary across the subsamples but they always retain sign and, on most occasions, significance as well.

Last but not least, we consider the robustness to the dependent variable, the covariates and the data frequency. As regards the dependent variable, estimations are run on two alternative measures of scaled economic output: GDP per capita ('rgdpna'/'population') and GDP per worker based on the 'rgdpo' output series of PWT 9.0.[33] The results are similar to the baseline results and deliver the same conclusions. With regard to the conditioning set of equation (1), we augment the model with several other conventional regressors such as government consumption, foreign direct investment, foreign trade, banking crisis dummy and EU membership dummy, one-by-one. All of them prove to be consistently and overwhelmingly insignificant and do not change our results. Moreover, we also control for time-fixed effects with similar outcomes: the included period dummies are mostly insignificant, leaving the previously explored nonlinearities unaffected. To check the sensitivity of our results to data frequency, we rerun the estimations on the annual sample of 1993 and 2014. The major results with regard to the breaks in the growth-finance nexus are unchanged.[34]

[31] The results on *FD=FI* and *FD=IRS* lead us to similar conclusions. They are available in the online appendix.
[32] At an *DRD* variable we could expect one country-group to drive our results only in the case when the interaction term turns out to be irrelevant for each cut off point after dropping the respective countries from the sample. Concerning the three major cut off points, the latter occurs only in the case of state history when Central Asian countries are omitted. Therefore we investigated this instance closer and found a significant break when the sample was split at the 40th percentile of state history.
[33] Similarly to the 'rgdpna' series, 'rgdpo' is also a measure of real GDP in PPP and 2011 prices in the PWT9.0 database. The two series coincide in 2011, but differ in the other years due to their different approach in the derivation of constant price, purchasing power parity data. The 'rgdpna' operates with the constant price GDP growth rates in the national-accounts, while 'rgdpo' is calculated according to chained PPP series. For further discussion, see Feenstra et al. (2015).
[34] For the results of these sensitivity analyses, consult the online appendix.

6. Discussion

The main results and robustness checks presented above underscore the transformative effect of diversity on the nonlinear finance-growth nexus and present novel implications for the relevance of diversity for financial development. First, ethnolinguistic fractionalization appears to produce insignificant results at the highest level of aggregation (ELF1). Deeper cleavages in society cannot be compensated by financial development nor do they alter the effect of finance on growth. However, at intermediate and lower levels of aggregation (ELF3 and ELF6), ethnolinguistic fractionalization enhances the growth impact of financial development in a favorable way by eliminating the potentially detrimental effect of credit on growth while preserving (or even slightly improving) the beneficial effect of an interest rate spread decrease. This occurs most frequently at the 30th and 50th percentiles of their respective distributions. We argue that in ethnolinguistically diverse societies financial development resolves economic coordination failures and liquidity constraints emanating from the lack of trust. Moreover, it facilitates the unfolding of skill complementarities. One possible channel for the latter is a relatively developed banking sector, which makes up for other external funding sources, such as venture capital or trade credits, which are likely to be underdeveloped in a low-trust environment. Moreover, it can contribute to the improvement of social capital in fragmented societies by providing external liquidity to minority entrepreneurs. The underlying condition here is that finer rather than deeper ethnolinguistic fractionalization would increase the opportunity cost of civil or social conflict. When initial cultural divisions are extremely high, financial development cannot reduce the propensity for conflict and hence reverse the negative effect of polarization on economic growth. On the contrary, when cultural distances exist at moderate or low levels, then diversity bolsters the finance-growth nexus. This is particularly crucial for those ethnolinguistic groups with limited access to political office and lobbying.

Ager and Brueckner (2013) provide evidence that cultural fractionalization due to massive European migration to the United States at the turn of the previous century has had a positive effect on U.S. economic growth, whereas cultural polarization has produced an economically and statistically significant negative effect on growth. With evidence from US counties, they reinforce the notion that diversity can be a blessing at the subnational (micro) level, provided that the institutions are developed enough to cope with social conflict and lack of trust. Gerring et al. (2015) find that ethnolinguistic (and religious) fractionalization positively affects human development (i.e., education, wealth etc.) at subnational levels in developing countries. They propose that the establishment of formal problem-solving institutions is costlier at national rather than at subnational levels and that informal institutions are more likely to compensate ad hoc for coordination inefficiencies at the subnational level.

Our results are in line with those of Agner and Brueckner (2013), Gerring et al. (2015), Desmet et al. (2012) and the general fractionalization literature. First, the negative coefficients of ELF1, ELF3, and ELF6 convey the detrimental effect of fractionalization at the national level (e.g. Alesina et al., 2003). Second, the insignificance of the highest aggregation level, both with regard to its main effect and its interaction with financial development, matches the findings of Desmet et al. (2012), who stress the relatively larger importance of finer linguistic cleavages for economic growth. Third, the positive effect of fractionalization on the growth-finance nexus confirms the aforementioned findings on the effect of diversity at subnational levels. Financial development can serve as a major instrument to mitigate social conflict and pitfalls related to the lack of trust as well as to facilitate the emergence of skill complementarities.

State history as a proxy for the exposure to institutions, centralization and political organization induces a negative effect of financial development on growth because it eases the provision of credit under conditions of adverse selection and moral hazard. Moreover, long state history can lead to the formation of deeply entrenched interest groups and therefore to extractive institutions. Indeed, this is the argument of Borcan et al. (2014) underlying the proposed inverted U-shaped relationship between state history and economic development. Our results suggest that in transition economies long state history reinforces the negative impact of finance on growth. As Dewatripont and Maskin (1995) indicate, credit decentralization resolves the commitment problem of the creditor and allows him not to refinance an unprofitable project. In contrast, when the provision of credit is centralized by the state or occurs under conditions of bank concentration and low market competition, refinancing of an unprofitable project occurs in the form of soft budget constraints (ibid.).

Spolaore and Wacziarg (2013) identify a strong positive effect of ancestral institutions on growth. Nevertheless, they do not consider any intermediate mechanisms that could condition the long-run impact of institutions on growth, also from the perspective of centralized governance and state intervention in private sector development. As Ang (2015) indicates, state antiquity in itself remains a black box if one does not resort to more detailed analytical grounding including the role of military technology, financial instruments, geographic proximity to the frontier and government capacity. In a previous paper, Ang (2013) establishes the link between state antiquity and the level of financial development. Our results help to further open the black box of state history. They offer a channel, the growth-finance nexus, which mediates the negative effects of an excessively long state history.

In this paper, we suggest that countries with a longer state tradition are less likely to grow through their financial sector. This is particularly the case from the limited yet indicative nature of our sample. What we observe in East-Central Europe and the former Soviet Union is a relatively developed financial sector that may be frequently captured by politicians and interest groups. On the one hand, incumbent politicians can buy off the support of private interest groups through the provision of soft budget constraints. On the other hand, powerful interest groups can raise entry barriers and that way restrict access to finance for small and medium-sized entrepreneurs. In transition economies, political rent-seeking, long-run survival of governments and the preservation of corporate oligarchies have been crucial aspects of the political-economic process and inherently linked with financial development. Hence, ancestral statehood facilitates the provision of soft budget constraints as a result of business-government bargains, which also bolster bank concentration. Becerra et al. (2012) identify a tradeoff between state capacity and the influence of incumbent interest groups toward financial development. What we suggest is that the long-term survival of governments in the post-socialist region is likely to rely on bailouts of interest groups through the financial sector.

The *ex-ante* presence of dominant interest groups as a result of state history renders financial development a costly, yet stable, equilibrium both for the interest groups and for incumbent politicians. A more sophisticated financial system raises the threshold of financial cooptation for incumbent politicians, with the result that they avoid competition by politicians promising a higher bid to interest groups. At the same time, financial development renders it costlier for ruling business actors to prevent the market entry of new competitors, thus encouraging the deeper entrenchment of them. Hence, in transition economies financial development as an equilibrium conditioned by state history can undermine growth. Highly developed financial institutions make the cooptation of interest groups costlier for incumbent politicians and reduce the probability of new competitive entries due to the furthering of interest group dominance.

Within transition economies, the successor states of the Russian Empire show intermediate to low levels of state history, whereas the opposite holds for many of the successor states of the Austro-Hungarian and the Ottoman Empires (intermediate to high levels of state history).[35] Our results show that financial development and credit provision inhibited rather than advanced growth in transition economies with a high ancestral institutional legacy. We propose that the competition of entrenched interest groups for easy credit contributed crucially to this unfavorable outcome. However, the evolution of the banking sector in post-socialist countries could also provide further impetus for the provision of soft-budget constraints from the credit supply side. The transformation of socialist financial systems in the 1990s allowed bank consolidation, which in turn facilitated bank concentration and the proliferation of foreign banks (Bonin et al., 2015). Foreign banks, which are particularly dominant in East-Central Europe, have been much more inclined to lend to households and large companies, rather than small and medium-size enterprises (ibid.). Moreover, bank concentration is likely to lead to inefficient bargains between banks and large enterprises, as well as between government and the overall private sector. Hence, ancestral statehood facilitates the

[35] See table 2 and figure 1. For a more detailed analysis, see Ang (2015); Putterman (2004).

provision of soft budget constraints in transition economies under the mutually enforcing pressure of interest group competition and bank concentration.

To sum up, while we confirm the positive direct effect of state history on growth, we also underscore its negative effect on financial development as a growth determinant *per se*. Institutions matter for growth, but not always in a positive way. The ambiguous role of finance in the economic transformation of East-Central Europe and the former Soviet Union can therefore to some extent be attributed to the divergent state history paths of historical Europe and Eurasia.

Genetic distance of transition economies to the world technology frontier, the US economy, strengthens the positive impact of banking sector development on growth. The reliance of East-Central Europe and the former Soviet Union on continental-style rather than Anglo-Saxon-style financial systems can be considered to some extent a consequence of closer genetic relatedness to Western European continental countries than to Anglo-Saxon ones. Namely, the adherence to bank-based rather than market-based financial systems occurs due to reduced adoption and imitation costs. The diffusion of financial norms becomes less costly for nations that share lower rather than higher genetic distances to each other. It is essential to add here that a significant negative correlation of approximately 18 percent is observable between genetic distance to the US population and stock market capitalization in our sample of transition economies. Our data shows that the more eastern the location of a country within the post-socialist bloc, the weaker the genealogical relatedness to the United States and the less developed capital markets are on average (tables 2 and 3). Less developed capital markets imply a higher reliance on traditional financial institutions, such as banks, to channel household savings to enterprises. This may explain the positive effect of genetic distance on the growth-finance relationship in transition economies. We suggest that the higher genetic relatedness of East-Central Europe and the former Soviet Union to Germany and France rather than the United States renders the selection of banks as the liquidity backbone of the economy an efficient long-run institutional choice.

7. Conclusions

In this paper, we have identified the significance of ancestral institutions, ethnolinguistic diversity and genetic distance to the United States for the impact of finance on growth in transition economies. We are convinced that our results are important for two reasons. First, they enrich the growth-finance literature in transition economies by offering a long-run theory of diversity and institutions. The development of the banking sector can be conducive to growth when it is conditioned by human genetic distance to the United States and thus proximity to the Western European continent. At the same time, a solid tradition of ancient statehood can be detrimental to the effect of finance on growth, contrary to what one would expect from conventional wisdom. While our results do not defy the main literature finding on the positive growth effect of state history, they also propose an important downside on the role of institutions for economic performance. When exposed to a long history of political organization and centralization that give rise to extractive institutions, the financial channel becomes a non-optimal path for economic transformation due to the potential provision of soft budget constraints. Furthermore, finer, rather than deeper, ethnolinguistic cleavages positively reinforce the finance-growth nexus through credit creation toward small and medium-size enterprises, also for minorities, and by setting larger emphasis on the role of financial development in resolving economic coordination failures and liquidity constraints related to fractionalization.

The second major contribution of this paper is a new theory of economic transitions in post-socialist Europe and Eurasia. Finer cultural differences explain the successful economic transformation in East-Central Europe and the relative economic backwardness observed in Southeastern Europe and the former Soviet Union throughout the transition period, but also afterwards. Nevertheless, the negative effect of state history on the growth-finance nexus shows why soft budget constraints persist today, even in the EU parts of the post-communist region. Further research is needed to explain the role of ancestry and diversity in the finance-growth nexus, both in advanced and developing economies.

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Appendix

Table A1. Sensitivity to the estimation method

FD variable	FI					PCB					IRS				
Method	*SGMM-1 maxL*	*SGMM-1 cl*	*SGMM-1 maxL&cl*	*SGMM-2 maxL&cl*	*PCSE*	*SGMM-1 maxL*	*SGMM-1 cl*	*SGMM-1 maxL&cl*	*SGMM-2 maxL&cl*	*PCSE*	*SGMM-1 maxL*	*SGMM-1 cl*	*SGMM-1 maxL&cl*	*SGMM-2 maxL&cl*	*PCSE*
FD	-0.2817***	-0.2242	-0.2549	-0.0608	-0.0916	-0.0019***	-0.0018**	-0.0019**	-0.0013	-0.0014***	0.0034	0.0046	0.0093	0.0093	-0.0019
	(0.003)	(0.134)	(0.130)	(0.751)	(0.270)	(0.003)	(0.027)	(0.015)	(0.134)	(0.008)	(0.420)	(0.292)	(0.276)	(0.212)	(0.239)
ELF6	-0.2813*	-0.3426*	-0.3214*	-0.3149*	-0.2650***	-0.2771*	-0.2576*	-0.2308	-0.2016	-0.2942***	0.0425	0.0710	0.1074	0.0968	-0.0672
	(0.074)	(0.055)	(0.064)	(0.095)	(0.000)	(0.067)	(0.092)	(0.143)	(0.301)	(0.000)	(0.687)	(0.524)	(0.484)	(0.479)	(0.244)
FD*ELF6(30)	**0.2043****	**0.2904****	**0.2867****	**0.2683****	**0.2083*****	**0.0023****	**0.0021****	**0.0020****	0.0016	**0.0026*****	**-0.0084****	**-0.0091****	**-0.0104***	**-0.0113***	**-0.0025***
	(0.042)	**(0.019)**	**(0.013)**	**(0.030)**	**(0.000)**	**(0.012)**	**(0.020)**	**(0.033)**	(0.108)	**(0.000)**	**(0.021)**	**(0.017)**	**(0.089)**	**(0.056)**	**(0.097)**
n(instruments)	*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*	
Hansen-test (pv)	*1.000*	*0.998*	*0.168*	*0.168*		*1.000*	*0.998*	*0.201*	*0.201*		*1.000*	*1.000*	*0.141*	*0.141*	
FD	-0.2541***	-0.0365	-0.0827	-0.0412	-0.0563	-0.0020***	-0.0016*	-0.0019**	-0.0015	-0.0013**	-0.0058***	-0.0088***	-0.0067**	-0.0054	-0.0037***
	(0.004)	(0.809)	(0.593)	(0.855)	(0.515)	(0.002)	(0.051)	(0.024)	(0.143)	(0.046)	(0.009)	(0.000)	(0.029)	(0.339)	(0.000)
ELF6	-0.3606**	-0.4311**	-0.3967**	-0.4072	-0.3065***	-0.2805*	-0.2697*	-0.2484	-0.1950	-0.2828***	-0.1080	-0.1247	-0.1660	-0.0918	-0.0662
	(0.024)	(0.017)	(0.022)	(0.171)	(0.000)	(0.054)	(0.069)	(0.110)	(0.392)	(0.001)	(0.295)	(0.288)	(0.191)	(0.736)	(0.251)
FD*ELF(50)	**0.2797****	**0.3715****	**0.3394****	0.3246	**0.2424*****	**0.0022****	**0.0020****	**0.0020****	0.0015	**0.0023*****	-0.0004	0.0010	0.0028	0.0014	-0.0023
	(0.025)	**(0.017)**	**(0.019)**	(0.163)	**(0.003)**	**(0.016)**	**(0.033)**	**(0.039)**	(0.259)	**(0.002)**	(0.852)	(0.671)	(0.256)	(0.788)	(0.111)
n(instruments)	*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*	
Hansen-test (pv)	*1.000*	*1.000*	*0.088*	*0.088*		*1.000*	*1.000*	*0.078*	*0.078*		*1.000*	*0.999*	*0.067*	*0.067*	
FD	-0.2036**	-0.0760	-0.1529	-0.0868	-0.0114	-0.0010	-0.0010	-0.0012	-0.0008	-0.0003	-0.0017	-0.0057**	-0.0018	0.0005	-0.0033***
	(0.023)	(0.633)	(0.345)	(0.718)	(0.899)	(0.106)	(0.259)	(0.184)	(0.397)	(0.581)	(0.567)	(0.019)	(0.681)	(0.923)	(0.000)
ELF6	-0.1843	-0.1950	-0.1743	-0.1072	-0.1669**	-0.1661	-0.1619	-0.1499	-0.1005	-0.1688**	-0.0097	-0.0871	-0.0489	-0.0284	-0.0266
	(0.159)	(0.165)	(0.219)	(0.556)	(0.032)	(0.191)	(0.198)	(0.239)	(0.590)	(0.026)	(0.919)	(0.419)	(0.666)	(0.880)	(0.621)
FD*ELF6(70)	0.0779	0.1161	0.1023	0.0365	0.0885	0.0009	0.0009	0.0011	0.0006	**0.0011***	**-0.0049***	-0.0012	-0.0020	-0.0020	**-0.0044*****
	(0.433)	(0.309)	(0.328)	(0.820)	(0.197)	(0.232)	(0.237)	(0.127)	(0.598)	**(0.091)**	**(0.069)**	(0.607)	(0.448)	(0.581)	**(0.002)**
n(instruments)	*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*	
Hansen-test (pv)	*1.000*	*0.999*	*0.071*	*0.071*		*1.000*	*1.000*	*0.142*	*0.142*		*1.000*	*1.000*	*0.139*	*0.139*	
FD	-0.2694**	-0.0753	-0.1750	-0.0448	0.0405	-0.0005	-0.0001	-0.0002	0.0000	0.0004	-0.0067**	-0.0087***	-0.0045	-0.0059	-0.0085***
	(0.039)	(0.723)	(0.411)	(0.904)	(0.742)	(0.472)	(0.946)	(0.819)	(0.990)	(0.602)	(0.011)	(0.001)	(0.266)	(0.367)	(0.000)
SHadj	0.6171**	0.6793**	0.6300**	0.6535	0.5372***	0.4897*	0.5278*	0.5172*	0.5271	0.4922***	0.1100	0.2167	0.2660	0.1686	-0.0003
	(0.031)	(0.041)	(0.049)	(0.105)	(0.000)	(0.061)	(0.061)	(0.074)	(0.224)	(0.000)	(0.532)	(0.335)	(0.282)	(0.579)	(0.997)
FD*SHadj(30)	-0.1494	-0.1788	-0.1625	-0.1974	**-0.1596*****	**-0.0016***	-0.0014	-0.0017	-0.0016	**-0.0016*****	0.0037	0.0012	-0.0001	0.0009	**0.0054*****
	(0.153)	(0.182)	(0.199)	(0.227)	**(0.007)**	**(0.078)**	(0.138)	(0.102)	(0.246)	**(0.004)**	(0.137)	(0.565)	(0.977)	(0.810)	**(0.002)**
n(instruments)	*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*	
Hansen-test (pv)	*1.000*	*1.000*	*0.150*	*0.150*		*1.000*	*1.000*	*0.105*	*0.105*		*1.000*	*1.000*	*0.176*	*0.176*	
FD	-0.1805	-0.0263	-0.1173	0.0557	0.1272	-0.0001	0.0003	0.0001	0.0004	0.0010	-0.0063**	-0.0065**	-0.0050	-0.0055	-0.0049***
	(0.218)	(0.900)	(0.594)	(0.858)	(0.245)	(0.861)	(0.757)	(0.914)	(0.738)	(0.177)	(0.016)	(0.017)	(0.204)	(0.338)	(0.000)
SHadj	0.8333**	0.9465***	0.8594**	0.9415**	0.8018***	0.6041*	0.6770**	0.6481**	0.6521	0.6876***	0.0503	0.2865	0.1137	0.0239	0.1083
	(0.018)	(0.008)	(0.012)	(0.044)	(0.000)	(0.051)	(0.032)	(0.037)	(0.126)	(0.000)	(0.796)	(0.260)	(0.664)	(0.956)	(0.259)
FD*SHadj(50)	**-0.2445****	**-0.3002****	**-0.2580****	**-0.3290***	**-0.2835*****	**-0.0020****	**-0.0022****	**-0.0023****	**-0.0022***	**-0.0026*****	0.0033	0.0002	0.0023	0.0027	0.0024
	(0.041)	**(0.018)**	**(0.030)**	**(0.059)**	**(0.000)**	**(0.035)**	**(0.021)**	**(0.018)**	**(0.060)**	**(0.000)**	(0.159)	(0.956)	(0.517)	(0.627)	(0.101)
n(instruments)	*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*	
Hansen-test (pv)	*1.000*	*1.000*	*0.142*	*0.142*		*1.000*	*1.000*	*0.162*	*0.162*		*1.000*	*1.000*	*0.178*	*0.178*	
FD	-0.3417***	-0.2364	-0.3317**	-0.2444	-0.0326	-0.0009	-0.0007	-0.0009	-0.0001	0.0003	-0.0055***	-0.0076***	-0.0047	-0.0044	-0.0042***
	(0.001)	(0.144)	(0.023)	(0.289)	(0.758)	(0.159)	(0.404)	(0.258)	(0.913)	(0.637)	(0.001)	(0.000)	(0.178)	(0.245)	(0.000)
SHadj	0.5366**	0.6021**	0.6050**	0.5492	0.5054***	0.3991	0.4610*	0.4612*	0.4285	0.4729***	0.0602	0.1262	0.1044	0.0539	0.2393**
	(0.046)	(0.026)	(0.023)	(0.156)	(0.001)	(0.114)	(0.077)	(0.067)	(0.246)	(0.001)	(0.781)	(0.548)	(0.680)	(0.867)	(0.017)
FD*SHadj(70)	-0.1062	-0.1305	**-0.1542***	-0.1480	**-0.1548****	-0.0011	-0.0011	**-0.0016***	-0.0014	**-0.0016****	0.0077	0.0070	0.0090	0.0081	0.0004
	(0.218)	(0.145)	**(0.092)**	(0.273)	**(0.037)**	(0.182)	(0.229)	**(0.095)**	(0.236)	**(0.016)**	(0.131)	(0.284)	(0.317)	(0.459)	(0.865)
n(instruments)	*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*	
Hansen-test (pv)	*1.000*	*1.000*	*0.106*	*0.106*		*1.000*	*1.000*	*0.163*	*0.163*		*1.000*	*1.000*	*0.335*	*0.335*	
FD	-0.4573***	-0.3266*	-0.3887	-0.2960	-0.1441	-0.0023***	-0.0018	-0.0023	-0.0013	-0.0012	-0.0060**	-0.0091**	-0.0069*	-0.0031	-0.0052***
	(0.003)	(0.081)	(0.118)	(0.633)	(0.437)	(0.001)	(0.114)	(0.115)	(0.209)	(0.409)	(0.011)	(0.017)	(0.087)	(0.507)	(0.000)
GDw	-0.0002**	-0.0002**	-0.0002**	-0.0002	-0.0001*	-0.0001	-0.0001*	-0.0001*	-0.0001	-0.0001	-0.0001	-0.0002*	-0.0002*	-0.0002	-0.0001**
	(0.028)	(0.021)	(0.026)	(0.460)	(0.071)	(0.108)	(0.075)	(0.054)	(0.103)	(0.112)	(0.109)	(0.057)	(0.064)	(0.174)	(0.012)
FD*GDw(30)	**0.1618****	**0.1540***	**0.1738***	0.1058	0.1167	**0.0012***	0.0011	**0.0015***	0.0010	0.0009	0.0042	**0.0077***	**0.0081****	0.0052	**0.0033*****
	(0.034)	**(0.073)**	**(0.082)**	(0.758)	(0.250)	**(0.053)**	(0.155)	**(0.080)**	(0.133)	(0.416)	(0.201)	**(0.057)**	**(0.049)**	(0.173)	**(0.001)**
n(instruments)	*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*	
Hansen-test (pv)	*1.000*	*1.000*	*0.154*	*0.154*		*1.000*	*1.000*	*0.191*	*0.191*		*1.000*	*1.000*	*0.389*	*0.389*	
FD	-0.3591***	-0.1737	-0.2186	-0.1024	-0.0701	-0.0024***	-0.0020*	-0.0021*	-0.0012	-0.0012	-0.0050***	-0.0065***	-0.0047	-0.0030	-0.0044***
	(0.006)	(0.319)	(0.265)	(0.714)	(0.524)	(0.001)	(0.055)	(0.088)	(0.531)	(0.139)	(0.002)	(0.009)	(0.118)	(0.363)	(0.000)
GDw	-0.0002***	-0.0002**	-0.0002**	-0.0003*	-0.0001***	-0.0002**	-0.0002**	-0.0002**	-0.0002*	-0.0001***	-0.0001	-0.0001	-0.0001	0.0000	-0.00002
	(0.009)	(0.021)	(0.022)	(0.073)	(0.000)	(0.026)	(0.025)	(0.022)	(0.084)	(0.000)	(0.222)	(0.247)	(0.225)	(0.837)	(0.244)
FD*GDw(50)	**0.1865*****	**0.1844***	**0.1937****	0.1770	**0.1371*****	**0.0019*****	**0.0018****	**0.0020****	0.0015	**0.0014*****	0.0025	0.0021	0.0030	0.0000	0.0005
	(0.005)	**(0.053)**	**(0.042)**	(0.184)	**(0.000)**	**(0.005)**	**(0.028)**	**(0.014)**	(0.303)	**(0.001)**	(0.444)	(0.567)	(0.429)	(0.992)	(0.571)
n(instruments)	*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*	
Hansen-test (pv)	*1.000*	*1.000*	*0.224*	*0.224*		*1.000*	*1.000*	*0.192*	*0.192*		*1.000*	*1.000*	*0.457*	*0.457*	
FD	-0.2683***	-0.1181	-0.1521	-0.0474	-0.0203	-0.0021***	-0.0017*	-0.0016	-0.0008	-0.0010	0.0004	-0.0026	-0.0005	-0.0021	-0.0034***
	(0.002)	(0.398)	(0.330)	(0.851)	(0.842)	(0.002)	(0.094)	(0.119)	(0.641)	(0.242)	(0.889)	(0.331)	(0.922)	(0.739)	(0.000)
GDw	-0.0002*	-0.0002*	-0.0002*	-0.0003	-0.0001***	-0.0002*	-0.0002*	-0.0002*	-0.0002	-0.0001***	0.0001	0.0001	0.0001	0.0001	0.0001*
	(0.080)	(0.083)	(0.079)	(0.155)	(0.000)	(0.052)	(0.054)	(0.059)	(0.148)	(0.001)	(0.523)	(0.473)	(0.488)	(0.555)	(0.078)
FD*GDw(70)	**0.1900***	**0.2146***	**0.2375***	0.2563	**0.1203*****	**0.0019****	**0.0018****	**0.0019****	0.0017	**0.0013****	**-0.0078****	**-0.0090***	**-0.0091****	**-0.0078****	**-0.0038*****
	(0.081)	**(0.095)**	**(0.075)**	(0.144)	**(0.002)**	**(0.013)**	**(0.028)**	**(0.016)**	(0.129)	**(0.011)**	**(0.030)**	**(0.068)**	**(0.036)**	**(0.015)**	**(0.009)**
n(instruments)	*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*		*84*	*54*	*24*	*24*	
Hansen-test (pv)	*1.000*	*1.000*	*0.198*	*0.198*		*1.000*	*1.000*	*0.233*	*0.233*		*1.000*	*1.000*	*0.443*	*0.443*	

Notes: Estimation results on equation (1). "SGMM-1 maxL" – 1-step system GMM with GMM level instruments lag maximized at order 2 (default), "SGMM-1 cl" – 1-step system GMM with collapsed instruments (Roodman, 2009b), "SGMM-1 maxL&cl" – 1-step system GMM with collapsed instruments and with GMM level instruments lag maximized at order 2, "SGMM-2 maxL&cl" – 2-step system GMM with collapsed instruments and with GMM level instruments lag maximized at order 2, "PCSE" – OLS. At each GMM estimation, legal origin and imperial legacy dummies are used as standard instruments. The constant and the coefficients of the 'conditioning set' including the lagged dependent variable are omitted to save space. P-values of the t-tests calculated according to robust standard errors are in parenthesis. Robust standard errors: 2-step GMM (robust *s.e.* of Windmeijer (2005)), PCSE (panel-corrected *s.e.* of Beck and Katz (1995)), 1-step GMM (see the notes of tables 4A-E.). Asterisks denote the significance level (*: 10%, **: 5%, ***: 1%). Structural breaks significant at standard levels are depicted in bold.

Table A2. Sensitivity to the inclusion of contemporary threshold effects

	DRD variable	**ELF6**				**SHadj**				**GDw**			
	CT: Contemporary threshold effect	Ø (default)	INST. channel	DEV. channel	FIN. channel	Ø (default)	INST. channel	DEV. channel	FIN. channel	Ø (default)	INST. channel	DEV. channel	FIN. channel
	CT variable (CTV)		*FD*WGI*	*FD*ln(y)(-1)*	*FD*FD*		*FD*WGI*	*FD*ln(y)(-1)*	*FD*FD*		*FD*WGI*	*FD*ln(y)(-1)*	*FD*FD*
FD = FI	ln(y)(-1)	0.8790***	0.8769***	0.9360***	0.8585***	0.8793***	0.8896***	0.9180***	0.8738***	0.9188***	0.9084***	0.9687***	0.8905***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	WGI	0.0552**	0.1116**	0.0602**	0.0549**	0.0910**	0.1075*	0.0814**	0.0928**	0.0852***	0.1492***	0.0900***	0.0908***
		(0.042)	(0.018)	(0.017)	(0.028)	(0.011)	(0.053)	(0.017)	(0.013)	(0.005)	(0.001)	(0.002)	(0.003)
	FI	-0.2541***	-0.2431***	2.3160	0.3668	-0.1805	-0.2254	1.0964	-0.1349	-0.3591***	-0.3521***	1.8507	0.1819
		(0.004)	(0.003)	(0.111)	(0.211)	(0.218)	(0.114)	(0.531)	(0.718)	(0.006)	(0.007)	(0.236)	(0.521)
	DRD	-0.3606**	-0.3460**	-0.3591**	-0.3258**	0.8333**	0.7895**	0.7008*	0.8346**	-0.0002***	-0.0002***	-0.0002***	-0.0002***
		(0.024)	(0.028)	(0.025)	(0.037)	(0.018)	(0.035)	(0.072)	(0.039)	(0.009)	(0.007)	(0.008)	(0.007)
	FI*DRD(50)	**0.2797****	**0.2579****	**0.2637****	**0.2377****	-0.2445**	-0.2246*	-0.1992	-0.2421*	**0.1865*****	**0.1891****	**0.1622****	**0.1903*****
		(0.025)	**(0.025)**	**(0.032)**	**(0.046)**	(0.041)	(0.077)	(0.137)	(0.091)	**(0.005)**	**(0.011)**	**(0.017)**	**(0.008)**
	CTV		-0.1739	-0.2480*	-0.7287**		-0.0601	-0.1218	-0.0596		-0.1689**	-0.2121	-0.6288**
			(0.111)	(0.081)	(0.042)		(0.595)	(0.473)	(0.889)		(0.049)	(0.150)	(0.042)
FD = PCB	ln(y)(-1)	0.8869***	0.8860***	0.9162***	0.8694***	0.8783***	0.8851***	0.9026***	0.8727***	0.9003***	0.8952***	0.9192***	0.8976***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	WGI	0.0442*	0.0545	0.0473*	0.0496**	0.0669**	0.0634	0.0670**	0.0702**	0.0759**	0.0950**	0.0830***	0.0753**
		(0.082)	(0.150)	(0.054)	(0.040)	(0.047)	(0.181)	(0.036)	(0.043)	(0.016)	(0.019)	(0.009)	(0.013)
	PCB	-0.0020***	-0.0017**	0.0155	0.0009	-0.0001	-0.0001	0.0119	0.0010	-0.0024***	-0.0023***	0.0109	-0.0012
		(0.002)	(0.029)	(0.272)	(0.544)	(0.861)	(0.879)	(0.443)	(0.563)	(0.001)	(0.004)	(0.403)	(0.396)
	DRD	-0.2805*	-0.2730*	-0.2744*	-0.2702**	0.6041*	0.5885*	0.5570*	0.6216**	-0.0002**	-0.0002**	-0.0002**	-0.0002**
		(0.054)	(0.056)	(0.057)	(0.049)	(0.051)	(0.069)	(0.090)	(0.048)	(0.026)	(0.022)	(0.031)	(0.026)
	PCB*DRD(50)	**0.0022****	**0.0020****	**0.0020****	**0.0021****	**-0.0020****	**-0.0020****	**-0.0018***	**-0.0022****	**0.0019*****	**0.0021*****	**0.0018*****	**0.0020*****
		(0.016)	**(0.018)**	**(0.026)**	**(0.012)**	**(0.035)**	**(0.047)**	**(0.085)**	**(0.026)**	**(0.005)**	**(0.007)**	**(0.009)**	**(0.005)**
	CTV		-0.0005	-0.0017	-0.00004**		-0.0001	-0.0012	-0.00001		-0.0006	-0.0013	-0.00002
			(0.529)	(0.219)	(0.028)		(0.897)	(0.442)	(0.360)		(0.309)	(0.309)	(0.236)

Notes: 1-step system GMM estimations of the following regression: $\ln(y_{it}) = \alpha_i + \beta_1 FD_{it} + \beta_2 DRD_i + \beta_3 (FD_{it} \cdot DRD(\#)_i) + \bar{\gamma}^T \left[cond.\, set_{it}\right] + \beta_4 CTV_{it} + \varepsilon_{it}$, where *CTV* is the interaction controlling for the respective contemporary threshold effect. The lag order of GMM level instruments is maximized at 2. Legal origin and imperial legacy dummies are involved as standard instruments in each case. The constant and the coefficients of the 'conditioning set' – with the exception of *WGI* and *ln(y)(-1)* – are omitted to save space. P-values of the t-tests are in parenthesis and are calculated according to standard errors which are robust to heteroskedasticity across and arbitrary pattern of autocorrelation within countries. Asterisks denote the significance level (*: 10%, **: 5%, ***: 1%). Those cases where the *FD*DRD(#)* interaction term retains sign and significance consistently after controlling for the individual contemporary threshold effects are depicted in bold.

Table A3. Sensitivity to the inclusion of additional deep-rooted developmental variables

DRD variable	ELF6						SHadj						GDw					
FD variable	FI			PCB			FI			PCB			FI			PCB		
Additional DRD variable (DRD_{add})	*Ø* (default)	*GDw*	*SHadj*	*Ø* (default)	*GDw*	*SHadj*	*Ø* (default)	*GDw*	*ELF6*	*Ø* (default)	*GDw*	*ELF6*	*Ø* (default)	*SHadj*	*ELF6*	*Ø* (default)	*SHadj*	*ELF6*
FD	-0.2817***	-0.4059***	-0.2848*	-0.0019***	-0.0032***	-0.0017*	-0.2694**	-0.3428**	-0.2631	-0.0005	-0.0019*	-0.0018	-0.4573***	-0.2384	-0.3899***	-0.0023***	-0.0012	-0.0031***
	(0.003)	(0.004)	(0.068)	(0.003)	(0.000)	(0.084)	(0.039)	(0.038)	(0.108)	(0.472)	(0.056)	(0.107)	(0.003)	(0.104)	(0.007)	(0.001)	(0.122)	(0.000)
DRD	-0.2813*	-0.2948*	-0.1588	-0.2771*	-0.2682*	-0.1957	0.6171**	0.3881	0.3606*	0.4897*	0.3086	0.2202	-0.0002**	-0.0001**	-0.0001	-0.0001	-0.0001**	-0.0001
	(0.074)	(0.054)	(0.164)	(0.067)	(0.072)	(0.109)	(0.031)	(0.175)	(0.061)	(0.061)	(0.221)	(0.293)	(0.028)	(0.015)	(0.265)	(0.108)	(0.045)	(0.303)
FD*DRD(30)	**0.2043****	**0.2109****	**0.1851****	**0.0023****	**0.0020****	**0.0023*****	-0.1494	-0.0697	-0.0687	-0.0016*	-0.0008	-0.0002	0.1618**	0.1189**	0.1186	**0.0012***	**0.0011****	**0.0011***
	(0.042)	**(0.015)**	**(0.027)**	**(0.012)**	**(0.019)**	**(0.005)**	(0.153)	(0.535)	(0.586)	(0.078)	(0.388)	(0.890)	(0.034)	(0.019)	(0.110)	**(0.053)**	**(0.018)**	**(0.078)**
DRD_{add}		-0.0002**	0.7444***		-0.0001*	0.4052*		-0.0001*	-0.2565*		-0.0001*	-0.2028		0.7588**	-0.3340**		0.5625*	-0.2544*
		(0.011)	(0.009)		(0.062)	(0.078)		(0.068)	(0.060)		(0.090)	(0.143)		(0.022)	(0.046)		(0.067)	(0.084)
FD* DRD_{add}(50)		0.2114***	-0.1837		0.0019***	-0.0008		0.1327*	0.2285**		0.0016*	0.0020*		-0.2719**	0.2429*		-0.0024**	0.0021**
		(0.002)	(0.129)		(0.005)	(0.366)		(0.080)	(0.042)		(0.056)	(0.083)		(0.023)	(0.064)		(0.026)	(0.035)
FD	-0.2541***	-0.3245***	-0.1840	-0.0020***	-0.0028***	-0.0012	-0.1805	-0.1904	-0.1840	-0.0001	-0.0012	-0.0012	-0.3591***	-0.1904	-0.3245***	-0.0024***	-0.0012	-0.0028***
	(0.004)	(0.009)	(0.217)	(0.002)	(0.001)	(0.262)	(0.218)	(0.214)	(0.217)	(0.861)	(0.261)	(0.262)	(0.006)	(0.214)	(0.009)	(0.001)	(0.261)	(0.001)
DRD	-0.3606**	-0.3119*	-0.2580*	-0.2805*	-0.2362	-0.1918	0.8333**	0.6733*	0.6720**	0.6041*	0.4761	0.4091*	-0.0002***	-0.0001*	-0.0001	-0.0002**	-0.0001*	-0.0001
	(0.024)	(0.076)	(0.051)	(0.054)	(0.133)	(0.118)	(0.018)	(0.071)	(0.014)	(0.051)	(0.135)	(0.093)	(0.009)	(0.083)	(0.157)	(0.026)	(0.086)	(0.153)
FD*DRD(50)	0.2797**	0.2012	0.2394**	0.0022**	0.0014	0.0017**	**-0.2445****	**-0.2152***	**-0.2135***	-0.0020**	-0.0017	-0.0013	0.1865***	0.1019	0.1480**	0.0019***	0.0013	0.0017**
	(0.025)	(0.121)	(0.021)	(0.016)	(0.163)	(0.023)	**(0.041)**	**(0.097)**	**(0.089)**	(0.035)	(0.116)	(0.184)	(0.005)	(0.231)	(0.020)	(0.005)	(0.108)	(0.029)
DRD_{add}		-0.0001	0.6720**		-0.0001	0.4091*		-0.0001*	-0.2580*		-0.0001*	-0.1918		0.6733*	-0.3119*		0.4761	-0.2362
		(0.157)	(0.014)		(0.153)	(0.093)		(0.083)	(0.051)		(0.086)	(0.118)		(0.071)	(0.076)		(0.135)	(0.133)
FD* DRD_{add}(50)		0.1480**	-0.2135*		0.0017**	-0.0013		0.1019	0.2394**		0.0013	0.0017**		-0.2152*	0.2012		-0.0017	0.0014
		(0.020)	(0.089)		(0.029)	(0.184)		(0.231)	(0.021)		(0.108)	(0.023)		(0.097)	(0.121)		(0.116)	(0.163)

Notes: 1-step system GMM estimations of the following regression: $\ln(y_{it}) = \alpha_i + \beta_1 FD_{it} + \beta_2 DRD_i + \beta_3 (FD_{it} \cdot DRD(\#)_i) + \bar{\gamma}^T [cond.\ set_{it}] + \beta_4 DRD_{add,i} + \beta_5 (FD_{it} \cdot DRD_{add}(50)_i) + \varepsilon_{it}$, where DRD_{add} is the additional deep-rooted development variable. The lag order of GMM level instruments is maximized at 2. Legal origin and imperial legacy dummies are involved as standard instruments in each case. The constant and the coefficients of the 'conditioning set' including the lagged dependent variable are omitted to save space. P-values of the t-tests are in parenthesis and are calculated according to standard errors which are robust to heteroskedasticity across and arbitrary pattern of autocorrelation within countries. Asterisks denote the significance level (*: 10%, **: 5%, ***: 1%). Those cases where the *FD*DRD(#)* interaction terms retain sign and significance consistently after controlling for the other deep-rooted threshold effects are depicted in bold.

Table A4. Sensitivity to the sample: Summary of the *FD=PCB* specifications

DRD variable	SHadj							ELF6							GDw						
Sample	*full*	*Smpl1*	*Smpl2*	*Smpl3*	*Smpl4*	*Smpl5*	*Smpl6*	*full*	*Smpl1*	*Smpl2*	*Smpl3*	*Smpl4*	*Smpl5*	*Smpl6*	*full*	*Smpl1*	*Smpl2*	*Smpl3*	*Smpl4*	*Smpl5*	*Smpl6*
PCB*DRD(30)	-0.0016*	-0.0017*	**-0.0010**	-0.0023**	-0.0018*	-0.0019**	**-0.0015**	0.0023**	0.0015**	0.0021**	0.0019**	0.0013*	0.0029***	0.0027***	0.0012*	**0.0005**	**0.0006**	0.0020***	0.0010*	**0.0010**	**0.0009**
	(0.078)	(0.075)	**(0.290)**	(0.018)	(0.054)	(0.048)	**(0.137)**	(0.012)	(0.012)	(0.045)	(0.030)	(0.057)	(0.008)	(0.006)	(0.053)	**(0.365)**	**(0.234)**	(0.009)	(0.090)	**(0.269)**	**(0.315)**
PCB*DRD(50)	-0.0020**	-0.0013*	**-0.0015**	**-0.0011**	**-0.0009**	-0.0025*	-0.0029**	0.0022**	0.0016**	0.0022**	0.0025***	0.0026*	0.0017*	0.0022*	0.0019***	0.0014**	0.0011*	0.0024***	0.0015**	0.0014*	0.0024***
	(0.035)	(0.086)	**(0.168)**	**(0.274)**	**(0.304)**	(0.073)	(0.027)	(0.016)	(0.037)	(0.016)	(0.008)	(0.062)	(0.082)	(0.054)	(0.005)	(0.011)	(0.072)	(0.003)	(0.042)	(0.083)	(0.005)
PCB*DRD(70)	**-0.0011**	**-0.0007**	**-0.0010**	-0.0014*	**-0.0009**	**-0.0016**	**-0.0018**	**0.0009**	**0.0003**	**0.0004**	0.0019*	**0.0017**	0.0018*	0.0019**	0.0019**	0.0018***	0.0017**	**0.0011**	0.0031**	0.0015*	**0.0010**
	(0.182)	**(0.256)**	**(0.260)**	(0.077)	**(0.126)**	**(0.127)**	**(0.277)**	**(0.232)**	**(0.668)**	**(0.656)**	(0.085)	**(0.224)**	(0.061)	(0.040)	(0.013)	(0.009)	(0.019)	**(0.318)**	(0.018)	(0.090)	**(0.361)**
PCB*DRD(40)			-0.0022**																		
			(0.045)																		

Notes: 1-step system GMM estimations of equation (1) on different subsamples. The lag order of GMM level instruments is maximized at 2. Legal origin and imperial legacy dummies are involved as standard instruments in each case. From each regression, only the coefficient of the *PCB*DRD(#)* interaction term is presented. P-values of the t-tests are in parenthesis and are calculated according to standard errors which are robust to heteroskedasticity across and arbitrary pattern of autocorrelation within countries. Asterisks denote the significance level (*: 10%, **: 5%, ***: 1%). Not significant results are depicted in bold. Samples: *full* – full sample (default), *Smpl1* – without Caucasus (ARM, AZE, GEO), *Smpl2* – without Central Asia (KAZ, KGZ, TJK, MNG), *Smpl3* – without Eastern Europe (BLR, MDA, RUS, UKR), *Smpl4* – without the Baltic (EST, LTU, LVA), *Smpl5* – without Central Europe (CZE, HUN, POL, SVK, SVN), *Smpl6* – without South-East Europe (ALB, BGR, BIH, HRV, MKD, ROU, SRB).

Table A5. Summary table of the growth-finance literature on transition countries

Paper	Sample	Nonlinearity[2]	Estimation method	FD measures	Main results
Cojocaru et al. (2016)	25 transition countries (1990-2008)	not considered	System GMM	PC, LL, IRS, OC, bank concentration rate	OC and IRS have large (-) effect on growth. PC tends to be irrelevant when financial efficiency measures are also included in the regression. Banking efficiency is more important for growth, than the size of the banking sector.
Caporale et al. (2015)	10 Central European countries (1994-2007)	*sample splitting* (3 country-groups)	System GMM	average of the EBRD financial TIs[3], PCB, LL, IRS, SMC	PCB is not relevant for growth. LL and SMC have small (+) effects on growth. The average of the EBRD financial TIs has large (+) effect, while IRS has large (-) effect on growth.
Gaffeo and Garalova (2014)	13 transition countries (1995-2007)	not considered	Error correction model (difference GMM)	TF1[4], DC, LL	Each FD measure has (+) long-run effect on output. The short-run effect of FD is ambiguous (either not significant or significantly negative).
Zhang et al. (2012)	286 Chinese cities (2001-2006)	not considered	System GMM, Difference GMM	total credit, total deposit, households' deposit etc.	Size-based measures of financial development positively affect growth in China.
Djalilov and Piesse (2011)	27 transition countries (1992-2008)	not considered	OLS, simultaneous equations model	PC, IRS, average of the EBRD financial TIs[3]	The average of the EBRD financial TIs has (-) effect on growth. PC has no effect on growth. IRS has small (-) effect on growth.
Fink et al. (2009)	27 transition, emerging, and developed countries (1996-2000)	*sample splitting* (low/middle/high income countries)	OLS	DC, PC, SMC, bonds outstanding, TFI1[6], TFI2[7]	*Transition countries:* The amount of bonds, DC, TFI1 and TFI2 have (+) effect, while PC and SMC have no effect on growth.[8]
Masten et al. (2008) [1]	28 EU and 4 non-EU countries (1996-2004)	*sample splitting* (non-transition/ transition countries)	Difference GMM	TF2[5], PC, international financial integration (IFI) measures	*Transition countries:* IFI has (+) effect on growth. TF2 and PC have no effect on growth. However, financial development strengthens the positive effect of international financial integration on growth.[8]
Coricelli and Masten (2004)	9 Central European countries (1993-2003)	*Interaction* (PC_growth*BRIL)	GMM	IRS, PC, EBRD financial TIs[3]	IRS has (-) effect, while BRIL has (+) effect on growth. The overall effect of credit growth depends on institutional quality: main effect (-), interaction with BRIL (+).
Botric and Slijepcevic (2008)	6 South-East European countries (1995-2005)	not considered	Fixed effects model (GLS)	IRS, NPL	IRS has large (-) effect on growth. NPL is not relevant.
Harper and McNulty (2008)	115 transition and other countries (1996-2009)	not considered	*Claims* regressed by OLS and simultaneous equations technique	*Claims* of the banking sector on the private sector	The size of the financial system is smaller in transition countries than in other countries even after controlling for legal origin, rule of law, and other economic factors. Bank lending is even smaller in countries of Russian legal origin.
Koivu and Sutela (2005)	25 transition countries (1993-2001)	not considered	Fixed effects model	IRS, PCB	IRS has (-) effect on growth. The effect of PCB is ambiguous. Size is not a good proxy for financial development in transition economies.
Gillman and Harris (2004)	13 transition countries (1990-2002)	*Interaction* (LL*inflation)	Fixed effects model (IV estimation), Random effects model, GMM	LL	'Liquid liabilities' exerts (-), while its interaction with the inflation rate exerts (+) effect on growth.
Dawson (2003)	13 transition countries (1994-99)	not considered	Fixed effects model, Random effects model	LL	'Liquid liabilities' is not relevant for growth.
Koivu (2002)	25 transition countries (1993-2000)	*sample splitting* (CIS/CESEE)	Fixed effects model	PCB, IRS	IRS has (-) effect, while PCB has no effect on growth. The results on the CIS/CESEE subsamples are the same except that PCB is relevant for growth in CIS countries.

Notes: [1] Masten et al. (2008) perform an industry-level analysis as well; [2] 'sample splitting' refers to the arbitrary splitting of the sample into different subgroups marked in parenthesis; [3] EBRD financial transition indicators: 'Banking reform & interest rate liberalization' TI, 'Securities markets & non-bank financial institutions' TI; [4] TF1 (total finance 1) = PCB+SMC; [5] TF2 (total finance 2) = PC+SMC; [6] TFI1 (total financial intermediation 1) = DC+SMC+bonds; [7] TFI2 (total financial intermediation 2) = PC+SMC+bonds; [8] Only the results on transition countries are presented.

Abbreviations: BRIL– 'Banking reform & interest rate liberalization' transition indicator, CESEE– Central Europe and South-East Europe, CIS– Commonwealth of Independent States, DC– domestic credit (incl. credit to the public sector) granted by the financial sector (incl. banks, monetary authorities etc.), FD– financial development, IRS– bank lending-deposit interest rate spread, LL– liquid liabilities, NPL– non-performing loans, OC– overhead costs of the banking sector, PC– private credit granted by the financial sector (incl. banks, monetary authorities etc.), PCB– private credit granted by the banking sector, SMC– Stock market capitalization, TI– transition indicator.

Online Appendix

Table 1. Imperial affiliation in 1900 and legal origin

Country	Code	*Dummies reflecting imperial affiliation in 1900*					*Legal origin dummy*	
		Russian	Austro-Hungarian	German	Ottoman	Independent	French	Russian (CIS&MNG)
Albania	ALB	0	0	0	1	0	1	0
Armenia	ARM	1	0	0	0	0	1	1
Azerbaijan	AZE	1	0	0	0	0	1	1
Belarus	BLR	1	0	0	0	0	0	1
Bosnia and Hercegovina	BIH	0	1	0	0	0	0	0
Bulgaria	BGR	0	0	0	1	1	0	0
Croatia	HRV	0	1	0	0	0	0	0
Czech Rep.	CZE	0	1	0	0	0	0	0
Estonia	EST	1	0	0	0	0	0	0
Macedonia	MKD	0	0	0	1	0	1	0
Georgia	GEO	1	0	0	0	0	0	1
Hungary	HUN	0	1	0	0	0	0	0
Kazakhstan	KAZ	1	0	0	0	0	1	1
Kyrgyz Rep.	KGZ	1	0	0	0	0	1	1
Latvia	LVA	1	0	0	0	0	0	0
Lithuania	LTU	1	0	0	0	0	1	0
Moldova	MDA	1	0	0	0	0	1	1
Mongolia	MNG	0	0	0	0	1	0	1
Poland	POL	1	1	1	0	0	0	0
Romania	ROU	0	1	0	0	1	1	0
Russia	RUS	1	0	0	0	0	1	1
Serbia	SRB	0	1	0	1	1	1	0
Slovakia	SVK	0	1	0	0	0	0	0
Slovenia	SVN	0	1	0	0	0	0	0
Tajikistan	TJK	1	0	0	0	0	1	1
Ukraine	UKR	1	1	0	0	0	1	1

Source: Imperial affiliation dummies are own classifications. Independent is understood either literally or as non-occupied by any of the four empires considered (i.e., Russian, German, Ottoman, Austro-Hungarian). French legal origin dummy is from La Porta et al. (2008). Russian legal origin dummy takes on a value of one for (present or past) Commonwealth of Independent States member countries and Mongolia.
Notes: The data of Serbia on French legal origin dummy correspond to the data of 'Serbia and Montenegro' in the source dataset.

Table 2. Sensitivity to the sample: Summary of the *FD=IRS* and the *FD=FI* specifications

DRD variable	**SHadj**							**ELF6**							**GDw**						
Sample	*full*	*Smpl1*	*Smpl2*	*Smpl3*	*Smpl4*	*Smpl5*	*Smpl6*	*full*	*Smpl1*	*Smpl2*	*Smpl3*	*Smpl4*	*Smpl5*	*Smpl6*	*full*	*Smpl1*	*Smpl2*	*Smpl3*	*Smpl4*	*Smpl5*	*Smpl6*
IRS*DRD(30)	**0.0037**	0.0036*	0.0097**	**-0.0004**	**0.0030**	**0.0047**	**0.0028**	-0.0084**	-0.0084*	**-0.0020**	-0.0048*	**-0.0016**	**0.0013**	**-0.0020**	**0.0042**	**0.0011**	0.0070**	**0.0025**	**0.0036**	**0.0042**	**-0.0004**
	(0.137)	(0.098)	(0.021)	**(0.891)**	**(0.387)**	**(0.119)**	**(0.175)**	(0.021)	(0.054)	**(0.597)**	(0.057)	**(0.552)**	**(0.564)**	**(0.455)**	**(0.201)**	**(0.650)**	(0.044)	**(0.343)**	**(0.159)**	**(0.202)**	**(0.898)**
IRS*DRD(50)	**0.0033**	0.0039*	0.0085*	**0.0029**	**0.0023**	**0.0037**	0.0038**	**-0.0004**	**0.0000**	**-0.0032**	**-0.0003**	**0.0004**	**-0.0051**	**0.0001**	**0.0025**	**0.0032**	0.0065**	**0.0004**	**0.0044**	**0.0024**	**-0.0005**
	(0.159)	(0.069)	(0.094)	**(0.327)**	**(0.440)**	**(0.190)**	(0.018)	**(0.852)**	**(0.982)**	**(0.384)**	**(0.927)**	**(0.813)**	**(0.227)**	**(0.976)**	**(0.444)**	**(0.280)**	(0.038)	**(0.907)**	**(0.111)**	**(0.458)**	**(0.860)**
IRS*DRD(70)	**0.0077**	0.0110***	**0.0049**	**0.0035**	**0.0042**	**0.0059**	0.0061*	-0.0049*	-0.0049**	-0.0104***	**-0.0040**	**-0.0027**	**-0.0024**	**-0.0035**	-0.0078**	-0.0062*	0.0087***	-0.0100***	**-0.0004**	-0.0081**	**0.0011**
	(0.131)	(0.009)	**(0.365)**	**(0.483)**	**(0.390)**	**(0.172)**	(0.077)	(0.069)	(0.038)	(0.003)	**(0.225)**	**(0.224)**	**(0.425)**	**(0.273)**	(0.030)	(0.067)	(0.000)	(0.003)	**(0.902)**	(0.039)	**(0.656)**
IRS*DRD(40)				**0.0017**	**0.0012**	0.0066**						**0.0000**	**-0.0025**	**-0.0001**					0.0046*		**0.0014**
				(0.511)	**(0.635)**	(0.046)						**(0.991)**	**(0.490)**	**(0.953)**					(0.090)		**(0.557)**
IRS*DRD(60)				**0.0035**	**0.0028**	**0.0053**						**-0.0021**	**-0.0039**	-0.0045**					**0.0021**		**-0.0035**
				(0.230)	**(0.508)**	**(0.174)**						**(0.480)**	**(0.192)**	(0.032)					**(0.529)**		**(0.219)**
FI*DRD(30)	**-0.1494**	**-0.1678**	**-0.0998**	-0.2821**	**-0.1477**	-0.1942*	**-0.1549**	0.2043**	0.1383**	0.1981**	0.1946**	**0.1061**	0.4061***	0.2347**	0.1618**	**0.0631**	**0.1134**	0.1847**	**0.1045**	**0.0941**	**0.0950**
	(0.153)	**(0.142)**	**(0.368)**	(0.019)	**(0.188)**	(0.081)	**(0.253)**	(0.042)	(0.034)	(0.046)	(0.021)	**(0.145)**	(0.007)	(0.032)	(0.034)	**(0.273)**	**(0.128)**	(0.025)	**(0.161)**	**(0.327)**	**(0.253)**
FI*DRD(50)	-0.2445**	-0.1722**	**-0.1689**	**-0.1366**	**-0.1446**	-0.3434*	-0.3183**	0.2797**	0.2010*	0.2815**	0.3126***	0.3485**	**0.2339**	0.2914*	0.1865***	0.1552***	**0.1127**	0.2251**	0.1842**	**0.1329**	0.2993***
	(0.041)	(0.046)	**(0.223)**	**(0.214)**	**(0.191)**	(0.071)	(0.030)	(0.025)	(0.095)	(0.026)	(0.005)	(0.018)	**(0.124)**	(0.099)	(0.005)	(0.009)	**(0.112)**	(0.025)	(0.014)	**(0.131)**	(0.006)
FI*DRD(70)	**-0.1062**	**-0.0635**	**-0.1219**	-0.1576*	**-0.1000**	**-0.1473**	**-0.1591**	**0.0779**	**-0.0502**	**-0.0527**	**0.2117**	**0.1937**	0.2306**	0.2394**	0.1900*	0.1916**	0.1876*	**0.0884**	0.3243***	**0.1892**	**0.1354**
	(0.218)	**(0.335)**	**(0.211)**	(0.074)	**(0.133)**	**(0.188)**	**(0.309)**	**(0.433)**	**(0.485)**	**(0.700)**	**(0.132)**	**(0.262)**	(0.038)	(0.048)	(0.081)	(0.049)	(0.077)	**(0.481)**	(0.007)	**(0.141)**	**(0.313)**
FI*DRD(40)			-0.2355*		**-0.1442**															0.1558**	
			(0.094)		**(0.199)**															(0.047)	
FI*DRD(60)			**-0.0484**		**-0.1152**															0.2619**	
			(0.585)		**(0.139)**															(0.028)	

Notes: 1-step system GMM estimations of equation (1) on different subsamples. The lag order of GMM level instruments is maximized at 2. Legal origin and imperial legacy dummies are involved as standard instruments in each case. From each regression, only the coefficient of the *FD*DRD(#)* interaction term is presented. P-values of the t-tests are in parenthesis and are calculated according to standard errors which are robust to heteroskedasticity across and arbitrary pattern of autocorrelation within countries. Asterisks denote the significance level (*: 10%, **: 5%, ***: 1%). Not significant results are depicted in bold. When the break is not significant at the standard levels at any of the three default cut off points, the results on the 40^{th} and the 60^{th} percentiles of the underlying *DRD* variable as cut off points are also presented.

Samples: *full* – full sample (default), *Smpl1* – without Caucasus (ARM, AZE, GEO), *Smpl2* – without Central Asia (KAZ, KGZ, TJK, MNG), *Smpl3* – without Eastern Europe (BLR, MDA, RUS, UKR), *Smpl4* – without the Baltic (EST, LTU, LVA), *Smpl5* – without Central Europe (CZE, HUN, POL, SVK, SVN), *Smpl6* – without South-East Europe (ALB, BGR, BIH, HRV, MKD, ROU, SRB).

Table 3. Sensitivity to the dependent variable

FD variable	**FI**			**PCB**			**IRS**		
Dependent variable (DV)	*Default*	*DV1*	*DV2*	*Default*	*DV1*	*DV2*	*Default*	*DV1*	*DV2*
FD	-0.2817***	-0.0952	-0.0890	-0.0019***	-0.0014*	-0.0008	0.0034	0.0008	0.0067
	(0.003)	(0.335)	(0.435)	(0.003)	(0.053)	(0.256)	(0.420)	(0.823)	(0.338)
ELF6	-0.2813*	-0.2586*	-0.2683*	-0.2771*	-0.2549*	-0.3059**	0.0425	-0.0559	0.2122
	(0.074)	(0.064)	(0.067)	(0.067)	(0.067)	(0.024)	(0.687)	(0.575)	(0.141)
FD*ELF6(30)	0.2043**	0.1389	0.2469***	0.0023**	0.0015*	0.0028***	-0.0084**	-0.0052*	-0.0144*
	(0.042)	(0.104)	(0.007)	(0.012)	(0.056)	(0.001)	(0.021)	(0.075)	(0.052)
FD	-0.2541***	-0.0751	-0.0507	-0.0020***	-0.0016**	-0.0008	-0.0058***	-0.0041*	-0.0057**
	(0.004)	(0.397)	(0.688)	(0.002)	(0.026)	(0.223)	(0.009)	(0.053)	(0.013)
ELF6	-0.3606**	-0.3273**	-0.3674**	-0.2805*	-0.2704**	-0.3098**	-0.1080	-0.0999	0.0433
	(0.024)	(0.016)	(0.020)	(0.054)	(0.031)	(0.028)	(0.295)	(0.244)	(0.610)
FD*ELF6(50)	0.2797**	0.2071**	0.3405**	0.0022**	0.0017**	0.0027***	-0.0004	-0.0020	-0.0041
	(0.025)	(0.022)	(0.015)	(0.016)	(0.014)	(0.009)	(0.852)	(0.319)	(0.160)
FD	-0.2036**	-0.0324	0.0085	-0.0010	-0.0008	0.0002	-0.0017	-0.0018	-0.0044**
	(0.023)	(0.710)	(0.953)	(0.106)	(0.154)	(0.795)	(0.567)	(0.468)	(0.014)
ELF6	-0.1843	-0.2095**	-0.1845	-0.1661	-0.1903*	-0.1912	-0.0097	-0.0444	0.0705
	(0.159)	(0.042)	(0.194)	(0.191)	(0.083)	(0.140)	(0.919)	(0.576)	(0.460)
FD*ELF6(70)	0.0779	0.0938	0.1472	0.0009	0.0007	0.0015	-0.0049*	-0.0048**	-0.0059**
	(0.433)	(0.284)	(0.221)	(0.232)	(0.262)	(0.112)	(0.069)	(0.025)	(0.014)
FD	-0.2694**	-0.0891	-0.0341	-0.0005	-0.0006	0.0010	-0.0067**	-0.0056**	-0.0118***
	(0.039)	(0.354)	(0.865)	(0.472)	(0.318)	(0.299)	(0.011)	(0.017)	(0.000)
SHadj	0.6171**	0.6533***	0.6706**	0.4897*	0.5506***	0.5839**	0.1100	0.1429	0.0118
	(0.031)	(0.006)	(0.039)	(0.061)	(0.005)	(0.033)	(0.532)	(0.204)	(0.949)
FD*SHadj(30)	-0.1494	-0.1797*	-0.1860	-0.0016*	-0.0017**	-0.0018*	0.0037	0.0034*	0.0067**
	(0.153)	(0.054)	(0.167)	(0.078)	(0.014)	(0.072)	(0.137)	(0.087)	(0.011)
FD	-0.1805	-0.0699	0.1171	-0.0001	-0.0003	0.0018*	-0.0063**	-0.0059***	-0.0099***
	(0.218)	(0.590)	(0.528)	(0.861)	(0.651)	(0.055)	(0.016)	(0.006)	(0.000)
SHadj	0.8333**	0.8051***	1.0829***	0.6041*	0.6262**	0.8531***	0.0503	-0.0080	0.0266
	(0.018)	(0.008)	(0.003)	(0.051)	(0.011)	(0.003)	(0.796)	(0.957)	(0.897)
FD*SHadj(50)	-0.2445**	-0.2342**	-0.3854***	-0.0020**	-0.0020**	-0.0033***	0.0033	0.0047**	0.0047*
	(0.041)	(0.029)	(0.004)	(0.035)	(0.011)	(0.001)	(0.159)	(0.033)	(0.079)
FD	-0.3417***	-0.1881*	-0.1384	-0.0009	-0.0010	0.0007	-0.0055***	-0.0041***	-0.0088***
	(0.001)	(0.094)	(0.227)	(0.159)	(0.104)	(0.341)	(0.001)	(0.003)	(0.000)
SHadj	0.5366**	0.5543**	0.6233***	0.3991	0.4495**	0.6022***	0.0602	0.1592	0.1127
	(0.046)	(0.019)	(0.007)	(0.114)	(0.039)	(0.007)	(0.781)	(0.398)	(0.529)
FD*SHadj(70)	-0.1062	-0.1199	-0.1721**	-0.0011	-0.0011	-0.0023***	0.0077	0.0050	0.0076
	(0.218)	(0.133)	(0.031)	(0.182)	(0.122)	(0.008)	(0.131)	(0.176)	(0.163)
FD	-0.4573***	-0.1964**	-0.2174	-0.0023***	-0.0022***	-0.0005	-0.0060**	-0.0054***	-0.0132***
	(0.003)	(0.033)	(0.268)	(0.001)	(0.001)	(0.669)	(0.011)	(0.008)	(0.001)
GDw	-0.0002**	-0.0001**	-0.0001	-0.0001	-0.0001**	-0.0001	-0.0001	-0.0001**	-0.0002*
	(0.028)	(0.026)	(0.130)	(0.108)	(0.035)	(0.225)	(0.109)	(0.042)	(0.063)
FD*GDw(30)	0.1618**	0.1035*	0.1276	0.0012*	0.0011**	0.0008	0.0042	0.0041	0.0100**
	(0.034)	(0.087)	(0.139)	(0.053)	(0.035)	(0.331)	(0.201)	(0.130)	(0.026)
FD	-0.3591***	-0.1778*	-0.1326	-0.0024***	-0.0024***	-0.0010	-0.0050***	-0.0055***	-0.0119***
	(0.006)	(0.066)	(0.443)	(0.001)	(0.001)	(0.272)	(0.002)	(0.001)	(0.000)
GDw	-0.0002***	-0.0002***	-0.0002**	-0.0002**	-0.0002***	-0.0002*	-0.0001	-0.0001**	-0.0001
	(0.009)	(0.001)	(0.037)	(0.026)	(0.003)	(0.057)	(0.222)	(0.049)	(0.153)
FD*GDw(50)	0.1865***	0.1789***	0.2189**	0.0019***	0.0018***	0.0019**	0.0025	0.0044*	0.0069*
	(0.005)	(0.000)	(0.033)	(0.005)	(0.000)	(0.030)	(0.444)	(0.089)	(0.069)
FD	-0.2683***	-0.0879	-0.0440	-0.0021***	-0.0019***	-0.0002	0.0004	-0.0014	-0.0057*
	(0.002)	(0.329)	(0.719)	(0.002)	(0.005)	(0.849)	(0.889)	(0.610)	(0.095)
GDw	-0.0002*	-0.0002**	-0.0002	-0.0002*	-0.0002**	-0.0001	0.0001	0.0000	0.0000
	(0.080)	(0.023)	(0.247)	(0.052)	(0.020)	(0.242)	(0.523)	(0.638)	(0.848)
FD*GDw(70)	0.1900*	0.2122**	0.1607	0.0019**	0.0016**	0.0010	-0.0078**	-0.0023	-0.0034
	(0.081)	(0.036)	(0.309)	(0.013)	(0.017)	(0.263)	(0.030)	(0.363)	(0.387)

Notes: 1-step system GMM estimations of equation (1) in the case of different dependent variables. In the case of '*DV1*', the dependent variable is the log GDP per capita calculated according to the 'rgdpna' output series and the population series of PWT 9.0. In the case of '*DV2*', the dependent variable is the log GDP per worker calculated according to the 'rgdpo' output series and the employment series of PWT 9.0. The lag order of GMM level instruments is maximized at 2. Legal origin and imperial legacy dummies are involved as standard instruments in each case. The constant and the coefficients of the 'conditioning set' including the lagged dependent variable are omitted to save space. P-values of the t-tests are in parenthesis and are calculated according to standard errors which are robust to heteroskedasticity across and arbitrary pattern of autocorrelation within countries. Asterisks denote the significance level (*: 10%, **: 5%, ***: 1%). The results are presented in a block-wise structure and each *FD-DRD-DRD(#)* specification is framed by a dashed line.

Table 4A. Sensitivity to the control variables I.

FD variable	**FI**						**PCB**						**IRS**					
Additional regressor (AR#)	*Ø (default)*	*AR1 (GovCons)*	*AR2 (FDI)*	*AR3 (Trade)*	*AR4 (BankCrisis)*	*AR5 (EU)*	*Ø (default)*	*AR1 (GovCons)*	*AR2 (FDI)*	*AR3 (Trade)*	*AR4 (BankCrisis)*	*AR5 (EU)*	*Ø (default)*	*AR1 (GovCons)*	*AR2 (FDI)*	*AR3 (Trade)*	*AR4 (BankCrisis)*	*AR5 (EU)*
FD	-0.2817***	-0.2765***	-0.2810**	-0.2582***	-0.2335*	-0.2660***	-0.0019***	-0.0019***	-0.0018**	-0.0020***	-0.0017	-0.0019***	0.0034	0.0030	0.0034	0.0031	0.0037	0.0032
	(0.003)	(0.002)	(0.014)	(0.004)	(0.062)	(0.004)	(0.003)	(0.004)	(0.010)	(0.001)	(0.140)	(0.003)	(0.420)	(0.457)	(0.397)	(0.472)	(0.399)	(0.449)
ELF6	-0.2813*	-0.2879*	-0.2892*	-0.2731*	-0.3273*	-0.2834*	-0.2771*	-0.2868**	-0.2838*	-0.2957*	-0.3503**	-0.2785*	0.0425	0.0209	0.0392	0.0498	0.1034	0.0405
	(0.074)	(0.051)	(0.055)	(0.086)	(0.084)	(0.075)	(0.067)	(0.047)	(0.061)	(0.067)	(0.044)	(0.068)	(0.687)	(0.839)	(0.702)	(0.622)	(0.350)	(0.703)
FD*ELF6(30)	**0.2043****	**0.2000****	**0.2055****	**0.1981****	**0.2639****	**0.2049****	**0.0023****	**0.0023*****	**0.0023****	**0.0024*****	**0.0032*****	**0.0023****	**-0.0084****	**-0.0081****	**-0.0082****	**-0.0083****	**-0.0105****	**-0.0085****
	(0.042)	**(0.028)**	**(0.027)**	**(0.039)**	**(0.030)**	**(0.046)**	**(0.012)**	**(0.009)**	**(0.010)**	**(0.009)**	**(0.002)**	**(0.013)**	**(0.021)**	**(0.028)**	**(0.015)**	**(0.028)**	**(0.013)**	**(0.023)**
AR#		0.0014	0.0011	-0.0001	0.0294	-0.0147		0.0011	-0.0020	0.0002	0.0211	-0.0002		0.0018	-0.0014	-0.0002	0.0164	-0.0076
		(0.802)	(0.720)	(0.746)	(0.193)	(0.329)		(0.816)	(0.537)	(0.692)	(0.436)	(0.990)		(0.637)	(0.636)	(0.637)	(0.663)	(0.679)
FD	-0.2541***	-0.2524***	-0.2571**	-0.2641***	-0.2107*	-0.2545***	-0.0020***	-0.0020***	-0.0021***	-0.0020***	-0.0023**	-0.0019***	-0.0058***	-0.0060***	-0.0051**	-0.0061***	-0.0078***	-0.0061***
	(0.004)	(0.008)	(0.036)	(0.004)	(0.086)	(0.005)	(0.002)	(0.004)	(0.007)	(0.001)	(0.040)	(0.002)	(0.009)	(0.006)	(0.017)	(0.001)	(0.000)	(0.004)
ELF6	-0.3606**	-0.3522**	-0.3578**	-0.3451**	-0.4426**	-0.3681**	-0.2805*	-0.2719**	-0.2827**	-0.2931*	-0.3427**	-0.2859*	-0.1080	-0.1242	-0.1017	-0.0879	-0.0917	-0.1137
	(0.024)	(0.023)	(0.019)	(0.045)	(0.018)	(0.023)	(0.054)	(0.043)	(0.044)	(0.063)	(0.046)	(0.053)	(0.295)	(0.247)	(0.315)	(0.376)	(0.395)	(0.271)
FD*ELF6(50)	**0.2797****	**0.2749****	**0.2704****	**0.2462****	**0.3948*****	**0.2852****	**0.0022****	**0.0022****	**0.0022****	**0.0022****	**0.0031*****	**0.0022****	-0.0004	-0.0009	-0.0010	-0.0005	-0.0006	-0.0003
	(0.025)	**(0.031)**	**(0.026)**	**(0.044)**	**(0.009)**	**(0.023)**	**(0.016)**	**(0.018)**	**(0.012)**	**(0.020)**	**(0.008)**	**(0.016)**	(0.852)	(0.659)	(0.673)	(0.814)	(0.780)	(0.902)
AR#		-0.0008	0.0026	0.0001	0.0316	0.0002		-0.0002	0.0004	0.0002	0.0391	0.0023		0.0036	-0.0025	-0.0004	0.0015	-0.0141
		(0.878)	(0.429)	(0.774)	(0.198)	(0.992)		(0.962)	(0.906)	(0.581)	(0.128)	(0.923)		(0.340)	(0.329)	(0.358)	(0.970)	(0.462)
FD	-0.2036**	-0.2146**	-0.1837	-0.1878**	-0.1027	-0.2001**	-0.0010	-0.0010	-0.0009	-0.0010*	-0.0002	-0.0009	-0.0017	-0.0019	-0.0014	-0.0024	-0.0034	-0.0015
	(0.023)	(0.029)	(0.135)	(0.044)	(0.488)	(0.027)	(0.106)	(0.103)	(0.231)	(0.077)	(0.887)	(0.160)	(0.567)	(0.483)	(0.615)	(0.322)	(0.116)	(0.637)
ELF6	-0.1843	-0.1845	-0.1682	-0.1635	-0.1929	-0.1868	-0.1661	-0.1675	-0.1667	-0.1788	-0.1922	-0.1688	-0.0097	-0.0269	-0.0063	0.0399	0.0425	0.0002
	(0.159)	(0.130)	(0.195)	(0.305)	(0.219)	(0.163)	(0.191)	(0.147)	(0.184)	(0.216)	(0.206)	(0.189)	(0.919)	(0.784)	(0.945)	(0.654)	(0.678)	(0.998)
FD*ELF6(70)	0.0779	0.0823	0.0462	0.0491	0.0816	0.0766	0.0009	0.0009	0.0009	0.0010	0.0009	0.0009	**-0.0049***	**-0.0055****	**-0.0052****	**-0.0056****	**-0.0064****	**-0.0055***
	(0.433)	(0.417)	(0.643)	(0.683)	(0.538)	(0.459)	(0.232)	(0.217)	(0.251)	(0.235)	(0.331)	(0.257)	**(0.069)**	**(0.023)**	**(0.048)**	**(0.022)**	**(0.016)**	**(0.053)**
AR#		-0.0009	0.0008	-0.0001	0.0212	-0.0080		0.0000	-0.0008	0.0001	0.0168	-0.0064		0.0039	-0.0018	***-0.0006****	0.0357	-0.0293
		(0.874)	(0.798)	(0.902)	(0.412)	(0.674)		(0.998)	(0.807)	(0.868)	(0.558)	(0.745)		(0.280)	(0.470)	***(0.085)***	(0.282)	(0.138)
FD	-0.2694**	-0.2554*	-0.2146	-0.2291	-0.1726	-0.2723**	-0.0005	-0.0004	-0.0003	-0.0005	-0.0003	-0.0005	-0.0067**	-0.0090***	-0.0069***	-0.0070***	-0.0096***	-0.0067**
	(0.039)	(0.083)	(0.153)	(0.113)	(0.318)	(0.048)	(0.472)	(0.643)	(0.745)	(0.562)	(0.770)	(0.517)	(0.011)	(0.001)	(0.006)	(0.005)	(0.002)	(0.013)
SHadj	0.6171**	0.6228**	0.6038**	0.6024**	0.5713*	0.6071**	0.4897*	0.5145*	0.5072*	0.5183*	0.4786	0.4768*	0.1100	0.1296	0.1663	0.0786	0.0401	0.0935
	(0.031)	(0.029)	(0.049)	(0.042)	(0.074)	(0.033)	(0.061)	(0.055)	(0.078)	(0.062)	(0.116)	(0.066)	(0.532)	(0.506)	(0.377)	(0.635)	(0.817)	(0.594)
FD*SHadj(30)	-0.1494	-0.1498	-0.1410	-0.1604	-0.1447	-0.1500	**-0.0016***	**-0.0017***	**-0.0015***	**-0.0018****	-0.0016	**-0.0016***	0.0037	**0.0067****	0.0035	**0.0034***	**0.0045***	0.0039
	(0.153)	(0.166)	(0.181)	(0.116)	(0.255)	(0.155)	**(0.078)**	**(0.078)**	**(0.099)**	**(0.049)**	(0.153)	**(0.081)**	(0.137)	**(0.014)**	(0.145)	**(0.090)**	**(0.077)**	(0.143)
AR#		0.0019	-0.0009	-0.0001	0.0311	0.0007		0.0019	-0.0025	0.0001	0.0362	-0.0046		***0.0106*****	-0.0034	-0.0004	0.0246	-0.0243
		(0.761)	(0.782)	(0.782)	(0.252)	(0.971)		(0.729)	(0.517)	(0.772)	(0.184)	(0.810)		***(0.013)***	(0.220)	(0.393)	(0.494)	(0.188)
FD	-0.1805	-0.1499	-0.1588	-0.1565	-0.0645	-0.1626	-0.0001	0.0002	0.0000	-0.0002	0.0002	-0.0001	-0.0063**	-0.0079***	-0.0060**	-0.0066**	-0.0089***	-0.0063**
	(0.218)	(0.351)	(0.325)	(0.294)	(0.748)	(0.266)	(0.861)	(0.801)	(1.000)	(0.829)	(0.821)	(0.950)	(0.016)	(0.003)	(0.008)	(0.010)	(0.002)	(0.017)
SHadj	0.8333**	0.9110***	0.8102**	0.8293**	0.8536**	0.8122**	0.6041*	0.6897**	0.6133*	0.6638**	0.6106*	0.5845*	0.0503	0.0481	0.1106	0.0109	-0.1177	0.0359
	(0.018)	(0.008)	(0.026)	(0.028)	(0.041)	(0.021)	(0.051)	(0.025)	(0.066)	(0.043)	(0.091)	(0.060)	(0.796)	(0.816)	(0.580)	(0.951)	(0.572)	(0.862)
FD*SHadj(50)	**-0.2445****	**-0.2636****	**-0.2401****	**-0.2499****	**-0.2841****	**-0.2443****	**-0.0020****	**-0.0023****	**-0.0020****	**-0.0023****	**-0.0022****	**-0.0020****	0.0033	0.0051	0.0028	**0.0033***	**0.0054****	0.0035
	(0.041)	**(0.024)**	**(0.047)**	**(0.036)**	**(0.034)**	**(0.043)**	**(0.035)**	**(0.014)**	**(0.048)**	**(0.021)**	**(0.044)**	**(0.040)**	(0.159)	(0.102)	(0.215)	**(0.099)**	**(0.041)**	(0.185)
AR#		0.0049	0.0004	0.0001	0.0382	-0.0184		0.0041	-0.0018	0.0003	0.0372	-0.0165		***0.0079****	-0.0024	-0.0005	0.0110	-0.0231
		(0.342)	(0.912)	(0.868)	(0.187)	(0.308)		(0.409)	(0.646)	(0.545)	(0.188)	(0.338)		***(0.082)***	(0.414)	(0.260)	(0.794)	(0.226)
FD	-0.3417***	-0.2955**	-0.3062***	-0.3087***	-0.2532*	-0.3357***	-0.0009	-0.0007	-0.0007	-0.0009	-0.0002	-0.0009	-0.0055***	-0.0054***	-0.0058***	-0.0053***	-0.0071***	-0.0054***
	(0.001)	(0.011)	(0.007)	(0.006)	(0.093)	(0.001)	(0.159)	(0.235)	(0.330)	(0.166)	(0.843)	(0.187)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
SHadj	0.5366**	0.6949**	0.5305*	0.4984*	0.5564*	0.5134*	0.3991	0.4756**	0.4319	0.4283	0.4446	0.3852	0.0602	0.0973	0.1054	0.0449	0.0735	0.0600
	(0.046)	(0.010)	(0.052)	(0.096)	(0.094)	(0.059)	(0.114)	(0.049)	(0.111)	(0.103)	(0.145)	(0.129)	(0.781)	(0.660)	(0.626)	(0.827)	(0.754)	(0.784)
FD*SHadj(70)	-0.1062	**-0.1770****	-0.1079	-0.1017	-0.1465	-0.1003	-0.0011	**-0.0015***	-0.0011	-0.0013	-0.0014	-0.0010	0.0077	0.0067	**0.0084***	0.0073	0.0065	0.0076
	(0.218)	**(0.032)**	(0.213)	(0.235)	(0.200)	(0.243)	(0.182)	**(0.070)**	(0.195)	(0.117)	(0.127)	(0.197)	(0.131)	(0.211)	**(0.085)**	(0.128)	(0.214)	(0.142)
AR#		0.0062	-0.0002	-0.0001	0.0327	-0.0048		0.0029	-0.0025	0.0001	0.0305	-0.0106		0.0009	-0.0043	-0.0004	0.0096	-0.0039
		(0.223)	(0.957)	(0.840)	(0.209)	(0.776)		(0.555)	(0.486)	(0.791)	(0.255)	(0.501)		(0.831)	(0.176)	(0.383)	(0.810)	(0.853)

Table 4A. (cont.)

FD variable	**FI**						**PCB**						**IRS**					
Additional regressor (AR#)	*Ø (default)*	*AR1 (GovCons)*	*AR2 (FDI)*	*AR3 (Trade)*	*AR4 (BankCrisis)*	*AR5 (EU)*	*Ø (default)*	*AR1 (GovCons)*	*AR2 (FDI)*	*AR3 (Trade)*	*AR4 (BankCrisis)*	*AR5 (EU)*	*Ø (default)*	*AR1 (GovCons)*	*AR2 (FDI)*	*AR3 (Trade)*	*AR4 (BankCrisis)*	*AR5 (EU)*
FD	-0.4573***	-0.4531***	-0.4236***	-0.4462***	-0.5570**	-0.4571***	-0.0023***	-0.0023***	-0.0024***	-0.0024***	-0.0034***	-0.0023***	-0.0060**	-0.0061***	-0.0053**	-0.0058**	-0.0081***	-0.0060**
	(0.003)	(0.004)	(0.006)	(0.002)	(0.011)	(0.004)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.000)	(0.011)	(0.008)	(0.013)	(0.012)	(0.002)	(0.011)
GDw	-0.0002**	-0.0002**	-0.0002**	-0.0002*	-0.0002*	-0.0002**	-0.0001	-0.0001	-0.0001	-0.0001	-0.0002	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001
	(0.028)	(0.030)	(0.026)	(0.062)	(0.051)	(0.029)	(0.108)	(0.104)	(0.104)	(0.147)	(0.105)	(0.113)	(0.109)	(0.120)	(0.138)	(0.241)	(0.120)	(0.105)
FD*GDw(30)	**0.1618****	**0.1730****	**0.1648****	**0.1513****	**0.2525***	**0.1615****	**0.0012***	**0.0013***	**0.0013****	**0.0012***	**0.0021****	**0.0012****	0.0042	0.0042	0.0040	0.0032	**0.0061***	0.0042
	(0.034)	**(0.031)**	**(0.028)**	**(0.031)**	**(0.051)**	**(0.033)**	**(0.053)**	**(0.066)**	**(0.045)**	**(0.055)**	**(0.035)**	**(0.049)**	(0.201)	(0.216)	(0.169)	(0.255)	**(0.072)**	(0.201)
AR#		0.0007	0.0001	-0.0001	***0.0501****	0.0005		0.0011	-0.0010	0.0000	***0.0613****	-0.0068		0.0016	-0.0011	-0.0003	0.0111	-0.0055
		(0.902)	(0.968)	(0.819)	***(0.087)***	(0.979)		(0.830)	(0.718)	(0.959)	***(0.066)***	(0.712)		(0.729)	(0.709)	(0.523)	(0.773)	(0.772)
FD	-0.3591***	-0.3528**	-0.3205**	-0.3496***	-0.3376**	-0.3497***	-0.0024***	-0.0024***	-0.0025***	-0.0024***	-0.0030***	-0.0024***	-0.0050***	-0.0049***	-0.0043***	-0.0047***	-0.0075***	-0.0050***
	(0.006)	(0.013)	(0.024)	(0.008)	(0.044)	(0.007)	(0.001)	(0.001)	(0.001)	(0.001)	(0.004)	(0.001)	(0.002)	(0.001)	(0.003)	(0.003)	(0.000)	(0.002)
GDw	-0.0002***	-0.0002**	-0.0002***	-0.0002**	-0.0002**	-0.0002***	-0.0002**	-0.0002**	-0.0002**	-0.0002**	-0.0002**	-0.0002**	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001
	(0.009)	(0.013)	(0.009)	(0.018)	(0.024)	(0.008)	(0.026)	(0.025)	(0.021)	(0.038)	(0.027)	(0.026)	(0.222)	(0.256)	(0.277)	(0.370)	(0.232)	(0.228)
FD*GDw(50)	**0.1865*****	**0.1886*****	**0.2007****	**0.1884*****	**0.2084****	**0.1946*****	**0.0019*****	**0.0020*****	**0.0021*****	**0.0020*****	**0.0024*****	**0.0021*****	0.0025	0.0022	0.0022	0.0017	0.0036	0.0023
	(0.005)	**(0.007)**	**(0.011)**	**(0.007)**	**(0.014)**	**(0.004)**	**(0.005)**	**(0.006)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.004)**	(0.444)	(0.493)	(0.492)	(0.527)	(0.230)	(0.465)
AR#		-0.0011	-0.0012	-0.0002	0.0419	-0.0167		0.0012	-0.0014	-0.0001	***0.0571*****	-0.0221		0.0013	-0.0010	-0.0004	0.0139	-0.0025
		(0.853)	(0.726)	(0.553)	(0.119)	(0.460)		(0.823)	(0.622)	(0.791)	***(0.049)***	(0.314)		(0.788)	(0.737)	(0.393)	(0.714)	(0.905)
FD	-0.2683***	-0.2645***	-0.2401**	-0.2531***	-0.1938*	-0.2543***	-0.0021***	-0.0020***	-0.0022***	-0.0019***	-0.0021**	-0.0020***	0.0004	0.0000	0.0010	0.0002	-0.0037	0.0006
	(0.002)	(0.007)	(0.018)	(0.004)	(0.094)	(0.004)	(0.002)	(0.002)	(0.003)	(0.004)	(0.029)	(0.003)	(0.889)	(0.992)	(0.754)	(0.942)	(0.169)	(0.855)
GDw	-0.0002*	-0.0002	-0.0002*	-0.0002	-0.0002	-0.0002*	-0.0002*	-0.0002**	-0.0002*	-0.0002*	-0.0002	-0.0002**	0.0001	0.0001	0.0001	0.0001	0.0000	0.0001
	(0.080)	(0.100)	(0.075)	(0.116)	(0.166)	(0.072)	(0.052)	(0.049)	(0.054)	(0.071)	(0.119)	(0.049)	(0.523)	(0.530)	(0.269)	(0.378)	(0.665)	(0.475)
FD*GDw(70)	**0.1900***	0.1842	**0.2000***	0.1557	0.1855	**0.1998***	**0.0019****	**0.0019****	**0.0019****	**0.0018****	**0.0019****	**0.0020****	**-0.0078****	**-0.0071****	**-0.0093*****	**-0.0080****	-0.0045	**-0.0080****
	(0.081)	(0.119)	**(0.081)**	(0.115)	(0.144)	**(0.066)**	**(0.013)**	**(0.012)**	**(0.016)**	**(0.016)**	**(0.023)**	**(0.011)**	**(0.030)**	**(0.027)**	**(0.007)**	**(0.016)**	(0.172)	**(0.027)**
AR#		-0.0004	0.0004	-0.0004	0.0268	-0.0142		0.0011	-0.0003	-0.0002	0.0466	-0.0164		0.0006	-0.0032	-0.0003	0.0351	-0.0157
		(0.951)	(0.897)	(0.375)	(0.314)	(0.408)		(0.842)	(0.921)	(0.526)	(0.119)	(0.353)		(0.890)	(0.259)	(0.436)	(0.256)	(0.527)

Notes: 1-step system GMM estimations of the following regression: $\ln(y_{it}) = \alpha_i + \beta_1 FD_{it} + \beta_2 DRD_i + \beta_3 (FD_{it} \cdot DRD(\#)_i) + \overline{\gamma}^T \left[conditioning\ set_{it} \right] + \beta_4 AR\#_{it} + \varepsilon_{it}$, where the 'conditioning set' is the default set of control variables including the lagged dependent variable (see section 4), and *AR#* is the additional control variable. In the case of *AR1*, the additional control variable is the general government final consumption expenditure (unit: % of GDP, data source: WDI, notes: period average). In the case of *AR2*, the additional control variable is the inward flow of foreign direct investments (unit: % of GDP; data source: UN Conference on Trade and Development; notes: 1. period average, 2. data for Serbia between 1994 and 2007 correspond to the data for Serbia and Montenegro (FR Yugoslavia) in the respective years). In the case of *AR3*, the additional control variable is the volume of foreign trade (unit: % of GDP, data source: WDI, notes: period average). In the case of *AR4*, the additional control variable is a banking crisis dummy, which takes on a value of one if there was a systemic banking crisis in the given 3-year period according to the dataset of Luc Laeven and Fabián Valencia and zero otherwise (data source: Laeven, L., Valencia, F., 2012. Systemic Banking Crises Database: An Update. IMF Working Paper no.WP/12/163; notes: data are not available after 2011, consequently the estimations are run on the 3-year panel of 1994 and 2011). In the case of *AR5*, the additional control variable is an EU dummy which takes on a value of one if the country was a member of the European Union at least in one year of the given 3-year period and zero otherwise.

The lag order of GMM level instruments is maximized at 2. Legal origin and imperial legacy dummies are involved as standard instruments in each case. The constant and the coefficients of the default 'conditioning set' are omitted to save space. P-values of the t-tests are in parenthesis and are calculated according to standard errors which are robust to heteroskedasticity across and arbitrary pattern of autocorrelation within countries. Asterisks denote the significance level (*: 10%, **: 5%, ***: 1%). Structural breaks significant at the standard levels are depicted in bold. Additional regressors significant at the standard levels are depicted in bold italics. The results are presented in a block-wise structure and each *FD-DRD-DRD(#)* specification is framed by a dashed line.

Table 4B. Sensitivity to the control variables II.

DRD variable	ELF6						SHadj						GDw					
FD variable	FI		PCB		IRS		FI		PCB		IRS		FI		PCB		IRS	
Additional regressor	*Ø (default)*	*Period dummies*	*Ø (default)*	*Period dummies*	*Ø (default)*	*Period dummies*	*Ø (default)*	*Period dummies*	*Ø (default)*	*Period dummies*	*Ø (default)*	*Period dummies*	*Ø (default)*	*Period dummies*	*Ø (default)*	*Period dummies*	*Ø (default)*	*Period dummies*
FD	-0.2817***	-0.2587**	-0.0019***	-0.0015**	0.0034	0.0038	-0.2694**	-0.2510	-0.0005	-0.0004	-0.0067**	-0.0073***	-0.4573***	-0.4040**	-0.0023***	-0.0017***	-0.0060**	-0.0063**
	(0.003)	(0.029)	(0.003)	(0.018)	(0.420)	(0.357)	(0.039)	(0.124)	(0.472)	(0.621)	(0.011)	(0.005)	(0.003)	(0.027)	(0.001)	(0.003)	(0.011)	(0.011)
DRD	-0.2813*	-0.2680*	-0.2771*	-0.2680*	0.0425	0.0767	0.6171**	0.5544*	0.4897*	0.4272	0.1100	0.0564	-0.0002**	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001
	(0.074)	(0.086)	(0.067)	(0.071)	(0.687)	(0.463)	(0.031)	(0.057)	(0.061)	(0.106)	(0.532)	(0.729)	(0.028)	(0.100)	(0.108)	(0.204)	(0.109)	(0.154)
FD*DRD(30)	**0.2043****	**0.2057****	**0.0023****	**0.0023*****	**-0.0084****	**-0.0091****	-0.1494	-0.1434	**-0.0016***	**-0.0014***	0.0037	**0.0044***	**0.1618****	**0.1466***	**0.0012***	**0.0010***	0.0042	0.0037
	(0.042)	**(0.030)**	**(0.012)**	**(0.007)**	**(0.021)**	**(0.014)**	(0.153)	(0.154)	**(0.078)**	**(0.087)**	(0.137)	**(0.090)**	**(0.034)**	**(0.069)**	**(0.053)**	**(0.093)**	(0.201)	(0.143)
Period (2003-05)		0.0368		***0.0377****		0.0186		***0.0369****		0.0351		0.0129		0.0327		0.0305		0.0158
		(0.103)		***(0.088)***		(0.267)		***(0.083)***		(0.101)		(0.487)		(0.124)		(0.164)		(0.396)
Period (2006-08)		0.0295		0.0263		-0.0050		0.0369		0.0374		-0.0058		0.0225		0.0201		-0.0072
		(0.430)		(0.420)		(0.847)		(0.307)		(0.277)		(0.842)		(0.486)		(0.525)		(0.802)
Period (2012-14)		-0.0411		-0.0415		***-0.0818*****		-0.0253		-0.0255		***-0.0840******		-0.0362		-0.0366		***-0.0709*****
		(0.300)		(0.197)		***(0.012)***		(0.508)		(0.455)		***(0.006)***		(0.329)		(0.290)		***(0.029)***
FD	-0.2541***	-0.2360**	-0.0020***	-0.0016**	-0.0058***	-0.0057**	-0.1805	-0.1619	-0.0001	0.0001	-0.0063**	-0.0077***	-0.3591***	-0.3110**	-0.0024***	-0.0019***	-0.0050***	-0.0057***
	(0.004)	(0.047)	(0.002)	(0.019)	(0.009)	(0.014)	(0.218)	(0.324)	(0.861)	(0.855)	(0.016)	(0.002)	(0.006)	(0.028)	(0.001)	(0.002)	(0.002)	(0.000)
DRD	-0.3606**	-0.3408**	-0.2805*	-0.2561*	-0.1080	-0.0649	0.8333**	0.7353**	0.6041*	0.5383*	0.0503	-0.0472	-0.0002***	-0.0002**	-0.0002**	-0.0002*	-0.0001	-0.0001
	(0.024)	(0.035)	(0.054)	(0.080)	(0.295)	(0.510)	(0.018)	(0.046)	(0.051)	(0.090)	(0.796)	(0.807)	(0.009)	(0.024)	(0.026)	(0.059)	(0.222)	(0.239)
FD*DRD(50)	**0.2797****	**0.2690****	**0.0022****	**0.0020****	-0.0004	-0.0014	**-0.2445****	**-0.2190***	**-0.0020****	**-0.0018***	0.0033	**0.0045***	**0.1865*****	**0.1761*****	**0.0019*****	**0.0018*****	0.0025	0.0026
	(0.025)	**(0.030)**	**(0.016)**	**(0.027)**	(0.852)	(0.567)	**(0.041)**	**(0.073)**	**(0.035)**	**(0.060)**	(0.159)	**(0.067)**	**(0.005)**	**(0.009)**	**(0.005)**	**(0.009)**	(0.444)	(0.314)
Period (2003-05)		***0.0405****		***0.0391****		0.0182		0.0317		0.0306		0.0109		0.0314		0.0281		0.0171
		(0.062)		***(0.064)***		(0.296)		(0.122)		(0.142)		(0.590)		(0.155)		(0.182)		(0.391)
Period (2006-08)		0.0320		0.0345		-0.0029		0.0279		0.0240		-0.0089		0.0143		0.0129		-0.0085
		(0.367)		(0.280)		(0.914)		(0.447)		(0.491)		(0.758)		(0.674)		(0.677)		(0.761)
Period (2012-14)		-0.0310		-0.0280		***-0.0760******		-0.0294		-0.0363		***-0.0932******		-0.0393		-0.0331		***-0.0718*****
		(0.385)		(0.371)		***(0.009)***		(0.444)		(0.316)		***(0.004)***		(0.311)		(0.348)		***(0.024)***
FD	-0.2036**	-0.1929	-0.0010	-0.0006	-0.0017	-0.0015	-0.3417***	-0.2902**	-0.0009	-0.0004	-0.0055***	-0.0057***	-0.2683***	-0.2322**	-0.0021***	-0.0016***	0.0004	-0.0006
	(0.023)	(0.112)	(0.106)	(0.440)	(0.567)	(0.535)	(0.001)	(0.023)	(0.159)	(0.541)	(0.001)	(0.000)	(0.002)	(0.042)	(0.002)	(0.009)	(0.889)	(0.851)
DRD	-0.1843	-0.1760	-0.1661	-0.1580	-0.0097	0.0366	0.5366**	0.5039*	0.3991	0.3871	0.0602	0.0738	-0.0002*	-0.0002	-0.0002*	-0.0001	0.0001	0.0001
	(0.159)	(0.202)	(0.191)	(0.218)	(0.919)	(0.711)	(0.046)	(0.064)	(0.114)	(0.121)	(0.781)	(0.731)	(0.080)	(0.130)	(0.052)	(0.123)	(0.523)	(0.473)
FD*DRD(70)	0.0779	0.0835	0.0009	0.0009	**-0.0049***	**-0.0061****	-0.1062	-0.1285	-0.0011	-0.0013	0.0077	0.0062	**0.1900***	0.1722	**0.0019****	**0.0016****	**-0.0078****	**-0.0068****
	(0.433)	(0.419)	(0.232)	(0.271)	**(0.069)**	**(0.017)**	(0.218)	(0.132)	(0.182)	(0.105)	(0.131)	(0.198)	**(0.081)**	(0.100)	**(0.013)**	**(0.035)**	**(0.030)**	**(0.033)**
Period (2003-05)		***0.0417****		***0.0389****		0.0154		0.0335		0.0298		0.0218		0.0324		0.0303		0.0257
		(0.058)		***(0.076)***		(0.411)		(0.114)		(0.171)		(0.253)		(0.178)		(0.171)		(0.246)
Period (2006-08)		0.0345		0.0278		-0.0050		0.0357		0.0253		0.0075		0.0171		0.0183		0.0017
		(0.326)		(0.413)		(0.855)		(0.305)		(0.463)		(0.786)		(0.634)		(0.563)		(0.957)
Period (2012-14)		-0.0334		-0.0400		***-0.0829******		-0.0388		-0.0479		***-0.0642*****		-0.0417		-0.0328		***-0.0548****
		(0.364)		(0.231)		***(0.008)***		(0.256)		(0.162)		***(0.027)***		(0.307)		(0.357)		***(0.086)***

Notes: 1-step system GMM estimations of the following regression: $\ln(y_{it}) = \alpha_i + \beta_1 FD_{it} + \beta_2 DRD_i + \beta_3 (FD_{it} \cdot DRD(\#)_i) + \overline{\gamma}^T \left[conditioning\ set_{it} \right] + \overline{\eta}^T \left[period\ dummies_t \right] + \varepsilon_{it}$, where the 'conditioning set' is the default set of control variables including the lagged dependent variable (see section 4), and the 'period dummies' is a vector of three period-dummies, notably those of 2003-05, 2006-08 and 2012-14. The dummies on the periods of 1994-96 and 1997-99 are neglected because in the system GMM estimation the first two time observations drop out from the sample. The dummy on the period of 2000-02 is also neglected to avoid perfect multicollinearity. Recall, that the '*GlobalCrisis*' dummy, which is part of the default set of control variables, is a dummy on the period of 2009-11.

The lag order of GMM level instruments is maximized at 2. Legal origin and imperial legacy dummies are involved as standard instruments in each case. The constant and the coefficients of the default 'conditioning set' are omitted to save space. P-values of the t-tests are in parenthesis and are calculated according to standard errors which are robust to heteroskedasticity across and arbitrary pattern of autocorrelation within countries. Asterisks denote the significance level (*: 10%, **: 5%, ***: 1%). Structural breaks significant at the standard levels are depicted in bold. Additional period dummies significant at the standard levels are depicted in bold italics. The results are presented in a block-wise structure and each *FD-DRD-DRD(#)* specification is framed by a dashed line.

Table 5. Sensitivity to the data frequency

FD variable	**FI**			**PCB**			**IRS**		
Data frequency	*3-year periods (default)*	*1-year periods (1993-2014)*	*1-year periods (1993-2014)*	*3-year periods (default)*	*1-year periods (1993-2014)*	*1-year periods (1993-2014)*	*3-year periods (default)*	*1-year periods (1993-2014)*	*1-year periods (1993-2014)*
Method of instrument containment	*maxL*	*maxL*	*maxL&cl*	*maxL*	*maxL*	*maxL&cl*	*maxL*	*maxL*	*maxL&cl*
FD	-0.2817***	-0.0326	-0.1439	-0.0019***	-0.0003	-0.0010	0.0034	-0.0001	-0.0030
	(0.003)	(0.384)	(0.336)	(0.003)	(0.170)	(0.245)	(0.420)	(0.812)	(0.355)
ELF6	-0.2813*	-0.0712	-0.1071	-0.2771*	-0.0700*	-0.1067*	0.0425	0.0166	0.0128
	(0.074)	(0.105)	(0.188)	(0.067)	(0.091)	(0.080)	(0.687)	(0.407)	(0.835)
FD*ELF6(30)	**0.2043****	**0.0616***	0.1287	**0.0023****	**0.0007*****	**0.0015****	**-0.0084****	**-0.0016*****	-0.0014
	(0.042)	**(0.058)**	(0.113)	**(0.012)**	**(0.006)**	**(0.022)**	**(0.021)**	**(0.009)**	(0.614)
FD	-0.2541***	-0.0203	-0.1062	-0.0020***	-0.0003	-0.0012	-0.0058***	-0.0017***	-0.0088**
	(0.004)	(0.585)	(0.422)	(0.002)	(0.169)	(0.177)	(0.009)	(0.000)	(0.029)
ELF6	-0.3606**	-0.0738*	-0.1387**	-0.2805*	-0.0592	-0.1282**	-0.1080	-0.0154	-0.1116
	(0.024)	(0.066)	(0.036)	(0.054)	(0.120)	(0.018)	(0.295)	(0.536)	(0.214)
FD*ELF6(50)	**0.2797****	**0.0589***	**0.1519****	**0.0022****	**0.0005****	**0.0018****	-0.0004	-0.0001	0.0032
	(0.025)	**(0.056)**	**(0.032)**	**(0.016)**	**(0.036)**	**(0.012)**	(0.852)	(0.919)	(0.310)
FD	-0.2036**	-0.0304	-0.1204	-0.0010	0.0000	-0.0005	-0.0017	-0.0013**	-0.0052**
	(0.023)	(0.478)	(0.330)	(0.106)	(0.964)	(0.427)	(0.567)	(0.032)	(0.016)
ELF6	-0.1843	-0.0366	-0.0463	-0.1661	-0.0323	-0.0294	-0.0097	0.0132	0.0003
	(0.159)	(0.324)	(0.317)	(0.191)	(0.362)	(0.446)	(0.919)	(0.561)	(0.996)
FD*ELF6(70)	0.0779	0.0218	0.0556	0.0009	0.0002	0.0006	**-0.0049***	**-0.0013***	-0.0010
	(0.433)	(0.561)	(0.215)	(0.232)	(0.372)	(0.267)	**(0.069)**	**(0.059)**	(0.537)
FD	-0.2694**	-0.0097	-0.1217	-0.0005	0.0000	-0.0001	-0.0067**	-0.0024***	-0.0056***
	(0.039)	(0.848)	(0.348)	(0.472)	(0.992)	(0.766)	(0.011)	(0.000)	(0.001)
SHadj	0.6171**	0.0732	0.0981	0.4897*	0.0714	0.0999	0.1100	0.0126	0.0308
	(0.031)	(0.373)	(0.339)	(0.061)	(0.318)	(0.353)	(0.532)	(0.770)	(0.763)
FD*SHadj(30)	-0.1494	-0.0314	-0.0565	**-0.0016***	-0.0004	-0.0008	0.0037	**0.0009****	0.0002
	(0.153)	(0.375)	(0.365)	**(0.078)**	(0.158)	(0.263)	(0.137)	**(0.046)**	(0.923)
FD	-0.1805	0.0366	-0.0829	-0.0001	0.0002	0.0001	-0.0063**	-0.0022***	-0.0061***
	(0.218)	(0.560)	(0.532)	(0.861)	(0.576)	(0.822)	(0.016)	(0.000)	(0.000)
SHadj	0.8333**	0.1619*	0.2028*	0.6041*	0.0990	0.1537	0.0503	0.0016	-0.1130
	(0.018)	(0.094)	(0.088)	(0.051)	(0.193)	(0.110)	(0.796)	(0.974)	(0.227)
FD*SHadj(50)	**-0.2445****	**-0.0744***	-0.0919	**-0.0020****	**-0.0005***	**-0.0009***	0.0033	0.0009	**0.0024***
	(0.041)	**(0.085)**	(0.146)	**(0.035)**	**(0.097)**	**(0.099)**	(0.159)	(0.173)	**(0.062)**
FD	-0.3417***	0.0047	-0.1224	-0.0009	0.0000	-0.0002	-0.0055***	-0.0019***	-0.0065***
	(0.001)	(0.923)	(0.357)	(0.159)	(0.863)	(0.758)	(0.001)	(0.000)	(0.001)
SHadj	0.5366**	0.1138*	0.1753**	0.3991	0.0615	0.1015	0.0602	0.0256	-0.0342
	(0.046)	(0.057)	(0.048)	(0.114)	(0.330)	(0.135)	(0.781)	(0.607)	(0.755)
FD*SHadj(70)	-0.1062	**-0.0638****	-0.1008	-0.0011	-0.0003	-0.0008	0.0077	0.0011	0.0029
	(0.218)	**(0.019)**	(0.103)	(0.182)	(0.165)	(0.149)	(0.131)	(0.288)	(0.425)
FD	-0.4573***	-0.0511	-0.1928*	-0.0023***	-0.0001	-0.0001	-0.0060**	-0.0023***	-0.0061***
	(0.003)	(0.382)	(0.095)	(0.001)	(0.762)	(0.943)	(0.011)	(0.001)	(0.000)
GDw	-0.0002**	0.0000	0.0000	-0.0001	0.0000	0.0000	-0.0001	0.0000	0.0000
	(0.028)	(0.489)	(0.506)	(0.108)	(0.917)	(0.916)	(0.109)	(0.431)	(0.791)
FD*GDw(30)	**0.1618****	0.0289	0.0308	**0.0012***	0.0000	0.0000	0.0042	0.0010	0.0013
	(0.034)	(0.173)	(0.462)	**(0.053)**	(0.992)	(0.964)	(0.201)	(0.112)	(0.634)
FD	-0.3591***	-0.0366	-0.2491**	-0.0024***	-0.0002	-0.0013	-0.0050***	-0.0018***	-0.0068***
	(0.006)	(0.497)	(0.047)	(0.001)	(0.414)	(0.126)	(0.002)	(0.000)	(0.000)
GDw	-0.0002***	0.0000	-0.0001**	-0.0002**	0.0000	-0.0001**	-0.0001	0.0000	0.0000
	(0.009)	(0.209)	(0.026)	(0.026)	(0.311)	(0.044)	(0.222)	(0.865)	(0.501)
FD*GDw(50)	**0.1865*****	**0.0514***	**0.1074****	**0.0019*****	**0.0004***	**0.0010****	0.0025	0.0002	0.0022
	(0.005)	**(0.069)**	**(0.013)**	**(0.005)**	**(0.063)**	**(0.019)**	(0.444)	(0.754)	(0.335)
FD	-0.2683***	-0.0295	-0.2121	-0.0021***	-0.0003	-0.0016	0.0004	-0.0013***	-0.0049***
	(0.002)	(0.535)	(0.270)	(0.002)	(0.260)	(0.150)	(0.889)	(0.008)	(0.006)
GDw	-0.0002*	-0.0001	-0.0001*	-0.0002*	0.0000	-0.0001**	0.0001	0.0000	0.0000
	(0.080)	(0.126)	(0.058)	(0.052)	(0.266)	(0.044)	(0.523)	(0.226)	(0.348)
FD*GDw(70)	**0.1900***	**0.0811****	**0.2123****	**0.0019****	**0.0005***	**0.0017****	**-0.0078****	**-0.0012****	-0.0021
	(0.081)	**(0.043)**	**(0.042)**	**(0.013)**	**(0.067)**	**(0.042)**	**(0.030)**	**(0.049)**	(0.419)

Notes: 1-step system GMM estimations of equation (1) on samples with different data frequency. In the estimations performed on the annual sample, the set of control variables differs from the default case in two respects. First, the average Worldwide Governance Indicators are omitted because data are available only on a biannual basis until 2002. Second, time dummies are included in the 'conditioning set'.

"maxL" – The lag order of GMM level instruments is maximized at 2. "maxL&cl" – collapsed instrument matrix & GMM level instruments lag maximized at order 2 (Roodman, 2009b). Legal origin and imperial legacy dummies are involved as standard instruments in each case. The constant and the coefficients of the 'conditioning set' including the lagged dependent variable are omitted to save space. P-values of the t-tests are in parenthesis and are calculated according to standard errors which are robust to heteroskedasticity across and arbitrary pattern of autocorrelation within countries. Asterisks denote the significance level (*: 10%, **: 5%, ***: 1%). Structural breaks significant at the standard levels are depicted in bold. The results are presented in a block-wise structure and each *FD-DRD-DRD(#)* specification is framed by a dashed line.

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