

BACKGROUND PAPER

**GOVERNANCE *and* THE LAW**

# Legal Reforms and Economic Performance: Revisiting the Evidence

**Daniel Oto-Peralías**  
University of St. Andrews

**Diego Romero-Ávila**  
Pablo de Olavide University

**Disclaimer**

This background paper was prepared for the World Development Report 2017 *Governance and the Law*. It is made available here to communicate the results of the Bank's work to the development community with the least possible delay. The manuscript of this paper therefore has not been prepared in accordance with the procedures appropriate to formally-edited texts. The findings, interpretations, and conclusions expressed in this paper do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

# “Legal Reforms and Economic Performance: Revisiting the Evidence”

## Background Paper for the World Development Report 2017 “Governance and the Law”

**Daniel Oto-Peralías & Diego Romero-Ávila**

### Abstract

This paper investigates whether legal reforms intended to create a market-friendly regulatory business environment have a positive impact on economic and financial outcomes. After conducting a critical review of the *legal origins* literature, we first analyze the evolution of legal rules and regulations during the last decade (2006-2014). For that purpose, we use legal/regulatory indicators from the *Doing Business Project* (World Bank). Our findings indicate that countries have actively reformed their legal systems during this period, particularly French civil law countries. A process of convergence in the evolution of legal rules and regulations is observed: countries starting in 2006 in a lower position have improved more than countries with better initial scores. Also, French civil law countries have reformed their legal systems to a larger extent than common law countries and, consequently, have improved more in the majority of the *Doing Business* indicators used. Second, we estimate fixed-effects panel regressions to analyze the relationship between changes in legal rules and regulations and changes in the real economy. Our findings point to a lack of systematic effects of legal rules and regulations on economic and financial outcomes. This result stands in contrast to the widespread belief that reforms aiming to strengthen investor and creditor rights (and other market-friendly policies) systematically lead to better economic and financial outcomes. It seems that improvements in these legal rules are not sufficient conditions for that. Finally, we conduct an exploratory analysis of the determinants of the effectiveness of legal reforms and the gap between legal rules and the reality on the ground.

---

**Daniel Oto-Peralías.** University of St Andrews, School of Management, Centre for Responsible Banking & Finance. The Gateway, North Haugh, St Andrews, Fife, KY16 9AJ, UK. E-mail: dop2@st-andrews.ac.uk.

**Diego Romero-Ávila,** Pablo de Olavide University, Department of Economics, Carretera de Utrera, Km. 1, Sevilla, Spain. E-mail: dromtor@upo.es. Tel. (+34) 954 348 381. Fax: (+34) 954 349 339.



# INDEX

<b>I. Introduction</b> .....	p. 5
<b>II. Revisiting the Legal Origins Hypothesis: A Brief Review of the Literature</b> .....	p. 7
A. Arguments Based on Colonialism and the Distribution of Legal Traditions Around the World	
B. Arguments based on Political Economy	
C. Arguments based on Measurement and Recoding of Legal Data	
<b>III. Data Description</b> .....	p. 18
A) Legal and Regulatory Indicators	
B) Economic and Financial Outcomes	
<b>IV. Legal Change within Legal Traditions and Convergence</b> .....	p. 22
A. Has There Been Legal Change over the period 2006-2014?	
B. Have Legal Reforms Reduced the Differences in Legal Rules/regulations across Legal Traditions?	
C. Has There Been Convergence in Legal and Regulatory Standards among Legal Traditions over the Period 2006-2014?	
D. More on Convergence: Robustness Checks	
<b>V. Legal Rules Variation and Countries' Economic and Financial Performance</b> .....	p. 31
A. The Effect of Legal Rules and Regulations on Economic and Financial Performance	
B. Distinguishing the Circumstances in Which the Effect Takes Place	
C. Graphical Analysis of the Relationship between Legal Change and Financial and Economic Development	
D. Sensitivity Analyses	
D.1. Alternative Legal Indicators	
D.2. Alternative Panel Estimation: Difference and System GMM Estimators.	
E. General Discussion	
<b>VI. The effectiveness of legal reforms and the gap between law on the books and the reality on the ground</b> .....	p. 44
A. Explanatory factors for the effectiveness of legal reforms: A preliminary analysis	
B. Gap between Law on the Books and Reality on the Ground	
C. Gap between Law on the Books and Law in Action	
D. Recapitulation	
<b>VII. Conclusions</b> .....	p. 55
<b>References</b> .....	p. 58
<b>Appendix A - Summary of the criticisms to the Legal Origins Theory</b> .....	p. 64
<b>Tables and Figures</b> .....	p. 66
<b>Appendix B – Data sources and descriptive statistics</b> .....	p. 106



## I. Introduction

Nowadays it is widely accepted both in the academic and law-making spheres that legal reforms aiming to create market-friendly regulatory environments are crucial for economic growth. Indeed, some political leaders set as goals for their mandates to improve their countries' ranking in *Doing Business* (i.e., the World Bank's classification of the ease of doing business across countries).<sup>1</sup> For instance, Indian Prime Minister Narendra Modi and Russian President Vladimir Putin explicitly targeted improving in the *Doing Business* ranking as one of their objectives for their administrations (Besley 2015). The Abe Administration in Japan also aims to improve Japan's rank, in this case to one of the top three among OECD countries (Haidar and Hoshi, 2015).

The view that law matters, that is, that legal reforms can make a difference in improving countries' economic performance, is to a large extent the legacy of the *law and finance literature*, also known as *Legal Origins Theory* (La Porta et al., 1998, 2008, 2013). According to this theory, countries whose legal systems provide a stronger protection to investor and creditor rights (typically common law countries) have more developed financial markets and more dynamic market economies. The conclusion reached by many scholars and politicians is that legal reforms aiming to improve the protection of investor and creditor rights should lead to financial development and, consequently, economic growth.

However, the evidence suggesting that legal reforms can improve countries' economic performance is mainly based on cross-section regression analysis. This type of analysis does not specifically study whether changes in legal rules are associated with improvements in economic activity. There may be many confounding factors behind these findings. What would be really informative is to analyze whether changes in legal rules are associated with improvements in financial and economic outcomes by keeping constant all potential confounding factors which are largely fixed at the country level such as culture, political institutions, etc. This is one of the goals of our analysis.

The purpose of this paper is to use data on legal rules and regulatory outcomes from the Doing Business Project over the period 2006-2014 in order to establish whether the

---

<sup>1</sup> All the information about the Doing Business Project is available at <http://www.doingbusiness.org/>.

variation in legal rules has affected financial and economic developmental outcomes, as suggested by the law and finance view. In doing so, we first try to determine whether there has been legal change within legal traditions by testing for mean differences between 2014 and 2006 scores for each of the legal and regulatory indicators studied. The evidence appears to indicate that there has been legal change, particularly in French civil law countries. This legal tradition has experienced an improvement in the following areas: law on the books as measured by the indices of strength of creditor rights and investor protection, depth of credit information, and in the regulatory burden on starting a business, registering a property, obtaining construction permits, paying taxes and trading across borders.

Second, we try to establish whether there is a legal origin effect on legal rules and regulatory outcomes at the beginning and end of the period, and whether the relative position of legal traditions changed after the reform. The evidence indicates that in many areas such as creditor rights and investor protection, efficiency of debt enforcement, and in the regulatory burden on obtaining construction permits, paying taxes and trading across borders, the statistically significant differences relative to the British common law have diminished between 2006 and 2014; and in the case of starting a business these differences have vanished. This supports the existence of catching-up of the French civil law to the average legal and regulatory standards of the British common law.

Third, bearing in mind the large number of legal reforms implemented over the period 2006-2014, particularly in French civil law countries, we try to establish whether variation in legal rules and regulatory outcomes have been associated with an improvement in financial and economic developmental outcomes. By estimating panel specifications using a fixed effects estimator with data averaged over three-year periods, the evidence does not support the existence of a clear-cut effect of legal rules and regulatory indicators on financial and economic performance. This finding appears to accord with the view of those that question the widespread tendency in the lawmaking sphere over the past decade to imitate tools related to the common law (the pretended winning origin). If the common law does not systematically lead to better legal rules

and institutions than the French civil law (as the recent critical literature suggests)<sup>2</sup>, it is far from clear that adopting common-law tools will improve the efficiency of the legal system and the performance of the real and financial economy.

The lack of a consistent effect of legal reforms on financial and economic outcomes does not mean that legal reforms are always ineffective. This simply reflects that on average we do not find a significant effect, but there are countries in which legal reforms have been successful. The final part of the paper tries to address the question of what factors contribute to the effectiveness of legal reforms. The results of our exploratory analysis suggest that institutional quality and mineral resource abundance are important factors. In addition, we study the related question of the determinants of the gap between legal rules and the reality on the ground, which is a consequence on the lack of efficacy of legal rules. Institutions also appear to be important in reducing the gap, and common law countries exhibit larger gaps than other legal traditions.

The remaining of the paper is organized as follows. Section II provides a critical review of the literature dealing with the Legal Origins hypothesis. Section III describes the legal data employed in the empirical analyses. Section IV conducts an analysis of legal change as well as several exercises of convergence in legal and regulatory standards among legal traditions. Section V estimates panel data specifications to shed some light on the impact of variations in legal rules and regulatory indicators on financial and economic performance over the period 2006-2014. Section VI conducts an exploratory analysis of the determinants of the effectiveness of legal reforms and the gap between law on the books and the reality on the ground. Finally, Section VII draws some policy implications and concludes.

## **II. Revisiting the Legal Origins Hypothesis: A Brief Review of the Literature**

One of the most influential explanations of why some countries have well-functioning legal and financial systems and others do not is undoubtedly the Legal Origins Theory (La Porta et al., 1998, 2008, 2013). According to this theory, common

---

<sup>2</sup> The critical literature review in Section 2 provides many references of studies that fail to find statistically significant differences in outcomes between the French civil law and the British common law for a wide variety of legal and regulatory indicators.

law countries are associated with stronger investor and creditor rights,<sup>3</sup> lower legal formalism, more efficiency of contract and debt enforcement, and higher judicial independence than civil law countries. It has also been found that governments in common law countries intervene and regulate to a lesser extent the economy. The consequence of all of these results is that, supposedly, common law legal systems lead to better legal and financial outcomes than civil law systems (La Porta *et al.*, 2008, 2013). Michaels (2009) remarks that the “ingenious idea” of La Porta *et al.* (1997, 1998) to solve the endogeneity problem between legal rules and economic performance was “to look at settings in which law was not co-original with society but instead was imposed as an external factor”, which they found “in the context of colonization, where law was [...] imposed externally by the colonizing power, with a random distribution of different legal systems depending on which European country colonized parts of the non-European world.” (p. 769).

Two mechanisms might explain the superior performance of the British common law: the “political” and the “adaptability” channels, with the former implying that legal traditions differ in the weight assigned to private property vs. the rights of the State, while the second focusing on judicial formalism and the ability for each tradition to evolve. The historical victory of the coalition among the English Parliament, bourgeoisie and judges against royalists in the English civil wars in the seventeenth century promoted the protection of private property rights. Moreover, the case-law principle, based on the judicial precedent, provided Britain with a legal system that could easily adapt its law to changing circumstances (Beck and Levine 2005). In contrast, in the French Revolution the principle of separation of powers relegated judges to a secondary role of mechanical application of the law, while the state’s powers were strengthened. The evidence provided by Beck, Demirgüç-Kunt, and Levine (2003) mainly supports the “adaptability channel”.

The pretended superiority of the common law has had important consequences. Policy makers imitate legal tools related to the common law (the winning origin) instead of improving existing institutions typical of the civil law tradition (Roe and Siegel 2009). Indeed, it has been observed certain catching up of civil law countries in terms of

---

<sup>3</sup> This implies that investors, both shareholders and creditors, are protected by law from expropriation by firms’ majority shareholders and the management.

legal features typical of common law systems (Armour *et al.*, 2009a). However, a growing number of scholars have recently criticized the assumptions and findings of the Legal Origins Theory (e.g., Rajan and Zingales, 2003; Klerman *et al.*, 2011; Spamann, 2010a,b; Oto-Peralías and Romero-Ávila, 2014a,b). Therefore, given the important policy implications of this criticism in the lawmaking sphere, it is crucial to conduct a critical revision of the state of the literature about the Legal Origins Theory, and to assess the impact of the new evidence from the point of view of legal reforms. Hence, in the rest of the section we divide all the criticisms to the Legal Origins Theory into three main blocks. A first set of criticisms builds on colonialism and the associated distribution of legal traditions, another set of criticisms is based on political economy arguments, and a third set is based on the quality and reliability of early indicators of legal rules and outcomes.

#### A. Arguments Based on Colonialism and the Distribution of Legal Traditions Around the World

One of the key criticisms of the Legal Origins Theory is the “Transplant Hypothesis” proposed by Berkowitz, Pistor, and Richard (2003a, b) who argue that the manner in which legal systems are obtained is more important than the specific countries’ legal traditions to explain the quality of legal systems. Thus, they overcome the fact that the Legal Origins Theory fails to differentiate between the origin countries of legal families from those receiving their law via legal transplantation, which is tantamount to saying that the only thing that mattered was the transmission of a particular code, but not the process of transplantation. They differentiate among origin countries, receptive transplants and unreceptive transplants, with the first two categories being related to higher legal effectiveness. According to these authors, law is effective provided a demand for law exists so that the law on the books is used in practice and legal intermediaries developing the law show responsiveness to this demand. Whether legal transplants are receptive or not depends on the adaptation of the imported law to local conditions and on the population’s familiarity with law principles. Their evidence supports the fact that countries in which the law was not adapted to local conditions or the population of the recipient country was not familiar with the law exhibit a lower level of legal effectiveness and economic development.

To the extent that legal origins are exogenous and more or less fixed at the point of its transplantation, and hence shape legal rules protecting investors –as predicted by the Legal Origins Theory–, this may be incompatible with the responsiveness of legal practitioners to change the law due to markets demand. Indeed, as argued by Roe and Siegel (2009, p. 784), one of the pillars of the Legal Origins Theory is that basic law has been imposed from the outside, while we know that “too much law was voluntarily imported or consciously rejected”. In addition, referring to the work of Dam (2006), Roe and Siegel (2009) point out that the colonization argument is not sufficiently strong because most of the recipient countries (including most common and civil law countries in Africa and many in Latin America) may not have been receptive.

A related criticism to the Legal Origins Theory has to do with the distribution of legal traditions around the world (Oto-Peralías and Romero-Ávila, 2014a, b). In that work, we focused on the key point of the distribution of legal tradition from origin countries (colonial powers) to recipient countries (colonies) in the historical process of European colonization.<sup>4</sup>

The Legal Origins Theory implicitly assumes that: 1) All colonial powers exported their legal system in a homogeneous way, which explains why countries are simply grouped into four legal traditions (the British common law, and German, Scandinavian and French civil law).<sup>5</sup> 2) The basic features of the legal tradition were transplanted to the recipient country. 3) It is thus not necessary to differentiate countries within legal traditions. We question assumptions 1 and 3 by arguing that: 1) Colonial powers had different strategies when implanting their legal systems in the colonies because they exhibited different responses to the initial conditions (endowments) existing in colonized territories. 2) The way legal systems were implanted matters for legal/economic outcomes. We find that the relative legal rules and outcomes of the British common law vs. the French civil law are associated with the colonial strategies

---

<sup>4</sup>Colonialism was a historic event of extraordinary importance. In 1914, the territory occupied by European powers and their new and former colonies extended over approximately 85 percent of the global surface. This meant an enormous influence of Europe around the world, leading to the implantation of different legal systems.

<sup>5</sup> Daniels, Trebilcock, and Carson (2011) agree on this point by arguing that one of the assumptions underlying the claim about the superior performance of the British common law is that transplanted institutions were imposed uniformly across territories; an assumption they clearly question.

followed by mother countries when implanting their legal systems in their colonial dominions.

As regards the distribution of the British common law, the transplantation of the common law was inversely related to the recipient country's level of population density at the time of colonization. This was due to the nature of British colonial policy, which did not want to interfere with preexisting native law and rules of indigenous societies. In sparsely populated territories with a temperate climate the common law was extensively transferred by European practitioners, and fitted well with the colonial society. This made it possible to develop a legal system in the recipient country that is comparable in many respects to the British. This occurred in North-American and Australasian colonies. In contrast, in those places with a large indigenous population and unfavorable disease conditions, the legal and institutional transfer was very superficial and could even have negative consequences.<sup>6</sup>

Concerning the distribution of the French civil law, France imposed its civil law rigidly across its empire, leading frequently to conflicts with existing laws. This legal colonial policy was coherent with the nature and character of the French empire, which was more centralized than the British and ruled with a very different ideology, namely, the consideration of the colonial empire as an intrinsic part of the Republic and the ideal of assimilation (Fieldhouse 1966; Kumar 2006). Since this colonial policy was largely independent of the particular circumstances of the colonized territories, the distribution of the French civil law across colonial dominions was more uniform than in the British case. In addition, former Spanish colonies deserve separate treatment since they share a common Castilian law legacy and a different adoption of the Civil Code by imitation. Arguably, former Spanish colonies experienced a better assimilation of the civil law (during almost 300 years) and, therefore, one expects better legal outcomes for this group compared to French colonies.

Our results indicate that the common law does not generally lead to superior legal rules and outcomes or to a higher level of credit and stock markets development than

---

<sup>6</sup>This is because the widespread use of indirect rule in these colonies (particularly in sub-Saharan Africa and some parts of Asia) led to the empowerment of local elites who, unlike precolonial times, were no longer subject to traditional checks by the native population and could mold customary law in their own benefit, thereby leading to abuses of power and imperfect protection of property rights (Mamdani, 1996; Lange 2004).

the French civil law when precolonial population density and/or potential European settler mortality are high. Our results further indicate that the superior performance of the common law is largely driven by countries where Britain extensively implanted its legal tradition. Hence, the statement by La Porta et al. (2008, p. 326) that “legal rules and regulations differ systematically across countries, [which] are accounted for to a significant extent by legal origins. [T]he basic historical divergence in the styles of legal traditions explains well why legal rules differ.” can be qualified since to explain “why legal rules differ” one must consider both the contents or styles of legal traditions and the way they were distributed by the origin countries.

Daniels, Trebilcock, and Carson (2011) emphasize the high degree of variability in jurisdictional arrangements and legal institutions in the British Empire, which were responsive to the initial conditions encountered by colonizers, including the pre-existing indigenous legal order. Outside of the settler colonies, territories under British control did not experience a complete transplantation of the common law and a subsequent displacement of native rules. In practice, the implantation process of the British law in each colony led to a unique corpus of law that differed from that in other colonies. According to these authors, whether a colony developed a long-run stable commitment to legality and high legal effectiveness depended to some extent on two features of colonial administration and legal transplantation: (1) the degree of representation in legislative institutions afforded to the indigenous population, and (2) the degree of integration of indigenous and British common law courts and animated values, with higher integration fostering the development of a localized common law jurisprudence.

As a matter of fact, in Nigeria, where indirect rule was extensively exercised, there existed two parallel courts: colonial courts applicable only to matters involving Europeans and native courts that –under indigenous customs and rules– dealt with all disputes between non-Europeans, who under certain conditions could also appeal to the British court. This dual court system implied that the common law hardly applied to the great majority of the indigenous population. In addition, since native chiefs were granted extensive executive powers by the British, and, unlike precolonial times, were no longer subject to check and balances by the native population, they undermined the historical legitimacy of the native court system as well as the effectiveness of their customary law. Unlike indirectly ruled areas in Africa, India was administered as a

“direct/indirect rule hybrid” and managed to gradually adapt the colonial legal system to the needs of the Indian population, which resulted in the creation of “a court hierarchy and a body of law that was both effective and accepted by the native population” (Daniels, Trebilcock, and Carson, 2011, p. 135).

Klerman et al. (2011) explain the observed cross-country differences in economic growth between common and civil law countries on the basis of non-legal colonial factors, which they measure through colonial identity dummies. By exploiting the imperfect overlap between colonial and legal origin, they discard that the channel given by the structure of the legal system is important because the growth estimates for juries, case law and Supreme Court tenure are in general neither individually nor jointly statistically significant. These results lead them to wonder whether legal origins are really meaningful.

#### B. Arguments based on Political Economy

A second body of criticisms is related to political factors and twentieth century historical events that have influenced the approach by which countries regulate the financial system and the economy. A major contribution in this regard is the Great Reversal hypothesis of Rajan and Zingales (2003). They show that in 1913, French civil law countries had a higher level of financial development –as measured by the average stock market capitalization to GDP ratio– than common law countries. However, when they compute this ratio for the same sample of countries in 1999, it is found to be much larger in common law countries (130 percent) than in French civil law countries (74 percent). The lack of persistent outcomes in financial development that should be present according to the Legal Origins Theory leads Rajan and Zingales (2003) to reject it. To explain the great reversal in financial development they employ a political economy argument. Accordingly, this reversal in financial development levels appears congruent with the incumbent industrial and financial elites in civil law countries preventing start-up competitors from having open access to new finance, thus getting rid of potential competition that could erode the incumbents’ industrial position. All this would translate into financial repression, whereas in common law countries financial liberalization would prosper.

Roe (2006) provides an alternative political economy based explanation of the patterns observed in securities markets development and divergent ownership structures in the world's richer nations over the course of the twentieth century. According to Roe (2006), those countries suffering greater destruction in World War II were civil law countries. This weakened the capacity of influence in the polity of capital oriented interests whose main asset (capital) was largely destroyed during the war. In contrast, labor was the dominant force in postwar continental Europe as they could influence the polity via voting. This led to a marked left-right political conflict, which gave rise to laws and regulations in favor of the workforce and against capital. Hence, those nations in which leftist actors dominated the political scene, promulgated strong employment protection laws, but had weaker financial markets (Roe and Siegel, 2009).

In a similar spirit to Rajan and Zingales (2003) thesis, the following papers also question the pretended fixed and path-dependent link between legal origin and the levels of protection of creditors and minority shareholders and of financial development. For instance, Musacchio (2008) documents that even though today Brazil affords creditors a low level of protection, it provided them with strong rights before 1945. Such a big variation in creditor rights does not square with the Legal Origins Theory, but it can be explained by political economy. He conjectures that the fact that in civil law countries lawmaking is highly centralized makes it more susceptible to capture by interest groups. He also finds a high degree of variation over time in bond market size and court enforcement of debt contracts. The reason for the decline of Brazil's bond market after World War I must be sought in changes in international capital markets and macroeconomic instability rather than in legal origin. With a focus on a wider sample of 20 countries, Musacchio (2007) provides evidence of relative convergence in corporate governance practices concerning the extent of creditor protection included in the bankruptcy laws and the weak level of shareholder rights across common and French civil law countries circa 1900. Thus, if one observes today wide cross-country variation in the development of financial markets, it must be due to events of the twentieth century rather than to persistent differences caused by legal traditions.

As argued by Roe (2007), legal origin institutions such as the jury system that should have been transferred by Britain to its colonies are trumped easily by modern political economy forces. The reason was that the implementation of the British colonial policy –

whose main political goal was to run a vast empire— conflicted with the implantation of the jury in its colonial dominions, which previously undermined legal effectiveness as a means of colonial control in Ireland and the North American colonies (Young, 1988).

Focusing on an early form of shareholder company in ancient Rome, the *societas publicanorum*, Malmendier (2009) is able to gather evidence that this institution flourished and could access broad financing in a legally underdeveloped but politically supportive environment during the Roman Republic, whereas it practically disappeared during the Roman Empire in which Roman law grew highly sophisticated but the political environment became much less supportive. This suggests that provided the “law as practice” was flexible enough to adapt to the economic needs posed by the prevalent political interests, the development of the legal system was little important for economic development and entrepreneurship.

Acemoglu and Johnson (2005) examine the relative importance of legal institutions related to the protection of contractual rights vs. political institutions related to the protection of property rights in explaining economic and financial development. Their evidence is supportive of the dominant role of political institutions in affecting the real economy. In addition, as pointed out by Malmendier (2009), the ultimate superiority of political vs. legal institutions can be explained by the fact that a poor legal environment can be counteracted with private arrangements and reputational effects, whereas weak political institutions that protect against property expropriation from the elites or the state cannot.

### C. Arguments based on Measurement and Recoding of Legal Data

In this block we find several studies which, by virtue of recoding or using more recent or alternative legal data, find no systematic differences between common and civil law countries in many areas of the legal sphere. For instance, Spamann (2010b) challenges the common view still supporting the existence of clear differences in the area of civil procedure involving judicial adjudication and enforcement of private claims between common and civil law countries. Unlike Djankov et al. (2003) who used data for the World Bank’s first Doing Business report and found that civil law countries exhibited on average more complex and formalistic procedures (that were also longer and costlier), Spamann (2010b) used the corrected and expanded data (from the same

source) on complexity, formalism, duration and cost of procedure in courts of first instance for a sample of up to 181 countries over the 2003-2008 period. The evidence with the updated and arguably highest-quality data does not indicate the existence of any statistically significant difference between common law and civil law countries.

As argued by Spamann (2010b, p. 163), “if the historical common-civil-law division does not manifest itself economically meaningfully in the area where it originates, it is unlikely to explain differences in much more remote areas”. Therefore, it is hardly surprising that when Spamann (2010a) corrects the antidirector rights index originally used by La Porta et al. (1998) for thirty-three of the forty-six countries initially investigated, the corrected index no longer renders a higher level of shareholder protection in common law than in civil law countries.<sup>7</sup>

Unlike the studies by La Porta et al. (2006) and Djankov et al. (2008) that provided clear-cut evidence that private enforcement of investor protection via both disclosure and private liability rules leads to greater securities market development, whereas public enforcement does not, Jackson and Roe (2009) constructs resource-based measures of public enforcement and finds no evidence of the pretended superiority of private enforcement mechanisms (more prevalent in common law countries) in propelling securities market development.<sup>8</sup> Indeed, the latter show that public enforcement is overall as important as disclosure in explaining the development of financial markets around the world and more important than private liability rules.

Using time-series data for three parent systems, Britain, France and Germany, and the United States and India over the period 1970-2005, Armour et al. (2009a) cast doubts on the empirical validity of the Legal Origins Theory since there have been great changes in their index of shareholder rights over the past three decades, with a high

---

<sup>7</sup> In contrast to La Porta et al. (1998) who mainly used secondary sources such as Price Waterhouse’s Doing Business reports for various years, Spamann (2010a) constructed the revised index on the basis of raw legal data directly derived from primary sources analyzed with the help of local lawyers.

<sup>8</sup> La Porta et al. (2006) employed a public enforcement index which captures the regulators’ formal authority based on several dimensions measuring their power reach, and Djankov et al. (2008) used an index aggregating several dimensions concerning whether particular suspect corporate transactions can lead to a fine or jail sentences for the approving body or the principal wrongdoer. In contrast, Jackson and Roe (2009) developed several measures of the intensity of public enforcement of securities market regulation based on information on the regulators’ budgetary resources and staffing rules.

degree of convergence between legal traditions in recent years due to a substantial rise in shareholder protection in civil law countries.<sup>9</sup> Contrary to the Legal Origins Theory, they find no significant differences between common and civil law countries in the case of creditor protection. However, the evidence for workers protecting laws appears more consistent with the Legal Origins Theory, with a higher degree of labor protection in civil law countries. In sum, Armour et al. (2009a) document diverging patterns in the laws across legal traditions until the late 1980s, whereas convergence has set in over the period 1990-2005, particularly in the case of shareholder protection rights. They explain these patterns on the basis of institutional complementarities at national level, which implies that legal systems (the regulatory style and the substantive content of legal rules) are endogenous to the economic and political environments in which they are placed. In addition, recent transnational trends of standardization of company law, insolvency law and labor market regulations lead to convergence of law and regulations across different traditions.<sup>10</sup>

With a focus on the construction of a new shareholder protection index for 20 countries over the period 1995-2005, Siems (2008) finds evidence that most countries have improved their shareholder protection records in the last years, with a general converging trend in the past decade.<sup>11</sup> Within this general trend, the three origin countries have constantly improved their investor protection index, while in the case of the transplant countries, it depends on whether they continue to take developments in the origin countries into account and thus improve their laws, and whether they take

---

<sup>9</sup> This is an important advancement relative to the majority of La Porta and associates' legal indices that only offered a cross-sectional view of the law at one moment in time, mostly in the second half of the 1990s. This had the limitation that it provided only a static description of the law as it stood at that point, without taking into account the evolution of legal rules caused by either external transnational convergence trends to best-practice standards or the influence of internal economic and political factors.

<sup>10</sup> This idea is not new since Reimann (2001), Husa (2004) and Armour et al. (2009c) have argued that over the past two decades legal systems are becoming global in nature, which makes the idea of strictly differentiating between common and civil law "an anachronism".

<sup>11</sup> Lele and Siems (2007) constructed a new shareholder protection index for five countries (Britain, France, Germany, India and the United States) over a lengthier period (1970-2005) on the basis of a much longer number of variables (60) relative to Siems (2008) who only considered 10.

advantage of common values and a common legal language, facts that more usually take place in common law countries.<sup>12</sup>

Finally, using the same dataset as Siems (2008), Armour et al. (2009b) find evidence that common law countries protected shareholder interests to a larger extent than civil law countries in the period 1995-2005. Nonetheless, there is a more rapid growth in shareholder protection standards in civil law relative to common law countries. This has led to a clear catching-up in shareholder protection in the past decade, which a legal origin effect has not prevented from occurring. In addition, contrary to the law and finance view, they fail to find any evidence supporting the existence of a statistically significant positive impact of these legal changes on three proxies for stock market development (stock market capitalization as a percentage of GDP, the value of stock trading as a percentage of GDP, and the stock market turnover ratio).

Concerning the implications in the law-making process, the Legal Origins Theory has deeply influenced our understanding of how to improve legal systems in order to foster financial development and promote economic activity. The pretended superiority of the common law in many areas of the legal system advocated by the extant legal-origins literature has had important consequences. Policy makers in the lawmaking sphere imitate tools related to the common law (the winning origin) by adopting, for instance, private micro-institutions of investor protection instead of improving existing institutions of public enforcement of securities laws (Roe and Siegel 2009). If the common law does not systematically lead to better legal rules and institutions than the French civil law –as stressed in many of the criticisms to the Legal Origins Theory–, then it is not clear that adopting common-law tools will improve the performance and efficiency of the legal system and therefore, legal reforms in this direction may not have the desired positive impact on the economy.<sup>13</sup>

### **III. Data Description**

The rest of the article is devoted to the analysis of the evolution of legal rules and regulations during the last decade, and whether changes in legal indicators have had an

---

<sup>12</sup>This does not imply that some common law countries like Pakistan, due to weak legal adaptability, record relatively low levels of shareholder protection.

<sup>13</sup> See Appendix A for a box containing a summary of the criticisms to the Legal Origins Theory.

effect on economic and financial outcomes. In this section we describe the data used in the empirical analysis.

#### A) Legal and Regulatory Indicators

Concerning the selection of legal/regulatory rules and outcomes, we rely on the *Doing Business* Project (2015) dataset for the legal and regulatory indicators. This dataset is built following the methodology developed in their papers by such prominent authors as Djankov, La Porta, Lopez-de-Silanes, Shleifer, Vishny and others. A very important advantage of using this source relative to the original papers' data is the much wider coverage of countries and the availability of time series for each indicator over a period covering the last ten years. Additional advantages of the *Doing Business* dataset entail the update of the dataset and enhanced coverage in terms of indicators in addition to improvements to the methodology and the correction of coding errors and inconsistencies in the data. *Doing Business* offers indicators on eleven different topics of business regulations. According to Belsley (2015, p. 106), "the main achievement of the Doing Business project has been to shed light and create a more informed debate on a range of differences in laws and regulations across countries in areas where little was known on a systematic basis before the project began".

As regards the selection of indicators, we consider three important dimensions of legal rules/outcomes that have been previously investigated in the legal origins literature: a) *creditor and investor rights and disclosure*, b) *legal system efficiency*, and c) *regulation*. *Doing Business* data are obtained from local experts on a specific legal/regulation area, which aim to measure what a standardized firm should expect if it complies with all official regulations and legal requirements in place on the respective area.

Concerning the first dimension, we select the indicator "Strength of legal rights index", denoted by *creditor rights*, which measures the extent to which collateral and bankruptcy laws protect borrowers and lenders' rights. Another important indicator considered is "Strength of investor protection index" (*investor protection*), which assesses the strength of minority shareholder protection against directors' misuse of corporate assets for personal gain and self-dealing in related-party transactions. Both indicators range from 0 to 10, with higher scores implying better designed laws to expand access to credit as well as to protect investors. These two measures are clear

examples of “law on the books” indicators. The third indicator is “Depth of credit information index” (*information sharing*) that, on a scale from 0 to 6, measures rules and practices affecting the scope, coverage and accessibility of credit information either through a public credit registry or a private credit bureau, with higher values reflecting more information availability.

As regards the second dimension given by the measurement of legal system efficiency, we select two legal outcome indicators. In the first place, “time required to complete procedures” (*contract enforcement*) indicates the time in days required to resolve a commercial sale dispute through the courts. Arguably, this indicator can be considered as an objective measure of efficiency of contract enforcement by courts (Djankov, McLiesh, and Shleifer, 2007). In the second place, the variable labelled as “recovery rate” measures the present value of debt recovered by creditors in insolvency proceedings, after deducting the official costs of the proceedings and the loss of value due to assets depreciation. This indicator constitutes a measure of efficiency of debt enforcement.

Concerning the third dimension of regulation, the regulatory indicators used are “number of days required to register a firm” (henceforth *starting a business*), “number of days required to register property” (hereafter *registering a property*), “number of days required to build a warehouse” (henceforth *dealing with construction permits*), “time it takes to prepare, file and pay (or withhold) the corporate income tax, value added or sales tax, and labor taxes, including payroll taxes and social contributions (in hours per year)” (hereafter *paying taxes*), “time for border compliance that includes time for obtaining, preparing and submitting documents during port or border handling, customs clearance and inspection procedures” (hereafter *time to export* and *time to import*, respectively).<sup>14</sup>

---

<sup>14</sup> Logarithmic transformation is applied to indicators measured in days in order to reduce the high variability in the data. In the absence of a comprehensive indicator that measures the different aspects of a dimension by aggregating other indicators (for example, creditor rights), we prefer indicators measuring the duration of procedures since this is a fundamental feature of legal and judicial systems, which is reflected in the principle “justice delayed is justice denied”. In this regard, Spamann (2010b) argues that measures of complexity, such as the number of steps, have an unclear meaning because they combine and uniformly weight disparate steps that differ greatly in importance and length.

Other variables employed are the legal origin dummies, which are obtained from La Porta et al. (1999) and La Porta, López de Silanes and Shleifer (2008), who identified the legal origin of the Company Law or Commercial Code in each country. In our sample we have 64 British common law countries, 100 French civil law countries, 20 German civil law countries and 5 Scandinavian civil law families.

## B) Economic and Financial Outcomes

The dependent variables to be explained on the basis of the evolution of legal/regulatory rules and outcomes are several measures of financial development and economic development. Concerning the measurement of financial development, for stock markets we use the market capitalization of listed domestic companies as a percentage of GDP and the total value of stocks traded as a percentage of GDP, and for financial intermediaries we use domestic credit to the private sector by banks as a percentage of GDP (CREDIT1), domestic credit provided by the financial sector as a percentage of GDP (CREDIT2), and domestic credit to the private sector as a percentage of GDP (CREDIT3). The latter differs from CREDIT1 in that it incorporates also credit granted by non-bank financial institutions. Both CREDIT1 and CREDIT3 differ from CREDIT2 in that the latter not only considers credit granted to the private sector, but also to public enterprises and other entities.

As contemporary economic development outcomes, we employ the ratio of exports plus imports to GDP, net inflows of foreign direct investment (FDI) as a percentage of GDP, gross fixed capital formation in the private sector as a percentage of GDP, new business density as measured by new registrations per 1000 people aged between 15 and 64, the unemployment rate, and the Gini index as a proxy for income inequality.<sup>15</sup> Both financial and economic development outcomes are obtained from the World

---

<sup>15</sup> In Section V, we have also used GDP per capita growth as economic outcome. However, we present the results for this outcome only in the specification (with both annual and three-year averaged data) that does not include lagged GDP growth as an additional control variable. One reason for not presenting the results for GDP per capita growth for the specification that includes lagged GDP growth as a control variable is that the correlation of lagged GDP growth with the country fixed effects would bring the Nickell (1981) bias. However, we prefer not to report the results for this indicator because it may be endogenous to legal reforms. According to non-reported results, improvements in legal rules are not generally associated with faster GDP per capita growth.

Development Indicators of the World Bank (2015c).<sup>16</sup> We refer the reader to Table A1 in Appendix B for the descriptive statistics and sources of all the variables used in the empirical analysis.

#### **IV. Legal Change within Legal Traditions and Convergence**

Before trying to explain current economic and financial development outcomes on the basis of the legal and regulatory reforms implemented over the period 2006-2014, we next attempt to shed some light on the extent of legal change within each legal tradition as well as of convergence in legal and regulatory standards among legal traditions.

##### **A. Has There Been Legal Change over the period 2006-2014?**

We begin with Figure 1 that depicts the evolution of the legal/regulatory rules considered over the period 2006-2014. The evolution of the average scores associated with each indicator is plotted for each of the four legal traditions: the British common law and the French, German and Scandinavian civil law. The first question we try to answer is whether there has been legal change within each legal tradition over the period under scrutiny. For that purpose, we conduct tests for mean differences between the 2006 and 2014 scores associated with each legal/regulatory indicator for each of the legal origins. The results of these tests appear in Table 1. As can be observed, the French civil law tradition is the one that presents more statistically significant differences in the means of the 2006 and 2014 scores. More specifically, there are statistically significant differences at the 1% level for the strength of creditor rights index, depth of credit information index, and the following regulatory indicators: time to start a business, time to register a property, time to obtain construction permits, time to export and time to import. In addition, statistically significant differences at the 5% level are apparent in the strength of investor protection index, and at the 10% level in the time required to pay taxes.

[Insert Figure 1 about here]

---

<sup>16</sup> This, along with other datasets such as the Global Financial Development Database, can be accessed via the World Bank Open Databases, through the Stata command `wbopendata`. More details are available at <http://data.worldbank.org/developers/apps/wbopendata>.

In the case of the indicators of creditor and investor rights and disclosure, there is a statistically significant rise in the degree of protection and information sharing. In a similar spirit, there has been a statistically significant fall in the value of the regulatory indicators, which indicates that in 2014 it takes less time to start a business, register a property, obtain construction permits, pay taxes or trade across borders than in 2006. The only two indicators for which there has not been a statistically significant change are those associated with the efficiency of contract enforcement by courts (time to enforce a contract) and the efficiency of debt enforcement (recovery rate).

In the case of the German civil law tradition, there has been statistically significant differences between the 2006 and 2014 scores for only three indicators: a rise in the depth of credit information index and a fall in the number of days required to start a business and register a property. It is also interesting the fact that the Scandinavian civil law group has not exhibited statistically significant differences in their legal/regulatory indicators scores between the initial and final years, probably due to the fact that their scores were already good in the initial year for most of the dimensions considered. In the case of the British common law tradition, there have been statistically significant improvements in four areas: the depth of credit information index, and the number of days required to start a business as well as to export and import.

[Insert Table 1 about here]

Overall, there is evidence to support the claim that legal change has been more prevalent in French civil law countries, relative to other legal traditions. One of the reasons for this is that their scores in the initial year were worse than those in the other legal traditions, and another may be related to the fact that policy makers in the lawmaking sphere tend to imitate the legal and regulatory tools of the winning origin according to the extant literature (i.e., the British common law). The latter has the shortcoming that if the common law does not always lead to more advanced legal systems than other legal traditions, then it is far from certain that adopting common-law tools will improve the efficiency of the legal system and in turn the level of economic and financial development.

B. Have Legal Reforms Reduced the Differences in Legal Rules/regulations across Legal Traditions?

To investigate whether French civil law countries had worse legal and regulatory rules and outcomes than the British common law both at the beginning and end of the period considered or whether the relative position changed after the reforms, Figure 2 plots the evolution of each legal and regulatory indicator distinguishing between British common law and civil law countries, and further differentiating on the basis of their level of development, i.e., less developed countries for those with GDP per capita below the median and developed countries for those with GDP per capita above the median.

As can be observed, law on the books as measured by the indices of strength of creditor rights and investor protection is higher in British common law vs. civil law countries over the whole period for both developing and developed countries. In the case of the depth of credit information index, civil law countries score higher than the British common law group in both developing and developed countries. Concerning the efficiency of debt enforcement, as measured by the recovery rate, the British common law group is more efficient, irrespective of the countries' level of development. In the case of the efficiency of contract enforcement, at the beginning of the period it was higher in the group of developed common law countries than in the group of developed civil law countries. However, there has been a clear process of convergence among the two, and by the end of the period the civil law group slightly surpasses the common law group. As regards less developed countries, the time to enforce a contract is substantially lower in civil law countries.

As far as the regulatory outcomes are concerned, the time required to start a business in 2006 is lower in British common law than in civil law countries, irrespective of the countries' level of development. However, in 2007 the civil law group overtook the British common law group in developing countries. In the case of the time required to register a property, initially the British common law was superior to the civil law in the developed group, but that trend reversed since 2009. For less developed countries, the civil law group exhibits superiority over the British common law group during the whole period. Concerning the indicators of dealing with construction permits and paying taxes, the British common law group is always superior to the civil law group, irrespective of the countries' level of income. Finally, in the case of trading across borders in terms of both exporting and importing goods, the British common law is

more efficient than the civil law in the developed group, whereas there is no difference between the two in the developing countries' group.

[Insert Figure 2 about here]

In order to deal more rigorously with this issue, panels A and B of Table 2 regress the respective values of the legal and regulatory indicators in 2006 and 2014 on the French, German and Scandinavian civil law dummies, taking the British common law as the omitted category. It is worth noting that the coefficients on the legal origin dummies represent mean differences with respect to the common law, which is the omitted legal family. Concerning the results for the initial year, the French civil law tradition has statistically significant negative differences at the 1% level in the strength of creditor rights and investor protection indices as well as in the recovery rate, relative to the British common law. As regards the regulatory indicators, the French civil law tradition is associated with a statistically significant higher time required to start a business, obtain construction permits and pay taxes (at the 1% level), and trade across borders both in terms of exporting and importing at the 5% level.

If we look at the coefficient on the French civil law dummy in 2014, there are still statistically significant differences with respect to the British common law in the indices of strength of creditor rights and investor protection, in the recovery rate and in the regulatory outcomes given by the time required to obtain construction permits, pay taxes and both export and import. It is worth highlighting the fact that the statistically significant differences have either diminished in these seven dimensions or vanished in the case of the time required to start a business between 2006 and 2014. The pattern observed in the evolution of the mean differences between the legal and regulatory scores of the French civil law versus the British common law is favorable to the existence of convergence trends conducive to the catching-up of the former to the latter.

In the case of the German civil law, in 2006 there are statistically significant differences in the strength of investor protection index, depth of credit information index, time required to enforce a contract, time required to obtain construction permits, pay taxes and import, relative to the British common law. It is interesting to point out that in the case of information sharing, contract enforcement and importing goods is the score of the German civil law superior to the British common law. When we look at the mean

differences in 2014 between the German civil law and the British common law, it is worth noting that there are statistically significant improvements in several dimensions. As a matter of fact, the relative lower level of investor protection and the higher time required to obtain construction permits in 2006 are no longer apparent at the end of the period. In addition, the positive difference in the index of depth of credit information has increased and the higher time required to pay taxes has fallen. Most importantly, by the end of the period considered, German civil law countries on average have improved in three dimensions (relative to the British common law) in which there were no statistically significant differences in 2006. These dimensions are the efficiency of debt enforcement as measured by the recovery rate, and the time required to register a property as well as to export. In the two dimensions of contract enforcement by courts and importing, the relative superiority of the German civil law has remained fairly unaltered. Therefore, as in the case of the French civil law group, German civil law countries have tended to converge to the legal and regulatory standards of the “winning origin”, and in the case of the recovery rate, registering property and exporting, they have overtaken them.<sup>17</sup>

[Insert Table 2 about here]

Taken as a whole, we find evidence of a legal origin effect on the legal and regulatory rules in 2006 which, despite the presence of some catching-up of civil law countries to the average standards of common law countries, still persists in 2014 for many of the indicators studied. The next section tries to shed more light on the extent of convergence observed among the legal traditions in each legal and regulatory indicator during the period 2006-2014.

---

<sup>17</sup> In the case of the Scandinavian civil law tradition, its relative superiority between 2006 and 2014 either remained fairly unchanged as in the case of efficiency of debt enforcement (recovery rate), contract enforcement by courts and time required to register a property, or slightly fell as in the case of information sharing, time required to start a business and trade across borders for both exporting and importing. In addition, in the two areas of obtaining construction permits and paying taxes for which there were not statistically significant initial differences, the Scandinavian civil law tradition exhibits superiority at the end of the period. Overall, there is not a consistent pattern of convergence (in this case from above) of the Scandinavian civil law group to the legal and regulatory standards of the British common law. This is because, even though there has been a slight reduction in the extent of relative superiority of the Scandinavian civil law tradition in some of the legal and regulatory dimensions, this legal tradition has become superior in two areas in which it was not at the beginning of the period.

### C. Has There Been Convergence in Legal and Regulatory Standards among Legal Traditions over the Period 2006-2014?

Having determined whether there are differences in legal and regulatory indicators among the legal origins in the initial and final years of the time span examined, we shift the focus to investigate how these differences have behaved over the 2006-2014 period. This allows us to establish whether there is evidence of convergence in legal and regulatory standards among legal traditions. For that purpose, Table 3 reports the mean value of both the ratio of 2014 to 2006 scores and the difference between the 2014 and 2006 scores for each of the eleven legal and regulatory indicators studied. Both the ratio and the difference is calculated for each civil law group and the British common law. The respective ratios and differences are used to test for mean differences between each civil law group and the common law group. Since the initial scores of the legal and regulatory indicators are usually worse for the French civil law group relative to those of the British common law, if the ratio is significantly higher in the former with respect to the latter for the first four indicators (or significantly lower in the rest), this would imply that civil law countries have improved more than the British common law countries, which is a sign of convergence.

[Insert Table 3 about here]

As regards the French civil law, with the exception of the contract enforcement indicator, the scores of the legal and regulatory indicators in 2014 have improved over those in 2006. This is reflected in the fact that the mean value of the ratio is well above one or the mean differences between 2014 and 2006 are positive for the indices of strength of creditor rights and investor protection, depth of information disclosure, and the recovery rate, whereas the ratio is below one and the differences are negative in the case of time to start a business, register a property, obtain construction permits, pay taxes and trade across borders. This confirms the fact that investor and creditor rights protection, information sharing and the efficiency of debt enforcement have increased, whereas the regulatory burden on starting a business, registering a property, obtaining construction permits, paying taxes and trading across borders has been lowered in French civil law countries.

In the case of the British common law, the ratio is also greater than one and the difference between the 2014 and 2006 scores is positive for creditor and investor protection, information disclosure, and the recovery rate, while the ratio is below one and the difference between the 2014 and 2006 scores is negative for contract enforcement and the regulatory outcomes related to starting a business, registering a property, obtaining construction permits, paying taxes and trading across borders. Hence, the scores of all the legal and regulatory indicators have improved in this legal tradition, though to a lower extent than the French civil law group. This is expected to be the case because the initial scores of the French civil law tradition were much worse than those of the British common law across most indicators.

In an attempt to establish whether, overall, French civil law countries have converged or diverged over the period 2006-2014, Table 3 reports the tests for mean differences in both the 2014/2006 ratios and the differences between the 2014 and 2006 scores of the average French civil law country relative to the average British common law country. When we look at the differences in the 2014/2006 ratio, there are statistically significant differences in three indicators: indices of strength of creditor rights and investor protection, and time to start a business. In the case of the differences between the two legal traditions in their respective 2014-2006 differences, they are statistically significant in the same three indicators as above and two additional ones: depth of credit information index and the recovery rate. From this analysis, we can confirm the existence of convergence between the French civil law and the British common law in these important dimensions of the legal system. In the other areas, with the exception of time to enforce contracts, there is also an indication of convergence since mean differences have the expected sign for convergence (i.e., improvement in French civil law countries is greater, on average, than in common law countries).

Concerning the results for the German civil law tradition, the scores associated with the legal and regulatory rules and outcomes between 2006 and 2014 have improved in all legal and regulatory indicators (to a lower extent than in French civil law countries), with the exception of contract enforcement. When we look at the differences in the 2014/2006 ratios between the German civil law and the British common law, they are statistically significant only in three regulatory outcomes: time required to register a property, obtain construction permits and pay taxes. As regards the differences in the

respective difference between the 2014 and 2006 scores of the German civil law and the British common law, they are statistically significant in the same three indicators as above and another two: recovery rate and starting a business.<sup>18</sup>

Taken as a whole, for those indicators that exhibit convergence between the civil law tradition and the British common law, the legacy of legal origins did not prevent cross-legal tradition differences from narrowing down over the past decade. This would contradict the legal origins theory that predicts the persistence over time of the differences in legal and regulatory standards across legal traditions.

#### D. More on Convergence: Robustness Checks

In this section we provide additional evidence on the extent of convergence in legal and regulatory standards across legal traditions. Firstly, Table 4 regresses the average annual rate of change in each of the legal and regulatory indicators over the period 2006-2014 on French, German and Scandinavian civil law dummies, taking the British common law as the omitted category. The results are presented in three panels: Panel A with no additional control, Panel B with the average growth rate of GDP as an additional control, and Panel C with the log of GDP per capita at the beginning of the period. If the coefficients on the civil law categories are statistically significant and positive for the indices of creditor rights, investor protection and information sharing, and the recovery rate, or significantly negative for the other legal and regulatory outcomes, it would be indicative that there is a higher number of legal and regulatory reforms in the good direction in civil law countries relative to the British common law. Such a result would be conducive to the convergence to the average legal and regulatory standards of the common law group. Since the results are fairly robust across specifications, in the exposition we focus on those in Panel C for the specification that controls for log initial GDP per capita.

---

<sup>18</sup> In the case of the Scandinavian civil law group, the ratio of the 2014 to 2006 scores is very close to one in most indicators, and the respective differences between the 2014 and 2006 scores are very small. This lower evidence of legal change for this legal tradition stems from the fact that it already scored very high at the beginning of the period, as argued above. When we look at the differences in the ratio of this legal tradition relative to the British common law, the evidence supports the existence of statistically significant differences in only one indicator: time to export. Likewise, there are statistically significant differences in the difference recorded over the period 2006-2014 between the Scandinavian civil law and the British common law in time to export and debt enforcement efficiency, as measured by the recovery rate.

Concerning the French civil law group, there is evidence of higher reforms conducive to the strengthening of creditor rights and investor protection, as well as to lowering the regulatory burden on starting a business, obtaining construction permits and paying taxes, relative to the British common law. Similar evidence of more reforms are found for the German civil law group in the strengthening of creditor rights and lowering the regulatory burden on registering a property, obtaining construction permits and paying taxes. As regards the Scandinavian civil law group, there is an improvement in the strength of creditor rights index, whereas the regulatory burden associated with starting a business and trading across borders have worsened relative to the British common law. The reason for this must be sought in the relatively high initial scores in the time to both export and import exhibited by Scandinavian civil law countries, which have converged from above to the standards of common law countries over the period 2006-2014.

[Insert Table 4 about here]

Secondly, Table 5 presents similar regressions to those presented in Table 4, but replacing the dependent variable with the ratio of the 2014 to 2006 scores of the respective legal and regulatory indicator. It is worth noting that evidence of higher reforms in civil law countries is apparent in fairly the same indicators as those pinpointed in Table 5.

[Insert Table 5 about here]

Finally, we also conduct analyses of absolute and relative  $\beta$ -convergence as well as  $\sigma$ -convergence. Table 6 presents the results of regressing the ratio of the 2014 to 2006 scores on the initial score for each of the eleven legal and regulatory indicators considered. Panel A corresponds to the absolute  $\beta$ -convergence specification that contains no additional control, whereas panels B and C represent the conditional  $\beta$ -convergence specification that introduces the average annual growth rate in GDP and the initial log-level of GDP per capita, respectively. The existence of a statistically significant negative coefficient on the initial score would support the hypothesis of  $\beta$ -convergence, which implies that those countries with a lower initial score would experience greater legal change, as given by a higher 2014/2006 ratio.

It is worth noting that in the case of absolute  $\beta$ -convergence, there is supportive evidence for this hypothesis for every single legal and regulatory indicator considered. The coefficient on the initial score is statistically significant at the 1% level for the indices of strength of creditor rights and investor protection, contract enforcement and the regulatory outcomes associated with registering a property, obtaining construction permits, paying taxes and trading across borders. In addition, the absolute  $\beta$ -convergence effect is statistically significant at the 5% level for the depth of credit information index, and at the 10% level for the efficiency of debt enforcement (as measured by the recovery rate) and time to start a business. The evidence shown in Panels B and C also broadly supports the hypothesis of conditional  $\beta$ -convergence. As a matter of fact, the coefficient on the initial score is statistically significant at conventional confidence levels for all the legal and regulatory indicators, but starting a business in Panel B and the recovery rate in Panel C.

[Insert Table 6 about here]

Concerning the extent of  $\sigma$ -convergence at the aggregate level, Figure 3 depicts the coefficient of variation of each legal and regulatory indicator over the period 2006-2014. The evidence clearly points to a reduction in the coefficient of variation in the case of the indices of strength of creditor rights, investor protection and depth of credit information, and the recovery rate over the whole period, whereas in the case of contract enforcement and time required to pay taxes the fall is observed since 2009 and 2008, respectively. For all these legal and regulatory indicators  $\sigma$ -convergence has taken place, which implies a fall in the disparities in legal and regulatory scores among all the legal traditions. In contrast, for the regulatory outcomes associated with starting a business, registering a property, obtaining construction permits and trading across borders, the coefficient of variation has increased, and as a result,  $\sigma$ -convergence has not occurred at the aggregate level.

[Insert Figure 3 about here]

Overall, there appears to be widespread evidence of global convergence across legal traditions, particularly when one looks at the definition of  $\beta$ -convergence. This indicates that the legal origins legacy has not prevented legal and regulatory standards from converging among legal traditions.

## **V. Legal Rules Variation and Countries' Economic and Financial Performance**

Nowadays it is widely assumed that legal reforms can make a difference in economic development by creating a friendly regulatory environment for investors and entrepreneurs. This view (i.e., “law matters”) is one of the legacies of the Legal Origins research agenda and is sponsored by the Doing Business Project (World Bank 2004). This proposition is having great impact in the policy arena, as witnessed by the fact that the Doing Business Project counted 2,500 legal reforms making it easier to do business since 2006 (World Bank 2015b). However, the supporting evidence for this proposition is largely based only on cross-section regressions. Some researchers are even challenging the view that legal reforms materialize into better economic performance (Armour *et al.*, 2009b; Deakin *et al.*, 2012). Therefore, it is crucial to systematically analyze the relationship between variation in legal rules and countries' economic and financial performance. Although it is hard to establish causal relationships using country-level data, a thorough panel analysis employing all the data at hand can shed light on this issue. For this exercise, we benefit from the data collection effort conducted by the Doing Business Project, which has already compiled a panel data of legal and regulatory indicators covering more than 180 countries over a period of more than 10 years. Using econometric techniques based on the fixed effects estimator we aim to clarify: a) whether improvements in legal indicators are associated with better economic and financial outcomes; b) which legal indicators are more strongly linked to variations in the economy; and c) in which contexts or circumstances the effect takes place (for instance, whether the effect occurs in common law countries or in civil law countries, in developed or developing countries, in countries with strong or weak rule of law, etc.). Consequently, we now proceed to analyze these important questions.

### **A. The Effect of Legal Rules and Regulations on Economic and Financial Performance**

We next report the results of estimations of the impact of legal rules and regulations over the period 2006-2014 on several proxies for financial and economic performance. Concerning the measurement of the evolution of legal rules and regulations, we employ the two law on the books measures given by the indices of strength of creditor rights and investor protection, the index of depth of credit information, two measures of law enforcement as given by the recovery rate and the time required to enforce a contract, as

well as regulatory outcomes associated with the time required to start a business, register a property, obtain construction permits, pay taxes and trade across borders.

Given that we have time series data spanning only nine years for the legal and regulatory indicators, we will make use of both annual and three-year averaged data. The specification to be estimated is as follows:

$$Y_{i,t} = \beta \cdot legal\_rule_{i,t} + \delta \cdot X_{i,t} + \alpha_i + \theta_t + \varepsilon_{i,t}$$

where  $Y_{i,t}$  denotes the respective financial or economic developmental outcome used,  $legal\_rule_{i,t}$  stands for the respective legal rule or regulatory indicator employed,  $\alpha_i$  and  $\theta_t$  are sets of country and time specific effects and  $X_{i,t}$  includes lagged GDP growth. Country fixed effects should control for countries' structural characteristics that do not vary over time, and time fixed effects account for common shocks that hit all countries in a specific period. The use of the within estimator (also called Least Squares Dummy Variables –LSDV– estimator) enables us to determine whether legal rules and regulatory indicators have affected financial and economic developmental outcomes within countries. Standard errors are clustered by country to allow for the possibility of serial correlation of error terms, as recommended by Bertrand, Duflo and Mullainathan (2004).

Since the existence of business cycle effects may bring higher pressure on countries so as to improve their legal and regulatory standards during a phase of economic upturn, our preferred specification will be the one that averages annual data over three-year periods. This is tantamount to having only three time series observations per country. Between the specification with no additional control beyond the legal and regulatory outcomes included and the specification that incorporates lagged GDP growth as an additional control, we prefer the latter. Nonetheless, even though we focus in the exposition on the results from the three-year averaged panel specification that incorporates lagged GDP growth, they are remarkably robust to using annual data and dropping lagged GDP growth. The panel data results using annual data as well as those for the specification with three-year averaged data and no additional control are presented in Supplementary Appendix Tables A1-A12.

Table 7 presents the results using the LSDV estimator with data averaged over three-year periods and lagged output growth as an additional control. It is worth noting that in very few cases are the coefficients statistically significant and with the right sign. Concerning the stock market development indicators, stronger creditor rights and investor protection, greater credit information disclosure and efficiency of debt enforcement as measured by the recovery rate are associated with a higher ratio of stocks value traded to GDP. In addition, greater time required to import goods also reduces the ratios of both listed and traded stocks to GDP. In the case of banking development, no single legal and regulatory indicator appears to explain the credit variables. Concerning the economic development outcomes, in very rare cases there is a statistically significant coefficient as well. Higher time to trade across borders appears to raise the unemployment rate, whereas a greater index of strength of creditor rights reduces income inequality, as measured by the Gini index. In the case of the law in action enforcement variables, there are no effects of any kind, except for the positive impact of the efficiency of debt enforcement on stocks value traded. Perhaps, the lack of an effect from the law enforcement variables is due to the fact that changes in these variables over time have been very small. The panel data analysis using annual data renders fairly similar results, though in this case we are also able to uncover a negative impact of time required to enforce contracts on private physical investment and a marginally significant positive effect of information disclosure on CREDIT2.<sup>19</sup>

Overall, the broad picture that emerges from this analysis is one of no consistent pattern of a statistically significant effect of changes in legal and regulatory indicators on financial and economic development outcomes. This result stands in contrast to the widespread belief that reforms aiming to strengthen investor and creditor rights (and other market-friendly policies) lead to better economic and financial outcomes. At the very least, it seems that improvements in these legal rules are not sufficient conditions for that.

[Insert Table 7 about here]

---

<sup>19</sup> The fact that results remain unchanged irrespective of the inclusion or not of lagged GDP growth indicates that endogeneity issues may not be important for this result. Likewise, the robustness of the baseline finding to use either annual or three-year averaged data further indicates that business-cycle effects inducing reverse causality may not be important either. Notwithstanding, below we explicitly deal with the issue of endogeneity by employing the difference and system GMM estimators, which render fairly similar results to those obtained from the application of the LSDV estimator.

## B. Distinguishing the Circumstances under Which the Effect Takes Place

Even though there is very limited evidence of an impact from legal and regulatory change on financial and economic developmental outcomes, we next try to determine in which contexts and circumstances the effect might take place. For that purpose, we distinguish in the specification between those countries with GDP per capita in 2004 below and above the median, and those with rule of law below and above the median,<sup>20</sup> and common versus civil law countries. That is, we estimate two coefficients for each legal rule/regulatory indicator to distinguish its effect by the level of income, rule of law, or legal tradition.

Table 8 reports the results for the specification that differentiates by level of development. Concerning the law on the books indicators, there is no effect for any income group, with the exception of stocks value traded in the case of the indices of strength of creditor rights and investor protection that carry a significantly positive coefficient for less developed countries, and for developed countries in the case of the strength of investor protection index. Stronger creditor rights also reduce income inequality in less developed countries. In addition, greater credit information disclosure appears to raise stocks value traded in both less developed and developed countries, as well as to reduce the unemployment rate in less developed countries. However, it does not raise access to credit, which is the outcome it primarily aims to affect. Concerning the law in action variables associated with the efficiency of debt and contract enforcement, there is evidence that a higher recovery rate is associated with more stocks value traded in developed countries, and that a more efficient contract enforcement by courts increases the access to credit as measured by our three proxies for bank development in developed countries as well. As far as regulatory outcomes are concerned, there is evidence that greater time required to start a business, obtain construction permits, pay taxes and trade across borders reduces stocks value traded only in less developed countries. In addition, labor market outcomes (as measured by the unemployment rate) appear to worsen when the time required to obtain construction permits and trade across borders increases in less developed countries. Finally, the

---

<sup>20</sup> The rule of law index measures confidence in and compliance with the rules of society in 2000. The scale ranges from -2.5 to 2.5, where a higher value indicates better institutions. It comes from the Worldwide Governance Indicators (WGI) project (see Kaufmann et al. (2009), from Teorell et al. (2011)).

greater the time required to obtain construction permits, the higher the income inequality in less developed countries.

[Insert Table 8 about here]

Tables 9 presents the estimates for the specification that differentiates according to the rule of law score. It is worth noting that greater strength of creditor rights and investor protection, credit information disclosure and efficiency of debt enforcement (as measured by the recovery rate) are associated with higher stocks value traded generally in countries with weak rule of law. This may stem from the fact that law on the books, information disclosure and debt enforcement efficiency levels are initially small in countries with weak rule of law and/or low government effectiveness. Hence, these legal rights had more room for improvement in weakly institutionalized countries, which may be the reason for their positive impact on stock market development.

In addition, there is evidence that a higher regulatory burden associated with starting a business, registering a property, obtaining construction permits, paying taxes and trading across borders leads to a lower stocks value traded also in countries with weak rule of law. This may imply that regulation is likely to be more associated with corruption in weakly institutionalized environments. In addition, the regulatory burden on starting a business, obtaining construction permits, paying taxes and trading across borders increases the unemployment rate in weakly institutionalized countries, whereas a higher time required to start a business, register a property and pay taxes reduces the unemployment rate in countries with rule of law above the median. So, this reflects a potentially different role of regulation depending on the institutional context. Finally, income inequality appears to be reduced when creditor rights are strong in weakly institutionalized countries, and when the regulatory burden associated with obtaining construction permits and importing goods is lowered in countries with weak rule of law.

Overall, there is not a clear-cut pattern of results concerning the effect of legal rules and regulatory indicators on economic and financial development depending on the countries' level of rule of law.

[Insert Tables 9 about here]

Table 10 presents the results for the specification that distinguishes between common and civil law countries regarding the possible impact of legal rules and regulations on financial and economic development. The first noticeable difference between legal traditions is the strength of creditor rights, which both raises stocks value traded and reduces income inequality only in civil law countries. In this group, a higher recovery rate and a lower regulatory burden on importing goods raises stocks value traded. Concerning the differential effect in common law countries, greater credit information disclosure reduces the unemployment rate. Concerning the regulatory indicators, a higher regulatory burden in terms of time required to obtain construction permits reduces CREDIT1 and new business registration, as well as increases the unemployment rate. Likewise, greater time required to pay taxes reduces FDI, and greater time required to import goods lowers new business registrations as well as raises the unemployment rate and economic inequality.

[Insert Table 10 about here]

Finally, Table 11 presents the results from a specification that interacts each legal and regulatory indicator with log GDP per capita in 2004. As in the baseline specification, most of the coefficients on both the legal indicator and interacted term are insignificant. The exceptions are associated with the positive impact of the strength of creditor rights on stock market capitalization, which appears to decrease as the income level rises. Something similar occurs with some regulatory indicators. As a matter of fact, the negative impact of a higher time required to start a business, register a property and obtain construction permits on stocks value traded diminishes as the income level rises. The same occurs with the negative effect of the regulatory burden associated with trading across borders on FDI, and with paying taxes on new business registration. Likewise, the positive effect of higher time required to start a business, register a property and pay taxes on the unemployment rate appears to decrease as the income level rises. The same happens to the positive impact of a greater regulatory burden associated with starting a business, registering a property and obtaining construction permits on income inequality. Hence, this indicates that in the few instances in which we find evidence of a statistically significant impact of laws and regulations on development outcomes, the effect appears to be stronger the lower the level of income.

[Insert Table 11 about here]

### C. Graphical Analysis of the Relationship between Legal Change and Financial and Economic Development

In this section we try to show intuitively the lack of relationship between the variation in legal rules and regulatory indicators between 2006 and 2014 and the variation that has taken place during that period in financial and economic development outcomes. For that purpose, we present Figure 4 and 5 that plot the average annual variation in each of the development outcomes over the period 2006-2014 against the average annual variation in the indicators of law on the books, i.e., strength of creditor rights and investor protection indices, respectively.<sup>21</sup> The vertical and horizontal lines serve to see whether the change in the respective variable for each country in the sample is above, below or equal to zero. These plots enable us to identify the specific countries in which an improvement in legal rules is associated with an improvement in developmental outcomes.

[Insert Figures 4 and 5 about here]

As can be observed in most cases, there is generally a lack of clear relationship between changes in legal rules and regulations and changes in developmental outcomes. This is reflected in the fact that the wide variation in the extent of legal change across countries is not accompanied with such a high degree of variation in development outcomes. In the case of the investor protection index, this observation is more apparent than for the creditor rights index.

In order to have a clear idea of the statistical significance of the relationship between changes in law on the books and variations in financial and economic development outcomes, Table 12 presents the coefficient estimates that back up the lack of a statistically significant relationship between both sets of variables found in most cases. Only in the cases of economic inequality at the 1% level and FDI and stocks value traded and CREDIT3 at the 10% level do a rise in creditor rights strength bring a statistically significant improvement in development outcomes. It is also worth noting that average variations in investor rights protection are not associated with average

---

<sup>21</sup> For the sake of space, we omit the figures for the other legal and regulatory indicators, whose results appear in line with those for the law on the books indicators.

changes in most of the economic and financial development outcomes considered, being new business density the exception.

Taken as a whole, these results broadly confirm the panel data evidence provided above, which failed to render clear-cut support for a statistically significant impact of legal and regulatory changes on financial and economic development. As mentioned above, this lack of a consistent pattern of effects casts doubts on the intended positive impacts of reforms on creating market-friendly investor environments. Although such reforms may be desirable, our results suggest that, at the very least, are not sufficient to achieve their goals.

[Insert Table 12 about here]

#### D. Sensitivity Analyses

We next present several robustness checks so as to determine whether the lack of a clear-cut impact of legal rules and regulatory indicators on economic and financial performance holds for alternative legal indicators, some of which extend over lengthier periods than the Doing Business indicators. Other sensitivity analyses entail the use of alternative estimators such as the difference GMM estimator of Arellano and Bond (1991) and the system GMM estimator of Arellano and Bover (1995).

##### *D.1. Alternative Legal Indicators*

In this subsection we use the Global Financial Development Database of the World Bank as an alternative to the World Development Indicators as far as the measures of financial development are concerned. The reason for this is that the former source has lengthier series than the latter, which is a requirement for the specifications estimated with alternative legal indicators. More specifically, the financial development outcomes used are the ratio of private credit by deposit money banks and other financial institutions to GDP, stock market capitalization to GDP, stock market total value traded to GDP, and number of listed companies per million people.<sup>22</sup>

---

<sup>22</sup> We have checked that our baseline results obtained for the specifications using the Doing Business indicators generally hold when the World Development Indicators measures of financial development are replaced by those of the Global Financial Development Database. As with the former source, there is no statistically significant effect of law on the books on any of the financial development measure.

We first employ the updated shareholder protection index developed by Siems (2008) and further used by Armour et al. (2009b), which covers 25 countries over the period 1995-2005. This index covers a much wider range of types of legal rules of company law and securities law than La Porta et al. (1997).<sup>23</sup> It is based on ten variables that include the following dimensions: powers of the general meeting for *de facto* changes, agenda setting power, anticipation of shareholder decision facilitated, prohibition of multiple voting rights, independent board members, feasibility of director's dismissal, private enforcement of director duties, shareholder action against resolutions of the general meeting, mandatory bid, and disclosure of major share ownership.

Table A13 in the Supplementary Appendix presents the results of the LSDV specification using annual data and averaging the annual data over three-year periods. Neither the specification with no additional control nor the one including lagged GDP growth renders any statistically significant impact of the shareholder protection index on economic and financial performance. The estimates of the respective panel specification with annual data support the existence of a statistically significant negative effect on stocks value traded over GDP.<sup>24</sup>

Table A13 also presents the results of the LSDV specification using annual and three-year averaged data for an alternative creditor rights index provided by CBR at Cambridge University. This index covers 25 countries over the period 1995-2005. Unlike the La Porta et al. (1997)'s creditor rights index that only focused on bankruptcy law, this creditor index considers other dimensions such as legal protection made available to creditors through secured credit and other contract-based mechanisms, and through company laws (Armour et al., 2009a). More specifically, this creditor index is based on the following ten dimensions: minimum share capital, dividend restriction, directors' duties towards creditors, non-possessory security interests and its registration, out-of-court enforcement of security interests, power to commence bankruptcy proceedings, stay of secured creditors in insolvency proceedings, outcome of bankruptcy proceedings, and rank order of secured creditors (Armour et al., 2009c).

---

<sup>23</sup> This dataset is available online on the website of the Center for Business Research (CBR) at the University of Cambridge: <http://www.cbr.cam.ac.uk/research/research-projects/completed-projects/law-finance-development/>.

<sup>24</sup> In this case we did not use the Gini index due to the low number of observations.

It is worth noting that there is no statistically significant effect of this creditor rights index on economic development outcomes. In the case of the financial development outcomes, the evidence is highly disappointing since it indicates that greater creditor rights are associated with both lower private credit by deposit money banks and other financial institutions as well as with lower stock market total value traded to GDP.

Table A14 presents the results using the creditor rights index proposed by Djankov et al. (2007). This creditor rights index follows very closely the one constructed by La Porta et al. (1997). It expands the sample from 49 to 133 countries and covers every year between 1978 and 2003. This index measures four powers of secured lenders in bankruptcy proceedings: (1) whether there are restrictions in the event of a debtor's filing for reorganization, (2) whether there is no automatic stay or asset freeze imposed by the court once the petition for reorganization is approved, (3) whether secured creditors are paid first in the liquidation proceedings, and (4) whether an administrator, instead of management, is in charge of running the business during reorganization (Djankov et al., 2007).

The LSDV specification using three-year averages do not provide clear evidence of a statistically significant impact of creditor rights on economic or financial development outcomes. The LSDV specification with annual data and lagged GDP growth as a control only renders a statistically significant effect of creditor rights on economic inequality, which carries a wrong sign. The specification with three-year averaged data renders a marginally significant negative effect on number of listed companies. Overall, this again supports the lack of a relationship between law on the books and finance, as held by the law and finance view.

Table A15 reports the estimates obtained using a measure of the quality of contract enforcement given by the formalism of civil procedure for the case of eviction of a tenant and collection of a check. These measures are developed by Balas et al. (2009) for 40 countries over the period 1950-2000. The LSDV specification with three-year averaged data only renders evidence that higher formalism for the case of eviction is associated with higher unemployment. In the specification that includes lagged GDP growth as additional control, higher formalism both in eviction and collecting a check appears to have a statistically significant impact (though with the wrong sign) on FDI.

Taken as a whole, this sensitivity analysis appears to show that the lack of a consistent effect of legal rules and regulatory indicators on economic and financial development outcomes are not only a feature found for the Doing Business database, but it is also obtained for alternative law on the books indicators regarding the protection of shareholders and creditor rights as well as other indicators concerning legal formalism of civil procedure.

#### D.2. *Alternative Panel Estimation: Difference and System GMM Estimators*

The results from the application of the difference GMM estimator proposed by Arellano and Bond (1991) and the system GMM estimator by Arellano and Bover (1995) are presented in Tables A16 and A17, respectively. The *difference GMM estimator* addresses endogeneity problems by using previous realizations of the regressors to instrument for their current values in the first-differenced specification. However, Arellano and Bover (1995) and Blundell and Bond (1998) show that in the case of highly persistent regressors, lagged levels of the variables are weak instruments for the first-differenced regressors. This leads to a fall in precision as well as to biased coefficients. In order to overcome these shortcomings, they recommend the use of the *system GMM estimator* that utilizes instruments in levels and first-differences to improve efficiency. The system GMM estimator thus employs previous realizations of the regressors to instrument for their current values in the first-differenced specification and the lagged differences for the regression in levels. In order to avoid using an excessive number of instruments in a context with a relatively short cross-country dimension, we follow the suggestion of Roodman (2009) and limit the set of instruments to the minimum, i.e. to the first available:  $x_{it-2}$  for the specification in first-differences and  $\Delta x_{it-1}$  for the specification in levels. We use the one-step estimator since standard errors for the two-step estimator are biased downwards. All our regressors are treated as endogenous variables (except for the time-period dummies). The consistency of the *difference* and *system estimator* depends on the validity of the instruments and the absence of serial correlation of second-order in the first-differenced error term. Therefore, we test these assumptions using the Hansen test for over-identifying restrictions and the test for second-order autocorrelation proposed by Arellano and Bond (1991). Failure to reject the null hypotheses of overall validity of the

instruments and absence of second-order serial correlation in the first-differenced error for the respective tests would give support to the model.

Since the use of three-year averaged data would make infeasible the use of this estimator, we have no choice but to use annual data over the period 2006-2014. In addition, in this robustness check the focus is on the impact of law on the books variables (i.e., creditor rights and investor protection) on economic and financial developmental outcomes.

It is worth noting that endogeneity concerns do not appear to have driven the lack of an effect of legal rules on outcomes found when we applied the LSDV estimator. Again, there is consistent evidence of the absence of a statistically significant impact of law on the books on economic and financial performance, irrespective of the inclusion of lagged GDP growth as a control variable. We should be confident with these results since the Hansen test for overidentifying restrictions indicate that the instruments are valid and the Arellano and Bond (1991) test for AR(2) autocorrelation rules out the existence of second-order autocorrelation in most of the cases.

In all the evidence gathered in these extensive sensitivity analyses appears to back the baseline finding of lack of an effect of legal rules and regulatory indicators on economic and financial performance obtained with the application of the LSDV estimator.

#### E. General Discussion

The lack of a statistically significant impact of legal rules and regulatory indicators on economic and financial performance may indicate the existence of a gap between intended legal and regulatory reforms and the reality on the ground. This is consistent with the evidence provided by Hallward-Driemeier and Prichett (2010), who found only weak correlations between changes over time in Doing Business indicators and firm-level Enterprise Surveys.<sup>25</sup> This indicates that outcome-based legal indicators derived from the direct experience of firms, which can better measure the consequences arising

---

<sup>25</sup> Whereas the former (obtained from local experts on a specific legal/regulation area) measures what a standardized firm should expect if it complies with all official regulations and legal requirements in place, the latter (obtained from face-to-face interviews with managers) measures the actual experiences of a firm regarding a particular legal or regulatory aspect in the normal course of business, which does not necessarily entail the full compliance or enforcement of the laws and regulations in place.

from the actual implementation and enforcement of laws in practice, are far from the intended legal and regulatory changes measured in the Doing Business reports.

As pointed out by Belsley (2015), the fact that Doing Business indicators are used in policy dialogue or as a form of conditionality at the time of qualifying for aid grants may lead many developing nations to try to improve their Doing Business ranking by making pro forma changes in laws without much substantive value or visible improvements in results or behavior. Rwanda is a case in point. This nation ranked 47 in the 2015 Doing Business report, despite having a level of GDP per capita below \$1,000 and almost half of its population in poverty (Belsley, 2015).

In addition, legal and regulatory reforms in developing nations that mechanically adopt organizational forms from prosperous nations, without a thorough analysis of their specific policy priorities to improve their framework for governance and institutional reform as a way to foster their state capacity to deliver growth and social advancement, are likely to render governance reforms mostly ineffective. According to Belsley (2015, p.112), “certain policy reforms are likely to have complementarities across several policy dimensions –economic and noneconomic– like steps to speed up court decisions and to train more competent lawyers”. Hence, the reduction of legal formalism may not yield the intended positive fruits, if the country lacks the judicial human capital and infrastructure required for effectively implementing that reform and benefiting from it. In a similar spirit, Dixit (2009, p. 21) recommends that, before replacing existing institutions for new ones, countries’ policy makers “should determine whether existing institutions and organizations are there for a good reason, and how [their] reforms would interact with them in the short and the long run. ... [I]t is better to start with a presumption in favor of what has existed for a while than the presumption that everything should be changed to match the successful formal institutions in advanced countries”. He further argues that countries’ decision makers should listen to all sectors (including supranational agencies, academic experts, journalists and practitioners), “but should not slavishly follow any one, not even their own prior dogmatic belief. Instead, they should study their situation in light of theories and other cases, and then make their own choice”. With all these caveats in mind, “the Doing Business report is destined to be most effective as a tool for inspiring debate over policy change in countries that already have an interest in making policy reforms” (Belsley, 2015, p. 118).

## **VI. The effectiveness of legal reforms and the gap between law on the books and the reality on the ground.**

The previous section shows that legal reforms are not systematically related to better economic and financial outcomes. This finding means that, on average, there is not a common trend, but it is possible to identify countries in which legal reforms have been overall successful. Therefore, the comparison between successful and unsuccessful countries that have implemented legal reforms can provide clues about what makes legal reforms work well. The first part of this section aims to conduct a preliminary analysis to investigate the factors that contribute to the effectiveness of legal reforms, that is, whether changes in legal rules materialize into improvements in economic and financial outcomes. Later, we study a related phenomenon, i.e., the gap between law on the books and the reality on the ground.

### **A. Explanatory Factors for the Effectiveness of Legal Reforms: A Preliminary Analysis**

Overall, there are 59 and 57 economies that have improved their creditor rights and investor rights over the period 2006-2014, respectively. The rationale behind these legal reforms is that by strengthening the protection of creditor and investor rights, financial markets will prosper, promoting in turn economic activity. Maps 1 and 2 show those countries that have improved the score in the creditor right index and the investor protection index between 2006 and 2014.

*[Insert Map 1 and Map 2 about here]*

The empirical approach employed to measure whether legal reforms have been effective or not is by comparing the magnitude of the change in legal reforms vs. the change in financial and economic outcomes. Figure 6 shows the relationship of average annual change in financial depth and new business density with either average annual change in the creditor rights index (Panel A) or average annual change in the investor protection index (Panel B). We can observe that, although on average there is no relationship between legal changes and economic changes, there are countries that have been more successful than others. Countries in the first quadrant (+,+) have experienced an increase in both dimensions, while economies in the fourth quadrant (+,-) have experienced an improvement in legal rules but a decline in economic/financial outcomes. Countries close to the horizontal line (value 0 on the y-axis) have conducted

legal reforms, but without any impact on economic/financial outcomes. Finally, economies depicted in gray have not carried out legal reforms conducive to improving the protection of creditor and investor rights.

[Insert Figure 6 about here]

Given this cross-country heterogeneity in terms of relative changes in legal rules and economic/financial indicators, it is possible to analyze what factors are correlated with the effectiveness of legal reforms. This is an important question because it could give clues about the specific contexts in which a legal reform is likely to be effective. To conduct such an analysis it is necessary to create an indicator of legal reforms effectiveness. We measure the effectiveness of legal reforms as follows:

$$\text{Effectiveness} = \frac{\text{Average annual change in economic or financial outcomes (2006 – 2014)}}{\text{Average annual change in legal rules (2006 – 2014)}}$$

In this section we focus on two outcome variables to measure the effectiveness of legal reforms: i) financial depth (i.e., private credit over GDP (%)) as a proxy for financial development, and ii) new business density as a proxy for economic dynamism and entrepreneurship.<sup>26</sup> For illustrative purposes, Figure 7 shows the values for the indicators of legal reform effectiveness in creditor rights. It is worth noting that the effectiveness of legal reforms –according to our definition– has been much higher in some countries than in others. For example, according to Panel A, a one point increase in creditor rights is associated with more than a 30 percentage points increase in private credit to GDP in Denmark and Armenia, whereas with only a 10 percentage points increase in France and with very small increases or even negative changes in Chad and Sri Lanka. Panel B also shows substantial heterogeneity in the effectiveness of creditor rights reforms in promoting entrepreneurship.<sup>27</sup>

[Insert Figure 7 about here]

---

<sup>26</sup> Financial depth comes from the Global Financial Development Database and covers the period 2006-2013. We prefer to use this source rather than the World Development Indicators due to its higher geographic coverage. New business density comes from the World Development Indicators and is available for the period 2006-2014, although for many countries there are some years with missing data. We use all available data.

<sup>27</sup> The number of observations in Panel B is lower due to the fact that data on new business density are missing in some years for many countries.

Table 13 analyzes the determinants of the effectiveness of creditor rights reforms in financial depth and entrepreneurship. The sample of countries is restricted to those that have improved their creditor rights over the period of study. As possible determinants of legal reform effectiveness, we employ several institutional, historical and geographic factors, conditional on the fact that the country has implemented a legal reform. We always control for log GDP per capita in 2006 to take into account that the level of economic development may affect the effectiveness of legal reforms in a number of ways. For example, more developed countries are closer to the frontier in economic performance and perhaps it is more difficult to further improve their economic and financial performance. On the contrary, developed countries may have a particular general business environment that makes legal reform more successful.

Column 1 of Table 13 indicates that the effectiveness of legal reforms is positively associated with economic development. The coefficient on log GDP per capita is highly statistically significant and only this variable explains 20% of the variability in legal reform effectiveness. Institutional factors such as rule of law and control of corruption are positively related to legal reform effectiveness as well (note that this is conditional on controlling for income). The explanatory power of control of corruption is particularly high. This variable along with log GDP per capita explains a third of the variability in our indicator of reform effectiveness.<sup>28</sup>

Religious affiliation is also a relevant factor. The percentage of Muslims and Catholics appears to be negatively related to the effectiveness of reforms in creditor rights. In the case of the percentage of Muslims, this result is probably driven by the particularities of Islamic finance. Religious affiliations other than Catholicism, Islam and Protestantism, which are captured by the constant term, are positively related to reform effectiveness, reflecting –perhaps– successful experiences in some Asian countries. Ethnolinguistic fractionalization appears to reduce the effectiveness of legal reforms. Interestingly, common law countries have been less successful with legal reforms, particularly if we look at column 7. In addition, geography matters: countries rich in mineral resources have been more successful than countries lacking these resources. Columns 8 to 14 of Table 13 show the results of the effectiveness of creditor rights reforms in new business

---

<sup>28</sup> Rule of law, control of corruption and political stability correspond to the year 2006.

density. The picture is much less clear since all coefficients are statistically insignificant, which is probably due to the low number of observations.<sup>29</sup>

*[Insert Table 13 about here]*

In non-reported robustness checks, we replicate Table 13 adding average GDP growth as an additional control, and the results are qualitatively the same. Therefore, we can be confident that our results are not driven by other variables affecting the overall performance of the economy or by the fact that some countries suffered the 2007-2008 financial crisis more severely than others.

Now we turn to the effectiveness of legal reforms in investor rights. Figure 8 shows the values of the indicators of legal reform effectiveness for financial depth and new business density. There is also significant heterogeneity in the effectiveness of legal reforms, which calls for an analysis of its determinants. According to the figures, it is apparent that Iceland is an outlier since it was one of the countries most hit by the crisis. Consequently, when analyzing the determinants of legal reform effectiveness for investor protection, we remove Iceland from the sample. Table 14 reports the results. Broadly speaking, the results are similar to those obtained for creditor rights reforms. The findings suggest that institutions matter for the effectiveness of investor protection reforms in increasing financial depth and new business density. Moreover, it seems that countries rich in natural resources have done better concerning the effectiveness of reforms in investor protection, since the coefficient is always positive and statistically significant.

*[Insert Figure 8 about here]*

*[Insert Table 14 about here]*

To sum up, this exploratory analysis about the determinants of the effectiveness of legal reforms suggests that: i) there is heterogeneity in the impact of legal reforms on economic and financial outcomes, and ii) there are factors correlated with the effectiveness of legal reforms. Although the importance of each factor depends on the specific legal rule and the outcome variable, it seems that institutional quality and

---

<sup>29</sup> In columns 7 and 14 we do not include “control of corruption” because it is highly correlated with “rule of law” ( $\rho = 94\%$ ).

mineral resource abundance have a positive impact on legal reform effectiveness. However, one needs to be cautious when interpreting these results due to the low number of observations and the potential bias from omitted variables.

## B. Gap between Law on the Books and Reality on the Ground

A related issue to the (in)effectiveness of legal reforms is the existence of a gap between legal rules and the reality on the ground. Governments may officially pursue certain policies, but if they lack the capacity to deliver public goods, then these intended policies do not materialize into real economic and social changes. Consequently, if legal reforms do not translate into better economic performance, a gap between what is written on the book of law and economic reality will arise. The existence of a gap would suggest that there are factors interfering in the link between legal rules and economic incentives; that is, something prevents legal changes from creating incentives in economic agents. This section constitutes a first attempt to the study of this issue.

Firstly, it is necessary to create a measure of the gap between legal rules and economic performance. We construct an indicator of the gap as follows:

$$Gap = DTF \text{ in legal rules} - DTF \text{ in economic outcomes}$$

where DTF means *distance to the frontier* and measures the distance of each economy to the best performance observed for each indicator. A value of 100 in DTF reflects that the country is on the “frontier”, that is, has the best performance, while a value of 0 means that it has the worst performance. The indicators of DTF in creditor rights and investor protection are taken from the Doing Business Project (World Bank, 2015). DTF in economic and financial outcomes are calculated following the Doing Business’ methodology. Thus, DTF is computed as:

$$DTF = \frac{\text{Country's score for the indicator} - \text{Score of the lowest performance country}}{\text{Score of the highest performance country} - \text{Score of the lowest performance country}} \times 100$$

More synthetically:

$$DTF = \frac{\text{Country's score} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \times 100$$

Given the fact that there are countries with very high values in some indicators (for example Iceland in 2006 had 269.5% of private credit over GDP), it is recommended to

use the 90<sup>th</sup> percentile as the value corresponding to the “frontier”. Then, the previous formula can be written as:

$$DFT = \min\left(100, \frac{\text{Country's score} - \text{Minimum value}}{\text{90th percentile} - \text{Minimum value}} \times 100\right)$$

For illustrative purposes, Figure 9 shows the values of the gap between creditor rights and financial depth (year 2006). A positive value of the gap indicates that a country is closer to the frontier in legal rules (i.e., creditor rights) than in financial performance (i.e., private credit over GDP). A negative value means the opposite, that is, a better relative performance in financial outcomes. Map 3 depicts the geographic distribution of values for this indicator. It is interesting to observe that industrialized countries along with others like China have negative and low gaps, whereas countries in Latin America, Africa, Eastern Europe and Middle East have positive gaps. This is a confirmation of the well-known fact that for many countries legal rules do not go hand in hand with economic performance.

*[Insert Figure 9 about here]*

*[Insert Map 3 about here]*

The aforementioned regional pattern in the gap between legal rules and financial performance suggests that there are factors that systematically affect the capacity of legal rules to generate incentives in economic agents. Columns 1 to 7 of Table 15 analyze the determinants of the gap between creditor rights and financial depth. Column 1 shows that the gap is lower in richer countries, which was already noticed when describing Map 3. Columns 2 to 4 suggest that institutional quality also reduces the gap. This may indicate that for creditor rights to have an effective influence on the financial system, the institutional environment must create certain conditions such as a transparent public administration, certain legal infrastructure, judicial independence, etc.

Regarding religious affiliation, the coefficients are not significantly different from the group that remains in the constant (i.e., “other religious affiliations”), but there are still differences across religious affiliations. For instance, the coefficient on Muslims is statistically and significantly lower than the coefficient on Catholics. Therefore, when compared to Catholics, the percentage of Muslim population in a country reduces the gap between legal rules and financial depth. This may be due to the fact that the

protection of creditor rights is low in Muslim countries since according to the Islamic law lending at interest is forbidden, but there is still a significant level of financial depth. As regards the rest of explanatory variables, ethnolinguistic fractionalization appears to increase the gap, although the coefficient is no longer significant when including all the controls in the same specification. Finally, common law countries have a larger gap than civil law countries, reflecting that the higher level of creditor rights in those countries are not systematically accompanied by better performance.

Columns 8 to 14 analyze the determinants of the gap between creditor rights and entrepreneurship. Fairly similar conclusions can be drawn. Institutional quality matters, although the relevant institutional dimension is in this case political stability. Common law countries and economies rich in mineral resources have a larger gap.

*[Insert Table 15 about here]*

Table 16 analyzes the determinants of the gap between investor protection and financial depth and entrepreneurship. The findings are also similar. The gap is generally lower for richer countries. Institutional quality also matters. In the case of financial depth, rule of law and control of corruption are the relevant dimensions, while for entrepreneurship political stability appears to be the most relevant institutional factor.<sup>30</sup> Common law countries are systematically associated with a larger gap, both with respect to financial depth and entrepreneurship. Therefore, the gap between legal rules and economic-financial performance is consistently higher in common law than in civil law countries. This reflects that protection to creditors and investors is stronger in the book of law than on the ground, thus suggesting that there are factors that interfere in the creation of incentives from legal rules. This result is consistent with one of the criticism to the common law presented in Section II, that is, that the common law was superficially implanted in many former colonies, which led to ineffective legal systems.

*[Insert Table 16 about here]*

These results reported about the gap between legal rules and the reality on the ground are referred to the year 2006, the first year for which data are available for the legal

---

<sup>30</sup> In column 7 of Table 16 political stability carries a positive and significant coefficient. This is probably due to collinearity between institutional indicators (the correlation between rule of law and political stability is 78.3%).

rules indicators used. Given the evidence provided in Section IV on the intensity of legal reforms conducted during the last decade, particularly in civil law countries, it is interesting to analyze using more recent data whether these results have changed over time. Tables A18 and A19 in the Supplementary Appendix conduct the analysis for the year 2012. The most noticeable difference is that now the common law is not associated with a larger gap, except in one case. This result may reflect that civil law countries implementing legal reforms have managed to increase their protection to creditors and investors but, however, this legal change is not conducive to substantive changes which translate into actual improvements on the ground. This interpretation is consistent with the evidence shown in Section V on the lack of a consistent effect of legal reforms on economic and financial outcomes.

### C. Gap between Law on the Books and Law in Action

The potential disparity between legal rules and the reality on the ground can also be analyzed within the realm of the legal system. Thus, even within the legal system, it is possible that *law on the books* is not reflected in *law in action*. This gap within the legal system can in turn be responsible for the previously analyzed gap between legal rules and economic performance. Arguably, changes in *law on the books* do not lead to real economic improvements if *law in action* remains unchanged and with a poor performance. For example, if a country increases its level of investor protection but, judicial procedures and contract enforcement remain very slow, then that reform is not likely to foster investment in the economy. This problem has become recurrent over the past decade. According to the Doing Business dataset, from 2006 to 2014 the strength of investor protection index improved 8% on average around the world. However, in 2014 the time required to enforce contracts (a clear indicator of *law in action*) is on average 7 days *more* than in 2006. Therefore, the existence of a gap between law on the books and law in action can have important implications, and, for this reason, it is relevant to analyze its determinants.

As a first step, it is necessary to create a measure of the gap between law on the books and law in action. Similarly to the previous section, we construct an indicator of the gap as follows:<sup>31</sup>

$$\text{Gap} = \text{DTF in legal rules} - \text{DTF in law in action}$$

We employ the same measures of legal rules previously used in this section, that is, creditor rights and investor protection, and regarding law in action, we employ contract enforcement and debt recovery efficiency (i.e., resolving insolvency). Figure 10 shows the values of the gap between creditor rights and contract enforcement. The economy with the highest gap is Trinidad and Tobago (42.73) and the one with the lowest is Belarus (-68.6). Map 4 shows the geographic distribution of values for this indicator. Interestingly, the gap is higher for common law countries (the British islands, North America, etc.) and Central Europe, and lower (and even negative) in many countries of Asia.

*[Insert Figure 10 about here]*

*[Insert Map 4 about here]*

Tables 17 and 18 report the results from the analysis of the determinants of the gap between law on the books and law in action. We use as dependent variables four gaps: i) gap between creditor rights and contract enforcement, ii) gap between creditor rights and recovery rate, iii) gap between investor protection and contract enforcement, and iv) gap between investor protection and recovery rate.

Regarding the determinants of the gap between creditor rights and contract enforcement (columns 1 to 7 of Table 17), income appears positively correlated with it. This reflects the fact that rich countries provide good protection to creditors in the book of law but, however, they are not so diligent in the efficient application of legal rules. Institutional quality does not play a very clear-cut role since the coefficients are sometimes positive and others negative. However, if we look at the most complete specification, political stability reduces the gap in a significant way. Religion also matters. The joint significance test of the three religious affiliation variables is highly statistically

---

<sup>31</sup> Data for DTF in legal rules and law in action come from the Doing Business Project (World Bank, 2015).

significant, with Catholicism increasing the gap and Islam decreasing it. Ethnic fractionalization also appears to increase the gap, which is consistent with the prediction that it may reduce the efficacy of the government in providing public goods. Moreover, it is clear again that common law countries have a much larger gap than civil law countries (19 points higher, after controlling for a wide array of variables).

Columns 8 to 14 report the results from the analysis of the determinants of the gap between creditor rights and debt recovery efficiency. Income does not play a clear role now. With respect to institutional quality, column 14 shows that rule of law is important in reducing the gap. Religious affiliation also matters (the coefficient on Catholics is significantly different from the coefficient on Muslims). Again, common law countries have a larger gap than civil law countries. Finally, Table 18 analyzes the gap between protection to investors and financial depth and entrepreneurship. The results are similar although a number of comments have to be made. The role played by institutions and religion is more limited, since there is less clear evidence about it. Common law countries again have a larger gap, which is a very consistent result. Finally, the gap is larger in the tropics than in cold latitudes.

*[Insert Table 17 about here]*

*[Insert Table 18 about here]*

At this point it is important to note that a large positive gap is something negative, but similarly, a large negative gap is not necessarily desirable, since it may reflect bad performance in law in action and an even worse score in law on the books. To investigate this issue, we replace negative values with zeros in the indicators of the gap between law on the book and law in action. In this way, the gap can be either positive or zero, but not negative. Non-reported regressions show that the results are qualitatively similar when we focus on non-negative gaps.

Finally, Tables A20 and A21 of the Supplementary Appendix analyze the gap for the year 2012. Results are fairly consistent. Remarkably, the gap for common law countries is still larger than for civil law countries, with the difference being usually statistically significant, although its magnitude is somewhat smaller than in 2006.

#### *D) Recapitulation*

To sum up, in this section we have conducted a preliminary exploratory analysis of the determinants of the effectiveness of legal reforms and of the gap between legal rules and the reality on the ground. Concerning legal reform effectiveness, there are differences among countries in the extent to which changes in creditor and investor rights are associated with changes in financial and economic outcomes. These differences allow us to analyze the potential determinants of legal reform effectiveness. When focusing on the effectiveness of creditor rights reforms in promoting financial development (measured by private credit over GDP), results are very intuitive. The income level, rule of law, and mineral resource abundance are factors positively related to legal reform effectiveness, while the percentage of Catholics and Muslims, ethnolinguistic fractionalization, and the common law have a negative impact. When looking at the results for other indicators of reform effectiveness, the evidence is less clear but suggests that institutional quality and mineral resource abundance are relevant explanatory factors. Nonetheless, these findings have to be interpreted with caution due to the limited number of observations and potential biases due to omitted variables.

We have also analyzed the related question of the gap between legal rules and the reality on the ground, which is a consequence of the lack of effectiveness of legal rules. Two types of gaps have been studied: the gap between legal rules and financial depth and entrepreneurship, and the gap between law on the books and law in action. The evidence appears to support the fact that institutional quality is a factor that usually reduces the gap. A robust result in this regard is that common law countries have a larger gap than civil law countries, which reflects that the protection afforded to creditors and investors is higher in this legal family but it is not fully translated into substantive changes in the real economy. Interestingly, from 2006 to 2012 the larger gap in common law relative to civil law countries has diminished. This is probably a consequence of the reform agenda in civil law countries aimed to increase the protection to creditors and investors, which however has not materialized into improvements on the ground.

## **VI. Conclusions**

Nowadays it is widely accepted that legal reforms aimed at creating market-friendly regulatory environments are crucial for the economic success of countries. We review this question both from the point of view of the literature and from the perspective of

the empirical evidence. Thus, the purpose of this paper has been twofold. First, we have conducted a critical review of the legal origins literature, which is arguably the main theoretical basis behind this renewed interest in legal rules and reforms. Second, we have investigated whether legal reforms intended to create market-friendly regulatory business environments have a positive impact on economic and financial outcomes. In addition, we have conducted an exploratory and preliminary analysis of the determinants of the effectiveness of legal reforms and the gap between law on the books and the reality on the ground.

We have divided our review of the Legal Origin literature into three parts. A first set of criticisms builds on colonialism and the associated distribution of legal traditions, a second set of criticisms is based on political economy arguments, and a third set is based on the quality and reliability of early indicators of legal rules and outcomes. It is pertinent to be aware of the limitations of this literature because the Legal Origins Theory has deeply influenced our understanding of how to improve legal systems in order to foster financial development and promote economic activity. The bottom line of our review is that the imitation of other legal systems should be made very carefully, and it is generally more desirable to improve existing regulations and the enforcement of current laws instead of importing foreign rules.

In the second part of this paper, we have first analyzed the evolution of legal rules and regulations during the last decade (2006-2014). For that purpose, we use legal/regulatory indicators from the Doing Business Project (World Bank). Our findings indicate that countries have actively reformed their legal systems during this period, particularly French civil law countries. A process of convergence in the evolution of legal rules and regulations is observed: countries starting in 2006 in a lower position have improved more than countries with better initial scores. Also, French civil law countries have reformed their legal systems to a larger extent than common law countries and, consequently, have improved more in the majority of the Doing Business indicators considered. Second, we have estimated fixed-effects panel regressions to analyze the relationship between changes in legal rules and regulations and changes in the real economy. Our findings point to a lack of systematic effects of legal rules and regulations on economic and financial outcomes. This result stands in stark contrast to the widespread belief that reforms aiming to strengthen investor and creditor rights (and

other market-friendly policies) lead to better economic and financial outcomes. It seems that improvements in these legal rules are not sufficient conditions for that.

Finally, we have conducted an exploratory analysis of the determinants of the effectiveness of legal reforms and of the gap between legal rules and the reality on the ground. Measuring legal reform effectiveness as the ratio between variation in economic outcomes and variation in legal rules, we find considerable differences among countries. These differences allow us to analyze the potential determinants of legal reform effectiveness. The evidence is not conclusive but suggests that institutional quality and mineral resource abundance are factors positively related to the effectiveness of legal reforms. These findings have to be interpreted with caution due to the limited number of observations and potential biases caused by omitted variables. In addition, we have also analyzed the related question of the gap between legal rules and the reality on the ground, both in terms of financial and economic outcomes and in terms of law in action. The evidence appears to support the fact that institutional quality is a factor that reduces the gap most of the times. A notable result in this regard is that common law countries have a larger gap than civil law countries, although the difference has diminished from 2006 to 2012 and in some cases disappeared.

## References

- Acemoglu, Daron, and James Robinson. 2005. "Unbundling Institutions". *Journal of Political Economy*, 113 (5), 949-995.
- Arellano, Manuel, and Stephen Bond. 1991. "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations". *Review of Economic Studies* 58 (2): 277–297.
- Arellano, Manuel, and Olimpia Bover. 1995. "Another look at the instrumental variable estimation of error-components models". *Journal of Econometrics* 68 (1), 29–51.
- Armour, John, Simon Deakin, Priya Lele, and Mathias Siems. 2009a. "How Legal Norms Evolve: Evidence from a Cross-country Comparison of Shareholder, Creditor and Worker Protection". *American Journal of Comparative Law*, 57: 579-629.
- Armour, John, Simon Deakin, Prabirjit Sarkar, Mathias Siems, and Ajit Singh. 2009b. "Shareholder Protection and Stock Market Development: An Empirical Test of the Legal Origins Hypothesis." *Journal of Empirical Legal Studies*, 6 (2): 343–380.
- Armour, John, Simon Deakin, Viviana Mollica, and Mathias Siems. 2009c. "Law and Financial Development: What We Are Learning from Time-series Evidence." *Brigham Young University Law Review*: 1435-1500.
- Balas, Aron, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2009. "The Divergence of Legal Procedures." *American Economic Journal: Economic Policy*, 1(2): 138-62.
- Beck, Thorsten, Asli Demirgüç-Kunt, and Ross Levine. 2003. "Law and Finance: Why Does Legal Origin Matter?" *Journal of Comparative Economics* 31: 653–75.
- Beck, Thorsten, and Ross Levine. 2005. "Legal Institutions and Financial Development." In *Handbook of New Institutional Economics*, edited by Claude Ménard and Mary M. Shirley, pp. 251–278. Netherlands: Springer.
- Besley, Timothy. 2015. "Law, Regulation, and the Business Climate: The Nature and Influence of the World Bank Doing Business Project." *Journal of Economic Perspectives*, 29(3): 99-120.
- Berkowitz, Daniel, Katharina Pistor, and Jean-Francois Richard. 2003a. "The Transplant Effect." *American Journal of Comparative Law* 51: 163–203.

- Berkowitz, Daniel, Katharina Pistor, and Jean-Francois Richard. 2003b. "Economic Development, Legality, and the Transplant Effect." *European Economic Review* 47: 165–95.
- Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan. 2004. "How Much Should We Trust Differences-in-differences Estimates?" *Quarterly Journal of Economics* 119, 249–275.
- Blundell, Richard W., and Stephen R. Bond, 1998. "Initial conditions and moment restrictions in dynamic panel data models". *Journal of Econometrics* 87: 115–143.
- Dam, Kenneth. 2006. *The Law-Growth Nexus: The Rule of Law and Economic Development*, Brookings Institution Press, Chicago.
- Daniels, Ronald J., Michael J. Trebilcock, and Lindsey D. Carson. 2011. "The Legacy of the Empire: The Common Law Inheritance and Commitments to Legality in Former British Colonies." *American Journal of Comparative Law* 59: 111–78.
- Deakin, S., P. Sarkar, and A. Singh. 2012. "An End to Consensus? The Selective Impact of Corporate Law Reform on Financial Development." in M. Aoki, K. Binmore, S. Deakin, and H. Gintis (eds.), *Complexity and Institutions: Markets, Norms and Corporations*, Basingstoke: Palgrave Macmillan.
- Dixit, Avinash. 2009. "Governance Institutions and Economic Activity." *American Economic Review*, 99 (1): 5-24.
- Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2003. "Courts." *Quarterly Journal of Economics* 118: 453–517.
- Djankov, Simeon, Caralee McLiesh, and Andrei Shleifer. 2007. "Private Credit in 129 Countries." *Journal of Financial Economics* 84: 299–329.
- Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2008. "The Law and Economics of Self-Dealing." *Journal of Financial Economics* 88: 430–65.
- Doing Business Project. 2015. International Finance Corporation, The World Bank, Washington, D.C. <http://www.doingbusiness.org> (last accessed March 15, 2015).
- Fieldhouse, David K. 1966. *The Colonial Empires: A Comparative Survey from the Eighteenth Century*. London: Weidenfeld and Nicolson.

- Haidar, Jamal Ibrahim, and Takeo Hoshi. 2015. "Implementing Structural Reforms in Abenomics: How to Reduce the Cost of Doing Business in Japan." NBER Working Paper 21507, National Bureau of Economic Research, Massachusetts.
- Hallward-Driemeier, Mary, and Lant Prichett. 2010. "How Business is Done and the 'Doing Business' Indicators: The Investment Climate when Firms Have Climate Control", Unpublished paper, the World Bank, Washington D.C.
- Husa, Jaakko. 2004. "Classification of legal systems today – is it time for a memorialhymn?" *Revue Internationale de Droit Comparé*, 12: 54.
- Jackson, Howell E., and Mark J. Roe. 2009. "Public and Private Enforcement of Securities Laws: Resource-based Evidence", *Journal of Financial Economics*, 93 (2), 207-238.
- Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. 2009. "Governance Matters VIII: Aggregate and Individual Governance Indicators for 1996–2008." World Bank Policy Research Paper No. 4978.
- Klerman, Daniel M., Paul G. Mahoney, Holger Spamann, and Mark I. Weinstein. 2011. "Legal Origin or Colonial History?" *Journal of Legal Analysis* 3:379–409.
- Kumar, Krishan. 2006. "English and French National Identity: Comparisons and Contrasts." *Nations and Nationalism* 12: 413–32.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2006. "What Works in Securities Laws?" *Journal of Finance* 61: 1–32.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2008. "The Economic Consequences of Legal Origins." *Journal of Economic Literature* 46: 285–332.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2013. Law And Finance After a Decade of Research. In *Handbook of the Economics of Finance*, George Constantinides, Milton Harris, and Rene M. Stulz eds. Vol. 2A:425-91. Amsterdam: Elsevier.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1997. "Legal Determinants of External Finance." *Journal of Finance*, 52 (3), 1131-1150.

- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1998. "Law and Finance." *Journal of Political Economy* 106: 1113–55.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1999. "The Quality of Government." *Journal of Law, Economics and Organization* 15, no. 1: 222–279.
- Lange, Matthew. 2004. "British Colonial Legacies and Political Development." *World Development* 32: 905–22.
- Lele, Priya and Mathias Siems. 2007. "Shareholder Protection: A Leximetric Approach." *Journal of Corporate Law Studies* 7, 17-50.
- Malmendier, Ulrike. 2009. "Law and Finance 'at the Origin'." *Journal of Economic Literature*, 47 (4), 1076-1108.
- Mamdani, Mahmood. 1996. *Citizen and Subject*. Princeton, NJ: Princeton University Press.
- Michaels, Ralf. 2009. "Comparative Law by Numbers? Legal Origins Thesis, Doing Business Reports, and the Silence of Traditional Comparative Law." *American Journal of Comparative Law* 57: 765-95.
- Musacchio, Aldo. 2007. "Do Legal Origins Have Persistent Effects over Time? A Look at Law and Finance around the World c. 1900." Harvard Business School Working Paper no. 08-030.
- Musacchio, Aldo. 2008. "Can Civil Law Countries Get Good Institutions? Lessons from the History of Creditor Rights and Bond Markets in Brazil." *Journal of Economic History* 68 (1): 80-108.
- Nickell, Stephen, 1981. "Biases in dynamic models with fixed effects." *Econometrica* 49, 1417–1426.
- Oto-Peralías, Daniel, and Diego Romero-Ávila. 2014a. "The Distribution of Legal Traditions around the World: A Contribution to the Legal Origins Theory" *Journal of Law and Economics*. 57 (3): 561-628.
- Oto-Peralías, Daniel, and Diego Romero-Ávila. 2014b. "Legal Traditions and Initial Endowments in Shaping the Path of Financial Development." *Journal of Money, Credit and Banking* 46 (1): 43-77.

- Rajan, Raghuram G., and Luigi Zingales. 2003. "The Great Reversals: The Politics of Financial Development in the Twentieth Century." *Journal of Financial Economics* 69:5–50.
- Reimann, Matthias W. 2001. "Beyond national systems: a comparative law for the international age." *Tulane Law Review*, 75: 1103-19.
- Roe, Mark J. 2006. "Legal Origins, Politics, and Modern Stock Markets." *Harvard Law Review* 120: 460–527.
- Roe, Mark J. 2007. "Juries and the Political Economy of Legal Origin." *Journal of Comparative Economics*, 35, 294-308.
- Roe, Mark J., and Jordan I. Siegel. 2009. "Finance and Politics: A Review Essay Based on Kenneth Dam's Analysis of Legal Traditions in the Law-Growth Nexus." *Journal of Economic Literature* 47:781–800.
- Roodman, David. 2006. "How to do xtabond2: an introduction to "difference" and "system" GMM in Stata." Center for Global Development Working Paper no. 103, Washington D.C.
- Roodman, David. 2009. "A note on the theme of too many instruments." *Oxford Bulletin of Economics and Statistics* 71, 135-158.
- Siems, Mathias. 2008. "Shareholder Protection Around the World ("Leximetric II")." *Delaware Journal of Corporate Law*, 33 111-147.
- Spamann, Holger. 2010a. "The 'Antidirector Rights Index' Revisited." *Review of Financial Studies* 23: 467-86.
- Spamann, Holger. 2010b. "Legal Origins, Civil Procedure, and the Quality of Contract Enforcement." *Journal of Institutional and Theoretical Economics* 166: 149-65.
- Teorell, Jan, Marcus Samanni, Soren Holmberg, and Bo Rothstein. 2011. "The Quality of Government Dataset." Version 6Apr11. The Quality of Government Institute, University of Gothenburg, (<http://www.qog.pol.gu.se>).
- World Bank, 2004. *Doing Business in 2004: Understanding Regulation*. Oxford University Press on behalf of the World Bank, Washington, DC.

World Bank. 2015a. Description of the topic of the “World Development Report 2017: Governance and the Law”, Accessible at <http://go.worldbank.org/LBM5VYIF10>. Accessed on 23/11/2015.

World Bank. 2015b. Doing Business Reforms Since DB2006. Accessible at <http://www.doingbusiness.org/reforms/reforms-count>. Accessed on 15/11/2015.

World Bank. 2015c. *World Development Indicators*. The World Bank, Washington D.C.

Young, Crawford. 1988. “The African Colonial State and Its Political Legacy.” 25–66 in *The Precarious Balance: State and Society in Africa*, edited by Naomi Chazen and Donald Rothchild. Boulder and Oxford: Westview Press.

## APPENDIX A

### SUMMARY OF THE CRITICISMS TO THE LEGAL ORIGINS THEORY

#### BOX: CRITICISMS TO THE LEGAL ORIGINS THEORY

In this Box we present the most relevant criticisms to the Legal Origins Theory, which we divide into three main blocks. A first set of criticisms builds on colonialism and the associated distribution of legal traditions, a second set of criticisms is based on political economy arguments, and a third set is based on the quality and reliability of early indicators of legal rules and outcomes.

#### *Arguments Based on Colonialism and the Distribution of Legal Traditions Around the World*

One of the key criticisms of the Legal Origins Theory is the "Transplant Hypothesis" proposed by Berkowitz, Pistor, and Richard (2003a, b) who argue that the manner in which legal systems are obtained is more important than the specific countries' legal traditions to explain the quality of legal systems. They differentiate among origin countries, receptive transplants and unreceptive transplants, with the first two categories being related to higher legal effectiveness. Whether legal transplants are receptive or not depends on the adaptation of the imported law to local conditions and on the population's familiarity with law principles. Their evidence supports the fact that countries in which the law was not adapted to local conditions or the population was not familiar with the law exhibit a lower level of legal effectiveness and economic development.

A related criticism to the Legal Origins Theory has to do with the distribution of legal traditions around the world (Oto-Peralías and Romero-Ávila, 2014a,b). In that work, Oto-Peralías and Romero-Ávila (2014a,b) focus on the key point of the distribution of legal tradition from origin countries (colonial powers) to recipient countries (colonies) in the historical process of European colonization. They argued that: 1) Colonial powers had different strategies when implanting their legal systems in the colonies because they exhibited different responses to the initial conditions (endowments) existing in colonized territories. 2) The way legal systems were implanted matters for legal/economic outcomes. As regards the distribution of the British common law, the transplantation of the common law was inversely related to the recipient country's level of population density at the time of colonization. This was due to the nature of British colonial policy, which did not want to interfere with preexisting native law and rules of indigenous societies. In contrast, France imposed its civil law rigidly across its empire, leading frequently to conflicts with existing laws. Their results indicate that the common law does not generally lead to superior legal rules and outcomes or to a higher level of credit and stock markets development than the French civil law when precolonial population density and/or potential European settler mortality are high. According to these findings, the superior performance of the common law is largely driven by countries where Britain extensively implanted its legal tradition.

Daniels, Trebilcock, and Carson (2011) emphasize the high degree of variability in jurisdictional arrangements and legal institutions in the British Empire, which were responsive to the initial conditions encountered by colonizers, including the pre-existing indigenous legal order. Whether a colony developed a long-run stable commitment to legality and high legal effectiveness depended to some extent on two features of colonial administration and legal transplantation: (1) the degree of representation in legislative institutions afforded to the indigenous population, and (2) the degree of integration of indigenous and British common law courts and animated values. In practice, the implantation process of the British law in each colony led to a unique corpus of law that differed from that in other colonies.

Klerman et al. (2011) explain the observed cross-country differences in economic growth between common and civil law countries on the basis of non-legal colonial factors, which they measure through colonial identity dummies. These results lead them to wonder whether legal origins are really meaningful.

### ***Arguments based on Political Economy***

A political economy based criticism is related to the Great Reversal hypothesis of Rajan and Zingales (2003). They show that in 1913, French civil law countries had a higher level of financial development -as measured by the average stock market capitalization to GDP ratio- than common law countries, occurring the opposite in 1999. This reversal in financial development levels appears congruent with the incumbent industrial and financial elites in civil law countries preventing start-up competitors from having open access to new finance, thus getting rid of potential competition that could erode the incumbents' industrial position. In contrast, in common law countries financial liberalization would prosper.

Roe (2006) provides an alternative political economy based explanation of the patterns observed in securities markets development and divergent ownership structures in the world's richer nations over the course of the twentieth century. The greater destruction in World War II in civil law countries weakened the capacity of political influence of capital oriented interests whose main asset (capital) was largely destroyed during the war. In contrast, labor was the dominant force in postwar continental Europe as they could influence the polity via voting. This led to a marked left-right political conflict, which gave rise to laws and regulations in favor of the workforce and against capital.

In a similar spirit to Rajan and Zingales (2003) thesis, other papers also question the pretended fixed and path-dependent link between legal origin and the level of protection of creditors and minority shareholders and of financial development. These include Musacchio (2008) for the case of the development of bond markets in 20<sup>th</sup> century Brazil, and Malmendier (2009) for the case of an early form of shareholder company in ancient Rome, the *societas publicanorum*.

### ***Arguments based on Measurement and Recoding of Legal Data***

In this block we find several studies which, by virtue of recoding or using more recent or alternative legal data, find no systematic differences between common and civil law countries in many areas of the legal sphere. For instance, Spamann (2010) challenges the common view still supporting the existence of clear differences in the area of civil procedure involving judicial adjudication and enforcement of private claims between common and civil law countries. Likewise, Spamann (2009) corrects the antidirector rights index originally used by La Porta et al. (1998) for thirty-three of the forty-six countries initially investigated. The corrected index no longer renders a higher level of shareholder protection in common law than in civil law countries.

By constructing resource-based measures of public enforcement, Jackson and Roe (2009) finds no evidence of the pretended superiority of private enforcement mechanisms (more prevalent in common law countries) in propelling securities market development. Rather, public enforcement is overall as important as disclosure in explaining the development of financial markets around the world and more important than private liability rules.

Using time-series data for three parent systems, Britain, France and Germany, and the United States and India over the period 1970-2005, Armour et al. (2009a) cast doubts on the empirical validity of the Legal Origins Theory since there have been great changes in their index of shareholder rights over the past three decades, with a high degree of convergence between legal traditions in recent years due to a substantial rise in shareholder protection in civil law countries. In addition, they find no significant differences between common and civil law countries in the case of creditor protection. Similar evidence is provided by Armour et al. (2009b) for a larger sample of 20 countries over the period 1995-2005. In both studies, the use of time-series legal data is an important advancement relative to the majority of La Porta and associates' legal indices that only offered a cross-sectional view of the law at one moment in time, mostly in the second half of the 1990s. This had the limitation that it provided only a static description of the law as it stood at that point, without taking into account the evolution of legal rules caused by either external transnational convergence trends to best-practice standards or the influence of internal economic and political factors. The World Bank's Doing Business initiative is also providing researchers with time-series data on a wide range of legal rules and outcomes for a much wider sample of countries than Armour et al. (2009b).

## TABLES AND FIGURES

**Table 1**

Tests for mean differences between the 2006 and 2014 scores

		Mean values		Mean differences		
		2006	2014	Value	St. Error	P-value
English Common Law	Strength of creditor rights index	6.85	7.33	0.48	0.35	0.17
	Strength of investor protection index	5.87	5.96	0.09	0.30	0.78
	Depth of credit information index	1.57	2.90	1.33	0.43	0.00
	Recovery rate (%)	35.90	38.49	2.59	4.78	0.59
	Time to enforce a contract (Ln)	6.35	6.35	0.00	0.09	0.97
	Time to start a business (Ln)	3.33	2.77	-0.56	0.17	0.00
	Time to register a property (Ln)	3.93	3.63	-0.30	0.24	0.22
	Time to obtain construction permits	4.99	4.92	-0.07	0.10	0.46
	Time required to pay taxes (Ln)	5.20	5.12	-0.08	0.13	0.53
	Time to export (Ln)	3.07	2.82	-0.26	0.10	0.01
	Time to import (Ln)	3.19	2.89	-0.31	0.13	0.02
French Commercial Code	Strength of creditor rights index	3.63	4.66	1.03	0.29	0.00
	Strength of investor protection index	4.08	4.62	0.54	0.21	0.01
	Depth of credit information index	1.59	3.49	1.91	0.33	0.00
	Recovery rate (%)	24.35	28.42	4.08	3.10	0.19
	Time to enforce a contract (Ln)	6.39	6.40	0.01	0.06	0.86
	Time to start a business (Ln)	3.75	2.82	-0.92	0.13	0.00
	Time to register a property (Ln)	4.02	3.56	-0.46	0.15	0.00
	Time to obtain construction permits	5.35	5.12	-0.23	0.07	0.00
	Time required to pay taxes (Ln)	5.73	5.55	-0.18	0.10	0.06
	Time to export (Ln)	3.31	3.05	-0.27	0.08	0.00
	Time to import (Ln)	3.45	3.13	-0.32	0.09	0.00
German Commercial Code	Strength of creditor rights index	6.37	6.79	0.42	0.62	0.50
	Strength of investor protection index	5.11	5.52	0.41	0.35	0.25
	Depth of credit information index	2.74	5.05	2.32	0.59	0.00
	Recovery rate (%)	42.03	50.54	8.51	7.19	0.24
	Time to enforce a contract (Ln)	6.10	6.11	0.01	0.14	0.93
	Time to start a business (Ln)	3.45	2.53	-0.92	0.22	0.00
	Time to register a property (Ln)	3.94	2.82	-1.12	0.39	0.01
	Time to obtain construction permits	5.31	5.00	-0.30	0.19	0.11
	Time required to pay taxes (Ln)	5.73	5.44	-0.29	0.20	0.16
	Time to export (Ln)	2.84	2.61	-0.23	0.17	0.17
	Time to import (Ln)	2.84	2.59	-0.25	0.19	0.20
Scandinavian Commercial Code	Strength of creditor rights index	7.20	7.60	0.40	0.63	0.54
	Strength of investor protection index	5.66	6.26	0.60	0.45	0.22
	Depth of credit information index	4.20	4.20	0.00	0.28	1.00
	Recovery rate (%)	80.78	85.70	4.92	5.26	0.38
	Time to enforce a contract (Ln)	5.87	5.88	0.01	0.15	0.96
	Time to start a business (Ln)	2.18	2.08	-0.10	0.35	0.79
	Time to register a property (Ln)	2.09	1.94	-0.15	0.78	0.85
	Time to obtain construction permits	4.67	4.44	-0.23	0.27	0.43
	Time required to pay taxes (Ln)	4.94	4.71	-0.23	0.21	0.31
	Time to export (Ln)	2.11	2.11	0.00	0.12	1.00
	Time to import (Ln)	1.92	1.90	-0.03	0.14	0.86

**Table 2**  
Differences in scores across legal traditions in 2006 and 2014

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Creditor rights	Investor protection	Credit information	Recovery rate	Contract enforc.	Starting a business	Registering a property	Constructio n permits	Paying taxes	Time to export	Time to import
<i>Panel A: Mean differences in 2006</i>											
French	-3.219*** (0.324)	-1.79*** (0.268)	0.015 (0.39)	-11.549*** (4.153)	0.037 (0.081)	0.415*** (0.144)	0.088 (0.212)	0.356*** (0.08)	0.535*** (0.124)	0.239** (0.097)	0.251** (0.113)
German Commer- cial Code	-0.483 (0.519)	-0.769** (0.322)	1.163* (0.636)	6.13 (6.273)	-0.251** (0.122)	0.117 (0.166)	0.016 (0.367)	0.315** (0.138)	0.53*** (0.193)	-0.232 (0.148)	-0.358** (0.168)
Scandinavian Co- mmercial Code	0.348 (0.429)	-0.214 (0.441)	2.626*** (0.355)	44.884*** (5.318)	-0.482*** (0.134)	-1.154*** (0.236)	-1.834*** (0.611)	-0.32 (0.229)	-0.255 (0.195)	-0.959*** (0.111)	-1.27*** (0.133)
Constant	6.852*** (0.263)	5.874*** (0.228)	1.574*** (0.305)	35.896*** (3.484)	6.35*** (0.066)	3.332*** (0.114)	3.928*** (0.185)	4.992*** (0.063)	5.198*** (0.102)	3.073*** (0.077)	3.195*** (0.094)
R <sup>2</sup>	0.43	0.26	0.06	0.19	0.07	0.13	0.07	0.14	0.13	0.17	0.2
Observations	168	168	168	168	168	168	168	168	167	168	168
<i>Panel A: Mean differences in 2014</i>											
French	-2.67*** (0.323)	-1.34*** (0.258)	0.595 (0.374)	-10.061** (3.936)	0.045 (0.073)	0.055 (0.159)	-0.068 (0.189)	0.201** (0.09)	0.434*** (0.109)	0.229** (0.092)	0.241** (0.107)
German Commer- cial Code	-0.544 (0.472)	-0.444 (0.327)	2.153*** (0.338)	12.052** (5.818)	-0.243** (0.105)	-0.241 (0.223)	-0.808*** (0.271)	0.084 (0.153)	0.325** (0.141)	-0.211* (0.125)	-0.3** (0.147)
Scandinavian Co- mmercial Code	0.267 (0.518)	0.3 (0.25)	1.3*** (0.349)	47.215*** (4.167)	-0.477*** (0.091)	-0.686** (0.265)	-1.687*** (0.43)	-0.48*** (0.135)	-0.403*** (0.124)	-0.704*** (0.105)	-0.991*** (0.121)
Constant	7.333*** (0.236)	5.96*** (0.204)	2.9*** (0.298)	38.485*** (3.296)	6.353*** (0.059)	2.769*** (0.123)	3.629*** (0.157)	4.921*** (0.07)	5.116*** (0.084)	2.818*** (0.069)	2.889*** (0.084)
R <sup>2</sup>	0.3	0.16	0.08	0.2	0.07	0.02	0.1	0.06	0.11	0.12	0.14
Observations	179	179	179	179	179	179	179	179	179	179	179

Notes: Robust standard errors are in parentheses. \*, \*\* and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 3**

Comparing legal changes between 2006 and 2014 across legal traditions

	Ratio 2014/2006 (Mean value)				Difference 2014 - 2006 (Mean value)						
	Civil law tradition (on the left)		Common law		Civil law tradition (on the left)		Common law				
	Value	St. Error	Value	P-value	Value	St. Error	Value	P-value			
French Commercial Code	Creditor rights	1.407	1.105	-0.302	0.112	0.01	1.144	0.481	-0.663	0.261	0.01
	Investor protection	1.174	1.059	-0.115	0.061	0.06	0.548	0.228	-0.320	0.152	0.04
	Credit information	1.280	1.155	-0.124	0.174	0.48	2.044	1.426	-0.619	0.345	0.08
	Recovery rate	2.093	1.706	-0.387	0.956	0.69	3.601	1.378	-2.223	1.114	0.05
	Contract enforce.	1.004	0.997	-0.007	0.005	0.16	0.020	-0.027	-0.047	0.030	0.13
	Starting a business	0.753	0.833	0.080	0.037	0.03	-0.945	-0.561	0.384	0.133	0.00
	Registering a property	0.892	0.921	0.029	0.028	0.30	-0.471	-0.369	0.102	0.127	0.42
	Construction permits	0.960	0.978	0.018	0.014	0.21	-0.227	-0.114	0.113	0.073	0.12
	Paying taxes	0.979	0.994	0.014	0.009	0.12	-0.135	-0.051	0.084	0.053	0.12
	Time to export	0.927	0.930	0.003	0.014	0.83	-0.242	-0.223	0.020	0.046	0.67
Time to import	0.917	0.922	0.005	0.016	0.75	-0.288	-0.263	0.025	0.056	0.66	
German Commercial Code	Creditor rights	1.115	1.105	-0.010	0.071	0.89	0.421	0.481	0.060	0.314	0.85
	Investor protection	1.088	1.059	-0.029	0.047	0.53	0.411	0.228	-0.183	0.154	0.24
	Credit information	1.115	1.155	0.040	0.096	0.68	2.316	1.426	-0.890	0.548	0.11
	Recovery rate	1.340	1.706	0.366	1.059	0.73	8.511	1.378	-7.133	1.793	0.00
	Contract enforce.	1.003	0.997	-0.006	0.008	0.45	0.011	-0.027	-0.039	0.052	0.46
	Starting a business	0.738	0.833	0.094	0.061	0.13	-0.922	-0.561	0.361	0.185	0.06
	Registering a property	0.747	0.921	0.174	0.050	0.00	-1.123	-0.369	0.754	0.222	0.00
	Construction permits	0.944	0.978	0.034	0.016	0.04	-0.302	-0.114	0.188	0.085	0.03
	Paying taxes	0.955	0.994	0.039	0.012	0.00	-0.287	-0.051	0.236	0.072	0.00
	Time to export	0.930	0.930	0.001	0.023	0.98	-0.233	-0.223	0.011	0.078	0.89
Time to import	0.923	0.922	-0.001	0.026	0.96	-0.247	-0.263	-0.016	0.089	0.86	
Scandinavian Commercial Code	Creditor rights	1.054	1.105	0.051	0.119	0.67	0.400	0.481	0.081	0.528	0.88
	Investor protection	1.131	1.059	-0.072	0.084	0.40	0.600	0.228	-0.372	0.258	0.15
	Credit information	1.000	1.155	0.155	0.129	0.24	0.000	1.426	1.426	0.874	0.11
	Recovery rate	1.071	1.706	0.636	2.065	0.76	4.920	1.378	-3.542	2.039	0.09
	Contract enforce.	1.003	0.997	-0.007	0.016	0.68	0.008	-0.027	-0.036	0.100	0.72
	Starting a business	0.950	0.833	-0.117	0.103	0.26	-0.096	-0.561	-0.465	0.293	0.12
	Registering a property	0.876	0.921	0.045	0.085	0.60	-0.152	-0.369	-0.216	0.350	0.54
	Construction permits	0.956	0.978	0.022	0.027	0.41	-0.231	-0.114	0.117	0.138	0.40
	Paying taxes	0.958	0.994	0.035	0.022	0.12	-0.229	-0.051	0.179	0.118	0.14
	Time to export	1.000	0.930	-0.070	0.034	0.04	0.000	-0.223	-0.223	0.107	0.04
Time to import	0.987	0.922	-0.065	0.043	0.14	-0.027	-0.263	-0.236	0.141	0.10	

**Table 4**

Convergence among legal traditions: Average of the annual rate of change in legal rules/regulations (2006-2014)

	French Civ Law		German Civil Law		Scand Law		R <sup>2</sup>	Obs
	Coeff.	SEs	Coeff.	SEs	Coeff.	SEs		
<i>Panel A: Without control variable</i>								
Creditor rights	0.032***	(0.01)	-0.001	(0.008)	-0.006	(0.006)	0.06	178
Investor protection	0.011**	(0.005)	0.002	(0.005)	0.007	(0.01)	0.02	179
Credit information	0.03*	(0.017)	0.014	(0.024)	-0.028***	(0.01)	0.03	109
Recovery rate	0.012	(0.058)	-0.02	(0.055)	-0.05	(0.054)	0	159
Contract enforc.	0.001	(0.001)	0.001	(0.001)	0.001	(0.003)	0.01	179
Starting a business	-0.01*	(0.005)	-0.016	(0.01)	0.016***	(0.005)	0.04	179
Registering a property	-0.005	(0.004)	-0.036**	(0.017)	-0.002	(0.024)	0.07	178
Construction permits	-0.002	(0.002)	-0.005*	(0.002)	-0.003	(0.003)	0.02	179
Paying taxes	-0.003	(0.002)	-0.006***	(0.002)	-0.006	(0.005)	0.04	179
Time to export	0.00	(0.002)	-0.001	(0.004)	0.009***	(0.001)	0.02	179
Time to import	-0.001	(0.002)	-0.001	(0.004)	0.008***	(0.002)	0.01	179
<i>Panel B: Control variable is average growth rate of GDP</i>								
Creditor rights	0.031***	(0.009)	0.003	(0.008)	0.007	(0.01)	0.09	177
Investor protection	0.01**	(0.005)	0.003	(0.005)	0.011	(0.01)	0.03	178
Credit information	0.03*	(0.016)	0.025	(0.025)	0.005	(0.019)	0.13	109
Recovery rate	0.011	(0.056)	-0.019	(0.058)	-0.044	(0.064)	0	159
Contract enforc.	0.001	(0.001)	0.001	(0.001)	0.00	(0.003)	0.02	178
Starting a business	-0.01*	(0.005)	-0.016*	(0.01)	0.014**	(0.006)	0.05	178
Registering a property	-0.005	(0.005)	-0.036**	(0.018)	0.00	(0.024)	0.07	177
Construction permits	-0.002	(0.002)	-0.005**	(0.002)	-0.003	(0.003)	0.02	178
Paying taxes	-0.003	(0.002)	-0.006***	(0.002)	-0.005	(0.004)	0.05	178
Time to export	0.00	(0.002)	-0.001	(0.004)	0.007***	(0.002)	0.04	178
Time to import	-0.001	(0.002)	-0.001	(0.004)	0.007***	(0.002)	0.02	178
<i>Panel C: Control variable is Log of GDP per capita in 2006</i>								
Creditor rights	0.029***	(0.009)	0.017**	(0.008)	0.03***	(0.01)	0.19	174
Investor protection	0.011**	(0.005)	0.004	(0.006)	0.011	(0.011)	0.03	175
Credit information	0.03	(0.02)	0.014	(0.024)	-0.025	(0.017)	0.03	108
Recovery rate	0.014	(0.058)	0.016	(0.038)	0.024	(0.024)	0.04	156
Contract enforc.	0.001	(0.001)	0.00	(0.001)	0.00	(0.003)	0.03	175
Starting a business	-0.011**	(0.006)	-0.016	(0.01)	0.015**	(0.007)	0.04	175
Registering a property	-0.005	(0.005)	-0.035*	(0.018)	-0.001	(0.024)	0.07	174
Construction permits	-0.003**	(0.001)	-0.005*	(0.003)	-0.003	(0.003)	0.03	175
Paying taxes	-0.003*	(0.002)	-0.006***	(0.002)	-0.006	(0.005)	0.04	175
Time to export	0.00	(0.002)	-0.001	(0.004)	0.008***	(0.002)	0.03	175
Time to import	-0.002	(0.002)	-0.001	(0.004)	0.007**	(0.003)	0.02	175

Notes: Regressions include a constant term, which is omitted for space considerations. Robust standard errors are in parentheses. \*, \*\* and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 5**

Convergence among legal traditions: Ratio 2014/2006 in legal rules/regulations

	French Civ Law		German Civil Law		Scand Law		R <sup>2</sup>	Obs
	Coeff.	SEs	Coeff.	SEs	Coeff.	SEs		
<i>Panel A: Without control variable</i>								
Creditor rights	0.302***	(0.093)	0.01	(0.072)	-0.051	(0.047)	0.06	166
Investor protection	0.115**	(0.051)	0.029	(0.045)	0.072	(0.086)	0.03	168
Credit information	0.124	(0.147)	-0.04	(0.086)	-0.155**	(0.065)	0.03	66
Recovery rate	0.387	(0.921)	-0.366	(0.677)	-0.636	(0.665)	0	148
Contract enforc.	0.007	(0.005)	0.006	(0.008)	0.007	(0.024)	0.01	168
Starting a business	-0.08**	(0.038)	-0.094	(0.06)	0.117***	(0.039)	0.05	168
Registering a property	-0.029	(0.027)	-0.174***	(0.064)	-0.045	(0.161)	0.07	166
Construction permits	-0.018	(0.012)	-0.034*	(0.018)	-0.022	(0.025)	0.02	168
Paying taxes	-0.014*	(0.009)	-0.039***	(0.014)	-0.035	(0.034)	0.05	167
Time to export	-0.003	(0.013)	-0.001	(0.027)	0.07***	(0.01)	0.02	168
Time to import	-0.005	(0.016)	0.001	(0.027)	0.065***	(0.017)	0.02	168
<i>Panel B: Control variable is average growth rate of GDP</i>								
Creditor rights	0.296***	(0.088)	0.053	(0.071)	0.092	(0.101)	0.1	165
Investor protection	0.112**	(0.05)	0.045	(0.046)	0.126	(0.09)	0.05	167
Credit information	0.132	(0.146)	0.001	(0.072)	-0.061	(0.06)	0.05	66
Recovery rate	0.389	(0.922)	-0.384	(0.728)	-0.689	(0.831)	0	148
Contract enforc.	0.007	(0.005)	0.005	(0.008)	0.002	(0.024)	0.03	167
Starting a business	-0.081**	(0.038)	-0.098	(0.062)	0.103**	(0.046)	0.05	167
Registering a property	-0.03	(0.028)	-0.172**	(0.066)	-0.039	(0.161)	0.07	165
Construction permits	-0.017	(0.013)	-0.036**	(0.018)	-0.027	(0.026)	0.02	167
Paying taxes	-0.014	(0.009)	-0.04***	(0.013)	-0.041	(0.035)	0.06	166
Time to export	-0.002	(0.013)	-0.004	(0.028)	0.058***	(0.013)	0.04	167
Time to import	-0.005	(0.016)	-0.001	(0.028)	0.059***	(0.02)	0.02	167
<i>Panel C: Control variable is Log of GDP per capita in 2006</i>								
Creditor rights	0.27***	(0.086)	0.183**	(0.081)	0.286***	(0.106)	0.17	163
Investor protection	0.115**	(0.05)	0.052	(0.051)	0.115	(0.096)	0.03	165
Credit information	0.107	(0.139)	-0.026	(0.095)	-0.095	(0.095)	0.04	65
Recovery rate	0.42	(0.932)	-0.052	(0.461)	-0.033	(0.375)	0.01	146
Contract enforc.	0.007	(0.005)	0.003	(0.008)	0	(0.024)	0.03	165
Starting a business	-0.086**	(0.037)	-0.081	(0.067)	0.143**	(0.055)	0.06	165
Registering a property	-0.032	(0.028)	-0.164**	(0.07)	-0.026	(0.163)	0.08	163
Construction permits	-0.024**	(0.011)	-0.034*	(0.02)	-0.022	(0.028)	0.03	165
Paying taxes	-0.015*	(0.009)	-0.038***	(0.015)	-0.034	(0.035)	0.05	164
Time to export	-0.002	(0.014)	-0.004	(0.029)	0.063***	(0.016)	0.02	165
Time to import	-0.009	(0.016)	0.002	(0.03)	0.066***	(0.023)	0.02	165

Notes: Regressions include a constant term, which is omitted for space considerations. Robust standard errors are in parentheses. \*, \*\* and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 6**  
Beta convergence across legal traditions

	Initial value (2006) of the legal/reg. Indicator		R <sup>2</sup>	Obs
	Coeff.	SEs		
<i>Panel A: Without control variable</i>				
Creditor rights	-0.104***	(0.028)	0.15	166
Investor protection	-0.067***	(0.024)	0.11	168
Credit information	-0.349**	(0.153)	0.42	66
Recovery rate	-0.048*	(0.024)	0.06	148
Contract enforc.	-0.023***	(0.006)	0.13	168
Starting a business	-0.036*	(0.021)	0.02	168
Registering a property	-0.044***	(0.014)	0.07	166
Construction permits	-0.046***	(0.016)	0.09	168
Paying taxes	-0.037***	(0.007)	0.26	167
Time to export	-0.028***	(0.011)	0.04	168
Time to import	-0.026***	(0.009)	0.04	168
<i>Panel B: Control variable is average growth rate of GDP</i>				
Creditor rights	-0.096***	(0.022)	0.17	165
Investor protection	-0.064***	(0.022)	0.11	167
Credit information	-0.344**	(0.153)	0.44	66
Recovery rate	-0.058*	(0.031)	0.07	148
Contract enforc.	-0.023***	(0.006)	0.15	167
Starting a business	-0.034	(0.022)	0.02	167
Registering a property	-0.045***	(0.014)	0.07	165
Construction permits	-0.046***	(0.017)	0.09	167
Paying taxes	-0.038***	(0.007)	0.26	166
Time to export	-0.024**	(0.012)	0.04	167
Time to import	-0.027***	(0.01)	0.04	167
<i>Panel C: Control variable is Log of GDP per capita in 2006</i>				
Creditor rights	-0.079***	(0.023)	0.21	163
Investor protection	-0.073***	(0.023)	0.11	165
Credit information	-0.351**	(0.154)	0.43	65
Recovery rate	-0.063	(0.041)	0.06	146
Contract enforc.	-0.023***	(0.006)	0.14	165
Starting a business	-0.046**	(0.022)	0.03	165
Registering a property	-0.059***	(0.016)	0.13	163
Construction permits	-0.04***	(0.013)	0.08	165
Paying taxes	-0.042***	(0.007)	0.30	164
Time to export	-0.045**	(0.02)	0.05	165
Time to import	-0.049***	(0.016)	0.06	165

Notes: The dependent variable is the ratio of the 2014 to 2006 scores for each of the respective legal and regulatory indicator. Regressions include a constant term, which is omitted for space considerations. Robust standard errors are in parentheses. \*, \*\* and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 7**  
The effect of legal rules on financial and economic outcomes: LSDV model

	Creditor rights		Investor protection		Credit information		Recovery rate		Contract enforce.		Starting a business		Registering a property		Construction permits		Paying taxes		Time to export		Time to import		
	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)												
Stock market capitalization	1.24 (2.752)	-0.908 (5.32)	-0.544 (2.113)	0.569 (0.482)	43.725 (53.998)	-6.165 (5.621)	2.423 (3.959)	-16.797 (21.02)	2.414 (11.462)	-31.734 (25.907)	-30.714* (18.147)	266	266	266	266	266	266	266	266	266	266	266	266
Stocks traded	7.083** (3.343)	10.905** (4.648)	5.37** (2.326)	1.337** (0.557)	-55.403 (58.677)	-2.807 (6.91)	-5.794 (4.929)	11.107 (19.266)	-11.91 (13.65)	-35.785 (31.368)	-28.9* (17.273)	243	243	243	243	243	243	243	243	243	243	243	243
Domestic credit to private sector by banks	0.777 (0.831)	-0.197 (1.18)	0.802 (0.941)	0.073 (0.152)	-5.774 (13.712)	-2.012 (1.749)	0.312 (2.048)	-3.374 (3.535)	-0.641 (3.948)	-16.733 (14.087)	-8.695 (6.875)	322	322	322	322	322	322	322	322	322	322	322	322
Domestic credit provided by financial sector	0.382 (1.045)	-0.247 (1.662)	1.74 (1.099)	-0.006 (0.253)	-12.255 (16.371)	-2.06 (2.107)	0.145 (1.962)	-5.961 (3.69)	-8.501 (5.153)	-12.557 (15.076)	-4.102 (8.011)	322	322	322	322	322	322	322	322	322	322	322	322
Domestic credit to private sector	0.872 (0.777)	-0.178 (1.295)	0.768 (0.95)	0.077 (0.152)	-4.939 (13.643)	-2.189 (1.794)	0.108 (2.078)	-3.61 (3.474)	-2.301 (4.03)	-17.61 (14.198)	-9.421 (6.97)	322	322	322	322	322	322	322	322	322	322	322	322
Foreign direct investment	0.151 (0.307)	-0.19 (0.587)	-0.169 (0.269)	0.086 (0.063)	1.183 (2.787)	1.153 (1.032)	1.123 (1.023)	-0.956 (1.78)	0.923 (1.681)	0.591 (2.664)	0.883 (2.209)	517	517	517	517	517	517	517	517	517	517	517	517
Trade	-0.641 (1.191)	0.227 (1.267)	-0.104 (0.772)	0.11 (0.287)	9.191 (13.206)	2.739 (3.466)	-0.723 (1.714)	4.931 (7.645)	-0.84 (5.849)	6.039 (6.686)	0.373 (5.415)	498	498	498	498	498	498	498	498	498	498	498	498
Private gross fixed capital formation	0.011 (0.279)	-0.563 (0.622)	-0.248 (0.328)	0.048 (0.14)	-6.34 (4.079)	-0.675 (0.792)	-0.609 (0.927)	-0.444 (1.858)	4.341** (1.78)	2.326 (2.803)	2.728 (2.232)	256	256	256	256	256	256	256	256	256	256	256	256
New business density	0.125 (0.115)	0.173 (0.197)	-0.068 (0.112)	0.016 (0.021)	-0.025 (2.045)	0.029 (0.473)	-0.096 (0.232)	-0.921 (0.688)	0.882 (0.707)	-0.528 (1.749)	-0.528 (1.132)	354	354	354	354	354	354	354	354	354	354	354	354
Unemployment rate	-0.102 (0.08)	-0.047 (0.264)	-0.167 (0.142)	-0.051 (0.047)	1.109 (2.631)	-0.017 (0.264)	-0.395 (0.411)	0.824 (0.802)	-0.421 (0.739)	2.393* (1.235)	1.46* (0.804)	481	481	481	481	481	481	481	481	481	481	481	481
Income GINI index	-0.541** (0.221)	-0.13 (0.374)	-0.09 (0.201)	0.022 (0.045)	-1.697 (2.337)	-0.204 (0.554)	-0.044 (0.401)	1.097 (1.13)	-0.767 (1.32)	1.576 (1.72)	2.275 (1.591)	275	275	275	275	275	275	275	275	275	275	275	275

Notes: Panel specification with averaged annual data over three-year periods (2006-2014). Clustered standard errors in parentheses. The regressions include the lag of GDP growth, country and period dummies, and a constant term. All these variables are omitted for space considerations. \*, \*\* and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.



**Table 8 (Continued)**

The effect of legal rules on financial and economic outcomes: Differentiation by level of development

	Creditor rights		Investor protection		Credit information		Recovery rate		Contract enforce.		Starting a business		Registering a property		Construction permits		Paying taxes		Time to export		Time to import		
	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
Trade	-0.539 (1.254)	494	0.084 (1.351)	-0.108 (0.517)	-1.665 (10.586)	494	5.995 (5.515)	0.225 (2.69)	9.303 (11.197)	494	5.229 (6.29)	7.765 (8.331)	494	1.373 (5.642)	494	5.229 (6.29)	7.765 (8.331)	494	1.373 (5.642)	494	5.229 (6.29)	7.765 (8.331)	494
	-1.797 (2.315)		0.568 (2.553)	0.207 (0.278)	18.838 (20.856)		-0.583 (2.566)	-1.2 (2.079)	0.898 (9.899)		-7.498 (8.4)	3.625 (9.577)		-0.476 (9.339)		-7.498 (8.4)	3.625 (9.577)		-0.476 (9.339)		-7.498 (8.4)	3.625 (9.577)	494
Private gross fixed capital formation	0.085 (0.296)	255	-0.573 (0.69)	0.076 (0.159)	-8.881* (5.341)	255	-0.254 (1.022)	-1.127 (1.176)	0.008 (2.57)	255	6.208*** (1.76)	3.036 (2.907)	255	3.172 (2.234)	255	6.208*** (1.76)	3.036 (2.907)	255	3.172 (2.234)	255	6.208*** (1.76)	3.036 (2.907)	255
	-0.913 (0.602)		-0.516 (1.16)	0.005 (0.207)	-0.621 (6.71)		-1.369 (0.832)	-0.294 (1.312)	-1.097 (2.23)		0.981 (2.429)	-0.81 (4.037)		-0.168 (3.805)		0.981 (2.429)	-0.81 (4.037)		-0.168 (3.805)		0.981 (2.429)	-0.81 (4.037)	255
New business density	0.069 (0.102)	349	0.177 (0.15)	0.035 (0.03)	-1.407 (0.923)	349	-0.321 (0.274)	-0.34 (0.297)	-0.818 (0.517)	349	-0.132 (0.529)	-1.301 (0.988)	349	-1.021 (0.676)	349	-0.132 (0.529)	-1.301 (0.988)	349	-1.021 (0.676)	349	-0.132 (0.529)	-1.301 (0.988)	349
	0.853 (0.661)		0.161 (0.588)	0.009 (0.028)	1.031 (3.458)		0.249 (0.625)	0.031 (0.275)	-1.04 (1.252)		1.731 (1.16)	0.324 (2.932)		0.409 (2.528)		1.731 (1.16)	0.324 (2.932)		0.409 (2.528)		1.731 (1.16)	0.324 (2.932)	349
Unemployment rate	-0.087 (0.072)	476	-0.228 (0.196)	-0.034 (0.043)	-2.277 (2.788)	476	0.424 (0.257)	0.337 (0.324)	1.562** (0.695)	476	0.85 (0.603)	3.163** (1.495)	476	2.182** (0.993)	476	0.85 (0.603)	3.163** (1.495)	476	2.182** (0.993)	476	0.85 (0.603)	3.163** (1.495)	476
	-0.271 (0.303)		0.505 (0.969)	-0.065 (0.069)	4.309 (3.77)		-0.47 (0.496)	-0.756 (0.509)	0.131 (1.313)		-1.902 (1.526)	1.124 (1.389)		0.111 (1.139)		-1.902 (1.526)	1.124 (1.389)		0.111 (1.139)		-1.902 (1.526)	1.124 (1.389)	476
Income GINI index	-0.588** (0.226)	272	-0.19 (0.451)	0.144 (0.154)	-3.338 (3.304)	272	0.534 (0.938)	0.987 (1.106)	2.439* (1.422)	272	-0.137 (2.052)	2.141 (2.418)	272	3.396 (2.19)	272	-0.137 (2.052)	2.141 (2.418)	272	3.396 (2.19)	272	-0.137 (2.052)	2.141 (2.418)	272
	-0.25 (0.644)		-0.097 (0.61)	-0.002 (0.043)	-0.432 (2.353)		-0.485 (0.617)	-0.218 (0.37)	-0.114 (1.18)		-1.159 (1.242)	0.745 (2.162)		1.219 (2.004)		-1.159 (1.242)	0.745 (2.162)		1.219 (2.004)		-1.159 (1.242)	0.745 (2.162)	272

Notes: Panel specification with averaged annual data over three-year periods (2006-2014). Clustered standard errors in parentheses. The regressions include the lag of GDP growth, country and period dummies, and a constant term. All these variables are omitted for space considerations. \*, \*\* and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 9**  
The effect of legal rules on financial and economic outcomes: Differentiation by rule of law

	Creditor rights		Investor protection		Credit information		Recovery rate		Contract enforce.		Starting a business		Registering a property		Construction permits		Paying taxes		Time to export		Time to import		
	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)												
Stock market capitalization	3.932* (2.145)	4.889 (4.852)	1.215 (2.098)	0.885 (0.586)	0.264 (13.716)	-8.618 (6.112)	-1.793 (4.329)	263 (8.203)	263 (12.849)	-1.429 (12.849)	-30.213** (15.107)	263 (12.158)	263 (15.107)	-12.535 (7.417)									
Above the median	-1.355 (4.141)	-4.978 (10.523)	-0.232 (2.26)	0.462 (0.59)	-5.474 (27.04)	-1.263 (3.73)	1.264 (3.375)	263 (18.915)	263 (18.915)	-2.105 (13.47)	-12.535 (37.134)	-12.535 (37.134)	-12.535 (37.134)	-12.535 (37.134)	-12.535 (37.134)	-12.535 (37.134)	-12.535 (37.134)	-12.535 (37.134)	-12.535 (37.134)	-12.535 (37.134)	-12.535 (37.134)	-12.535 (37.134)	-12.535 (37.134)
Stocks traded	7.787** (2.97)	12.361*** (4.484)	5.577*** (1.866)	1.796** (0.771)	11.273 (15.124)	-17.933** (7.287)	-13.016** (5.324)	240 (6.54)	240 (6.54)	-19.211** (9.114)	-50.206** (19.91)	240 (14.66)	240 (14.66)	-40.044*** (14.66)									
Above the median	2.707 (6.137)	5.831 (6.639)	3.177 (2.779)	0.81 (0.568)	-24.17 (25.325)	-3.449 (4.346)	-1.493 (4.013)	240 (22.593)	240 (22.593)	4.79 (24.807)	-39.02 (51.923)	-20.299 (38.98)	-20.299 (38.98)	-20.299 (38.98)	-20.299 (38.98)	-20.299 (38.98)	-20.299 (38.98)	-20.299 (38.98)	-20.299 (38.98)	-20.299 (38.98)	-20.299 (38.98)	-20.299 (38.98)	-20.299 (38.98)
Domestic credit to private sector by banks	0.622 (0.826)	0.145 (0.953)	1.121 (0.947)	0.104 (0.265)	14.207 (12.067)	-1.917 (1.967)	0.327 (1.815)	319 (3.971)	319 (3.971)	-1.452 (4.364)	-14.513 (10.267)	319 (7.209)	319 (7.209)	-8.656 (7.209)									
Above the median	1.858 (2.783)	-2.595 (8.379)	0.296 (1.368)	0.052 (0.221)	-32.335* (18.686)	-2.069 (2.1)	0.386 (3.1)	319 (16.944)	319 (16.944)	1.952 (6.341)	-21.666 (22.114)	-9.74 (8.797)	-9.74 (8.797)	-9.74 (8.797)	-9.74 (8.797)	-9.74 (8.797)	-9.74 (8.797)	-9.74 (8.797)	-9.74 (8.797)	-9.74 (8.797)	-9.74 (8.797)	-9.74 (8.797)	-9.74 (8.797)
Domestic credit provided by financial sector	0.049 (1.077)	-0.52 (1.158)	1.838 (1.205)	-0.11 (0.282)	13.704 (13.735)	-1.373 (2.27)	1.203 (2.427)	319 (4.33)	319 (4.33)	-8.205 (5.606)	-8.446 (11.881)	319 (8.739)	319 (8.739)	-2.568 (8.739)									
Above the median	2.894 (2.628)	1.375 (10.817)	1.584 (1.317)	0.052 (0.359)	-46.788** (22.484)	-3.29 (2.876)	-0.877 (2.113)	319 (16.188)	319 (16.188)	-9.228 (8.41)	-19.852 (22.729)	-7.037 (9.694)	-7.037 (9.694)	-7.037 (9.694)	-7.037 (9.694)	-7.037 (9.694)	-7.037 (9.694)	-7.037 (9.694)	-7.037 (9.694)	-7.037 (9.694)	-7.037 (9.694)	-7.037 (9.694)	-7.037 (9.694)
Domestic credit to private sector	0.675 (0.767)	-0.095 (1.032)	1.139 (0.947)	0.13 (0.276)	15.095 (11.989)	-1.996 (1.991)	0.229 (1.803)	319 (3.897)	319 (3.897)	-3.71 (4.378)	-14.659 (10.212)	319 (7.199)	319 (7.199)	-9.005 (11.137)									
Above the median	2.27 (2.654)	-0.936 (8.964)	0.181 (1.364)	0.041 (0.22)	-31.566* (18.938)	-2.413 (2.182)	0.084 (3.157)	319 (17.01)	319 (17.01)	2.022 (6.283)	-23.77 (22.613)	-11.137 (9.409)	-11.137 (9.409)	-11.137 (9.409)	-11.137 (9.409)	-11.137 (9.409)	-11.137 (9.409)	-11.137 (9.409)	-11.137 (9.409)	-11.137 (9.409)	-11.137 (9.409)	-11.137 (9.409)	-11.137 (9.409)
Foreign direct investment	0.175 (0.323)	-0.128 (0.671)	0 (0.338)	0.126 (0.115)	-0.046 (2.66)	0.692 (1.237)	0.898 (0.945)	511 (2.077)	511 (2.077)	0.848 (1.416)	-0.931 (2.699)	511 (2.23)	511 (2.23)	-0.52 (2.23)									
Above the median	0.068 (0.4)	-0.348 (0.708)	-0.345 (0.332)	0.058 (0.071)	1.102 (4.991)	1.9 (1.648)	1.25 (1.589)	511 (4.157)	511 (4.157)	0.907 (3.459)	3.569 (3.607)	4.277 (3.021)	4.277 (3.021)	4.277 (3.021)	4.277 (3.021)	4.277 (3.021)	4.277 (3.021)	4.277 (3.021)	4.277 (3.021)	4.277 (3.021)	4.277 (3.021)	4.277 (3.021)	4.277 (3.021)

**Table 9 (Continued)**  
The effect of legal rules on financial and economic outcomes: Differentiation by rule of law

	Creditor rights		Investor protection		Credit information		Recovery rate		Contract enforce.		Starting a business		Registering a property		Construction permits		Paying taxes		Time to export		Time to import	
	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Trade	-0.876 (1.317)	489	-0.01 (1.404)	489	-0.433 (0.812)	489	0.03 (0.436)	489	-6.079 (10.734)	489	5.027 (5.405)	489	0.307 (2.213)	489	6.855 (8.252)	489	6.532 (4.787)	487	5.326 (7.828)	489	-0.699 (5.028)	489
	1.173 (1.67)		1.263 (2.1)		0.325 (1.326)		0.236 (0.304)		10.883 (19.329)		1.528 (2.465)		-1.528 (2.345)		10.997 (15.006)		-9.954 (10.195)		10.468 (9.648)		5.013 (9.413)	
Private gross fixed capital formation	-0.006 (0.283)	253	-0.637 (0.649)	253	-0.398 (0.433)	253	0.125 (0.16)	253	-5.954 (4.643)	253	-0.698 (1.052)	253	-1.241 (0.949)	253	-0.5 (2.086)	253	4.204** (2.11)	253	2.417 (3.163)	253	2.983 (2.298)	253
	0.356 (1.019)		0.081 (1.122)		0.001 (0.453)		-0.115 (0.171)		-7.112 (8.333)		-0.621 (0.91)		0.59 (1.185)		-0.132 (2.559)		4.812* (2.55)		1.996 (3.751)		1.779 (3.57)	
New business density	0.127 (0.093)	351	0.154 (0.149)	351	-0.014 (0.122)	351	0.032 (0.027)	351	-1.132 (0.966)	351	-0.23 (0.325)	351	-0.209 (0.279)	351	-0.395 (0.529)	351	0.079 (0.527)	349	-0.913 (0.998)	351	-0.782 (0.652)	351
	0.192 (0.418)		0.415 (0.688)		-0.085 (0.179)		0.008 (0.033)		-1.219 (2.803)		0.304 (0.617)		-0.095 (0.291)		-0.693 (1.007)		1.702 (1.366)		0.586 (3.073)		0.775 (2.457)	
Unemployment rate	-0.107 (0.074)	472	-0.316 (0.233)	472	-0.427** (0.174)	472	-0.07** (0.034)	472	-3.035 (2.538)	472	0.578* (0.328)	472	0.469 (0.287)	472	1.347* (0.772)	472	1.341** (0.67)	470	3.357** (1.437)	472	2.149** (0.949)	472
	-0.063 (0.333)		1.115 (1.08)		0.15 (0.182)		-0.049 (0.072)		6.313 (4.137)		-0.765* (0.439)		-1.135** (0.509)		-0.848 (2.049)		-3.561** (1.72)		0.282 (1.448)		-0.519 (1.174)	
Income GINI index	-0.619*** (0.218)	274	-0.321 (0.443)	274	-0.246 (0.288)	274	-0.022 (0.11)	274	-2.445 (3.349)	274	0.722 (0.831)	274	0.943 (0.867)	274	2.035* (1.209)	274	0.009 (1.508)	273	2.755 (2.004)	274	3.128* (1.784)	274
	0.158 (0.483)		0.997 (0.882)		0.171 (0.241)		0.041 (0.038)		-1.018 (2.234)		-0.808 (0.675)		-0.67 (0.411)		-1.553 (1.485)		-2.165 (1.419)		-1.956 (2.103)		-1.935 (1.869)	

Notes: Panel specification with averaged annual data over three-year periods (2006-2014). Clustered standard errors in parentheses. The regressions include the lag of GDP growth, country and period dummies, and a constant term. All these variables are omitted for space considerations. \*, \*\*, and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 10** The effect of legal rules on financial and economic outcomes: Differentiation by legal tradition

	Creditor rights		Investor protection		Credit information		Recovery rate		Contract enforce.		Starting a business		Registering a property		Construction permits		Paying taxes		Time to export		Time to import		
	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
Stock market capitalization	Common law	0.189 (7.219)	266	0.756 (2.924)	266	137.97 (110.84)	266	1.466 (1.531)	266	-19.261 (17.205)	266	-2.887 (7.004)	266	-72.223 (55.211)	266	-8.811 (15.706)	266	-104.428 (71.1)	266	-86.31 (53.912)	266		
	Civil law	1.379 (2.62)	266	-0.93 (2.239)	266	-13.829 (20.714)	266	0.47 (0.501)	266	-0.272 (4.345)	266	3.183 (3.988)	266	3.351 (10.954)	266	6.736 (12.825)	266	-19.626 (23.677)	266	-15.86 (14.555)	266		
Stocks traded	Common law	1.718 (11.942)	243	4.945* (2.692)	243	-144.681 (100.289)	243	-0.266 (1.735)	243	8.683 (19.433)	243	-0.472 (11.847)	243	69.786 (48.747)	243	-7.344 (29.794)	243	-5.031 (81.444)	243	-10.704 (45.096)	243		
	Civil law	7.794** (3.325)	243	5.456** (2.491)	243	15.347 (18.286)	243	1.512** (0.591)	243	-7.74 (5.145)	243	-6.305 (5.094)	243	-7.938 (9.07)	243	-13.624 (14.602)	243	-41.002 (30.224)	243	-33.187** (16.879)	243		
Domestic credit to private sector by banks	Common law	-0.315 (2.523)	322	-1.133 (1.641)	322	-9.618 (13.565)	322	0.281 (0.604)	322	-1.584 (3.937)	322	2.63 (3.246)	322	-9.421* (5.506)	322	2.57 (7.289)	322	-7.716 (12.778)	322	-3.491 (7.674)	322		
	Civil law	1.018 (0.748)	322	1.194 (0.997)	322	-3.579 (19.004)	322	0.06 (0.16)	322	-2.057 (1.685)	322	-0.685 (1.949)	322	-2.423 (4.054)	322	-1.239 (4.303)	322	-19.428 (15.08)	322	-11.099 (7.434)	322		
Domestic credit provided by financial sector	Common law	-1.446 (3.125)	322	1.263 (1.322)	322	-2.027 (16.541)	322	0.754 (0.633)	322	-2.594 (5.569)	322	0.169 (2.923)	322	-10.571 (7.62)	322	-7.329 (11.511)	322	-7.617 (15.954)	322	-1.333 (9.681)	322		
	Civil law	0.786 (0.876)	322	1.836 (1.149)	322	-3.82 (20.407)	322	-0.056 (0.28)	322	-2.004 (1.981)	322	0.135 (1.961)	322	-5.236 (3.972)	322	-8.719 (5.423)	322	-14.033 (15.682)	322	-5.381 (8.347)	322		
Domestic credit to private sector	Common law	0.421 (2.16)	322	-1.034 (1.649)	322	-7.943 (13.818)	322	0.313 (0.583)	322	-3.677 (3.579)	322	1.481 (3.685)	322	-8.05 (5.622)	322	2.38 (7.086)	322	-10.809 (14.081)	322	-4.712 (8.38)	322		
	Civil law	0.971 (0.758)	322	1.133 (1.006)	322	-3.223 (18.965)	322	0.061 (0.16)	322	-2.032 (1.721)	322	-0.483 (1.965)	322	-2.912 (3.987)	322	-3.172 (4.346)	322	-19.642 (15.109)	322	-11.596 (7.452)	322		
Foreign direct investment	Common law	-0.297 (0.845)	517	0.16 (0.288)	517	6.182* (3.417)	517	0.024 (0.186)	517	0.016 (1.023)	517	-0.588 (1.141)	517	-2.957 (2.801)	517	-5.791** (2.613)	517	0.706 (4.595)	517	0.978 (3.384)	517		
	Civil law	0.239 (0.263)	517	-0.264 (0.294)	517	-1.349 (3.702)	517	0.09 (0.066)	517	1.436 (1.195)	517	1.605 (1.253)	517	-0.339 (2.097)	517	2.563 (1.845)	517	0.562 (2.57)	517	0.852 (2.205)	517		

**Table 10 (Continued)**  
The effect of legal rules on financial and economic outcomes: Differentiation by legal tradition

	Creditor rights		Investor protection		Credit information		Recovery rate		Contract enforce.		Starting a business		Registering a property		Construction permits		Paying taxes		Time to export		Time to import	
	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
Trade	-3.006 (6.471)	498	-1.078 (3.4)	498	-0.211 (2.134)	498	-0.168 (1.336)	498	25.891 (30.358)	498	11.915 (12.012)	498	1.897 (5.479)	498	29.525 (28.304)	498	-14.245 (16.749)	496	17.863 (18.804)	498	7.196 (9.688)	498
Civil law	-0.241 (1.166)		0.356 (1.284)		-0.075 (0.783)		0.127 (0.282)		0.479 (10.167)		0.116 (1.757)		-1.435 (1.588)		-3.299 (3.432)		2.366 (4.936)		3.045 (6.527)		-1.778 (6.095)	
Private gross fixed capital formation	1.239 (1.915)	256	1.426 (1.435)	256	0.483 (0.495)	256	0.142 (0.25)	256	-13.877 (8.413)	256	-1.851 (1.738)	256	-2.973* (1.676)	256	1.362 (3.656)	256	3.27 (3.132)	256	-1.041 (4.725)	256	-0.423 (3.577)	256
Civil law	-0.05 (0.269)		-0.726 (0.62)		-0.465 (0.381)		0.033 (0.15)		-3.732 (4.821)		-0.426 (0.89)		-0.21 (1.079)		-0.877 (1.973)		4.67** (2.032)		2.825 (2.854)		3.407 (2.243)	
New business density	-0.245 (0.326)	354	0.511 (1.348)	354	-0.039 (0.112)	354	0.127 (0.153)	354	0.325 (4.739)	354	0.427 (1.222)	354	-0.036 (0.338)	354	-3.306** (1.629)	354	0.984 (1.272)	352	-3.773 (2.509)	354	-3.093* (1.792)	354
Civil law	0.166 (0.111)		0.141 (0.152)		-0.077 (0.135)		0.009 (0.022)		-0.25 (1.448)		-0.091 (0.269)		-0.106 (0.247)		-0.175 (0.528)		0.86 (0.811)		-0.075 (1.838)		-0.074 (1.217)	
Unemployment rate	-0.182 (0.142)	481	-0.196 (0.712)	481	-0.254** (0.119)	481	-0.112 (0.085)	481	1.842 (2.143)	481	0.187 (0.38)	481	-0.177 (0.707)	481	1.088* (0.568)	481	-0.714 (0.904)	479	3.933** (1.532)	481	2.395** (1.052)	481
Civil law	-0.093 (0.081)		-0.026 (0.278)		-0.142 (0.168)		-0.047 (0.049)		0.755 (3.735)		-0.078 (0.323)		-0.442 (0.442)		0.737 (1.006)		-0.362 (0.869)		2.125 (1.292)		1.251 (0.854)	
Income GINI index	0.059 (0.338)	275	0.604 (1.013)	275	0.114 (0.384)	275	0.425* (0.245)	275	1.231 (5.678)	275	-2.491*** (0.929)	275	-2.51 (2.175)	275	1.642 (1.445)	275	-1.609 (1.155)	274	3.009 (2.346)	275	3.291* (1.915)	275
Civil law	-0.549** (0.221)		-0.203 (0.404)		-0.137 (0.228)		0.017 (0.045)		-2.043 (2.39)		-0.12 (0.556)		-0.031 (0.403)		1.072 (1.184)		-0.692 (1.392)		1.524 (1.761)		2.24 (1.626)	

Notes: Panel specification with averaged annual data over three-year periods (2006-2014). Clustered standard errors in parentheses. The regressions include the lag of GDP growth, country and period dummies, and a constant term. All these variables are omitted for space considerations. \*\* and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 11**  
The effect of legal rules on financial and economic outcomes: Interaction legal rules x Income in 2004

	Creditor rights		Investor protection		Credit information		Recovery rate		Contract enforce.		Starting a business		Registering a property		Construction permits		Paying taxes		Time to export		Time to import	
	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs
Stock market capitalization	31.529** (15.585)	263	81.929 (58.82)	263	-2.995 (11.133)	263	-0.602 (5.792)	263	-464.488 (391.354)	263	10.899 (65.334)	263	-2.798 (30.308)	263	68.585 (174.743)	263	-17.326 (52.669)	263	279.858 (293.636)	263	147.159 (226.954)	263
Interaction legal rule/reg x Ln income in 2004	-3.517* (1.866)		-9.125 (6.626)		0.266 (1.127)		0.128 (0.602)		55.191 (46.421)		-1.747 (6.962)		0.541 (2.944)		-8.908 (20.069)		2.169 (5.64)		-34.364 (34.034)		-20.18 (26.491)	
Stocks traded	15.463 (33.414)	240	95.135 (82.514)	240	11.932 (12.309)	240	10.659* (6.256)	240	585.684 (386.893)	240	-155.597* (82.287)	240	-89.635** (43.295)	240	-288.337* (154.423)	240	-163.213 (116.471)	240	-201.537 (363.097)	240	-219.541 (195.025)	240
Interaction legal rule/reg x Ln income in 2004	-0.937 (3.94)		-9.223 (9.176)		-0.721 (1.423)		-0.982 (0.642)		-69.237 (45.976)		15.697* (8.858)		8.629* (4.379)		31.387* (17.252)		16.612 (13.504)		18.333 (42.479)		20.887 (22.279)	
Domestic credit to private sector by banks	-1.277 (4.762)	321	16.133 (22.683)	321	5.834 (4.741)	321	0.026 (1.648)	321	150.588 (98.476)	321	1.599 (8.964)	321	2.985 (13.311)	321	-39.777 (71.448)	321	-13.539 (27.144)	319	32.327 (78.819)	321	-16.108 (29.736)	321
Interaction legal rule/reg x Ln income in 2004	0.261 (0.589)		-1.952 (2.775)		-0.561 (0.512)		0.005 (0.174)		-18.024 (11.011)		-0.415 (0.943)		-0.295 (1.472)		4.203 (8.36)		1.45 (3.136)		-5.537 (10.165)		0.845 (3.228)	
Domestic credit provided by financial sector	-8.575 (6.614)	321	7.805 (28.008)	321	2.456 (5.621)	321	-0.075 (2.676)	321	141.131 (117.773)	321	11.355 (14.243)	321	13.191 (17.444)	321	-24.494 (68.962)	321	-8.105 (30.524)	319	46.262 (79.131)	321	0.743 (35.689)	321
Interaction legal rule/reg x Ln income in 2004	1.138 (0.827)		-0.962 (3.452)		-0.08 (0.625)		0.007 (0.296)		-17.681 (13.33)		-1.541 (1.605)		-1.439 (1.87)		2.14 (8.014)		-0.045 (3.613)		-6.638 (10.153)		-0.552 (3.887)	
Domestic credit to private sector	-1.207 (4.694)	321	11.563 (22.981)	321	6.132 (4.642)	321	0.151 (1.736)	321	153.679 (101.733)	321	1.165 (8.988)	321	-3.348 (12.648)	321	-35.266 (71.604)	321	-15.353 (26.775)	319	40.096 (80.258)	321	-7.565 (31.246)	321
Interaction legal rule/reg x Ln income in 2004	0.264 (0.595)		-1.403 (2.821)		-0.598 (0.501)		-0.008 (0.183)		-18.284 (11.373)		-0.385 (0.946)		0.381 (1.39)		3.655 (8.373)		1.468 (3.1)		-6.512 (10.327)		-0.212 (3.438)	
Foreign direct investment	-0.677 (1.722)	513	3.474 (4.495)	513	2.795 (1.817)	513	0.794 (0.906)	513	-13.605 (17.73)	513	-3.931 (7.381)	513	-5.204 (8.315)	513	3.853 (19.531)	513	-17.027 (15.321)	511	-25.048* (14.45)	513	-24.43* (13.392)	513
Interaction legal rule/reg x Ln income in 2004	0.107 (0.219)		-0.44 (0.522)		-0.328 (0.2)		-0.077 (0.096)		1.645 (2.084)		0.587 (0.845)		0.688 (0.962)		-0.542 (2.171)		1.99 (1.785)		2.966* (1.695)		2.967* (1.588)	

**Table II. (Continued)**

The effect of legal rules on financial and economic outcomes: Interaction legal rules x Income in 2004

	Creditor rights		Investor protection		Credit information		Recovery rate		Contract enforce.		Starting a business		Registering a property		Construction permits		Paying taxes		Time to export		Time to import	
	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs	Coeff/SE	Obs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
T rule																						
Legal rule/reg	-4.653 (12.346)	1.863 (7.879)	-7.843 (7.016)	-0.319 (2.602)	-60.386 (88.125)	37.394 (33.525)	-6.811 (15.776)	67.98 (85.767)	31.351 (52.858)	64.184 (76.478)	16.249 (42.82)											
Interaction legal rule/reg x Ln income in 2004	0.518 (1.519)	-0.2 (0.963)	0.856 (0.781)	0.046 (0.274)	7.698 (10.595)	-3.947 (3.55)	0.664 (1.694)	-7.02 (9.391)	-3.555 (5.92)	-6.722 (8.641)	-1.82 (5.137)											
Private gross fixed capital formation																						
Legal rule/reg	2.82 (1.714)	5.275 (3.186)	0.201 (1.974)	0.937 (0.984)	-1.973 (25.178)	-2.091 (5.058)	-8.251 (9.703)	-3.991 (9.942)	19.95** (9.994)	5.099 (16.384)	4.064 (13.029)											
Interaction legal rule/reg x Ln income in 2004	-0.365* (0.219)	-0.725* (0.409)	-0.05 (0.215)	-0.105 (0.114)	-0.521 (2.94)	0.169 (0.59)	0.861 (1.076)	0.412 (1.082)	-1.832 (1.198)	-0.339 (1.986)	-0.164 (1.578)											
New business density																						
Legal rule/reg	-1.338 (1.298)	1.223 (2.015)	0.651 (0.441)	0.14 (0.141)	-13.081 (11.46)	-1.989 (2.367)	-1.225 (1.228)	2.065 (4.136)	-5.242** (2.494)	0.916 (8.802)	-1.579 (6.638)											
Interaction legal rule/reg x Ln income in 2004	0.19 (0.175)	-0.125 (0.254)	-0.08 (0.051)	-0.013 (0.016)	1.417 (1.383)	0.219 (0.295)	0.121 (0.131)	-0.332 (0.506)	0.664** (0.276)	-0.164 (1.135)	0.123 (0.87)											
Unemployment rate																						
Legal rule/reg	0.382 (0.581)	-3.322 (2.894)	-1.484* (0.837)	-0.048 (0.269)	-15.287 (14.569)	3.384** (1.665)	6.682*** (2.346)	4.915 (3.884)	11.24* (6.522)	7.694* (4.594)	7.024 (4.332)											
Interaction legal rule/reg x Ln income in 2004	-0.063 (0.081)	0.393 (0.367)	0.145 (0.092)	-0.001 (0.033)	1.827 (1.71)	-0.386** (0.194)	-0.766*** (0.253)	-0.455 (0.478)	-1.289* (0.761)	-0.618 (0.518)	-0.647 (0.496)											
Income GINI index																						
Legal rule/reg	-3.266* (1.686)	-3.558 (4.052)	-1.846 (2.977)	-0.091 (0.927)	-19.677 (17.389)	10.501** (5.15)	8.127* (4.535)	19.518** (8.712)	1.483 (11.052)	19.233 (22.612)	21.184 (19.149)											
Interaction legal rule/reg x Ln income in 2004	0.34 (0.216)	0.387 (0.451)	0.196 (0.324)	0.011 (0.093)	1.93 (1.801)	-1.141** (0.522)	-0.847* (0.457)	-2.005** (0.943)	-0.236 (1.096)	-2.01 (2.492)	-2.123 (2.117)											

Notes: Panel specification with averaged annual data over three-year periods (2006-2014). Clustered standard errors in parentheses. The regressions include the lag of GDP growth, country and period dummies, and a constant term. All these variables are omitted for space considerations. \*\* and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 12**  
Average annual change in legal rules against average annual change in financial and economic outcomes (2006-2014)

Dependent variable →	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)	(10)	(11)	(12)
	Stock market capitalization	Stocks traded	Domestic credit to private sector by banks	Domestic credit provided by financial sector	Domestic credit to private sector	Foreign direct investment	Trade	Private gross fixed capital formation	New business density	Unemployment rate	Income GINI index	GDP per capita growth
<i>Panel A: Creditor rights</i>												
Creditor rights	2.914 (2.297)	3.187 (2.613)	1.761 (1.213)	1.786 (1.374)	2.579* (1.413)	0.72* (0.389)	-1.424 (1.963)	0.502 (0.648)	-0.043 (0.081)	-0.125 (0.105)	-0.971*** (0.272)	0.129 (0.199)
Constant	-2.151** (0.828)	-1.579** (0.723)	0.72** (0.362)	1.197** (0.455)	0.551 (0.525)	-0.212* (0.118)	0.319 (0.378)	-0.053 (0.191)	0.011 (0.038)	0.034 (0.04)	-0.234*** (0.07)	-0.264*** (0.056)
R2	0	0	0.01	0.01	0.01	0.01	0	0.01	0	0	0.19	0
Obs	94	87	110	110	110	174	170	90	123	161	55	174
<i>Panel B: Investor protection</i>												
Investor rights	-4.22 (5.548)	6.293 (4.368)	0.892 (1.702)	1.692 (2.189)	2.423 (2.252)	-0.723 (0.599)	-0.73 (2.558)	-0.077 (0.88)	0.343* (0.182)	0.233 (0.382)	-0.236 (0.787)	-0.825 (0.537)
Constant	-1.775** (0.817)	-1.862** (0.71)	0.826*** (0.249)	1.256*** (0.389)	0.638 (0.457)	-0.1 (0.105)	0.215 (0.415)	0.026 (0.168)	-0.018 (0.042)	0.008 (0.03)	-0.304*** (0.093)	-0.206*** (0.049)
R2	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
Obs	94	87	110	110	110	174	170	90	123	161	55	174

Notes: Robust standard errors are in parentheses. \*, \*\* and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 13**

Determinants of the effectiveness of creditor rights reforms

	Financial depth (private credit over GDP)							Entrepreneurship (new business density)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Ln GDP pc	2.53*** (0.867)	1.467** (0.723)	0.64 (0.637)	2.118** (0.874)	1.914** (0.84)	1.435 (0.883)	1.406* (0.8)	-0.003 (0.174)	0.044 (0.151)	-0.043 (0.127)	0.089 (0.183)	0.059 (0.161)	-0.041 (0.16)	-0.3 (0.252)
Rule of law		2.608* (1.451)					3.508* (1.844)		-0.09 (0.236)					0.394 (0.387)
Control of corruption			4.7*** (1.422)							0.075 (0.365)				
Political stability				1.292 (0.942)			-1.217 (1.366)				-0.225 (0.182)			-0.08 (0.321)
Catholics					-0.102** (0.039)							0.001 (0.008)		0.006 (0.009)
Muslims					-0.084*** (0.03)							-0.002 (0.006)		-0.004 (0.008)
Protestants					-0.029 (0.074)							-0.008 (0.013)		-0.008 (0.015)
Ethnic fractionalization					-9.163** (3.438)		-9.801** (4.16)					0.214 (0.769)		0.523 (0.857)
Common law					-6.114* (3.134)							-0.047 (0.512)		0.02 (0.609)
Latitude						16.221* (8.712)	-4.008 (7.705)						0.6 (1.211)	1.951 (1.483)
Mineral resources						0.371* (0.199)	0.735*** (0.258)						0.089 (0.071)	0.065 (0.05)
R-squared	0.20	0.25	0.34	0.21	0.45	0.28	0.54	0.00	0.00	0.00	0.03	0.08	0.05	0.15
Number of obs	49	49	49	49	49	48	48	29	29	29	29	29	28	28

Notes: In columns 1 to 7 the sample is restricted to available data during the period 2006-2013, while columns 8 to 14 refer to the period 2006-2014. Only countries that improved their creditor rights during the respective period are considered. Regressions include a constant term, which is omitted for space considerations. Robust standard errors are in parentheses. \*, \*\* and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 14**  
Determinants of the effectiveness of investor protection reforms

	Financial depth (private credit over GDP)							Entrepreneurship (new business density)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Ln GDP pc	6.534** (2.736)	0.633 (3.111)	1.282 (2.938)	4.785 (3.09)	6.383** (2.838)	4.773* (2.644)	0.878 (2.898)	0.179 (0.235)	-0.333 (0.292)	-0.675* (0.335)	-0.126 (0.215)	0.002 (0.245)	0.188 (0.225)	-0.388 (0.401)
Rule of law		15.16** (6.959)				15.879** (7.777)			1.126 (0.729)					0.858 (1.156)
Control of corruption			13.205 (8.219)							1.836** (0.747)				
Political stability				5.591 (5.666)			-3.462 (4.498)				0.654 (0.514)			0.107 (0.649)
Catholics					-0.15 (0.101)		-0.127 (0.098)					0.026* (0.014)		0.018 (0.013)
Muslims					-0.246 (0.159)		-0.203 (0.157)					0.007 (0.011)		0.006 (0.013)
Protestants					-0.212 (0.342)		-0.319 (0.378)					0.036* (0.019)		0.018 (0.029)
Ethnic fractionalization					-7.114 (16.848)		4.03 (17.41)					0.063 (1.496)		1.288 (2.372)
Common law					-5.454 (8.239)		-2.499 (10.109)					1.05 (0.885)		0.294 (1.123)
Latitude						32.19* (18.281)	27.096 (25.334)						-1.066 (1.171)	1.192 (1.519)
Mineral resources						5.999*** (1.688)	5.163*** (1.369)						0.923*** (0.088)	0.753*** (0.245)
R-squared	0.10	0.19	0.16	0.12	0.20	0.24	0.36	0.01	0.11	0.25	0.05	0.22	0.47	0.55
Number of obs	47	47	47	47	47	47	47	33	33	33	33	33	33	33

Notes: In columns 1 to 7 the sample is restricted to available data during the period 2006-2013, while columns 8 to 14 refer to the period 2006-2014. Only countries that improved their investor protection index during the respective period are considered. Regressions include a constant term, which is omitted for space considerations. Robust standard errors are in parentheses. \*, \*\* and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 15**  
Determinants of the gap between creditor rights and financial depth and entrepreneurship

	Financial depth (private credit over GDP)						Entrepreneurship (new business density)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Ln GDP pc	-5.236*** (0.881)	0.623 (1.615)	-0.629 (1.578)	-3.749*** (1.217)	-4.919*** (1.199)	-4.62*** (1.119)	0.59 (1.534)	-1.792 (1.498)	-1.676 (2.614)	-2.236 (2.536)	1.742 (2.278)	-0.548 (2.007)	-2.156 (1.897)	-1.162 (2.752)
Rule of law		-11.993*** (2.545)				-18.556*** (3.894)			0.061 (4.829)					6.868 (5.986)
Control of corruption			-9.043*** (2.455)							1.081 (4.358)				
Political stability				-3.919* (2.167)		2.945 (2.67)					-7.818** (3.81)			-11.058*** (3.545)
Catholics					0.084 (0.072)							0.077 (0.11)		0.091 (0.115)
Muslims					-0.071 (0.075)							-0.022 (0.078)		-0.045 (0.081)
Protestants					-0.013 (0.08)							-0.162 (0.148)		-0.198 (0.16)
Ethnic fractionalization					13.79* (7.865)		10.886 (7.614)					6.217 (14.396)		3.037 (14.69)
Common law					6.672* (3.521)		15.797*** (3.836)					11.088* (6.205)		12.561* (7.164)
Latitude						-7.332 (10.004)	24.585** (12.144)						0.565 (20.361)	15.965 (22.996)
Mineral resources						0.43 (0.667)	-0.216 (0.622)						2.064* (1.075)	2.661** (1.163)
R-squared	0.12	0.21	0.17	0.13	0.19	0.12	0.32	0.01	0.01	0.01	0.04	0.06	0.03	0.15
Number of obs	156	154	154	154	151	153	149	110	109	109	109	107	107	105

Notes: Data correspond to the year 2006. Regressions include a constant term, which is omitted for space considerations. Robust standard errors are in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 16**

Determinants of the gap between investor protection and financial depth and entrepreneurship

	Financial depth (private credit over GDP)						Entrepreneurship (new business density)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Ln GDP pc	-10.274*** (1.128)	-4.276*** (1.544)	-4.707*** (1.563)	-9.78*** (1.381)	-9.33*** (1.391)	-8.319*** (1.343)	-2.499* (1.491)	-6.935*** (1.482)	-5.828*** (2.179)	-5.389*** (2.23)	-4.022* (2.055)	-4.683*** (1.897)	-6.513*** (1.875)	-4.07* (2.308)
Rule of law		-12.327*** (2.486)					-20.502*** (3.264)		-1.913 (3.947)					2.579 (4.744)
Control of corruption			-10.987*** (2.596)							-2.594 (3.826)				
Political stability				-1.313 (2.108)			7.293*** (2.551)				-6.436* (3.244)			-6.471* (3.388)
Catholics					0.044 (0.068)		0.011 (0.074)					0.043 (0.098)		0.035 (0.104)
Muslims					-0.023 (0.078)		-0.003 (0.073)					0.091 (0.073)		0.088 (0.076)
Protestants					-0.086 (0.09)		0.006 (0.091)					-0.268** (0.131)		-0.283** (0.141)
Ethnic fractionalization					10.555 (7.757)		5.355 (7.527)					-3.013 (12.91)		-6.984 (14.521)
Common law					8.901** (3.426)		15.159*** (3.817)					15.163** (6.191)		15.148** (6.971)
Latitude													-10.983 (18.77)	1.54 (23.119)
Mineral resources													1.067 (0.925)	2.145** (0.935)
R-squared	0.36	0.43	0.42	0.36	0.40	0.37	0.51	0.14	0.14	0.14	0.16	0.23	0.17	0.29
Number of obs	156	154	154	154	151	153	149	110	109	109	109	107	107	105

Notes: Data correspond to the year 2006. Regressions include a constant term, which is omitted for space considerations. Robust standard errors are in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 17**

Determinants of the gap between creditor rights and contract enforcement and debt recovery

	Contract enforcement						Debt recovery							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Ln GDP pc	4.966*** (0.881)	2.501 (1.654)	2.502 (1.632)	5.239*** (1.171)	4.711*** (1.1)	5.988*** (1.303)	3.714** (1.665)	-1.82* (0.957)	-0.4 (1.52)	-0.223 (1.541)	-2.548** (1.231)	-2.229* (1.232)	-0.347 (1.253)	0.534 (1.7)
Rule of law		4.657* (2.647)					4.707 (3.846)		-3.272 (2.58)					-9.417** (3.93)
Control of corruption			4.564* (2.444)							-3.568 (2.486)				
Political stability				-1.315 (2.022)			-5.752** (2.425)				1.52 (1.997)			4.386 (2.662)
Catholics					0.079 (0.053)		0.103* (0.054)					0.085 (0.06)		0.073 (0.067)
Muslims					-0.068 (0.051)		-0.084 (0.052)					-0.099 (0.069)		-0.086 (0.069)
Protestants					0.001 (0.067)		0.003 (0.063)					-0.035 (0.084)		-0.006 (0.09)
Ethnic fractionalization					10.998 (6.696)		12.229* (6.803)					6.591 (6.865)		4.327 (7.594)
Common law					18.14*** (3.031)		19.119*** (3.373)					9.1** (3.706)		12.001*** (4.008)
Latitude						-17.267 (11.166)	10.776 (11.376)						-20.78* (11.284)	-0.992 (13.874)
Mineral resources						0.408 (0.52)	0.016 (0.496)						0.55 (0.557)	0.109 (0.606)
R-squared	0.14	0.15	0.15	0.13	0.34	0.14	0.38	0.02	0.03	0.03	0.02	0.12	0.05	0.16
Number of obs	168	165	165	165	161	163	158	168	165	165	165	161	163	158

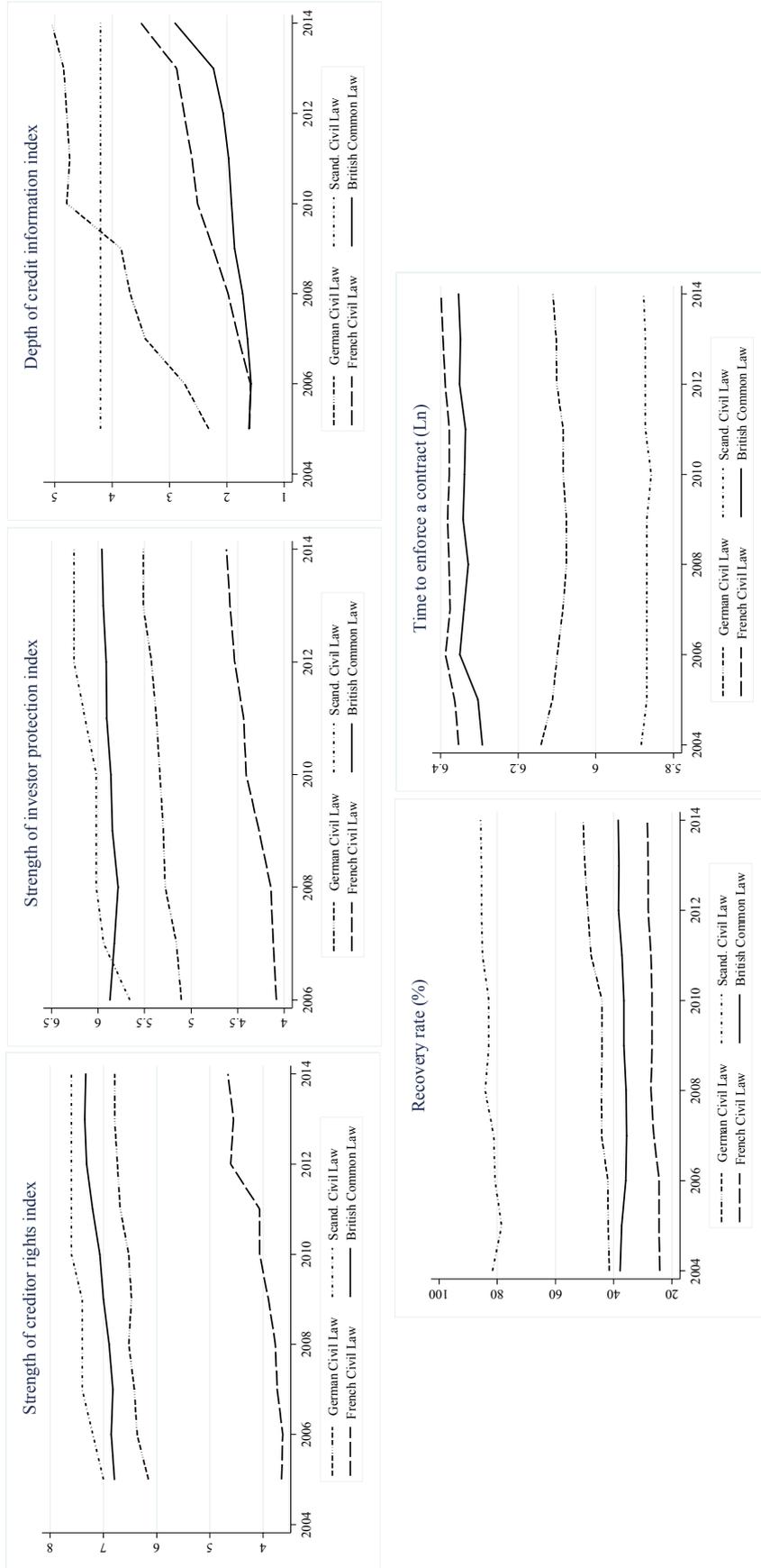
Notes: Data correspond to the year 2006. Regressions include a constant term, which is omitted for space considerations. Robust standard errors are in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.

**Table 18**

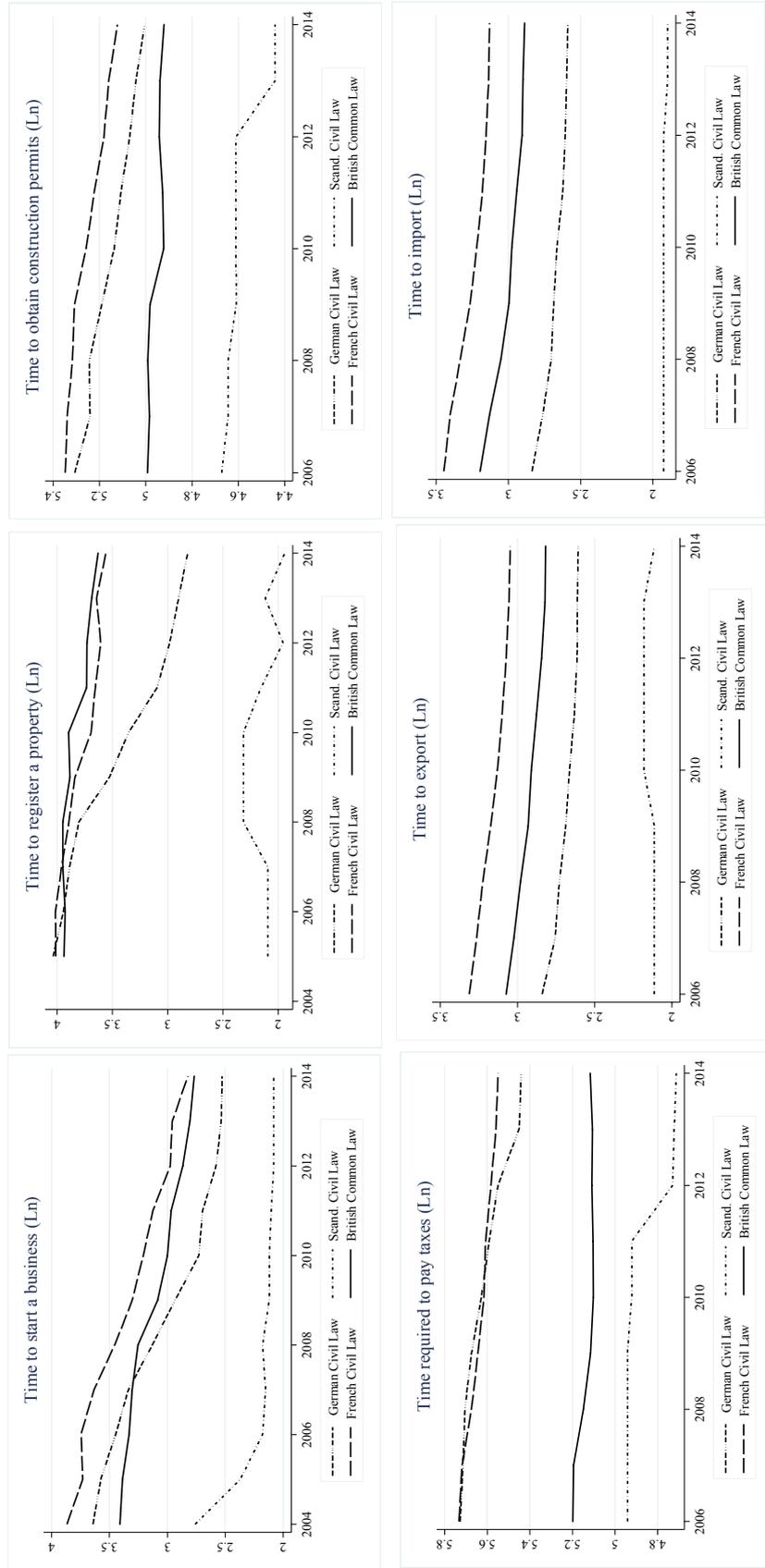
Determinants of the gap between investor protection and contract enforcement and debt recovery

	Contract enforcement							Debt recovery						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Ln GDP pc	0.121 (0.954)	-1.951 (1.525)	-1.238 (1.485)	-0.045 (1.216)	0.566 (1.061)	2.405** (1.21)	1.122 (1.642)	-6.665*** (1.077)	-4.852*** (1.714)	-3.963** (1.689)	-7.832*** (1.361)	-6.375*** (1.188)	-3.93*** (1.294)	-2.059 (1.775)
Rule of law		3.939* (2.327)					3.243 (3.163)		-3.99 (2.846)					-10.88*** (3.652)
Control of corruption			2.413 (2.349)							-5.72** (2.788)				
Political stability				-0.019 (1.938)			-2.906 (2.202)				2.817 (2.212)			7.232*** (2.56)
Catholics					0.048 (0.048)		0.014 (0.056)					0.054 (0.058)		-0.016 (0.066)
Muslims					-0.001 (0.054)		-0.013 (0.057)					-0.031 (0.069)		-0.015 (0.069)
Protestants					-0.075 (0.064)		-0.075 (0.065)					-0.111 (0.082)		-0.084 (0.09)
Ethnic fractionalization					5.962 (6.51)		4.112 (6.889)					1.555 (7.193)		-3.791 (7.376)
Common law					20.473*** (2.998)		17.725*** (3.7)					11.433*** (4.065)		10.606** (4.238)
Latitude														-37.43*** (10.135)
Mineral resources							-16.363 (8.476)							-28.131** (11.31)
R-squared	0.00	0.02	0.01	0.00	0.26	0.09	0.28	0.19	0.21	0.22	0.20	0.24	0.25	0.32
Number of obs	168	165	165	165	161	163	158	168	165	165	165	161	163	158

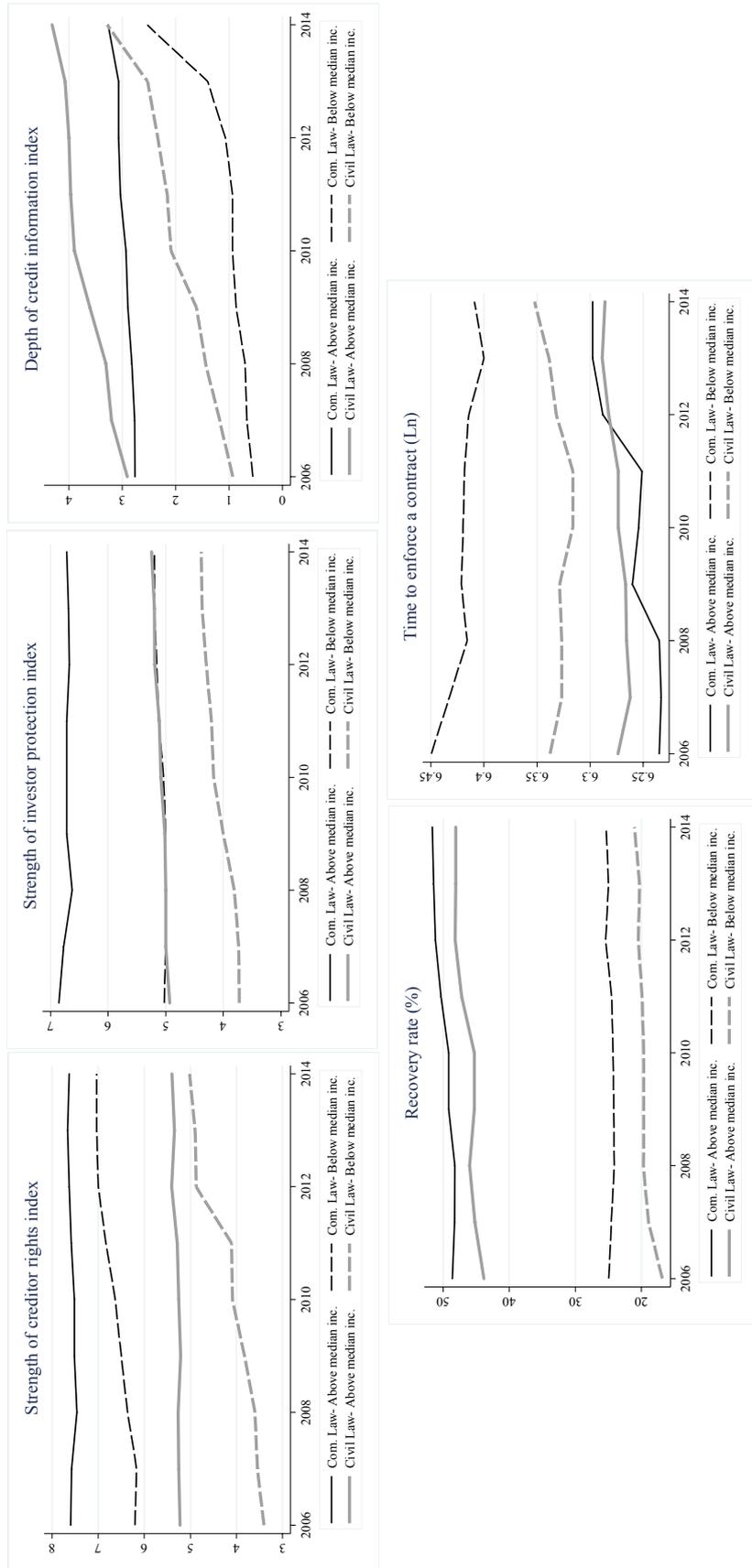
Notes: Data correspond to the year 2006. Regressions include a constant term, which is omitted for space considerations. Robust standard errors are in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10, 5 and 1% levels, respectively.



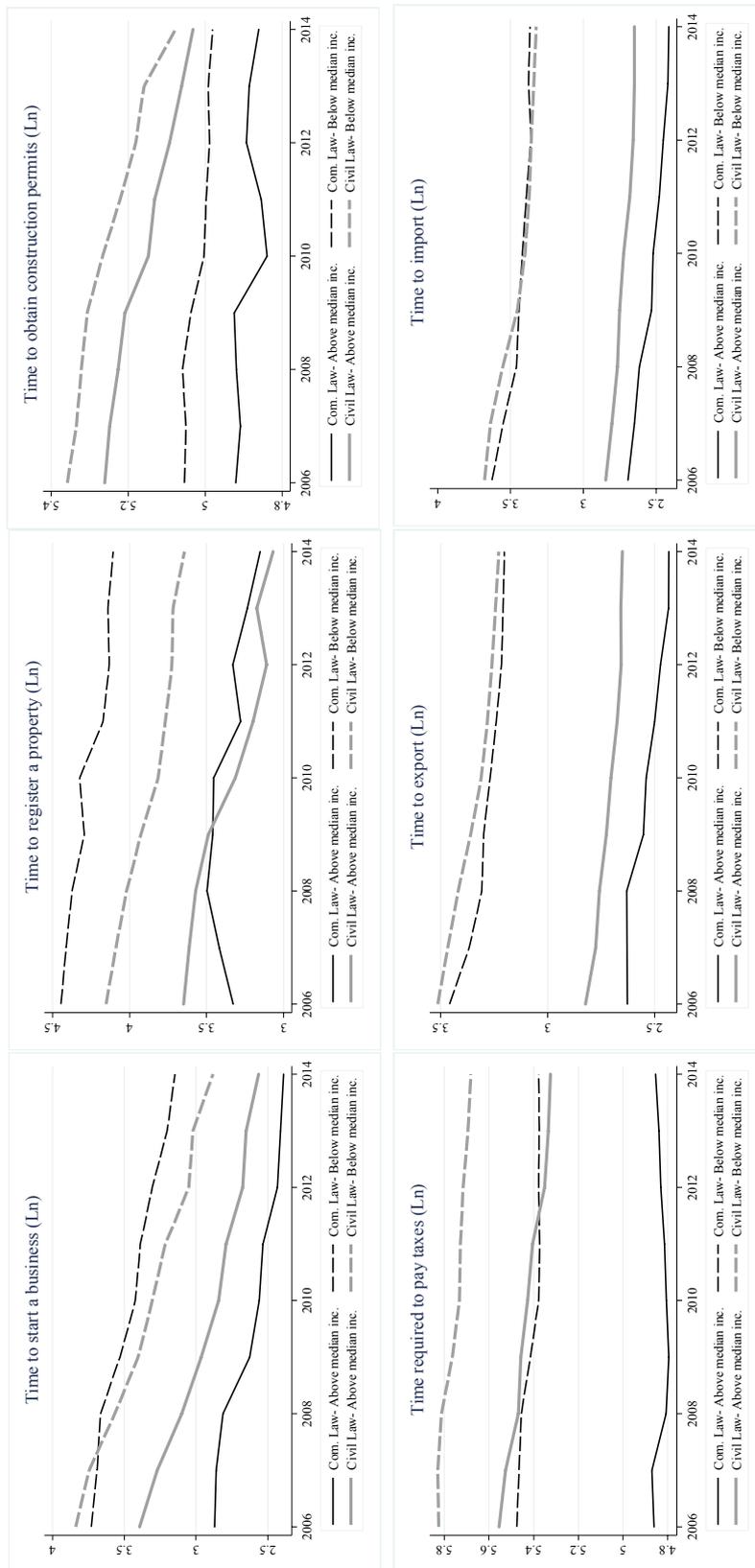
**Figure 1: Evolution of Legal Rules and Regulatory Indicators across Legal Traditions**



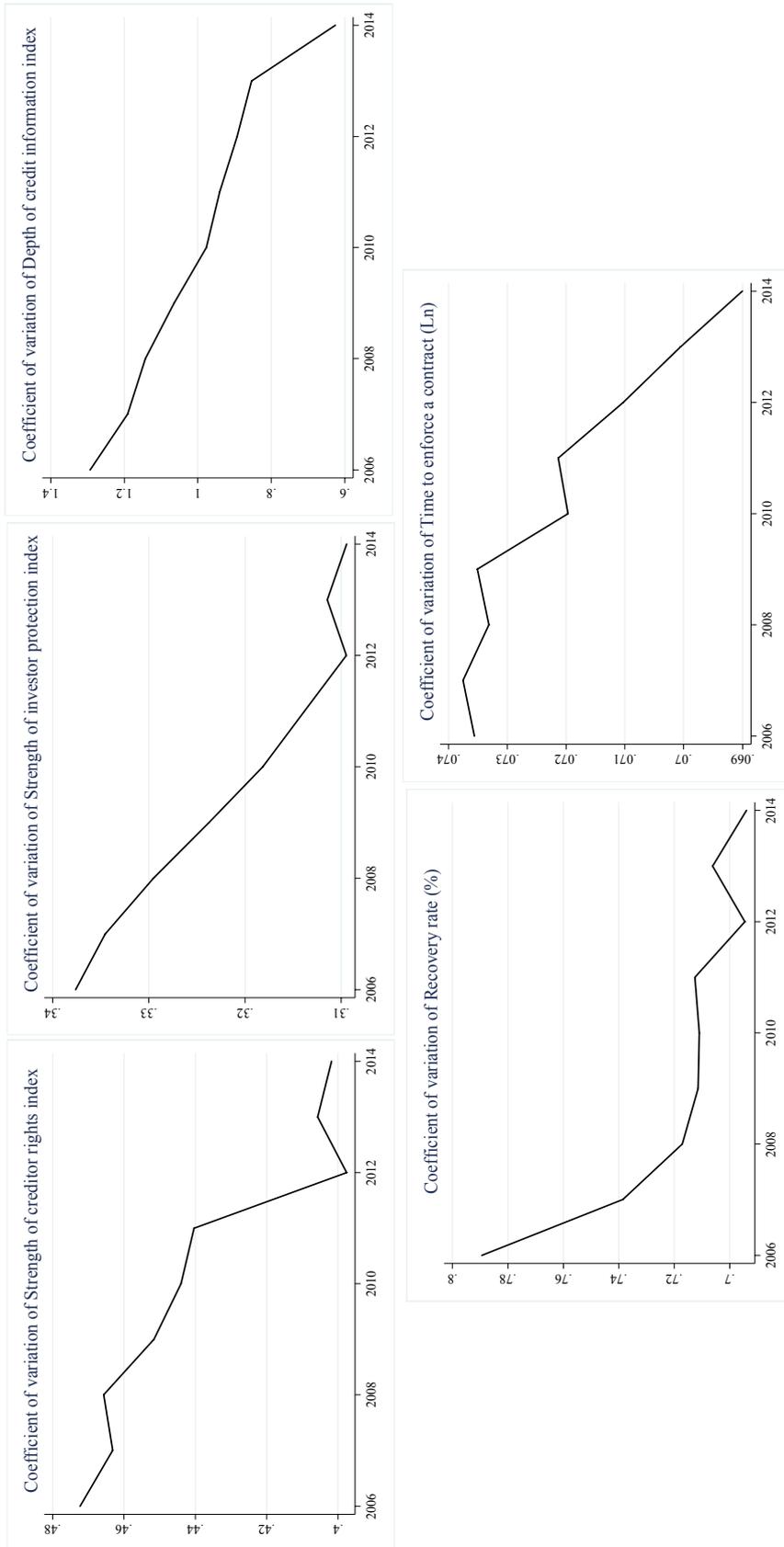
**Figure 1: Evolution of Legal Rules and Regulatory Indicators across Legal Traditions (Continued)**



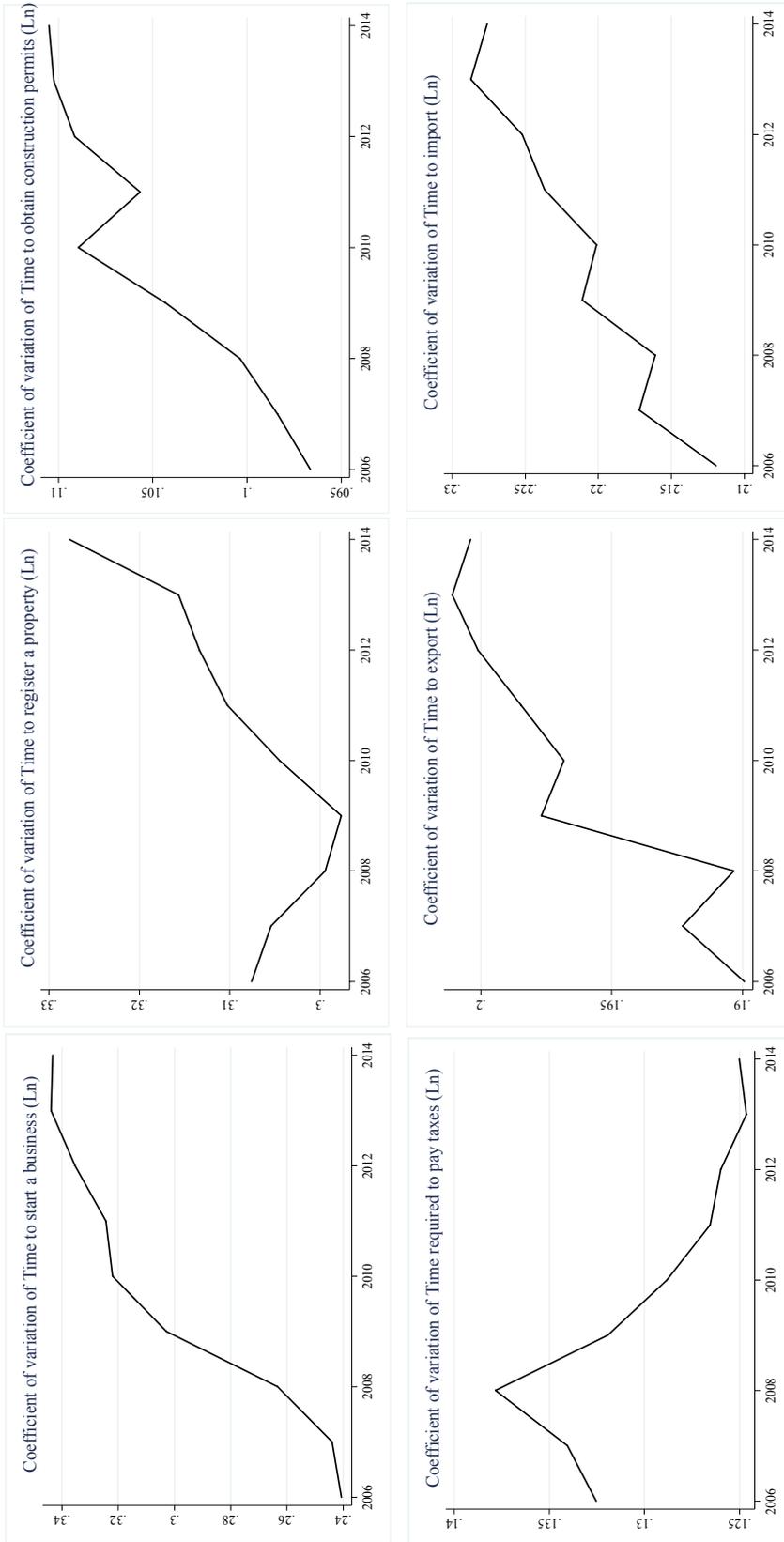
**Figure 2: Evolution of Legal Rules and Regulatory Indicators Distinguishing between Common and Civil Law and Level of Development**



**Figure 2: Evolution of Legal Rules and Regulatory Indicators Distinguishing between Common and Civil Law and Level of Development (Continued)**



**Figure 3: Sigma Convergence**



**Figure 3: Sigma Convergence (Continued)**

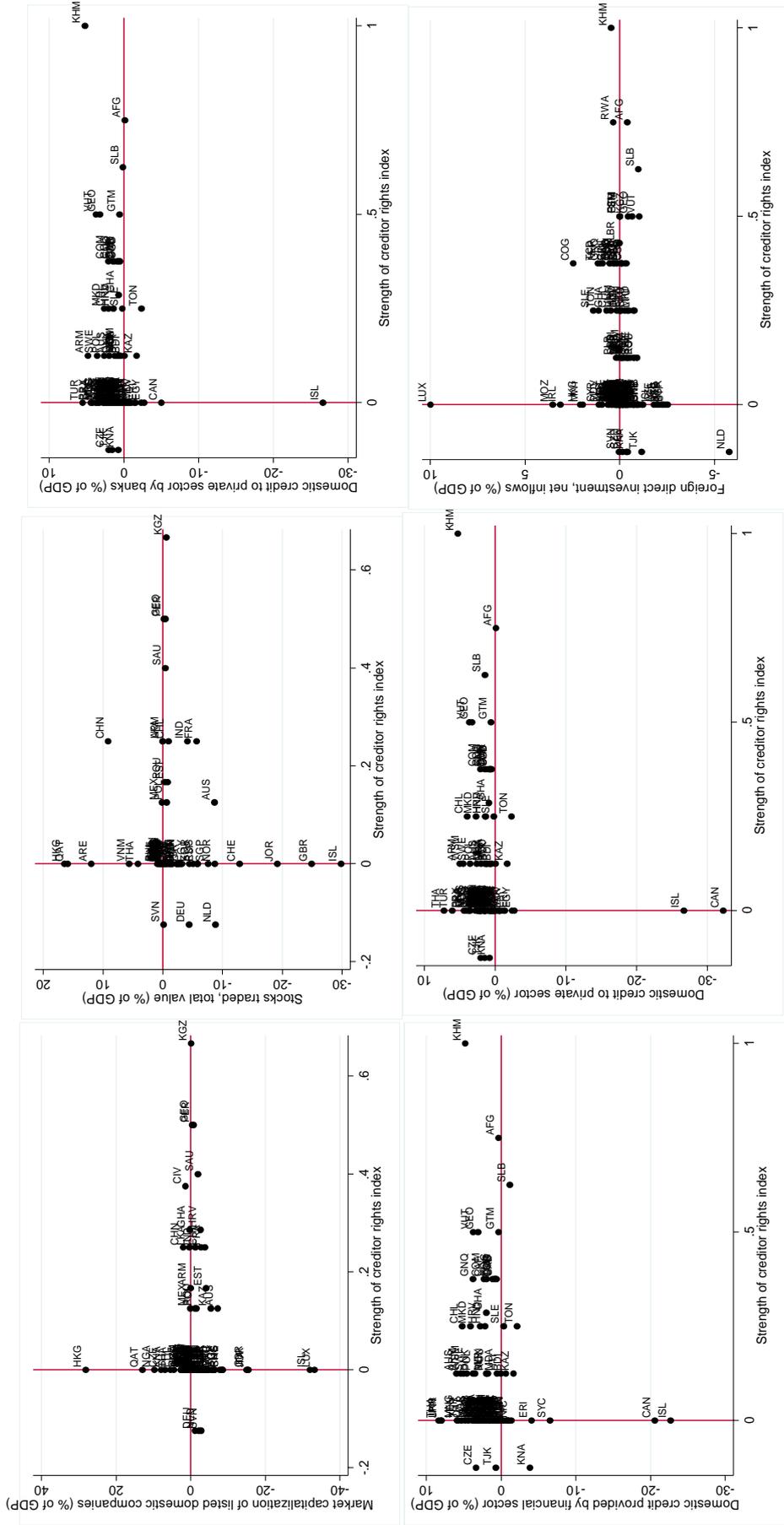


Figure 4: Change in Creditor Rights against Change in Financial and Economic Outcomes

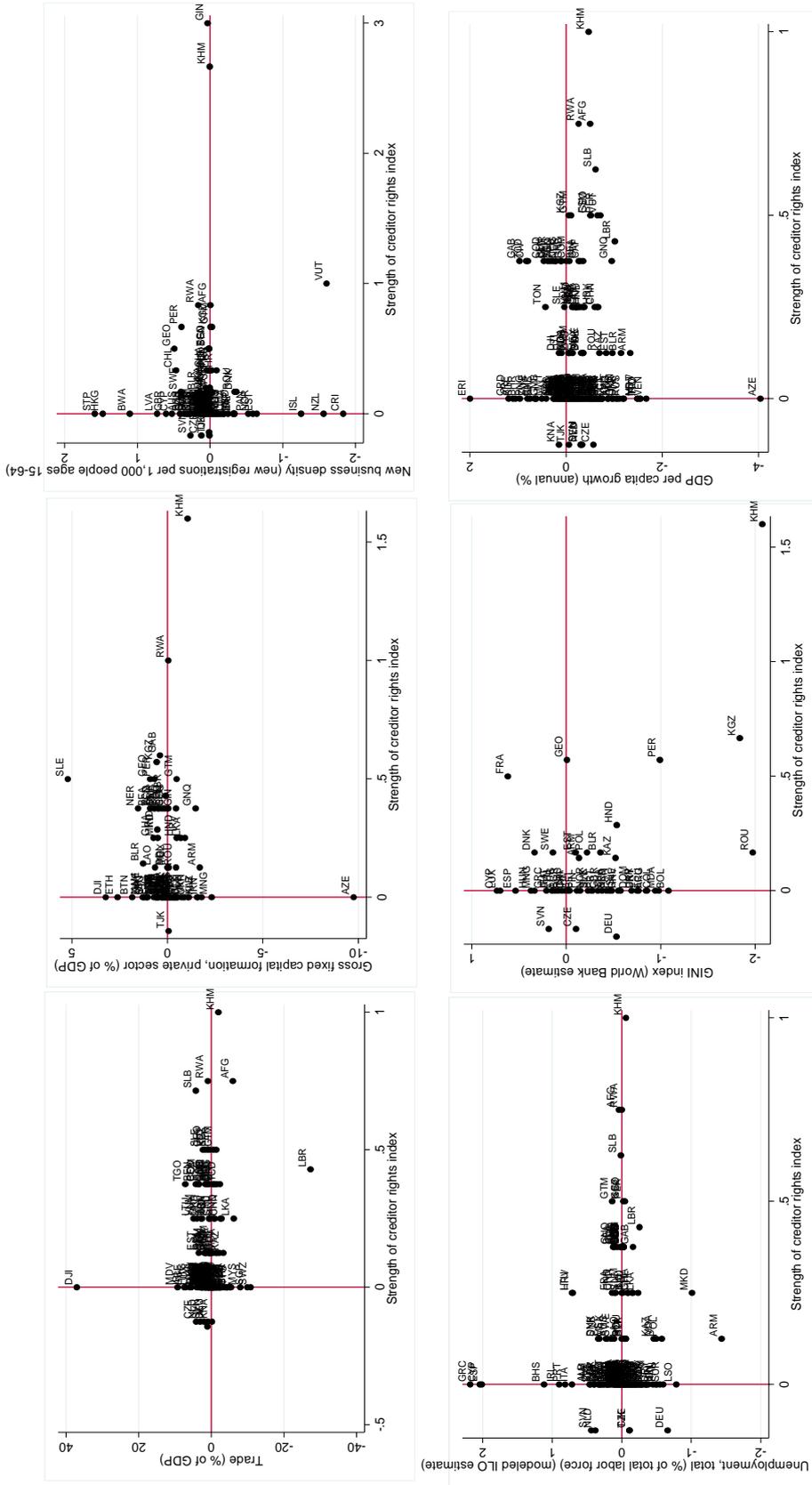
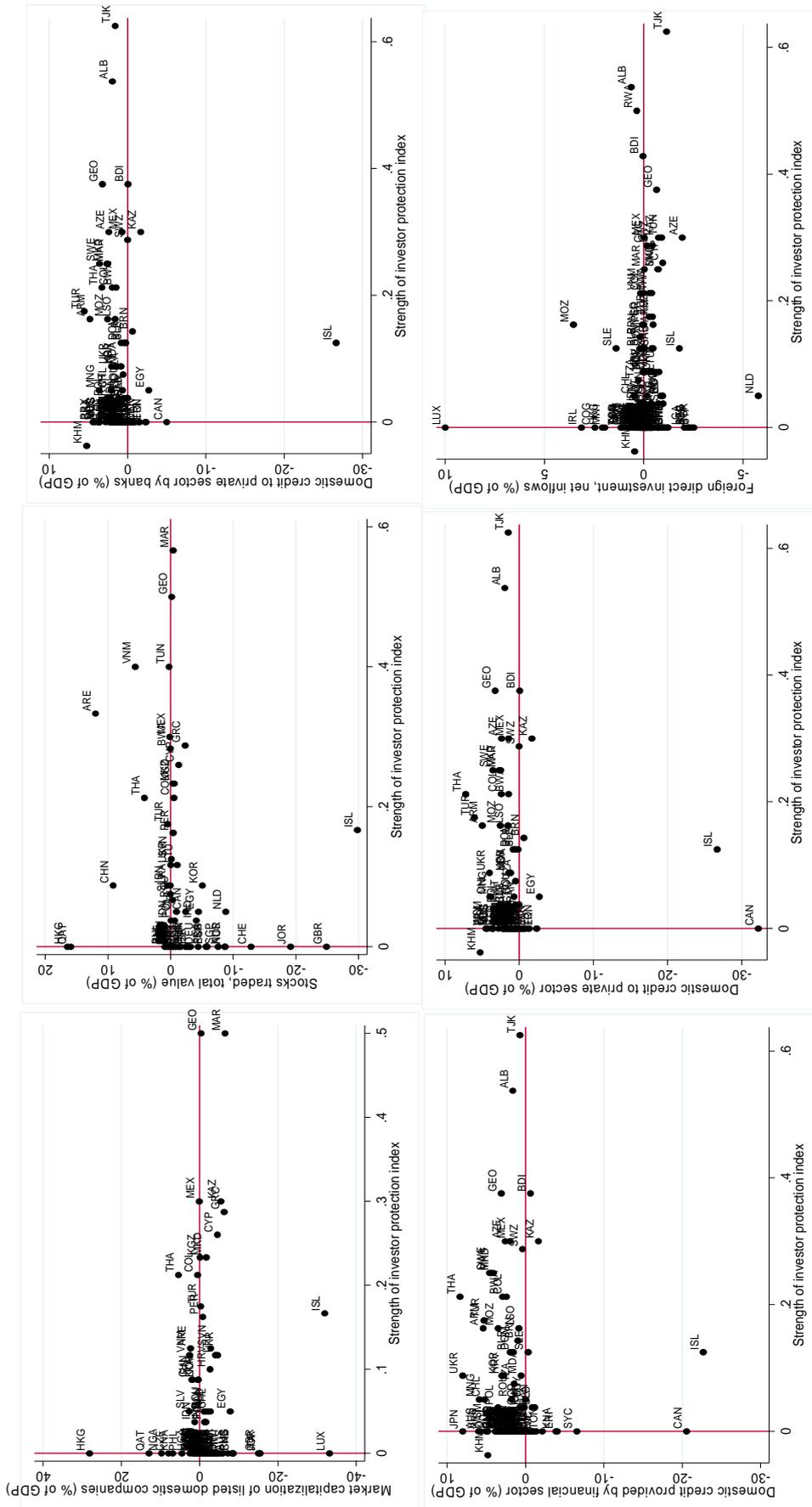


Figure 4: Change in Creditor Rights against Change in Financial and Economic Outcomes (Continued)



**Figure 5: Change in Investor Rights against Change in Financial and Economic Outcomes**

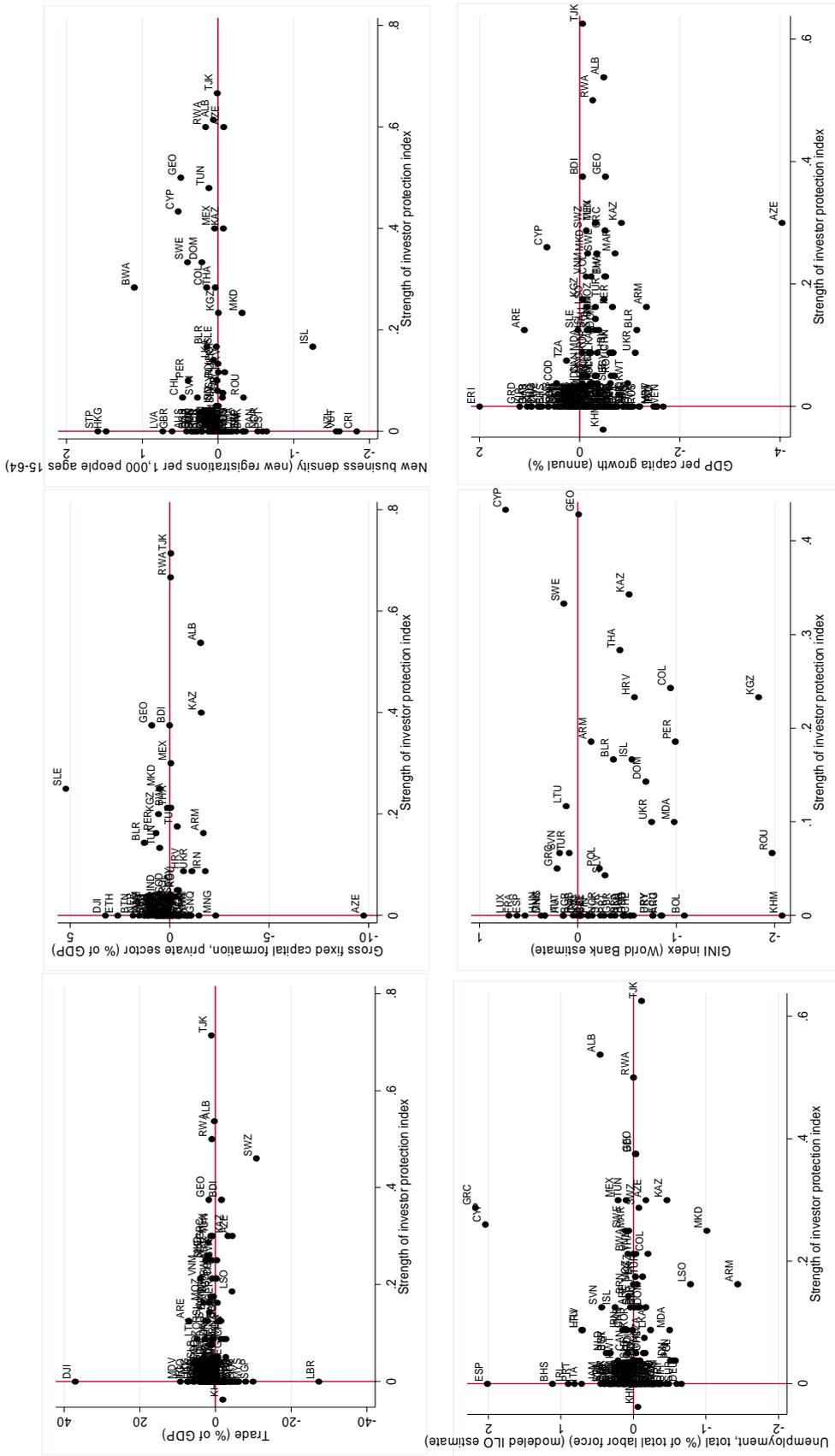
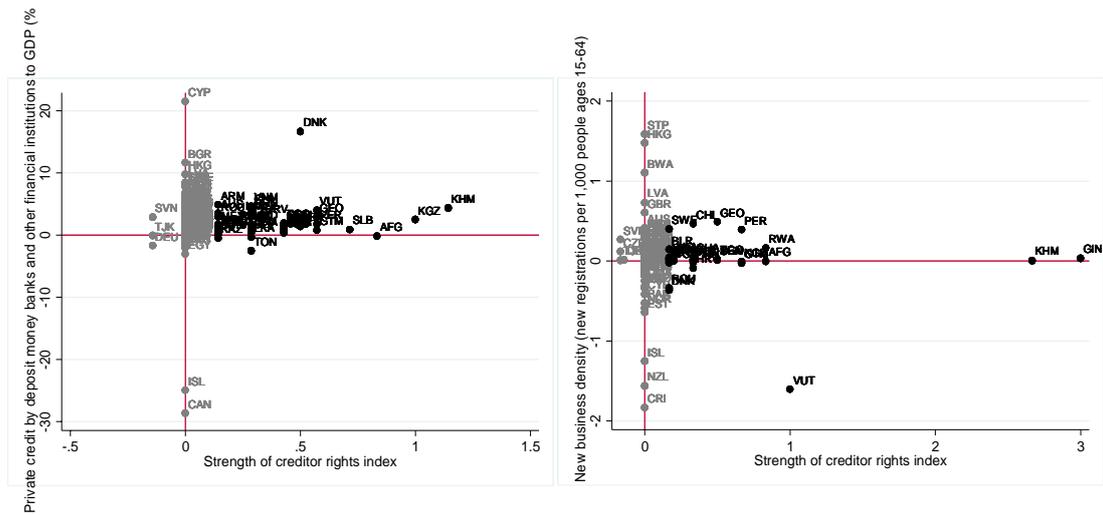
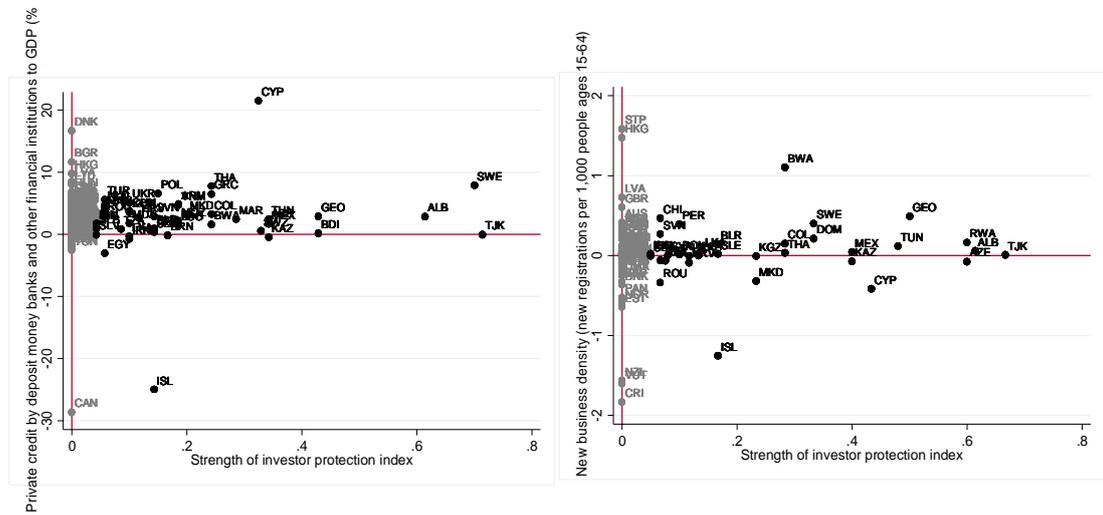


Figure 5: Change in Investor Rights against Change in Financial and Economic Outcomes (Continued)



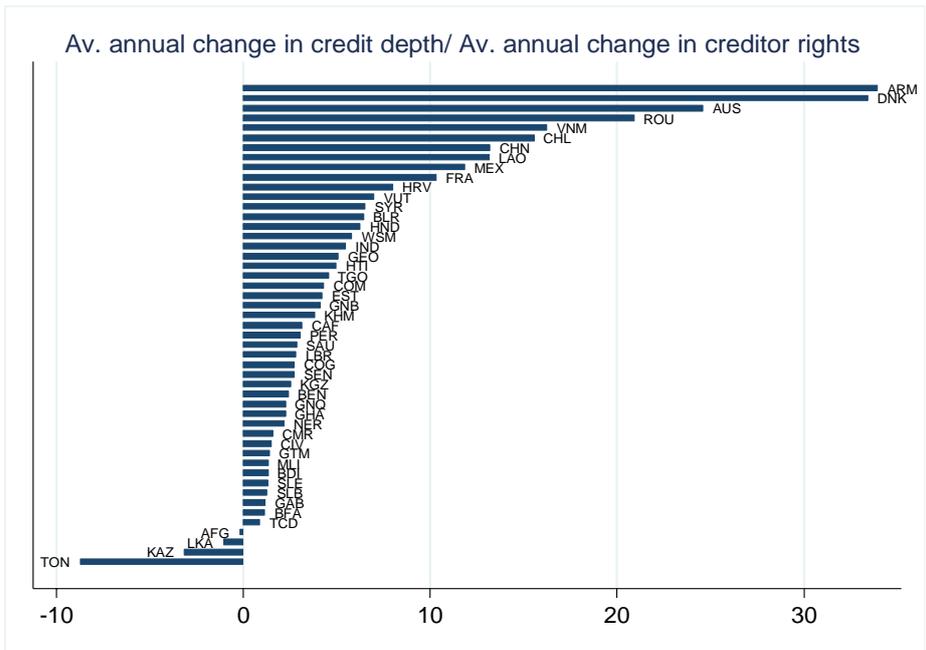
Panel A: Effectiveness of creditor rights reforms



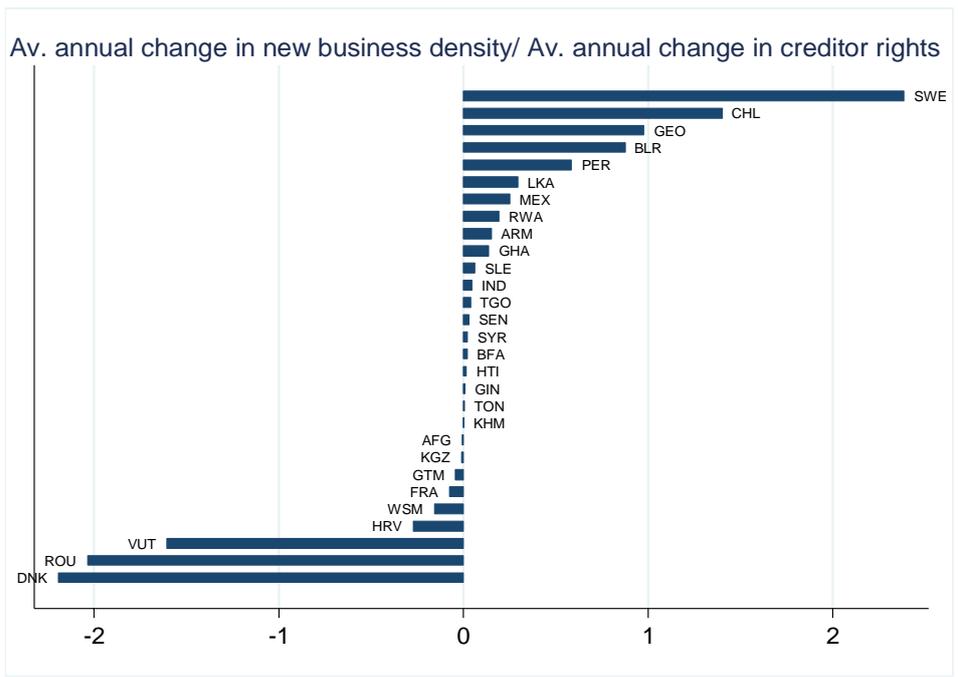
Panel B: Effectiveness of investor protection reforms

**Figure 6: Average annual change in financial depth and entrepreneurship vs average annual change in creditor and investor rights**

Notes: Countries that have conducted legal reforms to improve their creditor rights (Panel A) or investor protection (Panel B) are in black.

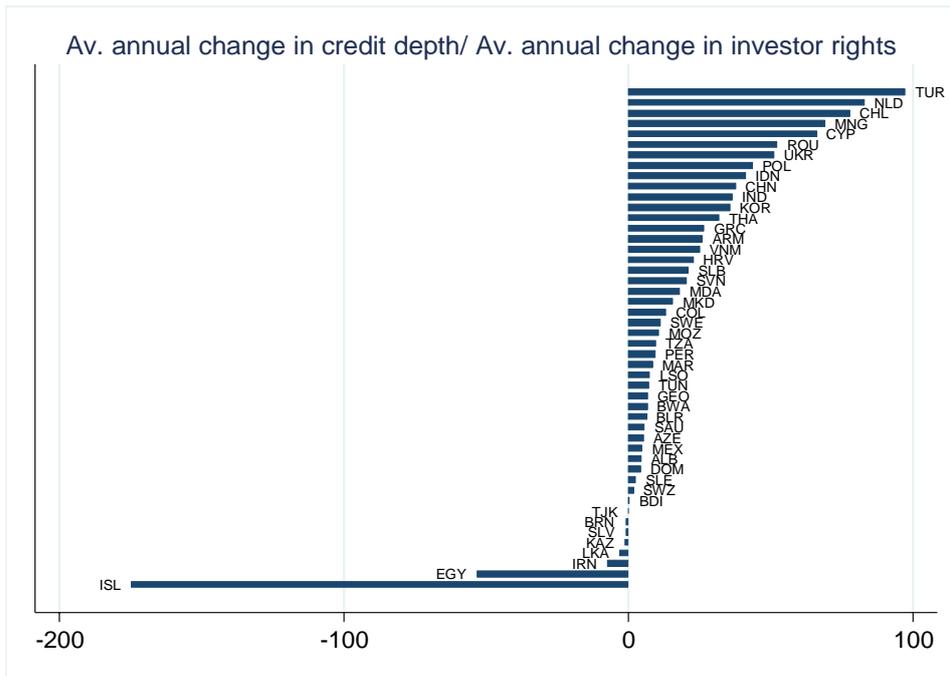


Panel A: Effectiveness of creditor rights reforms in financial depth

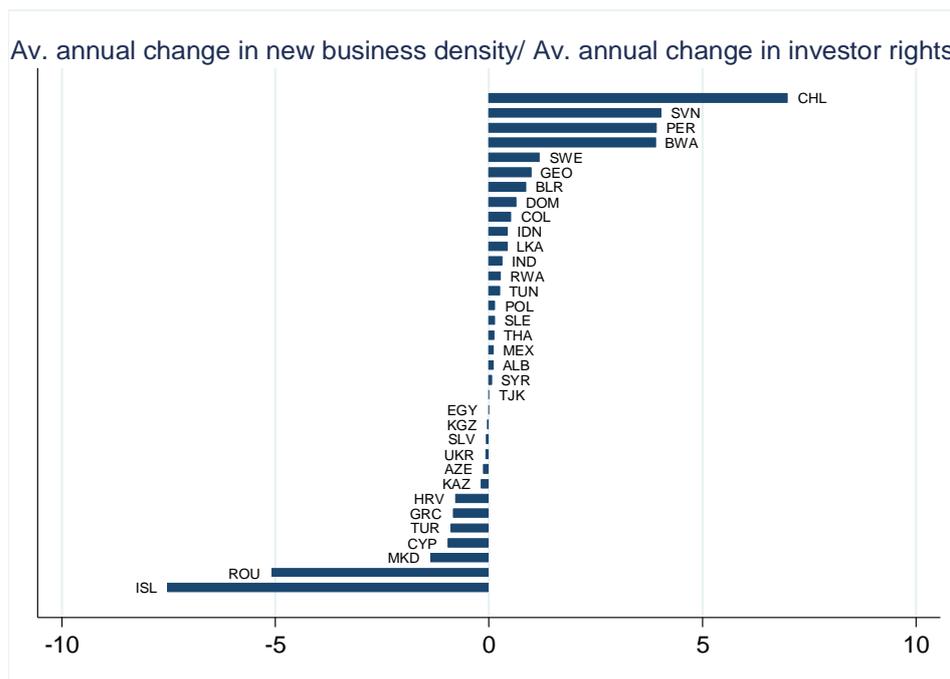


Panel B: Effectiveness of creditor rights reforms in new business density

**Figure 7: Effectiveness of creditor rights reforms**

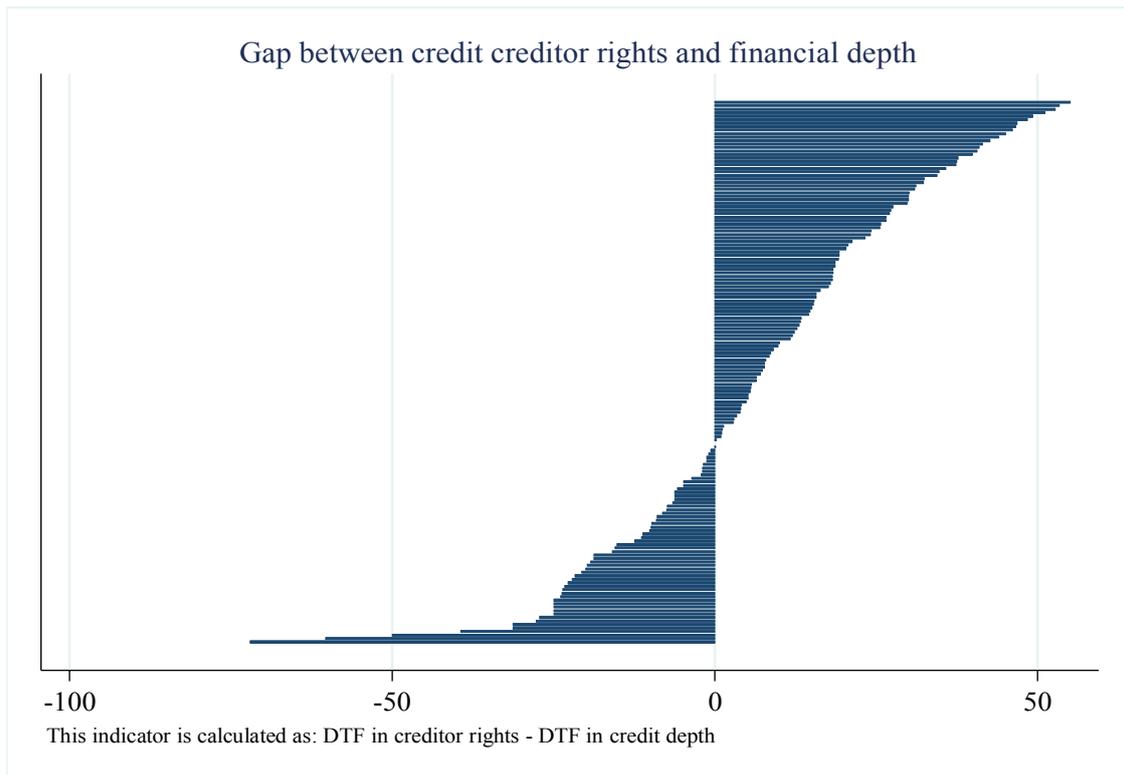


Panel A: Effectiveness of investor protection reforms in financial depth

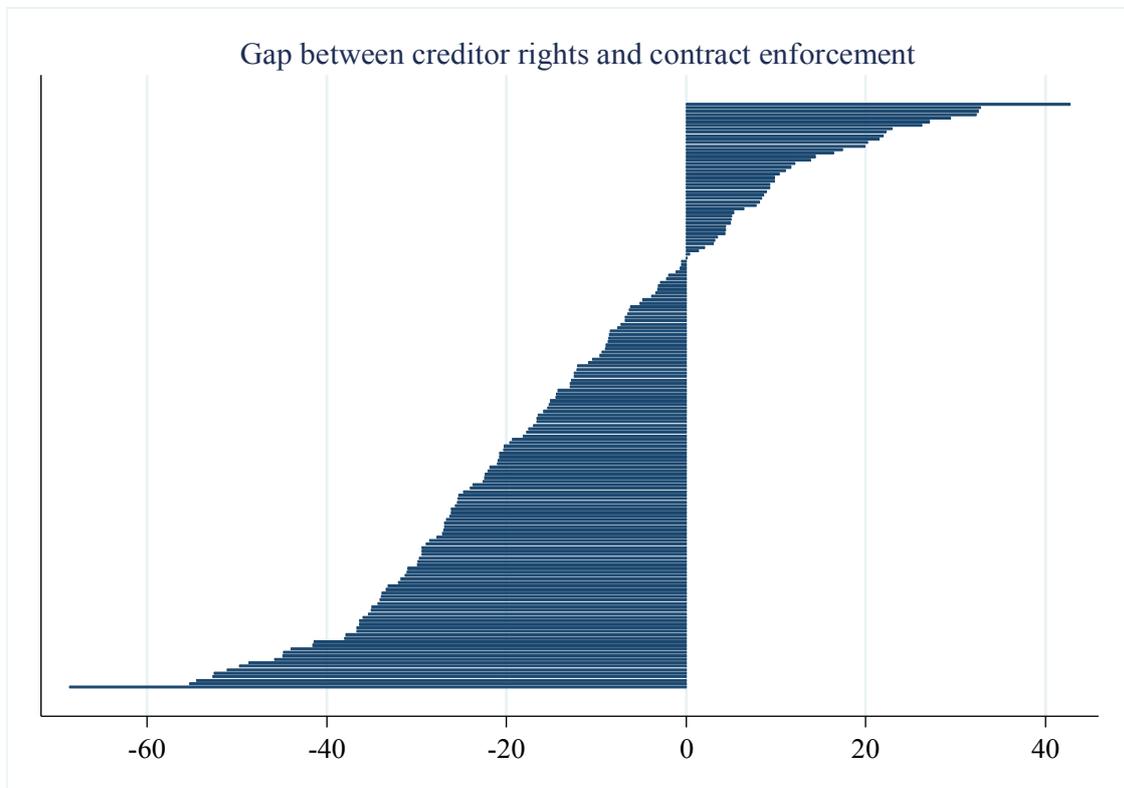


Panel B: Effectiveness of investor protection reforms in new business density

**Figure 8: Effectiveness of investor protection reforms**

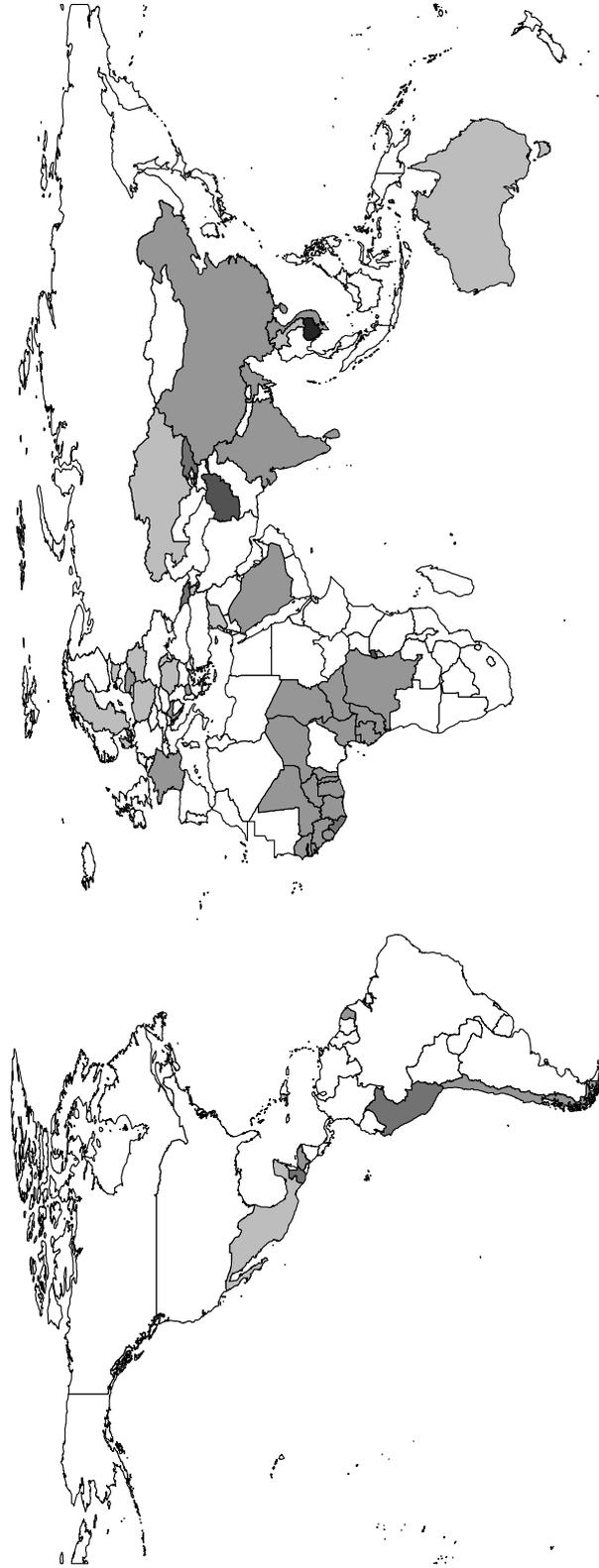


**Figure 9: Gap between creditor rights and financial depth**



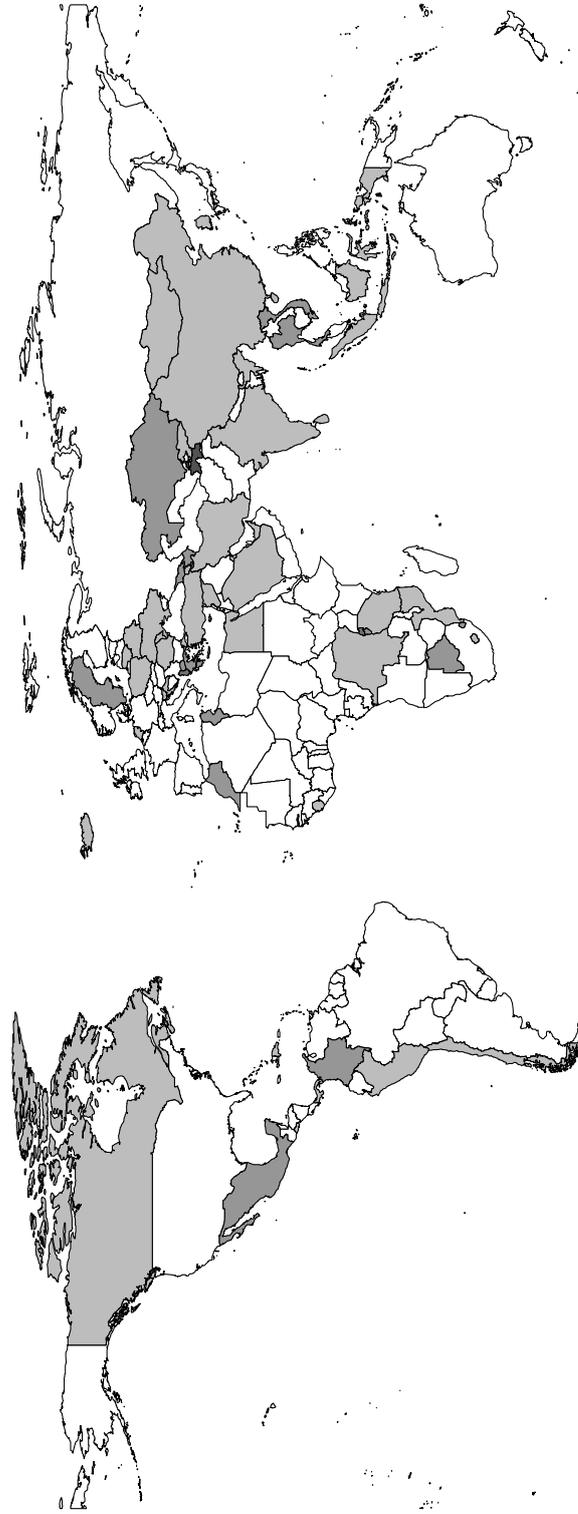
**Figure 10: Gap between creditor rights and contract enforcement**

**Map 1: Creditor rights reforms around the world (2006-2014)**



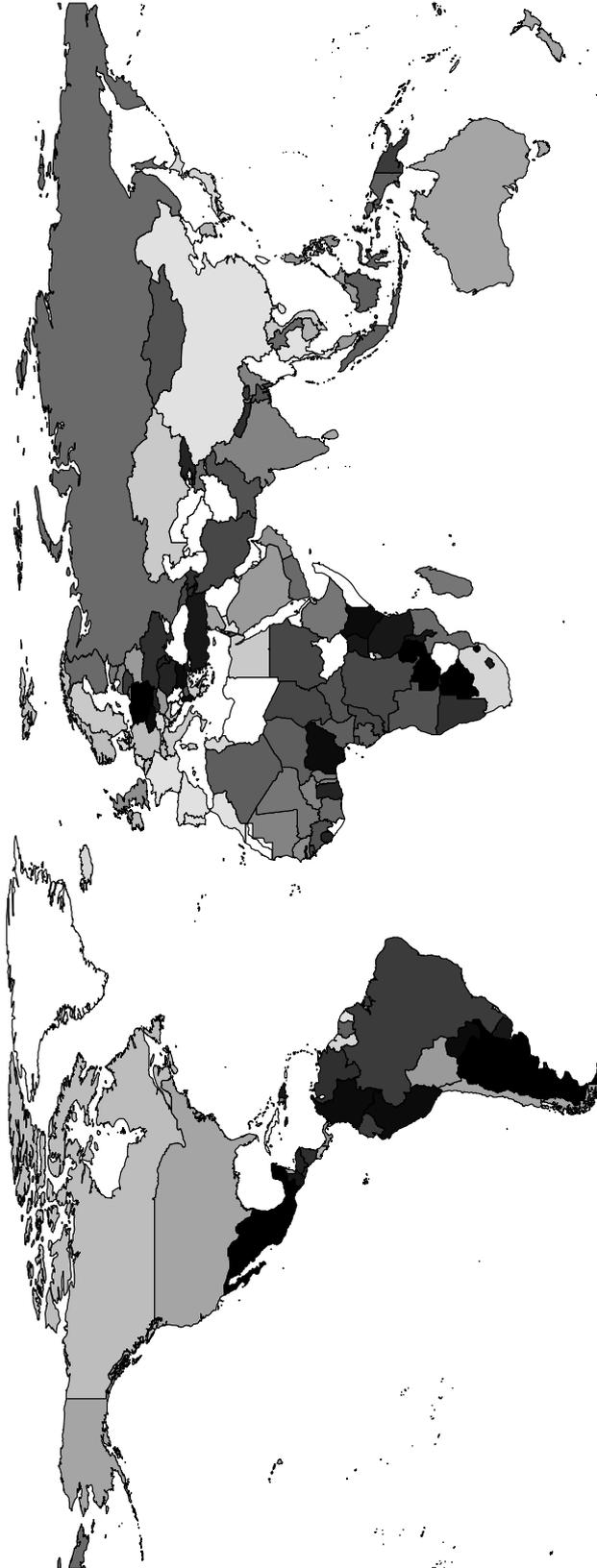
Notes: Average annual change in creditor rights during the period 2006-2014 (a darker color means a higher value). Countries in white have not improved their creditor rights, and countries with missing data on legal rules do not appear in the map.

**Map 2: Investor protection reforms around the world (2006-2014)**



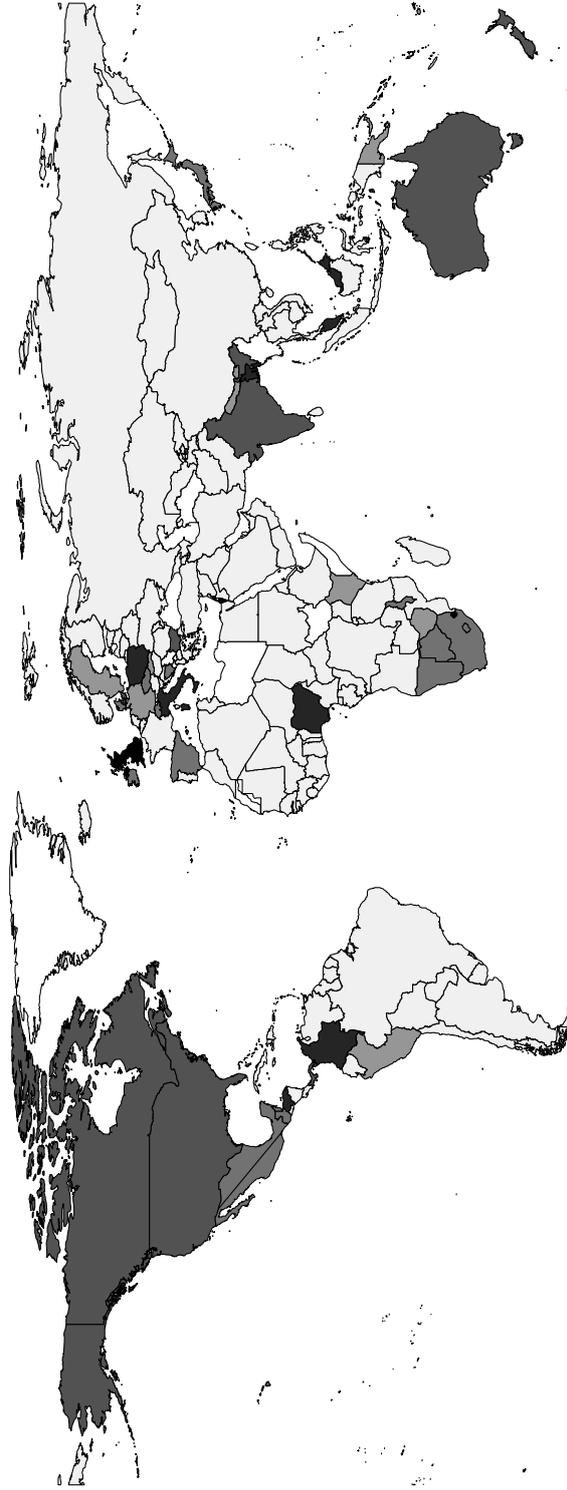
Notes: Average annual change in investor protection during the period 2006-2014 (a darker color means a higher value). Countries in white have not improved their creditor rights, and countries with missing data on legal rules do not appear in the map.

**Map 3: Gap between creditor rights and financial depth (2006)**



Notes: DTF in creditor rights - DTF in financial depth 2006 (a darker color means a higher value).  
Countries with missing data on the gap are in white.

Map 4: Gap between creditor rights and contract enforcement (2006)



Notes: DTF in creditor rights - DTF in financial depth 2006 (a darker color means a higher value). Countries with missing data on the gap are in white, while countries with gaps equal to or lower than zero are in light gray

**Appendix**

Data sources and descriptive statistics

Variable	Source	Obs	Mean	Std. Dev.	Min	Max	
<b>Legal rules/regulations</b>							
<i>Doing business</i>							
Strength of creditor rights index	Doing Business Project	1573	5.47	2.40	0.00	10.00	
Strength of investor protection index		1573	5.02	1.61	1.00	9.70	
Depth of credit information index		1573	2.53	2.47	0.00	6.00	
Recovery rate (%)		1573	34.06	24.43	0.00	92.80	
Time to enforce a contract (Ln)		1573	6.32	0.45	4.79	7.45	
Time to start a business (Ln)		1573	3.10	0.96	-0.69	6.55	
Time to register a property (Ln)		1573	3.69	1.15	0.00	6.86	
Time to obtain construction permits		1573	5.12	0.54	3.26	6.58	
Time required to pay taxes (Ln)		1566	5.44	0.71	2.48	7.86	
Time to export (Ln)		1573	2.99	0.59	1.79	4.62	
Time to import (Ln)		1573	3.06	0.68	1.39	4.76	
<i>Others</i>							
Creditor rights 1995-2005	Siems (2008)	275	0.57	0.15	0.20	0.80	
Shareholder protection index 1995-2005	Armour et al. (2009a)	275	0.49	0.16	0.15	0.74	
Creditor rights 1978-2002	Djankov et al. (2007)	2970	1.80	1.19	0.00	4.00	
Formalism index - Eviction 1960-2000	Balas et al. (2009)	1640	3.68	0.95	1.35	5.83	
Form. index - Check collection 1960-2000	Balas et al. (2009)	1640	3.47	1.08	1.04	5.49	
<b>Dependent variables</b>							
Market capitalization of listed domestic companies (% of GDP)	World Bank Open Databases	751	66.44	119.99	0.93	1254.47	
Stocks traded, total value (% of GDP)		662	39.21	84.98	0.00	954.43	
Domestic credit to private sector by banks (% of GDP)		983	43.25	34.60	2.09	312.15	
Domestic credit provided by financial sector (% of GDP)		983	56.60	53.47	-27.96	373.79	
Domestic credit to private sector (% of GDP)		983	46.36	38.71	2.10	312.15	
Foreign direct investment, net inflows (% of GDP)		1615	6.30	15.45	-58.98	466.56	
Trade (% of GDP)		1533	94.87	54.47	19.12	455.28	
Gross fixed capital formation, private sector (% of GDP)		746	16.62	7.01	0.00	53.13	
New business density (new registrations per 1,000 people ages 15-64)		869	3.32	4.59	0.00	25.00	
Unemployment, total (% of total labor force) (modeled ILO estimate)		1503	8.39	5.91	0.10	37.60	
GINI index (World Bank estimate)		511	37.73	9.02	23.72	64.79	
GDP per capita growth (annual %)		1634	2.24	5.28	-62.21	104.66	
Private credit by deposit money banks and other financial institutions to GDP (%)		The Global Financial Development Database	1291	54.22	50.17	0.01	313.85
Stock market capitalization to GDP (%)			715	56.84	64.21	0.34	570.16
Stock market total value traded to GDP (%)	713		38.46	75.49	0.00	723.59	
Number of listed companies per 1,000,000 people	757		27.15	41.33	0.15	247.97	
<b>Others</b>							
GDP per capita, PPP (constant 2011 international \$)	World Bank Open Databases	1605	17855.68	20578.96	546.03	136135.50	
Rule of law (Worldwide Governance Indicators)	Quality of Government dataset	1275	-0.05	0.99	-2.67	2.00	
Legal origins	La Porta et al. 2008						
GDP growth (annual %)	World Bank Open Databases	1635	3.77	5.48	-62.08	104.49	

Appendix (Continued)

Data sources and descriptive statistics

Variable	Source	Obs	Mean	Std. Dev.	Min	Max	
<b>Variables used in Section VI (and not described above)</b>							
<i>Dependent variables</i>							
Effectiveness of creditor rights reforms in financial depth (private credit over GDP) 2006-2013	Doing Business Project, The Global Financial Development Database, and World Bank Open Databases	49	6.10	8.18	-8.73	33.95	
Effectiveness of creditor rights reforms in entrepreneurship (new business density)		29	0.04	0.88	-2.19	2.39	
Effectiveness of investor protection reforms in financial depth (private credit over GDP) 2006-2013		48	16.37	38.93	-174.84	97.43	
Effectiveness of investor protection reforms in entrepreneurship (new business density)		34	0.22	2.38	-7.52	7.01	
Determinants of the gap between creditor rights and financial depth (private credit over GDP) 2006		156	7.36	23.48	-71.99	55.03	
Determinants of the gap between creditor rights and entrepreneurship (new business density) 2006		110	18.18	29.39	-81.25	70.27	
Determinants of the gap between investor protection and financial depth (private credit over GDP) 2006		156	12.31	26.41	-70.00	56.02	
Determinants of the gap between investor protection and entrepreneurship (new business density) 2006		110	20.83	28.74	-70.00	72.35	
Determinants of the gap between creditor rights and contract enforcement 2006		Doing Business Project	168	-13.2913	20.84503	-68.6	42.73
Determinants of the gap between creditor rights and debt recovery 2006			168	8.802381	21.47004	-36.98	62.1
Determinants of the gap between investor protection and contract enforcement 2006	168		-8.00637	18.25747	-50.75	45.85	
Determinants of the gap between investor protection and debt recovery 2006	168		14.08726	23.7163	-51.87	63.33	
<i>Independent variables</i>							
Control of corruption (Worldwide Governance Indicators) 2006	Kaufmann <i>et al.</i> (2009), from Teorell <i>et al.</i> (2011).	180	-0.04	1.00	-1.84	2.55	
Rule of law (Worldwide Governance Indicators) 2006		182	-0.05	1.00	-2.83	1.50	
Catholics	La Porta <i>et al.</i> (1999), from Teorell <i>et al.</i> (2011) (Religion (Protestants, Catholics, Muslims and others as a percentage of population in 1985–1995.))	181	31.95	35.91	0.00	99.10	
Muslims		181	23.86	36.17	0.00	99.90	
Protestants		179	13.52	21.52	0.00	97.80	
Other religion		179	30.69	30.84	0.00	100.00	
Ethnic fractionalization (not corresponding to a specific year)	Alesina <i>et al.</i> (2003), from Teorell <i>et al.</i> (2011).	180	0.44	0.26	0.00	0.93	
Latitude	La Porta <i>et al.</i> (1999), from Teorell <i>et al.</i> (2011).	181	0.28	0.19	0.00	0.72	
Mineral resources (Average of mineral rents over GDP during the period 1960-2000.)	World Development Indicators	185	0.79	2.43	0.00	15.57	

Notes: All descriptive statistics correspond to the 2006-2014 period, except otherwise stated.