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Contract Rules in Codes and Statutes: Easing Business Across the Cleavages of Legal Origins[1]

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Abstract

Contract theory qualifies legal origins theory by focusing on codified default rules, which ease the conclusion of enforceable contracts. We have selected 10 economically important codified contract types containing default rules and 8 countries particularly relevant as mother countries of legal origins, financial centers or newly industrialized economies (France, Germany, Japan, South Korea, Switzerland, Taiwan, the UK and the US). We exclude countries having received their laws as colonial "transplants" and countries in legal transformation. The economic impact of default rules is detectable by econometric analysis based on panel data inference over prolonged periods (1870-2008). Codified default rules favor economic performance, the higher their number the better. The results are controlled for time and country fixed effects, confirmed by counterfactual simulations and robust. We also test whether the presence of all ten contract types can compensate the absence of financial center advantage, and find that they do so in the civil law mother countries and the two newly industrialized countries of our sample. The Swiss case shows that the cumulation of default rule advantage and financial center advantage results in superior economic performance. While qualifying legal origins theory, our results strongly confirm institutional economics in its core of contract theory.

Keywords - Legal origins theory, contract theory, default rules in civil law and common law, economic performance

JEL Codes - D86, K00, K10, K12, L14, N40, O43

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1. Introduction

Legal origins theory (LOT) builds on Andrei Shleifer's and Robert Vishny's influential 1997 paper refuting the efficient market paradigm in finance (Shleifer and Vishny, 1997). Their research in behavioral finance led them to the conclusion that markets do not automatically eliminate price distortions thanks to an assumed presence of countless arbitrageurs. They found that only a limited number of professional insiders with access to ample and patient capital are able to prevail against masses of inefficient "noise traders" by contrarian strategies over extended periods of time. Hence, LOT focuses quite naturally on rules governing the provision of capital to financial markets. The question is whether it can assume as boldly as it does that common law is economically superior to civil law (La Porta et al., 1999, 2008). LOT argues that for reasons of protestant sociology, common law favors the trust of uninformed capital owners in professional insiders acting as agents in the best interest of their principals. The religious sociology involved in this argument is as debatable as LOT's assertion that civil law, since Roman times, is the expression of the will of the ruler and of Catholic distrust of strangers (see La Porta et al., 1999). Suffice it to refer to the cases of the civil law of the Protestant Netherlands, the common law of Catholic Ireland and the status of the bi-confessional civil law country Switzerland as a financial center. And yet, there is unmistakable merit in LOT's major effort to attempt an econometric measure of the importance of law in economics.

Whereas LOT has particular strengths in law and finance, it is much less focused on contract law, the bedrock of day-to-day economic transactions. Although it does consider strong rules of contract enforcement as an important indicator of comparative quality of legal origins, it does not seem to be interested in how the law can ease the conclusion of enforceable contracts. Except for the relationship contracts of corporate law, LOT appears to bypass contract theory. In classical contract theory, a complete contract fully specifies the rights and duties of the parties to the contract for all possible future states of the world. This notion indeed reflects the classical common law requirement of complete consent between the contracting parties about every right and obligation that may become the object of litigation. However, since Williamson (1975) recognized that it is either impossible or inefficient in terms of transaction costs to write complete contingent contracts, economists and legal scholars have sought solutions for both the countless case-by-case contracts prevailing in daily business life as well as for the relationship-specific contracts consolidated in corporate

law (Grossman and Hart, 1986, or Hart and Moore, 1988, in the economic literature, and Barnett, 1992, and Farnsworth, 2008, in the law literature).

While economists have analyzed the transaction cost and incentive effects of the problem, American legal scholars have focused on how default rules provided by the law fill the gaps of incomplete contracts (Barnett, 1992, and Farnsworth, 2008). Legal theory distinguishes between discretionary and mandatory rules. Discretionary rules can be abrogated or modified by the contracting parties. Mandatory rules will be enforced, even if the parties attempt to override or modify them. Codified default rules are either discretionary or mandatory. Most default rules of economically important contract types codified in civil law countries are discretionary, since all civil codes in the Roman tradition rely on the principle of « private autonomy » (Zimmermann, 1996). But all contract types of the major civil codes are also subject to some mandatory rules, the most important of which is the general clause of « good faith ». Some codified contract types rely entirely or preponderantly on mandatory rules. This is the case of German and Swiss *Versicherungsvertragsgesetze* (Insurance Contract Laws) of 1908, the Chinese Insurance Law of 1929, in force in Taiwan since 1950, and the French *Loi sur le contrat d'assurance* (Insurance Contract Law) of 1930 (Reichert-Facilides, 1998).

Civil and commercial codes of civil law countries provide default rules for most of the economically important types of contracts (sales, lease, employment, services, construction, insurance, loans, guarantee etc). In common law countries, codified default rules are an exception, the most important being the codifying statutes for the sale of goods and services (the UK Sales of Goods Act and Art 2 of the US Uniform Commercial Codes (UCC) as well as Art 4 UCC for bank loans and Art 2A UCC for leases). Common law judges normally recognize only the clear text of the contract. Moreover, they demand proof of complete consent on any right or obligation claimed by any party in subsequent litigation. If the text of contract is unclear or incomplete in the sense of contract theory, rights and obligations of the parties will be correspondingly incomplete. As a rule, the contract is judged invalid for lack of clarity. Only rarely have common law judges attempted to save an incomplete contract from uncertainty by looking for rules « implied in the law », which might serve as « implied terms » of the contract (see Farnsworth, 2008).

We submit that this marked difference of contract law between the two legal families implies a major qualification of LOT's assumption that the common law is economically superior to civil law. Even if we concede that common law provides a superior environment to financial markets by favoring a more ample flow of capital to professional insiders bound by fiduciary

duties, civil law may score by offering a safe and easy framework for the conclusion of enforceable contracts in the real economy. The provision of default rules for all economically important types of contract by civil codes as a public good offers two crucial economic advantages in addition to solving the problem of incomplete contracts. The first is that codified default rules are publicly accessible to everyone and thereby avoid the information asymmetries regularly resulting in common law countries from one contracting party writing a multi-page contract striving for "completeness" with the other party resigned to accept it. The second is that, as a public good, codified default rules spare contracting parties the transaction cost of attempting to write contracts as complete as possible even in routine cases. This may have been a necessary, if certainly not a sufficient (Schmiegelow, 2006), condition for civil law countries of German legal origin outperforming, by LOT's own admission, common law countries between 1960 and 2000 (Mahoney, 2000, and La Porta et al., 2007, page 26).

In this paper, we aim to detect the impact of defaults rules on doing business, and hence on economic performance. To this end, we take three steps:

1. First, we extend the array of indicators of economic analysis of law to 10 of the economically most important contract types, including purchasing equipment, hiring employees or taking a bank loan (see next section for the exhaustive list). As just these three types of contracts suggest, our indicators cover the most crucial aspects of economic decision-making, including capital accumulation, employment and banc finance of business.

2. Second, we consider 8 countries particularly relevant as mother countries of legal origins, financial centers or newly industrialized economies (France, Germany, Japan, South Korea, Switzerland, Taiwan, United Kingdom and United States). We inquire which of these countries have been providing default rules for the selected contract types, since when, and with what economic effect. To exclude the "transplant effect" of the imposition of culturally foreign laws by colonial rule (Berkowitz, Pistor and Richard, 2003), our sample of countries does not include the former British, French, Portuguese and Spanish colonies, which form the bulk of the 152 countries, on the number of which LOT's robustness tests rely.

3. Third, we attempt to attain compensating degrees of robustness for our much smaller sample of countries by longer time series, beginning with the movement toward law codification in the 19th century, and more focused reliance on contract theory,

comparative law, legal and economic history. We identify the economic impact of the default rules offered by codified contract types as captured by per capita GDP growth. We use econometric analysis combining the most advanced tools in panel data analysis and counterfactual simulation as well as more standard techniques. In contrast to the few recent decades of the cross country analysis adopted for LOT validation, we consider prolonged periods selected for their relevance in codification history as well as for the availability of data widely recognized as reliable (1870-2008).

We assume that for econometric comparisons between common law and codified law to be more convincing than LOT's, they will, on principle, have to run regressions of chosen indicators by per capita income or growth data covering the entire periods in which codes or codifying statutes of relevant countries have been in force. This will enable us to capture the impact of the entry into force of the most relevant leading modern civil codes, commercial codes or codifying statutes of the 19th and 20th century in Europe and Asia. We have found no easily accessible data for the period between 1804, the entry into force of the *Code Napoléon* in France and 1870. But, beginning in 1870, our data will pick up the effect of the *Code Napoléon* and the *Code Commercial* of 1807 in the last decade of the *Second Empire* (1852-1870) as well as of the *Allgemeines Deutsches Handelsgesetzbuch* (AHGB), the Common Commercial Code of the German Federation of 1861.

After the required robustness checks, we find that the presence of default rules in the contracts selected do favor economic performance. The short-run effect of codifying one additional contract type with default rules on GDP is slightly lower than 0.38 percent. The long-run effect on the GDP level is 13.3 percent. Codifying 10 contract types with default rules, which constitutes a huge institutional change, multiplies GDP per capita by almost 3 in the long run with a short-run effect of 3.8 percent. Because civil law codes offer such rules more systematically than codifying statutes in common law countries, there should be evidence of economic performance of at least some of the civil law countries of our sample converging with, if not superior to, common law countries for at least some periods of our long time series. And indeed, we find that the per capita GDP not only of Germany and Japan, as already conceded by LOT, but also of France, on whose "legal origin" and state-centered political economy much of LOT rests, began exceeding that of the UK between the mid 1960's and the mid 1980's although they did not enjoy the advantages of a major financial center, while Switzerland, which did, outperformed the UK already in the two decades before the Second World War and in all six decades thereafter, as well as the US between the mid

1950’s and the mid 1980’. After their own autonomous adoption of civil codes in the 1950's, South Korea and Taiwan emerged on a distinctive path of convergence as "newly industrialized economies". The one remaining Asian economy of socialist legal origin, North Korea, provides telling data for a counterfactual simulation of what the South Korean and Taiwanese GDP levels would have been without codified default rules in contract law. Hence the conclusion appears warranted that LOT’s claim on the superiority of common law requires qualification.

Details on the list of contracts and short reviews of their codification as well as of the legal and economic histories of the countries selected for the study are presented in section 2. Section 3 displays the main elements of our econometric set-up and presents the principal findings. Section 4 concludes.

2. Codified Contract Rules in the Legal and Economic Histories of Selected Countries

2.1. Selection of contract types important for business

We posit that the economically most relevant contract types are the following ten:

1. Renting office space
2. Contracting for the construction of a building
3. Purchasing equipment
4. Insuring the equipment
5. Hiring employees
6. Taking a bank loan
7. Subcontracting a task
8. Contracting with a Commercial Agent
9. Obtaining advice from a Consultant
10. Guaranteeing an undertaking by a Subsidiary

The list captures the most basic aspects of doing business. While primarily designed to qualify LOT, it may also help improving the methodology of the yearly “Doing Business” Reports of the World Bank (DB), which began in 2000 (World Bank-IFC 2000, and most recently 2009), but were found methodologically defective by the World Bank Group’s own Independent Evaluation Group in 2008 (World Bank-IEG, 2008; Elliott, 2009). Compared to the DB, which among all economically important contract types only considers hiring workers as a relevant concern for business and, hence, does offer an “employing workers indicator” (EWI),

we submit 9 additional indicators. Moreover, while DB considers labor contract rules exclusively as a cost, we shall take the opposite approach of considering the presence of default rules in labor law as in all other 9 contract types as a business environment saving transaction costs.

2.2. Selection of the sample of countries

One of the most obvious weaknesses of LOT is its summary attribution of French legal origin to the vast majority of former colonies, even former Spanish and Portuguese colonies, with below average per capita income in Africa, Asia and Latin America (see La Porta et al., 2008, whose world map of legal origins is reproduced in the Appendix). Its list of Commonwealth countries is only about half as long, which results in a much more favorable mean for the English legal origin. Obviously, with 0 former colonies (South Korea and Taiwan were Japanese colonies until the end of World War II, but adopted their own civil codes autonomously after gaining their independence), the German legal origin comes out on top even in LOT's own regressions. The attribution of nearly all of Latin America to the French Legal origin is questionable already from a comparative law point of view (Dam, 2006). Moreover, while appearing to support LOT's political theory of a state-oriented French legal system by decreasing the average results of the French legal origin, the attribution comes at the price of a major inconsistency of LOT in the case of the short list of the German legal origin. Although in LOT's view (La Porta et al, 1999), the latter shares the dysfunctional political economy of the French legal system, it benefits from LOT's inexorable average to the extent of outperforming common law countries, thanks to the mere absence of former colonies in its list (H. Schmiegelow, 2006). Berkowitz et al (2003) have offered what remains, so far, the most cogent explanation of this inconsistency: LOT misses the "transplant effect" of the imposition of culturally foreign laws by colonial rule resulting, as a rule, in lower economic performance.

We have therefore resolved to restrict our comparison to the following categories of countries:

1. Countries considered by LOT as mother countries of the English, French and German "legal origin" (England, France, Germany)
2. The US, as it is closely associated with England by LOT as a quasi mother country of common law, although it does have a written constitution and is much closer in many ways to civil law countries by the high and growing number of codifying statutes (Dam, 2006)

3. Japan, which is considered by LOT as of German Legal Origin, but in fact is the paradigm case of a non-Western country participating autonomously in the 19th century codification movement, became the "legal origin" of the civil code of its former Korean colony as well as the country of inspiration of South Korea's autonomously adopted code of 1958 and hence must join the list of mother countries of legal origin.
4. High growth countries having voluntarily and autonomously chosen to adopt civil codes in the 1950's as purposefully designed amalgams of domestic legal traditions and borrowed Western patterns (South Korea, Taiwan).
5. Switzerland as a civil law country with a balanced economic structure having in addition developed as a major financial center, a status considered by LOT to be reserved for countries of English legal origin as a result of superior quality of the common law.

With this selection, we capture the profiles of the largest economy of the world (US), the two countries that have been the second and third largest economies after the US between 1960 and 2008 (Germany and Japan), two so-called "Asian Tigers" which have been attracting the attention of economic analysis as "Newly Industrialized Countries" anticipating over a period of 4 decades the pattern of China's recent extraordinary growth (South Korea and Taiwan, see World Bank, 1993; Fu Jun, 2010) and the one major continental European financial center which, according to Roe (2006), owes this status to the fact that it is the only European civil law country never to have suffered a foreign occupation with the collateral effect of destroying the confidence of domestic investors (Switzerland). With Germany, South Korea and Taiwan, our sample includes three instructive cases of countries divided by the Cold War, with the civil law "Western half " spectacularly outperforming the "Eastern" half of "socialist legal origin".

The two divided countries remaining as a legacy of the cold war, China and Korea, offer particularly inviting "test cases" for measuring the economic advantages not only of a free market economy as opposed to a planned economy, but also of contract law with default rules easing business by reducing transaction costs, rebalancing information asymmetries and solving the problem of incomplete contracts. Just like private contracts in free markets without legal institutions, no socialist planning can offer complete contingent solutions for any future state of affairs. In both cases, remedies can only be sought "ex post", once the problem of incomplete contracts has arisen: in hypothetical free market anarchies by new

contracts or by enforcement with private force, and in still empirically observable planned economies by elaboration of a new plan and issuance of new ruling party commands. Like all legislation in countries governed by the rule of law, codified default rules have the crucial advantage of solving the problem of incomplete contracts "ex ante" for all times and for all market participants alike, before the latter decide to conclude a contract or to set up a new business.

To illustrate the impact of codified default rules on economic performance, we will include a counterfactual simulation of South Korean and Taiwanese GDP levels without default rules. The data of the "Eastern"- geographically Northern - half of one of the two divided Asian countries remaining as a legacy of the Cold War provide a useful pattern for such a simulation. We have chosen North Korea since the establishment of the People's Republic of Korea by Kim Il Sung in 1948, which is the only East Asian country categorized by LOT as of socialist legal origin while Mainland China is recognized as a country in the process of legal transformation towards a market economy (La Porta et al, 2008).

Except for this robustness check on North Korea, we have chosen to omit LOT's "socialist legal origin", as most former socialist countries are now transforming countries. Since their legal transformation began only in the 1990's (except for China's earlier Economic Contract Law of 1981), we consider the time series of their new contract laws and economic development as too short to pass robustness tests. For reasons of sharpening our arguments on the common law/civil law divide assumed by LOT, we have also left out the "Scandinavian legal origin" which LOT characterizes as a "hybrid" legal system.

As it happens, 5 of our 8 countries are of what LOT considers as "German" legal origin (Germany, Japan, South Korea, Switzerland and Taiwan). To avoid objections of bias, we emphasize three points at the outset:

1. We arrive at our sample primarily by elimination (i.e. of countries with transplant effect, socialist countries, transforming countries, Scandinavian countries), and secondarily by focusing on mother countries of legal origin and other countries with both independent legal histories and distinctive patterns of economic development.

2. For reasons of comparative law explained in section 2.3, we do not share LOT's characterization of Japan, South Korea and Taiwan as countries of "German" legal origin.

3. For those preferring LOT's characterization of the legal origin of these three countries as "German", our paper may have the useful side effect of filling some of the cognitive deficit concerning the German legal origin recognized by LOT itself ("Although less has been written about German law (than about French law), it is fair to say that it is a bit of a hybrid", La Porta et al, 2008, at 304). In fact, we show that the superior economic performance of the set of countries counted by LOT as of German Legal origin between 1960 and 2000 is owed in large part to Asian countries which have designed their civil codes autonomously in a "comparative law method" rather than as a reception of German law.

Just like LOT, we have controlled economic data for a number of biases. However, we have opted for a different set of controls relevant for the different set of countries we consider. We do not consider ethno-linguistic or religious divisions (such as in Switzerland) as an inescapable impediment to growth (Easterly and Levine, 1997), nor temperate climate as an economic advantage (Diamond, 1997). We have, instead, controlled for time and country fixed effects. These fixed effects capture unobserved heterogeneity, i.e. all country-specific, time-invariant factors that we do not observe (preferences, historical factors, other institutional factors, etc), and all time-varying factors that are common to the eight countries in the sample (see Section 3).

2.3. Short reviews of the legal and economic histories of the countries selected

As nicely put by Roe and Siegel (2009, at 799), a critical analysis of LOT's assumptions from a comparative law point of view such as Kenneth Dam's (2006) may make many talented economists think twice before climbing on LOT's and DB's horse too quickly. We are not sure, whether the new finance literature will jump, instead, on the political economy horse offered by Roe (2006) and again Roe and Siegel (2009). We would rather recommend the safer mount of institutional economics with strong legs in contract theory, which should be more congenial to economists. But we share Kenneth Dam's point that a deeper analysis of legal and economic history than LOT's is needed before making policy recommendations to transforming and developing countries for their legal reforms.

This section offers short reviews of the legal and economic histories of the civil law and common law countries in our sample. We focus on the history of codification of default rules

in contract law, on major phases of economic growth since the mid 19th century and on the relative importance of bank finance and equity finance in the 8 countries concerned.

2.3.1. Civil law countries

Since the Roman law tradition plays a central role in LOT's explanations of what it sees as inferior quality of civil law in terms of religious sociology and political theory (see La Porta et al., 1999), a few preliminary clarifications are in order. Although Justinian, the Roman emperor who ordered the codification of Roman law in the sixth century, was a Christian, LOT's association of Roman law with Catholicism and Catholic lack of trust in professional insiders is questionable. The confessional division between Catholicism and Protestantism occurred thousand years after the Justinian codification of Roman law and prosperous Protestant regions in Southern France and Northern Germany continued to apply Roman law principles collected in the "Pandects", a digest of legal opinions on Roman law (Goudsmit, 2005). Nor is Roman law correctly understood as the expression of the will of the rulers such as assumed by LOT's political theory when it categorizes the Roman, French and German codes as creations of Justinian, Napoleon and Bismarck respectively. Friedrich von Hayek, who is often cited by LOT as an authority for his basic preference of case law over legislation (Mahoney, 2000, La Porta et al., 2008), emphasized that classical Roman law has deeply influenced all Western law including English common law and that the Justinian code was a digest of Roman jurisprudence beginning in the Roman republic in a legal process very similar to the later English common law (Hayek, 1973, at 83). The principles of private property and private autonomy for concluding contracts are crucial principles of Roman law (see Robaye, 1997, Zimmermann, 1996).

(i) France **- Contrary** to LOT's assumptions**,** France's civil and commercial codes of 1804 and 1807 respectively are not pure reflections of Roman law. They are a composition of the medieval customs of Northern France, which were culturally close to the customs of medieval England, and of elements of Roman law, which had remained in force in Southern France since Roman times. Just like England before the amalgamation of local customs into common law, France's *ancien régime* had to cope with the fractured landscape of countless local customs. Hence, legal and economic integration was a major goal first of the French revolution and then of Napoleon. Portalis, the most influential voice among the drafters of the *code civil*, managed to strike a balance between tradition and modernity. In the end, the customs of Paris prevailed over other local customs. Their impact on the code is at least as strong as that of Roman law (see Ourliac and Gazzaniga, 1985, p. 358). If theories of

economic integration are right to assume that the elimination of legal particularisms within, as well as between, national economies is conducive to economic growth, the codes of 1804 and 1807 have plausibly contributed to France's subsequent economic development. Among all other civil codes, the French codes stand out by their elegant and accessible style. Henceforth, contract rules were easy to check and understand by any contracting party (Murdock, 1956).

Of course, France's economic history of the 19th and 20th centuries is as much characterized by cyclical and secular factors as that of the other major countries considered. The following stand out in the period after our data begin: the boom years of the second half of the *Second Empire* (1860-70), at the end of which the size of the French economy drew even with the British one. The Third Republic inherited the recession (1872-1878) caused by the defeat of the *Second Empire* in the Franco-Prussian war. A recovery 1878-88 was followed by a flat performance until 1903, growth exceeding Britain's 1904-1914, the recession caused by World War I until 1921, and a remarkable recovery until the onset of the great depression. The period after World War II saw new cyclical swings and more proactive policies designed to affect them (see Price, 1981), just as in Britain before the Thatcher government. Hence the French civil and commercial codes do seem to correlate just as plausibly with economic performance as the English common law. They do so despite France having lacked the highly developed capital markets associated by LOT with the common law.

Since indirect finance, on which France's enterprises had to rely primarily until the early 1980's (see Schmidt, Hacketal and Tyrell, 1998), is considered by economic theory as only a second best solution, France's civil and commercial codes must have scored by other advantages, and for reasons explained in section 1, we propose to consider their contract rules. On the other hand, a shift towards securitization both on the asset and the liability side of French non-financial sectors indicates that France has been changing from a bank-based to a market-based financial system ever since the early 1980's (for more details, see again Schmidt et al., 1998). This change suggests that functioning equity finance may just as easily develop in association with civil law as with common law, an argument already made by Marc Roe (2006) with respect to Switzerland.

(ii) Germany - Germany's civil code, the *Bürgerliches Gesetzbuch* (BGB) of 1887 is a much less mitigated transmission of Roman law to a modern economy and society than France's. Bernhard Windtscheid, the foremost representative of the "pandectist" tradition in Germany at the time, prevailed in its design. The entry into force of the *BGB* in 1900 was preceded by the commercial code of the German Confederation (*AHGB*) of 1861. The *AHGB* was the

single most important legislative achievement of this otherwise rather powerless confederation (Kraehe, 1953). It remained in force even after Germany's unification in 1871 until the new German Empire had completed its own commercial codification in 1898.

Germany's civil code of 1896 and commercial codes of 1861 and 1898 were not, as LOT assumes, "introduced by Bismarck" (La Porta et al. 1999, p.231, implying an illiberal inspiration of the code), but emerged from the German codification movement of the 19th century that began in Austria in 1811, long before Bismarck became German Chancellor (in 1871), succeeded in the adoption of the *AHGB* by the German Confederation (which included Austria) in 1861 and culminated in the passage of the *BGB* in the Reichstag in 1896, long after Bismarck was gone. The movement was inspired and pushed through by liberal pro market forces in Germany which had the overwhelming majority in the Reichstag and with whom the high-conservative Bismarck had to compromise on economic issues, like a "hat-in-hand chancellor" (Ozment, 2004), in order to obtain their consent on the foreign and military matters foremost on his mind (Born (1970), Gall (1990)).

Germany was as affected just as Britain and France by most of the cyclical and secular events of the 19th and 20th centuries. The take-off in the "Gruenderzeit" (era of enterprise founders) of the decade of 1860 to 1873 was even more pronounced than France's. By the first decade of the 20th century German industry pulled ahead of Britain (Wilson, 1970; Ritschl, 2004). Extraordinary negative events for the German economy were the two world wars and the interwar period. Across World War I, the German economy suffered a major productivity shock. The Versailles Peace Treaty diminished its coal and steel capacities by about 40 % through territorial changes, and forced coal exports to Allied victors reduced its energy base. A dysfunctional monetary policy response to war reparations imposed by the Versailles Treaty on Germany provoked the hyper-inflation of the early 1920's, which eroded private capital formation and hampered long-term credit throughout the inter-war period (Ritschl, 2004). Hitler's autarky policy disrupted prewar inter-regional specialization patterns, his planned war economy built up hidden inflation. World War II brought the total destruction of the physical capital of the German economy. Reliable economic data on the German economy in the world war and inter war periods are extraordinarily difficult to obtain and continue to be subject of intense statistical debate (Hoffmann, 1965; Lewis, 1978; Maddison, 1982, 1991, 1995, 2001; Fremdling, 1988, 1991; Feldman, 1993; Broadberry, 1997; Ritschl, 2002, 2004).

The same is true for the postwar period between 1945 and 1947, when the German state had seized to exist and the economy was divided in four occupation zones. Since, evidently, even

a functional legal environment for business cannot prevent the negative economic impact of wars, we might have interrupted our long term time series in 1914 and resume it only in 1949, when the Federal Republic of Germany (West Germany) was established with the civil law code of intact. We resolved to refrain from doing so and nonetheless obtained robust results confirming our hypothesis even for the uninterrupted period from 1870 to 1990, the year of Germany's reunification (see Section 3).

While a legal system cannot prevent the economic impact of wars, we assume that it can be crucial for a rapid recovery. Germany's civil law was certainly not a sufficient condition for the West German economy's postwar "economic miracle", but it was plausibly a necessary one (for more details, see H. Schmiegelow, 2006, see also Eichengreen and Ritschl, 1997). Germany's contract law was all the more crucial in this performance, because of the importance of small and medium enterprises (SME, or the so-called "hidden champions", Simon, 1996) in the West German economy, which for reasons of cost and time could not afford hiring lawyers specialized in the lucrative business of drafting complete contracts, but had to rely on default rules as a public good in their contracts with suppliers and customers at home and abroad. The role of SME's, dependent on bank finance, in the German economy is also one of the explanations why Germany remained a Gerschenkronian "backward" economy even longer than France by having to rely to a much larger extent on financial intermediation up to the present (Krahnen and Schmidt, 2004).

With the German reunification of October 1990, the Federal Republic of Germany (the former West Germany) integrated the former GDR, a member of LOT's socialist legal origin. Although the entire West German legal system including the civil and commercial codes was reintroduced to East Germany, reunited Germany became partly a "transforming country". On impact, unification produced a drop in real GDP per-capita of about 10 % (Canova and Ravn. 2000). The interpretation of data for post-1990 unified Germany presents major difficulties for econometric analysis, and particularly so when it comes to comparing the economic effects of legal origins. Maddison (2001, at p.30 et 31; 2003 at p.177, 178) attempted to construct all-German data for the period of 1949 to 1990 by extrapolating the integration of historic West German and East German data backwards to 1949. The result blurs the differences between a market economy of German legal origin and planned economy of socialist legal origin in one country. Hence, we have resolved to use Maddison (1995) data for West Germany (1949-1990) and to end our times series in 1990 in one of our robustness checks.

(iii) Japan - Japan is not only (debatably) categorized by LOT as a country of German legal origin, but its economic development in the 20th century shows patterns remarkably similar to those of Germany, only, in many instances, on a larger scale. Its civil code of 1896 and its commercial code of 1898 are the paradigm cases of voluntary and selective integration of various Western patterns in the codification of civil law in non-Western countries. The French advisor Gustave Emile Boissonade de Fontarabie authored the first drafts very much on French patterns. They almost became law in 1890. Deft opposition by Japanese scholars belonging to what was then called the "English School" of legal thought in Japan prevented its adoption, however, and a further period of reflection followed. The struggle between the "postponement faction" and the "immediate-enforcement" faction took on some aspects of the Thibault-Savigny controversy in Germany as well as of the struggle between natural law philosophy and the historical school or between universalism and culturalism (Schmiegelow 2006 with further references). Finally, a large number of Japanese scholars returning from Germany, where they had closely followed the debates about the 1887 and 1896 drafts of the *BGB,* prevailed with their advocacy of amalgamating French and German patterns with domestic traditions in a new draft. Their draft became law in 1897, three years before the *BGB* bill that had passed the Reichstag in 1886 entered into force in 1900 (see Tanaka and Smith, 2000). Berkowitz et al. (2003), at page 180, emphasize that this type of voluntary transplant to what they call a receptive country, correlates with a high degree of effectiveness of legal institutions. The closest remaining link between Japanese and German law is continuing exchange on legal theory, case law and legislation (see Murakami et al., 2007). We propose to abandon the term "transplant" altogether and identify the Japanese paradigm as the comparative law method of legal transformation.

The Japanese Commercial Code of 1898 became law in 1899, a year earlier than the Commercial Code of the German Reich. Remarkably, it was the first Commercial Code of civil law countries to provide default rules for insurance contracts, a decade earlier than Germany's Insurance Contract Law of 1908 (Kozuka/Lee, 2009).

Japan's postwar economy rose like a phoenix from the ashes after the destruction of its physical capital in World War II just like Germany's. Japan's GDP overtook Germany's at the end of the 1960's as Japan's per capita income drew even with Germany's. Japan and Germany have been the second and third largest economies of the world after the US for 4 decades, before being predictably relegated to third and fourth places by China. That the allies left the civil law codes of both countries untouched - while insisting on deep reforms of

competition and banking laws - makes the function of default rules in contract law as necessary condition for economic recovery all the more plausible. The salience of this function is further increased by the fact that Japan's and Germany's economic recoveries proceeded with similar dynamism although the economic policy philosophies of the two countries differed fundamentally, with Germany dogmatically attached to ordo-liberalism (Streit, 1992), while Japan developed an intriguing pattern of strategic pragmatism (see Henrik and Michèle Schmiegelow, 1989).

Just as in France and Germany, indirect finance prevailed in Japan until the 1980's (Patrick, 1962; Suzuki, 1980). Both the prewar *Zaibatsu* and the postwar *Keiretsu* were built around main banks and Japan's myriad SME depended on bank loans just as the big conglomerates. Financial intermediation became dysfunctional in the bubble economy of the late 1980's, however, and it practically discontinued after the bursting of the bubble, when Japan entered the deflationary period of its "lost decade" (Yoshikawa, 2002, Koo, 2003, Krugman, 2009). Banks were allowed to keep their non-performing loans on their balance sheets, confidence in the inter-bank market collapsed as a consequence and lending to enterprises stopped. Only in 2003, the Koizumi government succeeded in compelling the banks to write down the non-performing loans according to international fair value standards. The banks resumed lending and the economy recovered immediately with 6 percent annualized growth in the fourth quarter of the same year (see details in Michèle Schmiegelow, 2003)

(iv) South Korea and Taiwan **-** While Japan was a paradigm of the comparative law method for its own civil and commercial codes, **Korea** had to accept the same codes as a colonial transplant, when it became Japan's protectorate in 1905 and its colony in 1910. Korean society was remarkably receptive to its modernizing potential, however. Hence, it is not entirely surprising that the independent South Korea, which emerged in 1948, voluntarily adopted a civil code in 1958 and a commercial code in 1962, both drafted by Korean legal scholars educated in the dogmatic foundations of the Japanese codes, but distinctive in substance and style (S-Y.Kim, 2000, M. Kim, 2008, Kozuka/Lee, 2009).

Like South Korea, Taiwan was living under the Japanese civil law code from 1897 to 1945. The Japanese code continued to be pragmatically applied until 1949, when Chiang Kaï Sheck took effective control of the territory. The Chinese civil code, which Taiwan adopted in its autonomous identity as the Republic of China in 1950, was in the making on the Chinese mainland since the end of the 19th century. In China's civil law tradition, it is important to distinguish the following phases. Beginning with the Opium War of 1840-42, China came

into contact with Western legal culture and was pressured by Western powers to introduce a Western-style civil code. But Qing Dynasty officials completed their Civil Code Project only in August 1911.The Qing dynasty collapsed soon after and the project therefore never became law. The Republic of China, founded in January 1912, made a fresh start. A Committee for Codification produced a civil code, which was promulgated by stages from 1929 to 1933 and, following the German and Swiss pattern, a special Insurance Law enacted in 1929, which combined organization regulations for the insurance industry with rules for insurance contracts. These were the first codifications of contract law in Chinese legal history and, with various modifications in past decades, are still in effect in **Taiwan** today. They correlate plausibly with Taiwan's emergence as a high growth economy since the 1950's. After assuming political control over Mainland China in 1949, the Communist Party repealed this civil code and replaced it by a socialist system on the Soviet model. Subsequently, the Chinese central authorities attempted several times to draft a socialist civil code, first at the beginning of the 1950's and again at the beginning of the 1960's. Both attempts failed because of the prevailing influence of the "legal nihilism" of the Communist Party (see Xu, 2004, page 19). When Deng's reforms began in 1978, the liberalization of the economy caused demand for a legal framework for private contracts to rise just as gradually. The Contract Law of 1999, which was adopted by the Ninth People's Congress, follows Unidroit principles to a considerable extent. This is a remarkable step in legal transformation and may have contributed to the acceleration of Mainland China's growth in the last decade. But for reasons of methodology we refrain from including transforming economies in our analysis.

South Korea's and Taiwan's economic development followed Japan's pattern in what became known as the "Flying Geese" formation (Akamatsu, 1962). Just as in the case of the German-Japanese duo, the salience of the function of their contract law is plausibly increased by the fact that their economic development proceeded with similar dynamism although their economic policy philosophies differed fundamentally. Taiwan was committed, like Germany, to promoting a model of atomistic competition with SME enterprises prevailing, whereas South Korea, like Japan, favored *chaebols*, big conglomerates reminiscent of Japan's prewar *Zaibatsu* (Schmiegelow, 1991)

In both countries the pattern of intermediate finance prevailed in the past six decades. South Korean and Taiwanese banks were state-owned until the end of the 1980's. And just as in the case of Japan, credit to the real economy was rationed as long as the financial system was

illiquid, similarly up to the end of the 1980's (Noland, 2005; Liu Wan Chun and Hsu Chen Min, 2006).

(v) Switzerland - Significantly, Switzerland codified contract law before all other areas of classical civil law. It joined the European codification movement in 1881 with Walther Munzinger's draft of a Swiss law of obligations ("*Obligationenrecht*") focusing on contracts and including commercial law (Bucher 1988). The draft was adopted by the Swiss Confederation in 1881 and came into force in 1883. In 1912, a revised, but essentially similar version was integrated in Switzerland's first comprehensive civil code ("*Zivilgesetzbuch*") as its Part Five. Although the Swiss codification is frequently described as following the German example, its style is praised as more accessible than the German codes. Unsurprisingly, therefore, the Chinese civil code of 1929, which as mentioned above, has been in force in Taiwan since 1950, shows more traces of borrowing from the Swiss code than from the German one (Bucher, 2006). The contract types, however, are similar. Switzerland's *Versicherungsvertragsgesetz* of 1908 (Insurance Contract Law) follows the pattern of the German insurance contract codification of the same year (Reichert-Facilides, 1998)

Although Switzerland is a small country, its history, economy and civil law constitute a case casting doubt on some of the bolder assumptions of LOT about the comparative quality of common law and civil law. Of course, a one-country case cannot offer robust econometrics. But in the philosophy of science, a single case can refute a conjecture (Popper, 1963). A few rankings illustrate the significance of Switzerland's case, counterintuitive by LOT's assumptions, as both a civil law country and a financial center. From 1870 to 1950, the Swiss economy achieved the highest average growth rate of all European countries including the UK That growth was driven by both the industrial and service sectors (David and Mach, 2007). Switzerland's emergence as a financial center began in the early 20th century on the basis of a pronounced relationship of trust built between banks and clients analyzed by Swiss financial historians in terms strikingly reminiscent of LOT's paradigm of trust in protestant common law countries (Vogler, 2006). A century later, the Swiss economy boasts the highest share of equity market financing in the world at more than 200 percent of GDP. Neither significantly bigger countries (such as Germany, France, the UK, or the US) nor similarly small trading nations (such as Ireland or Austria) come anywhere near that level (Brändle and Jörg, 2010). At the same time, Switzerland ranks fifth worldwide in bank assets, with UBS and Credit Suisse positioned among the top ten. Just as in Germany, SME play a major role in the economy. While Switzerland's big corporations rely on equity finance, its SME depend

on bank finance. More than 90 percent of corporate loans of Switzerland's banks go to SME. Swiss reinsurance groups account for more than 15 percent of global premiums, ranking third worldwide after Germany and the United States. Switzerland is a global leader in private wealth management, with a one-third share of assets among global cross-border private wealth managers. Switzerland is the second largest market of funds of hedge funds (FoHF) worldwide after the United States. In 2007, the Swiss financial system contributed about 15 percent to Swiss GDP, far ahead of the 8 percent in the US and 9 percent in the UK (IMF, 2007; Haldane, Brennan and Madouros, 2010).

2.3.2. Common law countries: UK and US

The uncertainty of judicial discovery of « implied rules » and the complexity and cost of writing clear text contracts for every conceivable business situation has been recognized in common law countries in at least three historical phases, each inspired by interest in the comparative functional quality of codified contract rules in civil law countries.

The first phase, in the second half of the 19th century, led to the « codifying statute » on the sale of goods in the UK, the Sale of Goods Act of 1893 (Atiyah et al., 2005). The entire common law was codified to speed its diffusion in the British Empire, more particularly in India. Intellectually, this effort was guided by Jeremy Bentham's constructivist rationalism and the perception of cultural incompatibility between English common law and "native" legal traditions (Wilson 2007). Bentham shared the interest of continental European legal positivists in codification (Hayek, 1973). India's Contract Act of 1872 codifies four economically important contract types: sale of goods, guarantee, bailment (delivery of goods) and agency. In theory, with this score of 4 as against the UK's 1, India's economic performance should have overtaken the UK's already by the end of the 19th century. If it did not, India may serve as the leading case of the theory of failed legal transplants from colonizing countries to colonies described by Berkowitz et al. (2003) as "transplant effect", which is why, regrettably, we had to eliminate India from our analysis.

The second phase of interest of common law countries in codifying contract law occurred in the mid 20th century. It was driven by the « restatement » movement in the US and led to the adoption of the Uniform Commercial Code (UCC) in all States of the US from 1953 on. According to Crystal (1979), it was a period of intensive transatlantic exchange between comparative lawyers and of remarkable interest of American legal scholars in functional solutions offered by civil law. Just like the UK Sale of Goods Act of 1893 and its modernized version of 1979, the UCC focuses on the sale of goods (Article 2). But Article 2 UCC also

serves as a welcome source of arguments by analogy for contracts in other areas. Moreover, Article 4 UCC, on bank deposits and collections, also offers default rules for bank customers taking loans from their bank, which led the US a step further than the UK in the process of codifying default rules.

The third phase, towards the end of the 20th century, was the emergence of new institutional economics with its debate on contract theory already mentioned in section 1. As a result of this debate, in view of the growth of modern leasing industry, and following an initial study by the American Bar Association, a Drafting Committee of the National Conference of Commissioners on Uniform State Laws (NCCUSL) produced the draft of a Uniform Personal Property Leasing Act. In 1987, this draft was incorporated as Article 2A in the UCC. By March 1994, this new Article was enacted in 39 states (Lawrence, 1996). This is just one among many indicators of the convergence between civil law and common law, which is familiar to all students of comparative law (Dam, 2006, Dannemann, 2006, H. Schmiegelow, 2006) and which has progressed further in the US than in the UK.

Both the UK and the US, however, continue to stand out as locations of the world's two largest financial centers even though there have been remarkable upswings and downswings as well as changes in their relative importance and composition. Equity finance historically prevailed over bank finance in the UK, while bank finance prevailed in the US until the 1930's (Eichengreen, 2008). Since World War II, however, nonbank financial institutions and markets have become more important in the US reflecting the process of disintermediation and securitization. Data on financial markets reaching back to the 19th century are less than perfectly reliable and not easy to interpret. La Porta et al (2008) have convincingly refuted data on stock market capitalization over GDP, on which Rajan and Zingales (2003) have relied to argue that the ratio was higher in civil than in common law countries before World War II. Instead, LOT prefers data collected by Goldsmith (1985). These show the UK as the leading financial center between the 1880's and the 1930's, followed by the US thereafter.

2.3.3. The debate on non-legal factors in financial market development

The Goldsmith figures for France, Germany and Japan suggest a much weaker stock market development from the 19th century to the present, which is consistent with our remarks in Section 2.3.1 on the prevalence of indirect finance in these countries and Roe's (2006) argument that the absence of war destruction and foreign occupation is a necessary condition for the domestic development of equity finance. However, the Goldsmith figures, accepted by LOT, also show that Switzerland comes close to or, at times, overtakes those of the US.

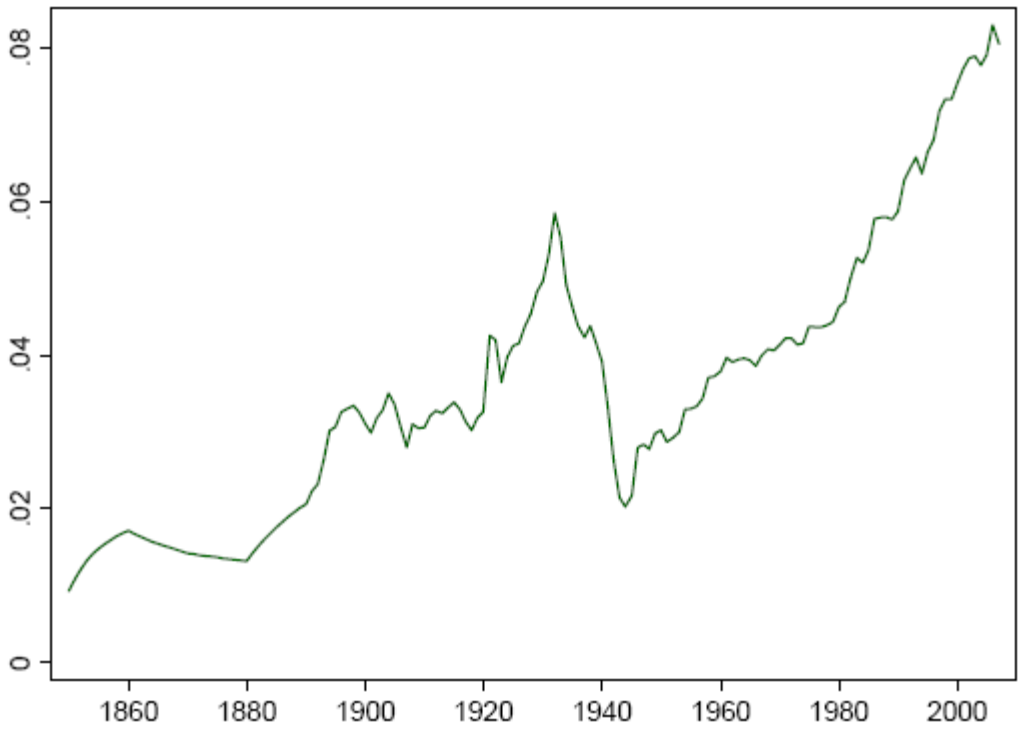
These figures support Roe's suggestion that, provided the absence of war destruction and foreign occupation, a civil law country can develop equity finance just as fully as the leading common law countries. La Porta et al (2008) take issue with Roe's argument of war destruction sparing Switzerland while impeding the development of equity finance in all other developed civil law countries. They object that Roe considers developed countries only and argue that his correlation between war destruction and low stock ownership dispersion disappears as soon as the larger LOT sample of countries including developing countries is used. Indeed, they sum up, "This may not be surprising: many developing countries stayed out of World War II and yet remained financially underdeveloped" (p.321). This argument is of questionable logic, however. Roe's hypothesis was not that all countries enjoying peace would develop financial centers, but only that countries not enjoying that privilege would not. A similar "logic" could easily be turned against LOT: many developing countries are of English legal origin and yet have not developed a financial center. Of course, we will not let ourselves be tempted into such an argument.

As repeatedly stated, we posit that a functional legal environment is a necessary, but certainly not a sufficient condition of economic development (H.Schmiegelow, 2006). A highly suggestive demonstration of the need for this qualification of LOT is Thomas Philippon's (2008) analysis of three large up-swings in the development of the US financial market since the mid 19th century interrupted by two big contractions.

Philippon proposes a model of interaction between corporate finance and technical innovation and relates the three up-swings of the US financial market to three great phases of industrial development: (i) railroads and heavy industry (1880-1900), (ii) the "electrical revolution" (1918-1933), and (iii) the "revolution of information technology" (1980-2001). Figure 1 illustrates this argument suggestively. If we consider that the two first phases of industrial development supported by financial intermediation through banks was shared very much by civil law and common law the mother countries and that LOT's arena of argument has been limited so far to the 1980's and 1990's, when the economic performance of the US turned into a statistical outlier, a closer look at Philippon's third phase is in order. Indeed, the "revolution of information technology" has been marked by an axiomatic preponderance of the US. Hence the question arises, whether the superior performance of the US is owed to a superior quality of American research and development rather than to the superior quality of common law assumed by LOT.

Again, we do not in the least doubt the quality of common law as an environment particularly favorable to the flow of capital to corporate insiders bound by fiduciary duties. In view of the Swiss case, we just see good reasons that civil law default rules, especially the general clause of good faith, build confidence of investors just as effectively, if it is not destroyed by the intervention of wars and occupation as argued by Roe. Again, we warn against overreaching assumptions about the economic consequences of law. LOT would do well to retreat to the well-prepared position of institutional economics: law is a necessary, though certainly not a sufficient condition.

Figure 1. GDP Share of U.S. Financial Industry



Source: Thomas Philippon (2008).

2.3.4. Codified Default rules in the contract types selected

The codes and statutes mentioned in the preceding survey of legal and economic data reveal **which country** has codified default rules **for which contract type** and **when**. Table 1 surveys the presence and absence of default rules for the 10 defined contracts types in the 8 selected countries. The table presents the years of the first codification of specific default rules for each of the ten contract types in each of the 8 countries, although subsequent codes or statutes may have changed or refined the rules.

In France, the *code civil* of 1804 was the first modern codification offering default rules for 8 of our 10 contract types (Benabent, 2004). Codification of labor and insurance contracts

followed by the *code du travail* (Labor Code) of 1922 (Lyon-Caen, 1955) and by the *Loi sur le contrat d'assurance* (Insurance Contract Law) of 1930 (Reichert-Facilides, 1998). In Germany, the ADHGB of 1861 of the German Confederation preceded the BGB of 1896 and the HGB of 1897 of the German Reich, both in force since 1900, in providing default rules for 9 of our 10 contract types (Oechsler, 2008). The *Versicherungsvertragsgesetz* (Insurance Contract Law) of 1908, in force since 1910, was the first German codification of insurance contracts. Similarly, the Swiss Law of Obligations of 1881, in force since 1883, which preceded the Swiss Civil Code of 1912, codified 9 of our 10 contract types, while insurance contract law was codified in 1908 as in Germany (Reichert-Facilides, 1998).

The Japanese Civil Code of 1896, in force since 1897, codified 8 of our contract types, while leaving the first codification of commercial agents' contracts and insurance contracts to the Commercial Code of 1898, in force since 1899. The Korean Civil Code of 1958 and the Korean Commercial Code of 1962, while otherwise remarkably distinct, followed a similar legislative technique, with the former codifying the 8 most general contract types and the latter commercial agent's and insurance contracts (Kozuka/Lee, 2009). The Civil Code of the Republic of China, in force in Taiwan since 1950, follows German and Swiss patterns in offering default rules for 9 of our contract types, while leaving insurance contracts to a special law, the Insurance Law of 1929 of the Republic of China, in force in Taiwan since 1950 (Lin, 2010, Jao, 2008).

As we have seen, the UK codified default rules for only 1of our 10 contract types, the purchasing of equipment. The Sale of Goods Act of 1893 was followed by Sale of Goods Act of 1979, similar in style and codifying technique (Ahtiya et al., 2005). Hence we count the first of the two codifying statutes. Two of our contract types benefited from the first codification of default rules in the US, sales contracts in Art 2 and bank loans in Art 4 of the Uniform Commercial Codes enacted in all US States since 1953. One more, renting office space, was added in 1987 in Art 2 A UCC on leases, and although enactment of this addition took more or less years in the different states, we have used the year of its adoption by the NCCUSL in table 1. Even though common law prevails in a state as long as it has not enacted Art 2A UCC, lawyers and judges will tend to use its principles by anticipatory analogy (Lawrence, 1996).

Table 1 shows that all 8 countries of our sample provided codified default rules for at least 1 of the ten contract types. The 6 civil law countries in our sample codified such rules for all of the 10 contract types, whereas the two common law countries of our sample did so for only 1

(UK) or 3 (US). In view of the importance accorded to default rules by contract theory, we hypothesize that their greater number in the contract law of civil law countries than in common law countries should have compensated for the comparative weakness of equity capital supply in those civil law countries in our sample, which did not enjoy the advantages of the UK and the US as locations of financial centers. This compensating effect should be detectable in their comparative economic performance over significant periods of time.

The length of the periods since the codification of the contract types in our sample countries should be sufficient to show a lasting footprint in their respective economies: two centuries for the 8 initial contract types in France, one and a half century for the 9 initial contract types in Germany, largely over a century for the first complete codification of all 10 contract types in Japan, just a century for the first codification of insurance contracts in Germany and Switzerland, 88 and 80 years respectively for the first codification of labor contracts and insurance contracts in France, half a century for the enactment in Taiwan of the full set of 10 contract types previously codified in 1929 by the Republic of China, as well as for the independent codifications in South Korea. And the period between 1870 and 2008, for which reliable per capita GDP data are available for all 8 countries should offer a reflection of this footprint in terms of at least a convergence with the performance of the UK and the US. The hypothesis would be further strengthened, if Switzerland, which combines civil law and financial center advantage, outperformed the UK and the US.

Table 1. Presence and absence of codified default rules for 10 contract types in 8 civil law and common law countries

Countries / Contracts	Civil law						Common law	
	Without financial center advantage					With financial center advantage		
	France	Germany	Japan	South Korea	Taiwan	Switzerland	U.K.	U.S.
Renting office space	1804	1861	1897	1958	1950	1883	-	1987
Contracting for construction of a building	1804	1861	1897	1958	1950	1883	-	-
Purchasing equipment	1804	1861	1897	1958	1950	1883	1893	1953
Insuring equipment	1930	1910	1899	1962	1950	1910	-	-
Hiring employees	1922	1861	1897	1958	1950	1883		
Taking a bank loan	1804	1861	1897	1958	1950	1883	-	1953
Subcontracting a task	1804	1861	1897	1958	1950	1883	-	-
Contracting with a commercial agent	1804	1861	1899	1962	1950	1883	-	-
Obtaining advice from a consultant	1804	1861	1897	1958	1950	1883	-	-
Guaranteeing an undertaking by a subsidiary	1804	1861	1897	1958	1950	1883	-	-

Presence: 1, indicated here by the year of first codification, Absence: 0, indicated here by "-"

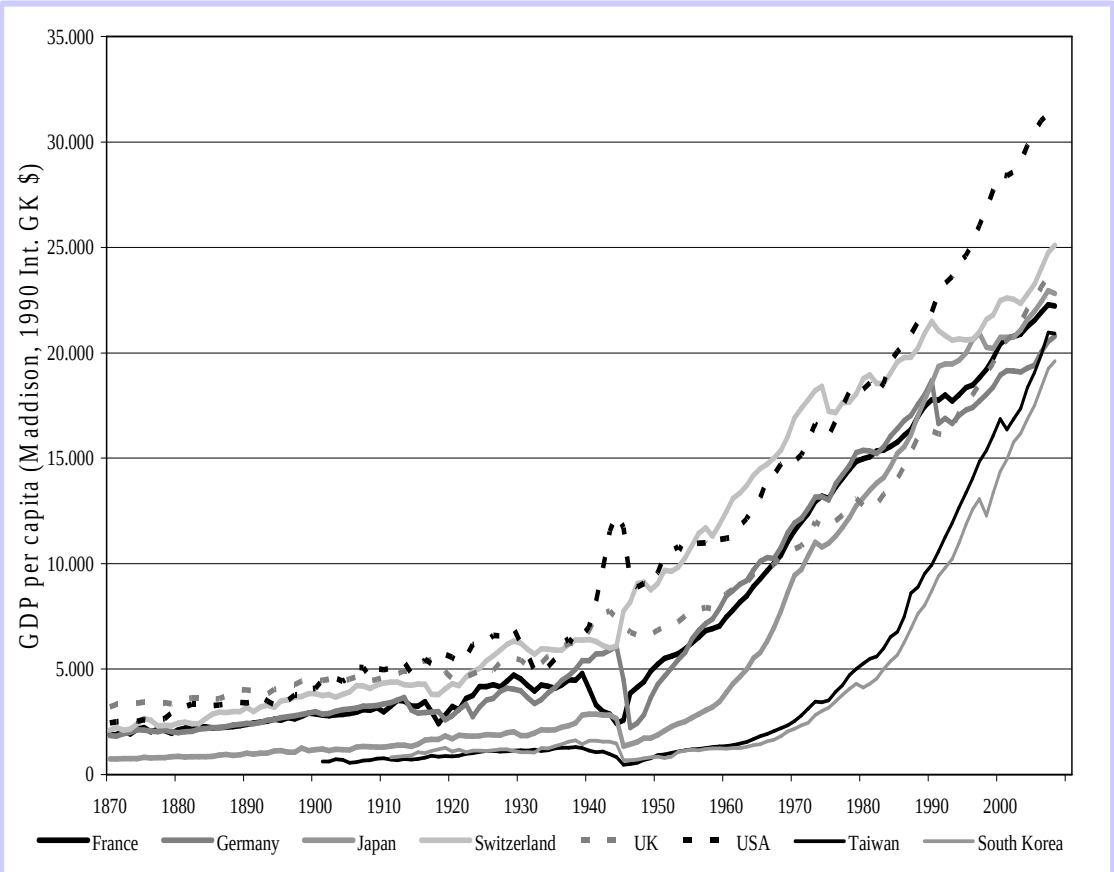
Source: authors' own computations.

2.4. Economic performance of selected countries

Figure 2 shows the evolution of the per capita GDP growth rate of our 8 countries from 1870 to 2008, using the historical Maddison data on GDP (Maddison 2001 except for West Germany (1949-1990), for which we use the data of Maddison 1995 to avoid the backward extrapolation of the data of the former GDR as explained in Section 2.3.2). It reveals a suggestive pattern of convergence between civil law countries and common law countries, although with massive interruptions in the war and interwar periods. The recoveries of France, Germany and Japan after the Second World War appear as impressive as the sustained catch-up process of the two newly industrialized countries South Korea and Taiwan. The fact that three highly developed civil law countries without financial center advantage could overtake the UK after World War II suggests that the impact of the codification of a full range of 10 economically important contract types may overcompensate

comparative weaknesses of the flow of equity capital. Our hypothesis is further confirmed by Switzerland's combining the full range of codified default rules, financial center advantage and a per capita GDP exceeding that of the UK in two interwar decades, and the six decades since the end of the Second World War, as well as that of the US between the mid 1950's and the mid 1980's. That the Swiss economy fell back against the US economy in the 1990's can be explained by factors beyond contract law and financial center status. The phenomenon correlates with the simultaneous occurrence of the outlier performance of the US explained by Philippon (2008) on the one hand, and the Swiss recession from 1990 to 1996, a steady appreciation of the Swiss franc hurting Switzerland's export industries, and a new divisiveness of its domestic politics (David and Mach, 2007). This is another reminder that well-designed default rules in codes and statutes can constitute only a necessary, but not a sufficient condition of economic performance.

Figure 2: Evolution of per capita GDP 1870-2008



3. Empirical results

We analyze the relationship between economic performance and the history of contract law since the nineteenth century. We make the assumption that, all other things being equal, the codification of default rules for economically important contract types influences the economic performance in the codifying country, since it reduces transaction costs and information asymmetries by offering default rules for incomplete contracts.

3.1. Specification

We specify the following linear panel data model, commonly known in the growth literature as β-convergence model (Sala-i-Martin, 1996; Quah, 1996; Arbia and Piras, 2005; etc.):

(1) $$\Delta \ln Y_{i,t} = \alpha_i + \alpha_t + \beta \ln Y_{i,t} + \gamma \left(Default\,rules\right)_{i,t} + \varepsilon_{i,t}$$

where the dependent variable ($\Delta \ln Y_{i;t} \equiv \ln Y_{i,t+1} - \ln Y_{i,t}$) is the annual growth rate of per capita GDP in country *i* between years *t* and *t+1*, $\ln Y_{i,t}$ is the log of GDP per capita at the beginning of the period, $\left(Default\,rules\right)_{i,t}$ is an indicator of the presence of codified default rules at time *t*, and $\varepsilon_{i,t}$ is the well-known error term.

Our coefficient of interest is γ; it measures the nature of the short-term impact of codifying default rules for contracts important for business on economic growth. This model is stable if β is significantly negative such that $\beta \in$ [-1; 0]. As equation (1) specifies the conditional convergence, GDP per capita at country level will converge to its country-specific steady state value in the long run, and -β determines the speed of convergence toward the steady state. Thus, the long-term effect of codifying a contract type with default rules is equal to the ratio ($-\gamma / \beta$).

We control for country fixed effects, α_i and for time fixed effects, α_t. We choose to estimate the fixed effect panel data model by using the Least Square Dummy Variable (LSDV) approach. Indeed, following Islam (1995) and Arbia and Piras (2005), with the application of the panel data approach on convergence problems, it is not necessary to keep the steady state constant, since this can be directly estimated from data by using a LSDV estimator.

3.2. Econometric issues

First, one can suspect the existence of an endogenous variable in that model. Indeed, $\ln Y_{i,t}$ appears in both sides of equation (1) causing an endogeneity problem. We may also think that the legal framework is correlated with other factors included in the error term, such as the

organization of the society. To be convinced by this hypothesis, we will conduct the Hausman test for endogeneity. The appropriate method of estimation is the Instrumental variable (Two Stage Least Square) technique. Before embarking on this estimation, we first conduct the Hausman test for checking the endogeneity of log of GDP at time *t*. Indeed, by construction, the coefficient β contains the Nickell bias in this kind of dynamic panel data model with fixed effects (Nickell, 1981). The null hypothesis of exogeneity of log of GDP per capita at time t is rejected at 10 % (p-value of the Hausman test equals 0.08). The instrument must be correlated with the endogenous variable and not with the error term. In this kind of model the most indicated instrument is the first lag of the endogenous variable, i.e. the log of $Y_{i,t-1}$.

Our data set is a one year unbalanced panel running from the nineteenth century (1870 – 2008). The data we are using are the growth rate of GDP per capita as a proxy of economic performance and the default rules indicator. As explained above, the historical Maddison data (Maddison, 1995, for post-war West Germany and Maddison 2001 for all other cases) are the source of this variable. Figure 2 shows the evolution of the per-capita GDP for our sample countries. One observes a similar evolution (except during the Second World War period for the US) until 1990, when US per capita GDP grows faster than the rest of the sample countries. Most significant for the standpoint of LOT, however, is that 3 civil law countries of our sample (the mother countries) began to overtake the UK after World War II, in spite of their lacking the UK's advantage of being a major financial center, and that Switzerland, which combines civil law with financial center advantages, outperformed the US from the mid-1960's to mid-1980's. The outlier performance of the US after 1990 was the consequence of the faster development of the US financial industry based on the simultaneous extraordinary growth of the US information industry, as pointed out by Philippon (2008). The sudden decrease of Germany's GDP in 1991 reflects the statistical effect of the integration of the socialist economy of the former GDR in the FRG (Canova and Ravn, 2000).

We consider two different measures of the default rules indicator. Firstly, we measure it as a binary variable noticing the presence or absence of default rules for economically important types of contracts in codes and statutes. Taking this avenue, the dummy variable "Default rules" is equal to 1 if a country has codified at least one contract type offering default rules as listed in Table 1. In other words, it takes 1 from the year of codification and it is equal to 0 otherwise. Secondly, we consider the number of these types of contracts in codes and statutes. This way, we can capture the differences between countries providing just 1 contract type with default rules and countries offering the full set of 10 contract types. We assume the exogeneity of default rule indicator. From Table 1, it follows that the years of codification of default rules are not identical, while the

countries have grown almost identically up to World War I. Additionally, specific fixed effects enable us to exclude an inversed causal relation running from growth to institutions. Hence, there are strong reasons to suppose that the codification of the different rules is not caused by recent growth rates.

3.3. Benchmark results

The results concern the fixed effects-OLS (Least Square Dummy Variable model) and the instrumental variable (Two stage least square) regression. Our main estimate results are reported in columns 3 to 4 of Table 2. Under the FE-OLS in column (1) and (2), the results show a positive correlation between the default rules indicator and the growth rate of GDP per capita. Thus, its impact on economic performance is positive and statistically significant when we control for fixed effects and when we use instrumental variable regression in column (3) and (4). One can observe that the magnitude of the short-run impact of the number of contracts is smaller than the magnitude of impact resulting from the binary default rules indicator. This shall imply that the presence of at least one contract type containing default rules does matter in the short term. Furthermore, whether we consider default rules as a binary or as a continuous variable, the β estimated coefficient is significantly negative as theoretically anticipated.

However, the binary variable does not capture the marginal impact of the first codification of one contract type with default rules. Table 1 shows that the codified contract laws of most of the countries of our sample are designed to codify more than one, and mostly 8 or 9, contract types in one code at the same time, the UK being the only exception. Thus, the binary variable is not sufficiently precise to account for the difference in the number of codified contract types with default rules in the contract laws of our sample of countries: a value equal to one means codifying all of our 10 contract types with default rules in the Civil Law countries of our sample, but only one or three such contract types in Common Law countries. For this reason, we focus on the number of contract types with default rules. As an illustration, column (4) of Table 2 shows that codifying one additional contract type with default rules will increase the log of GDP per capita by 0.38 percent in the short term, with a 95 percent delta-method based confidence interval of [0.18; 0.58]. The long-run effect equals 13.3 percent with a 95 percent delta-method based confidence interval of [5.43; 21.24]. The speed of convergence toward the steady state value is equivalent to 2.85 percent. Hence, we can conclude that the codification of default rules for most economically important contract types favors economic growth.

3.4. Robustness checks

A natural check for robustness of this conclusion is required. We consider robustness along two dimensions. Firstly, we check whether or not entry or exit of countries in our sample affects our estimation results. In columns (5) to (8), we report results obtained with instrumental variable regressions. FE-OLS results (available upon request) are very similar. In columns (5) and (6), we take only the mother countries of legal systems: France, Germany, Japan, and the United Kingdom. In column (5), the dummy associated with the presence of default rules is not statistically significant. This non significance could be explained by the fact that the UK (25 percent of the 4 sample countries) has codified only one contract type with default rules whereas France, Germany and Japan have codified 8-10 contract types with default rules. However, the positive relation between codified default rules and economic growth is statistically significant when considering the number of contract types containing such default rules. Hence, we found again a positive correlation between codified default rules and economic growth. Our results are not influenced by the presence in the sample of three countries enjoying the advantages of a major financial center (UK, USA and Switzerland) and two emerging countries (South Korea and Taiwan). Furthermore, eliminating these countries, one by one, leads to the same results. To illustrate this, we report in columns (7) and (8) the results obtained when Taiwan is excluded from the sample.

Given the difficulty of interpreting data for Germany since the unification in 1990, we have conducted a further robustness check (not reported here). We have truncated the sample period until 1990. We have excluded at the same time the incidence of US financial development in the light of Philippon (2008). We have redone the previous estimations on the 8 sample countries. Again, we found a positive correlation between economic performance and the codified default rules in codes and statutes. The coefficient for the dummy associated with the presence of default rules equals 1.2 percent and is significant at the 10 percent level. On its side, the coefficient for the number of contract types equals 0.34 and is statistically significant at the 1 percent level.

In sum, we find that default rules, measured by their presence or absence in the codes and statutes or by the number of economically important contracts types containing such rules, favor economic performance. Whether we use balanced/unbalanced panel, or we exclude some countries or truncate our sample period, the result is still robust.

Table 2. Dependent variable = growth rate of GDP per capita

	Unbalanced (8 countries)[a]				Balanced – mother countries [b]		Unbalanced (7 countries) [c]	
	FE OLS		IV 2SLS		IV 2SLS		IV 2SLS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Default rule	0.0162**		0.0178***		0.0133		0.0127*	
	(0.0067)		(0.0084)		(0.0098)		(0.0740)	
Nb of contracts		0.0035***		0.0038***		0.0036*		0.0038***
		(0.0010)		(0.0010)		(0.0020)		(0.0013)
Log of GDP per capita	-0.0136*	-0.0210**	-0.0208**	-0.0285***	-0.0381**	-0.0470**	-0.0272***	-0.0351***
	(0.0078)	(0.0085)	(0.0083)	(0.0091)	(0.0181)	(0.0161)	(0.0105)	(0.0116)
Constant	0.1145**	0.1578**	-2.3018***	-2.2444***	-2.1242***	-2.0507***	-2.2323**	-2.1782***
	(0.0616)	(0.0646)	(0.0826)	(0.0871)	(0.1807)	(0.2041)	(0.0104)	(0.1099)
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.683	0.687	0.683	0.687	0.805	0.806	0.701	0.704
Observations	1033	1033	1025	1025	549	549	919	919
Nb of countries	8	8	8	8	4	4	7	7

*Notes. *** p<0.01; ** p<0.05 and * p<0.1. [a] Unbalanced panel with 8 countries (see Table 1); [b] Balanced panel with four mother countries (UK, France, Germany, Japan);[c] Unbalanced panel with 7 countries (Taiwan excluded). Robust standard errors are in parenthesis. Instrumented variable: ln(GDP per capita); this endogenous variable is instrumented by using his own first lag (Columns 3 & 4). Country and Time dummies are not reported to save space. FE OLS: Fixed Effects model tested with Least Square Dummy Variable technique; IV 2SLS: FE tested with Instrumental variable (Two stage least Square) approach. Nb: Number.*

3.5. Numerical illustration

To illustrate the impact of adopting codified default rules on GDP per capita, we simulate a counterfactual scenario showing what should have been the evolution of GDP per capita of Taiwan and South Korea if they had not adopted default rules. We compare the two situations with North Korea since the GDP pc of these countries was similar in the 1950's and North Korea has never adopted default rules as explained in previous section. Basing on the data, the economic performance of Taiwan and South Korea remains greater than the one of North Korea. However, based on the regression (4) in the Table 2, figures 3a and 3b show that, without contract types with default rules, Taiwan's GDP pc as well as the South Korea's GDP pc shall be much less than what we observe. In other words, figure 3 illustrates that codifying 10 contract types with default rules (which is a huge institutional change) multiplies GDP per capita by almost 3 in the long run. Furthermore, North Korea could have grown faster than South Korea during the period 1963-1985 and than Taiwan in the period 1953 - 1985. This scenario confirms the hypothesis that default rules matter for economic performance.

Figure 3a. Comparison between observed and calibrated GDP per capita of Taiwan, and observed GDP per capita of North Korea (1950-2008).

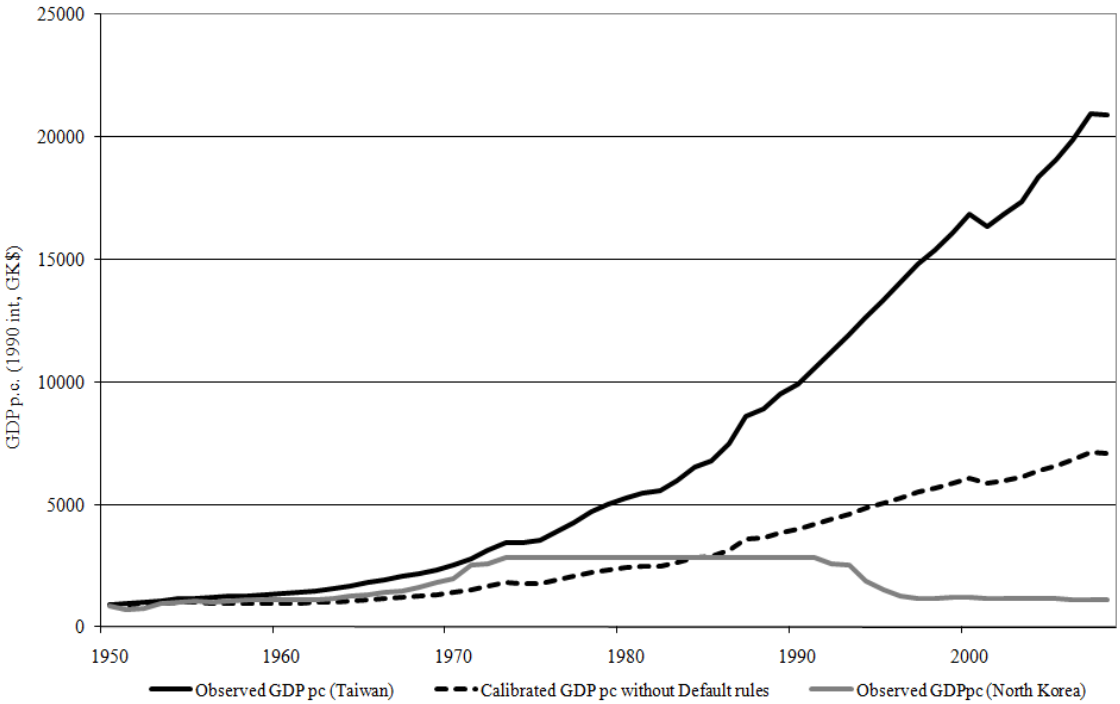
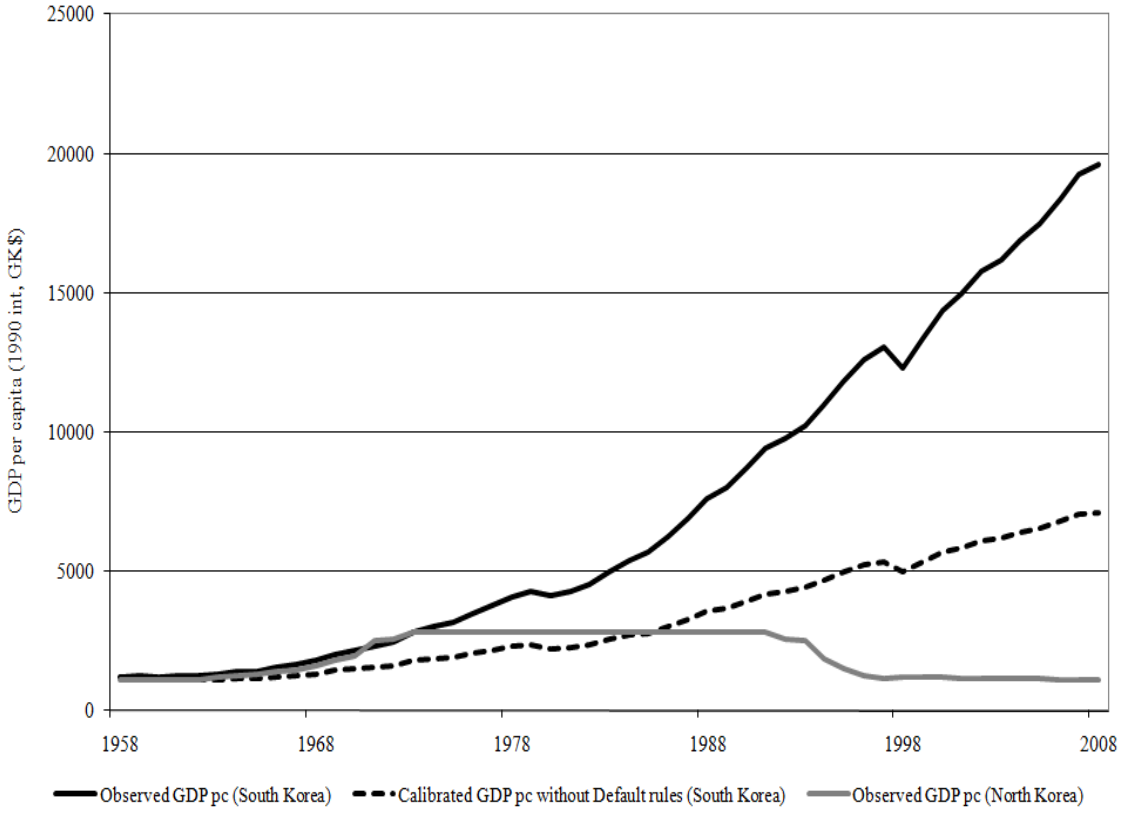


Figure 3b. Comparison between observed and calibrated GDP per capita of South Korea and observed GDP per capita of North Korea (1958-2008).



4. Conclusion

In this paper, we have shown that contract theory, which focuses on codified default rules reducing information asymmetries and transaction costs, qualifies LOT's claim that common law is economically superior to civil law. To address this issue properly, we have selected a sample of 10 of the most important economic contract types and kept track of the number and timing of codification of default rules for these contract types between 1804 and 1987 in 8 representative countries: France, Germany, Japan, the UK and the US as representatives of ``legal origins´´ influencing other countries legal systems, South Korea and Taiwan as high growth countries having voluntarily and autonomously chosen to adopt civil codes in the 1950's as purposefully designed amalgams of domestic legal traditions and borrowed Western patterns, and Switzerland as a prominent case, counterintuitive from LOT's point of view, of a country combining a history of peace, a civil law legal system and the status as a major financial center.

In order to identify the impact of the presence or the absence of codified default rules on economic performance, as measured by per capita GDP growth in prolonged times series

between 1870 and 2008, we have performed an extensive econometric evaluation combining the most advanced tools in panel data analysis and more standard techniques. Controlling for time and country fixed effects, we have found that codified default rules do favor economic performance across the cleavages of legal origins. But our analysis also reveals that the higher the number of economically important contract types codified with such default rules, the greater the economic effect. This is reflected in the evolution of per capita GDP of the six civil law countries of our sample as compared to the two common law countries. While all of the former have codified all 10 of the economically most important contract types selected, the latter have offered their business communities codified default rules for only 1 (UK) and 3 (US) contract types respectively. We submit that the 6 civil law countries, which have overtaken the per capita GDP growth of the UK or have emerged on a sustained path of convergence without enjoying the advantages of a financial center, owe part of that performance to their much higher number of codified default rules easing the conclusion of enforceable contracts. Moreover, Switzerland's per capita GDP exceeding that of the UK for 8 decades and that of the US for 3 decades in the inter-war and post-World War II periods invalidates LOT's assumption that civil law is not a favorable environment for the supply of capital to financial markets. We consider these two conclusions as important qualifications of legal origins theory from the point of view of contract theory. While qualifying legal origins theory, our results strongly confirm institutional economics in its core of contract theory.

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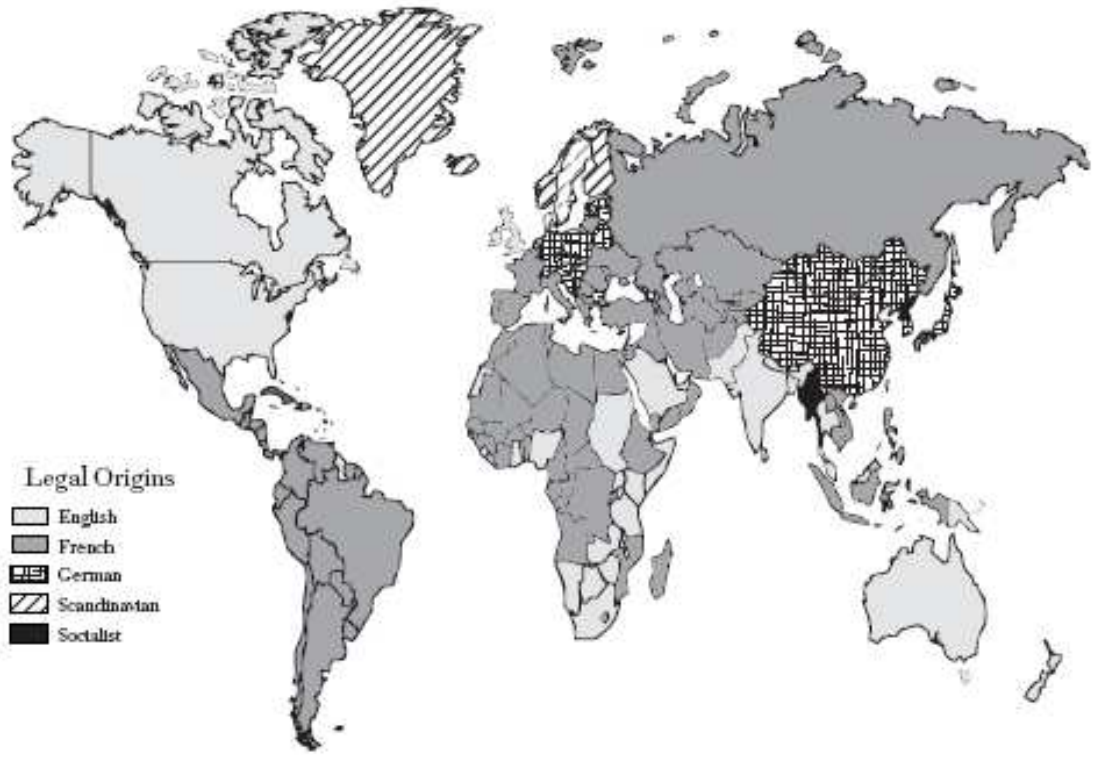
Appendix

The Geographical Distribution of Legal Origins



Source: Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, *THE ECONOMIC CONSEQUENCES OF LEGAL ORIGINS*, Working Paper 13608, NATIONAL BUREAU OF ECONOMIC RESEARCH, Cambridge, MA, November 2007