

---

Article

# Varieties of creditor protection: insolvency law reform and credit expansion in developed market economies

Simon Deakin<sup>1</sup>, Viviana Mollica<sup>2</sup>, and Prabirjit Sarkar<sup>3,\*</sup>

<sup>1</sup>Centre for Business Research (CBR), University of Cambridge, Cambridge CB2 1AG, UK, <sup>2</sup>University of East Anglia (UEA), Norwich NR4 7TJ, UK, and <sup>3</sup>Economics Department, Jadavpur University, Kolkata, India

\*Correspondence: [prabirjit@gmail.com](mailto:prabirjit@gmail.com)

## Abstract

We examine the relationship between creditor protection, law reform and credit expansion using longitudinal data for four OECD countries between 1970 and 2005. By decomposing the different elements of creditor protection, we show that civil law countries (France and Germany) have developed a high level of protection for creditors in the form of controls over the management of debtor firms, while common law countries (UK and USA) have arrived at a high degree of protection in relation to secured creditors' contractual rights over firms' assets. Using panel causality tests and dynamic panel data modelling, we show that laws strengthening creditors' control over debtor firms in these four countries had a long-term positive effect on the expansion of private credit, while reforms increasing secured creditors' rights had a negative effect. We explore the implications of our findings for legal origin theory and the varieties of capitalism approach.

**Key words:** capitalism, varieties, economic reform, financial markets, institutional complementarity

**JEL classification:** G38 Government Policy and Regulation, K22 Business and Securities Law, K40 General

---

## 1. Introduction

The idea that law matters for effective capitalist development can be traced back to the writings of [Weber \(2013\)](#). Comparing the experience of industrializing countries of Western Europe with other countries, he concluded that a rational legal system is a precondition for the emergence of capitalism. This perspective treats the legal system as an endowment, created by a fixed investment, which determines the path of development 'without itself

being subject to change' (Milhaupt and Pistor, 2008, pp. 18–22). North (1990) presents a similar viewpoint. He has argued that rich nations are those which have succeeded in forming institutions which are able to protect property rights and provide an environment for the enforcement of contracts. Less developed nations lack these institutions.

The foundational works of La Porta *et al.* (1998) and the subsequent analyses by this group and others have infused a strong quantitative flavour to the study of law as 'endowment' (see La Porta *et al.*, 1997, 1998, 2008; Botero *et al.*, 2004; Djankov *et al.*, 2007). In constructing quantitative measures of legal rules, La Porta *et al.* (henceforth 'LLSV') mostly used binary variables (0, 1) to capture the quality of types of law protecting the interests of shareholders, creditors and workers. Lele and Siems (2007), extending and modifying LLSV's methodology, refer to these data coding techniques as 'leximetric'. A large literature, spanning the legal and economic research fields, has since developed, extending and modifying these methods (see Siems, 2014).

A further feature of LLSV's approach was their classification of countries according to their 'legal origin'. By this, LLSV referred to the distinction between the English common law and the mainly French- and German-influenced civil law. LLSV divided the civil law world into systems of French, German and Scandinavian origin. Through various cross-sectional regression studies of their leximetric data, LLSV concluded that English common law systems were more market-friendly: they provide higher levels of shareholder and creditor protection, and this legal support has led to an increased level of credit market development (La Porta *et al.*, 2008).

The legal origin literature has connected with other contemporary analyses which claim to show that financial development promotes economic growth (Levine, 1997). The conclusion drawn from this wider literature is that legal origin matters for economic development. Some studies claim to have found empirical evidence showing that common law countries grow faster than civil law countries (Mahoney, 2001). The current consensus is that this claim has not yet been made out (La Porta *et al.*, 2008; Klerman *et al.*, 2011). Nevertheless, legal origin theory has been advanced as a superior explanatory model to that provided by the varieties of capitalism (VOC) approach (Hall and Soskice, 2001): thus it has been suggested that supporters of the VOC model, having searched in vain for an 'objective measure of different types', need have 'looked no further than legal origins' (La Porta *et al.*, 2008, p. 303).

In this article, we re-examine the claims that 'law matters' for financial development and that common law systems are, on the whole, more protective of financial interests than civil law ones. We focus on the issue of creditor protection. While considerable attention has been paid, within the corporate governance literature, to growing shareholder influence over managers and to claims that market economies are converging on a type of shareholder-centric corporate law (Hansmann and Kraakman, 2001), the relationship between creditors and the firm is arguably of equal importance to understanding the legal underpinning of the business enterprise (Deakin, 2012), while bank-based lending, which is legally structured by insolvency (or 'corporate bankruptcy') law, is by no means confined in its importance to systems characterized as having 'coordinated markets' (Wood, 1997).

Djankov *et al.* (2007), building on the analysis in La Porta *et al.* (1998), construct a longitudinal data set of creditor rights in 129 countries over the period 1978–2003, to test the claim that insolvency law impacts on the extent of private credit in an economy, that is, the scale of lending to firms by banks and other financial institutions. They find that improvements in creditor protection are correlated with higher ratios of private credit to GDP and that the common law provides superior protection for creditors than the civil law. However, their analysis is not the last word on the subject because the legal data set they

rely on does not contain all relevant variables of interest. In this article, we use a more extensive legal index which allows us to code for the differences between distinct forms of creditor control over debtor firms and their assets. We then focus our analysis on four individual country cases—France, Germany, the UK and the USA—in a way which enables us to provide detailed data on patterns of legal change, something which is much harder to achieve when data from over 100 countries are analysed as in [Djankov \*et al.\* \(2007\)](#).

Our analysis shows a number of things. First, insolvency law reform is much more common than [Djankov \*et al.\* \(2007\)](#), who refer to the ‘stability’ of this area of law, suggest. Second, we demonstrate that the effects of the law differ according to which type of creditor protection predominates in a given country. Third, we show that the strengthening of certain types of creditor rights can be negative for the growth of private credit.

The rest of the article is organized as follows. The next section provides an overview of legal origin theory and of the current state of methodological debates in this area. Section 3 outlines our legal data, and Section 4 sets out the econometric analysis. Section 5 discusses the findings, placing them in the context of the theoretical development of the legal origin hypothesis, and of its relation to the VOC approach. Section 6 concludes.

## 2. Legal origins: theory and evidence

There are two inter-linked claims driving the legal origin literature, which can be referred to in terms of (i) the ‘quality of law’ or ‘law matters’ hypothesis, and (ii) the ‘legal origin’ hypothesis in its strict or narrow sense (see [Armour \*et al.\*, 2009a](#)).

(i) *Quality of law*. This is the claim that legal rules shape economic outcomes according to how far they support market-based economic activity as suggested in new institutional economics ([North, 1990](#)). It is argued that legal protection of the interests of the shareholders and creditors will increase the flow of investments and enhance the availability of external finance to firms ([La Porta \*et al.\*, 1997, 2008](#)).

(ii) *Legal origin*. This is the claim that the quality of legal institutions varies systematically with the ‘origin’ of a country’s legal system—that is, whether it falls into the Anglo-American ‘common law’, or French, German or Scandinavian ‘civil law’ systems ([Djankov \*et al.\*, 2003](#); [La Porta \*et al.\*, 2008](#)).

LLSV and others have asserted the superiority of the common law by reference to the so-called ‘adaptability’ and ‘political’ channels ([Botero \*et al.\*, 2004](#)). The ‘adaptability’ argument is related to the process of framing new rules. Judges, it is argued, are principally responsible for interpreting and developing the law in common law countries; this ability to shape the law on a case-by-case basis helps to make legal regulation more adaptable to changing circumstances. In civil law countries, in contrast, judges are bound by explicit statutes and codes, leaving them with little discretion. The result is that civil law systems suffer from excessive rigidity, as changes may only be made by fits and starts through legislation.

The ‘political’ channel focuses on the supposedly greater independence enjoyed by the judiciary in common law systems ([Rajan and Zingales, 2003](#)). According to this view, common law judges are less susceptible to influence by the legislature and are better able to protect individual property rights from encroachment by the state. In contrast, in a civil law system, the legislature and executive are said to have greater control over legal institutions, including judicial appointment, selection and tenure. Hence, the civil law judiciary is less able to protect individual property rights from the predation by the state.

The mechanisms by which legal origins exert their influence through the ‘adaptability’ and ‘political’ channels have been questioned in legal scholarship. For example, under current French and German practice, judges do interpret the law through concepts such as good faith; English judges, on the other hand, have less scope than they once did to develop the law, in view of the development of highly detailed and specific statutory interventions in areas, which include insolvency law (Ahlering and Deakin, 2007).

The methodological base of legal origin theory has also been challenged on a number of grounds (see Armour *et al.*, 2009a). To some degree, these are criticisms of leximetric coding methods in general. Any attempt to put measurements on legal rules is going to be subject to multiple objections. Laws are open to many interpretations, and subjective judgments come into play in the choice of variables, the aggregation of scores and the weighting given (or not) to particular indicators. Leximetric indices, while they may tell us much about the formal or *de jure* content of legal rules, cannot tell us anything directly about their implementation or reception.

These are all valid methodological criticisms, but they do not lead inexorably to the conclusion that leximetric data coding is inevitably defective or illegitimate as a technique. The leximetric method can be improved by the sourcing of data to original legal texts and by transparency in the weighting and aggregation of data, while appropriate econometric techniques, coupled with the use of complementary data sets on institutional effectiveness, can help to minimize the risk that legal indices are simply coding for ‘law on the books’ as opposed to ‘law in action’ (see Buchanan *et al.*, 2013).

The data set we are using here, the CBR Creditor Protection Index<sup>1</sup>, is one of several constructed at the Centre for Business Research at Cambridge with a view to addressing some of the objections raised by legal scholars and others to the initial studies of LLSV and their colleagues (see Siems, 2014). The CBR data sets differ from LLSVs in considering a wider range of values for legal variables. Much of the coding undertaken by LLSV uses binary variables (0, 1): for the existence of a given rule, the code is 1, otherwise it is 0. This procedure does not take into account the possibility of ambiguity or uncertainty in the interpretation of a legal provision. In the CBR data, intermediate values between 0 and 1 are generally used to capture more of the complexity of legal rules. A further feature of the CBR data sets on creditor protection is that they are more detailed than those used by LLSV, allowing a greater range of legal data to be captured. Thus, the longitudinal index relied on by Djankov *et al.* (2007) to measure creditor rights, following the template first set out by La Porta *et al.* (2008), has only four indicators in it. The CBR data set which we use here contains 44 indicators across three sub-indices, each of which deals with a distinct area of creditor protection (Armour *et al.*, 2009a).

### 3. Coding for varieties of creditor protection

#### 3.1 Avoiding home-country bias

The creditor rights index constructed by La Porta *et al.* (1998) and applied to an extended sample of countries by Djankov *et al.* (2007) contains four measures of the powers of secured lenders: (i) whether a creditor can restrict or prevent the debtor firm filing for reorganization and thereby achieving protection from claims; (ii) whether secured creditors have the right to seize assets given as collateral once the bankruptcy process begins (the ‘automatic stay’

1 Available online at: <http://www.cbr.cam.ac.uk/research/research-projects/completed-projects/law-finance-development/> (last accessed on November 27, 2015).

rule); (iii) whether secured creditors have priority over other creditors in claiming from the proceeds of the liquidated firm; and (iv) whether an administrator, as opposed to the firm's management, is responsible for running the firm as it is being reorganized. These aspects of corporate insolvency are significant, but the *La Porta et al. (1998)* index neglects other means by which the law may affect the relationship between creditors and firms. These include minimum capital requirements and, more generally, capital maintenance rules which seek to prevent depletion of the firm's asset pool, in addition to rules placing the firm's directors under a duty to creditors as insolvency nears, and allowing a court to 'pierce the veil' of corporate personality in order to avoid the partitioning of corporate assets in a which defeats creditors' claims (*Finch, 2009*).

In constructing a cross-national measure of creditor protection, it is in principle important to code for rules of different types, and in particular to avoid an exclusive focus on the rights of secured creditors, which because of their association with the common law can give rise to a 'home-country bias' in the coding process (*Cools, 2005*). Minimum capital rules have traditionally been relied on to protect creditors in civil law countries, while the taking of non-possessory security over the entire assets of the firm was originally an English law practice and remains influenced by common law concepts (*Wood, 2008*). Jurisdictions derived from the French *Code civil* have been slow to adopt concepts such as the set-off and commercial trust which have been used to impart flexibility to insolvency planning in systems derived from English law (*Wood, 1997*). Disregarding limited liability and separate corporate personality by piercing the veil in insolvencies involving parent-subsidiaries relations and corporate groups is a well-established practice in the USA, but has been controversial in the UK (*Miller, 1998; Ottolenghi, 1990*), and has seen only limited use in civil law countries (*Thompson, 1991*).

*Djankov et al. (2007)* note that the period of their study, from the late 1970s to the mid-2000s, was one of change in corporate insolvency law, but the scores in their index show relatively little change over time and they refer to this area of law being relatively stable. This result suggests that their choice of indicators excluded some relevant variables of interest. The similar period covered by the CBR index, 1970–2005, was one in which insolvency law was changing rapidly as a result of factors including an increase in cross-border and international insolvency proceedings (*Westbrook, 2004*) and the rise of a reorganization and rescue culture in many countries (*Belcher, 1997*). Reforms made to the rehabilitation and liquidation of companies at this time were not minor juridical adjustments, but reflected economic pressures and changing social and political values (*Uttamchandani, 2004*).

### 3.2 Three types of creditor protection: debtor control, credit contracts and insolvency procedures

The CBR index attempts to capture the complexity of insolvency law in this period of change by dividing the generic category of creditor rights into three sub-categories which reflect the distinct ways in which creditors may be protected by the law: debtor control, credit contracts and insolvency procedures. Taken together, the different components of the index reflect the ways in which creditors may be protected while the firm is still a going concern, as well as via the reorganization process itself (*Armour et al., 2009a*).

(i) *Debtor control*. This part of the index (15 variables) refers to restrictions imposed on the activities of firms while they are going concerns, with the aim of reducing the risk of default. It focuses on transactions and operations by the shareholders and directors which may render the company vulnerable to failure and may deprive creditors of access to all or part of the

company's assets (Armour and Bennett, 2003). It also takes into account remedies potentially available to creditors. Included in the coding are provisions relating to the amount of minimum capital required to start a firm, restrictions on the payment of dividends defined by reference to the firm's capital, the rights of courts to pierce the corporate veil to protect creditors, directors' duties to take into account the interests of creditors, which can be particularly important for the protection of unsecured creditors and public enforcement of directors' liabilities in the event of insolvency through, among other things, disqualification of directors for wrongful trading. Finally, this sub-category includes provisions which are intended to protect the collective nature of liquidation proceedings whose goal is to achieve equal treatment of similarly situated creditors (McCormack, 2006) and to minimize the costs of insolvency proceedings (Mevorach, 2011).

(ii) *Credit contracts*. This part of the index (10 variables) deals with the existence, feasibility and enforcement of 'self-help' mechanisms which creditors use to protect their interests. They include laws which protect the ability to take various forms of security or collateral. The variables covered include those relating to mortgages, floating charges, financial collateral and retention of title clauses; the enforcement of those interests through the seizure and sale of assets; the appointment of receivers without a court order and insolvency set-off clauses which entrench secured creditors' interests. How the law recognizes and ranks such claims is at the core of its role in replacing 'the free-for-all attendant upon the pursuit of individual claims by different creditors' (Goode, 2011) with a regime in which creditors' rights and remedies are coordinated and a wasteful 'race to collect' avoided. The rise of new and complex financial instruments available on the market and the contested status of proprietary claims in an increasingly globalized legal environment have been reshaping this aspect of insolvency law in the period of our study (see; Jackson, 1982; Mokal, 2001; Westbrook, 2004; Schillig, 2014).

(iii) *Insolvency procedures*. This sub-index (19 variables) concerns the procedures governing corporate reorganizations and liquidations. It deals with the rules relating to the triggering of insolvency (or 'corporate bankruptcy') proceedings by shareholders and directors; whether creditors can file for insolvency proceedings on a balance-sheet basis, which may make the firm more vulnerable to being broken-up; whether a single creditor can initiate liquidation proceedings; the availability to the firm of a stay or moratorium in liquidation and rehabilitation proceedings, deflecting creditors' claims; whether directors can retain control during rehabilitation proceedings; whether secured creditors alone, unsecured creditors, shareholders or courts have the power to appoint a bankruptcy trustee or administrator; rules on voting over the firm's exit from bankruptcy and priorities between different creditor groups in liquidation and rehabilitation proceedings.

### 3.3 Different national pathways

Coded legal data need to be understood against the backdrop of the long-run evolution of national legal systems if the trends made visible by leximetric coding are to be properly contextualized. Laws protecting creditors' rights reflect distinct pathways to industrial development as well as the influence of political values and legal cultures which influence drafting styles and may frame judicial and statutory responses to changing business environments (Pistor, 2005). Where insolvency law is perceived as a collectivized debt collection device, its aims tend to be defined in terms of creditor wealth maximization (Jackson, 1986). However, other values can be found underlying insolvency laws of different countries or the same country at different times, including broader-based contractarian approaches (Korobkin, 1993) and communitarian ones

(Warren, 1987; Gross, 1994). Jurisdictions change at varying speeds (Elliott, 2000) and those responding more quickly to a 'period of turbulence' (Finch, 2009) may as a result become models for others. Credit crunches, corporate scandals, stagnation in lending markets, global or regional recessions and crises in particular corporate sectors are among the factors which may generate legal change. There are numerous examples of cross-fertilization between legal families, a recent example being the influence of the US Bankruptcy Code on the German *Insolvenzordnung* ('InsO') reforms of the late 1990s, a process which nevertheless saw Germany law retain major differences from the original US model (Eidenmüller, 2006).

In the period of our study between 1970 and 2005, the insolvency law of four leading industrial economies changed at different rates. France was one of the first countries in the world to create a rescue regime, in the late 1960s, and a series of reforms since then have responded to criticisms of the rigidity of the law from lenders and financial institutions. French insolvency law is nevertheless still imbued with the idea that the law should serve a 'general interest' rather than just those of creditors. Decisions on reorganizations mostly rest with courts, with creditors having relatively few powers (Dennis and Fox, 2004). This tendency reflects a republican conception of the role of commercial law going back to the nineteenth century, which sees corporate failure as a threat to public order as much as to private interests (Hautcoeur and Di Martino, 2013).

Germany experienced a relatively late introduction of a statutory modern insolvency law and rescue regime. Until 1999, the original legislation of 1877, itself heavily influenced by the French *Code de commerce* of 1807, was still mostly in force. Prior to the reforms of the 1990s, informal arrangements had developed to allow firms to continue to trade with the consent of secured creditors so that they could be sold as going concerns; this arrangement was formalized by the new legislation. The aim of the insolvency code introduced in 1999 was wealth maximization and 'allowing the market to work' (Balz, 1997), but creditors complained that procedures remained complex and formalistic, and German companies began to make use of English schemes of arrangement, which were deemed more flexible.

In the USA, the nineteenth century was a period of 'redefinition of insolvency from sin to risk, from moral failure to economic failure' (Mann, 2002). US law inherited from the English common law a flexible approach to the recognition of creditors' security interests. However, departing from the original English model, American bankruptcy law developed distinct doctrines allowing incumbent owner-managers to trigger a protective reorganization procedure before the company became insolvent, and granting 'super-priority' to new lenders during a moratorium on claims. In the period of our study, there was little change to this model notwithstanding rising numbers of large-scale corporate failures, which led to questioning of the 'debtor in possession' approach (Kilborn, 2009).

The English courts developed the notions of the lien, set-off, trust and mortgage to allow for the creation of multiple and overlapping security interests over firm assets from an early stage of the country's industrial development (Dennis and Fox, 2004). However, since the 1980s there have been numerous legislative changes, some led by concern over the effects on creditors of director misconduct, others driven by a perception that rules designed mostly for closely held firms were not working well in the context of the liquidation of large enterprises (Ratford and Smith, 1985). Legislation from the mid-1980s created new rescue-orientated procedures, and in the early 2000s, there was a revision of creditors' rankings and a downgrading of the rights of secured lenders to trigger liquidation, making rescue-orientated administration the procedure of choice (Dennis and Fox, 2004).

These distinct trajectories map incompletely, at best, on to the typologies proposed by legal origin theory. It is true that the path followed by English law was largely one developed by the courts, which allowed the creation of new types of collateral over the assets of firms and developed remedies, which favoured the interests of secured creditors. Yet the USA, while also a common law system, developed a mostly statute-led bankruptcy code which placed the interests of incumbent management ahead of those of creditors. The US model went on to inspire various national versions of a ‘rescue culture’, with English law eventually being reshaped by legislative interventions, its common law heritage notwithstanding. French law has historically downplayed creditors’ interests in a way which reflects a view of the firm as publicly ordered and containing multiple interests. This perspective may be compatible with an understanding of the civil law as paying limited regard to private property rights. However, the historical emphasis in French insolvency law on the preservation of the firm as a going concern, under the supervision of the court, has much in common with the debtor-protective approach of US law. Germany, although a civil law system initially influenced by the French *Code de commerce*, went on to recognize secured creditors’ property rights in ways which approximated the approach of English law.

### 3.4 Trends in the data, 1970–2005

We are now in a position to describe the trends in the four countries as indicated by our leximetric data. In Table 1, we present quinquennial averages of the overall index and sub-indices for the four countries under study. The scores are averages of all the relevant variables and assume the range of values between 0 and 1, with higher scores indicating more protection for creditors. Through simple averaging, we also calculate the quinquennial averages for creditor protection across the common law group (UK and USA) and the civil law group (France and Germany). These data are plotted on to a number of diagrams (Figures 1–8).

In the first quinquennium (1970–1974), Germany had the highest level of aggregate creditor protection closely followed by UK and USA, while France had much lower levels of overall protection. Subsequently, the level of creditor protection strengthened in all countries. In the process, France converged on US levels of protection, while the UK overtook Germany. However, in the last period (2000–2005), Germany regained its leading position, thanks to the enactment of the *InsO* law (Figure 1). Our aggregation at the level of legal origin shows that in each five-year period, creditor protection was higher in the common law countries than in the civil law countries (Figure 2). However, the civil law group showed a tendency to catch up in different quinquennia; during 2000–2005, the two groups have around the same level of overall creditor protection (0.61).

When we look more closely at different sub-categories of creditor protection, we can see that in the field of debtor control Germany has the highest degree of protection throughout the period of our study (Figure 3). Thanks to the German score, the civil law group has been most highly placed in this aspect of creditor protection throughout the period under review. However, the common law group can be observed catching up, as both the German and French debtor control scores show a slow declining trend since the mid-1980s, while the UK shows a steady increase throughout the period and the USA shows a similar tendency from 1985 to 1989 (Figures 3 and 4).

In the field of creditor contract protection, the USA initially had the highest score; subsequently the UK took that position while Germany and France remained far behind the two common law countries (Figure 5). The common law group has higher scores throughout



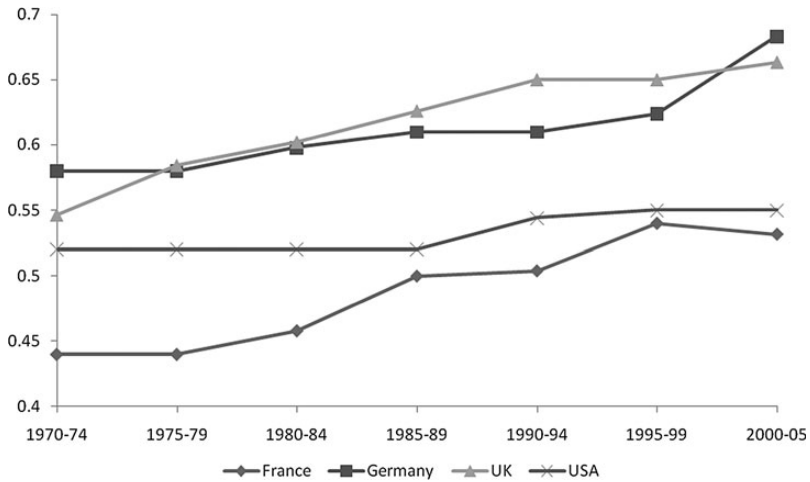
**Table 1** Creditor protection in four OECD countries, 1970–2005 (period averages)

Period and series	France	Germany	UK	USA	Common law	Civil law
<b>Debtor control laws</b>						
1970–1974	0.47	0.77	0.30	0.31	0.31	0.62
1975–1979	0.47	0.77	0.33	0.31	0.32	0.62
1980–1984	0.49	0.83	0.42	0.31	0.37	0.66
1985–1989	0.46	0.88	0.50	0.31	0.40	0.67
1990–1994	0.46	0.88	0.57	0.45	0.51	0.67
1995–1999	0.46	0.85	0.57	0.48	0.53	0.66
2000–2005	0.45	0.77	0.55	0.48	0.51	0.61
<b>Credit contracts laws</b>						
1970–1974	0.38	0.65	0.67	0.83	0.75	0.52
1975–1979	0.38	0.65	0.80	0.81	0.81	0.52
1980–1984	0.45	0.65	0.81	0.73	0.77	0.55
1985–1989	0.48	0.65	0.77	0.73	0.75	0.57
1990–1994	0.49	0.65	0.77	0.73	0.75	0.57
1995–1999	0.58	0.66	0.77	0.73	0.75	0.62
2000–2005	0.58	0.67	0.77	0.73	0.75	0.63
<b>Insolvency procedures</b>						
1970–1974	0.45	0.46	0.56	0.49	0.53	0.46
1975–1979	0.45	0.46	0.56	0.49	0.53	0.46
1980–1984	0.45	0.46	0.56	0.51	0.54	0.46
1985–1989	0.53	0.46	0.58	0.51	0.55	0.50
1990–1994	0.53	0.46	0.60	0.51	0.56	0.50
1995–1999	0.55	0.50	0.60	0.51	0.56	0.52
2000–2005	0.54	0.62	0.63	0.51	0.57	0.58
<b>Aggregate creditor protection</b>						
1970–1974	0.44	0.58	0.55	0.52	0.53	0.51
1975–1979	0.44	0.58	0.58	0.52	0.55	0.51
1980–1984	0.46	0.60	0.60	0.52	0.56	0.53
1985–1989	0.50	0.61	0.63	0.52	0.57	0.56
1990–1994	0.50	0.61	0.65	0.54	0.60	0.56
1995–1999	0.54	0.62	0.65	0.55	0.60	0.58
2000–2005	0.53	0.68	0.66	0.55	0.61	0.61

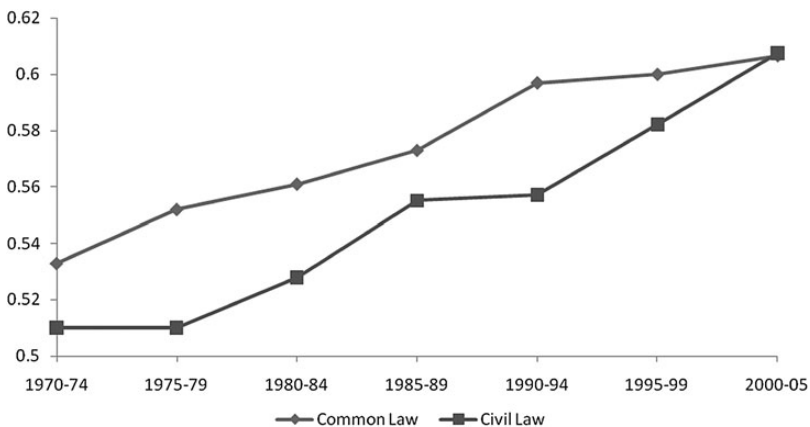
Source: CBR Creditor Protection Index for the UK, USA, Germany, France and India: <http://www.cbr.cam.ac.uk/research/research-projects/completed-projects/law-finance-development> (last accessed on October 29, 2015).

the period of study, but there is a tendency for the civil law group to catch up, thanks mostly to legal changes in France throughout the period since 1975–1979 (Figure 6).

In relation to creditor protection in insolvency procedures, the UK maintained the leading position, far above the others, in all the five-year periods between 1970 and 1999. Initially, Germany had the weakest creditor protection relating to insolvency procedures, but more recently, as a result of the *InsO* law, it has reached the level of protection provided in the UK. France also strengthened its insolvency procedures in favour of creditors in the 1980s and 1990s, and the USA made some minor changes in the 1970s (Figure 7). In view of all these reforms, since the early 1980s, the insolvency law regime in the civil law countries can be



**Figure 1** Aggregate creditor protection by country, 1970–2005.



**Figure 2** Aggregate creditor protection by legal origin, 1970–2005.

seen to have begun to converge with that in the common law (read UK), and by 2000–2005 it had overtaken it (Figure 8).

#### 4. Does creditor protection matter for credit market development?

We now turn to examine whether ‘law matters’ that is, whether a country with higher creditor protection experiences an increased volume of credit flows from banks and other financial institutions to business firms. In principle, the effects of creditor protection laws could go either way. The granting of collateral to the firm’s lenders may result in a loss of control for incumbent managers and the elimination of shareholders’ claims over the firm’s capital. Thus laws which grant secured lenders extensive rights to seize assets and instigate a reorganization

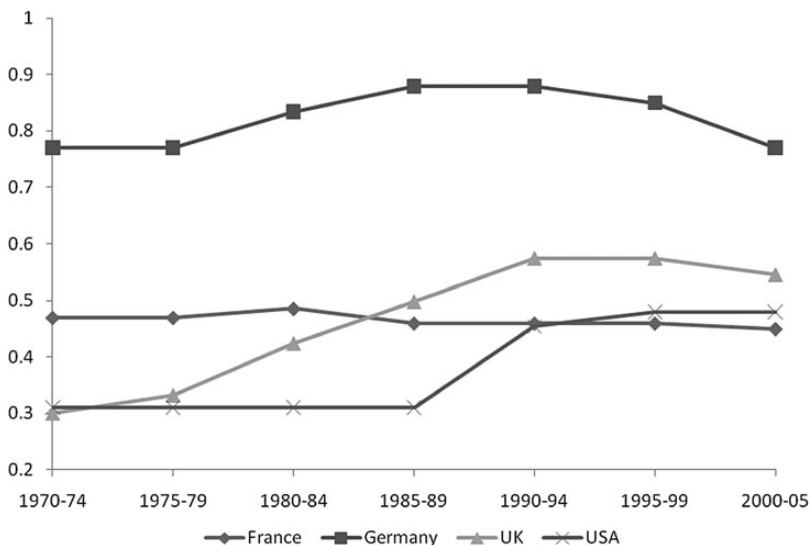


Figure 3 Debtor control laws by country, 1970–2005.

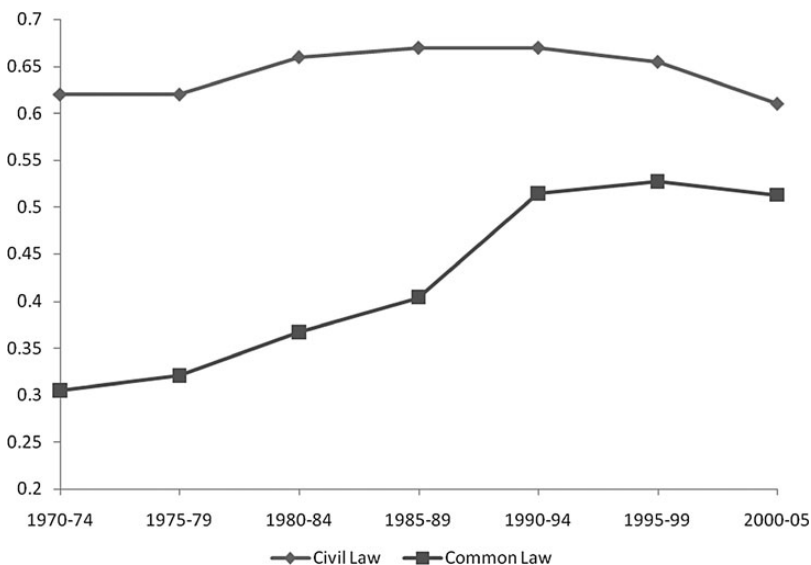


Figure 4 Debtor control laws by legal origin, 1970–2005.

without the consent of management or shareholders may reduce demand for this type of credit (Lee *et al.*, 2007; Acharya *et al.*, 2009). On the other hand, such laws could help stimulate lending by banks and financial institutions by providing them with protection against the consequences of firm failure, in particular where their security interests are ranked ahead of claims of unsecured creditors (Houston *et al.*, 2010).



**Figure 5** Credit contracts laws by country, 1970–2005.



**Figure 6** Credit contracts laws by legal origin, 1970–2005.

These hypotheses can be tested by regressing our legal indices against measures of the extent of lending by banks and financial institutions to business firms. To capture the latter, we rely on two widely used indicators of credit market development, namely domestic

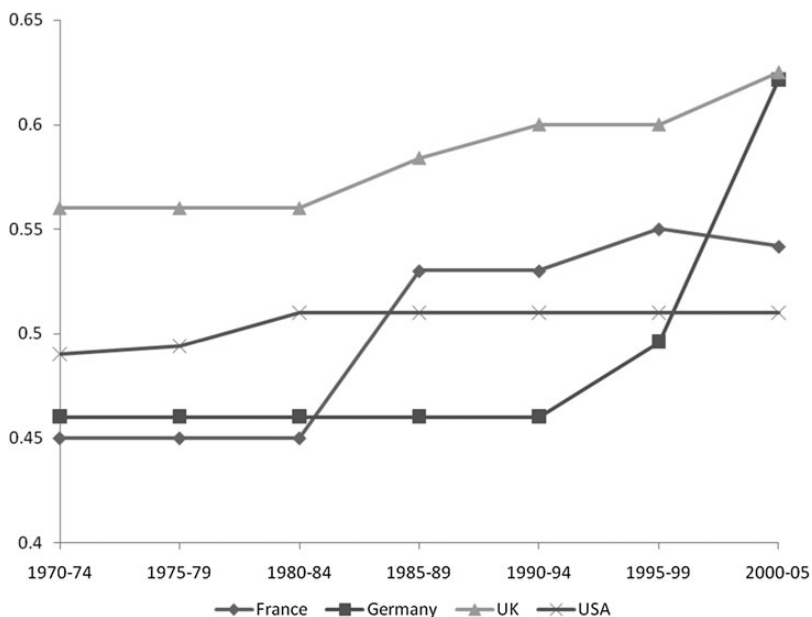


Figure 7 Insolvency procedures by country, 1970–2005.

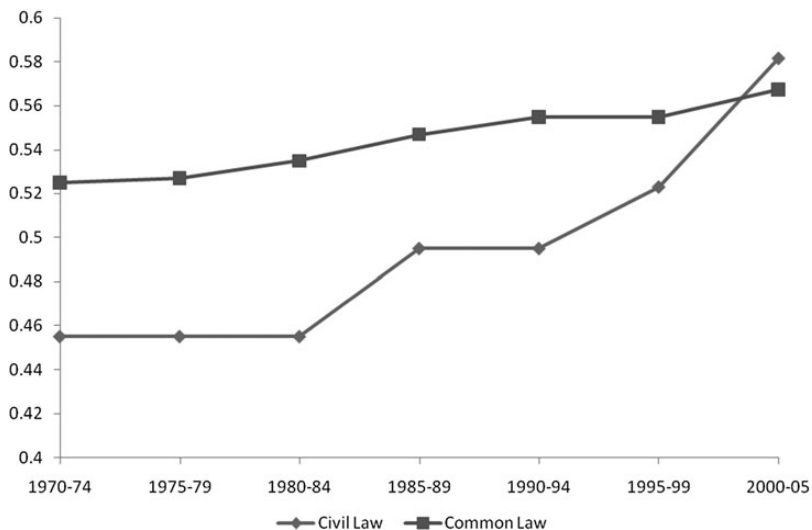
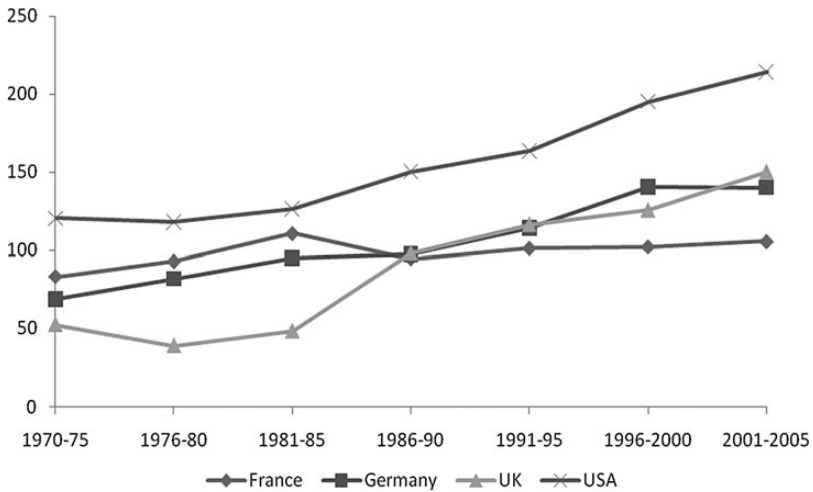
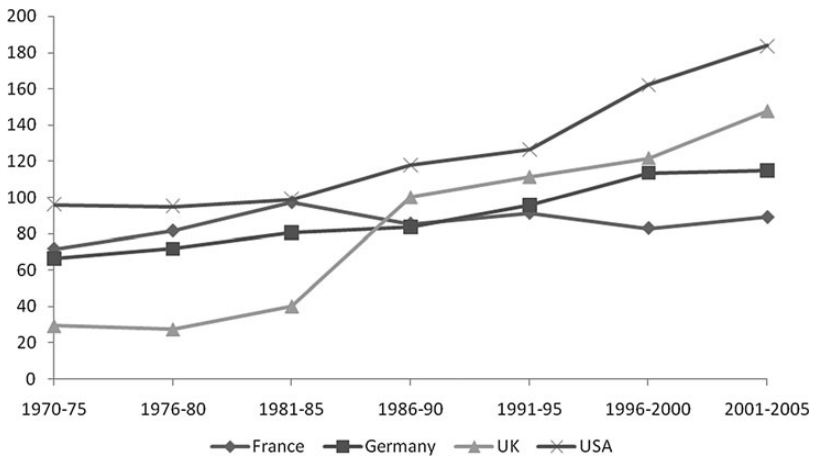


Figure 8 Insolvency procedures by legal origin, 1970–2005.

credit provided by the banking sector (as a percentage of GDP) and domestic credit to the private sector (as a percentage of GDP). Domestic credit to private sector is a wider category than bank-derived credit which includes financial resources in the form of purchases of



**Figure 9** Bank credit-GDP ratio by country, 1970-2005.



**Figure 10** Private credit-GDP ratio by country, 1970-2005.

non-equity securities, trade credits and other accounts receivable. These data are drawn from the World Bank's World Development Indicators.<sup>2</sup>

Periodic (mostly quinquennial) averages of the indicators of credit market development are plotted in Figures 9 and 10. For both indicators, the USA maintained a leading position throughout the period of study, while UK remained the least protective up to 1990. The two measures of private credit are closely related and show similar trends and largely the same values for some of the countries.

2 Available online at <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators> (last accessed on November 27, 2015).

#### 4.1 Tests of panel causality

The first question to consider in our econometric analysis is how far higher levels of private credit in the common law group are due to their laws on creditor protection. To address this question, we use panel causality tests and dynamic panel data modelling. These methods allow us to examine the causal impact of creditor protection laws on credit market development indicators. To control for the level of economic activity of a country, we use real GDP in purchasing power parity constant dollars, deflated by population, a similar approach to that of [Djankov et al. \(2007\)](#) which enables us to compare our results with theirs. The relevant data are also drawn from the World Development Indicators. As each of the countries is a developed market economy with a high level of general respect for legal rules, we do not include a separate control for differences in the extent of legal enforcement, as some other leximetric studies have done (see [Armour et al., 2009b](#)).

To understand whether the direction of causality runs from creditor protection to credit expansion or the opposite (reverse causation), or both (mutual causation), we use a panel VAR (Vector-Autoregressive) Granger causality test. VAR and VEC tests would have been inappropriate to the initial studies carried out by [La Porta et al. \(1998\)](#) as they did not have a time-series element. The later study by [Djankov et al. \(2007\)](#) did use a time series, but relied on a standard difference-in-differences approach to address issues of reverse causation and endogeneity. The use of VAR and VEC causality tests is another way of testing for endogeneity, which takes into account the risk of false or spurious correlations which can arise in very long time series characterized by non-stationarity. Non-stationarity is the tendency for a time trend to move away from an established equilibrium or path as a result of an external event ([Juselius, 2006](#)), which for present purposes could be a legal intervention or reform. Because legal time trends and long-run financial data are often both non-stationary ([Deakin et al., 2012](#)), cointegration techniques involving VAR and VEC models are in principle well suited to analysing them. Granger causality tests have previously been used in the analysis of leximetric data ([Armour et al., 2009b](#)).

To ascertain whether the independent variable  $Z$  causes the outcome variable  $X$ , we fit a regression where  $X$  (alternative credit market variables taken one at a time in natural log) is a function of its own past values and of past values of the control variable  $Y$  (real GDP per capita in natural log) and  $Z$  (the creditor protection indices taken one at a time):

$$X_{it} = a + \sum_{j=1}^p \lambda_j X_{i,t-j} + \sum_{k=1}^p \psi_k Y_{i,t-k} + \sum_{l=1}^p \pi_l Z_{i,t-l} + e_{it}. \quad (1)$$

In fitting the above equation, we have to test whether the coefficients of the lags of  $Z$  are jointly significant (that is, different from zero) using the Wald-test statistic. The null hypothesis is that  $\pi_1 = \pi_2 = \dots = \pi_k = 0$ . If the Wald-test statistic calculated on the basis of this null hypothesis is very high (higher than a critical value), we can say that  $Z$  causes  $X$  (rejecting the null hypothesis of no causality).

Similarly, to test whether  $X$  causes  $Z$ , we fit a regression where  $Z$  is a function of its past values and the past values of  $X$  and  $Y$  and test the joint significance of the coefficients of the lags of  $X$ . Instead of fitting the equation in level terms, we can fit the equation in first-difference terms ( $\Delta X$ ,  $\Delta Y$  and  $\Delta Z$ ) and their various lags. Replicating the VAR test in terms of first-difference, we can get a VEC causality test.

For the choice of lag (that is, how many past years are to be included in the causality test), we use a number of criteria including the sequential modified LR test statistic (LRM), the final

prediction error (FPE), the Akaike information criterion (AIC), the Schwarz information criterion (SC), and the Hannan–Quinn information criterion (HQ). Different criteria tend to suggest different lag lengths. We have taken the maximum of the alternative lag lengths chosen by these criteria as the order of the VAR causality tests. Subtracting one from the order of the VAR test we get the order of the VEC test.

Results from the panel VAR and VEC causality tests (Table 2) reveal no causal relationship between credit expansion and aggregate creditor protection scores. The same finding (namely no causality) is valid for one component of the aggregate creditor protection index, namely the sub-index relating to creditor protection in the area of insolvency procedures. For the two other components of creditor protection, namely creditor protection relating to debtor control and that relating to credit contracts, both the VAR and VEC tests show a causal impact on credit expansion (as measured by both indicators). We can also see some evidence of reverse causality: this suggests that credit expansion (as indicated by the two indicators considered here) can cause changes in the law relating to credit contracts. This result calls for further investigation regarding the nature of the influence exerted by the two components of creditor protection which are seen to have a causal impact on financial development as measured by the flow of private credit and bank credit.

## 4.2 Estimates of short-run and long-run relationships

We can supplement the Granger causality tests just reported by carrying out further analysis of the impact of creditor protection on private credit using alternative dynamic panel data models. In our causality test, we assumed that an identical relationship between the variables prevails in each country; however, this assumption can be altered.

In a case where, as here, there is an extended time dimension to panel data, [Pesaran and Smith \(1995\)](#) show that the traditional procedures for estimation of pooled models, such as fixed effects models, instrumental variables and generalized method of moments (GMM) models, can produce inconsistent, and potentially very misleading estimates of the average values of the parameters in dynamic panel data models unless the slope coefficients are in fact identical ([Pesaran \*et al.\*, 1999](#), p. 622). Their dynamic panel data analysis offers a more complete set of tests for determining the nature of the relationships between institutional and economic outcome variables over time in panels characterized by unobservable cross-country heterogeneity. An intuitive way of thinking about this is that the models attempt to deal with the presence of ‘unknown unknowns’ in the real-life relationships between variables. They also make it possible to distinguish between short-run and long-run effects of a change in one or more of the variables of interest.

We start with a postulate of a long-run relationship involving  $X$  (bank credit and private credit, taken one at a time, in natural log),  $Y$  (real per capita GDP in natural log) and  $Z$  (various creditor protection indexes taken one at a time):

$$X_{it} = \psi_i Y_{it} + \pi_i Z_{it} + \eta_{it}, \quad (2)$$

where  $i$  ( $=1, 2, 3, 4$ ) represents the different countries,  $t$  ( $=1, 2, \dots, T$ ) represents periods (years),  $\psi_i$  and  $\pi_i$  are the long-run parameters and  $\eta_{it}$  is the error term.

The dynamic panel data approach enables us to establish whether there exist long-term and short-term effects of  $Z$  (creditor protection) along with  $Y$  (per capita real GDP) on  $X$  (credit expansion indicators) and whether there exists a stable adjustment path from the short-term



**Table 2** Causal relationships between creditor protection and credit expansion for a panel of four OECD countries, 1970–2005: panel VAR and VEC Granger causality tests

Dependent variable: credit expansion	Causal variable: creditor protection	Test statistic $\chi^2$	Lag chosen
(A) Influence of creditor protection on credit expansion			
(i) Panel VAR causality tests			
BANKCRED	DEBTCL	20.2 <sup>†</sup>	8
	CREDCONTS	25.743 <sup>†</sup>	5
	INSOLV	0.735	8
	ALL	3.448	5
PRIVCRED	DEBTCL	18.043 <sup>†</sup>	8
	CREDCONTS	28.565 <sup>†</sup>	5
	INSOLV	2.515	8
	ALL	4.642	5
(ii) Panel VEC causality tests			
Bank credit	DEBTCL	19.145 <sup>†</sup>	7
	CREDCONTS	22.671 <sup>†</sup>	4
	INSOLV	0.709	7
	ALL	3.089	4
Private credit	DEBTCL	18.285 <sup>†</sup>	7
	CREDCONTS	23.253 <sup>†</sup>	4
	INSOLV	1.256	7
	ALL	2.524	4
Dependent variable: creditor protection	Causal variable: credit expansion	Test statistic $\chi^2$	Lag chosen
(B) Influence of credit expansion on creditor protection			
(i) Panel VAR causality tests			
DEBTCL	BANKCRED	7.342	8
	PRIVCRED	7.242	8
CREDCONTS	BANKCRED	60.68 <sup>†</sup>	5
	PRIVCRED	68.96 <sup>†</sup>	5
INSOLV	BANKCRED	11.133	8
	PRIVCRED	12.551	8
ALL	BANKCRED	3.237	5
	PRIVCRED	5.744	5
(ii) Panel VEC causality tests			
DEBTCONL	BANKCRED	6.894	7
	PRIVCRED	7.359	7
CREDCONTS	BANKCRED	57.119 <sup>†</sup>	4
	PRIVCRED	64.446 <sup>†</sup>	4
INSOLV	BANKCRED	8.662	7
	PRIVCRED	8.345	7
ALL	BANKCRED	2.591	4
	PRIVCRED	4.594	4

*Sources:* Data on legal variables are drawn from the CBR Creditor Protection for the UK, USA, France, Germany and India. Data on bank credit and private credit are drawn from the World Bank's *World Development Indicators*. DEBTCL, laws on debtor control; CREDCONT, laws on credit contracts; INSOLV, laws on insolvency procedures; ALL, aggregate creditor protection; BANKCRED, ratio of bank credit (lending by banks) to GDP; PRIVCRED, ratio of private credit (lending to the private sector) to GDP.

<sup>†</sup>Null hypothesis of no causality is rejected at 5% level.

relationship (if any) to the long-run relationship. Following Pesaran *et al.* (1999), our panel data analysis is based on the following error correction representation:

$$\Delta X_{it} = \theta_i(\eta_{it-1}) + \sum_{j=1}^{p-1} \lambda_{ij}\Delta X_{i,t-j} + \sum_{k=0}^{q-1} \psi_{ik}\Delta Y_{i,t-k} + \sum_{l=0}^{r-1} \pi_{il}\Delta Z_{i,t-l} + \mu_i + \phi_{it}, \quad (3)$$

where  $\Delta$  is the difference operator,  $\theta_i$  is the country-specific error-correcting speed of adjustment term,  $\lambda_{ij}$ ,  $\psi_{ik}$  and  $\pi_{il}$  are the coefficients of the lagged variables,  $\mu_i$  is the country fixed effect and  $\phi_{it}$  is the disturbances term. The existence of a meaningful long-run relationship with a stable adjustment dynamics requires that  $\theta_i < 0$ .

Within this general structure, there are three alternative models, which build in different assumptions about cross-country heterogeneity. At one extreme, we can use a dynamic fixed effect estimator (DFE) in which intercepts are allowed to vary across the countries, but all other parameters and error variances are constrained to be the same. At the other extreme, we can estimate separate equations for each country and calculate the mean of the estimates. This is the mean group estimator (MG). The intermediate alternative is the pooled mean group (PMG) estimator. This model allows intercepts, short-run coefficients and error variances to differ freely across the countries but constrains the long-run coefficients to be the same; that means,  $\psi_i = \psi$  and  $\pi_i = \pi$  for all  $i$  while  $\theta_i$  may differ from group to group.

Using the STATA model developed by Blackburne and Frank (2007), we can estimate each of the three alternative models. We use the Lag Exclusion Wald Test for each variable separately to determine the lag structure which is represented as  $(p, q, r)$ .<sup>3</sup>

Both the MG and DFE models show no short-term or long-term effect of aggregate creditor protection on any indicator of credit expansion. The PMG model, however, shows a *negative* long-term effect of the aggregate score on the two indicators of credit expansion but there exists no stable adjustment path from the short-term (positive relationship in one case and no relationship in another case) to the long-term (Table 3A). Hausman tests support the DFE model, so the PMG result needs to be treated with caution.

Two models (PMG and DFE) show long-term *positive* effects of creditor protection relating to debtor control on both indicators of credit expansion there is, however, no short-term effect. It is only in the DFE model that we see evidence of an adjustment process from an insignificant short-term effect to a significant positive long-term effect: here the adjustment path is stable for both indicators of credit expansion. The Hausman test, which enables us to identify which of the models is statistically preferred, supports the DFE model for the case of the private credit–GDP ratio (Table 3B). The selection of the DFE model as the most statistically robust implies that short-run and long-run effects are homogenous across the countries in our sample.

As regards the impact of creditor protection relating to credit contracts, we see the opposite result: two models (PMG and DFE) show long-term *negative* effects of credit contracts (with no significant short-term effect) on both the indicators of credit expansion. In each case, the Hausman test supports the DFE model, which shows a stable adjustment process from no short-term relationship to a negative long-term relationship (Table 3C).

3 We have used a uniform lag-structure for all the countries, as the STATA model used here does not provide the option of doing otherwise. It is theoretically possible to consider different lag structures for different countries on the basis of some information criteria.

**Table 3** Short-run and long-run impacts of creditor protection on credit expansion, 1970–2005: dynamic panel models

Independent variables	PMG model	MG model	DFE model
(A) Short-run and long-run effects of aggregate creditor protection (ALL)			
(i) Dependent variable: bank credit			
Long-term relationship			
GDP	1.855***	1.629***	1.898***
ALL	-6.738**	-2.321	-2.859
Short-term relationship			
$\theta$	-0.291	-0.519**	-0.27***
$\Delta GDP_t$	0.159	0.136	0.344
$\Delta GDP_{t-1}$	-0.751	-0.836	-0.034
$\Delta ALL_t$	2.713**	1.266	0.899
$\mu$	-3.014	-3.8***	-3.423***
Chosen model		MG	
(ii) Dependent variable: private credit			
Long-term relationship			
GDP	1.916***	0.725**	1.237
ALL	-7.674***	5.781	3.483
Short-term relationship			
$\theta$	0.276	0.477	0.218***
$\Delta GDP_t$	1.349	1.099	0.321
$\Delta GDP_{t-1}$	0.386***	0.316***	-0.135
$\Delta ALL_t$	-3.396	-1.618	-1.047
$\mu$	3.003	2.739	2.174
Chosen model			DFE
(B) Short-run and long-run effects of debtor control laws (DEBTCL)			
(i) Dependent variable: bank credit			
Long-term relationship			
GDP	0.652***	1.05***	1.104***
DEBTCL	4.738***	3.373	1.923***
Short-term relationship			
$\theta$	-0.368	-0.644***	-0.36***
$\Delta GDP_t$	-0.192	-0.285	0.283
$\Delta GDP_{t-1}$	-0.439	-0.725	0.232
$\Delta DEBTCL_t$	0.548	-0.253***	-0.082
$\mu$	-1.518	-5.285***	-2.669***
Chosen model	PMG		
(ii) Dependent variable: private credit			
Long-term relationship			
GDP	0.429*	1.017***	1.14***
DEBTCL	3.294**	3.037	2.198***
Short-term relationship			
$\theta$	-0.314	-0.441*	-0.327***
$\Delta GDP_t$	-0.263	-0.295	0.502
$\Delta GDP_{t-1}$	-0.561	-0.661	0.487
$\Delta DEBTCL_t$	0.933	0.098	-0.277
$\mu$	-0.394	-3.195**	-2.652**
Chosen model			DFE

*Continued*

Table 3 *Continued*

Independent variables	PMG model	MG model	DFE model
(C) Short-run and long-run effects of credit contract laws (CREDCONT)			
(i) Dependent variable: bank credit			
Long-term relationship			
GDP	1.131***	0.932***	1.647***
CREDCONT	-1.986**	-4.407	-3.811***
Short-term relationship			
$\theta$	-0.32*	-0.616***	-0.309***
$\Delta$ BANKCRED <sub><i>t</i>-1</sub>	0.149	0.194*	-0.24***
$\Delta$ GDP <sub><i>t</i></sub>	-0.001	-1.122*	0.506
$\Delta$ GDP <sub><i>t</i>-1</sub>	-0.568	-0.527	-0.002
$\Delta$ CREDCONT <sub><i>t</i></sub>	0.229	1.351*	0.7
$\mu$	-1.742*	-0.661	-2.85***
Chosen model			DFE
(ii) Dependent variable: private credit			
Long-term relationship			
GDP	1.128***	1.014***	1.761***
CREDCONT	-2.747***	-5.089	-4.579***
Short-term relationship			
$\theta$	-0.306	-0.564***	-0.274***
$\Delta$ PRIVCRED <sub><i>t</i>-1</sub>	0.027	-0.009	-0.299***
$\Delta$ GDP <sub><i>t</i></sub>	-0.137	-1.159*	0.837
$\Delta$ GDP <sub><i>t</i>-1</sub>	-0.966	-0.581	0.194
$\Delta$ CREDCONT <sub><i>t</i></sub>	0.419	3.05	0.544
$\mu$	-1.563	0.212	-2.746**
Chosen model <sup>4</sup>			DFE
(D) Short-run and long-run effects of laws on insolvency procedures (INSOLV)			
(i) Dependent variable: bank credit			
Long-term relationship			
GDP	1.309***	1.287***	1.713***
INSOLV	-3.28***	-0.474	-1.498
Short-term relationship			
$\theta$	-0.466*	-0.485**	-0.274***
$\Delta$ GDP <sub><i>t</i></sub>	0.086	-0.099	0.323
$\Delta$ GDP <sub><i>t</i>-1</sub>	-0.573	-0.788	0.043
$\Delta$ INSOLV <sub><i>t</i></sub>	1.254	0.827	0.245
$\mu$	-3.115*	-2.774**	-3.192***
Chosen model			DFE
(ii) Dependent variable: private credit			
Long-term relationship			
GDP	1.536***	2.911**	1.879***
INSOLV	-4.549***	-17.314	-1.955
Short-term relationship			
$\theta$	-0.379*	-0.375	-0.248***
$\Delta$ GDP <sub><i>t</i></sub>	0.245	-0.192	0.583
$\Delta$ GDP <sub><i>t</i>-1</sub>	-0.538	-0.756	0.224
$\Delta$ INSOLV <sub><i>t</i></sub>	0.685	0.379	-0.109

*Continued*

Table 3 Continued

Independent variables	PMG model	MG model	DFE model
$\mu$	-3.208*	-1.866**	-3.293**
Chosen model			DFE

Sources: Data on legal variables are drawn from the CBR Creditor Protection for the UK, USA, France, Germany and India. Data on bank credit and private credit are drawn from the World Bank's *World Development Indicators*.

Notes: The regressors are estimated from the following long-term relationship and its error correction form. Long-run relationship:

$$X_{it} = \psi_i Y_{it} + \pi_i Z_{it} + \eta_{it}.$$

Error correction form:

$$\Delta X_{it} = \theta_i(\eta_{it-1}) + \sum_{j=1}^{p-1} \lambda_{ij} \Delta X_{i,t-j} + \sum_{k=0}^{q-1} \psi_{ik} \Delta Y_{i,t-k} + \sum_{l=0}^{r-1} \pi_{il} \Delta Z_{i,t-l} + \mu_i + \phi_{it},$$

where  $\Delta$  is the difference operator,  $\theta_i$  is the group-specific error-correcting speed of adjustment term,  $\lambda_{ij}$ ,  $\psi_{ik}$  and  $\pi_{il}$  are the coefficients of the lagged variables,  $\mu_i$  is the country-specific effect and  $\phi_{it}$  is the disturbances term. The existence of a meaningful long-run relationship with a stable adjustment dynamics requires  $\theta_i < 0$ . Real per capita GDP in purchasing power parity constant (2005) US dollar. Credit market variables and Per capita GDP are in natural log. An appropriate model is chosen on the basis of a series of Hausman tests.

DEBTCL, laws on debtor control; CREDCONT, laws on credit contracts; INSOLV, laws on insolvency procedures; ALL, aggregate creditor protection; BANKCRED, ratio of bank credit (lending by banks) to GDP; PRIVCRED, ratio of private credit (lending to the private sector) to GDP.

\* Significant at 10 per cent level. \*\* Significant at 5 per cent level. \*\*\* Significant at 1 per cent level.

The PMG model shows that the long-term impact of creditor protection relating to insolvency procedures is *negative* on both indicators of credit market development and that there exists a stable adjustment process from an insignificant short-term relationship to long-term negative relationship. Neither the MG model nor the DFE model shows a significant short-term or long-term effect. However, the Hausman test again supports the DFE model (Table 3, Part D), so this result cannot be regarded as definitive.

## 5. Discussion

Analysing the available data of four OECD countries over a long time span, 1970–2005, our study finds no clear verdict in favour of the proposition that the common law countries provide for a higher overall level of protection of creditors across the different types of legal regime which can be used to safeguard creditor rights. The civil law countries (France and Germany) provide more creditor protection relating to the issue of debtor control; the common law countries (UK and USA) provide stronger creditor protection in the fields of credit contracts and insolvency procedures.

On the proposition that 'law matters', we find no clear evidence in favour of a positive effect of aggregate creditor protection on private or bank credit. Using dynamic panel data modelling, however, we find that different components of creditor protection law *do* matter, but, that they have *different* effects on private and bank credit. Increases in the *debtor control* component of creditor protection, which is more strongly present in the *civil-law* countries, have a long-term *positive* effect on credit expansion. In contrast, increases in the *credit contract* aspect of creditor protection, which is more prevalent in *common law countries*, have a long-term *negative* effect.

The finding that different aspects of creditor protection laws may have different effects on credit expansion has implications for bankruptcy law reform. Rules which our index characterizes in terms of debtor control are those which are imposed by law on active firms for the protection of third party creditors. They constrain options on capital structure in various ways, for example by requiring firms to have a minimum of paid up capital and by limiting their options to pay dividends out of retained earnings. Other examples of laws of this kind are those which impose duties on directors to have regard to the interests of creditors as the firm approaches insolvency, and which allow the court to pierce the veil of corporate personality in order to protect creditors. A common thread running through these laws is that they tilt the balance of power away from shareholders and incumbent managers, and towards creditors, while the firm is a going concern. Thus one reading of our analysis is that the law can increase the *supply* of credit by strengthening the position of creditors in distributional conflicts within the firm.

Laws of the type that the CBR index describes in terms of credit contract rights are those which enable creditors to protect their rights through transactional devices of various kinds which are triggered when the firm is in, or is approaching, insolvency. For example, these rules include the laws governing the use of the firm's assets as collateral, and the ease with which creditors can enforce security interests. They mostly operate when the firm has ceased, or is in danger of ceasing, to be a going concern. The finding that laws of this kind have a dampening or negative effect on private credit suggests that laws strengthening creditors' security rights may depress *demand* for credit, as managers and shareholders find the terms on which security rights are enforced to be excessively onerous.

A relevant factor in our results is the nature of our sample, which consists of industrialized countries with mature banking and corporate systems. It is in this specific context that the addition of new rights to secured creditors may tip the law beyond the point where firms regard the granting of collateral as an acceptable trade-off for access to finance. Other work has shown that extending the rights of secured creditors may lead to an increase in private credit in countries where banking systems are less highly developed, and that legal support for collateral may therefore be important in stimulating bank-based lending, such as former socialist countries in central and Eastern Europe (Haselmann *et al.*, 2010). Our own different findings suggest that this result may be specific to the experience of transition systems.

Our results can be put in the context of the wider debate over the relevance of legal origins to an understanding of different varieties of capitalism. Legal origin theory claims that underlying legal forces help to shape outcomes and determine cross-national variations across market systems (La Porta *et al.*, 2008). The evidence we have presented here suggests that legal origin may help to explain features of some systems which are often taken to typify a given legal family (England and France, in the case of the common law and civil law, respectively), but it also shows that other systems among large industrial economies do not conform to their legal-origin type (Germany and the USA). If legal origin does have some residual effect on the pathway of legal and economic change, the case of insolvency law suggests that it is not a very strong one: US bankruptcy law diverged radically from its English 'parent' in the course of the nineteenth century, while the influence of the courts on the English law of insolvency has recently been in decline, as legislation has re-aligned the relationship between the management of the firm and its creditors in favour of the former.

The VOC approach is based on the notion of complementarities across institutions of different types, including those characteristic of different forms of financing of business firms (Hall and Soskice, 2001), rather than on the type of mono-causal explanation posited by

legal origin theory (La Porta *et al.*, 2008). On the basis of the evidence we have presented, insolvency law represents a context in which a multi-causal, non-linear approach to the understanding of comparative capitalisms looks more plausible than the identification of a single overriding cause of national differences.

## 6. Conclusion

Legal origin studies maintain that a higher level of creditor protection, which is characteristic of common law countries, leads to increased levels of private credit and bank lending (Djankov *et al.*, 2007; La Porta *et al.*, 2008). In this article, we have presented evidence from the CBR's Creditor Protection Index which measures legal support for creditor rights between 1970 and 2005, replicating the period analysed in Djankov *et al.* (2007), but with a more detailed coverage of relevant laws. Taking an in-depth look at four developed countries (France, Germany, the UK and the USA) permits us to put these legal data in context.

We find that common law countries do not provide, in aggregate, a higher level of legal protection for creditors than civil law ones. The picture is different when we consider different components of creditor protection, however. Then we find that laws controlling the activities of active firms in order to minimize the risk of default—debtor control laws—are stronger in the civil law, while laws enabling creditors to use transactional devices to protect their security interests at the point of insolvency or liquidation—credit contract laws—are stronger in the common law.

When we carry out a longitudinal panel data analysis of the relationship between creditor protection and the extent of private credit in national economies, we find that debtor control laws are associated with a long-run enhancement of private and bank credit, whereas credit contract laws have an opposite effect. We interpret this result as throwing light on the different corporate governance dynamics involved in the operation of laws protecting creditor rights. Debtor control laws are largely about shifting the balance of power within the firm from shareholders to creditors while the firm is a going concern, and thereby operate to increase the supply of debt finance to firms. In contrast, credit contract laws give external creditors enhanced power over the managers of the firm by enabling them to seize corporate assets in the event of default. Laws of this kind, once they pass a certain threshold, depress the demand for credit, hence the negative correlation we find between reforms strengthening secured creditors' rights and the extent of private credit in advanced industrial economies.

There are limitations inherent in our approach and scope for further analysis. Focusing on a few countries and examining their cases in detail may be at least as revealing, and perhaps more so, than engaging in cross-national studies involving over 100 countries, but the results obtained here could be tested in future by extending the detailed data set we have employed, to cover more countries.

We used regression models which did not present an over-complicated picture of the relationship between institutions and economic growth. The merit of this approach is that relationship between the causal and outcome variables is clear from the design of the regression equation, and controls are kept to a minimum. There is scope to include additional institutional variables in this type of analysis in future, although bearing in mind the presence of trade-offs between the quantity of information contained in a regression and the clarity and robustness of the results.

Our results raise theoretical and conceptual issues for future research. We see little evidence in our study to support the mono-causal claim that path-dependent legal origin effects are the

root causes of cross-national differences. If there is a legal origin effect which associates the judge-made common law with a particular approach to the constitution and regulation of markets, it is a very weak and attenuated one. It is more plausible to think of complementarities between certain legal institutions and distinct national pathways to industrialization. Although only a few studies have so far explicitly linked the VOC approach to the legal origin hypothesis (Pistor, 2005; Ahlring and Deakin, 2007), this is an issue which should repay further analysis.

## Acknowledgements

We are grateful to three anonymous referees for comments and suggestions for improvement. We are also grateful for funding from the ESRC Rising Powers Programme (project ES/J012491/1, Law, Development and Finance in Rising Powers), and the Cambridge University Humanities Research Grants Scheme.

## References

- Acharya, A., Amihud, Y. and Litov, L. (2009) *Creditor Rights and Corporate Risk Taking*, NBER Working Paper No. 15569, Cambridge, MA, National Bureau of Economic Research.
- Ahlering, B. and Deakin, S. (2007) 'Labour Regulation, Corporate Governance and Legal Origin: A Case of Institutional Complementarity?', *Law & Society Review*, **41**, 865–908.
- Armour, J. and Bennett, H. (2003) *Vulnerable Transactions in Corporate Insolvency*, Oxford, Hart.
- Armour, J., Deakin, S., Sarkar, P., Siems, M. and Singh, A. (2009a) 'Shareholder Protection and Stock Market Development: An Empirical Test of the Legal Origins Hypothesis', *Journal of Empirical Legal Studies*, **6**, 343–380.
- Armour, J., Deakin, S., Lele, P. and Siems, M. (2009b) 'How Do Legal Rules Evolve? Evidence from a Cross-National Comparison of Shareholder, Creditor and Worker Protection', *American Journal of Comparative Law*, **57**, 579–629.
- Balz, M. (1997) 'Market Conformity of Insolvency Proceedings: Policy Issues of the German Insolvency Law', *Brooklyn Journal of International Law*, **23**, 167.
- Belcher, C. (1997) *Corporate Rescue: A Conceptual Approach to Insolvency Law*, London, Sweet & Maxwell.
- Blackburne, E. and Frank, M. (2007) 'Estimation of Non-stationary Heterogeneous Panels', *Stata Journal*, **7**, 197–208.
- Botero, J., Djankov, S., La Porta, R., Lopez-de-Silanes, F. and Shleifer, A. (2004) 'The Regulation of Labour', *Quarterly Journal of Economics*, **119**, 1339–1382.
- Buchanan, J., Chai, D. H. and Deakin, S. (2013) 'Empirical Analysis of Legal Institutions and Institutional Change: Multiple-Methods Approaches and Their Application to Corporate Governance Research', *Journal of Institutional Economics*, **10**, 1–20.
- Cools, S. (2005) 'The Real Difference in Corporate Law between the United States and Continental Europe: Distribution of Powers', *Delaware Journal of Corporate Law*, **30**, 697–766.
- Deakin, S. (2012) 'The Corporation as Commons: Rethinking Property Rights, Governance and Sustainability in the Business Enterprise', *Queen's Law Journal*, **37**, 339–381.
- Deakin, S., Sarkar, P. and Singh, A. (2012) 'An End to Consensus? The Selective Impact of Corporate Law Reform on Financial Development'. In Aoki, M., Binmore, K., Deakin, S. and Gintis, H. (eds) *Complexity and Institutions: Markets, Norms and Organizations*, Basingstoke, Palgrave, pp. 189–213.
- Dennis, V. and Fox, A. (2004) *The New Law of Insolvency: Insolvency Act 1986 to Enterprise Act 2002*, London, Law Society.



- Djankov, S., Glaeser, E., La Porta, R., Lopez-de-Silanes, F. and Shleifer, A. (2003) 'The New Comparative Economics', *Journal of Comparative Economics*, 31, 595–619.
- Djankov, S., McLiesh, C. and Shleifer, A. (2007) 'Private Credit in 129 Countries', *Journal of Financial Economics*, 84, 299–329.
- Eidenmüller, H. (2006) 'Trading in Times of Crisis: Formal Insolvency Proceedings, Workouts and the Incentives for Shareholders/Managers', *European Business Organization Law Review*, 7, 239–258.
- Elliott, M. (2000) 'Is the Harmonisation of Laws a Practical Solution to the Problems of Cross-border Insolvency?', *Corporate Rescue and Insolvency Journal*, 16, 116.
- Finch, V. (2009) 'The Dynamics of Insolvency Law: Three Models of Reforms', *Law and Financial Markets Review*, 3, 438–445.
- Goode, R. (2011) *Principles of Corporate Insolvency Law*, London, Sweet & Maxwell.
- Gross, K. (1994) 'Taking Community Interests into Account in Bankruptcy: An Essay', *Washington University Law Quarterly*, 72, 1031–1048.
- Hall, P. A. and Soskice, D. (2001) *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, Oxford and New York, Oxford University Press.
- Hansmann, H. and Kraakman, R. (2001) 'The End of History for Corporate Law', *Georgetown Law Journal*, 89, 439–468.
- Haselmann, R., Pistor, K. and Vig, V. (2010) 'How Law Affects Lending', *Review of Financial Studies*, 23, 549–580.
- Hautcoeur, P. and Di Martino, P. (2013) 'The Functioning of Bankruptcy Law and Practices in European Perspective (ca. 1880–1913)', *Enterprise and Society*, 14, 579–605.
- Houston, J., Lin, C., Lin, P. and Ma, Y. (2010) 'Creditor Rights, Information Sharing, and Bank Risk Taking', *Journal of Financial Economics*, 96, 485–512.
- Jackson, T. (1982) 'Bankruptcy, Non-bankruptcy, Entitlements, and the Creditors' Bargain', *Yale Law Journal*, 91, 857–907.
- Jackson, T. (1986) *The Logic and Limits of Bankruptcy Law*, Cambridge, MA, Harvard University Press.
- Juselius, K. (2006) *The Cointegrated VAR Model*, Oxford, Oxford University Press.
- Kilborn, J. (2009) 'The Raging Debate between Territorial and Universal Theories of Value Sharing in International Bankruptcy'. In Wessells, B., Markell, B. and Kilborn, J. (eds) *International Cooperation in Bankruptcy and Insolvency Matters: On the Origins, Development and Future of Communication and Cooperation in Cross-Border Insolvency Cases*, Oxford, Oxford University Press.
- Klerman, D., Spamann, H. and Weinstein, M. (2011) 'Legal Origin or Colonial History?', *Journal of Legal Analysis*, 3, 379–409.
- Korobkin, D. (1993) 'Contractarianism and the Normative Foundations of Bankruptcy Law', *Texas Law Review*, 71, 541.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (1997) 'Legal Determinants of External Finance', *Journal of Finance*, 52, 1131–1150.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (1998) 'Law and Finance', *Journal of Political Economy*, 106, 1113–1155.
- La Porta, R., Lopez-de-Silanes, F. and Shleifer, A. (2008) 'The Economic Consequences of Legal Origins', *Journal Economic Literature*, 46, 285–332.
- Lee, S.-H., Peng, W. and Barney, J. (2007) 'Bankruptcy Law and Entrepreneurship Development: A Real Options Perspective', *Academy of Management Review*, 32, 257–272.
- Lele, P. and Siems, M. (2007) 'Shareholder Protection: A Leximetric Approach', *Journal of Corporate Law Studies*, 7, 17–50.
- Levine, R. (1997) 'Financial Development and Economic Growth: Views and Agenda', *Journal of Economic Literature*, 35, 688–726.

- Mann, B. (2002) *Republic of Debtors. Bankruptcy in the Age of American Independence*, Cambridge, MA, Harvard University Press.
- Mahoney, P. (2001) 'The Common Law and Economic Growth: Hayek Might be Right', *Journal of Legal Studies*, 30, 503–525.
- McCormack, G. (2006) 'Swelling Corporate Assets: Changing What Is on the Menu', *Journal of Corporate Law Studies*, 6, 39–69.
- Mevorach, I. (2011) 'Transaction Avoidance in Bankruptcy of Corporate Groups', *European Company and Financial Law Review*, 8, 235–258.
- Milhaupt, C. and Pistor, K. (2008) *Law & Capitalism: What Corporate Crises Reveal About Legal Systems and Economic Development Around the World*, Chicago and London, University of Chicago Press.
- Miller, S. (1998) 'Piercing the Corporate Veil among Affiliated Companies in the European Community and in the US: A Comparative Analysis of US, German and UK Veil-piercing Approaches', *American Business Law Journal*, 36, 73–149.
- Mokal, R. (2001) 'The Authentic Consent Model: Contractarianism, Creditors' Bargain and Corporate Liquidation', *Legal Studies*, 21, 400–443.
- North, D. (1990) *Institutions, Institutional Change, and Economic Performance*, Cambridge, Cambridge University Press.
- Ottolenghi, S. (1990) 'From Peeping Behind the Corporate Veil to Ignoring It Completely', *Modern Law Review*, 53, 338–353.
- Pesaran, M. H. and Smith, R. (1995) 'Estimating Long-Run Relationships from Dynamic Heterogeneous Panels', *Journal of Econometrics*, 68, 79–113.
- Pesaran, M. H., Shin, Y. and Smith, R. (1999) 'Pooled Mean Group Estimation of Dynamic Heterogeneous Panels', *Journal of the American Statistical Association*, 94, 621–634.
- Pistor, K. (2005) 'Legal Ground Rules in Coordinated and Liberal Market Economies', ECGI Law-Working Paper No. 30/2005.
- Rajan, R. and Zingales, L. (2003) 'The Great Reversals: The Politics of Financial Development in the Twentieth Century', *Journal of Financial Economics*, 69, 5–50.
- Ratford, W. and Smith, R. (1985) *A Guide to the Insolvency Act 1985*, London, Financial Training Publications.
- Schillig, M. (2014) 'Corporate Insolvency Law in the Twenty-First Century: State Imposed or Market Based?', *Journal of Corporate Law Studies*, 14, 1–38.
- Siems, M. (2014) *Comparative Law*, Cambridge, Cambridge University Press.
- Thompson, R. (1991) 'Piercing the Corporate Veil: An Empirical Study', *Cornell Law Review*, 76, 1036–1074.
- Uttamchandani, M. (2004) 'Insolvency Law and Practice in Europe's Transition Economies', *Journal of International Banking and Financial Law*, 11, 452–456.
- Warren, E. (1987) 'Bankruptcy Policy', *University of Chicago Law Review*, 54, 775.
- Weber, M. (2013) *Economy and Society*, Berkeley, University of California Press.
- Westbrook, J. (2004) 'The Control of Wealth in Bankruptcy', *Texas Law Review*, 82, 795–855.
- Wood, P. (1997) *Maps of the World Financial Law*, London, Allen & Overy.
- Wood, P. (2008) *The Law and Practice of International Finance*, London, Sweet & Maxwell.