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**Common Law vs. Civil Law:
Which System Provides More Protection to Shareholders and Creditors and
Promotes Financial Development**

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Abstract

This study re-examines the theory of legal-origin on the basis of a new longitudinal dataset for four OECD countries (UK, USA, France and Germany) over a long time span 1970-2005. It observes that the civil law countries (France and Germany) provided better minority shareholder protection and creditor protection relating to debtors' control while the common law countries (UK and USA) provided better creditor protection relating to credit contract and insolvency. Through dynamic panel data modelling our study shows that minority shareholder protection has a long-term favourable effect only on stock market listing of firms and debtors' control has a similar effect on credit market expansion while the credit contract component of creditor protection has the opposite effect. Thus, our study questions the proposition that common-law countries provide more protection to their shareholders and creditors; it also casts doubt on the related proposition that shareholder and creditor protection promotes financial development.

Keywords: Shareholder protection, Creditor Protection, Investor Protection, Corporate Governance, Law and Finance.

JEL Codes: G30, G38, K22, K40

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1. Introduction

The idea that law matters for a proper capitalist development can be traced back to the writings of famous German social scientist, Max Weber. Comparing the experience of industrialising countries of Western Europe with other countries Weber concluded that a rational legal system is a precondition for the emergence of capitalism. Some legal scholars call it ‘endowment perspective’ because it treats legal system as an endowment (created by fixed investment) which determines the path of development ‘without itself being subject to change’ (for details see Milhaupt and Pistor, 2008, pp.18-22).

North (1990) had a similar viewpoint. He argued that rich nations have managed to form proper institutions that protect property rights and enforcement contracts while poor countries lack these institutions and so fail to develop.

The works of La Porta, Lopez-de-Silanes, Shleifer and Vishny (henceforth, ‘LLSV’, 1997, 1998) and the subsequent works by them and their followers (see La Porta et al., 1999, 2000; 2006, 2008; Djankov et al., 2003; Glaeser and Shleifer, 2002, 2003; Beck et al., 2003a, 2003b; Botero et al., 2004) infused a strong ‘leximetric’ flavour to this ‘endowment perspective’ of law. La Porta and his collaborators and followers used (by and large) binary variables (0, 1) to quantify the quality of various types of law existing in a large number of countries protecting the interests of the their shareholders, creditors and labourers (these are what we call ‘leximetric’ data). The countries were classified according to their ‘legal origin’: English common law and civil law are two broad categories. The civil law systems were

further sub-divided into those of French, German and Scandinavian origin. Through various cross-section regression studies of these ‘leximetric’ data, it was argued that English common law systems are more market-friendly; they provide higher level of shareholder and creditor protection to promote financial development and create more employment opportunities by providing less protection of their labour.

This literature connects with other contemporary works which show financial development promotes economic growth (see King and Levine, 1993; Levine, 1997, 2001, 2003; Levine and Zervos 1998; Levine et al 2000; Beck et al 2000b; Claessens and Laeven, 2003). Hence, the conclusion that follows from this whole gamut of literature is that legal origin matters for economic development. Some works even find that the common law countries grew faster than the civil-law countries (Mahoney, 2001).

There are two inter-linked postulates that can be found in this literature: ‘Quality of Law’ or ‘law matters’ and ‘Legal Origin’ (see also our earlier paper, Armour et al 2009a):

1. ‘Quality of Law’: 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. 1998, 2008; Djankov et al. 2003; Claessens & Laeven 2003).

2. ‘Legal Origin’: 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.

LLSV and others asserted the superiority of common law because of ‘adaptability’ and ‘political’ factors (Beck et al., 2003a and Botero et al., 2004):

The ‘adaptability’ argument can be traced back to Hayek (1960). It is related to the process of framing new rules. Judges interpret 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 judges are bound by long explicit laws and codes leaving them with little discretion so that civil law systems may suffer from excessive rigidity, as changes may only be made by fits and starts through legislation.

The ‘political’ factor focuses on the greater independence provided to the judiciary under common law system. Therefore, the 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 has greater control over legal institutions, including judicial appointment, selection and tenure. Hence, the judiciary are less able to protect individual property rights from the clutches of the state. In the words of Mahoney (2001, 505):

‘There are structural differences between common and civil law, most notably the greater degree of judicial independence in the former and the lower level of scrutiny

of executive action in the latter, that provide governments with more scope for alteration of property and contract rights in civil law countries’.

The works of LLSV and their followers, which support ‘the endowment perspective of law’, have created a furore in the academic world. At the same time, their works have driven the legal reform policies of the World Bank and other institutional organisations towards Anglo-Saxon legal system (thereby adding another dimension to globalisation, which can be called ‘globalisation of law’). The World Bank has funded much of the subsequent works of LLSV and created a database that assigns score to each country for their legal institutions to protect the interests of shareholders, creditors, employers (vis-à-vis employees) and other stakeholders.

In this perspective, we shall re-examine the LLSV theory on the basis of a new dataset available from the source of Centre for Business Research, CBR (University of Cambridge, UK) for four OECD countries (UK, USA, France and Germany) over a long time span 1970-2005.¹ In the LLSV theory of legal origin, the three countries, England, France and Germany, may be termed as “mother countries”. These are essentially countries where different legal systems originated, and subsequently spread to developing countries often through colonisation and conquest. In the US, not a mother country, the Anglo-Saxon system reached a high level of development and the model was exported to other countries.

¹ CBR data over a long time span, 1970-2005 are available for five countries: four OECD countries covered in this paper and India. Indian data on shareholder protection were examined in a separate paper (Sarkar, 2009).

The rest of the paper is organised as follows. The next section provides a critique of the LLSV theory. Sections 3 and 4 outline the results of our empirical analysis and Section 5 concludes.

2. Legal Origin Theory: A Critique

The legal origin postulate suffers from serious conceptual problems. Scholars of comparative law argue that the classification of countries by reference to legal origins is not always clear and point out that in reality most legal systems are hybrids. For instance, South African law derives from both civil law and common law traditions; Japanese company law used to be based on the German model but, since the 1950s, has been heavily influenced by the US law; Swiss company law is influenced by the UK legal system and, due to the influence of the EU, UK law itself has become more ‘continental’ (Siems, 2007).

The mechanisms by which legal origins exert their influence—through the ‘political’ and ‘adaptability’ channels are strongly questioned by the modern scholars of corporate law. For example, under current French practice judges interpret the law whereas English judges on the other hand have less scope than before in view of the detailed descriptions contained in modern English law, such as the company law (Deakin & Singh 2008). The French judges are also able to have discretions by appealing to the Roman law concept of “good faith”.

Furthermore, the empirical base of the LLSV theory can be questioned and a number of strong critical points can be raised (see also, Armour et al, 2009a):

1. LLSV data lack transparency. For any index to be a meaningful representation of the effects of legal rules across different jurisdictions, it must contain coding which corresponds to the state of the law in the different countries under review. It should take into account relevant cross-national differences in the operation of legal rules. There is always room for differences of view in the way that legal rules are interpreted. When the coding of LLSV's "shareholder rights" indices was checked by independent experts, numerous coding errors were revealed, casting serious doubts on the main findings of LLSV (Spamann, 2006, 2008).

2. A second problem relates to the selection of variables. A functional theory of how legal rules work in relation to economic variables is needed to guide the selection process. In the absence of such theory, there lies a danger of "home country bias" on the part of the researchers constructing the index. LLSV's legal indices have been criticized on these bases (Ahlering and Deakin, 2007).

3. A third problem concerns the *aggregation* of the variables coded. The indices are constructed from the unweighted sums of the various measures. It is not clear how significant each variable is in its contribution to the overall business environment. The scores given to particular variables or groups of variables should be weighted on a country by country basis to reflect the comparative law principle of functional equivalents: the same variable may play a completely different functional role in different countries, or different variables may play the same role, with their relative importance varying from one context to another (see Ahlering and Deakin, 2007). For example, regulatory takeover codes are generally thought to play a major role in underpinning minority shareholder rights and encouraging the dispersion of

ownership in some common law systems, such as the UK and Australia, but this type of regulation is absent in the United States. In the latter country certain specific rules of securities law, the law of fiduciary duties and a more permissive approach to shareholder-led litigation play a similar role (Armour and Skeel, 2007).

4. Fourthly, the legal indices in large part rely only on formal legal rules—that is, the ‘law on the books’, as opposed to the ‘law in action’. Differences in judicial quality, legal procedure, social norms, and a host of other factors may make the operation of legal rules in practice very different from their formal characterization. The gap between formal law and law in practice does not affect all countries equally; this poses a problem for the indexing methodology. Moreover, the form taken by a particular law may reflect the practical impact of that rule on parties subject to it. That may depend on factors outside the scope of the legal indices, including social and cultural norms beyond the law. The social or economic effect of a given legal rule can only be understood by seeing law as part of a system of interlinked norms, some of which are extra-legal in nature (Zweigert and Kötz, 1998).

5. The majority of the LLSV indices provide a cross-sectional view of the law. Most of them describe the law as it stood in the second half of the 1990s. It does not provide any idea regarding the direction of causality. While a proper legal framework could promote financial development and economic growth, it is also plausible that financial development influences the creation of appropriate legal environment. A number of case studies of the evolution of company law at the national level suggest that for both USA and UK financial market developments preceded legal change (Cheffins 2001; Coffee 2001).

With the above points in mind, CBR (Centre for Business Research, University of Cambridge, UK) scholars have constructed new indices on shareholder protection. The CBR approach differs from that of LLSV in a number of respects (see Armour et al 2009a):

Firstly, CBR indices take into account a wider range of legal and regulatory information, which are functional equivalent of ‘hard’ laws whereas LLSV focused mainly on ‘positive’ legal rules. All primary legal sources are set out in the documents constituting the CBR datasets, a practice not followed by LLSV.²

A second difference is that a wider range of values is used in CBR data to consider the effects of a given rule. On the contrary, many of the LLSV codings use binary variables (0, 1): for the existence 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 arrived at based on interpretative judgments by legal experts.

Thirdly, the CBR data cover a wider range of legal norm than LLSV. In practice, many rules of company law and securities law are ‘default rules’ which may apply or not depending on how the parties to particular transactions choose to deal with

² These are available online, on the website of the Centre for Business Research (CBR)

at the University of Cambridge. See (<http://www.cbr.cam.ac.uk/research/programme2/project2-20.htm>).

them. The norms of corporate governance codes, which follow the ‘comply or explain’ approach, offer an illustration of this: companies have a choice of either conforming to the relevant norm, or disclosing their reasons for not complying with it. However, this is also a feature of many statutory rules of core company law. Each of these types was included within the CBR coding.

Fourthly, and most fundamentally, CBR indices are all longitudinal. Legal rules were coded as they have evolved over time. These data allow us to track legal changes over time and to analyze their relationship to economic development.

In the next two sections, we shall re-examine the LLSV legal origin hypothesis on the basis of these CBR data for four OECD countries (UK, USA, France and Germany) over a long time span 1970-2005.

3. Legal Protection of Shareholders and Creditors: Common Law vs. Civil Law

3.1 Shareholder Protection

In the CBR data on shareholder protection there are 60 legal variables for each country; each variable has 36 annual observations over the period 1970-2005 (for the exhaustive list of variables considered see the original data source mentioned in footnote 2). Every variable takes a value between zero (the lowest level of protection) and one (the highest level of protection); many take intermediate values. Thus, if a country were to have the maximum level of protection, the indicators would sum up to 60 assuming uniform weight for all the variables (we shall use

unweighted average so that the minimum value of the index is zero and the maximum value is one).

In order to make comparative statements about legal protection for shareholders in different countries it would be useful to aggregate the variables. In line with much of the literature, we use the un-weighted sum of all variables as an aggregated index of shareholder protection. This procedure thus assumes that all variables are equally important which is of course unlikely to be true but assigning unequal weights risks the exercise becoming too arbitrary. A simple un-weighted average of all 60 variables (hereafter ALLSP) gives an aggregate picture of shareholder protection. Corporate law is often designed to protect the dispersed shareholders from managers and board and also to protect minority shareholders from the majority (see Coffee, 2002; Kraakman et al, 2004). Therefore, we shall use two broad sub-categories of ALLSP: shareholder protection against board and management (hereafter SPBRD) – the unweighted average of 42 variables and shareholder protection against other shareholders (minority shareholder protection - often called investor protection, hereafter SPMIN) – the unweighted average of the remaining 18 variables.

The two sub-categories are described below:

(a) Protection against board and management (SPBRD): It covers all the rules and regulations that protect the shareholders against the activities of board and management. These rules deal with the powers of the general meeting of the shareholders (regarding the amendments of the articles of association, mergers and divisions, sale of substantial assets of the company, dividend distributions, election

of the board of directors, directors' appointment, remunerations and dismissal, directors' self-dealing of substantial transactions etc.), the agenda setting power of the shareholders in the general meeting, the power of the shareholders to call for an extra-ordinary shareholder meeting, the shareholders' right to demand information and to get access to the register of shareholders and beneficial owners etc.

(b) Protection of minority shareholders against the majority shareholders (SPMIN): It covers the issue of quorum in the extra-ordinary shareholder meeting, supermajority requirements (e.g., 2/3 or 3/4) for amendments of the articles of association, mergers, and voluntary liquidations, provision of protection of out-voted minority shareholders, prohibition of voting by interested shareholders, disclosure of major share ownership, provision of mandatory bid and public offer for acquisition etc.

In Table 1 we have presented the quinquennial average shareholder protection indices (three series, ALLSP, SPBRD and SPMIN) for the four countries under study. Through simple averaging, we have also calculated the quinquennial average shareholder protection of common law group (UK and USA) and the civil law group (France and Germany). All these are plotted in a number of diagrams.

Figure 1 shows that in the first quinquennium (1970-74), UK had the lowest level of aggregate shareholder protection (ALLSP) while Germany had the highest level of aggregate shareholder protection followed by USA and France. In the subsequent quinquennia, all the four countries made a number of changes in their law to provide more and more shareholder protection. Changes were more pronounced in

UK and France; while Germany tried to catch up in the 1990s, the US law lagged behind. Hence, in the first 6 years of the current millennium for which we have the relevant CBR data there is not much difference in the state of legal protection of shareholders in the three countries. Our aggregation at the level of legal origin (see also our earlier study, Sarkar and Singh, 2010) shows that in each quinquennium shareholder protection is more in the civil law countries than that in the common law countries (Figure 2).

At the disaggregative level, it appears that in the field of shareholder protection relating to board and management (SPBRD) there is not much gap between UK and France and between Germany and USA (Figure 3). We find not much difference between common law and civil law (Figure 4). That means the distinction between the two groups arises in the field of minority shareholder protection (SPMIN). Both Germany and France provided more and more minority shareholder protection in contrast to its steady decline in the USA and stagnation in the UK (Figures 5 and 6). To examine the same question at a more rigorous level, consider all the 36 years (1970-2005) of observations for each country to get a panel dataset of 144 observations. We use the dummy variable for common law origin countries (COM) and fit the following regression with a time-trend:

$$(1) \quad Y = a + b.COM + c.t$$

where Y = the shareholder protection index (ALLSP or SPBRD or SPMIN), COM is the dummy variable = 1 for common law countries (UK, USA) and zero for other countries (France and Germany) and t is the time-trend.

This regression procedure shows that common law countries and civil law countries do not differ in shareholder protection relating to board (SPBRD) – the dummy (COM) is not statistically significant. Contrary to the LLSV legal origin hypothesis, the minority shareholder protection and so the aggregate shareholder protection is lower in the common law countries – the dummy is negative and highly significant for the dependent variables, SPMIN and ALLSP (Table 2, Part A). Our result holds irrespective of whether we add time-trend in the regression equation (1).

3.2 Creditors Protection

As with the shareholder rights indices, the construction of CBR creditor rights index was based on a wide range of creditor rights variables over the period, 1970-2005 (for the exhaustive list of variables considered see the original data source mentioned in footnote 2). These variables fall into three sub-categories reflecting three separate ways in which creditors may be protected by the law: Debtor Control (CRDC), Credit Contracts (CRCC) and Insolvency (CRINS).

(a) Debtor control (CRDC): It consists of all the restrictions imposed on the activities of firms so as to reduce their risk of default on debt obligations. This set of rules deals with the amount of minimum capital required to start a firm, restriction on the payment of dividends defined by reference to legal capital, the rights of courts to pierce the corporate veil to protect creditors, transaction avoidance in insolvency, directors' liability with respect to creditors' interests, public enforcement of liabilities of directors in insolvency etc.

(b) Credit contracts (CRCC): It is concerned with creditors acquiring rights by contract such as the ability to take various forms of security. This set of rules covers mandatory insolvency set-off, clauses in bond agreements providing for majority voting on renegotiation of default, legal procedures to enforce outside insolvency proceedings, mortgages of land, financial collateral (cash, bank a/c, securities), retention of title clauses (over original goods and over proceeds of sale of original goods) in insolvency proceedings, registration of security, possibility of enforcement of security without court order.

(c) Insolvency (CRINS): This sub-index concerns bankruptcy law. Various aspects of insolvency law are examined to see whether it further creditors' (as opposed to debtors') interests. It deals with the legal provision for both liquidation and rehabilitation, triggering of insolvency proceedings (whether it is the duty of company/shareholders/directors to file for insolvency proceedings on balance sheet trigger or whether a single creditor can initiate liquidation proceedings), stay/moratorium in liquidation and rehabilitation proceedings, control in rehabilitation proceedings (whether directors remain in control for day-to-day management decisions), appointment of trustee or manager (whether secured creditors or unsecured creditors or shareholders or court vote to appoint trustee), voting on plan for exit, priorities in liquidation and rehabilitation proceedings.

In Table 3, we have presented the quinquennial average creditor protection indices: the aggregate series, ALLCR and its three constituent sub-categories, CRDC, CRCC and CRINS for the four countries under study (the indices are simple

averages of all the relevant variables - assuming the range of values between 0 and 1). Through simple averaging, we have also calculated the quinquennial average creditor protection of the common law group (UK and USA) and the civil law group (France and Germany). All these are plotted in a number of diagrams (Figures 7 to 14).

In the first quinquennium (1970-74), Germany had the highest level of aggregate creditor protection (ALLCR), closely followed by UK and USA while France had much lower level of creditor protection. Subsequently the level of creditor protection improved in all the countries although at different paces. In the process, France came closer to USA while UK surpassed Germany. However, in the latest period (2000-5) for which we have data Germany regained its position (Figure 7). Our aggregation at the level of legal origin shows that in each quinquennium creditor protection is more in the common law countries than that in the civil law countries (Figure 8) in keen contrast to what we have observed for shareholder protection (Figure 2). However, the civil law group showed a tendency to catch up in different quinquennia; during 2000-5, both groups have the same level of creditor protection (0.61).

Considering different sub-categories of creditor protection, it can be observed that in the field of debtor control (CRDC) Germany has maintained the topmost position far above all others throughout our period of study (Figure 9). Thanks to Germany, civil law group has been better placed in this aspect of creditor protection throughout the period. However, the common law group is observed to catch up as both German and French CRDCs show a slow declining trend since the mid-1980s

while the UK CRDC shows a regular increase throughout the period and US CRDC shows a similar tendency since 1985-89 (Figure 10).

In the field of creditor contract (CRCC), however, USA was initially on the top; subsequently UK took that position while Germany and France remain far behind these two common law countries (Figure 11). Obviously, in this field common law group is better placed while there is a clear tendency for the civil law group to catch up, thanks to legal changes in France throughout the period since 1975-79 (Figure 12).

In the matter of creditor protection relating to insolvency (CRINS), UK has maintained the topmost position far above all others in all the quinquennia between 1970 and 1999. Initially Germany had the least creditor protection relating to insolvency –very recently, Germany made some drastic changes in insolvency law and reached the level of protection offered by the UK. France also improved its insolvency law in the 1980s and 1990s while the USA made some minor improvements in their law in the 1970s (Figure 13). In view of all these changes, since the early 1980s, the insolvency law in the civil law region started improving and coming closer to that in the common law region (read UK). By 2000-5, it surpassed the insolvency law in the common law countries (Figure 14).

Replicating our dummy variable analysis [by considering various creditor protection series taken one at a time as the dependent variable, Y, on the right hand side of equation (1)], we can observe that the civil law group has significantly higher creditor protection in the field of debtor control. The common law group, on the

other hand, has significantly higher creditor protection in the field of credit contracts and insolvency. The supremacy of common law in these two sub-categories exerted the dominating influence in showing their significantly higher aggregate creditor protection (Table 2, Part B).

To sum up, our study of the leximetric data of four major countries (from the perspective of legal origin) over a long span of time (1970-2005) provides no clear verdict in favour of the LLSV proposition that the common law is superior to civil law in protecting the interests of shareholders and creditors. In the matter of aggregate shareholder protection, civil law is superior and in field of aggregate creditor protection, the opposite is true. The supremacy of civil law arises because of better minority shareholder protection in the civil law countries. There is also a tendency towards divergence because of declining minority shareholder protection in the USA coupled with its sluggish improvement in the UK.

The supremacy of common law in providing overall creditor protection is due to high level of protection offered by USA and UK in the field of credit contract and by UK in the field of insolvency. In both cases, civil law showed a tendency towards catching up - in the former case, France provided the driving force and in the latter case, the driving force came from both France and Germany. In the field of creditor protection relating to debtors' control, the supremacy of civil law is provided by Germany. This aspect of creditor protection also exhibited a tendency towards convergence because of legal changes in both UK and USA.

4. Does Law Matter?

In this section, we shall examine 'whether law matters'. For this, two propositions are considered.

1. A Country with higher shareholder protection experiences greater development of its stock markets.
2. A Country with higher creditor protection experiences greater development of its credit market.

To examine the first proposition we shall consider the following indicators of stock market development (used one at a time) along with shareholder protection indices (taken one at a time) discussed in the earlier section (SPBRD, SPMIN and ALLSP):

1. Market capitalisation or the value of the shares of listed firms to GDP, MKAPY.
2. Value of total shares traded on the stock exchange to GDP, VTRDY.
3. Turnover ratio, which is the ratio of the value of total shares traded to average real market capitalization, TURN.
4. Number of domestically incorporated companies listed in the country's stock exchange per million of population, LISTPOPM.

To examine the second proposition we shall consider the two indicators of credit market development (used one at a time) along with creditor protection indices (taken one at a time) discussed in the earlier section (CRDC, CRCC, CRINS and ALLCR):

1. Domestic credit provided by the banking sector as percentage of GDP, DCBY;
2. Domestic credit to private sector as percentage of GDP, DCPVTY.

The data source of the three series, MKAPY, VTRDY and TURN is the Financial Structure Dataset of World Bank (see Beck et al 2000a). The data on legal protection of shareholders and creditors are from online CBR (Cambridge, UK) source (as already mentioned). All other data are from the World Development Indicators of World Bank.

The periodic (mostly quinquennial) averages of the indicators of stock market and credit market development are plotted in Figures 15 to 20. These show that for all the indicators of stock market development (excepting turnover ratio), the common law countries (UK and USA) are better placed. They had higher market capitalisation and value of trading (both relative to GDP) throughout the period 1976-2005 for which we have data. This is also true for stock market listing (per million of population) over the period 1980-2005. The picture is not so clear for credit market development indicators such as domestic credit provided by banking sector (% of GDP) and domestic credit to private sector (% of GDP). For both indicators USA maintained its topmost position throughout the period of study while UK remained at the bottom during 1970-1990.

We have also replicated the dummy variable analysis of annual data conducted in the earlier section to supplement our graphical analysis of quinquennial average data. For stock market development indicators we have considered additional dummies (intercept and slope dummies) for the period, 2001-2005 in order to take into account the impact of dotcom bubble bursting and subsequent recovery. This

procedure supports our graphical observation: the common-law group has statistically significant higher market capitalisation, higher value of stock trading (both relative to GDP) and higher number of listed firms (per million of population); only for turnover ratio the difference is not statistically significant (Table 5). As for credit market - domestic credit provided by the banking sector (percentage of GDP) is significantly higher in the common law group, thanks to the experience of USA; for the other indicator the difference between the groups is not statistically significant.

Now the crucial question is how far this higher financial development in the common-law group is due to shareholder and creditor protection. We shall seek an answer to these questions through dynamic panel data modelling (discussed below). To control for the level of economic activity of a country we shall consider real GDP in purchasing power parity constant dollars, deflated by population, PPPCY. From the World Development Indicators of World Bank we get the PPPCY for the period 1975-2005. Our period of analysis is determined by data availability. For credit market-creditor protection link, our period of analysis is 1975-2005. Similarly, for three other indicators of stock market development our period of analysis is 1976-2005. For stock market listing a shorter period 1980-2005 is considered.

Dynamic Panel Data Analysis: Estimates of Short run and Long-run Relationships

For a large time dimension of panel data (as we have here), Pesaran and Smith (1995) showed that the traditional procedures for estimation of pooled models, such

as the fixed effects, instrumental variables, and generalized method of moments (GMM) ‘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 and Shin, 1999, p.622). Therefore, to ascertain the nature of the relationships between financial development and shareholder/creditor protection we shall use the Pesaran-Shin dynamic panel data analysis.

We start with a postulate of long-run relationship involving X (four stock market development indicators such as MKAPY, VTRDY, TURN and LISTPOPM and two credit market development indicators such as DCBY and DCPVTY, taken one at a time, in natural log), Y (per capita GDP, PPPCY in natural log) and Z (various shareholder and creditor protection indexes taken one at a time):

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

where i (=1,2,3,4) represents countries, t (=1,2,... T) represents periods (years), ψ_i and π_i are the long-run parameters and η_{it} is the error term.

We are interested to know whether there exist long-term and short-term effects of Z (shareholder or creditor protection) along with Y (per capita GDP measuring economic activities) on X (stock market development or credit market development indicators respectively) and whether there exists a stable adjustment path from the short-term relationship (if any) to the long-run relationship.

Following Pesaran and Shin (1999), our panel data analysis is based on the following error correction representation:

$$(4) \quad \Delta X_{it} = \theta_i(\eta_{it-1}) + \sum_{j=1}^{p-1} \lambda_{ij} \Delta X_{i,t-j} + \sum_{k=0}^{q-1} \psi_{ik} \Delta Y_{i,t-k} + \sum_{l=0}^{r-1} \pi_{il} \Delta Z_{i,t-l} + \mu_i + \phi_{it}$$

where Δ is the difference operator, θ_i is the country-specific error-correcting speed of adjustment term, λ_{ij} , ψ_{ik} and π_{il} are the coefficients of the lagged variables, μ_i is the country fixed effect and ϕ_{it} is the disturbances term. The existence of a meaningful long-run relationship with a stable adjustment dynamics requires $\theta_i < 0$.

Under this general structure, we can have three alternative models. On one extreme, we can have dynamic fixed effect estimators (DFE) where intercepts are allowed to vary across the countries and all other parameters and error variances are constrained to be the same. At the other extreme, one can estimate separate equations for each country and calculate the mean of the estimates to get a glimpse of the over-all picture. This is called mean group estimator (MG). Pesaran and Smith (1995) showed that MG gives consistent estimates of the averages of parameters. The intermediate alternative is pooled mean group (PMG) estimator, suggested by Pesaran and Shin (1999). It allows intercepts, short-run coefficients and error variances to differ freely across the countries but the long run coefficients are constrained to be the same; that means, $\psi_i = \psi$ and $\pi_i = \pi$ for all i while θ_i may differ from group to group.

Using the STATA ado developed by Blackburne and Frank (2007) we have estimated all the three alternative models, MG, PMG and DFE. Based on Lag

Exclusion Wald Test for each variable separately we have determined the lag structure (p, q, r).³ Our findings are presented below:

1. In none of the three models, we find short-term or long-term effect (favourable or unfavourable) of aggregate shareholder protection, ALLSP on the four stock market development indicators. This is also true for the shareholder protection relating to Board, SPBRD (Table 5, Parts IA and B). In our earlier study (Sarkar and Singh, 2010) we arrived at the similar conclusion on the basis of a time-series analysis of the individual country cases.

2. As regards the impact of minority shareholder protection on stock market development indicators, the same conclusion cannot be drawn because of one remarkable exception. This is the case of stock market listing in the DFE model: the effect of minority shareholder protection on stock market listing is negative in the short-run but positive in the long-run and there exists a stable adjustment path from the short-run relationship to the long-run relationship. A series of Hausman tests support the DFE model and so it can be concluded that minority shareholder protection matters for stock market listing.⁴ There is another minor exception: a negative short-term effect on turnover ratio was observed in the DFE model but no significant long-term effect (Table 5, Part IC-(iii) and (iv)).

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

⁴ Our individual country case studies (reported in Sarkar and Singh, 2010) could not find this result that supports the 'law matters' proposition of the legal origin theory.

3. Both the MG and DFE models show no short-term or long-term effect of aggregate creditor protection (ALLCR) on any indicator of credit market development. The PMG model, however, shows a negative long-term effect on the two indicators of credit market development but there exists no stable adjustment path from short-term (positive relationship in one case and no relationship in another case) to long-term (Table 5, Part IIA). The series of Hausman tests support the DFE model.

4. Two models (PMG and DFE) show long-term favourable effects of creditor protection relating to debtor control (CRDC) on both the indicators of credit market development; there is, however, no short-term effect. Only in the DFE model, the adjustment process from an insignificant short-term effect to a significant positive long-term effect is stable for both the indicators of credit market development. The Hausman test supports the DFE model for the case of private credit-GDP ratio giving more credence to the findings (Table 5, Part II B).

5. As regards the impact of creditor protection relating to credit contract (CRCC), the opposite (of what we have observed for CRDC) holds good: two models (PMG and DFE) show long-term negative effect of CRCC (with no significant short-term effect) on both the indicators of credit market development. In each case, the Hausman test supports the DFE model, which shows a stable adjustment process from a short-term no relationship to long-term negative relationship (Table 5, Part II C).

6. The PMG model shows that the long-term impact of creditor protection relating to insolvency (CRINS) is negative on both the indicators of credit market development and there exists a stable adjustment process from insignificant short-term relationship to long-term negative relationship. Neither MG model nor DFE model shows a significant short-term or long-term effect. Hausman test supports the DFE model.

5. Summary and Conclusion

Analysing the available data of the legal origin ‘mother’ 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 more protection of shareholders and creditors. The civil law countries (France and Germany) provide more minority shareholder protection and creditor protection relating to debtors’ control; the common law countries (UK and USA) provide better creditor protection in the field of credit contract and insolvency.

Furthermore, our study questions the related proposition that ‘law matters’; it finds no clear evidence in favour of a favourable effect of shareholder protection on stock market development and creditor protection on credit market development. Using dynamic panel data models it concludes that only one aspect of shareholder protection matters for stock market development; it is minority shareholder protection which is observed to have a long-term favourable effect on only one indicator of stock market development, namely the number of firms listed in the stock market relative to total population. Perhaps the minority shareholder

protection discourages firms to list their shares in the short-run (we got short-term negative relationship) but in the long-run it popularizes the stock market giving an incentive for firms to rely more on stock market.

On the other hand, it is observed that different components of creditor protection have different effects on credit market development. Debtors control component of creditor protection, which is stressed more in the civil-law countries, has a long-term favourable effect on credit market expansion. The credit contract aspect of creditor protection, focused more in the common-law countries, has a long-term inimical effect on credit market development. Perhaps this aspect of creditor protection discourages debtors and hampers credit market expansion.

To sum up, our study based on longitudinal data for four OECD countries does not provide an unequivocal support to the proposition that common-law countries provide more protection to their shareholders and creditors which in turn promote their stock and credit market developments.

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Table 1. Shareholder Protection in Four OECD Countries, 1970-2005

(Period Averages)

Period & Series	France	Germany	UK	USA	Common Law	Civil Law
Board & Management (SPBRD)						
1970-74	0.46	0.47	0.46	0.46	0.46	0.47
1975-79	0.46	0.47	0.47	0.47	0.47	0.47
1980-84	0.47	0.50	0.50	0.48	0.49	0.48
1985-89	0.55	0.51	0.54	0.49	0.52	0.53
1990-94	0.57	0.51	0.57	0.51	0.54	0.54
1995-99	0.58	0.52	0.64	0.52	0.58	0.55
2000-05	0.65	0.60	0.68	0.59	0.63	0.63
Minority (SPMIN)						
1970-74	0.50	0.53	0.42	0.50	0.46	0.52
1975-79	0.50	0.54	0.43	0.54	0.49	0.52
1980-84	0.50	0.56	0.46	0.55	0.50	0.53
1985-89	0.54	0.56	0.46	0.48	0.47	0.55
1990-94	0.60	0.56	0.47	0.46	0.47	0.58
1995-99	0.54	0.58	0.47	0.42	0.45	0.56
2000-05	0.56	0.64	0.47	0.45	0.46	0.60
Aggregate (ALLSP)						
1970-74	0.47	0.49	0.45	0.48	0.46	0.48
1975-79	0.47	0.49	0.46	0.49	0.47	0.48
1980-84	0.48	0.52	0.49	0.50	0.49	0.50
1985-89	0.54	0.52	0.51	0.49	0.50	0.53
1990-94	0.58	0.52	0.54	0.50	0.52	0.55
1995-99	0.57	0.54	0.59	0.49	0.54	0.56
2000-05	0.63	0.61	0.62	0.54	0.58	0.62

Source: Calculated from CBR (University of Cambridge) data available in <http://www.cbr.cam.ac.uk/research/programme2/project2-20.htm>.

Table 2**Shareholder and Creditor Protection in Common Law vis-à-vis Civil Law****Countries, 1970-2005: Dummy Variable Analysis¹**

Series	Intercept (a)	Dummy for Common Law Countries (COM)	Time Trend (t)	R-Square
A.Shareholder Protection				
1.Aggregate Shareholder Protection (ALLSP)	0.458***	-0.022***	0.004***	0.706
2. Shareholder Protection Concerning Board and Management (SPBRD)	0.425***	0.004	0.005***	0.732
3. Minority Shareholder Protection (SPMIN)	0.534***	-0.083***	0.001***	0.539
B. Creditor Protection				
1. Aggregate Creditor Protection (ALLCR)	0.498***	0.024**	0.003***	0.244
2. Creditor Protection Concerning Debtor Controls (CRDC)	0.566***	-0.219***	0.004***	0.405
3. Creditor Protection Concerning Credit Contracts (CRCC)	0.539***	0.193***	0.002**	0.608
4. Creditor Protection Concerning Insolvency (CRINS)	0.446***	0.048***	0.003***	0.437

* Significant at 10 per cent level (based on robust standard errors).

** Significant at 5 per cent level (based on robust standard errors).

*** Significant at 1 per cent level (based on robust standard errors).

1 The following regression equation has been fitted through OLS:

$$Y = a + b.COM + c.t$$

where Y is either shareholder protection index (ALLSP or SPBRD or SPMIN) or Creditor Protection Index (ALLCR, CRDC, CRCC and CRINS), t is the time trend and COM is the dummy variable = 1 for common law countries (UK, USA) and zero for other countries (France and Germany).

Table 3**Creditors' Protection in Four OECD Countries, 1970-2005**

(Period Averages)

Period & Series	France	Germany	UK	USA	Common Law	Civil Law
Debtors Control (CRDC)						
1970-74	0.47	0.77	0.30	0.31	0.31	0.62
1975-79	0.47	0.77	0.33	0.31	0.32	0.62
1980-84	0.49	0.83	0.42	0.31	0.37	0.66
1985-89	0.46	0.88	0.50	0.31	0.40	0.67
1990-94	0.46	0.88	0.57	0.45	0.51	0.67
1995-99	0.46	0.85	0.57	0.48	0.53	0.66
2000-05	0.45	0.77	0.55	0.48	0.51	0.61
Credit Contracts (CRCC)						
1970-74	0.38	0.65	0.67	0.83	0.75	0.52
1975-79	0.38	0.65	0.80	0.81	0.81	0.52
1980-84	0.45	0.65	0.81	0.73	0.77	0.55
1985-89	0.48	0.65	0.77	0.73	0.75	0.57
1990-94	0.49	0.65	0.77	0.73	0.75	0.57
1995-99	0.58	0.66	0.77	0.73	0.75	0.62
2000-05	0.58	0.67	0.77	0.73	0.75	0.63
Insolvency (CRINS)						
1970-74	0.45	0.46	0.56	0.49	0.53	0.46
1975-79	0.45	0.46	0.56	0.49	0.53	0.46
1980-84	0.45	0.46	0.56	0.51	0.54	0.46
1985-89	0.53	0.46	0.58	0.51	0.55	0.50
1990-94	0.53	0.46	0.60	0.51	0.56	0.50
1995-99	0.55	0.50	0.60	0.51	0.56	0.52
2000-05	0.54	0.62	0.63	0.51	0.57	0.58

Table 3 (contd.)

Period & Series	France	Germany	UK	USA	Common Law	Civil Law
Creditor Protection- All (ALLCR)						
1970-74	0.44	0.58	0.55	0.52	0.53	0.51
1975-79	0.44	0.58	0.58	0.52	0.55	0.51
1980-84	0.46	0.60	0.60	0.52	0.56	0.53
1985-89	0.50	0.61	0.63	0.52	0.57	0.56
1990-94	0.50	0.61	0.65	0.54	0.60	0.56
1995-99	0.54	0.62	0.65	0.55	0.60	0.58
2000-05	0.53	0.68	0.66	0.55	0.61	0.61

Source: Calculated from CBR (University of Cambridge) data available in

See (<http://www.cbr.cam.ac.uk/research/programme2/project2-20.htm>).

Table 4

Stock and Credit Market Development in the Common Law vis-à-vis the Civil Law Countries since the 1970s: Dummy Variable Analysis¹

Series & Period of Analysis	Intercept (a)	Dummy for Common Law Countries (COM)	Time Trend (t)	dummy for 2001-2005 (d2001)	t.dummy for 2001-2005 (sd2001)	R-Square
A. Stock Market Development Indicators						
Market Capitalisation-GDP ratio (in natural log), LMKAPY, 1976-2005	-3.121**	1.212**	0.078**	3.993*	-0.125*	0.91
Value of Stock Trading-GDP ratio (in natural log), LVTRDY, 1976-2005	-5.234**	1.237**	0.146**	6.012**	-0.186**	0.894
Stock Market Turnover Ratio (in natural log), LTURN, 1976-2005	-2.112**	0.025	0.068**	2.303	-0.069	0.656
Number of Firms Listed in the Stock Market per million of population (in natural log), LLISTPOPM, 1980-2005	2.058**	1.256**	0.006	0.951	-0.03	0.854
B. Credit Market Development Indicators						
Domestic credit provided by banking sector as percentage of GDP (in	4.145**	.106*	.024**			0.42

natural log), LDCBY, 1970-2005						
Domestic credit to private sector as percentage of GDP (in natural log), LDCPVTY, 1970-2005	3.919***	.058	.028**			0.423

* Significant at 5 per cent level (based on robust standard errors).

** Significant at 1 per cent level (based on robust standard errors).

1 The following regression equation has been fitted through OLS:

$$Y = a + b.COM + d.t + e.d2001 + f.sd2001$$

where Y is the alternative financial market (stock or credit market) development indicators or alternative rates of unemployment (alternatively LMKAPY, LVTRDY, LTURN, LLISTPOPM, LDCBY, LDCPVTY, TU, LU and YU are used), COM is the dummy variable = 1 for common law countries (UK, USA) and zero for other countries (France and Germany), t is the time trend, d2001 is dummy for dotcom bubble that assumes the value zero for 1970-2000 and =1 for 2001-2005 and sd2001=d2001*t varies accordingly.

Table 5

Short-run and Long-run Relationships between Legal Index and Finance

Market Variables 1975/80-2005: Dynamic Panel Models

Period of Analysis/Models ¹	PMG	MG	DFE
I. 1976-2005			
A. Impact of Aggregate Shareholder Protection Index, ALLSP (Z) on			
(i) Stock Market Capitalization, LMKAPY (X)			
Long-term Relationship			
Y (LPPPCY)	5.415***	-1.432	2.531***
Z (ALLSP)	2.651	16.076	3.331
Short-term Relationship			
θ	-0.158	-0.297***	-0.164***
ΔX_{t-1}	0.373***	0.421***	0.454***
ΔY_t	1.114	1.058	0.374
ΔY_{t-1}	0.221	0.756	-0.639
ΔZ_t	-1.453	-1.094	-0.678
μ	-8.997	-11.156	-4.456**
Chosen Model ²			DFE
(ii) Value of Stock Trading, LVTRDY (X)			
Long-term Relationship			
Y (LPPPCY)	6.614***	6.722***	6.224***
Z (ALLSP)	-2.949	-1.744	2.658
Short-term Relationship			
θ	-0.279***	-0.382***	-0.221***
ΔY_t	3.606	4.164	2.999
ΔY_{t-1}	-2.551	-1.475**	-1.039
ΔZ_t	-0.068	-0.212	-1.917
μ	-18.433	-28.029**	-14.408***
Chosen Model ²	PMG		
(iii) Turnover Ratio, LTURN (X)			
Long-term Relationship			
Y (LPPPCY)	3.628***	3.185***	3.5***
Z (ALLSP)	-1.282	-1.672	-0.798
Short-term Relationship			
θ	-0.499***	-0.508***	-0.388***
ΔY_t	1.611	1.731	1.529
ΔY_{t-1}	-1.886	-2.187	-0.389
ΔZ_t	0.913	1.753	-0.579
μ	-18.168	-19.049***	-13.699***
Chosen Model ²	PMG		
(iv) Stock Market Listing, LLISTPOPM (X)			
Long-term Relationship			
Y (LPPPCY)	1.444***	0.099	-0.116
Z (ALLSP)	-1.549	0.097	1.108
Short-term Relationship			
θ	-0.361**	-0.511	-0.287***

ΔY_t	1.989**	1.923**	1.78
ΔY_{t-1}	-0.103	0.625	0.319
ΔZ_t	0.234	-0.029	-0.544
μ	-4.078	-1.141	0.932
Chosen Model ²		MG	
B. Impact of Shareholder Protection relating to Board, SPBRD (Z) on			
(i) Stock Market Capitalization, LMKAPY (X)			
Long-term Relationship			
Y (LPPPCY)	2.887***	-0.017	2.269**
Z (SPBRD)	0.335	8.758	3.039
Short-term Relationship			
θ	-0.167***	0.283***	-0.15***
ΔX_{t-1}	0.465***	0.44***	0.469***
ΔY_t	0.412	0.735	0.189
ΔY_{t-1}	-0.026	0.427	-0.427
ΔY_{t-2}	-1.324	0.205	-0.703
ΔZ_t	-0.146	-1.046	-0.977
μ	-4.998***	-10.505	-3.749*
Chosen Model ²	PMG		
(ii) Value of Stock Trading, LVTRDY (X)			
Long-term Relationship			
Y (LPPPCY)	7.221***	7.042***	5.456***
Z (SPBRD)	-3.965	0.616	4.496
Short-term Relationship			
θ	-0.273***	-0.382***	-0.224***
ΔY_t	2.806	3.793	3.092
ΔY_{t-1}	-2.044*	-1.259	-1.282
ΔZ_t	0.448	0.597	-1.439
ΔZ_{t-1}	1.642	0.899	-1.049
μ	-19.458***	-31.655***	-13.064**
Chosen Model ²	PMG		
(iii) Turnover Ratio, LTURN (X)			
Long-term Relationship			
Y (LPPPCY)	3.583***	3.294**	3.031***
Z (SPBRD)	-0.878	0.249	0.919
Short-term Relationship			
θ	-0.479***	-0.502***	-0.38***
ΔY_t	1.244	1.511	1.683
ΔY_{t-1}	-1.168	-1.337	-0.313
ΔZ_t	1.204	1.911	0.072
ΔZ_{t-1}	0.792	1.175	-0.628
μ	-0.17345***	-20.463	-11.988***
Chosen Model ²			DFE
(iv) Stock Market Listing, LLISTPOPM (X)			
Long-term Relationship			
Y (LPPPCY)	1.607***	0.218	0.254
Z (SPBRD)	-1.782	-0.404	-0.304
Short-term Relationship			
θ	-0.368**	-0.455***	-0.279***
ΔY_t	1.879**	1.866**	1.723
ΔY_{t-1}	0.678	1.076	0.059

ΔZ_t	0.035	-0.06	-0.939
ΔZ_{t-1}	1.101	0.934	0.424
μ	-4.727*	-2.756	0.087
Chosen Model ²			DFE
C. Impact of Minority Shareholder Protection, SPMIN (Z) on			
(i) Stock Market Capitalization, LMKAPY (X)			
Long-term Relationship			
Y (LPPPCY)	3.178***	3.002**	3.207***
Z (SPMIN)	0.987	10.377	1.623
Short-term Relationship			
θ	-0.198**	-0.352***	-0.159***
ΔX_{t-1}	0.462***	0.411***	0.471
ΔY_t	1.123*	1.363*	0.585
ΔY_{t-1}	-0.905***	0.895	-0.888
ΔZ_t	1.316	-0.608	0.397
ΔZ_{t-1}	0.998	0.519	-0.065
μ	-6.636**	-14.877**	-5.365**
Chosen Model ²	PMG		
(ii) Value of Stock Trading, LVTRDY (X)			
Long-term Relationship			
Y (LPPPCY)	5.954***	5.633***	6.746***
Z (SPMIN)	-0.057	4.759	1.68
Short-term Relationship			
θ	-0.269***	-0.379***	-0.226***
ΔY_t	2.806	4.159	2.74
ΔZ_t	0.331	0.414	-1.792
μ	-16.432***	-26.177**	-15.789***
Chosen Model ²	PMG		
(iii) Turnover Ratio, LTURN (X)			
Long-term Relationship			
Y (LPPPCY)	3.436***	2.604***	3.326***
Z (SPMIN)	0.082	4.307	0.172
Short-term Relationship			
θ	-0.529***	-0.519***	-0.41***
ΔY_t	1.904	1.801	1.293
ΔZ_t	0.677	0.386	-2.189
ΔZ_{t-1}	-2.969	-3.272	-4.219***
μ	-18.632***	-17.162***	-13.966***
Chosen Model ²	PMG		
(iv) Stock Market Listing, LLISTPOPM (X) ³			
Long-term Relationship			
Y (LPPPCY)	1.025***	0.007	0.114
Z (SPMIN)	-1.084	-10.23	2.545*
Short-term Relationship			
θ	-0.428*	-0.613***	-0.322***
ΔY_t	1.625	1.631	2.149**
ΔY_{t-1}	-0.659	-0.174	0.05
ΔZ_t	3.082	4.898**	0.321
ΔZ_{t-1}	1.625	1.863	-0.175
ΔZ_{t-2}	0.901	1.138	-1.479*
μ	-3.169*	1.832	0.071

Chosen Model ²			DFE
II. 1975-2005			
A. Impact of Aggregate Creditor Protection, ALLCR (Z) on			
(i) Bank Credit-GDP Ratio, LDCBY (X)			
Long-term Relationship			
Y (LPPPCY)	1.855***	1.629***	1.898***
Z (ALLCR)	-6.738**	-2.321	-2.859
Short-term Relationship			
θ	-0.291	-0.519**	-0.27***
ΔY_t	0.159	0.136	0.344
ΔY_{t-1}	-0.751	-0.836	-0.034
ΔZ_t	2.713**	1.266	0.899
μ	-3.014	-3.8***	-3.423***
Chosen Model ²		MG	
(ii) Private Credit to GDP Ratio, LDCPVTY (X)			
Long-term Relationship			
Y (LPPPCY)	1.916***	0.725**	1.237
Z (ALLCR)	-7.674***	5.781	3.483
Short-term Relationship			
θ	0.276	0.477	0.218***
ΔY_t	1.349	1.099	0.321
ΔY_{t-1}	0.386***	0.316***	-0.135
ΔZ_t	-3.396	-1.618	-1.047
μ	3.003	2.739	2.174
Chosen Model ²			DFE
B. Impact of Creditor Protection relating to Debtor Control, CRDC (X) on			
(i) Bank Credit-GDP Ratio, LDCBY (X)			
Long-term Relationship			
Y (LPPPCY)	0.652***	1.05***	1.104***
Z (CRDC)	4.738***	3.373	1.923***
Short-term Relationship			
θ	-0.368	-0.644***	-0.36***
ΔY_t	-0.192	-0.285	0.283
ΔY_{t-1}	-0.439	-0.725	0.232
ΔZ_t	0.548	-0.253***	-0.082
μ	-1.518	-5.285***	-2.669***
Chosen Model ²	PMG		
(ii) Private Credit to GDP Ratio, LDCPVTY (X)			
Long-term Relationship			
Y (LPPPCY)	0.429*	1.017***	1.14***
Z (CRDC)	3.294**	3.037	2.198***
Short-term Relationship			
θ	-0.314	-0.441*	-0.327***
ΔY_t	-0.263	-0.295	0.502
ΔY_{t-1}	-0.561	-0.661	0.487
ΔZ_t	0.933	0.098	-0.277
μ	-0.394	-3.195**	-2.652**
Chosen Model ²			DFE
C. Impact of Creditor Protection relating to Credit Contract (CRCC) on			

(i) Bank Credit-GDP Ratio, LDCBY (X)			
Long-term Relationship			
Y (LPPPCY)	1.131***	0.932***	1.647***
Z (CRCC)	-1.986**	-4.407	-3.811***
Short-term Relationship			
θ	-0.32*	-0.616***	-0.309***
ΔX_{t-1}	0.149	0.194*	-0.24***
ΔY_t	-0.001	-1.122*	0.506
ΔY_{t-1}	-0.568	-0.527	-0.002
ΔZ_t	0.229	1.351*	0.7
μ	-1.742*	-0.661	-2.85***
Chosen Model ²			DFE
(ii) Private Credit to GDP Ratio, LDCPVTY (X)			
Long-term Relationship			
Y (LPPPCY)	1.128***	1.014***	1.761***
Z (CRCC)	-2.747***	-5.089	-4.579***
Short-term Relationship			
θ	-0.306	-0.564***	-0.274***
ΔX_{t-1}	0.027	-0.009	-0.299***
ΔY_t	-0.137	-1.159*	0.837
ΔY_{t-1}	-0.966	-0.581	0.194
ΔZ_t	0.419	3.05	0.544
μ	-1.563	0.212	-2.746**
Chosen Model ²			DFE
Impact of Creditor Protection relating to Insolvency, CRINS (X) on			
(i) Bank Credit-GDP Ratio, LDCBY (X)			
Long-term Relationship			
Y (LPPPCY)	1.309***	1.287***	1.713***
Z (CRINS)	-3.28***	-0.474	-1.498
Short-term Relationship			
θ	-0.466*	-0.485**	-0.274***
ΔY_t	0.086	-0.099	0.323
ΔY_{t-1}	-0.573	-0.788	0.043
ΔZ_t	1.254	0.827	0.245
μ	-3.115*	-2.774**	-3.192***
Chosen Model ²			DFE
(ii) Private Credit to GDP Ratio, LDCPVTY (X)			
Long-term Relationship			
Y (LPPPCY)	1.536***	2.911**	1.879***
Z (CRINS)	-4.549***	-17.314	-1.955
Short-term Relationship			
θ	-0.379*	-0.375	-0.248***
ΔY_t	0.245	-0.192	0.583
ΔY_{t-1}	-0.538	-0.756	0.224
ΔZ_t	0.685	0.379	-0.109
μ	-3.208*	-1.866**	-3.293**
Chosen Model ²			DFE

* Significant at 10 per cent level.

** Significant at 5 per cent level.

*** Significant at 1 per cent level.

1 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 Δ is the difference operator, θ_i is the group-specific error-correcting speed of adjustment term, λ_{ij} , ψ_{ik} and π_{il} are the coefficients of the lagged variables, μ_i is the country-specific effect and ϕ_{it} is the disturbances term. The existence of a meaningful long-run relationship with a stable adjustment dynamics requires $\theta_i < 0$.

2 An appropriate model is chosen on the basis of a series of Hausman tests.

3 Due to non-availability of data, the period of analysis is 1980-2005.

Figure 1

Aggregate Shareholder Protection in Four OECD Countries, 1970-2005

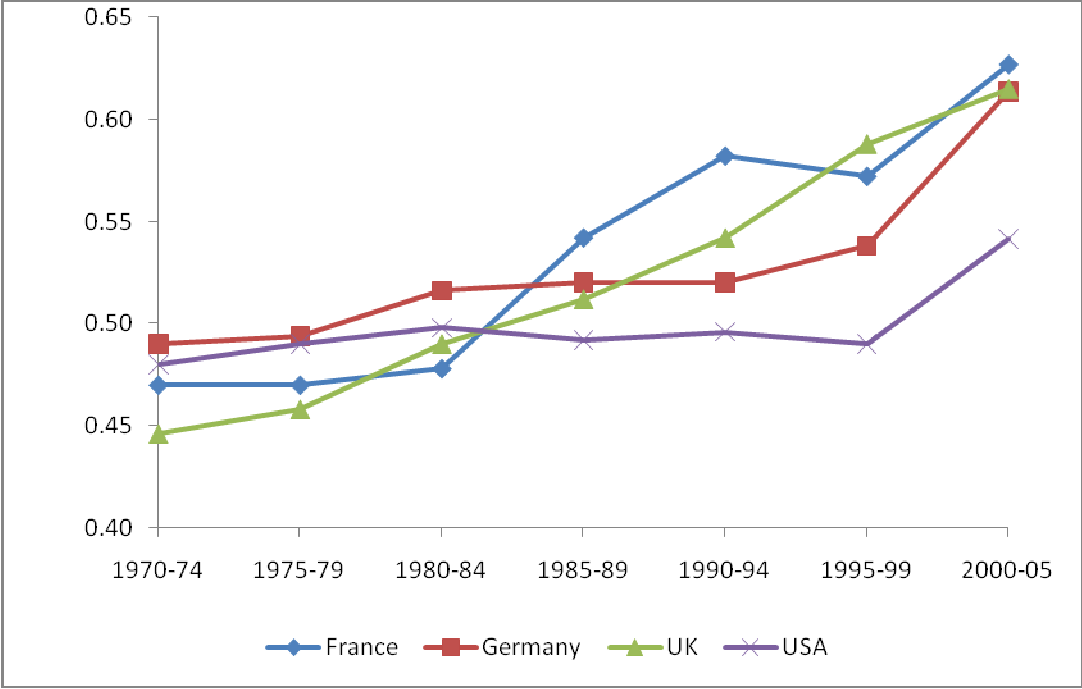


Figure 2
Common Law vs. Civil Law:
Aggregate Shareholder Protection, 1970-2005

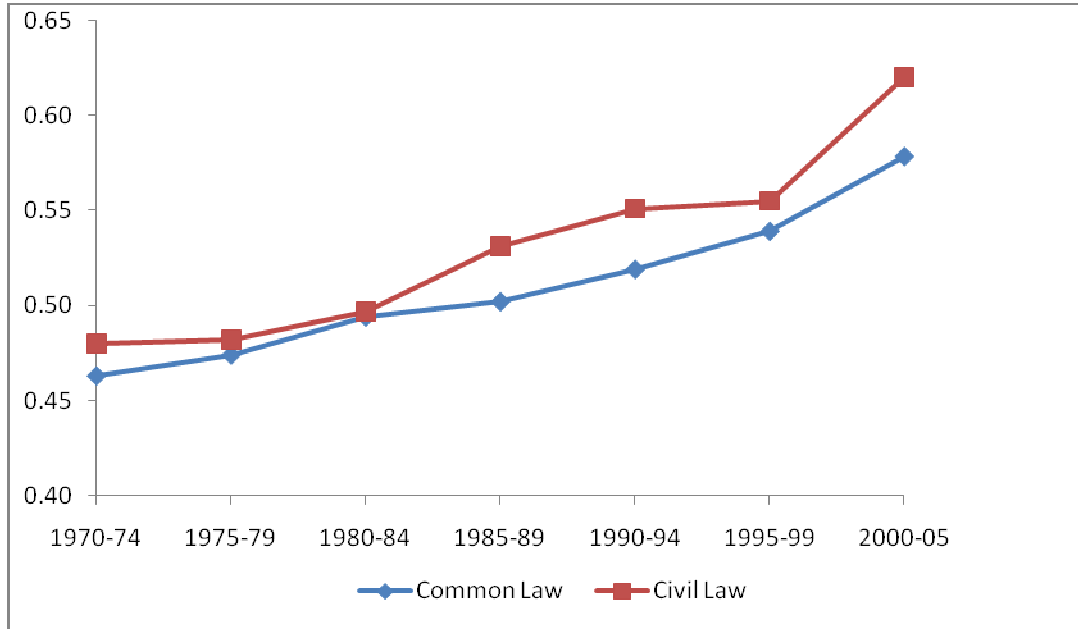


Figure 3
Shareholder Protection Relating to Board and Management in
Four OECD Countries, 1970-2005

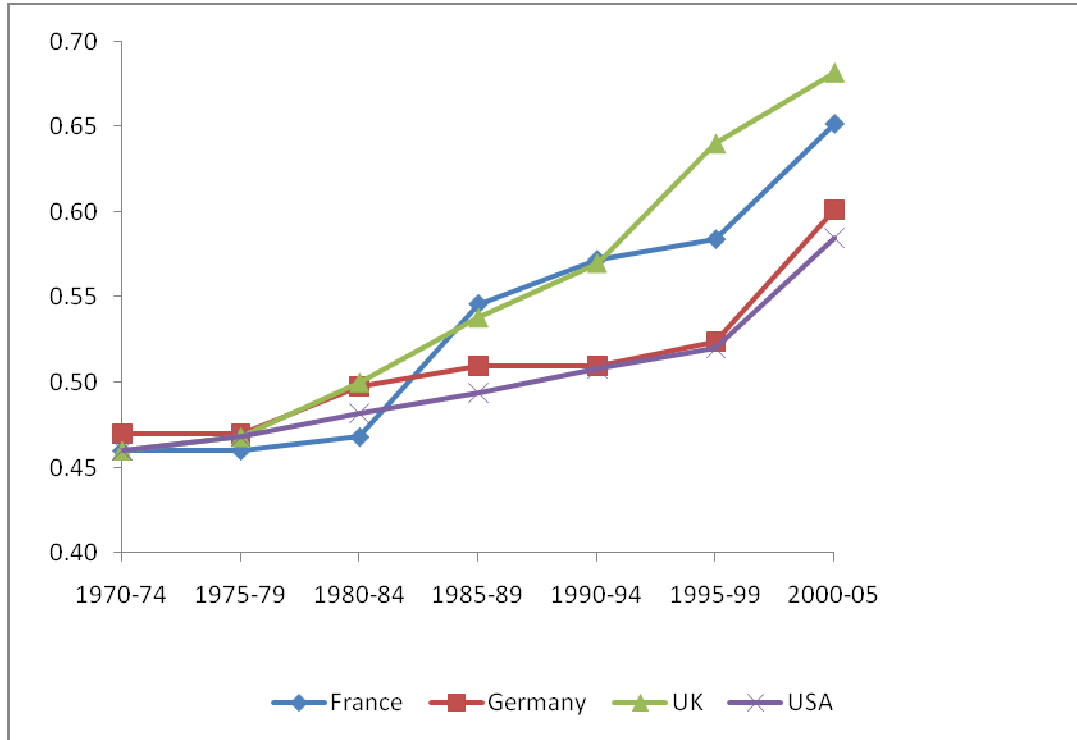


Figure 4
Common Law vs. Civil Law:
Shareholder Protection Relating to Board and Management, 1970-2005

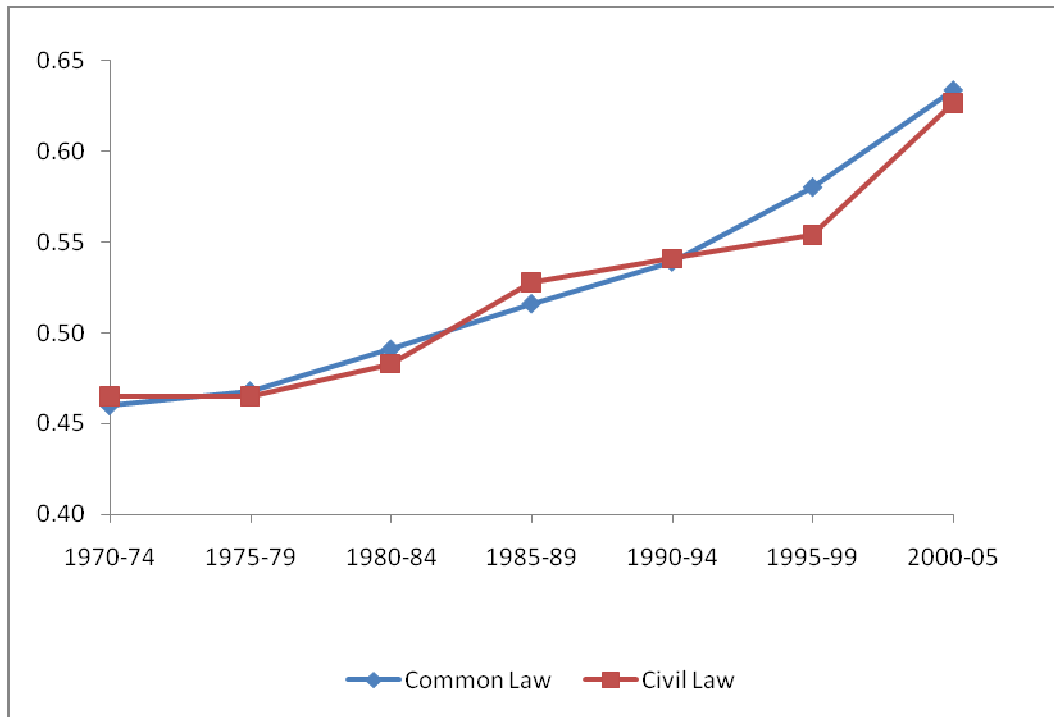


Figure 5

Minority Shareholder Protection in Four OECD Countries, 1970-2005

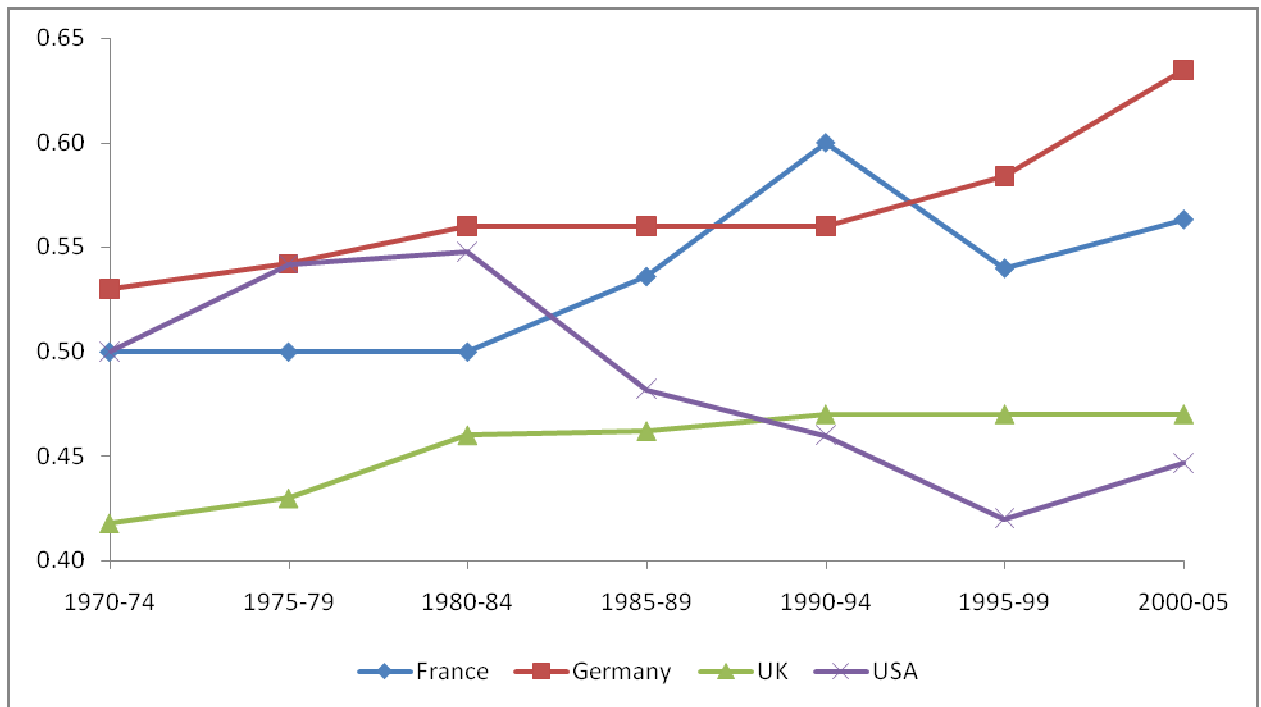


Figure 6
Common Law vs. Civil Law:
Minority Shareholder Protection, 1970-2005

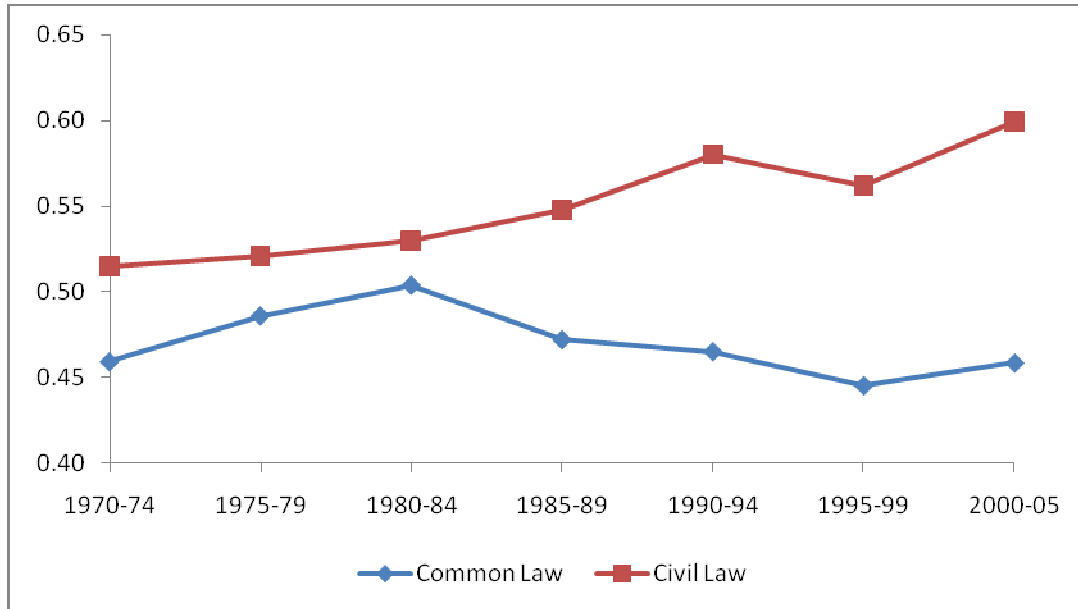


Figure 7
Creditor Protection in Four OECD Countries, 1970-2005

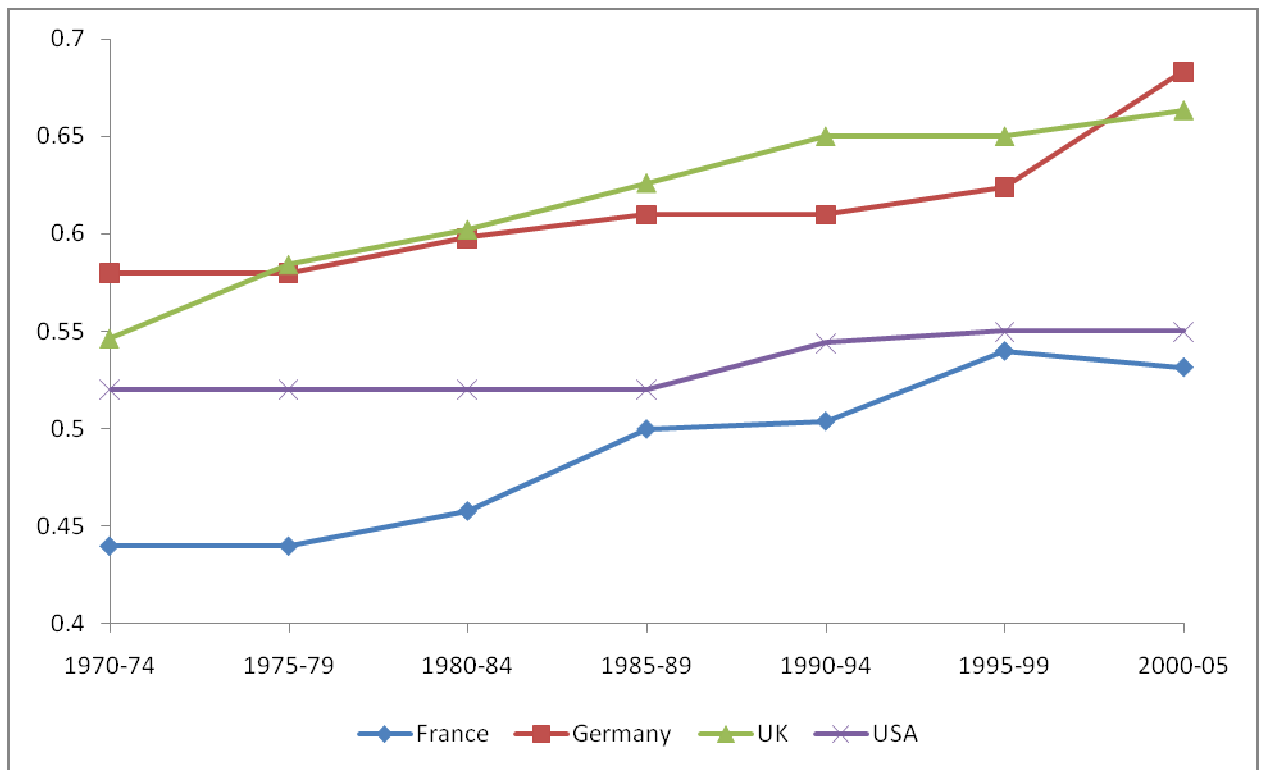


Figure 8
Common Law vs. Civil Law:
Creditor Protection, 1970-2005

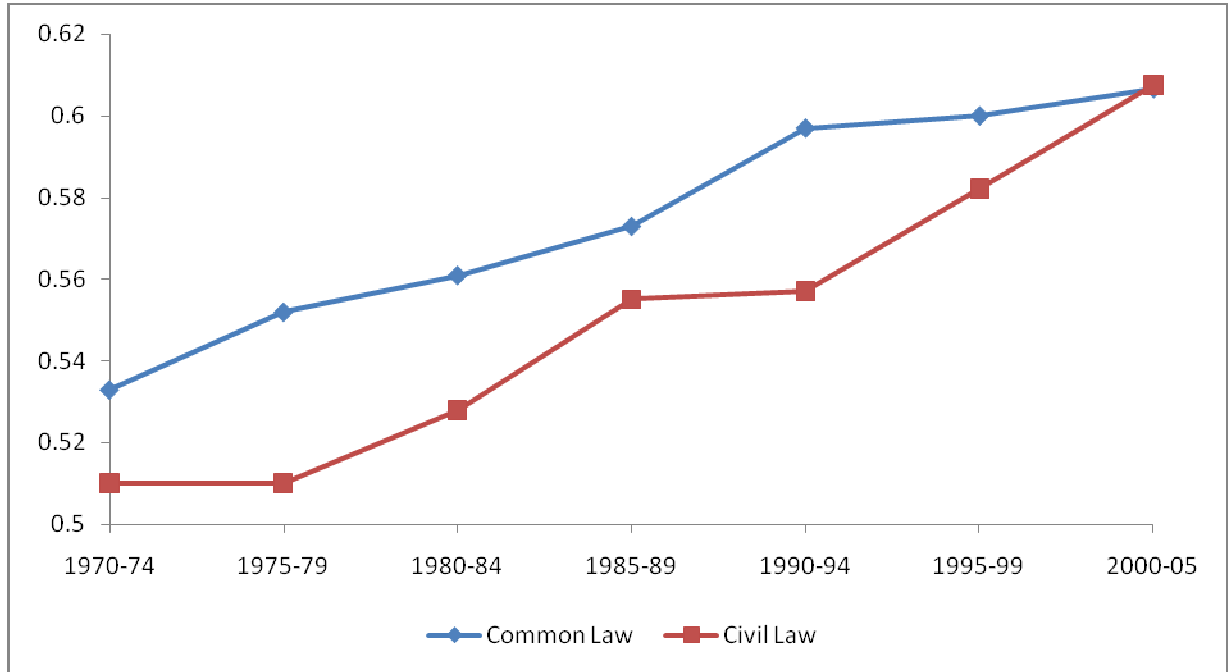


Figure 9
Creditor Protection Relating to Debtors' Control in
Four OECD Countries, 1970-2005

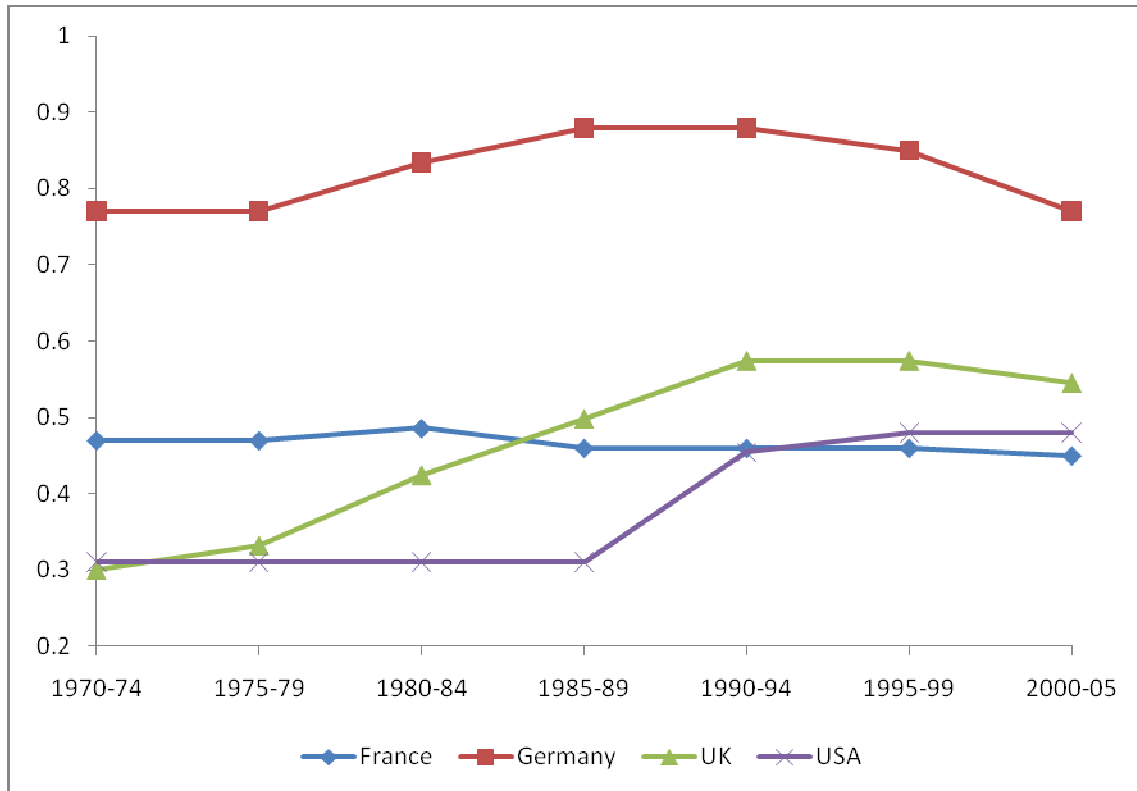


Figure 10
Common Law vs. Civil Law:
Creditor Protection Relating to Debtors' Control, 1970-2005

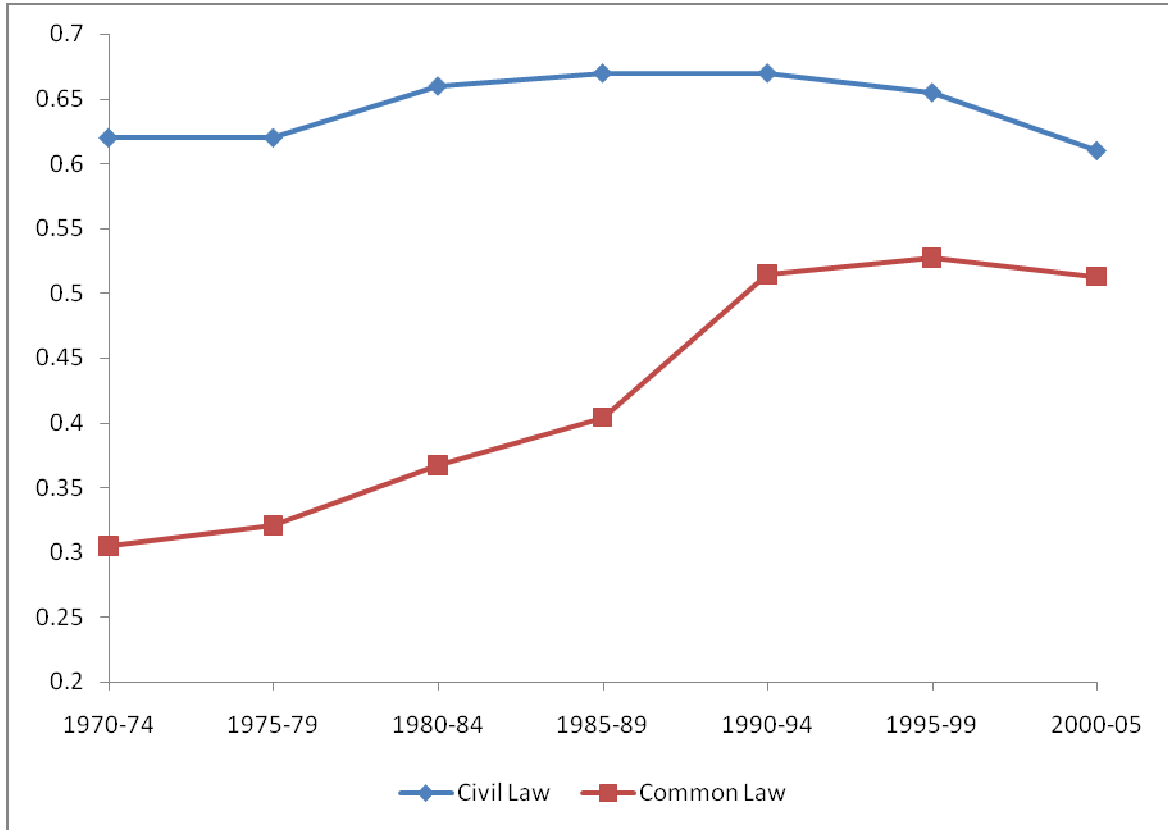


Figure 11
Creditor Protection Relating to Credit Contracts in
Four OECD Countries, 1970-2005

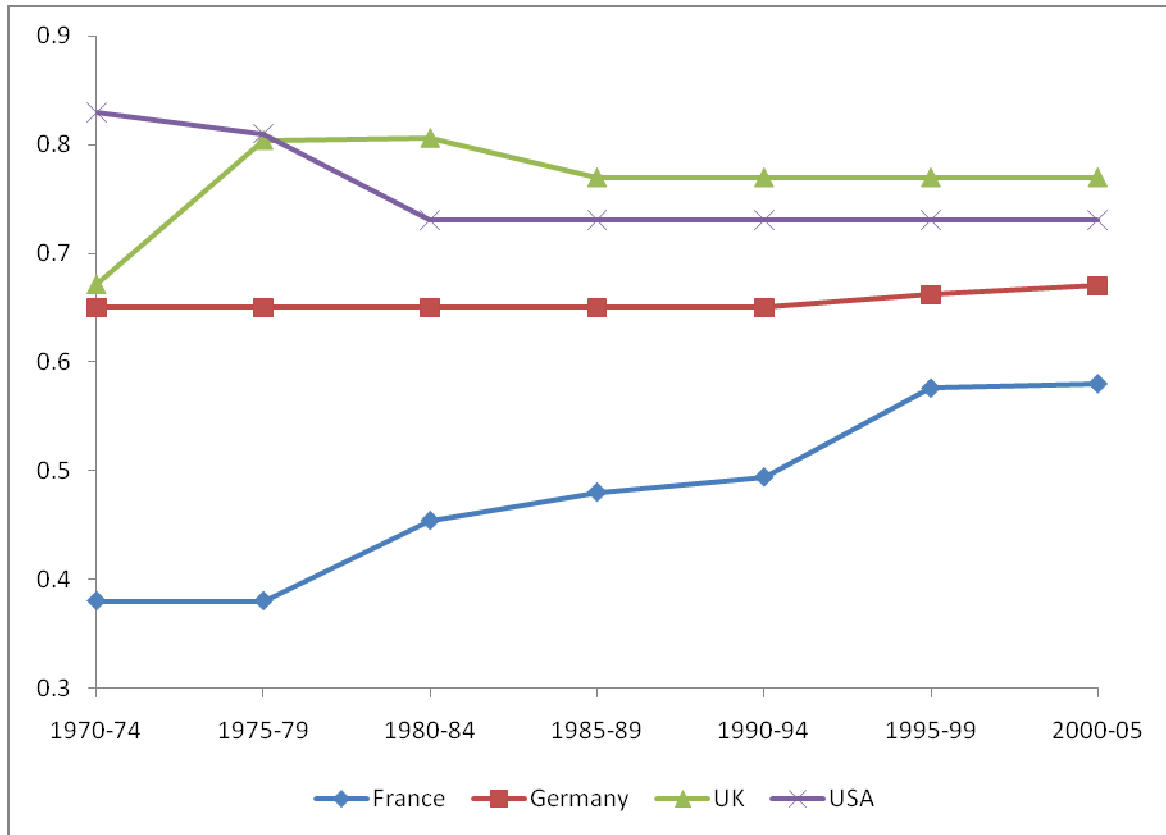


Figure 12
Common Law vs. Civil Law:
Creditor Protection Relating to Credit Contracts, 1970-2005

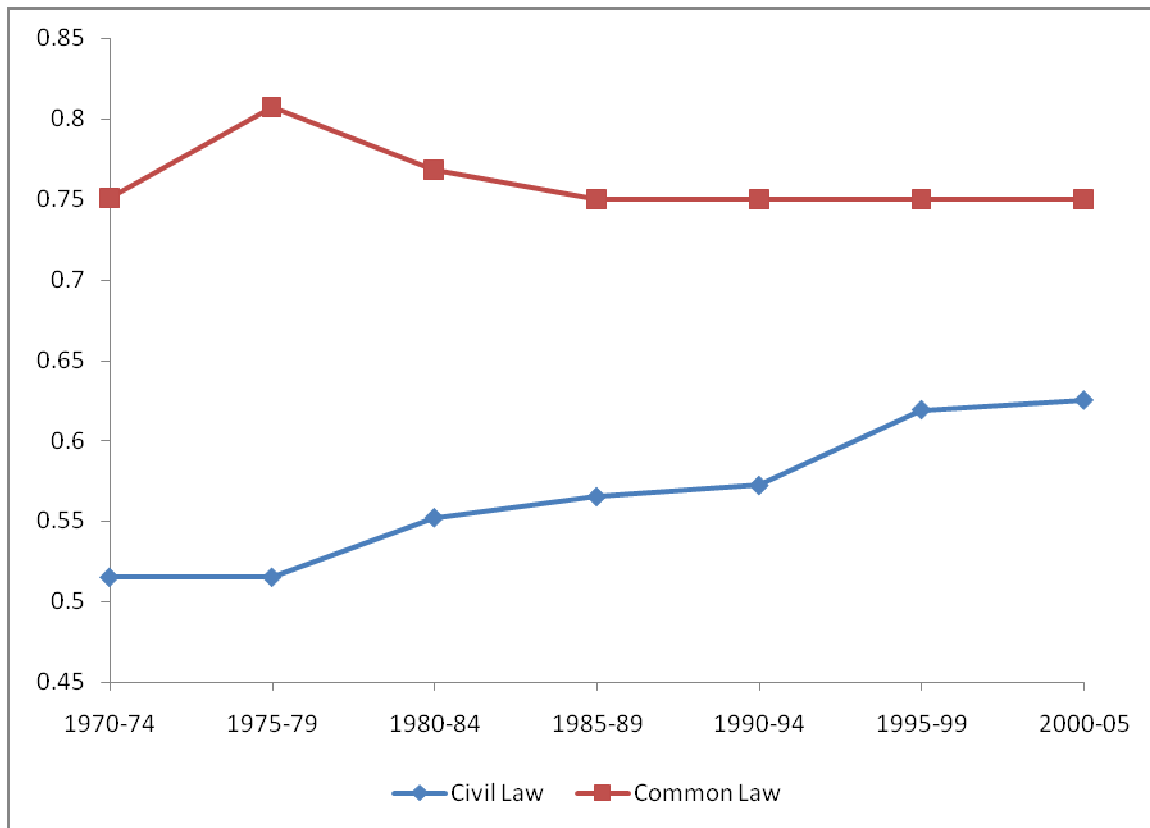


Figure 13
Creditor Protection Relating to Insolvency in
Four OECD Countries, 1970-2005

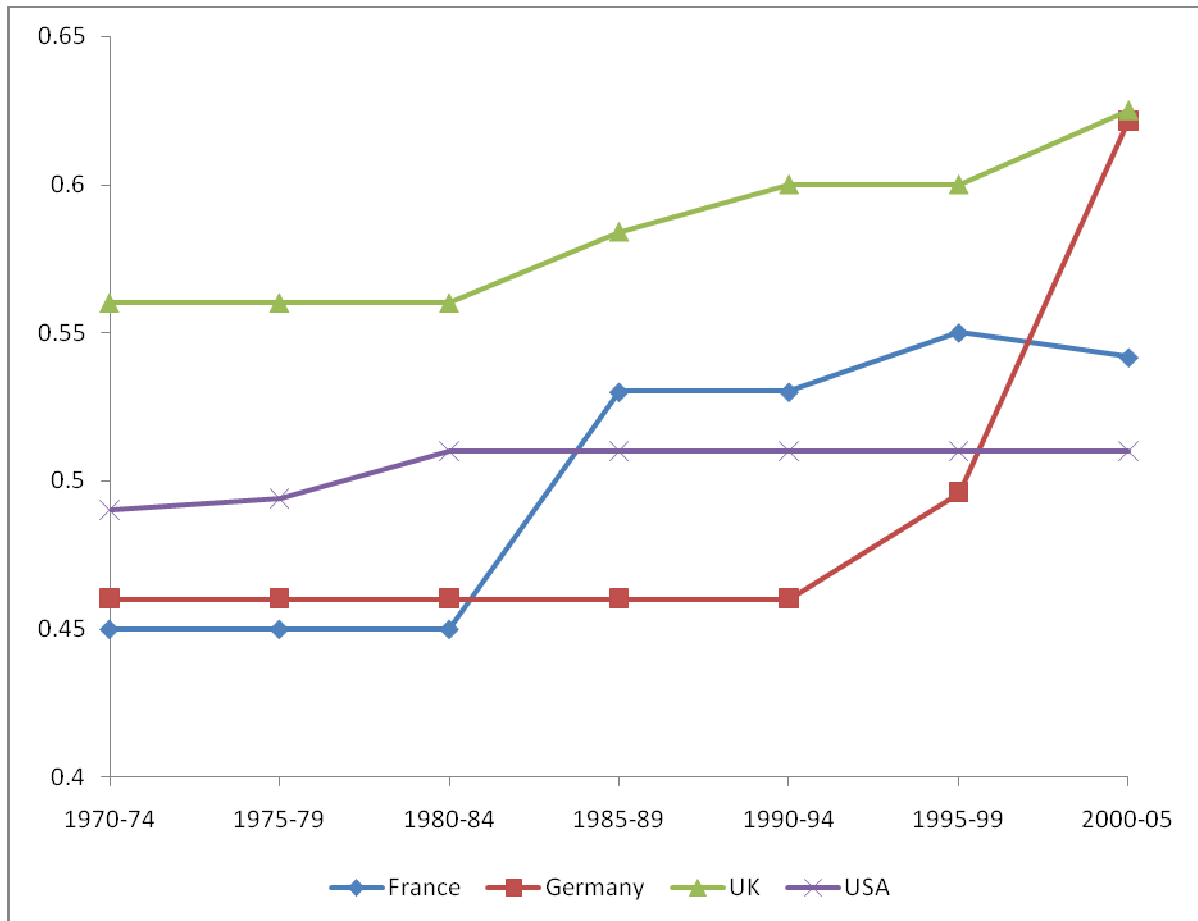


Figure 14
Common Law vs. Civil Law:
Creditor Protection Relating to Insolvency, 1970-2005

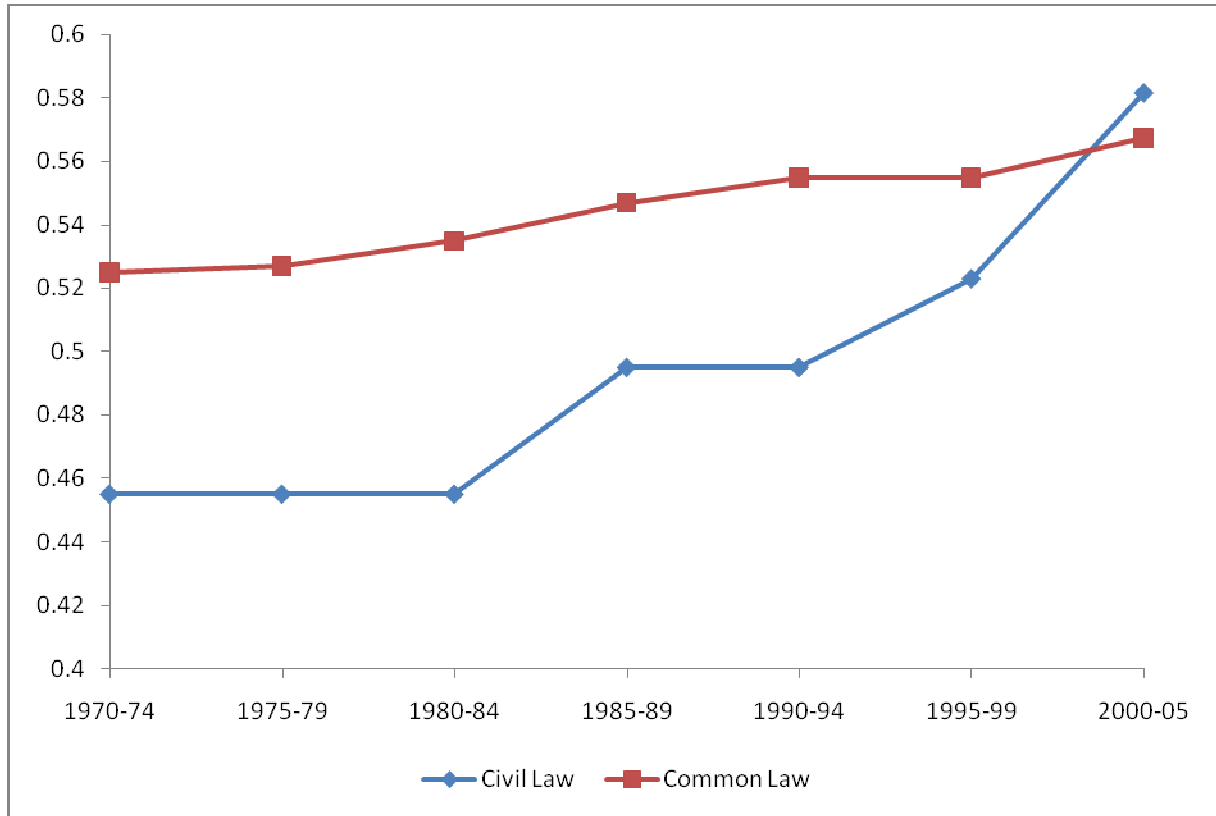


Figure 15
Stock Market Capitalisation (relative to GDP) in
Four OECD Countries, 1976-2005

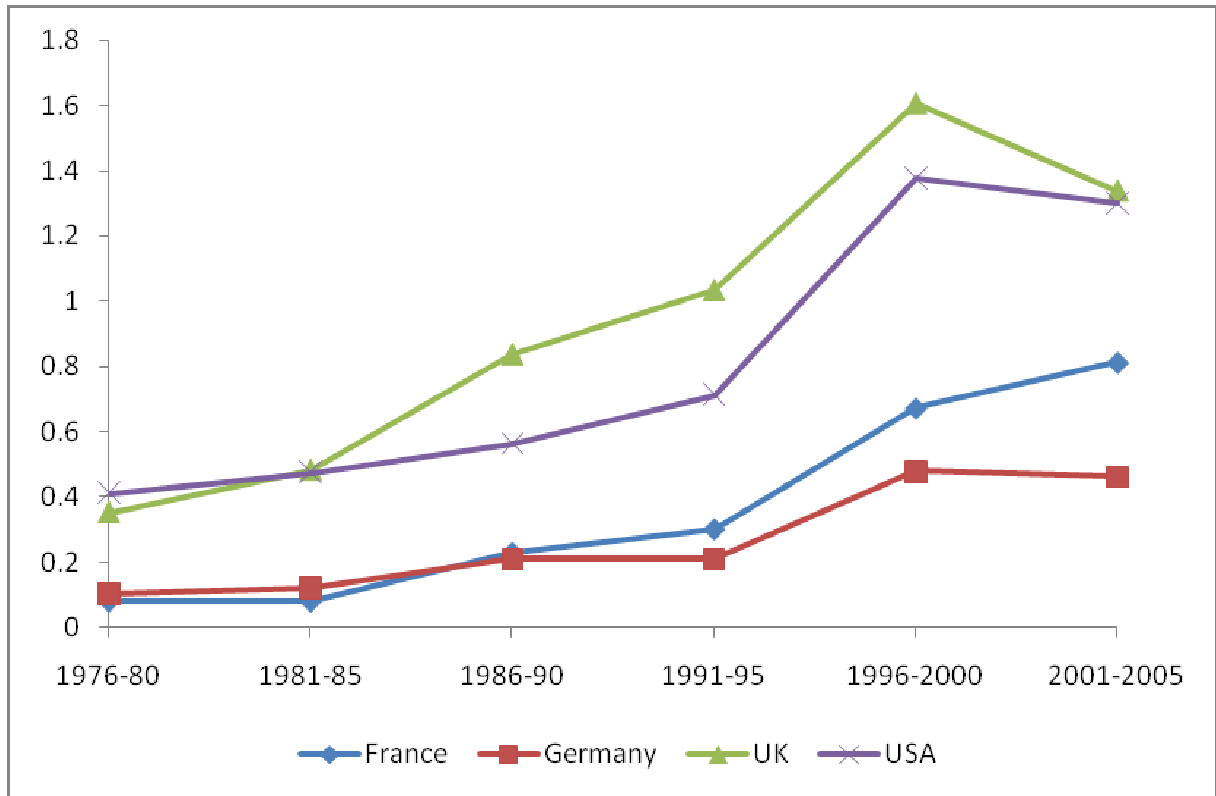


Figure 16
Value of Stock Trading (relative to GDP) in
Four OECD Countries, 1976-2005

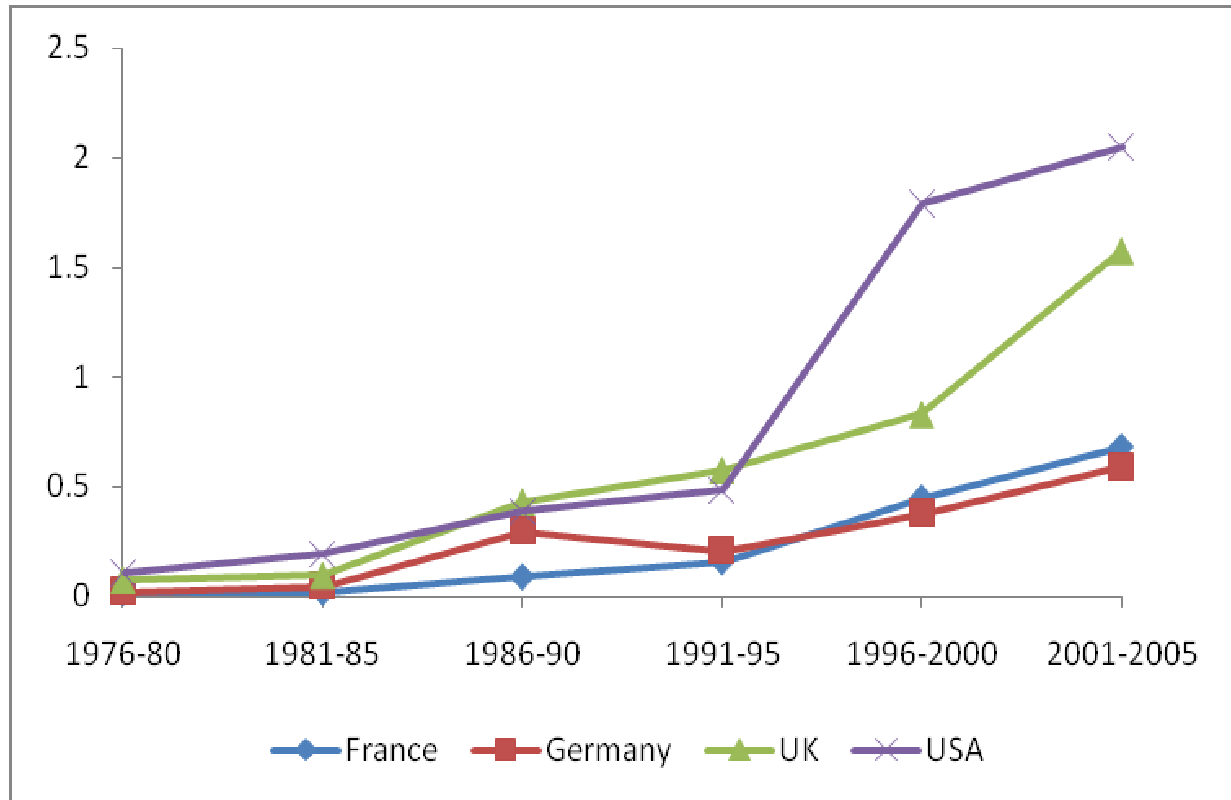


Figure 17
Stock Market Turnover Ratio in
Four OECD Countries, 1976-2005

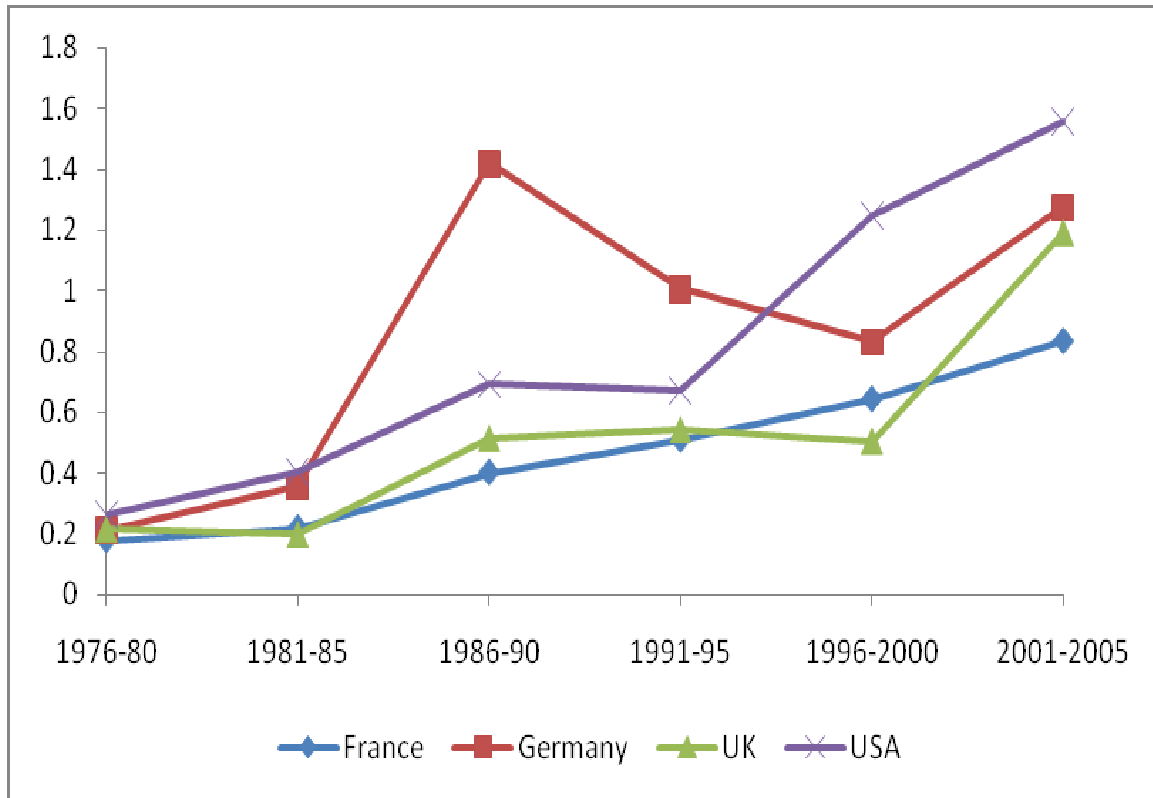


Figure 18
Stock Market Listing of Firms per Million of Population in
Four OECD Countries, 1980-2005

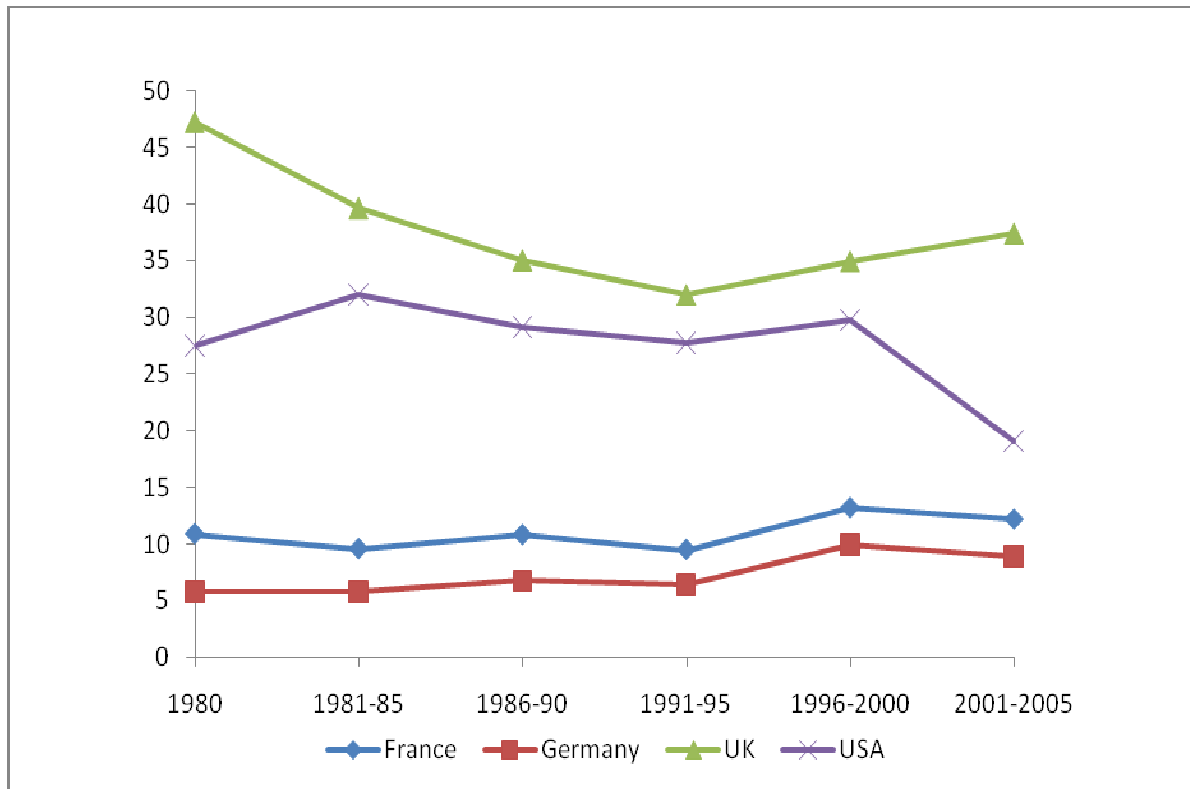


Figure 19
Bank Credit-GDP Ratio in
Four OECD Countries, 1970-2005

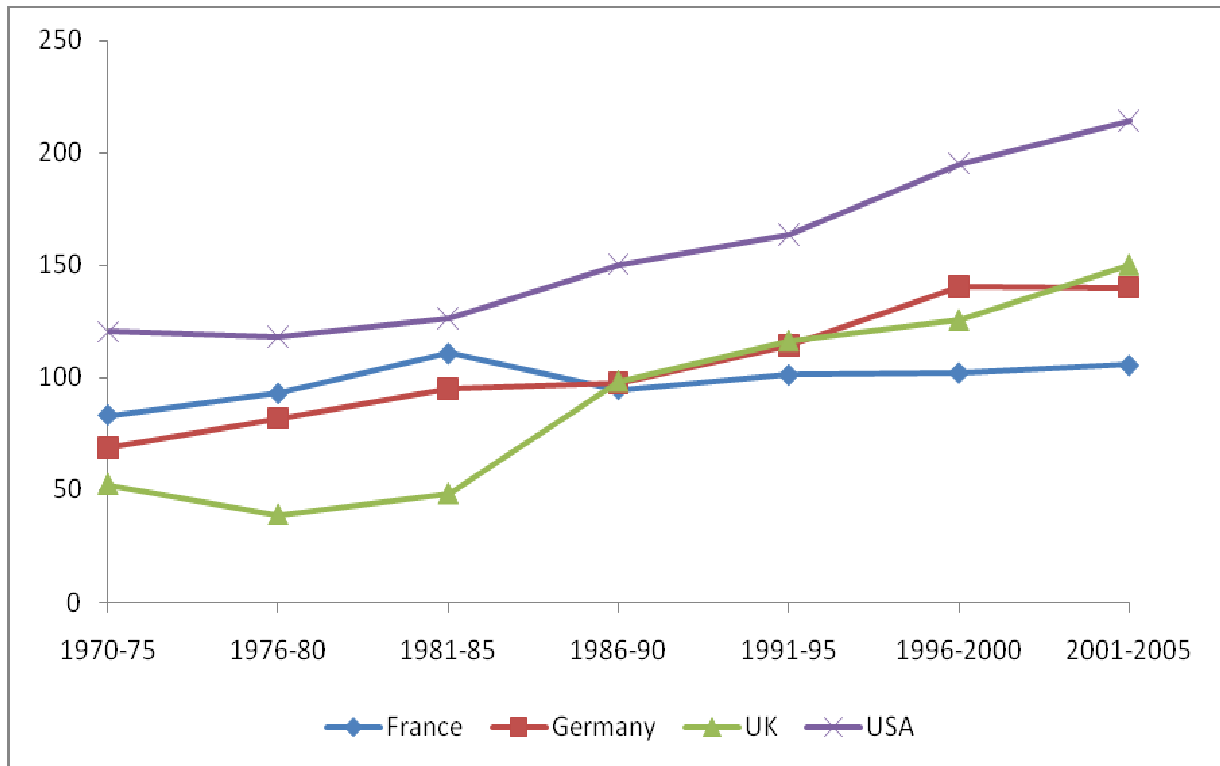


Figure 20
Private Credit-GDP Ratio in
Four OECD Countries, 1970-2005

