CENTER FOR THE STUDY OF
Economy & Society

Department of Sociology
327 Uris Hall
Cornell University
Ithaca, NY 14853-7601

CSES Working Paper Series

Paper # 42

Victor Nee and Sonja Opper

"Bureaucracy and Financial Markets"

2009

Bureaucracy and Financial Markets

Victor Nee*
Cornell University

&

Sonja Opper**
Lund University

Kyklos (February, 2009)

JEL Classification: H83, G18

* Goldwin Smith Professor of Sociology, Director, Center for the Study of Economy and Society, 330 Uris Hall, Cornell University, Ithaca, NY 14853

** Gad Rausing Professor of International Economics, Department of Economics and Economic Research Institute, P.O. Box 7082, SE-220 07 Lund

Abstract

Recent research on financial market development has focused on the nature of the legal system. The law and finance literature, however, exclusively focuses on the abuse of management power as a major cause of shareholder expropriation. We examine the role of the administrative capability of the state in providing and guaranteeing the institutional foundations for securities development. The characteristic feature of bureaucracy is predictable, calculable and methodical performance. Our analysis of the linkage between bureaucratic quality and financial market development confirms our hypothesis that arm's length finance not only needs a reliable legal environment, but also bureaucratic effectiveness (1) We provide evidence that state bureaucratic performance plays a crucial role in determining financial market development; (2) We find that legal origin plays an indirect role, as it affects the financial market development through the channel of the quality of state bureaucratic performance, but it does not exert a direct and independent effect.

Bureaucracy and Financial Markets[1]

I. INTRODUCTION

Modern economic growth is driven by large-scale corporate enterprises with the capacity for self-sustaining investments in technological innovation and factor productivity. In spite of the central role of corporations in the global economy, conditions of corporate and financial market development are not yet adequately understood. Anomalous cases are not well accounted for by legal origins theory, which emphasizes effectiveness of common law in protecting shareholders from expropriation by corporate insiders (La Porta et al. 2008). For example, why do some civil law countries such as Switzerland have market capitalization rates of more than 200% of GDP, while others such as Italy stagnate at less than 40%? And why are some of the newly industrialized countries able to rely so heavily on external funding, while so many developing countries are unable to institute financial markets?

Recent economic explanation of financial market and corporate development has focused on the incentive structure of shareholders and creditors. This principal-agent approach interprets the problem facing financial market development as arising from incomplete contracts between shareholders and management. The core dilemma is that monitoring of managers would involve considerable agency costs. As the risk of shareholder expropriation cannot be resolved through corporate governance structures internal to the firm (Hart 1995), law and finance scholars argue that corporations and financial market development depend on effective legal protection of shareholders and creditors (Shleifer and Vishny 1997).

The underlying logic of the law and finance literature is as straight-forward as appealing: Corporate laws provide shareholder protection against insider expropriation and thereby reduce agency costs that are naturally connected with a separation of ownership and control. In essence, appropriate minority shareholder protection is a precondition of ownership separation and enables the development of securities markets. Scope and effectiveness of legal protection of investments in corporations by shareholders indeed varies considerably across countries. In their seminal paper, La Porta et al.

[1] We are grateful for incisive comments on an earlier draft of this paper from the late John Freeman, Oliver Hart, Siegwart Lindenberg, Douglass C. North and Oliver Williamson. We thank participants of seminars and panels: at the Oliver Williamson Seminar Series, Haas School of Business, University of California at Berkeley; the Conference on the Future of the Social Sciences (2007); International Society for New Institutional Economics (Barcelona, 2006); European Economic Association (Vienna, 2006), American Economic Association (Chicago, 2007); and American Sociological Association (Montreal, 2007), where we presented our paper.

1997) find that shareholder protection across these four broad families of law—French civil-law, English common law, German- and Scandinavian civil law—differ widely and have a significant effect on the ability of businesses to fund investments through external sources. Comparative studies of corporate law extended the view that legal system origin is closely correlated with the extent of shareholder protection in empirical analyses of financial markets (Demirguc-Kunt and Maksimovic 1998).

However appealing the 'legal protection' framework may be, the theory did not remain without criticism. In response to the debate generated by their seminal articles, La Porta et al. (2008) provide a nuanced and balanced assessment of the empirical literature. While they address convincingly the cultural and political perspectives criticizing legal origins theory, they acknowledge that "the most difficult challenge to the hypothesis that legal origins cause outcomes has been posed by historical arguments" (p.315). Most importantly, the historical development of national stock markets does not conform well to the claim that increasing shareholder protection drives financial market development. Market capitalization of the US stock market for instance, already reached 80% of GDP in the late 1920s, when security regulation was almost absent. In spite of a wave of new securities laws and amendments specifying rules on voting rights, proxy contests (Holding Company Act 1935), and insider trading (section 14 of the 1934 Securities Exchange Act), the market remained within its earlier high of 80% of GDP until the mid 1970s. For a broader panel of 24 countries, Rajan and Zingales (2003) confirm that most countries were financially more developed in 1913 than in 1980 in spite of a general increase of legal shareholder protection in the same period.

Similarly, development of legal protection is not in line with the pattern of historical security market developments worldwide. In Amsterdam, home of the world's first stock market and stock company (the East India Company founded in 1602), formal shareholder rights were largely absent and much of the financial transactions were even prohibited by law. Securities trading relied on self-interest and self-enforcement (Stringham 2003). By the 1630s the Netherlands was already "a highly commercialized country with well-developed and innovative financial markets and a large population of sophisticated traders" (Garber 2001:23). Nonetheless, the Amsterdam Stock Exchange Association was not founded before 1851 to organize and regulate share trading. Also the London Stock Exchange did not receive its first codified rule book before 1812, while organized securities trading had started as early as 1698 and Brussels stock exchange worked for more than 100 years up to 1935 with minimal regulation. The observed pattern is widespread: the inception of securities markets

worldwide was usually not accompanied or even preceded by respective formal rules protecting shareholder rights. Company stocks were traded informally and transactions were treated as gentlemen agreements, often conducted in local coffee houses or open market places. Evidently the focus on legal origins provides a strong but nonetheless partial explanation of cross-country variation of financial market development.

Our approach builds on the fact that development of modern corporations and arm's length finance requires an institutional environment in which trust is not dependent on strength of personal ties, but more importantly on confidence of economic actors—individuals and firms—in the credible commitment of government in enforcing contracts, protecting property rights and facilitating markets (North 1981; Olson 2000; Tabellini 2005; Gwartney et al. 2006)**.** North and Weingast (1989) highlight the effect of political competition in limiting rulers from expropriating wealth from producers. As in legal origins theory, the emphasis is not focused on examining variability in the administrative capability of the state, but on the nature of the formal rules. Yet in modern capitalism, not only the legal system but also the bureaucracy enable *ex ante* predictability and calculability of decisions (Weber 1988:321). As Weber (1978) observed in his historical research on the rise of modern capitalism, predictable and methodical organizational action underlies complex transactions in markets and large-scale production in capitalist economies: "Today, it is primarily the capitalist market economy which demands that the official business of public administration be discharged precisely, unambiguously, continuously, and with as much speed as possible" (p.974).

Methodical and predictable bureaucratic performance in support of markets facilitates capital accounting and calculable risk-taking and hence, the development of large-scale capitalist enterprises. In this sense, public administration plays a crucial role in providing and guaranteeing the institutional environment for securities development and the separation of ownership and control. Our core argument is that the calculability of risks embedded in the institutional environment lowers transaction costs and promotes public trust in financial markets that provide external funding to corporations. Country case studies of the 20th century confirm that securities markets and owner separation typically develop when the state-firm interface is characterized by routinely performed, calculable, impersonal and rule-based transactions; in contrast, owner-management and family-owned firms prevail in the context of highly personalized and relationship-based state structures (Whitley 1999). Also, the historical account of stock trading seems to support a crucial role of the state. Whether the old commodities markets of Bruges, Venice, Genoa, or Pisa, or the early stock markets in Amsterdam, Brussels or London, they all developed in an atmosphere of reliable and

supportive public governance, which was trusted by merchants, traders and investors (North and Thomas 1973; Gelderblom and Junker 2004; Prak 2005; Greif 2006).

To examine the association between state bureaucratic performance and corporate development, we first explain why bureaucratic quality strengthens the state's effectiveness in establishing an institutional environment favorable to the development of modern corporations. Following, we use a sample of 56 national financial markets to test our hypothesis positing a positive connection between the quality of bureaucratic performance and capitalist economic development.

II BUREAUCRACY AND FINANCIAL MARKET DEVELOPMENT

Our model extends earlier studies supporting the crucial role of state bureaucratic performance for economic growth and development. Several studies have confirmed a linkage between various measures of government quality and economic growth (Knack and Keefer 1995; Lambsdorff 2003; Keefer 2008). Others have more closely explored the relations between distinct organizational features of public administration and economic development (Evans and Rauch 1999). Some have assumed that the transmission mechanism between institutional qualities and economic development lies in the emergence of financial markets (Olson et al. 2000), but a direct analysis of linkages between bureaucratic quality and financial market development has not been undertaken.

The essential feature of bureaucracy is that, as a formal, rationally organized institutional arrangement, its pattern of activity is integrated to the purpose and mission of the organization (Merton 1940; Wilson 1989). As a rule-governed hierarchy, bureaucracy is structured according to offices and a status system in which authority and obligations are specified and limited by formal rules. Accordingly, the bureaucrat's power to control resides in the office, and not in the person charged with performing the role. A bureaucrat's actions are perceived as legitimate if they occur within the framework of the formal rules governing the bureaucracy. This lends a quality of formality to the bureaucrat's behavior, which facilitates the smooth operation of a hierarchy in which formal rules integrate bureaucratic action to maximize ready calculability of mutual expectations and behavior. Because the bureaucrat's authority is defined and limited by the formal rules of the organization, subordinates gain a degree of autonomy from superiors. Moreover, formal rules contribute to administrative objectivity and hence restrain arbitrary and impulsive action.

Key institutional elements which contribute to predictability and calculability of bureaucracies are: Being rule-governed, such bureaucracy entails transparency in division of administrative duties which are inherent to the particular office. Each office is assigned a differentiated set of general rules specifying control and sanctions. The recruitment of bureaucrats is not by election, but by appointment according to technical qualifications which are metered by formal, impersonal procedures, generally by examinations. Reliance on formal education and civil service examinations in the recruitment and promotion of bureaucrats makes for more competent civil servants. Predictable and rewarding long-term careers enhance the quality of the bureaucracy in providing a structure of incentives that strengthens the corporate coherence of bureaucratic office-holding and reinforces the internalization of norms of professionalism. Merit-based promotions and conformity with norms of professionalism provide disincentives to corruption and incentives for honest behavior (Evans and Rauch 1999). These institutional elements account for bureaucracy's technical efficiency, especially the premium placed on precision, speed, expert control, continuity, discretion and optimal returns on input.

The pressure for methodical, prudent and rule-governed action in bureaucracies gives rise to an unusual degree of conformity among bureaucrats (Merton 1940; Stinchcombe 1965; Wilson 1989) and, according to Weber (1978), provides the basis for the most important feature of rational-legal bureaucracy: the impersonal application of formal rules. Incentive theory sheds light on how rigid compliance to the rule-book and pressure for conformity solve problems of adverse selection, moral hazards and incomplete contracting in government agencies. In this view, officials are motivated not so much by monetary incentives, but by interest in building reputation with the view to future promotion and career mobility. High ability officials demonstrate their ability through bureaucratic performance that emits visible signals of the official's capabilities. This in turn reinforces conformity to norms of professionalism since "lower ability officials are then forced to do the same in order not to reveal they are low ability, while they still have a chance of being perceived as having high ability if they are lucky in the mission" (Tirole 1994:13). The reliability of long-term commitments arising from such pressure for conformity to norms of professionalism among bureaucrats contributes to reducing uncertainty and to an institutional environment facilitating the calculability of risk-taking.

To highlight the linkage between bureaucratic quality and financial market development, let us consider in which way the two central bureaucratic tasks – (1) public

good provision and (2) rule enforcement constitute preconditions of corporate development and arm's length finance (Rajan and Zingales 2003).

A central role of government in providing an institutional foundation for modern capitalism is to provide in a routine and reliable manner essential public goods in return for tax revenue (North 1981; Wilson 1989; Barro 1991; Nee 2000). The quality of government bureaucracy can be readily inferred by examining its ability to deliver public goods.[2] The lack of routine public good provision causes a high degree of insecurity. Bargaining costs increase if economic actors need to lobby and rely on personalized transactions with political actors in order to secure a minimum provision of public infrastructure and services. Long-term-planning is impeded and expected agency costs of securities investments increase.

A second component of state bureaucratic performance is its technical capability for enforcement of rules governing market institutions (Rajan and Zingales 2003). This quality of a public administration enhances the effectiveness of bureaucracy and is reflected in the credibility of a state's commitment to long-term goals and policies, despite change in the composition of political leadership. Stable commitment to long-term goals and policies reduces uncertainty and increases calculability of government action. Calculability of government action, in turn, has direct feedback effects on a firm's transaction costs. Not only does commitment to rule-governed action lower the risk of state capture (Tirole 1994), predictability of state action also facilitates investment planning and profit forecasting, both being essential components to secure investor's trust.

Several features of rational-legal bureaucracy increase calculability and thereby facilitate long-term corporate planning and external finance:

Predictable and credible bureaucratic action. Predictable bureaucratic decisions are a core condition for medium and long-term corporate planning. In making plans regarding investment, innovation, expansion and so on, managers and shareholders need assurance that existing laws and regulations will be applied in a calculable and predictable manner. What for example, if licenses for a newly developed drug are not granted, although all formal requirements are fulfilled? What if marketing strategies are not approved, although they are in accordance with valid market regulations? Quite obviously, insufficient calculability of rule enforcement incurs undue risks to firms and shareholders.

Timely delivery of bureaucratic decisions. Effective bureaucracies provide dependable guidelines for ready access to the responsible bureaucrats and decision-makers, standardized

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[2] Rauch (1995) for instance confirmed a linkage between bureaucratic qualities and infrastructure provision for U.S. cities during the first two decades of the 20th century.

approval procedures and routine delivery of decisions. Empirical research confirms that timely delivery of bureaucratic decisions and lean bureaucratic procedures are critical features of a firm's business environment. Bureaucratic delays, for instance, cause periods of insecure rights; such uncertainty can impose high costs on corporations. Typical examples are delays in applications for licenses, and for patents and property registration. Particularly the ease of firm entry has been confirmed as an important determinant of firm productivity, investment and growth (Lansbury and Mayes 1996). A cross-country comparison reveals that related bureaucratic standards vary by a great margin. While for instance property registration takes just one day in Norway, it takes on average 965 days in Croatia (World Development Indicators 2004). Such delays can eventually impede investment projects, and critically affect a firm's market position. Similarly, delays in patent applications incur the risk of losing all development costs if a competitor is quicker to achieve patent protection. Hence, delays in bureaucratic decisions pose relatively high external risks which lower profit expectations and thereby may impede or at least hamper external fund-raising.

Fairness of bureaucratic decisions: Bureaucracy at its best assures equal and fair treatment of all actors without regard of the person. In this sense, the quality of a state's bureaucratic performance also extends to the quality of a market economy's regulatory structure. As an institutional innovation, rational-legal bureaucracy expanded the state's organizational capacity to uphold a broad and secure set of individual rights and maintain open markets through routine application of rationalized formal rules (Weber 1978). Bureaucratic quality also directly affects the performance of market-based corporate governance mechanisms, such as the market for managers, the take-over market and the product market (Hart 1995). Without effective and fair regulation, competitive pressure can be reduced, leading to weak external corporate governance.

In sum, the quality of bureaucratic performance affects the overall level of transaction costs evident in ease of calculability of risks in profit-making opportunities for economic actors. *The lower the bureaucratic quality, the higher the level of uncertainty faced by economic actors and the less calculability in both short and long-term planning for risk-taking. Hence, the institutional environment needed for the external finance of corporations depend on the quality of the state's bureaucracy* (hereafter, the bureaucratic quality hypothesis).

We should emphasize that bureaucratic quality is not to be understood as a lean and non-interventionist government. Interventionist governments may still have high quality bureaucracies delivering timely and rule-based services, which provide beneficial conditions

for corporate development. For instance, several of the East Asian developmental states have clearly been interventionist, but interventions have been executed by reliable and rule-compliant bureaucracies (Evans 1995).

III EMPIRICAL EVIDENCE

1 Data

To investigate the effect of bureaucratic quality on financial market development, we use four distinct data sets and approaches to measurement. Our main analysis uses data from the *World Bank Governance Database* (Kaufman et al. 2005), which provides an aggregate indicator based on 17 different sources measuring bureaucratic quality for the period of 1996 to 2004. For our robustness checks, however, we use three alternative measures of bureaucratic quality: the International Country Risk Guide's (ICRG) index of bureaucracy; the bureaucracy-index compiled by the International Management Institute for the World Competitiveness Yearbook (IMD), and the Weberianness' indicator constructed by Evans and Rauch (1999). Additional variables stem from the *World Development Indicators Database* (World Bank). Overall we have complete data for 56 countries with national stock markets. We follow the common practice in not including transition economies since stock market development in these new market economies is only a recent phenomenon.

Dependent Variables

We use three different outcome variables. To assess the size of financial markets, our main measure is the ratio of stock market capitalization to GDP (henceforth called market capitalization) to assess the breadth of stock markets. In order to soften short-term variations due to price fluctuations, we apply a 3-year average of the years 2001-2003. In our sample, market capitalization ranges from a low of 2.68% for Bangladesh to 212.16% for Switzerland, with a mean value of 57% (see Appendix). In addition, we use the number of listed firms relative to the country's population as an alternative indicator for cross-country comparisons of stock market development and market breadth (La Porta et al. 1997). In our sample, the total of domestic firms ranges from 1.21 per capita (million) for Ghana to 197.40 for Cyprus, with a mean value of 26.7 (see Appendix). In order to assess the extent to which domestic firms are competitive in a global setting, we calculate the proportion of a country's total number of listed firms, which is listed in the Forbes 2000 index.

Independent Variable

Building on a wealth of empirical research on government bureaucracies, Wilson (1989) shows, that the quality of a state's bureaucracy is revealed by the quality of public service provision and policy formulation. We employ the indicator from the *Governance Database* of "government effectiveness" hereafter *bureaucratic quality* since it is in fact defined as "the quality of public services, the quality of the civil service and the degree of independence from political pressures, the quality of policy formulation, and the credibility of the government's commitment to such policies" (World Bank 2006). It thereby provides the closest measure of quality of bureaucratic performance as being composed of (1) quality of public service provision and (2) competence of bureaucracy in terms of rule enforcement. Index values of bureaucratic quality range from -2.5 to 2.5, whereas higher values indicate higher quality. As an aggregate indicator estimated through an unobserved component model the index currently provides the least noisy signal of the underlying notion of bureaucratic quality.[3] Correlation coefficients between individual survey indicators and the aggregate measure are above 0.70 (Kaufman et al. 2007); also it is well documented that the country rankings based on aggregate indicators are robust to alternative weighting schemes (Kaufman et al. 2006).

To reduce potential endogeneity bias we constructed lagged average values for a six year time period from 1996 to 2002. In using average values, we assume that short-term changes in bureaucratic quality will not cause immediate adjustments of the financial market breadth and firm development. Instead, bureaucracies' reputation-building typically takes a considerable time. We also experimented with using lagged values for the year 1996 (the earliest measure available), but without systematic effects on our key findings. Significance levels of our bureaucracy measures are the same, whereas coefficient values and explanatory power decrease. Our ambition to mitigate short-term endogeneity issues, however, does not rule out that the causality between bureaucratic quality and financial market development runs both directions in the longer run. Clearly, financial market development will – through its growth generating effect - generate public interest in high-fidelity bureaucracy and also

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[3] First of all, the indicator is based on different data sources, including international organizations, government organizations, NGOs, universities and commercial consultancies. Secondly, the indicator builds on both objective and perceptions-based measures, thereby relying on the full range of assessments. Bureaucratic quality is therefore likely to capture the underlying concepts of rationalization of state bureaucracy and bureaucratic performance. In contrast, reliance on one or a few proxies would only capture one specific dimension of the underlying concept. And thirdly, the different data sources employ a variety of different respondents ranging from foreign experts and country analysts to individuals and national firms, thereby mitigating the risk of response and perceptional biases. The model estimates the observed data as a linear function of the unobserved common component, while a disturbance term captures perception errors and sampling variations. For a more detailed discussion of the estimation procedure refer to Kaufman et al. (2005).

increase the state's capacity to improve standards of bureaucratic quality. Once established, rational-legal bureaucratic organizations are self-enforcing institutions with endogenous capability to remain stable in changing environments. Notwithstanding this, the process of economic development indirectly leads to incremental improvement in the quality of bureaucratic performance. For example, as per capita investments in public education increases, the stock of human capital available for government service improves.

Across our sample, average values for bureaucratic quality range from minus 1.144 for Nigeria to a maximum value of 2.426 for the Netherlands, with a mean value of 0.79.[4] Average values indicate that Scandinavian-origin countries score by far the highest, with mean values of bureaucratic quality as high as 1.97. Second follow German-origin countries, with 1.55. English-origin countries score slightly higher than French-origin countries, which score the worst with a mean value of 0.54. The correlation coefficient for bureaucratic quality and legal system origin is quite small, with -0.08 (see Appendix).[5]

Figure 1 presents scatterplots illustrating the simple bivariate relationships between bureaucratic quality and the three dependent variables measuring dimensions of financial market development. Although the relationship between bureaucratic quality and the national proportion of firms listed in Forbes 2000 becomes quite loose, all plots show the expected positive relation between government bureaucracy and financial market development.

Insert figure 1 about here

Bureaucratic quality is of course not a truly exogenous variable but is determined by some underlying, yet not well understood determinants. It is not the focus of our research to understand the deeper causes of bureaucratic quality, but to highlight the linkage between bureaucratic performance and financial market development. Our robustness tests, however, will further explore the direction of causality.

Control Variables

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[4] Our sample includes the following countries: 1) Common law countries: Australia, Bangladesh, Botswana, Canada, Cyprus, Ghana, India, Ireland, Israel, Jamaica, Kenya, Malaysia, Namibia, New Zealand, Nigeria, Pakistan, Saudi Arabia, Singapore, South Africa, Thailand, Trinidad and Tobago, United Kingdom, United States; 2) German origin civil law countries: Austria, Germany, Japan, Korea, Switzerland; 3) French origin civil law countries: Argentina, Belgium, Brazil, Chile, Columbia, Cote d'Ivoire, France, Greece, Indonesia, Italy, Jordan, Lebanon, Marocco, Mauritius, Mexico, Netherlands, Peru, Philippines, Portugal, Spain, Tunisia, Turkey, Venezuela; 4) Scandinavian law countries: Denmark, Finland, Iceland, Norway, and Sweden.

[5] Complete correlation tables are available upon request from the authors.

To isolate the impact of bureaucratic quality on the development of financial markets, we further include a set of control variables. Following the law and finance literature, we include legal origin. La Porta et al. (1997, 1998) gave evidence that common law countries enjoy the highest level of shareholder protection against expropriation by insiders and thereby offer entrepreneurs better terms of external finance. Securities are valued higher and capital markets are broader in the sense of stronger demand for equity finance. To control for this legal-system effect we include a dummy variable controlling for English-origin legal systems.[6]

In addition, the size of the economy may have some impact on the development perspectives of domestic firms and financial markets. The theory is that economies of scale might actually drive the development of financial markets. To control for the size effect we include log (GDP).[7] Furthermore, we control for the country's geographical location, as earlier work suggests it may help to explain financial market development (Beck and Levine 2004). Latitude specifies in absolute terms the distance to the equator and serves as a proxy for the country's natural endowments and disease environments (Acemoglu et al. 2001).[8]

2. Regression Analysis

For purpose of comparison, we essentially follow the regression technique and model-specification chosen in the seminal contributions on law and finance. As in La Porta et al. (1997, 1998) we apply a cross-section OLS-analysis. Table 1 presents a series of OLS-regressions on our measures of financial market development on various controls and bureaucratic quality. We also estimate the base model without bureaucratic quality measures.

Models I and II present the effects on market capitalization to GDP. The result of Model II is consistent with our hypothesis that bureaucratic quality is an important determinant of financial market development. State bureaucratic quality is not only positive and significant at the 1-percent level; the slope coefficient also indicates a particularly strong influence on the degree of market capitalization. A one standard deviation change of bureaucratic quality corresponds to a 0.78 standard deviation change of market capitalization.

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6 We also ran all our regressions with three dummies indicating legal system origin (i.e. French-origin, German-origin, and Scandinavian-origin). All our results were confirmed.

7 Following La Porta et al. (1997), we also experimented with GDP growth over the last two decades as an additional control variable. However, neither the explanatory power of our model increases, nor are coefficient estimates and significance of our bureaucracy performance indicators affected.

8 Furthermore we experimented with a whole set of additional controls including annual GDP growth, secondary schooling (Rauch & Evans 2000) and trade openness (Rajan & Zingales 2003). Estimates for bureaucratic performance remain significant, but the overall explanatory power of our model decreases.

Bangladesh, the country with the lowest market capitalization in our sample, for instance, could – everything else being equal – increase its market capitalization rate from 2.68% to 37.62%, with an increase of bureaucratic quality by one standard deviation (from -0.558 to 0.432, which is approximately the level of South Africa). Overall, bureaucratic quality explains as much as 27% of the cross country variation in market capitalization (the adjusted R^2 jumps from 18% for the base model to 45%).

Regressions on listed firms in relation to the total population confirm our findings on market capitalization. In model IV, bureaucratic quality again turns out to significantly (at the 1% level) influence the number of listed firms. A one standard deviation increase of bureaucratic quality is connected with a 0.66 standard deviation increase of listed firms relative to population. That is, all things being equal, if Ghana could increase bureaucratic quality from -0.056 to 0.934 (close to the level of Israel and Malaysia), the number of listed firms relative to population would increase from 1.21 to 25.92. Again, the explanatory power of the model including bureaucratic quality surpasses the benchmark law and finance model by a great margin, with adjusted R^2 of 32% as compared to 14%.

Insert table 1 about here

Finally, our estimates on the national representation in the Forbes-2000 index (model VI) support the hypothesis that high bureaucratic quality provides fertile grounds for globally competitive firms. State bureaucratic quality exerts a significant positive but smaller influence (at the 5%-level). A one standard deviation increase in bureaucratic quality increases the Forbes-representation only by 0.23, lifting for instance 0.01% of Bangladesh's listed firms into the Forbes-Index, if bureaucratic quality increases from -0.558 to 0.432. The overall explanatory power of our model, however, still increases slightly compared with the base model.

As to the control variables of our model, the estimated effects of legal-system origin deserve particular attention. In contrast to the common notion that English origin legal system supports financial market development, it loses its significantly positive effect once bureaucratic quality is included in the model. In one case, our estimates even show a significant negative impact of legal-system origin (model VI). From this one might infer that agency costs due to management malfeasance (and the respective legal protection) are indeed a lesser concern of shareholders, while state bureaucratic performance plays a stronger role in containing agency costs of ownership separation. At this point we could only hypothesize

possible explanations. We will, however, come back to this point in our robustness checks (see table 3).

A comparison of the explanatory power of our base models and models including bureaucratic quality suggests that the crucial effect of bureaucratic performance lies in the support of overall financial market deepening, which may subsequently provide the conditions to develop into globally competitive corporations.

3. Robustness Checks

We perform checks on the robustness of our findings along five dimensions. First, we respond to potential criticism against the chosen measure of bureaucratic quality and employ alternative indicators of bureaucracy. Then, we investigate whether the results of our benchmark model are caused by outliers. Furthermore, we explore the impact of country development; in addition we experiment with a different model specification to separate the underlying concept of bureaucratic quality from possibly related, but not identical concepts. Finally we employ instruments in order to deal with the potential (though limited) risk of reverse causality.

Measuring bureaucratic quality is necessarily a highly disputable endeavor, as "the government suffers from not having any clearcut measure of efficiency like accounting" (Tullock [1965]2005: 348). It follows that any measurement concept will be disputable and reflects to some extent political or ideological positions. While most indicators still show significant overlap in their coverage and are indeed highly correlated, they could still cause critical variations of our regression results. We re-estimated our benchmark-model with three alternative bureaucracy indicators. First of all, we used the bureaucracy index provided by the International Country Risk Guide (ICRG), which is a widely accepted indicator in the institutional growth literature (Knack and Keefer 1995; Olson et al. 2000; Seldadyo et al. 2007). Then we included the bureaucracy-index compiled by the International Management Institute for the World Competitiveness Yearbook (IMD), which mainly relies on expert opinions delivered from CEOs.[9] In order to further explore the appropriateness of the underlying concept of bureaucracy we employed the Weberianness' indicator constructed by

[9] It is worthwhile noting that both indices were criticized for validity problems, as expert opinions on bureaucratic quality might be easily tainted by economic performance (Evans and Rauch 1999). Hence, good bureaucratic ratings might be expected for high-performing countries, while bad ratings might be suspected for low-performing countries. To assess such a risk we have calculated the correlation coefficients between ICRG, IMD and annual growth rates of gross domestic product, but found negative correlation coefficients (ICRG: -0.47; IMD: -0.22). We can therefore rule out that ICRG and IMD are simply reflections of an optimistic business outlook.

Evans and Rauch (1999), which is – in contrast to other indicators – exclusively based on distinct organizational features of state bureaucracies (i.e. meritocracy based recruitment and predictable career paths), but does not include the "quality of production" of public administrations. Our regression results suggest two major findings.[10] Findings of our benchmark model were clearly confirmed for ICRG- and IMD-indices. The Weberianness measure, however, was only statistically significant in one case with consistently weaker explanatory power for all three dependent variables. This finding emphasizes, consistent with our hypotheses, that it is actually the quality of bureaucratic output and performance that helps to contain agency costs and supports financial market development, but not distinct features of the state organization alone.

Figure 1 has illustrated that all financial outcome variables include a couple of extreme values, which could possibly distort our overall estimation results. As a conventional cut-off point we used Cook's D larger than 4/n to identify extreme outliers and re-estimated all regressions. That is, for our regression on market capitalization we excluded Switzerland, Malaysia and South Africa; for the regression on listed firms in relation to population we excluded Singapore, Cyprus, Canada and Iceland, and for our estimates on the determinants of firm representation in the Forbes 2000 index we excluded the Netherlands and Italy. All our regressions confirmed the findings in our benchmark model presented in table 1. The level of significance was maintained in each of the cases and only the values of the estimated slope coefficients varied slightly. We can therefore rule out that the results of our benchmark model are driven by outlier values (regression results are available from the authors).

Due to the heterogeneity of our sample countries, one might suspect that significant positive effects of bureaucratic quality result from the rather strong variation between developed and underdeveloped economies included in our sample. In order to verify whether bureaucratic qualities still play a decisive role in the developed world, we re-estimated our model for a sub-sample of developed countries. As a benchmark, we included those countries which have at least one company ranked in the Forbes-2000 index. This reduced our sample to a total number of 27 relatively developed countries. In comparison with the original sample, the mean market capitalization increases from 56% to 84%, and the mean of bureaucratic quality increases from 0.78 to 1.30 (std. dev. 0.85). Our results confirm the previous estimates. Once again we find significant and positive effects of bureaucratic quality on financial market and the development of large-scale corporate enterprises. The estimation

[10] Estimation results are available from the authors.

results for the smaller panel also confirm our earlier findings on the subordinate role of English origin legal systems, once bureaucratic quality is included.[11] Under inclusion of bureaucratic quality, legal system origin has in none of our estimates a positive effect.

We have also explored whether our estimations results are sensitive to different model specifications. Theoretically, bureaucratic quality might simply mirror the existence of efficient and growth-promoting shareholder rights. If this were the case, our results would merely reflect the positive effects of security laws implemented and enforced by effective governments. In order to separate our bureaucratic measure from the provision of appropriate security laws, we further extend our model by two more control variables, both widely-used proxies of shareholder protection: the Anti-Director Rights-Index (ADR) and a dummy indicating whether the securities law specifies "one-share-one vote" (data from La Porta et al. 1997). As their dataset differs from our own sample, the inclusion of these variables reduces our sample to 42 countries.

Table 2 presents the estimation results. Even after inclusion of specific shareholder rights, bureaucratic quality still has a significant positive impact on market capitalization and the number of national corporations. Only in the Forbes-model (Model VI) does bureaucratic quality turn insignificant at conventional levels, though the slope coefficient still has the expected sign. In none of our three estimates including measures of bureaucratic quality, shareholder rights exert the assumed positive effects on financial market development. In one case the impact of anti-director rights even gets significantly negative (column VI).[12] We take these findings as an indication that it is particularly bureaucratic quality that provides shareholders with the necessary institutional security enabling arm's length finance of the modern corporation.

Insert table 2 about here

Our inferences made so far may to some extent suffer from the fact that our measures of bureaucratic quality are not truly exogenous. Thus, bureaucratic quality might be influenced by omitted factors that also influence our outcome variables. If such an unobserved factor actually determines both explanatory and outcome variables, our estimates would be biased and inconsistent. One approach to deal with this endogeneity issue and to eliminate the

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[11] Estimation results are available from the authors.

[12] Theoretically, the additional inclusion of an indicator assessing rule of law would be ideal, as security-measures only depict *de jure* legislation but not the quality of law enforcement. High correlation with bureaucratic quality would, however, lead to inaccuracies due to multi-collinearity. Including it nonetheless does not eliminate the significance of bureaucratic quality.

omitted-variables bias is to apply instruments that are correlated with the explanatory but not the outcome variables.[13]

Country size, as measured by area, provides a valid instrument. While theory and empirical evidence are not conclusive whether large country size yields positive or negative effects on bureaucratic quality, country size is increasingly perceived as a determinant of policy choices. On the one hand, small countries may benefit from smaller heterogeneity and may find it easier to respond effectively to citizens' preferences; on the other hand, large countries may benefit from economies of scale for public goods provision as long as the administrative territory does not overextend (Alesina and Spolaore 2005).[14] Our correlation tests show a significant correlation of log(territory) with bureaucratic quality (-0.24). As there is also no direct effect from territory on market capitalization, country surface qualifies as a technically appropriate and theoretically/empirically well founded instrument.

Insert table 3 about here

Table 3 presents our results, which confirm our benchmark model (table 1). Only for the Forbes model (III), the level of significance of our bureaucratic quality variable drops slightly below conventional levels, but coefficients are still significant at the 15% level. The value of slope coefficients increases consistently over all estimations. The Hausmann-test confirms that our earlier OLS-estimates were actually consistent.

As to our control variables, English legal origin remains insignificant in all second stage regressions; in one case (III) it is again significantly negative. Also latitude is consistently insignificant, while it was significant in our OLS-benchmark model (Table 1). Hence, both control variables do not exert an independent and direct effect on corporate and

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[13] Good instruments should not only satisfy the condition of strong correlation with the explanatory variables while having no direct effect on the outcome variable beyond its effect on the endogenous regressor; they should also "come from detailed knowledge of the economic mechanism and institutions determining the regressor of interest" (Angrist and Krueger 2001). However, theory-building and research on the causal mechanisms explaining the quality of bureaucratic performance are still in their infancy. Only few reliable findings have been produced in recent years. While La Porta et al. (1999) found that religion has some explanatory power on the quality of government as measured by specific concepts such as corruption and public goods provision, it did not qualify as a valid instrument. Similarly, we had to rule out social protests as a valid instrument. For other common indicators such as ethnolinguistic fractionalization and language heterogeneity, which are both correlated with bureaucratic quality, the direction of causality is not entirely beyond doubt.

[14] Economic history provides ample examples on the close relation between territorial expansion and governance. To the extreme, the excessive expansion of states led to the demise of state power; Chinese dynasties collapsed when the empire's administrative reach was overextended, and France's territorial expansion in the sixteenth and seventeenth century hampered economic development as political administration became inefficient.

financial market development. The first stage results reported in table 6 show that both control variables affect financial market and corporate development through their impact on bureaucratic quality. Our estimates on legal origin are consistent with previous work by La Porta et al (1999), who found a strong influence of legal system origin on diverse measures of government performance. This would suggest that development effects of legal system may actually stem from its effect on the bureaucratic quality. Such a channel of causation seems plausible as distinct legal systems work as rough proxies for the traditional political orientation of governments and colonial heritage (La Porta et al. 1999; La Porta et al. 2008). While the English common law tradition aims at limiting the power of the sovereign, French civil law was built to be a powerful tool to further the power of the state. Historically shaped bureaucratic structures and quality of public service provision may possibly mirror these broad political orientations.[15]

IV DISCUSSION AND CONCLUSION

Comparative analysis of financial markets and corporate development has so far focused on the causal effect of legal systems differences in protection of shareholder rights of common law and civil law countries. While we agree that legal protection of investors and creditors play a crucial role in solving corporate governance issues stemming from the separation of ownership and control, this perspective overlooks an important complement of financial market and corporate development: the administrative capability of the state.

Overall, our findings suggest the need to reassess a core assumption of legal origins theory. Our analysis of the linkage between bureaucratic quality and corporate development confirms our hypothesis that arm's length finance needs a well-functioning bureaucracy characterized by predicable, calculable and methodical performance. We provide robust evidence for a close linkage between bureaucracy and finance. La Porta et al. (1997, 1998) assume that the differences in the letter of the law matter with respect to strategy of addressing principal agent relations between investors and creditors and corporate insiders. In their view, common law emphasizes solutions to principal-agent problems by private markets, while civil law turns to the state for securing allocation outcomes. In assessing the law and finance literature, La Porta et al (2008: 309) acknowledge that although "all countries mix the

[15] Diagnostic tests do not suggest that our estimates might suffer from weak instruments. The F-statistic for all first-stage regressions are well above the threshold of 10 suggested by Staiger and Stock (1997). Our two-stage LS results are confirmed in our extended model specification including anti-director rights and one-share-one-vote as additional independent variables. Estimation results are available upon request from the authors.

two approaches," nonetheless, "the differences between legal origins are deep enough that we observe them expressed in the different strategies of social control of economic life even after centuries of legal and regulatory evolution. Perhaps because the legal system is such a difficult-to-change element of social order, supported by legal institutions, human capital, and expectations, legal origins survive both time and transplantation. This, we submit, is what gives them explanatory power." The problem with this view is it overlooks the very substantial variation in the administrative capability of states to secure credible commitment to the letter of the law.

The law and finance literature emerged from a standard agency model on corporate governance, which focuses on transaction costs that arise from information asymmetries between shareholders and managers as described by the work of Berle and Means (1932). Our approach emphasizes that it is the endogenous capacity of rational-legal bureaucracy for predictable, calculable and methodical public administration that enables the development of modern corporations and financial markets. The fact that legal origins theory consistently loses its explanatory power when combined with bureaucratic quality measures is noteworthy and may even suggest a relative dominance of state governance over corporate governance explanations. Notwithstanding this, before advancing our preliminary finding to general conclusions on the relative merits of law and bureaucracy, disentangling of direct causalities from proxy-effects and indirect causation is a central task for future research. This also involves the disaggregation of distinct components of bureaucratic quality to help move beyond the rather broad measurement concepts currently available.

Our findings also invite some practical policy advice. In light of the crucial role of bureaucratic quality, it is questionable whether privatization and restructuring of state-owned firms into joint-stock firms may provide a viable and growth-promoting strategy, if minimum standards of bureaucratic quality are not yet satisfied. The problem is particularly critical for transition and developing economies, which often lack the respective bureaucratic qualities necessary for financial market and corporate development. Romania, for instance, has nowadays about 4500 listed firms, whereas market capitalization does not even reach 10%. The task for policy advisors would therefore be to take into account whether countries have the bureaucratic capacity to provide the necessary institutional environment for corporate development. It is not by accident that many of the countries of the East Asian growth economies relied in their early development stages on family-owned firms rather than on the Western-style modern corporation. Family firms with their intense network of personal ties

across business and state hierarchies are much more prone to survive than larger firms, if the state-firm interface is not structured by transparent, impartial and impersonal relations.

Similarly, lingering financial markets and lagging corporate development might simply reflect the poor status of overall bureaucratic quality, which impedes good management and thereby renders ownership separation as too costly. Cures are therefore not only to be sought in the financial market sphere, as specified by new rules of corporate governance such as shareholder rights and changes in board compositions. On a national basis, it might well also involve broader reforms that help improve overall bureaucratic quality.

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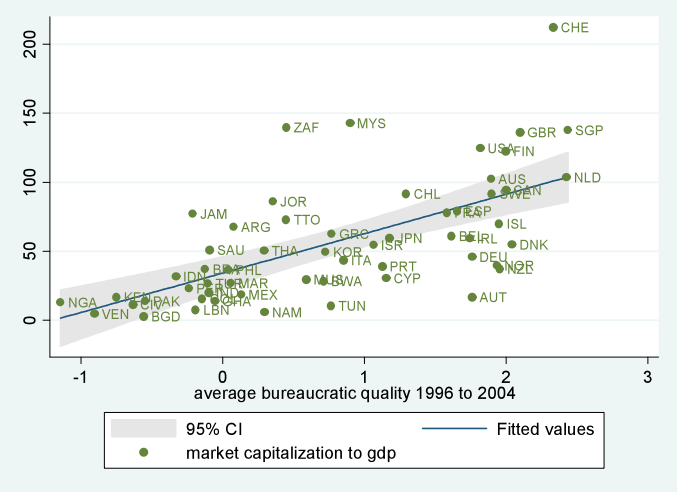
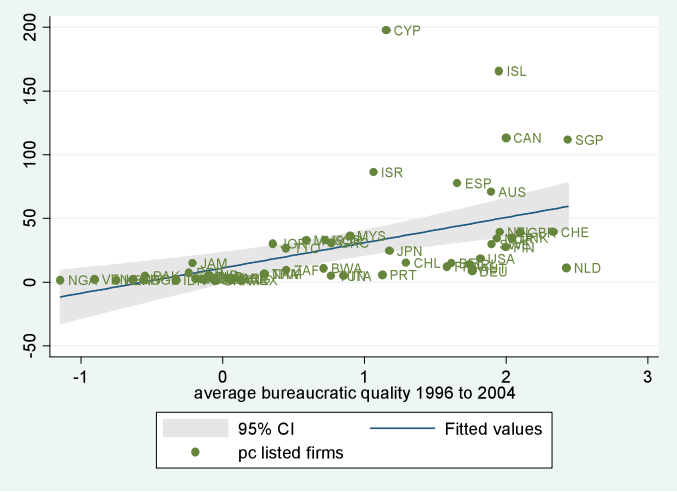
Figure 1: Scatterplots (with 95% confidence interval) of financial market measures and bureaucratic quality





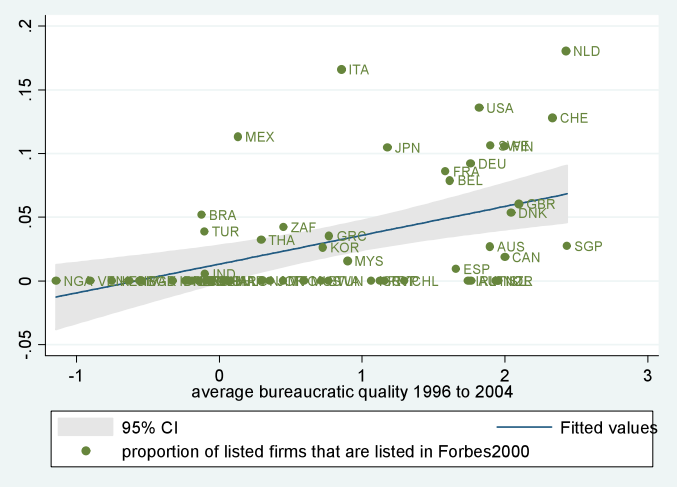


Table 1: Ordinary Least Square Regression: Financial development and bureaucratic quality, 56 countries

	Market capitalization		Listed firms per 1 million people		Total of national Forbes 2000 listed firms/total of national firms (%)	
	I	II	III	IV	V	VI
Log(GDP)	7.467***	4.481**	-4.918	-6.552	0.013***	0.013***
	(2.421)	*(2.215)*	*(4.001)*	*(4.129)*	*(0.003)*	*(0.002)*
Latitude	0.668*	-0.731**	0.939**	-0.106	0.0005	-0.0002
	(0.336)	*(0.309)*	*(0.437)*	*(-0.389)*	*(0.0003)*	*(0.0002)*
English-origin legal system	21.765**	11.117	22.982**	14.712	-0.010	-0.015*
	(9.950)	*(9.119)*	*(10.741)*	*(9.46)*	*(0.008)*	*(0.009)*
Bureaucratic quality (lagged)		34.862***		26.645***		0.012**
		(6.447)		*(4.572)*		*(0.006)*
Intercept	-60.300**	-4.642	45.495	79.003*	-0.139***	-0.128***
	(24.931)	*(26.051)*	*(37.500)*	*(40.671)*	*(0.026)*	*(0.028)*
Adj. R-square	0.180	0.445	0.135	0.321	0.411	0.435

White's Heteroskedasticity-consistent standard errors are given in brackets.
One asterisk denotes statistical significance at the 10% level; two at the 5% level; three at the 1 percent level.

Table 2: Ordinary Least Square Regression: Financial development, bureaucratic quality and regulatory quality, 42 countries

	Market capitalization		**Listed firms per 1 million people**		**Total of national Forbes 2000 listed firms/total of national firms (%)**	
	I	II	III	IV	V	VI
Log(GDP)	1.429 *(4.274)*	0.166 *(3.876))*	-1.305 *(2.759)*	-1.889 *(2.383)*	0.019*** *(0.004)*	0.019*** *(0.004)*
Latitude	-0.351 *(0.409)*	-0.710* *(0.383)*	-0.437 *(0.302)*	-0.603** *(0.231)*	-0.0001 *(0.0003)*	0.0001 *(0.0003)*
English-origin legal system	12.479 *(11.874)*	9.418 *(10.672)*	15.090 *(9.390)*	13.676 *(8.706)*	0.004 (0.013)	0.003 *(0.015)*
ADR	4.274 *(5.768)*	-0.074 (5.841)	2.034 (2.516)	0.025 *(2.128)*	-0.014*** *(0.005)*	-0.015** *(0.005)*
One share one vote	31.315 *(7.896)*	-31.262 (25.700)	23.109*** *(5.695)*	-5.805 *(7.698)*	0.011* *(0.006)*	-0.003 *(0.021)*
Bureaucratic quality (lagged)		63.377** (27.378)		29.284*** *(8.841)*		0.014 *(0.021)*
Intercept	18.210 *(52.486)*	49.156 *(48.391)*	25.498 *(35.628)*	39.798 *(30.830)*	-0.182*** *(0.050)*	-0.175*** *(0.053)*
Adj. R-square	0.266	0.416	0.361	0.436	0.462	0.454

White's Heteroskedasticity-consistent standard errors are given in brackets.
One asterisk denotes statistical significance at the 10% level; two at the 5% level; three at the 1 percent level.

Table 3: Two-Stage Least Square Estimates: Financial development, bureaucratic quality, 56 countries

	Market capitalization	Listed firms per 1 million people	Total of national Forbes 2000 listed firms/total of national firms (%)
	I	II	III
Panel A. Second-stage			
Log(GDP)	4.288* *(2.377)*	-7.009 *(4.230)*	0.012*** *(0.003)*
Latitude	-0.826 *(0.497)*	-0.322 *(0.731)*	-0.0005 *(0.0007)*
English-origin legal system	9.431 *(9.783)*	13.109 *(9.513)*	-0.019* *(0.011)*
Bureaucratic quality (lagged)	36.603*** *(11.855)*	32.062** (15.064)	0.026 (0.017)
Intercept	-0.133 *(30.396)*	87.485* *(45.617)*	-0.106*** *(0.036)*
Adj. R-square	0.4432	0.3123	0.3964
Panel B. First Stage for Endogenous Variable (bureaucratic quality)			
logGDP		0.189*** *(0.057)*	
Latitude		0.035*** *(0.005)*	
English-origin legal system		0.332* *(0.175)*	
Log(territory)		*-0.173**** (0.047)	
Intercept		-0.477 (0.638)	
F-Statistic		22.76	
Adj. R-square		0.6128	

Estimates with robust standard errors.
Instrumented: bureaucratic quality
Instruments: loggdp, latitude, origin, logarea
One asterisk denotes statistical significance at the 10% level; two at the 5% level; three at the 1 percent level.

APPENDIX**: Core Variables**

	Market capitalization (average 2001-2003)	**Listed firms per 1 million people** (2004)	**Total of national Forbes 2000 listed firms/total of national firms (%)** (2004)	**Bureaucratic quality** (average 1996 to 2004)
Australia	102.15	70.67	2.70	1.896
Bangladesh	2.68	1.78	0.00	-0.558
Botswana	28.36	11.04	0.00	0.714
Canada	94.39	113.12	1.87	2.000
Cyprus	30.39	197.40	0.00	1.154
Ghana	13.62	1.21	0.00	-0.056
India	31.71	5.30	0.53	-0.100
Ireland	59.31	13.78	0.00	1.742
Israel	54.32	86.10	0.00	1.066
Jamaica	76.90	14.77	0.00	-0.210
Kenya	16.69	1.59	0.00	-0.750
Malaysia	142.61	36.21	1.56	0.898
Namibia	5.85	6.47	0.00	0.296
New Zealand	37.33	39.15	0.00	1.956
Nigeria	12.75	1.46	0.00	-1.144
Pakistan	13.77	4.72	0.00	-0.546
Saudia Arabia	50.95	3.11	0.00	-0.092
Singapore	137.52	111.76	2.74	2.436
South Africa	139.61	9.30	4.23	0.452
Thailand	50.27	6.53	3.21	0.292
Trinidad a. Tobago	72.81	26.72	0.00	0.448
United Kingdom	136.19	38.95	6.06	2.098
United States	124.57	18.21	13.58	1.818
English origin mean	***74.45***	***40.43***	***1.63***	***0.722***
Austria	16.61	10.63	0.00	1.762
Germany	45.73	8.29	9.21	1.760
Japan	59.44	24.42	10.46	1.178
Korea	49.38	32.62	2.62	0.726
Switzerland	212.16	39.32	12.80	2.334
German origin mean	*76.66*	*23.06*	*7.02*	*1.55*
Argentina	67.48	2.83	0.00	0.078
Belgium	60.89	14.64	7.89	1.616
Brazil	37.05	2.08	5.17	-0.124
Chile	91.72	15.22	0.00	1.296
Columbia	15.43	2.56	0.00	-0.144
Cote d'Ivoire	11.40	2.26	0.00	-0.634
France	77.79	12.10	8.57	1.584
Greece	62.51	30.73	3.54	0.770
Indonesia	19.88	1.55	0.00	-0.330
Italy	43.49	4.70	16.61	0.854
Jordan	86.07	30.32	0.00	0.354
Lebanon	7.52	2.89	0.00	-0.190
Marocco	26.95	1.76	0.00	0.058
Mauritius	29.39	32.79	0.00	0.590
Mexico	18.62	1.55	11.32	0.132
Netherlands	103.60	11.28	18.03	2.426
Peru	22.83	7.26	0.00	-0.238
Philippines	36.28	2.87	0.00	0.038
Portugal	38.90	5.65	0.00	1.126
Spain	79.04	77.64	9.40	1.658
Tunisia	10.45	4.64	0.00	0.766
Turkey	26.59	4.02	3.87	-0.104
Venezuela	4.50	2.10	0.00	-0.906
French origin mean	***45.89***	***15.47***	***3.17***	***0.536***
Denmark	54.86	34.69	5.35	2.042
Finland	122.61	27.26	10.56	1.998
Iceland	69.78	165.51	0.00	1.952
Norway	39.62	34.21	0.00	1.936
Sweden	91.58	29.46	10.60	1.900
Scandinavian origin mean	***75.69***	***58.22***	***5.30***	***1.966***