The financial crisis of 2008 in the United States laid bare the hidden network of relationships in corporate governance regarding who owes what to whom, who will stand by whom in times of crisis, and what the obligations and rules are for the provision of credit when no one seems to have credit. The very nature of systemic risk depends on these relationships. Many learned that the moment of failure is not when credit runs dry, but when partners and friends turn out to be arm’s-length transactors after all and refuse to lend. For others, when banks honored their implicit lines of credit to preferred customers, crisis tested and reinforced bonds.

The word credit derives from the Latin credere—to believe, to trust. And well it should, for it is on trust that money is lent and borrowed against future interest payments and that investment in equity is made against a promise of future dividends and capital gains. The history of financial markets shows that personal trust is usually not enough, and that creditors and investors will require more—that is, some kind of recourse. However this recourse is defined, it falls under the label of “governance”—meaning the powers that are given to investors and creditors to ensure they are paid back with an expected return they deserve.

There is an impressive history that indicates that innovations in governance have important effects on the conduct and performance of commercial and nonprofit organizations. In the Western world, the origins of partnerships date back to ancient times and the Romans already were experimenting with traded shares on partnerships (Malmendier, 2005). Of the many financial innovations introduced by the Dutch, the public stock company as constituted by the Dutch East India Company is surely one of the most important—even if plagued by governance conflicts (De Jong & Roell, 2005; Erikson & Bearman, 2006). By the 1800s, the joint stock company was introduced in many industrializing countries, along with high rates of failure and again governance issues (Foreman-Peck, 1990; Freedeman, 1979). The twentieth century witnessed a quantum leap in the available governance technologies—the modern venture capital investment is a beautifully constructed pyramid of ordered and contingent claims on control and cash flow (Gompers & Lerner, 1999).
No wonder then that the approach of financial economics to governance is to focus on the contracts that contain particular rights to cash flows and to control rights for a given a state of the world, such as bankruptcy (see, e.g., Tirole, 2005). For example, creditors may provide credit that is more senior than other kinds of credit; thus, in the event of default, they are the first to recover their investment. Investors who control equity shares in public firms rely more directly on the board and their directors to ensure the good direction and management of the firm as well as the payment of dividends to shareholders. These types of control rights are codified in laws that vary by country, and they also can vary by the corporate charters of a company, which can determine voting rules of boards, the powers of classes of shareholders, and the duties of directors.

These rights to control often do not correspond proportionally to ownership (i.e., cash-flow) rights. Many companies are governed by rules that violate “one share, one vote.” Even where formally shares translate proportionally into votes, some shareholders may be privileged due to large equity stakes they hold, their political ties, or the power of their families or of the business groups to which they belong. It becomes clear quickly that the formal contract approach to governance, however important, does not capture the many social and political factors that influence the control over the investment in corporations and businesses.

The conventional claim of this book is that social networks influence corporate behavior and governance. A social network is a community that consists of agents who might be people or firms and the ties among them. Such entities have structure, or topologies, that can be characterized by formal properties. These properties include the density of connections of those situated in neighborhoods, or the path length between one agent and another. While abstract, local density of ties and highly connected people corresponds closely to the popular concepts of “small worlds” or “boys’ clubs” that often characterize the world of business and politics.

The studies in this book are by and large not concerned with figuring out what determines better outcomes. There is an analytical price to be paid for focusing on trying to figure out the determinants of better or worse governance. Business groups do appear to sometimes be bad and they also appear to sometimes be good, but this dispute misses the point that their evolutionary origins lie in reasons separate from the teleological claim that some people wish to exercise control or govern in ways to advance their interests even if they harm other interests. An evolutionary perspective is a “because of” argument and focuses on mechanisms; teleology is an “in order to” argument and focuses on outcomes. In the best of worlds, mechanism and outcome would be logically joined; they are often not, as Milton Friedman noted in his famous essay “The Methodology of Positive Economics,” which clearly emphasized the accuracy of prediction of the outcome over the determination of mechanism. This book is principally about promoting an attention to mechanisms.
The following chapters utilize two methodological designs to provide an evolutionary perspective on the institutional and political fabric of countries. The first relies on what I call “comparing the comparative statics.” By looking at the decade of the 1990s, we seek to identify common experiments as “structural breaks” and then to trace their impacts. Instead of being designed around single countries, the chapters in this book look comparatively at the changes in the properties of networks and governance in response to selective breaks. For example, the economic idea of privatization that swept many countries in the 1980s and 1990s transferred state ownership to private control, thus disrupting historical ties and causing new links between owners and firms and between corporate boards. However, the decision to privatize did not have the same consequence in all countries. Thus, by focusing on a common shock, we are able to evaluate why countries behaved similarly or differently.

The second methodology, which plays a less prominent role in the book in terms of page numbers, represents the more provocative and bold innovation. In the language of complex systems, the causal explanation is achieved by satisfying the criterion “Can you grow it?” What does it mean to say France evidences “French governance”? Rather than refer to the long arm of path dependence, we would like to know if indeed it is true that a financial crash 300 years ago led to behavioral attitudes that say “Don’t put your money into equity and don’t become an owner.”

The generative test is to see if this rule in fact “generates” a society that has the attributes that we consider to define France. Explained at this level of ambition, the project seems foolhardy. However, there is good reason to think that great insight can be achieved.

In recent years, the study of social networks has evolved from a staple industry of sociology to a subject of interest in computer science, applied physics, economics, and other natural and social sciences. Part of this interest reflects the interest in understanding how microbehaviors (e.g., social rules of who marries whom, who buys what, etc.) govern the evolution of the topology of the network. In turn, the network structure influences the opportunities available to agents. The mapping of rules to outcomes frames the object of research less as a search for statistical causes than as the identification of social mechanisms that couple individual motivations and structural opportunities as explanations for macropatterns in society. Social mechanisms are factors that generate the phenomena of interest. The study of network structures provides concise insight into important social and economic behavior of powerful actors and the governance rules that guide their actions to exploit opportunities.

These two methodological approaches are complementary. Evaluating comparative statics uses the change in network statistics as a way to measure the impact of particular structural breaks on countries and then to rely on qualitative knowledge.
to evaluate the differences among countries. Generative social science is more explicitly causal, trying as in any modeling exercise to generate the logical, even if stochastic, outcomes from behavioral and exogenous assumptions, and asking if they correspond to the evidence.

This application of innovative methodologies to a tried subject of governance is the subject of this book. Our explicit comparative and generative approach distinguishes the book from other studies on governance or country studies of corporate networks. Using tools recently manufactured by studies on complexity and social networks, we pursue the mechanism signatures found in the variance of national governance networks, as defined by their ownership ties and interlocking directorates. The research design qualitatively uses the impact of “structural breaks,” such as globalization, to explore the response of economic actors to globalization and policy interventions. In this sense, the research design is a “comparison of comparative statics”—we compare how countries have responded to common interventions. The subsidiary aim of the book is to provide data, measures, and analytical tools to move the economic sociology of comparative national systems into the forefront of any serious attempt to understand globalization and the evidence for convergence and nonconvergence of systems of corporate governance.

**Globalization, Structural Breaks, and Hitchhiker Genes**

Of course, in many ways, comparative studies on governance and globalization have been speaking the prose of generative social science all along. Globalization takes on many forms. Most simply, it is the growth in trade and international investment among countries that has sometimes exceeded the growth in national indicators. It can also be the adoption of ideas (e.g., mass culture) or of institutions (e.g., stock markets and corporate governance). But in the end, the displacement of national control by transnational actors explains the interest in globalization.

Globalization is a type of intervention that allows us to identify the differences in national systems and their evolution over the period in question. If sufficiently large, we call this intervention a “structural break.” An example of a structural break without globalization was the shift in the United States from sourcing capital from banks to raising finance in secondary markets. Jerry Davis and Mark Mizruchi have shown that this shift in financing led to a rapid fall in the power of banks and gave rise to institutional capitalism—such as mutual and pension funds. No longer needed for their capital, banks contributed fewer directors to corporate boards—thus the structural break led to changes in network structure. For many countries, globalization is the force effecting structural changes. These changes include the adoption of particular economic policies, such as privatization or foreign direct
investment in the form of transnational acquisitions by which foreign owners disrupt business groups and historical clubs.

The structural break described by Davis and Mizruchi (1999) redressed a major weakness in the American corporate governance system. The famous study by Berle and Means in the 1930s countered decades of passionate arguments that the United States was dominated by the “money trust,” as once investigated by the Pujo Commission in 1912. Instead, by the 1930s, the problem facing America was quite the opposite: ownership was so dispersed that shareholder control could not be exercised. Who then controlled the managers?

The eventual response in the financial economics literature was to point to the rise of institutional investors in the United States who were believed to exercise a modicum of control because they had sufficient financial incentives to do it. This argument has proved suspect, for the simple reason that it has been extremely hard to show that financial incentives are sufficient for these investors to monitor. For stocks for which there are liquid markets, investors can exercise control by exit—why put up with the expense of trying to control by “voice” through active monitoring and board participation? Moreover, many investors were conflicted. Some mutual fund companies also managed the pension funds of the companies in which they invested; not surprisingly, they were not anxious to vote against management that made the decision to whom to grant the pension investment business (Davis & Kim, 2007).

The inability to locate confidently who controls the American corporation presents the finance literature on corporate governance with a puzzle. Despite the studies on the poverty of remedies for the lack of control in the American system of dispersed ownership, the U.S. system is often praised for its governance, leading to the development of active financial markets, shareholder protection, and economic growth. And yet these two streams of findings on the United States (its inherent governance failures and its financial market development) have not been reconciled.

Nor is this puzzle unique to the analysis of the U.S. system. Whereas U.S. governance suffers from weak shareholder oversight, most other non-Anglo systems are governed in the context of powerful and concentrated shareholders, leaving minority shareholders exposed. In their excellent review of governance in Sweden, Agnblad, Berglöf, Högfeldt, and Svancar (2001) confess to puzzlement over a contradiction. Sweden, like most countries in the world, has concentrated owners and minority shareholders. The puzzle for Sweden is not who controls the managers, but who prevents these owners from abusing the minority shareholders. Agnblad, Berglöf, Högfeldt, and Svancar conclude they do not know how abuse is prevented but they propose the possibility of a social mechanism:
Minority protection should be understood in a larger context of corporate governance, which in turn comprises a large number of mechanisms affecting how market signals affect corporate decisions. Shareholders are only one of the stakeholders influencing these decisions, and formal legal provisions and enforcement are only some of the governance mechanisms. An important but poorly understood element of the Swedish corporate governance model is the reliance on informal enforcement mechanisms with considerable formal discretion for controlling shareholders. In particular, concerns over reputation and social status limit minority abuse. (p. 251–252)

These “informal mechanisms,” I propose, are the missing elements in the study of governance. The reconciliation of the U.S. paradox or of the continental Europe paradox is to be found in the social networks that, via clubs called “small worlds,” constitute the hidden dimension of corporate governance. However prone to major governance scandal and abuse, the U.S. system works because the social ties among directors compensate for the dispersion in ownership control—or so is the claim. In Sweden, governance functions because small worlds among owners provide effective governance. In this sense, there is a functional equivalence between different modalities by which governance is exercised. A possible equivalence examined in this book is between ownership and board-director interlocks.

Interlocking directorates have been an important subject in the sociological tradition in the analysis of corporate control. Boards are required for all public corporations and consist of inside directors (meaning the management) and outside directors (those who are not management). Outside directors are responsible for the vast proportion of interlocks; thus, ignoring the distinction between inside and outside does little harm to the analysis of these networks (Mizruchi, 1996). Ceding the loss of control by dominant shareholders in the United States, sociological studies have focused on the high degree of interlocks among boards that reflect an elite social stratification as well as a structure influencing the opportunities and resources available to actors. For example, Palmer, Barber, Zhou, and Soysal (1995) found that interlocks between banks and companies promoted friendly, as opposed to hostile, takeovers. An analog of this finding was identified in the German context, whereby takeovers were promoted by ownership ties to central actors, including state governments (Kogut & Walker, 2003).

The sociological and economic literatures have thus diverged on the sources of control and governance in the United States, though their focus on the rise of institutional investors and corporate boards represents a commonality. The missing-owner conundrum moved studies closer to investigating the power of boards to control. The fundamental difference between these two disciplines has been that economics has focused on direct ties (the owner or the board) as opposed to the structure of these ties captured in the sociological phrasing of interlocking directorates. As a consequence, whereas sociology has seen a U.S. economy marked by dispersed owners but structured by board interlocks, the economics
literature has seen an atomized market economy stylized as the Anglo-Saxon model of governance.

The lack of interest in social structure in economics has had an important consequence. The difficulty of observing social networks obfuscated the causal relations of practice and performance and potentially led to mistaken inferences. The triumphant return of the United States to leading levels of productivity and per capita wealth in the 1990s led to a search for the secrets of American economic success and its imitation globally. Globalization is often argued to be a saccharine term for “Americanization,” which has been underway since the early 20th century. The history of technological diffusion to Europe has been marked by seeking out the good practice from the correlated practice, or what the evolutionary theorist John Holland (1975) would call a “hitchhiker gene.” The danger of a hitchhiker gene for analysis is that it is easy to assign it causal status just because it happens to be “there.” It is also easy to dismiss if found to be inconsequential, or what in genetics is called “neutral,” in one temporal and spatial context (i.e., in one country at one given time). However, as the context changes, this hitchhiking gene may well share the causal steering wheel—this is the challenge of discerning causality when there are interactions among potential causes.

Hitchhiker genes and neutral genetic change raise a flag of caution in the impressive tendency for researchers to claim causal victory and to point to the “one best way.” The American advantage in productivity and in wealth creation mesmerizes observers and leads to ever-changing proposals for causality. The breakup of conglomerates in the United States under the ideology of the market economy encouraged a Western hostility to business groups in emerging economies and a concern over their rise in transition economies. The rise of the Silicon Valley and Internet economy focuses attention on the role of venture capital as a governance mechanism for wealth creation; the subsequent rise of private equity and hedge funds steers attention to concentrated ownership in private firms. The high ground of arguments for the superiority of American public corporate governance is abandoned.

As long as the United States is viewed as the outcome to be explained and imitated and as long as the causes for this outcome are many, the potential to cite erroneous causes with no true causal implication other than that they were spotted hitchhiking on the American roadside at the time remains tempting and probable. It is odd, though, that factors that recently got onto the bandwagon (such as venture capital) should be used to explain an outcome in evidence for over 100 years. This is a literature that is too fascinated by correlation at the cost of common sense.

The search for other genes has consequently extended to more time-invariant factors, such as culture and religion. The Weberian agenda—however much criticized, it remains ever present—was not simply that values determined capitalist
behavior. The interplay of individual and structure is central to sociology. In his *Protestant Ethic and the Spirit of Capitalism*, Max Weber gave a subtle structural argument in asserting that Protestant values became common to whole groups of actors (Weber, 1930). This subtlety left room for cultural heterogeneity as well as individual deviations from aggregate descriptions, thus not falling prey to the so-called ecological fallacy of forcing aggregate and individual data to agree.

The logic of religious values directly influencing action appeals to the economists’ predilection for individual preferences guiding economic choice, but it insufficiently values the precondition of social structure. This complaint lies at the heart of Mark Granovetter’s (1985) celebrated essay on the defects of both atomized and structurally constrained views of economic action—the distinction of agency and structure to which I referred earlier. Granovetter’s resolution was to propose that action as agency is neither individualistic nor structurally determined, but instead is performed by individuals embedded in social structures; action is embedded in structure. For beliefs and values to matter, they need not be held by a majority of actors, but by those actors lodged in a small world that enables them structurally to seize opportunities through their privileged access to the resources.

I will propose that treating relations among owners, firms, directors, and boards as small worlds corresponds to this emphasis on clubs, or more precisely clusters of people or organizations structurally positioned to exercise power. Before defining technically small worlds and proposing a sociological approach to governance, it is helpful to anchor this discussion in three important lines of work on governance: the economics and law of financial market development, institutional complementarities, and the politics of governance. The contributions of these approaches have been considerable; my ambition is to add a sociology of governance as an additional leg.

**Law and the Legal Origins of Governance**

Governance is best thought of as consisting of two related but distinct sets: a set of practices, such as independent directors on the board of directors, and a set of institutions constituting the social and political system, such as the rule of law or politics. Governance as practice and governance as a system are obviously closely connected. Legal systems dictate rules regarding the protection of minority shareholders—thus systems and practices are surely though imperfectly interconnected.

Systems and practices of government are the outcomes of historical contentions and bargains among competing groups. History provided one polar outcome to some of these struggles, namely, communism, in which ownership was largely held by the state; the state held concentrated ownership. At the other extreme, an
idealized counterexample is pure capitalism, marked by atomistic markets among competing private agents. Much of the early debate on governance was marked by this contention between a failed economic system and an idealized capitalist system that nevertheless, left unregulated, no country has tolerated for very long.

Many treatments of governance focus on practices only and posit that governance is exercised in the interests of shareholders (see Tirole, 2005). This perspective treats shareholders as “residual claimants” to whom are accrued the returns on their investments—after paying other claimants, such as workers, debt holders, suppliers, the government, and so on. Because all of these economic factors and their claims on compensation influence the residual income, the concept of governance as pertaining to the rights of shareholders is narrow, though facilitating analysis and evaluation.

The focus on contracts depends of course on their enforceability, which cannot always be assured by private ordering. Recourse to law is often necessary. From the point of view of comparative analysis—trying to understand the difference in governance and its effects across many countries—the quality of law then is a logical explanatory candidate, for it is important both to contractual enforceability and, as a system-level trait, to explaining country differences. The contribution of La Porta, Lopez-de-Silanes, Shleifer, and Vishny in the late 1990s was to broaden the financial economic understanding of governance to include the quality of the legal system (La Porta, Lopez-de-Silanes, & Shleifer, 1997 La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998).

The immediate work focused on the relation of the origins of formal law. La Porta et al. (1998) provided evidence, subsequently much contested, that the common law of Anglo-Saxon countries was a causal factor in the development of financial markets and entrepreneurship. The subsequent article proposed empirically that legal provisions to protect minority shareholders permit the evolution of large public firms with diffuse owners; when such provisions are lacking, concentrated ownership prevails (La Porta et al., 1998). A more recent paper found that companies’ valuations suffered in countries with low valuations, but valuations improved if the dominant owner also held high cash-flow rights (La Porta, Lopez-de-Silanes, Pop-Eleches, & Shleifer, 2002).

I noted earlier that causal analysis is easily troubled by the hitchhiking-gene problem. To be more precise, the hitchhiking gene is hard to identify because of three important challenges to comparative analysis of corporate governance: multilevel analysis that takes into account the hierarchical distinction of macroinstitutions and micropractices, complementarities and identification of the appropriate outcomes, and multiple equilibria.

The multilevel and hierarchical property is apparent in our definition of corporate governance. (By multilevel, I do not mean the use of statistical hierarchical model-
ing, which could be an appealing design given sufficient data, though.) Compare two types of arguments. The first states the causal claim that performance is the outcome of a practice, such as the independent director, and this practice diffuses across countries. If we observe this diffusion but see differences in outcomes, we either reject the causal claim or we appeal to an interaction—two practices are needed together to cause an outcome. Many studies might claim that independent directors are only effective in conjunction with other practices, such as shareholder elections of directors. There is also another kind of interaction: that between a practice and a system. A practice may be only effective in particular systems, such as those that have a rule of legal protection for minority shareholders.

This multilevel hierarchical property is quite important, for clearly what works in one country may not work elsewhere. Of course, there is also interaction among elements, called institutions, in a system. These interactions permit complementarities, whereby increasing one element favors increasing the other; they are substitutes, whereby increasing one elements favors decreasing the other. Governance presents three levels of analysis to determine interactions: practice and practice (e.g., independent directors and separation of board chair and CEO); system and system (e.g., corporate law and antitrust regulation or powerful boys’ clubs); practice and system (e.g., shareholder rights in the corporate charter and a securities regulator). The possible combinations increase in $2^n$, where $n$ is the number of practices and institutions. Since $n$ is large (there are many practices and institutions to consider), no factorial design can be saturated given the limited number of countries that exist (and surely given the number for which we have data).

In many situations, an institution may be neutral insofar as it has no causal effect on an outcome given other institutions and practices; however, this neutral status can change abruptly if other elements of the system (e.g., liberal capital markets) change (Kogut, 2000). This difficulty in identifying causality is massive and calls for methodological caution. Statements as to sufficiency and necessary causes are considered the reductive goals by macrohistorical sociologists (see for example the useful review by Mahoney, 2004), and yet the requirements for their identification are unlikely to be fully met in the context of high-dimensional complexity. Yet this complexity permits an informed contextual understanding of potential counterfactuals that might alter the accepted narrative. Simulations, as will be argued in chapter 8, may be useful to this exploration but so are expert accounts of a limited number of cases (Ragin, 1987).

Multilevel and comparative institutional analysis is quite sensible and has been implicitly adopted in the law and economics literature on comparative governance systems. The error in the later literature has been to neglect complementarities and multiple equilibria. Multiple equilibria reject an equifinality that all systems despite
varied historical bargains converge to the same outcome, or suffer performance consequences. Ron Gilson (2000) has proposed that similar functions can be delivered by different forms, meaning that countries can differ in their institutions and yet achieve similar performance. This nice phrasing captures the sociological concept of functional equivalence, as developed by Robert Merton (1957), which is a primary workhorse in comparative analysis. Multiple equilibria are another way of saying functional equivalence: multiple institutional configurations are possible.

Given these properties, it is to be expected that the strong form of the law and finance literature is handicapped by a belief in one right way—what can be called silver-bullet theories (Cornelius & Kogut, 2003). Eager to identify a functional theory that pinpoints best practices, this literature unreasonably expects to find simple relationships between governance and performance. The very complexity of the combinatorial landscape, growing exponentially in the number of practices and institutions, defeats any linear, hill-climbing argument that ignores complementarities. The difficulty of pinpointing linear relations between a feature of a system (e.g., law) or practice (e.g., minority protection) is notorious in studies looking at national comparisons. It is not unique to the study of corporate governance. If such a linear relationship existed, countries might “hill climb” from bad to better practices. There would be no dips in the landscape, no traps, and the only explanation for failing to climb would be the (linear) factors that prevent a country from reaching the one best way.

A multilevel test is fairly onerous on data and is not surprisingly rather rare. One research strategy is to hold the system constant and let practices vary. A study of a single country implicitly utilizes this design. Even in this highly restricted case, the findings on the efficacy of practices are mixed. The premium attached to theorized better practices has been found by some studies (see Gompers, Ishii, & Metrick, 2003) and not by other studies (Larcker, Richardson, & Tuna, 2005). One suspects that good governance in these studies means “ease by which the practices permit the company to be taken over”; during acquisition waves, the premium goes up, and during market turndowns, the premium goes down.

An inverse strategy is to hold constant the firm and let the system vary. One way to gain insight into the complementarities between firm and system is to study what happens when a foreign firm lists on a foreign exchange. The functional convergence hypothesis outlined by John Coffee (2002) proposes that foreign firms can leapfrog their countries’ weak legal institutions by listing equities in the United States and voluntarily abiding by U.S. securities law. The study by Jordan Siegel (2005) suggests that reputational bonding better explains the success and failure of cross-listings than legal bonding. Using a sample of Mexican firms that listed on the Mexican Stock Exchange, Siegel found that, for those cross-listed, the SEC enforcement had
little punitive ability to punish Mexican firms for theft of assets. Rather, the primary cost was the detriment to valuation. It is not legal institutions, concluded Siegel, but market forces that provide deterrence to fraudulent behavior.

After a decade and more of research on the law and economics of governance, the situation appears far more complex than what many thought. There has been no “silver-bullet” finding that says business groups are bad, Anglo law leads to better governance and economic performance, and dispersed ownership trumps concentrated ownership. The research by Daniel Berkowitz and Katarina Pistor indicates more subtly that the extension of legal systems (e.g., Anglo or French) to other countries often does not have the same performance consequences, unless the indigenous legal systems were already predisposed. This result suggests that there are unobserved complementarities between imported and indigenous institutions.

There are two inferences to be made from the above studies. The first is the conservative response that the data are not sufficiently good. More recently, efforts have led to better and more accurate measures of legal systems, such as those by Spamann (2010); see also the excellent review by Ahlering and Deakin (2007). The more penetrating inference challenges the equivalence of formal law and the normative values and political interests that determine the practice of law. Law “on the books” is not a good guide to law “in practice” or more generally to how law is adapted to the national context (Milhaupt and Pistor, 2008). In other words, the triumphalist law and finance claim that all national governance systems converge to a single equifinal institutional equilibrium is simply not right.

Politics and Institutional Complementarities

What then is missing from this account of the effect of law on governance? An obvious candidate is politics, whereas I will later propose society. While accepting that legal institutions matter, Mark Roe (1994, 2003) has proposed that politics trumps law. We should expect then to see multiple equilibria—that is, successful systems of governance operating by different combinations of institutions. Roe denies the Anglo system of governance is the only best way.

Contrary to teleological arguments that economic and technological innovations determined governance institutions, Roe (1994) describes how major political movements establish law and regulations that led in the United States to diffuse shareholder ownership—the so-called Anglo-Saxon model. A criticism of this analysis is that some countries, such as the United Kingdom, did share this 20th-century populist uprising and yet diffuse ownership prevailed. Treating more thoroughly the comparative evidence, the more recent study by Roe (2003) develops the thesis that the strength of social democracy and the concomitant power of labor is the causal factor. Where social democracy prevails, minority shareholder protection is weak.
and governance is exercised by the dominant owner. Conversely, when social democracy is weak, labor protection is weak and minority shareholder protection strong, leading to Anglo-Saxon diffuse-owner governance.

The target of this analysis is the law and economics claim of La Porta et al. Rajan and Zingales (La Porta et al., 1998; Rajan & Zingales, 2003) show that the correspondence of legal origins and financial market development reversed over the course of the 20th century. They propose that politics intervened and that powerful interests fought to stomp the growth of financial markets that would challenge their financial dominance. Reminiscent of Mancur Olson's (1982) thesis on the decline of nations, this argument points to the power of business interests to reverse financial market development.

Like Rajan and Zingales (2003), Roe notes that there is too much temporal variation in the relation of the type of law regime and the development of financial markets. He adds to this observation that other factors must be at play. His proposal is that politics matter. This argument then poses complementarities. For governance to be effective, there are two configurations with which we are now familiar: diffuse ownership with weak social democracy and concentrated ownership with strong social democracy. Roe provides a series of statistical analyses that in all indicate that political variables (e.g., left/right government or labor protection) dominate the quality-of-law variables. Nevertheless, law still remains largely pertinent, suggesting some added explanatory power.14

Roe’s insistence on the importance of politics has increasingly attracted supporters (e.g., Malmendier, 2005; Pagano & Volpin, 2005). The specifics of the argument fall prey, as Gourevitch (2003) and Gourevitch and Shinn (2005) note, to the same trap befalling most comparative arguments; the results are not historically and cross-sectionally robust. The relation of social democracy and types of governance holds true for the 1990s (for OECD countries) in a period of leftist European governments, but there are other periods when more conservative governments are in power and yet the governance system does not change. One can fend off this failure by arguing for the importance of path dependence as incorporated in structure. Then, however, a qualitatively different argument obtains.

The most penetrating criticism of Roe’s theory of social democracy is that there is not an easy correspondence of interest and institutions. Since interests may be aggregated by different institutions rather than by just political parties (e.g., Social Democrats), a political theory of governance needs to address not only these interests, but also the institutions by which interests are expressed. Pagano and Volpin (2005) propose explicitly a theory that predicts governance from the political system. They note that proportional voting policies lead to catering to the coalition of labor and managers and thus to policies that permit managerial power and protect labor. Majoritarian electoral rules favor owners (rentiers), since they become the pivotal
vote. Thus there is a correspondence between governance type and type of political system. They find some evidence for this theory, using international panel data.

Whereas the thesis of social democracy as the separating institution between types of governance is contested, Roe’s larger insistence on multiple solutions to governance has found companions in the important comparative work on complementarities. Multiple authors have proposed concepts such as “institutional complementarities” (Amable, 2004), “institutional advantages” (Berger and Dore, 1996), or “varieties of capitalism” (Hall and Soskice, 2001) to break with the insistence on a best system. These concepts indicate that there are complex interactions among the parts of a system, and the causal relationship between any one part (such as law) and an outcome (such as economic performance) will be contingent on many factors.

It is important that comparative research on the historical bargain between capital and labor should keep in mind that agreements are possible, because outcomes are multidimensional; the deals are not entirely zero-sum. The American historical bargain was struck in the first part of the 20th century, when the reform movement led to the breakup of conglomerates and trusts and eventually financial-industrial ownership ties. Increasingly, the regulatory powers of the state substituted for these lost financial clubs, first through the creation of the Federal Reserve Board, which eliminated the role of J. P. Morgan as the lender of last resort, and later through the creation of the Securities and Exchange Commission. Politics and the contested bargains drove the evolution of the American system (Roe, 1994).

The varieties-of-capitalism perspective puts institutional complementarities and multiple equilibria into the center of its theorizing. The theoretical origins of this analysis are many, but an important line of reference has been the work that has tried to understand why poor countries just do not become rich given that technology and capital can be imported if a country chooses. It would seem obvious that a critical explanation concerns the political and social institutions of a country. However, institutions are hard to measure. The financial economics literature just assumes that institutions are the same as the formal legal tradition, but the Berkowitz, Pistor, and Richards’s studies indicate that law is learned. While I do not want to dismiss measures such as the degree of formal legal guarantees, I raise the caution that ideas and institutions diffuse, but rarely in their original forms.

An intermediate solution is to equate institutions with organized interests that engage in strategic bargaining, such as unions, firms, and even central banks. This equivalence diverts attention away from how beliefs become diffused toward what constitutes an institutional equilibrium. It is easy to conclude that not all institutions can be compatible for the achievement of desirable and stable outcomes, such as low inflation and unemployment, growth, and innovation. Some societies can be stuck in a low-level equilibrium. The inquiry into which institutions are “comple-
ments” leads to a kind of John Kenneth Galbraith (1956) logic that if you have monopolistic competition, you should have monopsonistic unions.

“Varieties of capitalism” is a theory of distributive bargaining, with equal primacy given to nonstatal actors. The inclusion of private actors is consistent with the broader treatment of institutional configurations found in other disciplines. A number of studies have proposed institutional complements as a way to understand national configurations. Boyer (1996), in particular, classifies countries into several types, representing various complements among macroeconomic systems (e.g., Keynesian macroinstitutions) and work practices (e.g., mass production). Other authors who have proposed institutional complementarities include Amable (2000), who investigates the complementarities between labor markets and macroeconomic policies.

The broader and more ambitious claim is that these bargaining institutions guide the formation of country capabilities that define a country’s comparative advantage. These claims are broadly held across many literatures. The claim that is not broadly held is the following: these complementarities consist of two defined sets, one called “coordinated market economies,” the other “liberal market economies” (Hall and Soskice, 2001). Yet many literatures categorize countries into similar dichotomies, such as diffused versus concentrated ownership, common versus civil law, or corporatist versus liberal regimes. Unlike some of the literature reviewed above proposing dichotomies, the Hall and Soskice proposal does not insist on a single best configuration: you can get high per capita income by more than one unique institutional configuration. It is thus a theory in which multiple equilibria are predicted.

Truth Tables and Boolean Analysis

It may aid the understanding of these approaches to governance to propose a simple methodology by which to test their claims. Comparative work always confronts the problem of very complex entities (e.g., the nation), and a limited number of cases by which to sort out the causality. In particular, the testing of complementarities and multiple equilibria confronts the difficulty of high dimensionality in the causal paths.

An intuitive approach is to list all the cases regarding their conditions and their outcomes in a kind of truth table. I illustrate such an approach in table 1.1, where the arguments on multilevel analysis, complementarities, and multiple equilibria are summarized. Borrowing from the methodology of Charles Ragin (1987), table 1.1 enumerates all the possible configurations given two institutions and two practices. The cell entries 1 indicate that the institutional and practice configurations lead to a positive economic outcome; 0 means they lead to a bad outcome. In this sense, table 1.1 is a truth table, indicating if the logical combination results in a true high
Table 1.1
Multilevel analysis of institutional and practice complementarities: Implications for causal inference

<table>
<thead>
<tr>
<th>Governance institutions</th>
<th>Governance practices</th>
<th>Silver bullet</th>
<th>Institutional complements</th>
<th>Practice complements</th>
<th>Institutional and practice complements</th>
<th>Multiple configurations</th>
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Variable key: 1 means economic system has high performance; 0 means low performance. RoL (rule of law), SW (small world), ID (independent directors), MSP (minority shareholder protection). Uppercase means the institution or practice exists in the country; lowercase means they are not present in the country. ^ means “and.”
economic outcome or a false high economic outcome. There are 16 rows because the dimensionality creates $2^4$ unique configurations.

Boolean analysis proposed by Ragin identifies causal combinations, or complementary institutions and practices, that lead to good governance. An institution or practice that is present in all causal configurations is said to be logically “necessary.” An institution or practice that is always present when an outcome such as good governance is also present is said to be “sufficient”; necessary and sufficient is a silver-bullet theory that always slays the causal dragon and indicates that a single institution or practice uniquely determines the outcome. Qualitative comparative analysis, whether relying on crisp Boolean reduction or fuzzy sets, seeks to determine the causal combinations responsible for an outcome and also if particular explanatory elements, such as institutions or practices, are necessary and/or sufficient to these explanations.

The two institutions chosen for illustrative purposes are rule of law (RoL) and small worlds (SW); the practices are independent directors (ID) and minority shareholder protection (MSP); uppercase means the institutions or practices are present in the country and lowercase means they are not present. Expressed in Boolean algebra, present is synonymous with coding presence as 1 and absence as 0. The solutions in the bottom row are, in fact, deductions derived through Boolean logic. The configurations in each column reduce to a single causal solution, except for the final column.

This truth table is a useful summary of the above discussion. A silver-bullet theory says regardless of the other institutions and practices, rule of law leads independently to high economic outcomes; I assume here we partial out other noninstitutional factors. This claim translates into the statement that the rule of law leads independently and linearly to higher economic outcomes, implying logically that good law is a sufficient and necessary condition for high performance. Institutional complementarity strips rule of law of sufficiency but preserves its necessity in conjunction with small-world conditions (i.e., concentrated and clustered ownership). A separate argument is that practices alone are sufficient for the creation of high economic outcomes; a firm with excellent governance practices in a weak institutional environment can still perform well. Finally, the last column illustrates the meaning of two distinct institutional and practice equilibria.

Using a Boolean algorithm, Charles Ragin and I tested the one-best-way hypothesis using data from Berkowitz and Pistor (Kogut & Ragin, 2006). These data do not permit multilevel analysis, but they do allow for testing for complementarities and multiple equilibria. The Boolean algorithm operates by creating a truth table of the observed combinations (e.g., legal origins, rule of law, transplant) and the proposed causal outcome (e.g., GNP or financial market development). The transplant variable is taken from Berkowitz, Pistor, and Richards (2003) and indicates
if the imported legal code had indigenous roots or not. The Boolean analysis rejected legal origins as a causal determinant, either for GNP per capita or financial market development. Complementarities are found, but multiple equilibria are not found.

The Boolean analysis presents a more radical set of findings than those presented in the quantitative analysis of Berkowitz, Pistor, and Richards. Transplanted law is bad for growth—that is, colonial legal legacies inhibit growth. What matters is the quality of the rule of law and indigenous law. Any claim to the superior properties of common or British law (except for financial market development) is undermined by this analysis. The more subtle implication is that legal institutions cannot be measured by “laws on the books.” Laws and institutions are learned in particular cultural contexts; even transplanted institutions are culturally reinterpreted, as Westney (1987) showed for Meiji Japan. There is no silver bullet or unique configuration, but only a complex causality.

Applying the same approach as we did to the Berkowitz et al. data, Ragin and I (2006) also tested the politics and law complementarity proposed by Hall and Soskice. The empirical domains of Hall and Soskice are the external influences on governance (namely the strength of corporate and labor institutions) and the consequential effects on firm and hence macroeconomic performance. The data analyzed in our study come from Hall and Gingerich (also used in Gourevitch & Shinn, 2005) and consist of a set of observations on corporate governance and labor institutions. The corporate data include two of the La Porta et al. variables (shareholder power and dispersion of control) and thus code for governance. Here the theory is that good outcomes are produced by a matching of strong institutions (strong corporate control and strong labor) or of weak institutions (e.g., weak corporate control and weak labor). Any “off-diagonal” combination should result in poorer economic outcomes.

Using a sophisticated panel analysis, Hall and Gingerich (2001) find evidence for the relation of complementarities to better economic performance. The Boolean analysis reported in Kogut and Ragin analyzed an altered dependent variable or truth condition (the change in per capita income between the start and final year of the panels). The results of the Boolean analysis indicated support for the positive effect of one configuration (strong corporate control and strong labor) as well as other intermediate configurations. In all, using this type of methodology, the off-diagonal prediction of poor performance was not found. Thus, while the causal claim for functional equivalence of two polar configurations (coordinated and liberal economies) was not supported, the analysis supported the identification of one causal configuration (coordinated) as well as the larger theoretical message: there are multiple combinations of institutions that represent complementarities and lead to identical outcomes.
Historical Bargains, Politics, and Society

This exercise in Boolean analysis illustrates the methodological challenge of comparative work—namely, finding causal relationships in the midst of complexity and limited data. It cautions against strong predictions, while encouraging an interaction of case studies and thought experiments to explore and identify causal configurations. One way to understand the above mixed evidence on the influence of law or of distributive bargaining institutions on economic outcomes is that the arguments are incomplete. But this is not surprising given the challenge that these theoretical approaches seek to address. If they fall short, then they also leave open the door to complementary avenues of investigation.

Using Mark Roe’s political approach as a stepping-stone, Peter Gourevitch and James Shinn’s (2005) book on politics and governance provides an important model for the studies included in this book. They rely on a combination of data and case studies to explore the interaction of politics and governance. Gourevitch and Shinn begin with Roe’s argument on the primacy of politics, but proceed along a different course of analysis. To Gourevitch and Shinn, there is no simple divide of social democratic or not. Rather they reiterate Roe’s contention that politics is about distribution, but make the important addition that the distribution is governed by coalitions among two of three political players: workers, managers, and owners. Which coalition prevails depends on the economic and political choices. Employees want job security over shareholder value and thus will side with managers, but they also do not want inefficient entrenched managers who will threaten the viability of the firm. Shareholders care about shareholder value and thus hard-working managers; they also do not want restrictive legislation that hampers good management, and so in this case, align with managers. Managers’ preferences are stated above: they favor shareholders to curb strident employee and worker claims and they prefer workers when shareholders encumber their managerial authority.

Given three players, there are three possible coalitions: workers-owners, workers-managers, managers-owners. Each coalition corresponds to a distinctive political regime, respectively: social democracy, sectoral conflict, institutional voice. The cost of Gourevitch and Shinn’s approach is the additional complexity. Their template creates six possible outcomes, since for every regime, one of two coalitions may prevail. Not surprisingly there is not enough comparative data to specify and statistically test these arguments. Gourevitch and Shinn therefore rely on a mix of limited statistical evidence and concise country studies in the spirit of analytical narratives.

The first regime corresponds to Roe’s argument whereby a historical compromise is struck between workers and owners and is marked by concentrated ownership
and strong unions (e.g., Sweden). The second regime is the collusion of interest groups (e.g., workers and managers within a specific sector) who join together in response to threats to their sector, such as through the impact of liberalizing trade, which helps one sector and hurts another. Here Japan is an example. The third regime is the case of “managerialism,” where workers and owners are concerned with excessive managerial agency costs. Gourevitch and Shinn make the interesting observation that pension funds, by converting workers into owners, is a powerful incentive behind this coalition. The United States is a good example of this last political regime. But oddly enough, in the domain of law that governs the market for acquisitions, the German coalition of managers and workers that oppose liberal markets for control is also an example. As Milhaupt and Pistor (2008) and Cioffi and Hoepner (2006) argue, these coalitions will vary within country depending on the domain in question.

Taking account of these recent political and economic precedents in the research on governance, the chapters explore the political sociology of governance by analyzing the interaction of corporate networks and exogenous shocks to identify different national responses to globalization. By focusing on a few countries, the approach maintains a methodological fidelity to case studies but in a comparative framing. We do not resolve, consequently, the challenge posed by high causal dimensionality and few national cases, but neither is it the aim of these studies to determine performance relations between networks and governance. Instead, these chapters seek to walk a balance between the fine granularity of case studies and a methodology that utilizes “structural breaks” to identify changes in social networks as measured by a common set of statistics.

I turn now to explaining the foundations of a sociological approach to the comparative study of governance.

**Social Networks**

The paradox of governance is that dispersed democracy cannot govern and concentrated power, either in the hands of boards or dominant shareholders, leads to clubs that have privileged access to opportunities and resources. It is this concept of clubs and structure that sociology adds to the analysis of economic and social systems. The knowledge held by agents is often local and asymmetrical. Economics focuses on the latter, namely that one party to a transaction may be better informed than another. Structural sociologists rely on the first insofar as knowledge is often held within clubs or groups; the further away another actor is, the less knowledge is held in common by these actors. Thus, to use a technical term, “common knowledge” is held within clusters, or clubs, and decays with distance among actors. The metric of
this distance is social distance—in a global world, transnational elites may know each other better than they do local leaders—or to put this in American parlance, Washington, D.C., is far from “the people.” The structure embedded in this observation is then the notions of social distance and of clustering. These two statistics, as discussed later, define the meaning of a “small world.”

A social network lends itself easily to a formal representation as a graph consisting of nodes and edges between them. The nodes are actors and the edges define a relationship. This analytical representation of social structure has thrown useful light on many questions, such as epidemiological studies of contagious diseases, of poison pills among firms, and of bandwagon effects. For a graph to be a social network, one necessary condition that must be satisfied is that the nodes must be connected and the average degree (i.e., the average number of links per node) should be significantly larger than one. Some of the national networks, as will be shown in this book, fail this test.

Not everyone in sociology is enamored of networks as a graph, and there is a heady debate between cultural sociologists and structural sociologists as to the potential richness of networks to capture the multidimensional contests among ideas, identities, and social stratification. Without belittling this debate, as is often the case, the two approaches work best in conjunction. It is very likely, as cultural sociologists would insist, that social networks are the outcome of shared cultural beliefs. Since Calvinists consort with other Calvinists, their interactions can be depicted as dense clusters consisting of interacting nodes. The structure reflects the cultural sociology and is, in this view, not causal. In a more secular treatment, Neil Fligstein (2001) emphasizes “shared conceptions of control” that lead to market architectures. Clearly, ideas and culture influence network structure.

However much ideas influence structure, structure also dictates the opportunities open to individuals. The interaction between ideas, identities, and structure is explored in a much celebrated work. John Padgett and Chris Ansell (1993) brilliantly portray the power of Cosimo de’ Medici as an outcome of remaining true to his social class (exchanging daughters in marriage only with other social elites) and yet deigning to do business with the new economic elite. Identity and culture bifurcated the Florentine social and economic network into two components that would be disconnected if not for Cosimo de’ Medici. He was thus the bridge between two structural components of Florence society, and it was this structural opportunity for “robust action” that history gave him and that he exploited.

There is then an element of “identity” that is the bedrock of social structure and social networks. The structure of economic life is embedded, as Granovetter would have it, in a society filled with social and cultural distinctions. Who is in or out determines the clubs and its members. History presents a dazzling display of clubs
and their reversals: Chinese, Malays, women, Quakers, Jews, Catholics, nobility, whites, and so on. These identities, as Harrison White (2008) argues in his book *Identity and Control*, are inculcated in and flow through social structures, both exogenously influencing this structure and endogenously molded by it.

In a poetic distinction, Joel Podolny (2001) argues that social networks have two dimensions: a prism by which identities and meanings are expressed and pipes by which actors, and groups of actors, communicate. Here again, we see the conceptual significance of clustered local actors, sharing a common prism, and the path lengths, or pipes, that give the social distance among these groups. Culture and structure interact to influence the flow of knowledge of opportunities and the capability to act by access to resources.

In a similar way, Brian Uzzi’s (1996) study of contracting in the textile industry in the New York region relies on particular cultural and normative agreements between suppliers and buyers in which their exchange is embedded. These agreements are encapsulated in social bonds, which are not written into contracts but denote stable relationships that structure the overall supply chain network. It is because “not everything is permissible” by these normative and cultural understandings that networks have particular structures that reveal the clustering and clubbiness of social agents and the reasons for their endurance.

There are of course other ties besides ownership and boards that are important to identifying networks that define resources, opportunities, and power. Mark Mizruchi’s (1989) studies of firms and lobbying identify the avenues of personal and political connections between firms and politicians. In the past decade, these connections have caught the attention of financial economists, such as Fisman (2001) and Bertrand et al. (2006), who have looked at the effect of direct (egocentric) ties of business with politicians. In the attempts to understand why interests diverge from political institutions (such as majoritarian or consensual systems), these political networks promise to be particularly revealing in all countries, including advanced economies. While this book only captures these political relations, as well as other relations such as educational ties, through qualitative comparisons, their recognition reinforces the larger claim of the contribution of networks to the study of corporate governance and the behavior of economic actors.

It is reasonable, then, to expect that social networks matter to economic behavior and governance. For example, the ability to know about an acquisition target is facilitated by such networks, as is the ability to raise the finance and capital to do the acquisition. Thus, opportunity (knowledge of the target), resources (the ability to raise capital), and the social receptivity of others to selling or buying are all mediated by networks and the clubs embedded in them. This framing remains faithful to Granovetter’s insistence on structure and agency. The network is a state description of social structure; agency is still important—agents are goal seeking—
but their actions are conditioned on the opportunities and resources that structure provides.

**Leasco and Chemical Bank**

Before I move to technical definitions of networks, the case history of a failed takeover in the 1960s provides an example of how networks by mediating governance, opportunity, and resources matter to economic action. In the 1960s, American banks were the most central figures in board interlocks and as providers of capital. The hypothesis is that this structure, reflecting inherited relationships as well as the cultural norms of a white Protestant financial establishment, influenced the availability of resources to economic actors.

The case is Leasco’s tender offer to acquire Chemical Bank in 1967 that failed. Saul Steinberg founded Leasco in 1961 as a computer and programming leasing company. Its unfriendly acquisition of Reliance Insurance was well received by the stock market and was financed through the help of a few large banks and investment companies, as well as through the issuance of new stock held by mutual funds. The appreciation of Leasco’s stock price by over 5,000% from 1965 to 1969 provided Steinberg with substantial capital resources.

And yet, over the course of the planned takeover of Chemical Bank, Steinberg faced substantial resistance, causing a fall of Leasco’s stock from $140 in early February 1969 to $7 by May 1970. Chemical Bank was a commercial bank that held $9 billion in assets and occupied one of the most important positions in the network of board interlocks among the largest American corporations. Studies on interlocking directorates for the United States generally show that these networks have been fairly sparse, except for the historically important role of commercial banks. In the 1960s, commercial banks held 40% of American financial assets. They had, therefore, critical control over capital resources.

Moreover, they were centrally positioned in the network of interlocking directorates. Mintz and Schwartz (1981) detail the important role played by banking and insurance firms in the 1960s. Analyzing directorate ties among the Fortune 500, they found that commercial banks had almost three times more board ties than industrial firms; insurance companies had slightly less than two times as many as industrial firms. Bank centrality in the intercorporate network appears to be an important consideration in Leasco’s failure to acquire Chemical. Four firms that played important roles in halting Steinberg’s attempted acquisition had high network centrality. In terms of centrality, Chemical Bank was ranked fourth, Lehman fifth, Chase Manhattan sixth, and Continental Illinois Corporation (the eighth largest American corporation) seventeenth (Mintz & Schwartz, 1981). Chase Manhattan, Continental, and Lehman all owned large holdings in Leasco; Continental was also a major
lender. The CEO of Chemical directly communicated with the CEO of Continental to discourage the attempted acquisition; Steinberg recalls Continental pressuring for the tender to be dropped.

By 1970, Lehman responded to pressure from other banks by refusing to participate in the tender offer. Chemical’s efforts also extended into Washington and the New York State Assembly, where a bill was passed to prevent conglomerate takeovers within state boundaries. The attempted diversification by Leasco, a leasing company with insurance interests, into commercial banking therefore failed. By 1969, Steinberg had neither the shares nor the financial resources to continue the tender offer. In an often-cited quote, Steinberg concluded that “I always knew there was an Establishment. I just used to think I was part of it.” (cited in Hirsch, 1986: 828). Leasco moved eventually to other diversification interests, principally in information technology. In the 1980s, Steinberg and his renamed flagship corporation, Reliance, played a major role in the early leveraged buyout wave. Chemical did not survive the post-1985 takeover boom in the banking industry and merged with another bank, Chase Manhattan.

In this case, the distinction of opportunity and resources is clear. Steinberg thought that capital stock markets provided the opportunity for a takeover; dispersed ownership appeared to work in his favor. The deep ties between Leasco and the banking community, as reflected in interlocking directorates but embedded in a larger cultural ethos of that age, motivated resistance that deprived Steinberg of the necessary financial capital. The case also indicates that the network was larger than ownership, extending to board interlocks but also to political ties. In the 1980s, this particular structure changed radically. Banks lost their position—this is the critical structural break. As a result, takeovers exploded due to new sources of financing, and the arrival of Southerners and Jews as corporate raiders did not hesitate to break up traditional relationships (Hirsch, 1986).

Behind this story is the interaction of identities, structures, opportunities, and resources. We can confront the teleological objection: Why did the other actors—for example, the traditional Protestant investment banks—not seize the same opportunities? But teleology being not our object here, we concede that dollar bills may have been left on the street in this account—though one can construe a logic that the traditional banking actors had much to lose by putting into play their reputation and valued corporate customers by backing Steinberg. Rather, given the identities held by these players and the rules by which they acted, what would be the decisions that we would expect? The value of moving from a study of one actor to a study of many is that we can begin to emphasize mechanism and analyze how structure influences action and how the microrules that govern agent behavior can generate emergent and unsuspected network structures. I turn now to a description of networks as graphs and their properties.
Graphs, Their Properties, and Small Worlds

In what ways are social and economic networks important structural influences on the exercise of economic power and corporate governance? Ownership and director networks are the contractual and status reflections of economic control and governance. An owner has the right to buy and sell, and an owner with substantial equity can exercise control. Owners are influenced by what else they own and by the ties they share with other owners. Directors are empowered with the obligations of monitoring and duty to shareholders; their memberships in multiple boards express their social status, delineate their common interests, and reveal their conflicts of interest.

These relations are expressed by a graph that models owners (boards) as nodes and their cross-holdings and shared holdings (shared directors) as edges. More exactly, the graphs that we study in this book are bipartite or affiliation networks. In figure 1.1a, a bipartite graph for owners is depicted. In the upper level, owners are represented as nodes given as O1, O2, etc. These owners have equity stakes in companies, C1, C2, etc. O6 does not share any common ownership and is an isolate—as is C5. We say then that the graph has two components, with one being the giant component since it consists of most of the nodes. A component contains only nodes that are connected by a path; an isolate is a degenerate component.

In most studies of social networks, this bipartite structure is ignored, and instead the one-mode projection is analyzed. This one-mode projection is given below for the bipartite graph for owners; a projection is also given for companies. Usually, we will only examine the one-mode projections, but it is important to remember that they are derived from a bipartite structure that statistically conditions the network statistics that will be used. (For a technical discussion, see appendix 1.) The number of components is preserved in the projection, as is the giant component—that is, the component with the largest number of nodes.

An isomorphic graph to the one-mode ownership projection given in figure 1.1b is shown in figure 1.1c. Note that in the bipartite graph given in figure 1.1a, the number of edges is nine; in the one-mode projection for owners, the number of edges is five. Note also that O1 and O3 share ownership in two companies in the bipartite graph, and yet the one-mode graph only shows one common edge between them. This loss of information is due to the redundancy in shared ownership between O1 and O3. In the bipartite graph, O1 has two edges—that is, it has a degree of 2; in the projection, its degree is 2. Thus the projection loses information not in degree but rather because it accounts neither for weights (how many investments two owners have in common) nor for directionality (the graphs are nondirectional); for the study of ownership pyramids, we will need to recover the directionality in which
owners own owners. We will largely ignore weights in this study. The path length in the projection between O1 and O5 is 2, whereas the path length between O1 and O3 is only 1. The length between owners in a network has a special characteristic: for owners one step away from each other, they own equity in the same firm; for all larger distances, they do not share common ownership in a company.

The above description also applies to the director/board bipartite graph; the one-mode projection depicts either “interlocking directorates” or directors sharing common membership in a board (path length of 1) or connected via other directors. Directors have the governance responsibility to be the “governors.” They are invited onto boards often by reason of shared backgrounds and friendships, and they are privy to information that they gain from other directors who sit on other boards. The tendency of directors to invite those they know from other boards to join their boards creates “clubs,” or more precisely since the directors are predominantly male in all countries, “boys’ clubs.”
These definitions permit an important response to findings that crippled a generation of pathbreaking studies on comparative governance networks. This finding, articulated elegantly by Michael Useem (1984) in his work on the “Inner Circle,” is that the density of relations among actors is too low to support the traditional claim of a “money trust” or “concerted economic power.” Rather, Useem proposed that governance be seen as a cultural property associated with an elite, a finding suited to his study of the United Kingdom and less obviously suited to the United States and its more educationally and socially heterogeneous managerial class—a relative comparison that does not incorporate the racial and gender homogeneity common to both UK and American managers.

Still, the puzzle proposed by Useem was how to explain this sense of clubbiness when in fact the density of ties in a director or ownership network tends to be so low and ties between boards are often not replaced once broken, citing Don Palmer’s (1983) study on this subject. The innovation that has renewed the study of social and corporate networks started with the publication of Duncan Watts and Stephen Strogatz’s study in Nature in 1998 that observed the ubiquity of small-world structures across many kinds of topologies characterized by low density. A small world is a graph topology that is very pertinent to the study of governance as lodged within a social system governed by rules of behavior. One of the remarkable characteristics of power is its concentration in the hands of a few. The entropic dissipation of power requires the efforts of the few to maintain control. Not surprisingly, governance is often viewed in the popular imagination as exercised in clubs to which access is controlled. Empirically, the evidence across many countries supports this view.

A small world is a network of clubs. It is not a single “inner circle” but a set of circles, or clubs, that are connected by short social distances. The graph has the properties of short path lengths among actors due to bridges (or more exactly, shortcuts) among groups that are locally very highly connected in clusters. A network statistic that captures clubs is clustering, whereby a high density of ties between owners or between directors indicates more than just information flows—in fact, a structure of low density with a centralized actor (what Burt calls a “structural hole”) is more efficient for the transmission of information. Rather, high clustering reflects common cultural origins and homophilous attributes (e.g., gender, religion, education) plus the possibility for easy coordination among members. This prismatic quality of small-world networks is fundamental to membership and identity, which are defining features of the clubbiness of economic inequality. Contrary to the concern that the low density in the overall graph is fatal to the utility of a structural network analysis, the heterogeneous property resulting from many clubs with high inner connectivity and relatively fewer external links generates low global density (that is, sparseness) and yet owners and directors who are, in both the structural and sociological senses, “well connected.”
This clustering is the social basis for the preservation of norms, such as reciprocity and coordination, that Coleman (1990) called “social capital.” It is the basis of the access to resources for those members who belong to the club. On the other hand, the few external links between clusters are nevertheless critical to the diffusion of and access to information that lie at the heart of Mark Granovetter’s (1973) celebrated expression of the “strength of weak ties.” Many studies have stressed the short network distances of the “plumbing,” or what Podolny called the “pipes,” as critical for the diffusion of, and access to, innovations and ideas. It is of course important to understand these generic properties of social networks in the context of specific networks. In an ownership bipartite network, a distance of one means that an owner has property rights through a direct ownership position in a firm and this position can in principle be sold—although to whom and at what price will surely reflect more than its scarcity value. Similarly, a director is directly a member of a board. As the distance increases, not only does the quality of the information deteriorate, but control and lubrication provided by social friendships (the friend-of-friend chain) are also attenuated. A director or owner who sits on many geodesics in a network can be expected to be better informed than others, but all things equal, information quality declines with social distance. Indeed, there may be valuable opportunities per Granovetter’s observation of the strength of weak ties that are never known to distant actors.

The access to resources provided by these clubs, or clusters, and the information to identify opportunities through connectivity are the important economic properties that ensue from small-world structures. Of course, these resources and opportunities are brokered by powerful actors; however, brokerage is inversely defined by and perfectly negatively correlated with clustering. Thus clustering is equivalent to saying that actors within a cluster will have greater power to access than those who must rely on and who are constrained by intermediary brokers—this is the core of Burt’s structural hole theory. (However, it is often useful, as we do throughout this book, to measure nodal, or actor, power that may differ even among members of the same club, indicated by other network statistics such as centrality.)

These then are the two principal statistics that define a small world: short average path lengths and high clustering coefficients. A path length is measured by the shortest (the geodesic) path among two nodes; the metric is the number of nodes that lie on the closed path. Clustering is defined, in this study, as “triadic closure.” A triad is formed by three nodes connected to each other. In figure 1.1c, there is only one closed triangle: O1-O2-O3. At the graph level, the measure of clustering is to count three times the number of closed triangles over the number of open triangles, or two stars. Every node having two degrees or two edges forms an open triangle; there are 4 two stars in figure 1.1c: each node to the triangle is a two star plus O1-O3-O4. Since each node in a closed triangle is also a two star, the numerator of the
clustering coefficient is multiplied by three to bound the measure between 0 and 1. Clustering is then defined as three times the number of triangles divided by the number of two stars.

A small world is defined by the ratio of these two statistics, the average path length being a global measure of the network, and the average clustering coefficient being a local measure of network structure. For figure 1.1c, the average path length is 1.5; the average clustering coefficient is 0.375. The path length of a small-world graph is short but the clustering coefficient is high since the nodes are clustered in dense neighborhoods. Even though density is quite low, a small world may still characterize the graph. Small worlds then provide the riposte to the criticism: there cannot be coordination because density is too low.

Watts and Strogatz started with graphs of particular topologies and then showed the robustness of the small-world property to random rewiring. Rewiring, or the reassignment of a link between two nodes to another two nodes, has an important history in the mathematics of random graphs. This approach is useful because asymptotically the rewiring generates a random graph that has well-established properties. It is thus possible to use the asymptotic properties of the random graph to normalize the empirical measures and to gauge the departure of the empirical estimates from the random values. This normalization is extremely important for comparing graphs of different sizes and, not surprisingly, we often normalize the graph statistics used in this book in order to permit comparisons among countries.

The drawback to this approach is that it lacks dynamics. Dynamics are critical to understanding the social mechanisms by which the structure and topology of the graph are generated. The past decade has seen an explosion in the analysis of microrules and the emergence of structure and this domain of study has been one of the most important contributions of the new science of complexity to the social sciences.

Let’s illustrate dynamics by considering a highly stylized graph that is nevertheless instructive. Figure 1.2a depicts the evolution of a so-called caveman graph, which has an interesting topology. Clustering is quite high in each cave, but the path length is also high; thus it is not a small world. A social mechanism that drives this graph is triadic closure, whereby friends of friends become directly linked as well. Universities tend to be characterized by caveman structures, where each discipline interacts heavily within its boundaries. Note that this evolution is guided by the definition of potential friends, which would in the case of a university be two people sharing a similar disciplinary identity and common interests; obviously formal and informal structures overlap.

However, informal ties are likely to intervene, because of social encounters or perhaps of friendships based on joint committee assignments. The ties will have a
powerful effect on the graph. Figure 1.2b shows the same graph with shortcuts—an edge that reduces the average path length in a graph. Here, clustering is still high but the average path length has fallen considerably. Figure 1.2b is a small world because of these shortcuts. Shortcuts will then also be related to a property of betweenness centrality. Such centrality will be high for nodes that lie on many geodesics; it measures then the propensity of nodes to lie on shortcuts.

The most important innovation in the Watts and Strogatz study was to provide a “null” by which to measure small worlds; this null was the determination of the random graph having the same number of nodes and edges—thus showing the same aggregate density. These two metrics, path length and high density in local neighborhoods (or clubs), could then be normalized. Once normalized, they permit a concise method by which to identify and compare small worlds across countries. The empirical comparisons of networks no longer had to be troubled by comparing graphs of different sizes. Since network statistics change nonlinearly in the size of the graph, their normalization by a random graph eliminated the effect of size, thus removing a critical challenge to the comparisons of social networks of different sizes.

Publishing in the American Sociological Review in 2001, Gordon Walker and I made the first small-world investigation of an economic network using the ownership ties among the 525 largest German firms in 1993. This study showed that
German ownership ties formed a small-world network relative to a random graph. We noted that the historical bargain between capital and labor had resulted in a network in which owners clustered in several dense clubs that were tightly connected. This network structure influenced subsequent firm behavior insofar as acquisitions tended to be made along ownership chains intermediated by a powerful central owner. There was therefore an association of network structure with individual firm behavior.

The analysis also introduced a simulation initialized by the empirical data. A random rewiring of the network evidenced only very slow decay in small worlds; this simulation provided one of the earliest tests of the robustness of small worlds. Thus, the German small world was highly robust to disruption, undermining the argument that globalization would easily upset the German corporate model. The finding that the German network is robust to random disruption was confirmed by Heinze (2001) but disputed by Höpner and Jackson (2002), who argued that recent changes in corporate governance posed not random but systematic challenges to control by central players, which resulted in substantive changes to the structural relationships among owners and firms.

These results of the small-world analysis conducted by Kogut and Walker were then extended to the study of other countries and settings in a special issue of the French journal *Gérer et Comprendre* that included small-world studies on Germany, France, Korea, and Italy. These studies found large variations in the measure of small worlds across these countries; Korea in particular had a very weak small-world structure due to the practice among the business groups (the Chaebols) of excluding each other from common ownership of a given firm. At the same time, other studies found evidence of small worlds in relation to board-of-director ties (Baum, Shipilov, & Rowley, 2003; Conyon & Muldoon, 2006; Davis, Yoo, & Baker, 2003).

Far from being a universal property, small-world statistics do not describe many of the country networks in this book. The board networks in Norway and Sweden, for example, are highly fragmented; the mean board membership per director is slightly more than one, too low to conform to a definition of a social network as a connected community. On the other hand, they have concentrated ownership networks.

Social networks are useful descriptions of how the past remains “present.” They are “state descriptions” of the structure of power and influence in a society. At the same time, the law of motion that guides the evolution of this structure is governed by the social and economic rules that maintain and promote entry (of new nodes) and the ownership and board ties (links).

In this sense, social networks dynamically capture the proposal given in the important article by Lucian Bebchuk and Mark Roe (1999), who elucidate why
convergence among national systems of governance is impeded by path dependence. Avoiding vague references to long causal arms, Bebchuk and Roe specify two elements of path dependence: structure and rules. Structure-driven path dependence is defined as the “initial ownership structures in an economy (that) directly influence subsequent ownership structures” (p. 129). Rule-driven path dependences are the legal rules that guide behaviors. This statement is very amenable to a theory that represents owner (and director) structures as a network and then considers the rules and incentives (such as rent seeking) that drive its evolution. Formally, we can do more, because we can also test the robustness of the network as well as the impact of rule changes on effecting convergence to a global, that is, single, system. Such an exercise is given in the robustness simulation in Kogut and Walker (2001) and further exploited in chapter 8.

**Governance and Social Networks: Example of Business Groups**

Our approach is to analyze social networks, and their evolution, as analytical ciphers of the distribution and disposition of power and control in countries, without focusing on performance implications. The defining feature of governance is the paradox of democratic power, as the German sociologist Robert Michels (1911) summarized in his “iron law of oligarchy.” Corporate governance as a term dates back 50 years and was borrowed from political literature on democracy (Becht, Bolton, & Roell, 2003). It is now standard to compare two types of governance systems: the dispersed ownership associated with the United States, United Kingdom, and a few other countries and the dominant-owner structure prevalent in most countries. In the former, the board of directors has a putatively important role in representing shareholders; in the latter, a dominant owner has a direct interest in the economic performance of the enterprise.

Each system confronts a governance problem. Governance cannot be exercised directly by dispersed owners, and thus effective governance relies on the trusteeship of representatives. But this reliance raises the possibility that the trustees will not be faithful stewards. This power invested in trustees (e.g., board directors) can be used in accordance with the law and norms of fiduciary behavior, or it can be used to abuse the rights of shareholders, workers, and other classes of individuals implicated in the decisions and consequences of private enterprises. Obviously, this problem persists even if there is a dominant owner w who has the incentive to monitor to protect his or her self-interest but not necessarily the interests of minority shareholders. Thus, the power given to discrete groups of individuals, families, and elites conditions the efficacy of governance practices and the potential for abuse. Social network analysis is, as stated above, exceptionally useful for identifying these groups and the ownership and governance relations between them.
This useful distinction between types of governance systems has been marred by an ideological bias favoring the Anglo-Saxon shareholder model. Instead of asking, as Mary O’Sullivan (2000) has done, how different governance systems influence differentially the development of firms’ resources and strategies, the predominant tendency has been to prefer dispersed ownership, presumably because of its similarity to atomized markets and its natural alliance with financial markets. The ideological bias became more obvious when the dissolution of communism deprived the idealized market argument of a sparring partner.

A new partner was found through the prevailing notion in economics that business groups, especially pyramids, are injurious to good governance and the protection of minority shareholders. Business groups are firms linked by ownership ties that confirm an important degree of control on the owners. Structurally, they leave the network signature of “clusters” or clubs bound by significant equity-weighted links. Since business groups rely on a common owner of multiple companies, such groups are synonymous with concentrated ownership. The complaint against business groups is that they lead to a diffuse separation of ownership and control that permits the dominant owner to “tunnel” money from one enterprise to another, hurting the shareholders of the first enterprise. Thus, we see that a system trait, called concentrated ownership, leads putatively to bad governance practices. Such concentrated ownership is highly prevalent in continental Europe and, in fact, most countries.

In contrast, as noted above, the American and so-called Anglo-Saxon systems are characterized by dispersed ownership, which more closely conforms to an idea of atomized market competition. Since financial holdings by banks in industrial concerns are prohibited by American law, the Anglo “rule of law” preventing significant cross-holding and concentration of ownership has reputedly promoted the protection of minority shareholders. Whereas the origins of these laws have been debated—with the corporate law scholar Mark Roe (1994) pointing to the effects of political movements on law—the law and finance approach to corporate governance had largely agreed on the positive impact of dispersed ownership on shareholder protection and thereby good governance practices.

This emphasis on the business group, however, has proved far from conclusive. Some careful studies have found evidence that pyramids and business groups lead to poor performance because of corrupt governance oversight. From these studies, it has been widely concluded that business groups are bad. Other studies have not found robust negative relations between business groups and performance, noting that in some countries, the relationship is positive. These mixed findings should not surprise us, for they echo the contradictory findings regarding a form allied with the business group, namely, the business conglomerate. Despite much recent evidence for sticking to “core competence” and the poor performance of U.S. conglom-
erates, the studies indicate that in some countries, conglomerates do well, and they even did well in the United States during the 1960s.27

These apparently confusing results are an expression of the complexity of large social systems, such as national economies. These economies are historical outcomes of a multiplicity of events, and they are also the ones that survived; many have not. They have thus evolved a body of institutions that often address sophisticated needs, such as the provision of capital and the transfer of risk through secondary markets. At the same time, these economic institutions are expressive of particular social rules in society. After all, at the heart of many business groups is the family. We can predict then that the rules of genealogical inheritance will govern the pyramidal structure of business groups. This is a very different explanation than that pyramids are vehicles by which powerful owners expropriate value from minority shareholders.

Because these issues of analysis pose complex challenges, we prefer by and large in this book to avoid teleological arguments—although the issue of convergence is frequently discussed. Rather the focus is on understanding how exogenous shifts, the structural breaks, reveal the underlying social and political dynamics in these countries to produce structural similarities or differences. An allied methodological approach is to simulate social rules in the relatively simple social settings. We illustrate this approach in the epilogue. In this simulation, outcomes are not teleological, but emergent. This important difference summarizes neatly why policy interventions at the local level may not be dynamically optimal in a broader calculation.

Research Design

This book treats a complementary dimension to the study of governance across countries, namely the structural conditions in a society that enable and inhibit the decisions of owners and directors. It seeks to make three contributions: an exploration of how social structure revealed through networks influences governance, a demonstration of the utility of the new science of networks to enable qualitative analysis, and progressive use of simulations (and agent-based modeling in one chapter) to assess and explore deep structures in the networks.

Comparative analysis frequently proceeds by isolating countries by chapter. Many excellent books have treated the director networks of individual countries.28 This book analyzes particular topics through comparative grouping of countries. By grouping countries either by region or by economic development, this choice avoids making analytical sense of comparisons among complex social systems through controlling some of the unobserved variation.

In all, the study collected data on 22 countries. Almost all have data for two panels, with the panels permitting comparisons over time. In such a study, important trade-
offs have to be made. Some countries (including the United Kingdom) had relatively poor data prior to the mid- or late 1990s. As a consequence, we asked that the first panel be for the period 1990–1995, with a second panel centered at 2000 give or take 2 years. In some cases, we had trouble acquiring ownership and director data. To preserve the two-panel design important to the analysis of structural breaks, a few later dates for the first panel were also permitted when earlier data were not available or of poor quality. In some of these cases, we then also extended the date of collection for the second panel.

In table 1.2, the list of countries is provided, along with the years of the panels, the criteria for choosing the companies to be included, the type of data (director and owners), the lower bound of equity held that triggered an owner’s identification, the source, and the researcher who collected the data. The lower bound of equity is especially variable, because countries publicly report owners (if they report at all) above a certain threshold; we also lowered the bound in some cases in order to include enough owners to do network analysis. The goal had been to find experts on countries who collected the data, thus supporting quality checks as well as aiding the interpretation of the results. Countries targeted for the study were those that contributed significantly to world national product and that were major participants or recipients of global economic flows.

Table 1.3 provides statistics on the size of the total graph if all the countries are pooled. Nodes indicate the number of firms and owners in the ownership network, with links being the number of ties; for the director (or interlocking directorate) network, nodes are the directors and boards as well as links indicating a director belongs to a board. Average degree of the network can be calculated by dividing the number of links by the number of nodes.

Figure 1.3 indicates the share of GNP, trade, foreign direct investment, and privatization captured by the countries in our study for the year 2000. Clearly, the selected countries represent a sizable proportion of the worlds’ economic resources and population. As discussed earlier, the research design of the book aims to compare comparative statics around the influence of structural breaks. While privatization surely dates back to the 1980s for many countries, the structural consequences for many countries were realized only in the 1990s. Table 1.4 summarizes data on the introduction of codes of conduct. The introduction of corporate governance codes signals the growing symbolic importance of governance, which for many countries resulted in real reforms. These reforms are discussed further in chapter 5 and 7, and they reflect important regulatory or legislative adoptions of major changes in governance practices. While many of these codes were adopted after 2000, the impetus for aligning governance codes with the perceived “best practices” of Anglo-Saxon countries began with the economic pressures that took place during the previous decade.
Table 1.2
Summary of network data sources

<table>
<thead>
<tr>
<th>Country</th>
<th>Years of panel</th>
<th>Owner/director data (O, D, B = both)</th>
<th>Data source</th>
<th>Inclusion criteria</th>
<th>Lower bound of equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>1995</td>
<td>D</td>
<td>D = annual reports of listed companies on the Bolsa de Comercio, Buenos Aires, Argentina</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>2000</td>
<td>B</td>
<td>B = annual reports of listed companies on the Bolsa de Comercio, Buenos Aires, Argentina</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>2000</td>
<td>B</td>
<td>Business Who's Who published by Dun and Bradstreet</td>
<td>Top 200 nonfinancial companies by revenue and top 50 financial companies by assets</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>1990, 2000</td>
<td>B</td>
<td>O = collected manually from (1) annual reports of listed firms and (2) notifications available in the Documentation and Statistics Department of the Brussels Stock Exchange when annual reports are missing D = National Bank of Belgium database “Centrale des Bilans” B = Bel-First database from Bureau Van Dijk in 2000</td>
<td>Listed firms except banks and insurance companies</td>
<td>5% or 3%</td>
</tr>
<tr>
<td>Brazil</td>
<td>1995, 2002</td>
<td>B</td>
<td>B = CVM (Brazilian Securities and Exchange Commission) O = Economática, Interinvest, Valor Grandes Grupos</td>
<td>Total of 640 firms: all firms listed in the stock market as well as nontraded enterprises that fell within the 200 largest-grossing firms each year (according to the series “Maiores e Melhores” in the Exame Magazine)</td>
<td>1%</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>1995, 2000</td>
<td>B</td>
<td>Bulgarian database</td>
<td>Top 200 industrials by revenue and top 10 banks</td>
<td>Top 20 owners</td>
</tr>
<tr>
<td>Canada</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>1994, 2000</td>
<td>O</td>
<td>O = WindDB database</td>
<td>Companies listed on Shanghai and Shenzhen Exchanges (328 in 1994, 1,305 in 2000)</td>
<td>5%</td>
</tr>
<tr>
<td>Country</td>
<td>Years of panel</td>
<td>Owner/director data (O, D, B = both)</td>
<td>Data source</td>
<td>Inclusion criteria</td>
<td>Lower bound of equity</td>
</tr>
<tr>
<td>----------------------------</td>
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<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>China, Republic of (Taiwan)</td>
<td>1990, 2000</td>
<td>B</td>
<td>B = TEJ (<em>Taiwan Economic Journal</em>) and SFI (Securities and Futures Institute) O = supplemented by CCIS (China Credit Information Service) and Toyo Keizai's <em>Asia Company Handbook</em></td>
<td>Total of 200 firms: all are listed firms, top 15 largest listed financial companies, top 185 largest listed nonfinancial companies (ranked by sales)</td>
<td>0.50%</td>
</tr>
<tr>
<td>Chile</td>
<td>2000</td>
<td>B</td>
<td>SVS (Superintendencia de Valores y Seguros de Chile); CDs: “Limited Liability Companies Dic-1990” and “Limited Liability Companies Dic-2000”</td>
<td>All firms that must report to the SVS are taken into account, including both publicly listed firms and privately held firms required to report to the SVS, which correspond to companies with at least 10% of the ownership belonging to more than 100 stockholders or companies with more than 500 stockholders. The ownership data includes the 12 biggest owners for each company, with ownership above 0.5%.</td>
<td>0.50%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>1994, 2000</td>
<td>O - 1994, B - 2000</td>
<td>Amadeus Database (version: top 1 million), DVD and online</td>
<td>Firms satisfy at least one of these criteria: (1) operating revenue of at least 1M ECU; (2) total assets of at least 2M ECU; (3) number of employees at least 10</td>
<td>Varies, &lt; 5%</td>
</tr>
<tr>
<td>Denmark</td>
<td>1990, 2000</td>
<td>B</td>
<td>Greens Håndbog</td>
<td>Largest nonfinancial firms by assets</td>
<td>Varies, &lt; 5%</td>
</tr>
<tr>
<td>France</td>
<td>1990, 2000</td>
<td>B</td>
<td>D = Database Dafsaliens</td>
<td>Top 500 firms</td>
<td>5%</td>
</tr>
<tr>
<td>Germany</td>
<td>1993, 2000</td>
<td>B</td>
<td>German 500, <em>Frankfurter Allgemeine</em></td>
<td>Assets of largest 500 industrials, largest 25 financials in 1993, largest 50 in 2000</td>
<td>5%</td>
</tr>
<tr>
<td>India</td>
<td>2000</td>
<td>B</td>
<td>Prowess Database created by CMIE (Center for Monitoring Indian Economy) <a href="http://www.cmie.com/database/?service=database-products.htm">http://www.cmie.com/database/?service=database-products.htm</a></td>
<td>Data was based on the top 500 publicly traded firms in India based on revenues</td>
<td>0.10%</td>
</tr>
<tr>
<td>Israel</td>
<td>1993, 2000</td>
<td>B</td>
<td>Israel Stock Exchange: Tel Aviv 100</td>
<td>We started with the largest 100 publicly listed companies and traced their holdings: total of 368 companies in 1993 and 401 companies in 2000</td>
<td>0.10%</td>
</tr>
<tr>
<td>Country</td>
<td>Years of panel</td>
<td>Owner/director data (O, D, B = both)</td>
<td>Data source</td>
<td>Inclusion criteria</td>
<td>Lower bound of equity</td>
</tr>
<tr>
<td>-------------------------------</td>
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<td>-----------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Italy</td>
<td>1990, 2000</td>
<td>B</td>
<td>Annuario R&amp;S, published by Ricerche e Studi (Mediobanca)</td>
<td>Top 50 industrial, banking, and insurance groups (for a total of 200 firms)</td>
<td>5%</td>
</tr>
<tr>
<td>Korea, Republic of</td>
<td>1990, 2000</td>
<td>D - 1990, B - 2000</td>
<td>Korea Information Services</td>
<td>Top 500 industrial firms by assets and all affiliate firms associated with top 30 business groups</td>
<td>1%</td>
</tr>
<tr>
<td>Mexico</td>
<td>1990, 2000</td>
<td>B</td>
<td>Mexican Stock Exchange</td>
<td>All publicly listed firms</td>
<td>10%</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>1997, 2001</td>
<td>B</td>
<td>B = REACH, Bureau van Dijk</td>
<td>3,174 largest firms by revenue in 1997</td>
<td>0.01%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D = annual reports</td>
<td>D = annual reports</td>
<td>5,272 largest firms by revenue in 2001</td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>1990, 1995</td>
<td>B</td>
<td>Oslo Stock Exchange and public list of the largest 200 companies</td>
<td>Publicly traded and/or among 200 largest companies in revenues</td>
<td>10 largest owners</td>
</tr>
<tr>
<td>Poland</td>
<td>1995, 2000</td>
<td>B</td>
<td>Central Economic Court (Warsaw)</td>
<td>Top 200 firms by revenue</td>
<td>Top 20 owners</td>
</tr>
<tr>
<td>Romania</td>
<td>1995, 2000</td>
<td>B</td>
<td>Romanian Chamber of Commerce and Industry</td>
<td>Top 200 industrials by revenue and top 10 banks</td>
<td>Top 20 owners</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>1998, 2002</td>
<td>B</td>
<td>Federal Financial Markets Service (FFMS), Central Bank of Russia (CBR)</td>
<td>largest 100 industrials by sales, largest 54 banks by assets in 1998</td>
<td>Usually 5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>largest 251 industrials by sales, largest 60 banks by assets in 2002</td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>1990, 2000</td>
<td>B</td>
<td>Private investment bank</td>
<td></td>
<td>0.01% (1990)</td>
</tr>
<tr>
<td>Spain</td>
<td>1994, 2002</td>
<td>B</td>
<td>O = CNMV, Fomento de la producción, Maxwell Espinosa</td>
<td>Sales of 500 largest firms or employees of 500 largest firms, and cutoff points of giant component</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D = CNMV, DICODI</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B = CNMV, SABI (no banks, no insurance) in 2002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>Years of panel</td>
<td>Owner/director data (O, D, B = both)</td>
<td>Data source</td>
<td>Inclusion criteria</td>
<td>Lower bound of equity</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------</td>
<td>-------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1990, 2000</td>
<td>B</td>
<td>B = Orell Fuessli’s “CD-ROM der Schweizer Wirtschaft 2000”</td>
<td>The 70 largest industrial and service companies according to market capitalization, the 10 largest finance companies according to total assets, and the 10 largest insurance companies based on net prime income, including the three largest cantonal banks and three large private banks as well as three transportation companies and five electric energy supply companies. Also checked if any of the 20 largest companies according to turnover or any of the 10 largest employers for both years had not been selected using the criterion of market capitalization, which led to the inclusion of some large private companies.</td>
<td>Varies, survey-based</td>
</tr>
</tbody>
</table>
### Table 1.3
Number of nodes and links for the bipartite graphs

<table>
<thead>
<tr>
<th>Network</th>
<th>Panel</th>
<th>#Firms/boards</th>
<th>#Owners/directors</th>
<th>Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directors</td>
<td>1</td>
<td>6927</td>
<td>52539</td>
<td>69943</td>
</tr>
<tr>
<td>Directors</td>
<td>2</td>
<td>10522</td>
<td>78133</td>
<td>100563</td>
</tr>
<tr>
<td>Owners</td>
<td>1</td>
<td>5986</td>
<td>13151</td>
<td>24758</td>
</tr>
<tr>
<td>Owners</td>
<td>2</td>
<td>11894</td>
<td>25078</td>
<td>51601</td>
</tr>
</tbody>
</table>

### Figure 1.3
Small-world countries as percentage of the world economy
A reflection of structural breaks can be expected in the properties of ownership and director networks. The common network perspective adopted is the measure of clustering and average path length statistics normalized by the expected values from a random graph. Dividing the clustering statistic by the average path length generates a measure of the degree of a small world. This calculation gives the small-world (SW) statistic introduced in Kogut and Walker (2001).

Table 1.5 illustrates the data utilized in this book for the depiction of small worlds. As defined earlier, a small world has high clustering coefficients (CCs) relative to average path lengths (APLs). To compare the empirical country networks of owners and directors, these statistics are normalized by dividing them by the values calculated for a random graph. We give three normalized values in this table. The first is the expected values for a random unipartite graph described in Watts and Strogatz (1998). The second is the random statistic generated by the Robins and Alexander (2004) method, relying on random rewiring of the bipartite graph while preserving the number of nodes and their edges. The last employs the formulas for arbitrarily distributed bipartite graphs given in Newman, Strogatz, and Watts (2001) (These methods are described in the technical appendix.)

Because we found the method of Robins and Alexander to provide estimates suited to small graphs, the chapters rely on these estimates. The Robins and Alexander statistics from Table 1.5 are plotted in Figure 1.4. The linear line represents the boundary for the small-world property. Values to the left of the line are small worlds; the further toward the upper-left quadrant, the more the country network is a small world.
Table 1.5  
Small-world statistics

A. Ownership for year 2000*

<table>
<thead>
<tr>
<th>Country</th>
<th>Standardized APL</th>
<th>Standardized CC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Random</td>
<td>Robins</td>
</tr>
<tr>
<td>Germany</td>
<td>1.07</td>
<td>0.45</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.46</td>
<td>0.66</td>
</tr>
<tr>
<td>Denmark</td>
<td>1.09</td>
<td>0.42</td>
</tr>
<tr>
<td>Norway</td>
<td>1.03</td>
<td>0.36</td>
</tr>
<tr>
<td>Switzerland</td>
<td>0.92</td>
<td>0.76</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>0.75</td>
<td>1.36</td>
</tr>
</tbody>
</table>

B. Board Interlock for 2000**

<table>
<thead>
<tr>
<th>Country</th>
<th>Standardized APL</th>
<th>Standardized CC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Random</td>
<td>Robins</td>
</tr>
<tr>
<td>Germany</td>
<td>1.25</td>
<td>1.02</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.14</td>
<td>0.95</td>
</tr>
<tr>
<td>Denmark</td>
<td>1.00</td>
<td>0.86</td>
</tr>
<tr>
<td>Norway</td>
<td>0.25</td>
<td>0.79</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1.16</td>
<td>0.88</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>0.68</td>
<td>0.41</td>
</tr>
</tbody>
</table>

*This table provides the same calculation using the results for ownership network for the second panel for each country. The Erdős-Rényi estimates again show high variability, as for all panels.

**This table provides the same calculation using the results for interlocking network for the second panel for each country. Note that the Robins estimates are again lower for average path length, with the exception of Switzerland this time.

world. Norway and the Netherlands have very little structure in either their ownership or director network; both in fact have very low network densities. Switzerland, Denmark, and Germany have clustered interlock networks, whereas Sweden has a more structured ownership network.

These simple comparisons suggest that governance may be achieved differently among these latter four countries, but in functionally equivalent ways. For this reason, a useful statistic is the small-world or SW statistic. The SW statistic is simply the normalized clustering coefficient divided by the normalized average path length. More generally, countries rarely are small worlds in both domains of corporate governance: tight ownership clubs and highly interlocked boards. The correlation between the SW statistics for directors and for owners is 0.09, which is statistically insignificant. A low correlation implies the possibility that countries might achieve effective governance through small worlds of either interlocking directorates or owners.
To explore this functional equivalence, we create a statistic that takes the maximum value from the director and owner networks for each country. This maximum expresses the idea that governance can be functionally exercised either through tight ownership or director networks. Figures 1.5a and 1.5b depict the plots of the maximum SW statistics against the measure of minority shareholder protection proposed by La Porta et al. and given in Gourevitch and Shinn (2005). In general, the plots show a mild upward slope; the calculated betas in a regression are not significant. In figures 1.6a and 1.6b, we also plot the maximum SW values for the political cohesion variable given in Gourevitch and Shinn. Again, we see a mild upward slope whose beta is insignificant. Since clubs should give rise to clustered owners and directors, another network statistic of interest is clustering. However, a simple univariate regression does not indicate a statistical relationship between the standardized clustering coefficients and the MSP and political cohesion statistics.
Figure 1.5
Plots of small-world and law variables
Figure 1.6
Plots of small-world and political variables.
It is not surprising that there is no statistical relationship between the SW measures and the other conventional governance statistics. To the contrary, the argument is that the clubbiness of owners and directors exercises an independent effect on governance. Social networks, as a measure of the informal mechanisms of norms and identity, provide a different axis by which to understand the workings of governance. Equally so, we expect changes in SW statistics to reflect important structural breaks in governance networks. It is around these arguments that the chapters are oriented.

The Chapters

The research strategy of the book is to establish a standard methodology by which to describe these networks and to compare their discrete changes in the 1990s. The chapters provide careful analysis of the relations between network properties and structural breaks, as well as revising some of the standard assumptions in the literature.

National systems have passed the test of survival over centuries and offer equivalent and yet distinct institutional configurations. Which one system is the best? This is an elusive question that fails to incorporate the differences in national bargains and social preferences that, apart from an appeal to multiple equilibria, will sustain national differences. More fundamentally, we would like to know the social rules that can generate the social structures and produce the outcomes that we observe.

The long-term goal of these chapters is, then, to move away from static comparisons of countries to a better understanding of the social mechanisms that drive structure and opportunities. It is a daunting task to try to isolate the social rules of individuals and microagents that generate national structures and institutions. The rules that function for generating a stylized caveman structure are far easier to identify than those that explain complex social structures. However, there are more modest avenues of research that can explore these structures by perturbing them and testing their robustness to “invasion” by different rules. One baseline invasion is the imposition of the “atomized market,” or the Anglo-Saxon model, even if it does not exist anywhere in this pure form. We may not know the precise social rules that can generate Germany or Korea, but we might be able to compare how far they are from each other.

In this book, we provide this comparative analysis progressively through the sequencing of the chapters that seek to group countries by a “most similar” design. Martin Conyon and Andrew Shipilov show in chapter 2 that even the class of countries that belong to the “Anglo” system and that are “most similar” in this respect do not conform consistently with the description of atomized financial markets. In
fact, there is substantial heterogeneity. They note that Canada, as a small country rich in commodities and with a rich mercantile history, developed historically along a different path than the United States and United Kingdom. Confirming the findings of Conyon and Muldoon (2006), they note that the United Kingdom is strikingly clubby in its director and ownership network structures. The mercantile origins of Canada foster family-controlled firms that have reemerged in importance; in the United States and United Kingdom, institutional investors have become primary. Thus, the mechanisms of control are very different in these three countries, suggesting the need for caution in using the widespread term \textit{Anglo-Saxon model}.

Chapter 3 is on business groups and the structural break of internationalization in six countries, five characterized as emerging economies. The authors (Jon Brookfield, Sea-Jin Chang, Israel Drori, Shmuel Ellis, Sérgio G. Lazzarini, Jordan Siegel, and Juan Pablo von Bernath Bardina) discuss the literature that indicates the likely effect that internationalization will reduce the role of business groups. They in fact do find evidence in this direction, where structural changes in the corporate networks show diverging patterns. They analyze the institutional factors that explain, on the one hand, continuity of business groups, and on the other, heterogeneity in the changes in governance. They conclude with the sobering observation that in these emerging economies, business groups hinder economic growth and liberalization, if they are so dominant as to dampen competition and entry.

In chapter 4, Doug Guthrie, Ilya Okhmatovskiy, Roger Schoenman, and Zhixing Xiao address the fascinating and historically unique phenomenon of the collapse of communism and the emergence of capitalism in the “most similar” countries of Poland, Romania, Bulgaria, and Russia, and the “not similar” country of China. Not surprisingly, they find that the “messy details” matter a lot to understanding this transition. The network analysis is heavily challenged by the difficulty of collecting data. Not surprisingly, the initial network structures are very disconnected and fragmentary. However, networks emerge rapidly, as illustrated in great detail in the study by Stark and Vedres (2006) on Hungary. China remains the outlier. Slower to liberalize, China also has not developed a strong business group structure. As noted above, business groups did not weaken in many countries that liberalized; in China, they are not developed in a country that has not liberalized. Clearly, the traditional logic of liberalization eroding business groups, or the absence of liberalization fostering business groups, is not supported by these analyses. This analysis then shines an insightful light on the pessimism of chapter 3. Where the state is strong as in China, business groups are weak. These are not easily complementary institutions, but are best seen as substitutes for control over the economy. Business groups exist not because markets and institutions fail, but because states are weak.

Chapter 5, on continental European governance, summarizes the preceding findings in a pithy quote from Ron Gilson that function persists longer than predicted,
hence so does the form. Still, the authors (Fabrizio Ferraro, Raffaele Corrado, Gerhard Schnyder, Eelke M. Heemskerk, and Nathalie Del Vecchio) find that the European countries responded very differently to the structural breaks of privatization and globalization. The key insight is that the economic actors that maintained their independence were positioned structurally to seize the new opportunities opened by these changes. In Italy and Switzerland, whose degree of clubbiness increased, banks improved their positions. In the Netherlands, the small-world statistics approach their random values and, in fact, financial intermediaries weaken substantially in the governance networks. The authors close with an interesting observation that Europe may be undergoing a “power vacuum” that was found for the United States in the late 1980s, and the identity of the new regional actors and a more unified network are yet to be clearly sketched.

In chapter 6, Christofer Edling, Bersant Hobdari, Trond Randøy, Anna Stafsudd, and Steen Thomsen shift the lens from comparative macrosociology to analyzing whether national and gender diversity influences network structure. By focusing on the Scandinavian countries, which share an institutional, legal, and cultural legacy, this chapter adopts a “most similar” comparison framework. The conventional wisdom is that directorate networks are characterized by “boys’ clubs,” and unquestionably this has been the pattern in all countries. However, the Scandinavian countries are leaders in the introduction of more diverse board members. The authors find that diversity leads to more connections among boards; boards that remain dominated by domestic nationals and males are more likely to be poorly connected. This finding has an intriguing implication that a new social stratification of power is emerging in these corporate networks.

Chapter 7 takes still a different approach. Gerald F. Davis, Gordon Walker, and I discuss the results of a modest multilevel analysis, comparing the merger and acquisition activity in corporate networks of Germany and the United States, using a “most different” country research design. We use the network structure measures in 2000 to predict subsequent acquisition activity. Simple statistics can sometimes be very telling. The United States has few block sales of shares in an acquisition; block sales are sales by a dominant shareholder to an acquirer, often by placement. Block sales were quite common in Germany and acquisitions were also very common. The small-world signature on acquisitions is more evident in the German than in the U.S. case.

Chapter 8, by Bruce Kogut, Mariano Belinky, Jordi Colomer, and Malika Hamadi, explores a generative social science model to challenge conventional research designs that rely on macrocountry institutions. A generative social science approach seeks to posit mechanisms, or microrules, from which country structure emerges. The first part of the chapter proposes several new statistics by which to compare “distances” among countries in order to answer such questions as “How far away is
Korea from the United States or from France?” Building on the insights of chapter 6 by Edling and coauthors, who show how changing norms about gender change structure and power, we further develop the analysis of gender and boards through agent-based models. We create a simulation model that begins with the empirical director networks in Belgium and then asks what would be the behavioral consequences of increasing the number of female directors through the imposition of quotas. In the spirit of generative social science, two rules are used to evolve new networks over time. The results point to rather low levels of “quotas” as sufficient to tip the network toward more centrality for female directors. In addition, the simulations have the fun result of showing who loses and who gains power in these simulations.

Chapter 9 is a collective enterprise by all the contributors to the book. The initial analysis describes the wide variations in small-world structures across the countries as well as in the importance of business groups and central actors. Pooling all the data, we isolate the owners and directors who are the most powerful in the world, showing that they come from a few countries due to the very high national centrality. Excluding these national ties and focusing on only the transnational ties, the analysis shows a very sparse structure, in which a few actors are very central. This chapter identifies directors as more consequential than owners for connectivity among countries. Similar to the findings of Davis (2009) for the United States, the analysis also points to the growing primacy of financial institutions as the critical actors in the global governance networks. We are far from the thick ties of global governance, but the structural signature is already present.

The concluding chapter 10 argues that studies comparing national governance systems have contributed immensely to our empirical knowledge but struggle in establishing causality. Because institutions are rooted in norms and social rules, comparative structural analysis of macroinstitutions has a difficult time in determining why countries do not just converge into one system. An alternative is to build directly models from micro-to-macro generative social science. This approach is illustrated through two examples. The first example argues that a fundamental problem facing a government in a transitional economy is that the economic system changes more quickly than the political system can adapt. The second is a stripped-down demonstration of how genealogical rules determine the size of business groups in Thailand. The interesting moment in current history is the slow emergence of a transnational global order whose structure is the product of the wide variety of social rules found across countries.

The appendices provide a guide to the network tools used in the analysis, as well as documentation of some of the principal algorithms and name-matching routines. Because we hope to diffuse these tools more broadly, the software is posted publicly, as are many of the data sets.
Conclusions

A metaphor used throughout the research journey behind this book is that small-world networks are the door by which we may enter the room, but they may not be the door by which we exit. Indeed, these chapters often utilize small-world statistics as powerful descriptions of the clubs and governance institutions within and across countries, while noting the importance of law and especially of politics as driving the new historical bargains by which the forces of globalization and the interests at stake negotiate “who gets to do what.” A common theme is that these politics are not to be summarized by their formal institutions (e.g., majoritarian, consensual) but are influenced by the degree of state autonomy and governance networks that condition structural opportunities and resources available to these competing actors.

A major objective of these chapters is to demonstrate the possibilities provided by broad cooperation among scholars to collect new data and to utilize new methodologies and tools to answer both perennial and new questions. This book shows that utilizing common tools allows for more definitive statements to be made about the comparative statics of structure and governance. In the years to come, we will have more data and structural and institutional variation, so that we will be able to speak more “causally” in our diagnosis of the mechanisms behind governance. For those too impatient to wait for greater causal certainty, network and generative approaches to the study of comparative governance provide inviting avenues of exploration.

Acknowledgments

I would like to thank my colleagues in this project and especially Fabrizio Ferraro, Roger Schoenman, and Jordan Siegel for their comments on this chapter. I would also like to acknowledge the research assistance of Valeria Zhavoronkina and Alicja Pluta.

Notes

2. See Murphy (2007) on France regarding the collapse of financial markets in the 18th century.
4. Nor is this a unique American problem. For a precocious discussion of exit and voice in relation to the growth of institutional investors, see Hedlund, Haegg, Hoernell, and Ryden (1985).
5. See Mizruchi (2004) for an excellent comparison of the economics and sociological literature on dispersed ownership, the latter putting emphasis eventually on interlocking directorates.
6. We do not make this distinction in our director analysis, since we largely lack these data and also because for many countries, the distinction is trivial since boards may be entirely populated by outside directors, as in Germany.
9. This appears to be a lesson often forgotten. See Polanyi (1957) for one of the most influential statements on why capitalism became regulated.
11. For example, in the case of 10 proposed institutions and practices (e.g., unions, block owners, work councils, teams, quality circles, etc.), there are 1,024 possible combinations, 5 times the number of countries in the world!
12. This law and finance triumphalism was well captured in a thoughtful article by Hansmann and Kraakman (2001) that predicted the convergence of governance systems.
16. Unless noted otherwise, the details of these events are found in Glasberg (1981). For a comparison of this case to the failed takeover of the Catholic firm Saint Gobain by the Protestant BSN (headed by Antoine Riboud) and the role of religion and banks in France, see Kogut, Walker, and Anand (2002).
17. Weights are clearly important to consider in many graphs. See, for example, Guimerà, Mossa, Turtschi, and Amaral (2005a) for an analysis of airport traffic, and Kogut, Urso, and Walker (2007) for an application to venture capital syndication.
18. An alternative definition is local density (i.e., the number of edges over the total possible number of edges). This measure is often used in social network analysis. The two measures are correlated, but not perfectly; see Schank and Wagner (2005).
19. Robustness was also shown to be a property of the Internet in studies; see Reka, Jeong, and Barabasi (2000).
21. Changes in the technology of small worlds showed biases (see the discussion in appendix 1 on bipartite graphs); Poisson-corrected results appeared in Kogut and Walker (2003); Conyon and Muldoon (2006) used an arbitrary degree correction; the bipartite corrected measures are used in this book. See also Uzzi and Spiro (2005) for an in-depth explanation.
22. Tunneling is discussed in the working paper by Kogut and Spicer (1999), later published in 2002, and is analyzed at length by Johnson, La Porta, Lopez-de-Silanes, and Shleifer (2000).
23. See Roe (1994); the canonical articles on law and economics are La Porta et al. (1998, 1999).
24. For an example of a careful finding of a negative effect of business groups, see Bertrand, Mehta, and Mullainathan (2002); see also Bennedsen, Nielsen, Pérez-González, and Wolfenzon (2007) for negative findings regarding family firms in Denmark.
25. An articulation of this view is given in Morck, Wolfenzon, and Yeung, (2005).
26. For counterevidence, see Khanna and Yafeh (2007).
28. For example, see Scott (1997), Windolf (2002), and Stokman (1986).
29. In 2004, the journalist Paul Klebnikov was murdered in Russia, reputedly for his investigations into the corporate ownership held by oligarchs.