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Social Against Mobile Capital:
Cross-National Variations
in Stock Market Size in the OECD

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ABSTRACT

What accounts for variations in the size of OECD stock markets? Existing answers point to the negative impact of state control over industry, enhanced by state centralization, and mitigated by common law. I counter that state centralization has a positive impact on stock market growth as well. It holds in check local governments' resistance to the centripetal mobility of capital, without which stock markets cannot develop. I provide empirical evidence of this dual effect by identifying variables for each effect and regressing them together against stock market capitalization on a cross-sectional population of OECD countries.

SOCIAL AGAINST MOBILE CAPITAL:

Explaining Cross-National Variations in Stock Market Size in the OECD

Do political institutions affect stock markets and how? The current literature is almost unanimous in thinking that markets in general, and financial markets in particular, require limited government to develop. A strong, centralized state, it is argued, has a debilitating effect on capital market growth. Against the dominant antistatist view, I offer a more nuanced interpretation. State strength cuts both ways: on the one hand, state strength offers the government the means to establish an integrated financial market. An integrated financial market is a powerful redistributional tool, transferring capital across geographic and sectoral borders, too politically explosive for governments in weak states to sustain. On the other hand, state strength provides the government with the means to dabble in the allocation of credit, a temptation that few governments manage to resist, even though it has the unwanted effect of undermining market discipline and capping stock market growth in the long run. After a brief survey of the literature, I introduce my argument, then develop to some length two paradigmatic cases, and test the argument on OECD countries. I expand on the broader implications for the market-state-law trinity in conclusion.

The Literature

The current literature is profoundly influenced by the belief that state and market form a volatile pair. Antistatism pervades the first three of the four lines of argument on the origins of stock markets: (1) social capital, (2) federalism, (3) common law as a bulwark against state control, and (4) common law as a boost to shareholders' rights.

The literature on social capital emphasizes the role of trust, sociability, norms of reciprocity, networks, and civic traditions—various concepts that boil down to the

propensity, which Tocqueville observed two centuries ago in North America, for individuals to cooperate outside the family and without the help of the state to produce socially efficient outcomes. Exemplary of this revival is Fukuyama's work on trust.[1] Fukuyama (1995) argues that all low-trust societies (a category that includes France, Southern Italy, China) share a common industrial structure: Numerous private firms that tend to be small and family-controlled coexist with a few large-scale enterprises that need the support of the state to be viable. In contrast to this "saddle-shaped" distribution of firms, high-trust societies such as the UK, the United States, Japan, and Germany have many large and very large managerial concerns, perfectly viable without state support. A deficiency in trust reflects the dominance of a centralized and arbitrary state during an earlier phase of historical development.[2] Though Fukuyama does not draw any, consequences for stock markets seem straightforward. The most popular stocks among investors always are those of large-scale private companies. Family firms and state-owned firms are either not listed or, even if they are, do not attract investors' attention as much as large private corporations, for they are controlled by a core of interests—family members in the case of the family firm, the state in that of the state-owned firm—that do not count share value as their first priority. Trust and stock market development should thus be linked.

Levy (1999) applied a telescoped version of the social-capital argument to economic policymaking in post-*dirigiste* France. The success of *dirigisme* in the postwar decades, Levy argues, caused an underdevelopment of social and local associations, which came back to haunt policymakers when they sought to disengage the state from the economy in the 1980s and have banks and private investors take over the financing

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[1] Fukuyama 1995. See also the seminal contributions of Coleman 1990 and Putnam 1993. For an empirical test, see La Porta et al. (1997b).

[2] Fukuyama 1995, p. 98. See also Putnam 1993, p. 180.

of industry. In light of the failure of market forms of coordination to relay the state, the latter was forced to intervene anew, rescuing ailing firms.

The second line of argument comes from new institutional economics. It makes market growth dependent on the *co*-existence (and not *pre*-existence as in the social capital literature) of limited government. North and Weingast (1989) argue that limited government made possible the expansion of a market for the public debt. Whereas it was difficult for a monarch holding the crown by divine right to commit not to repudiate past engagements, parliamentary rule, by securing individual rights and including wealth holders in the policymaking process, offered the required guarantee and reduced investment risk. The public debt was then instrumental in the latter acceptance of private securities, giving a boost to the private capital market.

More recently, Weingast (1995) specified the notion of limited government as "market-preserving federalism," a particular type of federalism encountered in 18th-century England and 19th-century United States, in which local governments enjoyed primary regulatory responsibility but could not use it to restrict the circulation of goods and factors of production in the economy. Echoing Root's (1994, p. 156) study of the development of competitive markets in England and France, Weingast stresses the role of the common law system; unlike French courts, British courts were independent from the Crown and, moreover, they were local and in competition with each other. This made it difficult for possessors of royal monopolies to appeal to judges to defend their rents beyond London. The jurisdictional competition between urban and rural courts was instrumental in blocking the expansion of urban guilds to guild-free rural areas. By contrast, in France, the monarchy managed to bypass traditional local jurisdictions, establish the supremacy of royal statutes, and enforce royal monopolies—on which royal

finances depended—throughout the realm.[3] The higher degree of centralization in France relative to England explains the lesser development of competitive markets in France.[4]

The third argument, advanced by Rajan and Zingales (1999), zeroes in on the judicial component flagged by Weingast and Root. The two Chicago economists start from the premises that markets and centralized power are incompatible. Governments are not ordinarily interested in ensuring investors' property rights against expropriation or, even if law-bound, they prefer to deal with banks than with markets. Governments are also responsive to anti-market coalitions—the landed gentry in the 19th century, the unemployed masses following the market crash of the 1930s—which markets seem to regularly generate by destroying primitive forms of insurance and providing little substitute. Therefore, decentralization of political power, by which they mean the precedent-based, judge-administered system of common law encountered in England and ex-colonies, safeguards property rights and promotes financial innovation.[5] Common law owes this advantage to its peculiar dynamic, blocking top-down changes ordered by the political center, but open to grass-roots contractual innovation suggested by individual practitioners. For instance, the common law due process is better at legalizing complex ownership structures, as well as notions of trust and good faith, which are typical of the arm's length contracts between firms and investors in financial markets (p. 29).[6] Civil law in contrast cannot evolve on its own but requires an act of the legislator, making it "an easy prey to political movements advocating a command and control

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[3] Weingast 1995, p. 7; Root 1994, pp. 150, 157.

[4] Focusing on the 17th and 18th centuries, Weingast and Root have little to say about the actual development of corporate securities markets, which occurred in the 19th century.

[5] In the common law system, the judge de facto makes the law, whereas in the civil law system, it is the legislator.

[6] In an earlier formulation of the hypothesis, Marcello De Cecco also linked financial innovation to common law (1983, p. 14). For a criticism, see Caranza and Cottarelli (1987, pp. 187-188).

system" (11). In sum, Rajan and Zingales offer a plausible argument for the legal origins of stock market performance. Common law is a bulwark against state control and state control is bad for markets.

The fourth and last line of argument also uses legal origins. La Porta et al. (1997a, 1998) argue—and show—that common law countries have more developed stock markets than civil law countries. The causal mechanism they point to, however, is not the degree to which law shields markets from state encroachment, but that common law protects shareholders better than civil law. Law enforcement is also lowest in French civil law countries.

Except for the last argument, the literature on market development is unanimously antistatist. Manifestations of state strength, either in the form of a prior strong or dirigist central government (Fukuyama and Levy), the co-existence of a centralized state (North, Weingast, Root), or state-made law (Rajand and Zingales), hinder market development in general, and financial market in particular. In contrast, checks and balances, federalism, and common law are alternatively associated with corporate and financial development. The survey of the literature provides us with two distinct hypotheses about the relative growth of stock markets: an antistatist hypothesis, according to which market growth is negatively related with state control; and a pure legal hypothesis, according to which large markets are associated with common law. Although legal origins is invoked in both lines of argument, the hypothesized path between legal origins and stock market size is *indirect* (mediated by the state control variable) in the antistatist argument, whereas *direct* in the pure legal argument.

Accurate in part, the antistatist hypothesis is incomplete. Political decentralization, I claim, also has a negative impact on financial market development, suppressing its otherwise positive effect. My argument holds in two points: (1) First, stock markets have centripetal effects that elicit resistance from financial peripheries.

Because financial peripheries are politically weaker in centralized than in decentralized regimes, stock market size is associated with state centralization. (2) Second, stock markets cannot list publicly-owned enterprises and do not like to list privately-owned, yet state-regulated enterprises. State control is typically larger in centralized than in decentralized states. Putting one and two together, state centralization both positively and negatively affects the stock market—the net effect is null (see Figure 1). I develop the positive and negative effects in the next two sections successively.

[Figure 1]

The Geography of Finance

Financial intermediaries are specialized along the center-periphery continuum. The logic behind the spatial arrangement rests on a political compromise, which is spurred by two simultaneous market failures: economies of agglomeration and information asymmetry. Consider economies of agglomeration, first. According to the recent literature on economic geography, economies of agglomeration result from the combination of internal scale economies and forward-backward linkages.[7] Financial centers display both features.

Like an old-fashioned market place, the financial market is characterized by internal scale economies—the higher the volume, the more efficient the pricing, the more attractive to buyers and sellers the market is. Internal scale economies exist both in the long- and short-term segments of the market. The long-term segment, commonly referred to as "primary capital market," primary because bonds and stocks are traded for the first time, pools the largest issuers in the economy. The issuing of a security presents steep fixed costs, favoring large over small issues. The short-term market, the so-called "money market," on which currencies, commercial paper, notes, and certificate of

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[7] See Krugman 1991.

deposits are traded, also thrives on volume. The money market is reserved to banks, institutional investors, and large firms.

The relation between the capital market and the money market is mediated by two institutions: the "secondary capital market" and the money center banks. For the sake of greater clarity, consider Figure 2, showing the four components, linked together in a circuitous way. The arrows indicate the flow of funds. Start from arrow 1. Banks depend on the capital market to transform long-term loans to industry into securities, recoup their liquidity, and lend anew. Then move to arrow 2. The money market depends on banks for the supply of cash. Until recently, cash essentially took the form of savings deposits. Banks lent to brokers and market players, who pledged securities as collateral. With money-market and mutual funds displacing savings deposits in recent years, banks are rushing into brokerage and asset management to serve as liaison between investors and market.

On to arrow 3. The secondary capital market is the place where stocks bought in the primary market can be resold. The breadth of the secondary market is determined in part by the depth of the money market. A deep money market lets brokers, security dealers, and arbitrageurs of all stripes borrow the cash they need to finance the short-term positions they repeatedly take, either to make markets for securities or merely speculate. Arrow 4 last. The depth of the secondary market is important to attract investors—they value the liquidity that it offers. As a result, they are willing to pay a premium for liquidity, making listing for issuers desirable, since higher equity value automatically translates into a higher capacity to raise debt—both direct and intermediate.[8]

[Figure 2]

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[8] It is impossible to separate linkages into forward and backward, for there is no linear ordering of production from intermediate to final.

Added to the internal scale economies that characterize the markets, the above circularity generates economies of agglomeration. It explains why the financial center is the place where all the largest and most profitable banks in the economy are headquartered. It explains why financial centers develop at the expense of their peripheries.[9]

The point to appreciate is that there is no separation between long and short: Capital markets are leveraged by demand deposits and money market accounts. There is no separation between debt and equity either: Corporate bank loans are lifted up by higher equity value. They all expand together or contract together. Explaining the size of the primary stock market is not that different from explaining the size of the secondary capital market, that of the money market, that of the center banking sector, and vice versa—it all boils down, in part at least, to identifying what constrains the expansion of any component.

Surely, there are limits to financial centralization. First, concentration is unlikely to go on until the periphery totally empties out; it probably reaches an upper bound in the form of rising opportunity costs.[10] Second, and more importantly, information asymmetry has opposite, centrifugal effects. Financial markets fail if investment information is costly and imperfect, as it usually is in small-business lending.[11] Little public information is usually available on small firms, making their securities or commercial paper non-tradable on financial markets. Small firms, instead, fund their

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[9] There are additional incentives for concentration in financial centers. Geographic concentration supports a well-supplied labor market and specialized local providers of inputs—lawyers, accountants, messenger services, public relations firms, and computing services. It also facilitates the spread of more reliable information, usually through personal contact. The pricing of untested products (as in primary issuing) is sensitive to private information.

[10] Financial centers become congested, office space gets expensive, and the wages paid rise out of line with the rest of the country. Screen trading and the linking of markets have made it possible for banks to relocate activities pertaining to trading on secondary markets in second-tier cities. However, primary issuing and most investment-banking type services, which require a large input of specialized providers and information, do not easily relocate to the periphery.

long-term needs with local bankers. The comparative advantage of local banks lies in their access to local investment information, which they scrape together through membership in local social networks—the chamber of commerce, the municipal authority, and other relevant local organizations. Unlike the financial center, the financial periphery is not market oriented but bank based. Local security markets most often do not exist, or if they do, they are "specialist" markets, listing the stocks of local industries, for which trading is slow, dominated by insiders' knowledge, and unsuitable for a larger stock exchange. In either case, good investment information is essential, for local bankers usually do not have the possibility to exit from a long-term lending position the way center bankers do—by unloading the loan onto the market. Local banks also tend to lend to smaller firms than center banks and, for that reason, they are usually smaller. Large size affords visibility, favors good information, eases access to markets, and induces migration to the center.[12]

However, information asymmetry has a centrifugal effect only on the assets side of the bank's balance sheet, not on the liability side. Information asymmetry prevents local borrowers from tapping the financial center for money, but it does not prevent local savers from sending their liquidity to the center. Local banks and money markets compete for the same savings. In the past, local banks and the local branches of center banks competed for individual deposits. Local banks re-invested them in loans to local industry, whereas center banks drained most of them to the money market (at least until the 1930s). Center banks enjoyed a competitive advantage over local banks, for they were able to offer investors a wider range of products and higher returns. This competitive

[11] See Hölmstrom and Tirole 1997.

[12] The point is not that local, small enterprises are unable to get loans from center-located banks, but that the local agents of center banks are not as free as local bankers to meet the financial needs of local firms, best characterized as "relationship banking" (Petersen and Rajan 1995). Center banks' local agents are less likely to enter into relationship banking with small firms than local bankers are. Local

advantage is even more pronounced today with the generalization of money-market accounts, by which banks pass on to depositors the money-market rate in exchange for a fee. No longer able to keep savings on their books, all banks now have to finance their investments on the money market, at a price that varies with their credit ratings. Dependence on credit ratings is causing problems with local banks, for it means that banks must refrain from lending to clients with little or no public visibility—the local banks' traditional and most logical line of business—lest credit-rating agencies and specialized newsmedia overweigh the risk presented by these loans, forcing the bank to increase capital in the face of a downgrade and higher borrowing costs. Local banks are at a comparative disadvantage when it comes to financing their investments.

Local banks cannot survive without regulatory help. Help may come in the form of legal interdiction to enter local markets, tax subsidies, or a state guarantee. Legal prohibitions existed in the United States until 1994, when an Act of Congress legalized interstate banking. They still exist in many European countries, where hostile takeovers are ruled out by unwritten codes of conduct. In such conditions, no large bank can enter a local market without securing the consent of the relevant local government.[13] A second way for government to help local banks is to maintain their non-profit status. In Germany, Austria, Scandinavia, Italy, Spain, and Japan, the local banks are non-profit banks—savings banks and credit cooperatives—, paying limited or no taxes and enjoying a state guarantee on liabilities. In the presence of a guarantee, the bank gets the credit rating of the guarantor, which is top when it is the state. The state guarantee enables local

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agents have to meet lending standards and liquidity requirements that keep changing with the overall position of the bank.

[13] The fixed costs of establishing a retail network are so high that entry usually proceeds by way of takeover.

banks to refinance more cheaply on the Euromarkets than the private banks despite making riskier loans.[14]

The need for regulatory help is not specific to local banks, but is also felt by local firms and local governments. If the local banks either concede the local deposits to the center banks or try to shore up their credit ratings by purging their balance sheets of low-rated loans, they cannot finance the local entrepreneurs, who, due to information asymmetry, have nowhere else to go. By extension, local governments are unable to maintain a strong tax base if local banks and local producers have no reliable access to capital. There is indeed a triangular interdependence between affluent local industries, well-entrenched local banks, and politically powerful local governments. Local industries need local banks to sustain local investment, local banks need the political protection of local governments to hold back the competition for resources from the center banks, and local governments need prosperous local banks and industries to maintain their relative fiscal independence from, and power vis-à-vis, the central government.

A caveat is in order. Not all peripheral districts would necessarily suffer from the centralization and globalization of capital markets. Those districts that accommodate the rise of firms large enough to efficiently tap equity markets, are not necessarily harmed by the decline of local banking. One would expect these districts and the firms to which they are home to espouse the cause of centralization or, at least, be conflicted—indeed, although the large firm provides local employment, its interest in the welfare of its local host is circumstantial and reversible.

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[14] In a study of German Landesbanks, Sinn (1999, p. 34) reports actual credit ratings and hypothetical ratings that would be given to these banks on the strength of their balance sheet structure if they had no government protection. The resulting downgrading is equivalent to the step from Triple A to Double A, or from Double A to a simple A, allowing banks to get five-year money on the Eurobonds market for 20 basis points less than comparable private competitors who do not have the protection of the formal government guarantees.

However widely it may be felt, the need for regulatory help is insufficient in and of itself to translate into actual regulatory help. The potential losers must get together and overwhelm the political power of the financial center. Too few to make a difference electorally, yet much too scattered to act collectively, especially against a geographically concentrated opponent, local banks and firms solely have the local government connection as viable political channel, and only so in countries where local governments enjoy a modicum amount of political power—in decentralized countries. Local governments in federal and otherwise decentralized states can use their collective veto in the upper chamber to block financial deregulation. In contrast, they are powerless in centralized states. As a result, politicians as a whole are more likely to arbitrate the center-periphery conflict in favor of the periphery in decentralized states, or at least do so more often, than in centralized states.

The above discussion yields the first causal proposition: *The capacity of the financial center to attract resources is a function of the size of the money center banking sector, which, in turn, is a function of the degree of centralization of the state.*

I have argued so far that territorial decentralization is a hindrance to financial development. I now elaborate on the more common claim that state control is also a hindrance.

State Control of Industry

Stock exchanges need stocks to trade. The wider the range of stocks they can offer, the more possibilities for diversification they make available to potential investors. Moreover, each stock must occur in a sufficiently large quantity, guaranteeing a constant trading volume. Last, in order to insure liquidity, the stock must be visible, able to focus investors' action. Indeed, market liquidity is comparable to a coordination game, in which

a player trades a stock only if she thinks that others will trade that same stock.[15] The existence of a focal point helps solve coordination problems to every participants' benefit. Famous stocks, such as Microsoft, Dell Computer, Cisco, and GE Financial have the wherewithal's to attract transactions. Their price includes a liquidity premium. They are the workhorses of the exchange in which they are listed, providing brokers with their daily bread. Five percent of the stocks listed on the NYSE represented 51 percent of trading value in 1998, 60 percent in London, and 86 percent in Frankfurt.[16] Stocks that are unknown and with little prospect of getting known are unlikely to be listed. The companies that tend to get listed are either very large, in growth sectors, or both.

In many European countries many of the companies that would fit that profile are owned by the state. Until twenty years ago, 9 out of 10 of the largest companies in European countries were in that situation. Sectors such as railways, telecommunications, postal service, coals, gas, petroleum, electricity, air transport, shipbuilding, and banking, were in many cases part of the public sector.[17] State ownership denied stock markets an adequate capital base.

There was no hard and crisp logic behind the creation of public sectors. The theory of natural monopoly justified state regulation, not state ownership. The poor's desire to make the rich pay could be more easily reached through taxation than through nationalization. The 1980s French Socialist claim that state ownership (of banks especially) provided governments with the means of their industrial policy was mocked

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[15] The problem is aptly defined by Raghuram Rajan and Luigi Zingales as "a chicken and egg problem…people will not trade in a particular market unless they think the market is liquid, but the market will not be liquid unless they trade" (1999, p. 17).

[16] FIBV 1998, p. 88.

[17] The steel sector in Austria, Belgium, Britain, France, and Italy was state-owned. In the automobile industry, Renault, VW, SEAT, Alfa Romeo, Jaguar, British Leyland, Rover, Rolls-Royce ended up being state-owned at one point.

by specialists of French politics.[18] The truth is that most nationalizations in most countries were unplanned, but occurred because the government sought to salvage an unprofitable private firm from bankruptcy. The firm may have been involved in a sector deemed strategic for security reasons or it was a large firm, employing a large and politically sensitive workforce—or both, as with railways.[19] Once public, many of these firms stayed public, not out of post-facto rationalization, but because the state could not dispose of their assets—capital markets were too narrow. The upshot was a sub-optimal—catch-22-like—equilibrium, in which the large size of the public sector prevented the stock market from reaching the critical mass that would have allowed it to bear the privatization of state-owned firms. This equilibrium was also characterized by an underdeveloped internal money market and a non-financial sector financing investments through bank loans and retained profits.[20]

There are difficulties in establishing comparative data on the size of state-owned industrial sectors. The impossibility to reach an easy definition of what constitutes a public enterprise makes aggregate data—such as employment and gross capital formation—uninformative.[21] Aggregate data also fail to reveal key differences in state control. Although nationalized industries in Britain and France were truly national, most of the 4000 public enterprises in West Germany at the time were—and still are—at Land and local level.[22] In Sweden, localities run some of the public utilities. Moreover, although nationalized firms in France included the biggest manufacturing firms, in

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[18] See Cohen et al. 1984.

[19] IRI, the Italian state holding company, was initially created in the 1930s to take over the industrial holdings of the three virtually-bankrupted main Italian banks; see Posner and Woolf 1967. IRI ended up producing, among various things, Christmas *panettone* and 25 percent of Italian *gelato*.

[20] See Loriaux 1991 on France.

[21] For employment and capital formation data on a dozen OECD countries, see Pathirane and Blades 1982, 268, 273.

[22] The Länders' share was estimated as twice as large as that of the Federation in 1988; see Esser 1994, p. 107.

contrast, comparable British and German firms were privately owned. Last, the numbers hide very different forms of state involvement in the management of these companies, which ranged from close in France and Belgium, to arms' length in Germany and the Netherlands.[23] While these variations made little difference for stock markets at the time, they became relevant in the 1980s and 1990s, when governments began to divest.

State control matters to stock market growth because it tends to outlive privatization. The incorporation of a public company is a necessary but not sufficient condition to stock market growth. The state also has to abandon control, both direct in the form of majoritarian—and sometimes even minoritarian—participation, and indirect, through the appointment of a core-controlling group (the French *noyau dur*) of companies linked together through mutual cross-shareholdings. Although cross-shareholdings artificially boost the capitalization of the stock market—the same shares are counted twice—they also curb trading by the core shareholders, who cannot sell for a determinate period. Investors are also unlikely to find the stock attractive, as the management team of the company is shielded from external takeover bids. Unlikely to fail, a state-controlled firms is equally unlikely to maximize shareholder value. In the end, state control is a cause for thin trading.

A cause of state control is centralization. Centralization provides the central government with the capacity to increase its power over the economy. Since a major industrial rescue threatens local governments with a roundabout way of tilting the constitutional balance between the federal state and its constituent parts, state control is an unlikely occurrence in decentralized countries, where local governments possess extensive powers of veto.[24]

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[23] See Parris et al.1987, ch. 7.

[24] Note that a similar logic has been used to account for the dearth of privatization programs in decentralized countries; see Heald 1989, p. 46. The claim is that in decentralized countries,

I can now introduce the second causal proposition: *The capacity of exchanges to list attractive stocks is a negative function of state control, in turn a positive function of state centralization.* This proposition is only valid in the present period, as it would have made no sense prior to World War I, when state ownership of industry was not accepted practice.

The two causal propositions together point to a mixed, and thus indeterminate, effect of the variable state centralization. In the first proposition, state centralization positively effects stock markets, for it denies local governments the capacity to divert finance to small-firm lending. In the second proposition, state centralization negatively affects stock markets, for it enables politicians to maintain some form of state control over large industrial concerns.

Two Paradigms

A somewhat detailed presentation of the French and German cases will help flesh out the argument. These two cases were chosen for their closeness of fit with the argument. France has a centralized state, and thus a weak local banking sector. The deregulation of the stock market in the 1980s was relatively easy, but a lingering high level of state control hampered privatization and stock market capitalization. In contrast to France, Germany has a decentralized state and limited federal state intervention in industry. The large size of the local banking sector, however, deferred and muffled the German "Big Bang".

France has a centralized regime. The weakness of local governments is responsible for the centralization and concentration of the banking system (see Table 1). The savings banks, initially local town creations, were rescued by the Treasury in 1830. The cooperative movement was anemic and re-organized by the state in the wake of

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privatization threatens to rob local governments from an important power base, if not a source of revenues. Although this argument does suggest that decentralized countries are less likely to evince large privatization programs, which is true, it fails to take into account the fact that decentralized countries do not have large public sectors to begin with.

World War I. The last local private banks disappeared in the financial crisis of the 1930s. The chronic weakness of French local banking justified the multiplication of special credit agencies to provide subsidized credit to farmers and small business. French center banks never had difficulties draining peripheral deposits to Paris, which was home to a lively stock market prior to the 1930s. Once the decision was made in the 1980s to dismantle the postwar system of allocation of credit and to broaden the Parisian equity market, the state encountered no local opposition. The measure was imposed by the state, at times without even consultation with banks.[25]

France centralized rule-making is also responsible for significant state control of industry. Until a recent date, the state-owned sector included the biggest manufacturing firms—Renault, Thomson, Rhône-Poulenc, Péchiney-Ugine Kuhlmann, Rousself Uclaf, Saint-Gobain-Pont à Mousson, Sacilor, Usinor, Bull, Matra, and Dassault. Although these firms were obvious candidates for privatization, French governments proceeded with caution. Rather than relying on the open bid system, the government invited banks, insurance companies, and large firms to create core-controlling interests, linked to each other by means of cross-shareholdings and interlocking directorates. The cross-shareholdings limited the market appeal of the newly privatized stocks. No one could attempt a hostile takeover, reducing current management's incentive to improve profitability. Further, too close a relationship with government—the Gaullist government used privatization as a way of rewarding loyalists—increased the risk of corruption and managerial involvement in a public scandal, with dismal consequences for share value. In the end, the *noyaux durs* did not survive the economic slowdown of the early 1990s, as many of the core shareholders were hard-pressed to sell redundant assets to plug losses or simply refocus their holdings around their core activities. The state had to rescue

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[25] According to Cerny (1989, p. 183). Coleman (1993) offers a concurring opinion in his survey of French banking reforms.

several just-privatized firms—3 banks (CEPME, CFF, Société Marseillaise de Crédit), an insurer (GAN), several manufacturers (Renault, PSA, Michelin, Bull, Thomson), and Air France.[26]

Two large banks in France—Crédit Agricole and Crédit Lyonnais—are still not listed on the *Bourse*. Although poor performance accounts for delaying privatization in the case of the latter, protectionism alone is accountable for the former—with its mutual status, Crédit Agricole, the second largest bank in Europe, can buy any firm, yet is immune from hostile takeovers. It is no wonder that the capitalization of the Bourse is still unimpressive by historical standards.

[Table 1]

Germany, unlike France, is a decentralized country, with a decentralized banking system. The local banking sector in Germany represent 65 percent of total bank assets in 1995 (Table 1). This sector is essentially composed of credit cooperatives, savings banks, and the Länder-owned Landesbanks—initially giro institutions of the savings banks that have become regular commercial banks. The much-vaunted Groβbanken represent only 26 percent of assets. For more than a century, local governments have protected local banks by means of state guarantees on deposits, tax breaks, and subsidies, and the hard-won right by savings banks to offer their clientele the same products as commercial banks. Until the deregulation of the money market in the 1980s, the two systems did not communicate with each other except at the very top. Savings banks in districts with excess deposits over loans would transfer their net surplus to savings banks in districts with excess loans over deposits; only the net surplus was lent to the commercial banking sector. The capacity of the Groβbanken to drain savings to the financial center was considerably less developed than in France.

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[26] See Levy 1999, p. 277.

Historically, the German stock market was underdeveloped. Until 1990, Germany had eight regional stock exchanges. Their deregulation, which allowed Franfurt to break loose from the obligations toward the other seven regional exchanges, led to an intricate debate, not so much between brokers and the rest of the financial profession as in France, as between the center and the periphery. The "Frankfurt Coalition", including no less than the Federal Finance Minister Waigel along with the four largest banks and Hessen (Frankfurt's *Länder*), pushed to have stock markets play a larger part in corporate financing. They were opposed by the seven smaller exchanges and their supervisors—the respective *Länder* governments.[27] The local coalition opposed computerized trading, the opening of a futures market, and the creation of a central supervisory agency. They feared the centralizing impact of these measures and the eventual impoverishment of their local economies. Eventually, in 1992, the Frankfurt coalition overcame the status quo, but at the price of a compromise recognizing the claims of the peripheral coalition. Part of the deal was the creation of the Neuer Markt—a parallel, less strictly regulated, market for smaller stock issues—Landesbanks' turf.

Although German federalism hindered the centripetal flow of funds, it helped stock market development by keeping state control of industry—the French disease—to a minimum. The federal public sector was relatively insignificant, including coal, utilities, and services, but excluding the sectors of industry which were crucial in the drive for exports. In contrast to France, the household names in manufacturing—VEBA, Siemens, Volkswagen, Daimler-Benz, Bayer, Hoechst, BASF, Thyssen, Bosch, Krupp, and BMW—were privately-owned. The local government public sector, albeit large, included

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[27] See Lütz 1998 and Story 1997.

no large firms, except for the above-mentioned landesbanks. Moreover, privatization is not strongly championed by business or the main political parties, but is hesitant.[28]

Germans, like French, are not strong on market competition, to which they prefer the toned-down version of "social market." Yet, unlike France, the absence of self-standing market institutions in Germany is no cause for state control, due mostly to the decentralized nature of the regime. Like the United States, another decentralized country, Germany is characterized by the strength of its local and social associations, which offset the power of the state.

Evidence from 20 OECD Countries

My purpose so far has been to illustrate the partial argument that I offered earlier. I now try to assess its generalizability to the other OECD countries. I embed it in a broader system, including alternative hypotheses and plausible control variables. Consider the flow chart drawn in Figure 3. At the core is the diamond-shape argument of Figure 1—a system of variables with effects working in opposite directions suppressing each other.[29] A correlate of the model is the absence of any direct relationship between state centralization and stock market (represented by a 0 coefficient).

[Figure 3]

To this, I added the various versions of the antistatist and common law arguments that I surveyed earlier: (1) Levy's argument that state control (*dirigisme*) harms stock market (negative arrow running from state control to stock market); (2) Weingast's and Root's argument that centralization *indirectly* arms market growth (represented by a positive arrow running from state centralization to state control [absolutism] and a negative one running from state control to stock market). The first two arguments are

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[28] With the exception of East German industry; see Esser 1998.

[29] This type of system is referred to in the literature as a "suppressor" or "inconsistent" system; see Davis 1985, p. 57.

nested in the diamond-shape model. The last two are separate: (3) Rajan and Zingales's argument that common law *indirectly* bolsters stock markets through the mediation of state control (two negative arrows, the first running from common law to state control, the second, from state control to stock market); (4) La Porta et al.'s argument that common law *directly* strengthens stock market (a positive arrow directly connecting common law and stock market).

Given the supplied-side bias of all these variables, I included three variables to control for the demand side: greater wealth (GNP per capita) and a larger old-age population dependent on pension investment funds should raise the demand for stocks. In contrast, the presence of a well-developed, pay-as-you-go, state-mandated pension system should reduce the demand for pension funds.

I now describe the variables. The dependent variable is the market value (i.e., capitalization) of the exchanges weighted by GDP. Calculated by the International Federation of Stock Exchanges, the measure offers the advantage to aggregate various national stock exchanges, to include only shares of domestic companies, and to exclude investment funds and companies whose only business goal is to hold shares of other listed companies. The measure has the drawback to double count cross-shareholdings, which are known to be higher in Japan, Germany, and France than in Britain or the United States. Note, however, that cross-shareholdings have an offsetting dampening impact on market activity, thereby making the net impact on capitalization indeterminate.[30]

State centralization is measured by the proportion of government revenues drained by the central government. The exact measure is a fraction having for numerator

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[30] An alternative measure of stock market size would be to use turnover. This measure raises problems of comparability, as stock exchanges treat off-market transactions differently to compile turnover statistics. Turnover statistics are also subject to demand shocks—some related to the business cycle,

the sum of central government receipts and for denominator the sum of all government receipts. The limit of this measure must be stressed. The allocation of revenues may not be a good reflection of the distribution of authority between central and local governments. The OECD recently released systematic information on various degrees of local tax autonomy for 19 countries, 14 of which overlap with our dataset.[31] The correlation with the unadjusted revenue measure (=-0.77) is good enough to justify using the more imprecise, yet more widely available, measure.

The degree of centralization of the banking system is measured by the proportion of assets controlled by money center banks. It includes all large commercial banks, whether private or state-owned, with the exception of the central bank. It excludes local non-profit banks (savings, mortgages, local-government chartered banks). It also excludes the State-chartered banks in the case of the United States on the grounds that the recent deregulation of interstate branching has had a limited effect. A simulation by Berger et al. (1995, pp. 114-117) found that the spread of interstate banking in the wake of deregulation lagged substantially behind what could have been foreseen.[32]

Legal origins is a dummy variable coded "1" for common law countries and "0" for others.

State control is a variable difficult to measure. I used an indicator constructed by Nicoletti et al. (1999, p. 74) and described as capturing "public ownership" (in turn taking into account the "size" and "scope" of the public sector, "control of public enterprises by legislative bodies," and "special voting rights") and "(state) involvement in

others to changes in the fiscal treatment of capital gains—difficult to root out without multi-year averages.

[31] For each country, the OECD first provides "sub-central government taxes as % of total tax revenues" and then decomposes this figure into eight "types of tax autonomy." I used the decomposition to reweigh the first and create an adjusted figure of local tax autonomy. Note that the figures do not include governmental transfers; see OECD 1999, p. 26.

business operation" (in turn including "price controls" and "use of command and control regulations"). The indicator ranges from 0.55 for the United Kingdom to 3.92 for Italy.

I include three control variables—GNP per capita to control for cross-sectional variations in demand for stocks related to wealth; the relative size of the population 65 of age and above to control for the demand for pension funds; the relative importance of state-mandated pension plans to control for the same fact. All the data are supplied in an appendix.

I run several OLS regressions, each reflecting a causal articulation of the argument as sketched in Figure 3. The use of *Ordinary* (as opposed to *Two-Stage*)-*Least-Squared* is justified by the absence of any pairwise correlation among regression residuals.[33] Regression results are listed in Table 2. The population is a cross-national panel of 20 OECD countries for the year 1991, the largest number and latest year for which I have the required data.[34] The number of observations is still too small to satisfy the limit theorem condition or to shield the results from the undesirable influence of outlying observations; I compensate for these weakness by resorting to the graphic representation of bivariate relations as much as possible, and to that of partial relations to spot outliers.

[Table 2]

The first regression shows the close association between centralized state institutions and a large money center banking sector. The bivariate relationship (shown in Figure 4) points to Switzerland as potential outlier. Switzerland is a country where the

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[32] The authors concluded that unit-banking legislation was not the only obstacle to interstate banking; the federal deposit insurance, equalizing deposit safety across banks of all sizes, is an additional obstacle to entry.

[33] Breusch-Pagan tests of independence on all specifications show a chi^2 close to zero, with a probability close to 1.

large amount of international business handled by the center banks artificially boosts the relative importance of that sector. Note the size of the coefficient (0.58), which suggests that had Germany been as grown as centralized as France (33 point difference) its money center banks would have owned 19 percent more banking assets (about 6 percent less than their French equivalents). The coefficient reaches 0.80 in the absence of the Swiss observation (results unreported).

[Figure 4]

The second regression registers the positive impact of state centralization on state control, while controlling for legal origins. The bivariate relation between state centralization and state control helps visualize the regression (Figure 5). The relationship is both positive and heteroscedastic: centralization is a necessary but insufficient condition for state control—also required is a legal system other than common law. Indeed, all the common law countries—and only them—line up along the x-axis, suggesting that common law has a strong negative impact on state control. The coefficients of the state centralization and common law variables in regression 2 suggest that if the German state had grown as centralized as France, it would have enjoyed a level of state control (2.67) equivalent to the French state (2.63). But had German law been of the Common type, state control would have been no higher than in the U.K (0.60 compared to 0.55).

[Figure 5]

The last three regressions bring together the two opposite effects of state centralization—the positive effect of banking centralization and the negative effect of state control—while varying controls. Regression 3 controls for GNP per capita alone, regression 4 for GNP per capita and the size of the senior population, and regression 5

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[34] The banking data are difficult to update due to changes in the reporting of financial statistics.

for all the above plus the relative size of the state-mandated pension system. The coefficients for the three control variables have the expected signs, but only that of wealth can be said to be significantly different from zero with 95 percent confidence.

The coefficients for the intervening variables (money center banks and state control), positive and negative respectively, are significant at the 95 percent confidence level across specifications. The presence of both the independent and intervening variables in regression 3 to 5 allows us to assess the relative importance of the direct and indirect effects of the independent variables. First, consider state centralization. Significantly different from zero in regressions 1 and 2, it is not any more in regressions 3 to 5. Such results match our expectations that state centralization operates indirectly and inconsistently through more than one path; they provide an indirect confirmation of the diamond-shaped, suppressor system. The results point to the incompleteness of the federalist hypothesis, which omits the positive indirect effect. The results do confirm the state control hypothesis, but provide a richer and more interesting account by identifying the determinants of state control.

Then, consider the common law dummy. Its coefficient is negative in regression 2 but not significantly different from zero in regressions 3 to 5. This result tends to support the idea that common law operates on stock markets through the mediation of state control (Rajan and Zingales' hypothesis) rather than directly (La Porta et al.'s hypothesis).

What is the relative impact of each exogenous variable? The net indirect effect of state centralization is the addition of the positive effect (the product of the two coefficients situated on the upper path) and the negative effect (the product of the two coefficients situated on the lower path). It is equal to –0.18 (= 0.58*0.61 – 2.22*-0.24). That of common law is 0.32 (= -1.34*-0.24). To get a sense of the practical significance of these coefficients, if Germany were as centralized as France, its stock market would

have been 0.06 points smaller than it was—an insignificant difference; however, had it been a Common Law country, the market would have been 0.32 points larger (0.58), about as large as that of the United States (0.61). State centralization has no visible impact, whereas legal origins does.

I try to detect outliers by plotting the partial relations. I use a cleaned-up version of regression 3 (rid of the two statistically insignificant independent variables). The three plots of Figure 6 show no major outliers, only five countries for which the model is still insufficiently specified (Japan, the UK, and Greece, whose stock values are consistently located above the three regression lines, and Finland and Australia, consistently below). The business cycle may have been responsible for the overvaluation of the Japanese stock market in 1991 and its undervaluation in Australia.

[Figure 6]

A visual analysis of the plots suggests a few revealing two-by-two comparisons. Consider the United States and the UK. The United States—the largest absolute stock capitalization in the world—owes its large market, holding banking centralization and wealth constant, to its low level of state control (top right graph of Figure 6), in turn a reflection of both its decentralized polity and common law tradition (it is overdetermined, as suggested in Figure 5). But the rather decentralized structure of US banking, which reflects federalism (Figure 4), holding state control and wealth constant, has a negative impact on the stock market (United States y-axis value in top left graph of Figure 6 is below the mean). Like the United States, the UK has common law and a low level of state control (Figure 5), but unlike the United States, it has a centralized banking system, which it owes to its centralized polity (Figure 4). Holding wealth constant, bank centralization in Britain is sufficient to hoist British market capitalization more than two standard deviations above the mean (top left graph in Figure 6).

Consider now Germany and the United States. The two countries share a decentralized polity, causing the banking system to be decentralized (Figure 4) and keeping state control to a minimum (though slightly higher in Germany than in the United States in light of the different legal tradition (Figure 5). Holding wealth and state control constant, both countries score below average stock market values on account of bank decentralization (top left graph in Figure 6). Last contrast Belgium and the UK. The two countries have a centralized banking system, but differ on state control (high in Belgium because of both state centralization and civil law). Although Belgium's stock score is almost as high as the UK's on account of its banking system (top left graph in Figure 6), the Belgian stock score on account of state control is quite low, holding wealth constant (top right graph in Figure 6).

Further Evidence

More evidence is required to show the existence of an effect than its absence. An implication of the argument is that the impact of centralization on corporate markets, presently concealed by a half century of state intervention in industry, should have been visible in the prior liberal era. The 1850-1913 period was characterized by an unprecedented development of corporate security markets along with limited state control. Surely, there already was a consequential public sector in Europe by the turn of the century, consisting of railroads, the first private bonds to be massively traded. The nationalization of the railroads did not hinder the markets, however, but freed capital for investment in industrial stocks. The nationalizations of the 1930s-1950s, in contrast, gave no similar boost to the markets, for they usually occurred in depressed markets, and for ailing firms, whose equity had lost most of its value.[35] If the argument is correct, then the argument should apply to turn-of-the-century markets—the peak of the liberal era—with

two simplifications: (1) there should be a direct positive relation between state centralization and the stock market, and (2) the common law variable should have no effect (since its action on the market is mediated by the state control variable).

The variables are the same, though calculated differently. Stock and bond holdings data are taken from Goldsmith's study of national balance sheets for the years 1910-13. Goldsmith's tables provide us with the relative percentage of financial assets held in the form of corporate securities, listed or not.[36] The independent variable, state centralization, is measured as earlier by the proportion of government revenues drained by the central government. Though calculated for 1880 (it is taken from Verdier 1998), state centralization is a variable with a long memory. I calculate and draw the partial relationships between stock market size, on the one hand, and state centralization, GNP per capita, and common law origins, on the other (Figure 7).

[Figure 7]

Graph 7.a is compatible with the idea that a direct positive relation existed between state centralization and stock market size in the early years of the 20th century. Two groups of countries are clearly distinguishable: the centralized—Belgium, France, and the U.K.—and the decentralized—Switzerland, Italy, Germany, and the United States. The first group has high stock levels, the second, with the exception again of Switzerland, has low stock levels. Graph 7.b is congruous with the already-noted importance of wealth. Graph 7.c shows that there is no clear association between common law origins and market size. Although all cases behave as expected, a caveat is in order. Omitting wealth from the calculations would redraw Graph 7.c according to the predictions made by the common law origins literature—with the common law countries

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[35] Railroads were also ailing when nationalized, but since they were essentially financed with bonds, the value of the securities was unaffected.

(Britain and the United States) in the Northwest quadrant and the civil law countries (all the others) in the Southwest quadrant. Including wealth overrules this relationship, because the only two common law countries of the sample, Britain and the United States, were also the two wealthiest countries in the world at the time. It would take more observations to enable us to properly separate the impact of wealth and common law origins.

Conclusion

State centralization has two inconsistent effects on stock market size. On the one hand, state centralization facilitates the emergence of dominant money center banks, which service the needs of the financial center, fueling the development of the capital market. State decentralization, in contrast, allows blocking coalitions of small banks, small firms, and local governments, with an interest in keeping finance local, to maintain the existing privileges of local banks and restrain the concentration of investment in large firms and high-growth sectors. On the other hand, state centralization enables the government to extend its control over large firms, tolerate a lower return on capital, thereby making the shares of these firms unattractive to investors. The government of a decentralized state, in contrast, is unlikely to extend control over large firms in the first place.

State control of markets is lessened in the presence of common law. To develop, financial markets need a legal system that is flexible enough to adapt property rights to financial innovation. Yet, flexibility opens the gate to political discretion. Common law solves the dilemma by interposing the judge between the state and the market, insuring private actors that the rules of the game are modified according to a logic that escapes

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[36] Admittedly, not all stocks and bonds were listed on exchanges, let alone actively traded. But since exchanges promoted incorporation and incorporation fed exchanges, the country rank-ordering across the two variables cannot have differed by much.

politics and clientelism. In contrast, the civil law system relegates the judge to a subaltern position, leaving property rights to hinge a lot more on who governs. In the worst case, the system is corrupt. In the best of cases, formal rights are rigid, obsolete, and a poor fit to market reality. It is impossible to say whether the legal origin variable is the cause of market development or merely a symptom of a broader syndrome with deep roots in culture, history, and geography.

The interventionist penchant of centralized states is new. Until World War I, the negative effect was absent; France and Belgium had well-developed stock markets. The two wars, along with the credit crunch of the 1930s, caused a diffusion of the command and control approach across countries, irrespective of legal origins. It is only in the 1980s, that the OECD-wide convergence on policies of deregulation and privatization revealed a divergence between common and civil law countries. It took less than a decade for Britain, New Zealand, and Australia to deregulate finance, whereas France, Belgium, and Italy are still stumbling through it.

Not any form of checks and balances is favorable to financial market development. The strengthening of an independent judiciary is compatible with market development, but the promotion of local, associative democracy is not. *Social capital with a local scope works against mobile capital.* The financing of industrial districts by well-capitalized local banks involved in local industry may be good for the current account of the balance of payments, but it is not good for the capital account.

Not all federal systems are conducive to market development. Weingast (1995) coined the expression of "market-preserving federalism" to describe a subset of federal regimes in which "local governments have primary regulatory responsibility of the economy" except for the movement of goods, services, labor, and capital. Although Weingast points to 18th-century England, 19th-century United States, and current China as potential instances of market-preserving federalism, the category has the properties of an

empty set. A reason why local governments resist centralization in the first place is to maintain some kind of formal control over labor and capital.[37] From the Jackson Presidency until the Riegle-Neal Act of 1994, several statutes formally proscribed money center banks in the United States from opening branches in local communities. Throughout the last two centuries, other federal countries such as Germany, Austria and formally centralized, but de facto decentralized, countries such as Italy, Spain, and Scandinavia achieved the same result by granting privileges to local banks. State decentralization, historically, has had the effect of reducing capital mobility and stunting financial market development.

I have treated the degree of state centralization and the legal tradition as independent from each other, and, indeed, there is no correlation between the two. Historically, however, the two variables were linked, and so in a confounding way. What made English law "common" in the 13th century, was its applicability to the whole realm, in contrast with laws that were particular to duchies and counties. Civil law, in contrast, was Roman law rediscovered by Italian scholars, adopted by local monarchs, adapted to local mores, and modified to fit emerging trading needs. By the 18th century, civil law had become a maze of geographically disparate rules. It is only with the great codifications of the 19th century that France, Germany, and Italy reached a level of legal homogeneity comparable to England—five centuries later. Colonization diffused English-born common law to federal states in North America and Australasia. Still, common, judge-made law initially was the law of a centralized state, while civil, statutory law was the law of governments aspiring only to a similar degree of centralization. The historical association of state, market, and law is obviously too complex to be captured by a cross-sectional analysis—the present one included.

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[37] The dire predictions that follow from the economic geography literature would tend to justify local interference with factor mobility; see Krugman 1991.

APPENDIX

[appendix]

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TABLE 1

COMPARATIVE DATA ON BANKS AND STOCK MARKETS IN FRANCE AND
GERMANY

	France	Germany
Banking Sectors 1995 (% assets)		
Money Center Banks (for-profit)	56	26
Local (non-profit)	29	65
State (non-profit)	15	9
Total	100	100
Stock Market Size 1998		
Market value/GDP	68	51
Capital raised/GFCF	11.6	5.9
Value of share trading/GDP	182	70

Notes and Sources: GFCF stands for Gross Fixed Capital Formation. The banking sector categories are explained in the Appendix. Stock market size data are from FIBV 1999.

TABLE 2

CROSS-SECTIONAL OLS ESTIMATES OF THE MODEL

Independent Variables:	Dependent Variable:				
	Money center banks	State control	Stock Market Capitalization		
	1	2	3	4	5
State centralization	0.58	2.22	0.33	0.21	0.25
	(2.88)**	(2.84)*	(1.06)	(0.59)	(0.67)
Common law		-1.34	-0.05	-0.01	-0.002
		(-4.40)**	(-0.41)	(-0.05)	(-0.01)
Intervening Variables:					
Money center banks			0.61	0.69	0.63
			(2.67)*	(2.69)*	(2.19)*
State control			-0.24	-0.23	-0.22
			(-3.94)**	(-3.70)**	(-3.31)**
Control Variables:					
GNP per capita			0.000022	0.000020	0.000020
			(2.90)*	(2.42)*	(2.37)*
Old population				2.08	2.26
				(0.74)	(0.77)
State-mandated pension					-0.01
					(-0.52)
Intercept	0.26	0.87	-0.17	-0.41	-0.38
	(1.66)	(1.43)	(-0.74)	(-0.84)	(-0.74)
Adj. R squared	0.28	0.59	0.70	0.69	0.68
Correlation between regression residuals		2/1:0.03	3/1: 0.00 3/2: 0.00	4/1: 0.00 4/2: 0.00	5/1: 0.00 5/2: 0.00

Notes: N=20. Values of *t*-statistics are given in parentheses. Data are for 1991; they are described in the Appendix.

*,** *t*-values significant at the 5% and 1% significance levels respectively.

APPENDIX

DATASET

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Australia	0.71	1	0.92	0.50	1.26	17,280	2.55	0.11
Austria	0.68	0	0.36	0.17	2.11	20,550	5.56	0.15
Belgium	0.91	0	0.69	0.37	2.78	19,460	4.77	0.15
Canada	0.48	1	0.58	0.47	1.29	20,130	4.17	0.11
Denmark	0.70	0	0.47	0.37	2.46	24,680	4.69	0.16
Finland	0.72	0	0.67	0.12	2.68	23,490	7.02	0.14
France	0.81	0	0.53	0.29	2.63	20,500	6.95	0.14
Germany	0.48	0	0.27	0.26	1.76	21,490	6.98	0.15
Greece	0.95	0	0.62	0.14	3.87	8,290	5.88	0.14
Italy	0.91	0	0.40	0.15	3.95	18,850	8.34	0.15
Japan	0.64	0	0.45	0.93	1.29	27,200	2.90	0.13
Netherlands	0.89	0	0.54	0.49	2.28	18,870	6.02	0.13
NZ	0.92	1	0.66	0.34	1.66	12,050	7.62	0.11
Norway	0.83	0	0.41	0.21	3.19	26,800	5.89	0.16
Portugal	0.92	0	0.70	0.12	2.83	7,090	3.44	0.14
Spain	0.81	0	0.56	0.26	2.59	12,560	6.13	0.14
Sweden	0.62	0	0.42	0.44	1.51	25,620	7.75	0.18
Switzerland	0.38	0	0.70	0.77	2.08	34,060	5.40	0.15
UK	0.93	1	0.83	1.02	0.55	16,520	4.91	0.16
US	0.56	1	0.46	0.61	0.85	22,800	3.33	0.13
Mean	0.74	0.25	0.69	0.40	2.18	19,915	0.14	5.52
Std. Dev.	0.17	0.44	0.18	0.26	0.92	6,556	0.02	1.67

Data Description and Sources: All data are for 1991. (1) *State centralization* is the ratio of Central Government Receipts/(Central and Local Government Receipts - Transfers from Central to Local Governments). The sums transferred from the central to the local governments are subtracted from the denominator to avoid double counting. The source is OECD *National Accounts* 1995. In the case of New Zealand, the ratio was redefined as (Central Government Receipts - Social Security Contributions)/(General Government Receipts - Social Security Contributions), with General Government including all forms of government. The source for New Zealand is: United Nations 1995.

(2) Common Law is a dummy variable, coded "1" for countries of common law origins, "0" otherwise.

(3) Money center banks measures the total-asset market share of for-profit banks, including nationalized banks with a corporate status. Besides money center banks, the population of reference also includes state banks (postal savings, special credit agencies), local non-profit banks (savings, cooperative, building societies, local-government-owned banks), and the State-chartered banks in the United States. All

institutional investors (insurance companies and investment funds) are excluded. For a justification of the categorization, see Author 2000. Sources are too numerous to be listed here; they can be obtained from the author.

(4) Stock Market Capitalization was calculated by FIBV 1992. It is described as "the total number of issued shares of domestic companies, including their several classes, multiplied by their respective prices." The figure excludes investment funds and "companies whose only business goal is to hold shares of other listed companies." The figures are expressed in percent of GDP. For Greece and Portugal, I used data from Global Financial Data.

(5) State control is a ranking of 21 countries constructed by Nicoletti et al. (1999, p. 74) and described as capturing "public ownership" (in turn taking into account the "size" and "scope" of the public sector, "control of public enterprises by legislative bodies," and "special voting rights") and "(state) involvement in business operation" (in turn including "price controls" and "use of command and control regulations").

(6) GNP per capita in current US$: source is World Bank.

(7) State public pension in percent of GDP comprises all cash expenditures on old-age pensions within the public sphere; it is category 1.1 of the OECD Social Expenditure Database 1980-1996.

(8) Population 65 and above in percent of total population was calculated using data from World Bank.

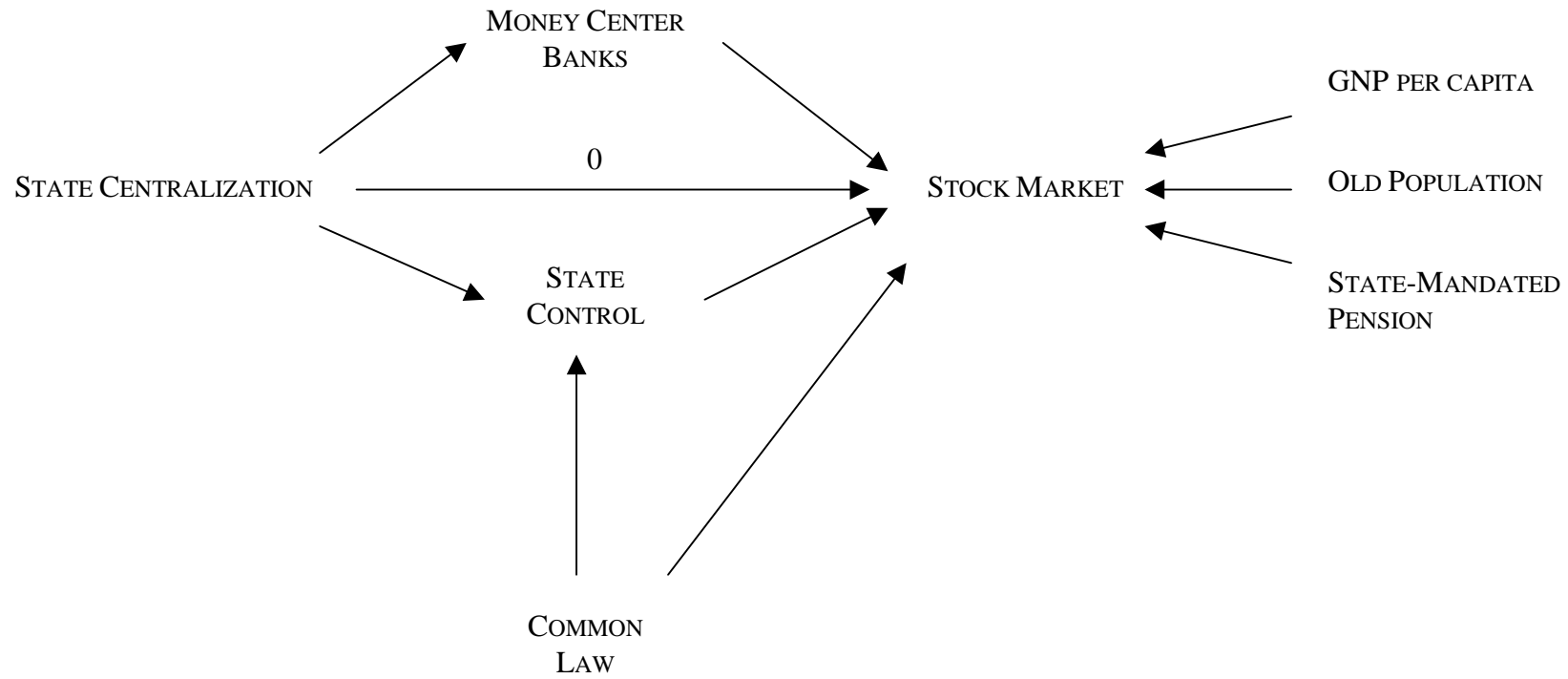# FIGURE 1

IMPACT OF STATE CENTRALIZATION ON STOCK MARKET

MONEY CENTER
BANKS

STATE CENTRALIZATION

STOCK MARKET

STATE
CONTROL

FIGURE 2

Primary capital market

1

4

**Money center
banks**

**Secondary capital
market**

2

3
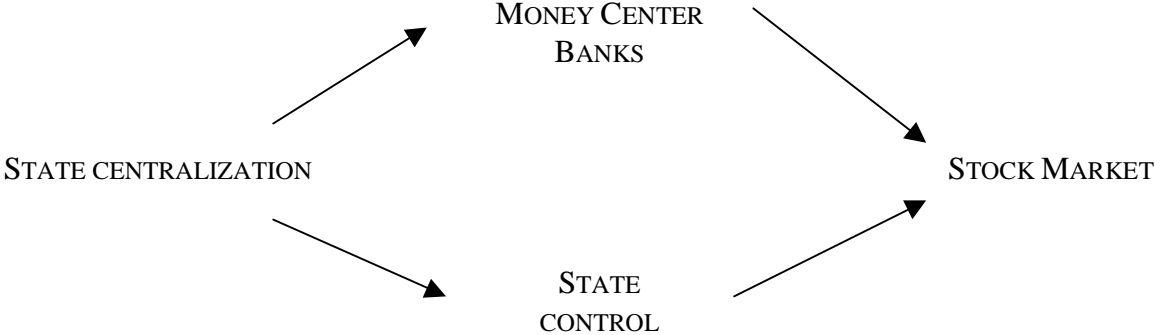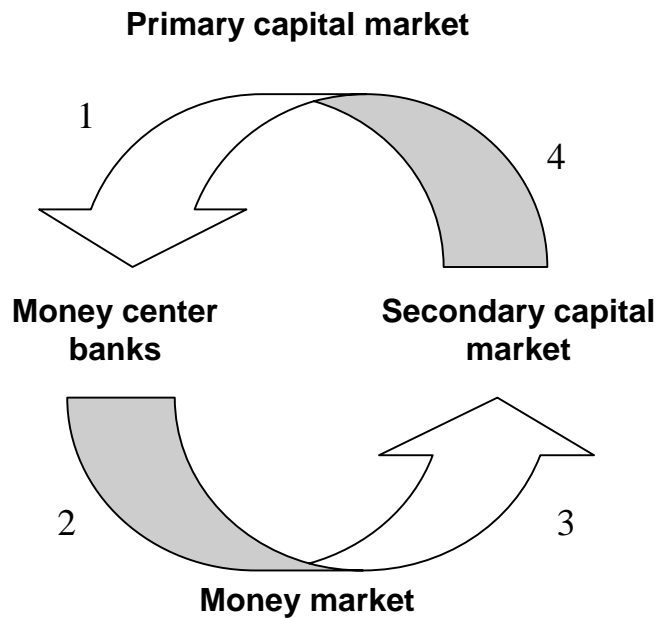
Money market

Note: The arrows roughly indicate the flow of funds:

1. corporations repay bank loans by issuing equity on the primary capital market;

2. banks channel individuals' savings and firms' current accounts to the money market;

3. the money market leverages the secondary capital market;

4. the secondary capital market makes the primary capital market attractive to investors.

FIGURE 3

COMPLETE MODEL
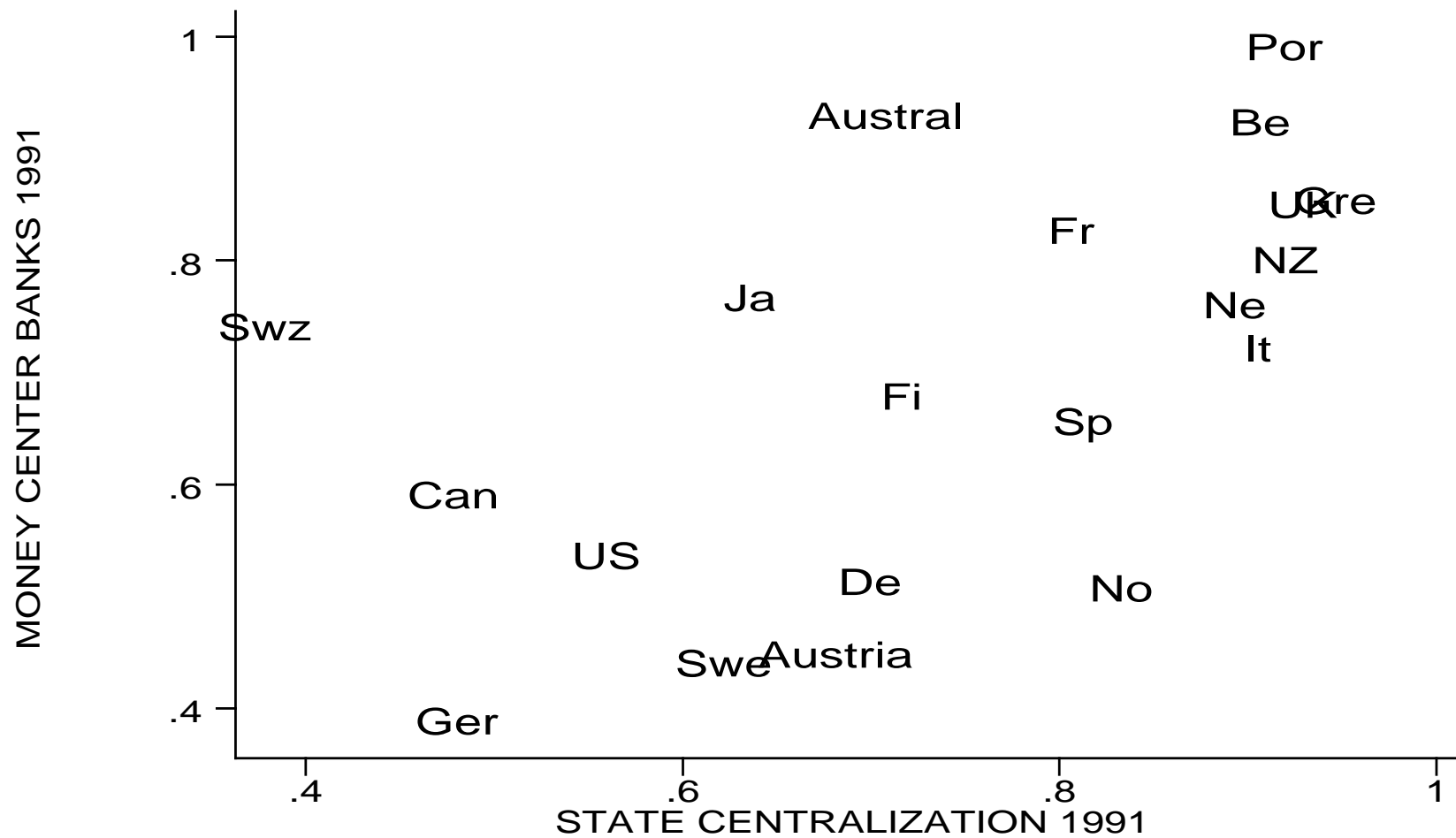
FIGURE 4. Center Banks and State Centralization: Bivariate. 1991
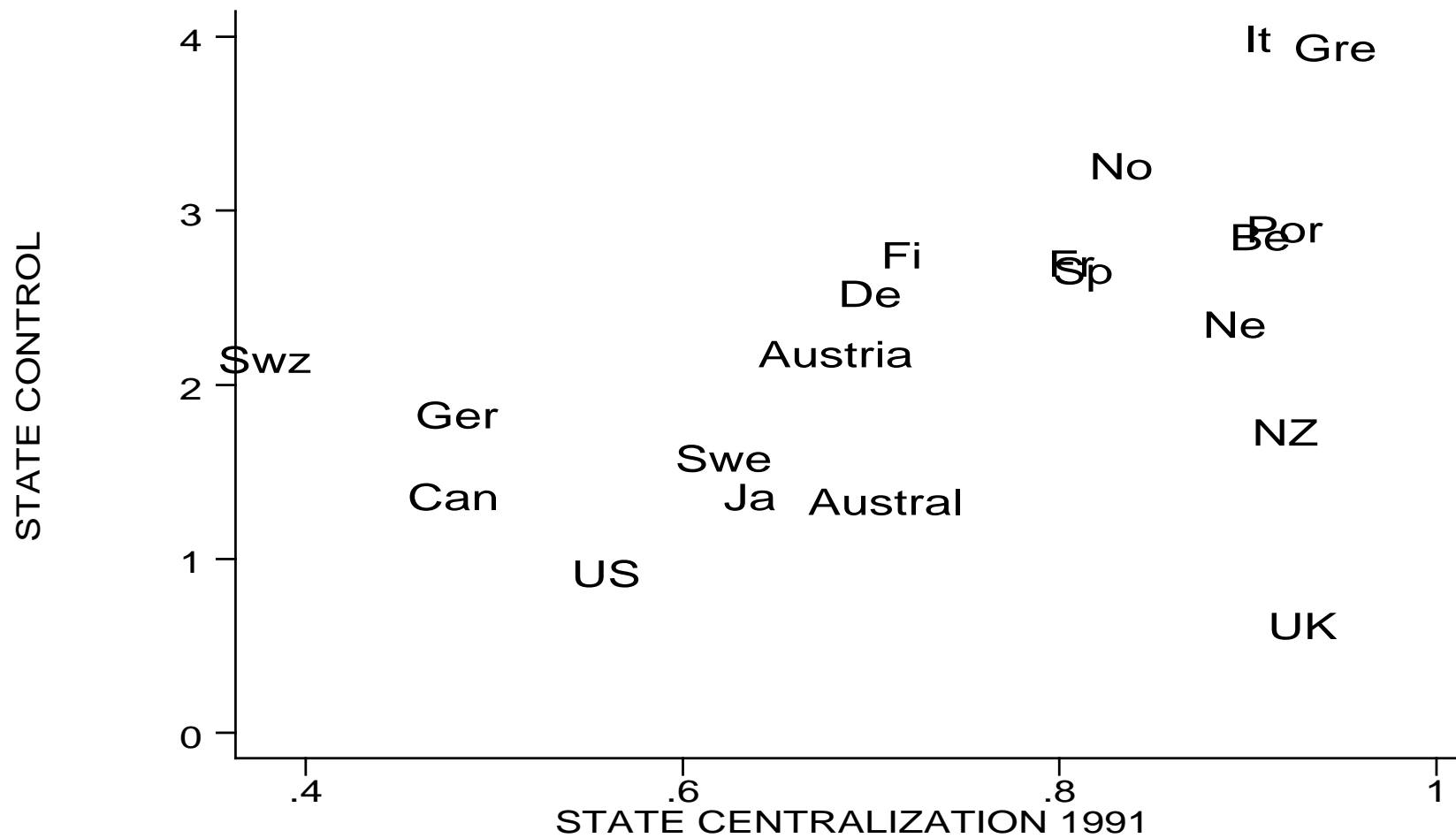
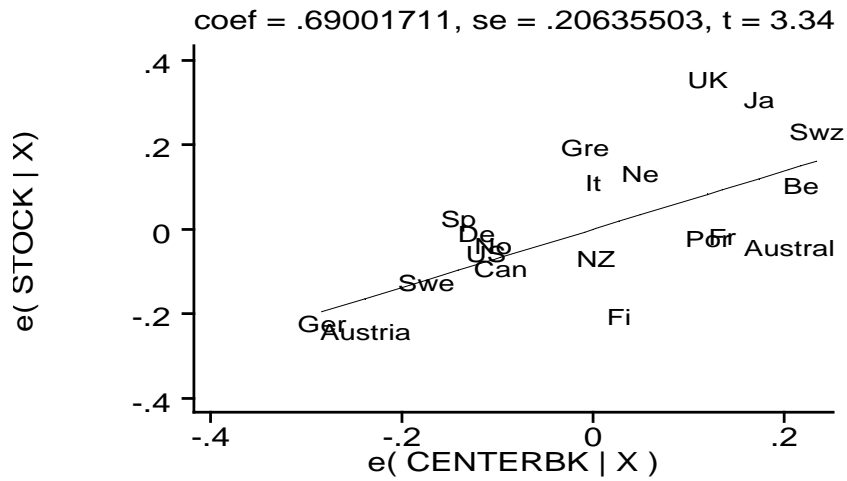FIGURE 5. State Control and State Centralization: Bivariate. 1991
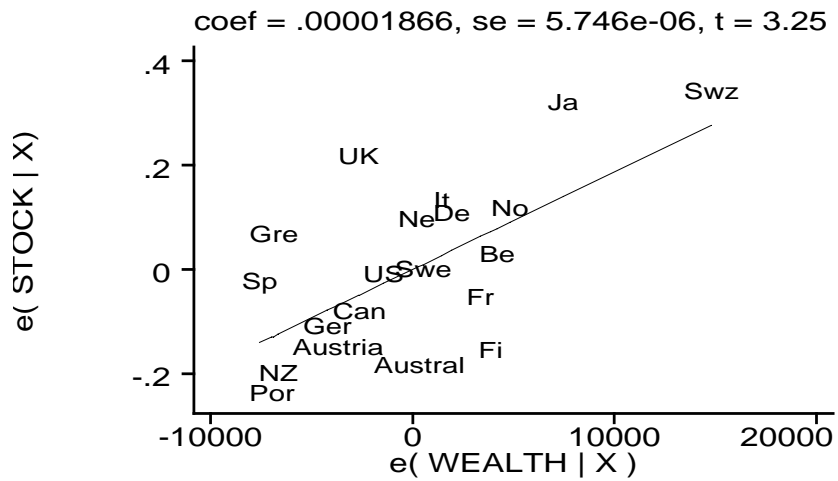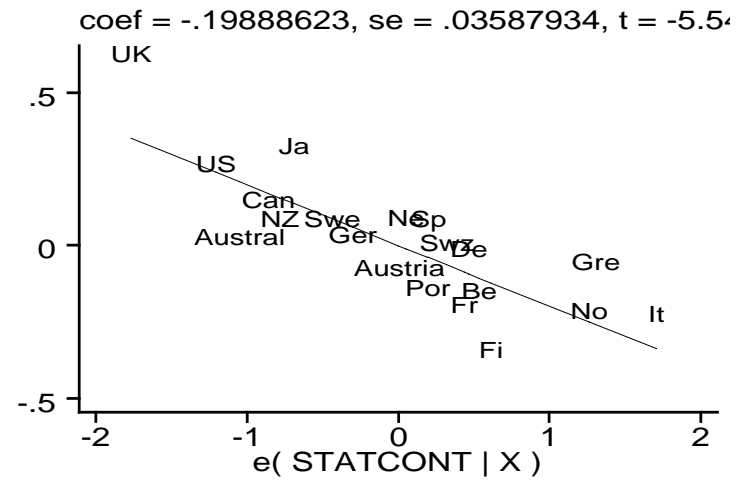
FIGURE 6. State Control, Banks, and Law: Partials. 1991

Note [figure 6]: X stands for right-hand side variable(s) other than the one reported on the horizontal axis; e(VARIABLE|X) stands for residuals of VARIABLE regressed against X. It is a property of partial regression plots that the coefficients, standard errors, and *t* statistics for each plotted independent variables should be the same as in the corresponding regression.

Note [figure 7]: The plots were generated by means of an OLS regression of Stock against State Centralization, GNP per capita, and Common Law Origins. X stands for right-hand side variable(s) other than the one reported on the horizontal axis; e(VARIABLE|X) stands for residuals of VARIABLE regressed against X.

Data Description and Sources: State centralization: it measures central government revenues as a percentage of general government revenues circa 1880. Sources are: For Western Europe, Flora 1983, p. 273. For the United States, U.S. Bureau of the Census 1975, p. 1119. *Corporate stocks and bonds*: both variables are calculated as a percentage of all financial assets circa 1913; Goldsmith 1985. *GNP per capita;* Bairoch and Lévy-Leboyer 1981, p. 10. *Common Law Origins* is coded 1 for common law countries, 0 otherwise.
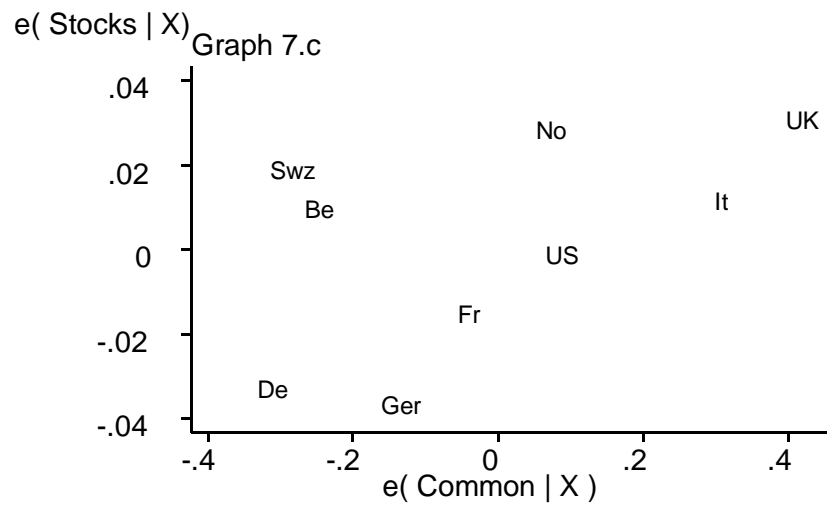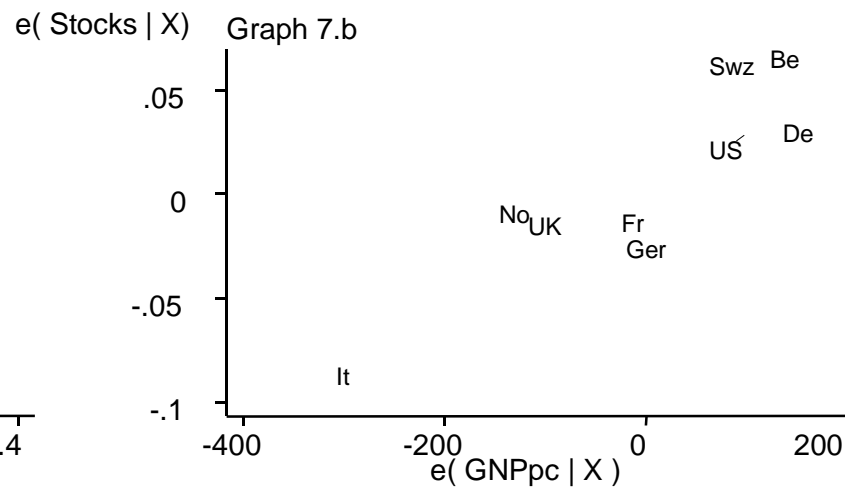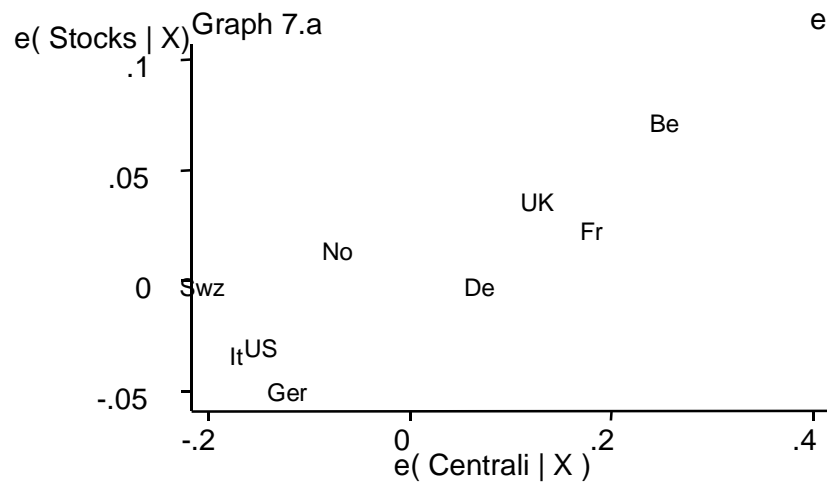
FIGURE 7. Partial Plots.1910s