NBER WORKING PAPER SERIES

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Working Paper 15575
http://www.nber.org/papers/w15575

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
December 2009

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NBER Working Paper No. 15575
December 2009
JEL No. G0,G21,G28,G32,O15,O16

ABSTRACT

We observe less efficient capital allocation in countries whose banking systems are more thoroughly controlled by tycoons or families. The magnitude of this effect is similar to that of state control over banking. Unlike state control, tycoon or family control also correlates with slower economic and productivity growth, greater financial instability, and worse income inequality. These findings are consistent with theories that elite-capture of a country's financial system can embed "crony capitalism".

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1. Introduction

Economic growth correlates strongly with financial development (King & Levine 1993ab; Demirguc-Kunt & Levine 1996; Levine 1996; Levine & Zervos 1998; Rajan & Zingales 1998; Demirguc-Kunt & Maksimovic 1998; Beck *et al.* 2000; Levine *et al.* 2000; Beck & Levine 2002). But financial development is neither inevitable nor irreversible. Many countries never sustained dynamic financial systems; and more surprisingly, many that once did ceased doing so (Rajan & Zingales 2003).

One explanation for financial underdevelopment is that growth can undermine the positions of the already wealthy (Schumpeter 1912, 1951; Morck, Stangeland & Yeung 2000, Fogel *et al.* 2008). Thus, Rajan & Zingales (2004) argue that early 20th century financial development enriched an initial cadre of tycoons who, in many countries, then successfully oversaw financial development reversals that deprived potential competitors and innovative upstarts of capital. This, they posit, locks in a *status quo* favoring the initial tycoons and their heirs. Morck, Wolfenzon, & Yeung (2005) further argue that many countries block financial development entirely to forestall competition that threatens entrenched economic elites.

Consistent with these theses, economies that entrust more of their economies to old-moneyed business families grow slower and sustain lower living standards than otherwise similar countries, suggesting that protecting these families imposes costs on the broader economy (Morck, Stangeland & Yeung 2000). Such countries also have more corrupt government, less efficient judiciaries, and more bureaucratic red tape (Fogel 2006) – all likely barriers to entrepreneurs. However, the most direct way to limit competition from new entrepreneurs is probably to limit their access to capital by controlling the country's financial system (Rajan & Zingales 2004).

Such situations are described as *elite capture*. This arises if an elite – a minority such as the very wealthy, political insiders, or an ethnic group – controls an economic, political, or other institution to advance the minority's interests, rather than general social welfare (Glaeser, Scheinkman & Shleifer 2003; Hellman, Jones & Kaufmann 2003; and others). Elite capture of a country's financial system might occur in various ways, but would be incomplete without control over banks, which Beck et al. (2008) show to be an essential source of capital for small businesses across countries We measure the potential *elite capture* of each country's banking system by the fraction of its largest banks, listed and unlisted, controlled by tycoons and business families. For brevity, we refer to this as *family control*.

Controlling for banking system size, stock market size, and other relevant factors we find that more predominantly family-controlled banking systems allocate capital less efficiently, measured either by Wurgler's (2000) cross-industry correlation of capital spending growth with value-added or by non-performing loans. The efficiency loss is comparable to what La Porta *et al.* (2002), Caprio *et al.* (2007) and others find for state-controlled banking systems. However, family-controlled banking systems also correlate with financial instability and slower per capita GDP and productivity growth; while state-controlled banking systems do not. These findings are highly robust - including to reasonable sources of endogeneity. Family control of banks also correlates with proxies for crony capitalism (Murphy *et al.* 1991, 1993; Shleifer & Vishny 1993; Shleifer & Vishny 1998b; Haber 2002; Krueger 2002; Rajan & Zingales 2004; Daniels & Trebilcock 2008; Fisman & Miguel 2008; and others), such as high income inequality and barriers to entry.

We conclude that, on average, entrusting the governance of large banks to tycoons or families provides efficiency losses comparable to those of state-controlled banks, augmented by the inequality consequences associated with crony capitalism. Of course, our results imply neither that tycoon and family control are always inefficient nor that banking systems predominantly controlled by tycoons or families always harm their countries. Our results do, however, indicate such cases to be atypical and therefore especially deserving of study.

2. The economics of bank control

The social purpose of the financial system is to allocate the economy's savings to its highest value uses (Tobin 1989; Wurgler 2000) – especially to innovative upstart firms (Schumpeter 1912). A healthy banking system is therefore key to sustained prosperity (King & Levine 1993a). Consequently, bank governance affects not only banks, but the whole economy. Indeed, policies that maximize the bank owners' wealth – such as excessive risk taking to exploit deposit insurance or probably bailouts – might adversely affect the overall economy. Such externalities divorce efficient bank governance from maximizing bank shareholder valuations (Saunders *et al.* 1990). Keeping this distinction in mind, we focus on the implications of bank control for the overall economy, rather than for banks' shareholders.

Our results build on large body of previous work exploring state-controlled banking and family-controlled firms, and on a much smaller literature investigating family-controlled banks. We now review the most relevant parts of these literatures.

2.1 State-controlled versus private sector banks

State-controlled banks can rise above market forces to allocate capital where it advances social goals, rather than where it creates the greatest bank-level profit. Such considerations allow that state-controlled banking systems might not only better promote social goals, such as income equality or equality of opportunity, but also allocate an economy's capital more efficiently than private-sector banks (Lewis, 1950).

However, like all state-owned enterprises, state-controlled banks are vulnerable to a range of "government failure problems" (Shleifer & Vishny 1998a). Thus, Krueger (2002, p. 15) writes that state-controlled banking often means "cronies can be favored through the granting of domestic credit when that credit is allocated at rates significantly below market." Even where such overt corruption is rare, populist political entrepreneurs might still use state-controlled banks to buy political support with unsound lending (Dornbusch & Edwards 1992; Dinc 2005).

Which arguments weigh more heavily in a typical country is thus an empirical question. At the bank level, state control correlates with poor financial performance, and privatizations increase financial performance (Megginson *et al.* 2004; Boubakri *et al.* 2005). This is consistent with both social goals trumping profit and crony lending. However, at the economy level, greater state control of banking correlates with lower per capita income levels, growth rates and worse financial sector instability (La Porta *et al.* 2002), and with greater capital misallocation (Wurgler 2000, Taboada 2008).

The weight of the evidence is thus consistent with state-controlled banking having major costs in terms of depressed living standards, capital misallocation, and systemic instability, and thus of policy options favoring private bank ownership (La Porta *et al.* 2002). To explore these issues further, we distinguish two flavors of private ownership – widely held banks versus family held banks, which are described below.

2.2 Widely Held Banks

Career concerns are thought to force professional CEOs of widely held firms to maximize shareholder value (Fama 1977), and market forces are thought to fine-tune such CEOs' incentives towards this end (Demsetz & Lehn 1985). Free of government pressure to advance political or social goals and free of pressure to advance business family interests, widely held banks' CEOs should allocate capital more efficiently than state or family-controlled banks. Most importantly, widely held banks' professional managers, bent on maximizing shareholder value, should offer loans to established and upstart firms alike at similar risk-adjusted rates.

On the other hand, diffuse ownership and professional management induce well-known governance problems (Shleifer & Vishny 1997). Professional managers have interests other than shareholder value (Jensen & Meckling 1976; Jensen 1986), can become entrenched (Stulz 1988). CEOs at widely held firms are thought to shun risk – either to protect firm-specific human capital (Kane 1985) or to enjoy "quiet lives" of high status and multimillion dollar compensation packages (John *et al.* 2008). The empirical evidence indicates that widely held banks outperform both state and family banks (Caprio *et al.*, 2007) and carry lower risk (Laeven & Levine 2009). However, as we argued above bank level performance and economy level performance may differ. Thus, whether or not a more widely held banking system leads to more desirable economy-level outcomes remains an open issue.

2.3 Family Banks

Most large firms in most countries have controlling shareholders, and these are usually wealthy old-money business families (La Porta *et al.* 1999; Bebchuk *et al.* 2000; Khanna *et al.* 2000; Morck, Stangeland & Yeung 2000; Khanna & Yafeh 2005). Such families wield equity control blocks in most listed firms in East Asia (Claessens *et al.* 2000; Claessens *et al.* 2002), India (Khanna & Palepu 2000; Bertrand *et al.* 2002), Latin America (Hogenboom 2004; Rogers *et al.* 2007; Adolfo 2008; Cueto 2008), Turkey (Ararat & Ugur 2003; Orbay & Yurtoglu 2006), and most other developing economies. Family control is also important in Canada (Morck, Percy, Tian, & Yeung 2005), continental Europe (Faccio & Lang 2002), Israel (Lauterbach & Vaninsky 1999; Maman 1999), Japan (Nakamura 2002), and others. Though not unknown, family control over large firms is more tenuous and far rarer in the United Kingdom (Franks *et al.* 2005) and United States (Villalonga & Amit 2006, 2008), where most large firms

are independent and widely held. Many countries' major banks are also controlled by such families (Caprio *et al.* 2007).

The ubiquity of family control suggests underlying economic advantages. Firms, including banks, with powerful shareholders are potentially immunized against utility-maximizing CEOs neglecting shareholder value (Shleifer & Vishny 1986). Banks, even more than most other firms, rely on relationships (Diamond 1984), and business families' relationship networks are considered a key asset (Khanna & Palepu 2005). Family control can be a feasible second best solution to information asymmetry and agency problems (Shleifer & Vishny 1986), especially absent legal systems that reliably enforce arm's-length contracts and protect passive investors (Burkart *et al.* 2003) [1]. In endemically corrupt economies, business families can acquire reputational capital (Khanna & Yafeh 2007) and the strength to counter predatory governments effectively (Fisman & Khanna 2004).

But large shareholders, as well as CEOs, presumably maximize their utility, which can include tangible and intangible private benefits of control, and thus need not align with public shareholder value (Nenova 2003; Dyck & Zingales 2004). Indeed, entrenched large shareholders appear to be a more commonplace governance problem than entrenched professional mangers in most countries (Djankov et al. 2006).

Moreover, what is good for large established businesses need not be good for economies (Fogel *et al.* 2008). Especially in banking, where externalities imposed on other firms separate bank level performance from banks' contribution to economy-level performance (Saunders *et al.* 1990), firm-level advantages of family-control of banks may well have economy-level downsides. Almeida & Wolfenzon (2005) argue that easier financial transactions between a family's firms, though good for those firms, can decrease overall welfare by inefficiently depriving other firms of capital. This plausibly imposes broader economy-level costs. Economic growth primarily arises from creative upstarts with new products or processes arising and destroying established businesses in what Schumpeter (1942, p. 84) calls a "perennial gale of creative destruction" (King and Levine 1993ab; Aghion and Howitt 1997; Fogel *et al.* 2008). Old-money business families, whose patrimonies are their economy's established large businesses

[1] Empirical studies generally find that family (heir controlled) firms outperform in countries where these issues are important (Khanna & Rivkin 2001; Khanna & Yafeh 2005a, 2007), but underperform in countries such as Canada (Morck, Stangeland &Yeung 2000), Denmark (Bennedsen et al. 2007), and the US (Villalonga and Amit 2006).

and whose comparative advantage is no longer creativity, might want a windbreak from Schumpeter's gale (Morck, Wolfenzon & Yeung 2005) by limiting capital to entrants.

Rajan & Zingales (2004) argue that many countries first developed dynamic financial systems and then systematically dismantled them to erect such a windbreak. They posit that, after building great business empires, a first generation of tycoons, or their heirs, used political influence to cripple their countries' financial systems precisely to deny upstarts capital. A growing body of evidence links such windbreaks to persistent underdevelopment (Acemoglu, Johnson & Robinson 2005; Morck, Wolfenzon & Yeung 2005; Perotti & Volpin 2006; Stulz 2005).

A wide range of policies erect effective barriers to entry. Thickets of costly regulation (Djankov *et al.* 2002), tax disincentives to entrants (Gentry & Hubbard 2000), subsidies or regulatory favors to established businesses (Krueger 2002), trade barriers (Krueger 1974; Krueger 2004), and many other windbreaks are effective. But innovative entrants' most critical need is typically capital (Schumpeter 1912; Levine 1991, 1992; King & Levine 1993ab; Beck *et al.* 2000). Because stock markets are important sources of capital for new firms in only a handful of countries, controlling major banks may thus provide incumbents uniquely effective shelter from Schumpeter's gale.

Not only does bank control let established business families deny potential entrants' capital, it also lets them shift losses to banks when contagion risks justify governments bailing out banks but not other firms (Perotti & Vorage 2008; Perotti & Volpin 2006).[2] La Porta *et al.* (2003) link business family control of privatized Mexican banks to pervasive capital misallocation and risk shifting. Laeven & Levine (2009) link family control of banking to higher bank risk taking, consistent with strong shareholders forcing more aggressive gaming of deposit insurance and leverage regulations.

Politicians might acquiesce because of rent-seeking (Krueger 1974; Morck & Yeung 2004; Perotti & Vorage 2008); or even actively assist because of business family ties (Krueger 2002; Faccio 2006; Faccio *et al.* 2006). This raises the possibility of "elite capture" of the banking system being an

[2] These considerations do not escape astute politicians. For example, Singapore's then Deputy Prime Minister Hsien Loong in a speech at The Association of Banks in Singapore (ABS) on Jun 21st 2001 stated that, "with banking and non-banking activities inter-meshed within a conglomerate, there will be a strong tendency to stretch any safety net intended for the banking system also to cover non-bank operations in the group." Reflecting this concern Singapore mandates a "separation of financial and non-financial businesses within the banking groups, and to further improve corporate governance through a clearer and more transparent ownership and control structure." Other countries' banking regulations reflect similar concerns. For example Canada mandates low voting caps on chartered banks, effectively forcing them to be widely held.

important element of "crony capitalism" and all its attendant economic problems (Murphy et al. 1991, 1993; Shleifer & Vishny 1993; Shleifer & Vishny 1998b; Haber 2002; Krueger 2002; Rajan & Zingales 2004; Daniels & Trebilcock 2008; Fisman & Miguel 2008 and others). Haber *et al.* (2003) argue that elite capture of Mexican banks in the early twentieth century stunted development for decades afterwards.

In contrast, family control could also have efficiency consequences for the overall economy if families facilitate "big push" industrialization (Morck & Nakamura 2007) by using "tunneling" (Johnson *et al.* 2000) to orchestrate the same cross-industry subsidies a disinterested central planner would impose (Rosenstein-Rodan 1943; Murphy *et al.* 1989). In addition, family-controlled banks might mitigate financial crises if they continued advancing credit, even if only to other firms controlled by the same families.

Thus, the existing literature on bank control and bank level performance can usefully be extended by exploring potential links between bank control, economy performance, and indicators of elite capture or crony capitalism.

3. Sample, Data, and Variable Construction

To this end, we construct a set of economy level measures of banking system control and economy performance. This section describes their construction, and that of various control variables we also require.

3.1 Sample

We start with the 2001 global sample of 244 banks Caprio *et al.* (2007) use to study banks' market valuations and equity ownership structures. Although this covers 83 percent of the total banking assets in 44 large economies (Caprio *et al.,* 2007), it omits unlisted banks – a potentially important subsample for our study because these firms are especially likely to be family-controlled.

We therefore augment these data to include every country's ten largest banks, listed or unlisted, as ranked by 2001 assets in *The Banker* (2001).[3] If *The Banker* lists fewer than ten large banks in a country, we add all those not already included but covered by *Bankscope*. This yields 427 banks from 44

[3] Including smaller banks would be desirable, but greatly magnifies data collection problems. Since we need to gauge economy-level banking system control, focusing on large banks is defensible as a first pass.

countries. After merging our data with the Caprio et al. (2007) sample we have fewer than ten banks in some countries and more than ten banks in others.

We then identify the controlling shareholder, if any, for each bank. Caprio *et al.* (2007) detail the control structures of the 244 banks in that sample, so we need only fill in control data only for the additional banks. *Bankscope* provides this information – in most cases for 2001, and more comprehensively for 2002 and subsequently. This leaves us with a grand total of 324 listed and unlisted banks whose controlling owner we can identify. A controlling owner is identified by 2001 for 79% of our sample and by 2003 for 94% of the sample.

3.2 Defining and Classifying Banks' Controlling Shareholders

We ascertain each bank's ultimate owners, if any, as in Caprio *et al.* (2007) and La Porta *et al.* (2002). That is, we first identify all shareholders with voting blocks of five percent or more. If these are state organs or biological persons, we call them *ultimate owners*. However, most blockholders in most banks are corporations. We identify these corporations' owners, their owners' owners, and so on until reaching either discernable ultimate owners (state organs or biological persons) or diffusely held entities. We then work through these chains, aggregating voting blocks of common ultimate owners by assuming members of a family act in concert and state organs obey a single authority. At each link in these chains, we assign control to the ultimate owner with the largest combined voting block of ten percent or more, combining direct ownership with indirect ownership by dint of controlling other corporations owning shares in the corporation in question. If no ten percent voting block exists, we say the corporation in question has no controlling shareholder.

We define each bank's *controlling shareholder*, if one exists, as the ultimate owner commanding the largest voting block of ten percent of more. Since the transparency of ownership structures varies across countries, this mechanical procedure is imperfect.[4] We expect to underestimate the prevalence of control blocks in countries with less stringent reporting requirements.

After determining the controlling shareholder we assign banks to one of three categories. We say a bank is *state-controlled* if its controlling shareholder is a government entity, and *family-controlled* if its

[4] Different countries have different blockholder reporting thresholds. In the US, all insider stakes and all owners of 5% or more must be disclosed. Comparable thresholds range from 2% to 25% across other countries (Schouten and Siems, 2009).

controlling shareholder is a tycoon or family. All others, denoted *widely held* banks, lack a controlling shareholder – because they are either widely held or controlled by ten percent plus blockholders that are widely held corporations or cooperatives.

Finally, we construct three country-level *bank governance indexes*: fractions of the banking system, weighted by total net credit, whose governance is entrusted to the state, to business tycoons or families, or to professional managers. For brevity, we call these the *state-controlled*, *family-controlled*, and *widely held* shares of countries' banking systems. Table 1 displays these indexes.

[Table 1 about here]

Our bank categorization rules have shortcomings. For example, control by founders versus heirs has different performance implications (Villalonga & Amit 2006), so our combining banks controlled by self-made tycoons and old-moneyed families likely includes some for which the entrenchment effects discussed above may not pertain. However, in most countries, control blocks do signal old-moneyed family control (La Porta *et al.* 1999; Morck, Wolfenzon & Yeung 2005). An opposite problem arises for Svenske Handelsbanken, a widely held Swedish bank that holds extensive control blocks in industrial firms (Högfeldt 2005), which it might be tempted to treat specially. Another possible distinction would separate widely held publicly traded banks from cooperative (customer or member owned) banks. However, all save nine of our widely held banks are cooperative banks but not publicly traded, so we cannot explore this distinction. All of these imperfections induce noise in our bank control measures, and thus cut against our finding significant differences between them. We return to these and other shortcomings of our measures in the robustness section below.

3.3 Financial System Efficiency Measures

We estimate efficiency of a country's financial system in the following ways:

Capital allocation efficiency

Following Wurgler (2000), we associate more efficient capital allocation with a country's capital investment being more predominantly concentrated in industries with faster value-added growth. We

operationalize this by estimating a simple elasticity of *gross fixed capital formation* to value added growth for each country using its industry-level data. That is, country's *Wurgler's elasticity* is the coefficient η_c in the regression

$$[1] \qquad \ln \frac{I_{ict}}{I_{ict-1}} = \alpha_c + \eta_c \ln \frac{V_{ict}}{V_{ict-1}} + \varepsilon_{ict}$$

with *i* denoting industry, *t* time, *I* fixed capital investment, and *V* industry value added.

Comparable industry level investment and value-added data are available through 2003 from United Nations' General Industrial Statistics (UNIDO) database,. We estimate each country's capital allocation efficiency twice. Our first *Wurgler's elasticity* estimate uses data for 1993 through 2003 – the ten years closest to our observation of the bank control. We would ideally base our capital allocation efficiency measurements of data subsequent to 2001, the earliest date at which we can assemble a broad international cross-section of bank control data; however, this leaves too short an estimation window. Our second *Wurgler's elasticity* uses all available UNIDO data (1963 through 2003). The longer window raises the number of countries with enough data to estimate the coefficient η from 33 to 39 and permits more precise estimates if capital allocation efficiency changes little through the window. If not, the first version is preferable. Table 4 shows that the two measures are highly correlated.

Since value-added growth across all sectors, by definition, sums to GDP growth, this measure gauges the strength of the link between capital spending in each industry and that industry's contribution to overall economic growth. Its weakness is that it fails to capture investments that respond to new growth opportunities yet to affect values added.

Nonperforming Loans

We next use *nonperforming loans*, measured as a fraction of the value of total gross loans outstanding, to gauge the banking system's ability to pick winners, or at least avoid losers. These data are from the World Development Indicators database (WDI), provided by the World Bank, and are averaged across 1993 through 2003 to yield one observation for each country to smooth out cyclical variations. In our

regressions, we logistically transform each dependent variable a bounded within the unit interval to $\hat{a}$ ranging across the real line. That is, we transform $a \in [0,1)$ into:

$$[2] \qquad \hat{a} = \ln\left(\frac{a}{1-a}\right) \in \Re,$$

A more efficiently-run banking system should make fewer loans to ex ante unqualified borrowers, and should therefore bear fewer nonperforming loans. State banks pressured by politicians into lending to financially unqualified but politically favored borrowers often run up huge nonperforming loan problems. Banks controlled by oligarchic families can get into very similar problems by lending to related parties who, despite daunting pedigrees, are ill qualified managers (Krueger 2002).

However, this logic is imperfect. Because screening borrowers is costly, we should observe some nonperforming loans. Too few might actually indicate inefficiently cautious lending. Also, different financial reporting practices across countries could render nonperforming loans data noisy, or even induce bias if, for example, family banking correlates with lower transparency. The last would work against finding significant results.

Banking Crises

Our third banking efficiency measure, the number of *banking crises* the economy experiences, is also directly tied to quality of banks' governance and their financial health. Although many factors can trigger banking crises (Allen & Gale 2007), financial history reveals extensive accumulated capital misallocation a near universal theme (Kindleberger & Aliber 2005). We therefore expect fewer banking crises in countries where bank loans are allocated more efficiently, all else equal.

Our first *banking crises* variable is the number of banking crises in each country covered in Demirguc-Kunt *et al.* (2006) or Dell'Ariccia *et al.* (2008) after 1993. Dell'Ariccia *et al.* (2008) presume a banking crises if one of the following happens: extensive depositor runs; an emergency measure (e.g. bank holiday or nationalization); bank rescues costing 2% of GDP or more; or non-performing loans rising to 10% or more of bank assets. These papers do not include the 2008 banking crisis, so we construct an alternative measure *banking crises + 2008* , which increases countries' crises counts by one

where the IMF Global Financial Stability Report (April 2009) indicates that governments directly intervened to rescue large financial institutions in 2008 or 2009. Unfortunately, data to replicate the criteria used in previous papers are as yet unavailable, so we treat this variable with circumspection.

Economy Stability

A country's banking system is a fundamental channel through which monetary variables affect its real economy. Consequently, macroeconomic stability correlates with the health and governance of the banking system. Banking systems that allocate capital less efficiently might be more vulnerable to negative economic shocks, and curtail credit more sharply in response. This might magnify the effect of economic shocks on the overall economy. We gauge macroeconomic volatility by *growth* volatility – the standard deviation of log first differences in real per capita GDP for each country from the Penn World Tables, averaged from 1993 through 2004.

3.4 Economy Performance Measures

A country's economic performance is commonly measured by growth in per capita income, productivity, or capital. These are important metrics, but economies can also be plausibly described as better-performing if they provide more egalitarian incomes or opportunities. We therefore consider a constellation of economic growth measures augmented by measures of equality indexes.

Economic Growth

Our first set of performance measures capture the pace of economic growth. As in Beck *et al.* (2000), we use Penn World Tables data (1993-2004), which allow us to decompose income growth into productivity growth and capital accumulation growth.

Income growth is the arithmetic mean of log differences in per capita GDP for each country. This is obtained by regressing each country's log real per capita GDP on a constant and a time trend, and taking the time trend as its income growth rate.

TFP growth is the economy's total factor productivity (TFP) growth rate: the growth rate in the value of the outputs it can generate from inputs of a fixed value. To estimate this, we assume output in each economy obeys the aggregate production function.

[3] $$Y_t = AK_t^{\alpha} L_t^{1-\alpha},$$

with Y_t, K_t, and L_t designating its GDP, capital stock, and labor force, respectively at time t; and with the capital share, α, assumed to be 30% for all countries (Beck *et al*. 2000). Using logarithms of first differences in time, we estimate the rate of change in A for each country and interpret this as its TFP growth rate.

Capital accumulation is the rate at which the economy's aggregate stock of capital assets grows through time. To estimate this, we assume its real capital stock at time t, denoted K_t, is its previous year's capital stock adjusted for depreciation at a rate δ and for new capital investment, I_t. That is,

[4] $$K_t = (1-\delta)K_{t-1} + I_t$$

We assume all capital to depreciate at seven percent per year, and assume 1964 capital stocks as starting points (Beck *et al.* 2000). We then apply [4] recursively to generate subsequent years' capital stocks moving forward.

Economic Equality

Rapid economic growth whose benefits accrue to tiny elite might be less socially desirable than slower growth whose fruits are more evenly distributed across the population. State or family-controlled banks might distribute wealth more evenly than widely held banks if the bureaucrats or families place social goals ahead of profits. Alternatively, either state or family-controlled banks might distribute wealth less evenly if they favor firms controlled by cronies or relatives. Indeed, elite capture of a country's banking systems ought to concentrate wealth the hands of a well-connected elite, skewing its income distribution. We therefore consider several measures of economic inequality.

We gauge *income inequality* by a country's average Gini coefficient from 1993 through 2003.[5] Another measure of inequality is the concentration of economic power in the hands of a small *oligarchy*,

[5] This measures the deviation of the country's income distribution from a uniform distribution, with a zero Gini coefficient indicating a perfectly egalitarian income distribution, and larger coefficients indicating greater inequality (Gini 1921).

as reflected in the fraction of the country's top ten businesses or business groups controlled by old moneyed families (Fogel 2006). "Old money" here is defined as second or subsequent generation wealth. The top ten rankings are based on total employees, and are the largest domestically-controlled private-sector businesses or business groups, including listed and unlisted firms. In regressions, we normalize both the *income inequality* and *oligarchy* variables using a logistic transformation, as in [2].

Broad access to options for improving one's life is arguably at least as socially important as equality of outcomes (Sen 1992). We are especially interested in *equality of opportunity* for small entrepreneurs, for which we consider two sets of proxies.

The first set gauges access to information, such as *personal computers* per thousand population averaged from 1993 through 2003. Khanna (2008) and others argue that an information technology revolution in the 1990s fundamentally changed China, India, and other developing economies by letting their small entrepreneurs access information and markets previously unavailable to them.

While the breadth of computer ownership is a defensible measure of this access; there are alternatives. We thus use *internet connections*, *telephone lines and car ownership* per capita as robustness checks. While we defend all these variables as proxies for equality of opportunity for small entrepreneurs, we recognize that they also reflect the size and wealth of a country's "middle class", and thus can be interpreted as measures of *consumption equality*, which is a valid alternative to income inequality (Gordon & Dew-Becker 2007).

Our second set of equality of opportunity measures gauges overt entry barriers blocking new businesses. These variables are the number of bureaucratic *procedures* a start-up must complete to operate legally, as well as the *time* (in business days) and *cost* (all identifiable official costs) required to do this. Cost is expressed as a fraction of per capita GDP, and all three variables are for 1999 and from Djankov *et al.* (2002).

The owners of incumbent businesses are thought to erect entry barriers that protect them from upstart rivals, and might control banks to constrict financing to rivals and potential rivals. If control over the banking system complements other means of effecting economic entrenchment, we should see more such hindrances where wealthy business elites control banking systems. However, we might also see fewer such barriers if control of the banking system is sufficient to lock in the *status quo*, rendering other entry barriers superfluous. Also, state control over banks may indicate general government activism, and

a heavier overall regulatory burden, so this variable might also correlate with the procedures, time and cost of establishing a new company.

3.5 Control Variables

Our regressions use a collection of control variables to isolate the relationship of the banking system control measures described in section 3.3 to the economy performance variables in section 3.4. This section explains the purpose, construction, and sources of each control variable.

Initial general development, gauged by the logarithm of the country's *per capita* GDP in 1992, appears in all of our regressions. In our growth regressions, initial general development controls for the possibility that countries already at high standards of living have less scope for very high growth rates than do poorer countries in the process of "catching up" (Solow 1956; Mankiw *et al.* 1992). Because Barro (1997) argues for a nonlinear relationship between economic growth and initial GDP, we also control for the square of the logarithm of the country's per capita GDP in 1992. More generally, initial economic development is also associated with higher quality institutions (North 1989, La Porta *et al.* 1999), which could limit the scope for capital misallocation by providing more effective checks on bank mis-governance.

Wurgler (2000) shows that financial development is an important determinant of capital allocation efficiency. We control for a country's general financial development with measures of the sizes of its equity and credit markets relative to its GDP, following King & Levine (1993), La Porta *et al.* (1997), Rajan & Zingales (1998), and Wurgler (2000). *Stock market size* is the country's total stock market capitalization as a fraction of GDP, averaged across 1993 through 2003 to smooth out any cyclical variations. *Banking system size* is the total bank credit outstanding as a fraction of GDP, likewise averaged across 1993 through 2003. We control for stock market size because stock markets provide alternatives to banks for firms seeking capital (Levine 2002). Consequently, a country with a large efficient stock market might allocate capital efficiently regardless of what sort of banking system it has.

In growth regressions we supplement the above variables with additional controls for *human capital* (Barro & Lee 1996; Barro 2001)*, trade openness* (Krueger 1998), and a *sub-Saharan African dummy* (Barro 1991), which are also shown to be important for economic growth. In our robustness tests,

we also control for *inflation*, *government size*, *black market premium*, *average number of coups*, *average number of assassinations*, and *ethnic diversity* individually and all together, as in Beck *et al.* (2000).

3.6 Persistence Issues

During crises, banks may be nationalized and then quickly privatized, making bank control data from a period without major crises preferable for our purposes. We therefore follow Caprio *et al.* (2007) and Laeven & Levin (2009) in using bank control data from 2001. These are the earliest available data with reasonably wide coverage after the 1997 Asian Crisis was resolved.

However, our dependent variables are generally estimated using data windows ending in 2003 or 2004 because UNIDO data, on which our investment efficiency measures are based, exist only through 2003, and the Penn World Tables end in 2004. This has two unfortunate consequences. First, we cannot run lead and lag causality tests between bank control and economy performance. Second, our bank control data do not precede the period in which we observe economy level performance. This timing mismatch is important if the category of ultimate controlling shareholder changes frequently, but less so if bank control is highly persistent.

To check this, we scan *BankScope* data from 2001 through 2007 for bank control changes. Although banks' controlling shareholders and the sizes of their equity blocks both change during this period, the category of controlling shareholder rarely changes; family-controlled banks tend to remain family-controlled, state-controlled banks tend to remain state-controlled, and widely held banks tend to remain widely held. Indeed, we identify only 14 banks (4.3% of the total 324) switching category from 2001 to 2007. Two family-controlled banks become state-controlled and four become widely held. Four state-controlled banks become widely held. Two widely held banks become family-controlled and two becomes state-controlled. Laeven & Levine (2009) perform a similar exercise, checking private banks for controlling shareholder changes from 2001 to 2005, and reach at the same conclusion: banks' ownership categories are very stable through time.

We are especially concerned about temporary bank nationalizations amid financial crises. For example, Sweden nationalized many of its major banks in 1992, but promptly privatized them again, and their controlling shareholders categories reverted to their pre-crisis values. One major financial crisis in our sample period is the 1997 Asian crisis. Djankov et al. (2005) analyze the resolution of financial

distress after this crisis in the three most affected countries, Indonesia, South Korea and Thailand. In these, only one Indonesian bank in our sample is nationalized. Our investigation of other East Asian, Latin American, and East European countries' banking systems also reveals no substantial changes in country-level controlling shareholder categories.

Another obvious problem could be bank control changes during privatization episodes. We have data on 283 bank privatizations from Megginson (2004), and work backwards from 2001 to explore how these affect our data. For example, Italy's Banco Nazionale del Lavoro is labeled widely held in our data, but was state-controlled until November 1998. This exercise reveals 16 changes in bank control between 1993 and 2001 in our sample. We return to this issue below by directly controlling for privatizations in recalculating our bank control measures.

These exercises suggest that country-level banking system control is likely to be highly persistent. Although this validates our use of 2001 banking system control measures, it also prevents us from using changes in banking system control for identification. We must therefore contend with endogeneity problems, such as reverse causality or latent factors affecting both control over countries' banking sectors and their economies' performance. We return to these issues below.

3.7 Descriptive Statistics

Table 3 summarizes the definitions and sources of all our main variables; and Table 2 presents simple descriptive statistics for each.

[Tables 2 and 3 about here]

4. Empirical Findings

We examine the correlations between our indices of bank control and various measures of economic performance – including banking system efficiency, economic growth rates, and macroeconomic stability – as well as factors correlated with crony capitalism.

[Table 4 about here]

4.1 Simple Correlations

Table 4 presents simple correlation coefficients of each main variable with all the others. Several patterns emerge. First, the three bank control indexes sum to unity, so each should correlate negatively with the other two – purely as an algebraic artifact. However, their relative magnitudes are informative nonetheless. Family control is not significantly negatively correlated with state control, but widely held banks are significantly ($p < 0.01$) rarer wherever either state or family control is more prevalent. Thus, the primary difference across countries seems to be widely held banks on the one hand versus state or family-controlled banks on the other.

Second, capital allocation efficiency correlates negatively and significantly with state-control of the banking system (1963-2003), as in Wurgler (2000). However, efficient capital allocation is positively significantly correlated with widely held banks and negatively and significantly, if measured between 1993 and 2003, correlated with family-controlled banks.

Third, more prevalent family-control over banks is associated with more non-performing loans, more banking crises, slower economic growth, slower capital accumulation, and worse macroeconomic volatility. In contrast, a more widely held banking system correlates with fewer non-performing loans, fewer banking crises, faster capital accumulation, and less macroeconomic volatility. A more thoroughly state-controlled banking system correlates only with more non-performing loans and slower capital accumulation.

4.2 Main Regression Results

Figure 1 graphs capital allocation efficiency against the fractions of banks designated family-controlled, state-controlled, and widely held. The figure shows clear general tendencies in the data, indicated by solid lines; but surrounded by substantial scatter. This suggests other variables at work in the background. We therefore turn to more formal multivariate tests to clarify the patterns in the data.

[Figure 1 about here]

Financial System Efficiency

Table 5 explores our first question: whether or not bank control correlates with capital allocation efficiency. The first four columns show *capital allocation efficiency*, measured as in Wurgler (2000) and across either 1993-2003 or 1963-2003, clearly correlated with control over banking systems. Countries with more widely held banking systems allocate capital more efficiently. Countries that entrust their banking systems to either families or the state exhibit less efficient capital allocation.

[Tables 5 about here]

The scatter evident in Figure 1 is considerably reduced by the control variables, for the regression R^2 statistics range from 33% to 61% – indicating that the variables in the regression now explain substantial fractions, by the standards of cross-sectional regression analysis, of the variation in capital allocation efficiency across countries.

The next two columns in Table 5 regress nonperforming loans on the bank control measures. A more widely held banking system is significantly correlated with fewer non-performing loans; while more predominantly state or family-controlled banking systems both correlate with more nonperforming loans.

Next we test the relationship between bank control and the number of banking crises the country experienced after 1993. Banking crises are more common in countries whose banking systems are more predominantly family-controlled (p=0.00). In contrast, widely held banks are negatively correlated with the number of banking crises and state-controlled banks seem uncorrelated with the incidence of crises. State-controlled banks could be enjoying the implicit guarantee of the state.

However, when we include the 2008 crisis, the coefficient on family control becomes less significant (p = 0.09) and that on widely held banks loses significance. Obviously, family control over banks does not explain 2008 crisis, which began in the United States, whose banking system is predominantly widely held, and spread to other countries with largely widely held banking systems, such as the United Kingdom. However, this does not belie the strong correlation of family control with previous crises.

The final two columns of the table checks whether family control of banks correlates with the stability of economic growth. The standard deviation of a country's real per capita GDP growth rate is

positively associated with family control over banks (p = 0.01), indicating less stable economic growth where family banks predominate.

These results are also economically significant. One standard deviation increase in the fraction of family-controlled banks corresponds to 25% (1993-2003) and 15% (1963-2003) decrease in capital allocation efficiency, 25% more nonperforming loans, and 27% larger standard deviation of growth. For comparison, a one standard deviation increase in the fraction of banks controlled by the state corresponds to 26% decrease in capital allocation efficiency (1963-2003) and 27% more nonperforming loans. These results survive a wide range of robustness checks, detailed below.

In summary, Table 5 shows countries where family-controlled banks are more predominant to be less efficient in allocating capital, to have banking systems with larger fractions of nonperforming loans, and to have less stable economic growth. Although family bank control correlates strongly with more financial crises prior to 2008, this correlation weakens if we extend the data to include the 2008 crisis.

Economic Growth

Since our banking system control measures correlate with capital allocation efficiency and banking system efficiency, we expect them to correlate with economic growth as well. Table 6 therefore regresses our economic growth measures – per capita income growth, TFP growth, and per capita capital accumulation – on our country level bank control measures, revealing lower real per capita GDP growth and TFP growth where banking systems are more family-controlled. The coefficient of family control in explaining capital accumulation is negative, but insignificant. In contrast, capital accumulation correlates negatively with state-controlled banks and positively with widely held banks.

[Table 6 about here]

These results are economically significant: a one standard deviation higher family control corresponds to 53% lower real GDP per capita growth (the average growth rate in our sample is 1.92%). They also survive a substantial battery of robustness checks, described below. In summary, Table 6 shows slower economic growth in countries with more predominantly family-controlled banking systems.

4.3 Endogeneity and Identification

Tables 5 and 6 link family-controlled banking to, respectively, inefficient capital allocation and slow unstable economic growth. However, since banking control is persistent and is, in any case, measured contemporaneously to the outcome variables, the tables cannot resolve endogeneity. Family-controlled banking might impede and destabilize growth; or slow unstable growth might favor family-controlled banks; or a third latent factor might "cause" both.

We employ instrumental variables regressions to mitigate endogeneity concerns. Because bank control is persistent, we employ deep historical instruments: the origin of each country's legal system; the fraction of its population adhering to each major religion, and its latitude.

Countries whose legal systems derive from the Common Law seem more able to sustain large financial systems than are countries whose legal systems derive from the Napoleonic Code; with systems derived from the German Civil Code and Scandinavian codifications occupying the middle ground (La Porta *et al.* 1997, 1998; Levine *et al.* 2000). Legal systems have deep historical roots – the spread of the Common Law, Napoleonic Code, and German Civil Code predates the widespread rise of dispersed ownership; and the Scandinavian codifications, though more recent, reflect similarly deep-rooted legal traditions. Non-Western countries generally either inherited their colonial legal systems or adopted a Western legal system before developing large stock markets (La Porta *et al.* 2008). *Legal origin* is therefore defensible as an instrument in that it is "predetermined" (Beck *et al.* 2000). Our four legal origin indicators are one for each of a Common Law, Napoleonic Code, German Civil Code, or Scandinavian legal origin, respectively; and zero otherwise.

Stulz & Williamson (2003) show that religion explains substantial cross-country variation in creditor rights, and attribute this to different religions' differing views on debt and interest. Although whole countries abruptly switched religions in the distant past, current changes are relatively slow. The *religion* variables are therefore also defensible as instrument candidates, in that they are mostly "predetermined".

Hall & Jones (1999) argue that latitude is correlated with Western influence, which they argue leads to institutions amenable to economic development. Acemoglu *et al.* (2001) support the validity of this instrument by showing it has no effect on economic performance, save via measures of institutional development. While Western countries' latitudes are clearly exogenous, where they established,

conquered, or defended colonies reflects their governments' decisions. However, those decisions were taken in the distant past, making *latitude* – defined as the distance of a country's geographic center from the equator in degrees – a plausible instrumental variable.

[Table 7 about here]

A valid instrument must be highly correlated with banking system control, and uncorrelated with the residuals in the correctly specified second stage regressions. Table 7 Panel A1 shows widely held banking systems to be markedly rare in French Civil Code countries, whose banking systems are on average 41% family-controlled. Widely held banks constitute 70 percent of the typical Protestant country's banking system, but total only five percent in the typical Muslim country. Countries in the highest quartile of absolute latitudes have the highest mean fraction of widely held banks (83%) and the lowest mean fractions of family-controlled and government-controlled banks. These differences suggest that our instruments' likely relevance to bank control. Panel A2 shows likelihood ratios of the first stage Tobit regressions using these variables as instruments for our bank control measures to have p values sufficiently low to refute concerns about weak instruments.[6]

Valid instruments must also be uncorrelated with the true residuals of the correctly specified second stage regressions. These are unobservable; however, assuming the observed residuals represent the true residuals allows approximations of these tests. For example, using the residuals of the second stage regression of capital allocation efficiency (estimated over the long window) on family and state-controlled banking system fractions yields a Hansen's J statistics of 2.29 ($p = 0.69$), consistent with exogeneity. If the dependent variable is income growth, the Hansen's J statistics is 4.12 ($p = 0.39$). In every case, these tests fail to reject exogeneity of the instruments.

We therefore take the predicted values from the Tobit regressions in panel A2 as first stage estimates of exogenous components of our banking system control measures. Panels B and C then rerun the regressions in Tables 5 and 6, but using these estimated exogenous components of our banking control measures, rather than the measures themselves.

[6] In specifications with only one endogenous variable (independent banks), we can directly utilize Stock & Yogo (2004) critical p-values for weak instruments. All our instruments pass this test.

The second stage coefficients of the bank control measures resemble those in Tables 5 and 6. Family control again correlates significantly with less efficient capital allocation, more nonperforming loans, slower economic growth, more volatile economic growth, and more banking crises. Widely held banking systems correlate with more efficient capital allocation (using the longer estimation window, though not using the shorter one), fewer nonperforming loans, faster economic growth, less volatile economic growth, and fewer banking crises (though not if we include the 2008 crises). State control over banks correlates only with more nonperforming loans and growth rate volatility.

Obviously, instrumental variables cannot completely preclude reverse causality or missing latent variable effects. However we conclude that our findings are at least consistent with causation running from bank control measures to economy level variables, as discussed above.

4.4 Robustness

Our main results (Tables 5 and 6) pass a wide battery of robustness checks, in that alternative approaches to estimation generate qualitatively similar results, by which we mean the banking system control measures attract the same patterns of signs and significance as in the tables. Where this is not so, we describe how the robustness checks' results differ from those shown in the tables. The relationships between bank control measures and our banking crises count that includes 2008 is only marginally significant in the tables, so we do not consider it in the robustness tests.

Our results are unlikely to be driven by outliers. We check this using an iterative reweighted least squares algorithm that successively deemphasizes observations farther from the trend line until converging. The algorithm does not converge for regressions explaining the number of bank crises, and so cannot be applied to these. In all other cases, it converges. This exercise leads to a much stronger negative correlation of family control with capital accumulation ($p = 0.02$); and also renders more state-controlled banking significantly correlated with higher growth rate volatility. Widely held banking systems are revealed dampening growth rate volatility and improving capital accumulation. In all other regressions, controlling for outliers in this way yields qualitatively similar results.

Our economy performance variables end in 2003-2004. Our next set of robustness checks ascertains that our findings are robust to extending this time window. Since the Penn World Tables and UNIDO data are made available with a lag of several years, we cannot extend our TFP growth rates,

capital accumulation rates, or Wurgler's elasticity to windows after our bank control data. However, using estimation endpoints different from those used in the tables generates qualitatively similar results throughout. Data for per capita GDP growth and volatility, and for nonperforming loans, are available through 2007 in the WDI database. We therefore reconstruct these variables using windows from 1993 to 2007, a window extending our data up to six years after our bank control cross section. Outlier robust regressions yield qualitatively similar results to those shown.

We measure banking system control as of 2001. Above, we showed that the banking control measures are highly persistent between 2001 and 2007 (by checking for all changes in bank control) and before 2001 (by using bank privatization data to work backwards from 2001). However, we can do more with our privatization data from Megginson (2004), which indicates that 16 banks in our sample are privatized: 6 become family-controlled and 10 become widely held. In the tables, we count these banks using their 2001 (post-privatization) control categories. An alternative approach is to calculate a duration-weighted measure of banking system control for 1993 through 2003. If a bank is state-controlled for the five years from 1993 to 1998, and then sold to a family, which controls it through 2003, we say it is 50% state-controlled and 50% family-controlled when tallying up our country-level bank control measures. This exercise generates qualitatively similar results to those shown, save that widely held banking systems are now positively correlated with growth, negatively correlated with growth rate volatility, and insignificant in explaining the efficiency of capital allocation in the shorter window.

We follow La Porta *et al.* (1999) and Caprio *et al.* (2007) in presuming the largest equity voting block of 10% or more to confer control. Increasing this to 20%, and recalculating our bank control measures generates qualitatively similar results to those shown.

Another alternative construction of our bank control measures would use different weights. We calculate country-level bank control measures weighting banks by total net credit. Credit issued is a plausible gauge of the importance of a bank as a capital allocator; but others are possible. We therefore reweight banks by total assets and reconstruct our bank control measures. This generates qualitatively similar results to those shown, save that widely held banking systems now correlate negatively with growth volatility and lose significance in explaining capital allocation efficiency in the shorter window.

We posit above that entrusting the governance of the banking system to wealthy business families might impede efficient capital allocation because those families might divert capital to their own firms

and away from upstarts and competitors. These problems could arise even if the families that control the banks do not control other firms, for Faccio (2006) and others reveal numerous connections between wealthy families. However, they may well be more serious where the families that control banks also control large nonfinancial corporations. The *Orbis* dataset identifies other companies owned by our banking families. We augment this with an extensive online media search using family names and bank names to verify matches in Orbis and identify other firms controlled by our banking families. This admittedly crude approach probably underestimates the non-financial interests of these families, but nonetheless confirms that 90% of the families that control banks in our data also control other firms. We use this information to recalculate our bank control measures assuming banks controlled by families with no other firms are equivalent to widely held banks. Under this definition, 100% of Mexican banks become widely held – a call many students of the Mexican economy might find low. Rerunning our regressions yields qualitatively similar results.

The statistical tests in all our regressions employ heteroskedasticity-consistent standard errors. Using standard OLS regression t-tests generates qualitatively similar results; except for the capital allocation efficiency measure based on 1993 to 2003 data.

Our capital allocation efficiency measures, Wurgler's (2000) elasticities, are estimated, not observed. We therefore rerun regressions using these variables weighting observations by the inverses of the standard errors of our elasticity estimates. These weighted least squares regressions generate qualitatively similar results to those in the tables.

We can obtain data for only a few banks in some countries. If these have only a few banks, this is not necessarily a problem; but if we are missing data for these countries, their banking control measures may be estimated less precisely. We therefore repeat our tests after dropping the countries represented in our data by fewer than three banks: Finland, Venezuela, and Zimbabwe. This exercise renders widely held banking systems positively correlated with income growth and state-controlled banking negatively correlated with capital accumulation; and leaves all our bank control measures insignificant in explaining capital allocation efficiency in the shorter window, though the coefficient magnitudes are roughly preserved.

Table 6 controls for initial banking system size, stock market size, per capita GDP, per capita GDP squared, mean years of schooling, trade openness, and adds a Sub-Saharan Africa dummy. These

control variables are commonly used in the economic growth literature; but others are sometimes added. We therefore repeat the income growth regressions of Table 6 including other controls used in Beck *et al.* (2000) *mean inflation rates*, *government as a fraction of GDP*, the *black market exchange rate premium, the number of coups*, *the number of assassinations, and ethnic diversity*, individually and all together. Qualitatively similar results ensue; family control is always negatively significantly associated with growth.

Table 5 shows that including the 2008 financial crisis in our crisis counts greatly weakens the correlations of family control with instability and widely held banks with stability. Banking crises are rare events, so further checking the broader generality of our findings requires extending our time period back in time. We do this by counting all the crises covered in Demirguc-Kunt *et al.* (2006) plus Dell'Ariccia *et al.* (2008), rather than just those dated after 1993. This extends our window back to 1980. We perform this robustness check both with and without 2008 crises added to the total counts. Both generate qualitatively similar results: family bank control is highly significant in explaining the number of banking crises. For instance, when the 2008 crises is included, family bank control has a coefficient of 1.03 ($p = 0.02$). Many factors contribute to financial crises (Allen & Gale 2007); however, this evidence supports bank control being numbered among them (Saunders et al. 1990; Laeven & Levine 2009), at least in some time periods and some countries.

4.4 Efficiency versus Equality

Our findings above are consistent with family control over banks impairing financial system efficiency and thereby both slowing and destabilizing economic growth. This aligns with arguments that economies are subject to economic entrenchment, sometimes called crony capitalism, wherein incumbent business leaders erect barriers to entry that lock in the advantageous (to them) *status quo* to the determinant of their countries (Murphy *et al.* 1991, 1993; Shleifer & Vishny 1998b). Our findings also align with the thesis of Rajan & Zingales (2004) and its supporting country case studies (Haber *et al.* 2003; La Porta *et al.* 2003), that this entrenchment can be effected by elite capture of countries' financial systems.

But other explanations of our findings must also be considered. For example, family-controlled banks might simply be less competent capital allocators. Or, family-controlled banks might elevate social goals, such as equality, above economic efficiency, consistent with the solidarity, or social capital

strengthening, advantages attributed to family businesses by e.g. Lester & Cannella (2006). However, both of these seem implausible given that Caprio *et al.* (2007) find higher valuations for banks with controlling shareholders.

We apply Ockham's razor by testing for links between family-controlled banking systems and economy characteristics correlated with crony capitalism. First, crony capitalism is associated with extreme inequality. If family bank control abets crony capitalism, it should therefore correlate negatively with measures of equality. Crony capitalism is also associated with high barriers to entry. Thus, if control of the banking system alone is insufficient to achieve crony capitalism, family bank control should be positively correlated with barriers to entry. Family bank incompetence, in contrast, has no clear prediction regarding these variables; and the solidarity explanation would presumably imply greater income equality and equality of opportunity.

[Table 8 about here]

The first two columns of Table 8, employing countries' *Gini coefficients,* reveal significantly less egalitarian income distributions in countries whose banking systems are more extensively controlled by families. In contrast, state-controlled banking systems significantly correlate with more egalitarianism in income distributions, as do widely held banking systems.

The next two columns gauge economic inequality by the economic importance of each country's greatest business families, as assessed by Fogel (2006). Family-controlled business empires are more important in countries whose banking systems are more extensively controlled by families.

The remaining columns use various measures of equality of opportunity. Family control over banks correlates negatively with PCs per thousand people, a measure of the breadth of access to new economy employment and market opportunities. Alternative measures – car ownership, internet connections, and telephone lines per capita – generate qualitatively similar results (not reported). Family-controlled banks correlate with fewer, not more opportunities. Since these measures also likely correlate with middle class purchasing power, they also reinforce our finding, based on Gini coefficients, that family-controlled banking correlates with worse income inequality.

The last six columns relate banking system control to measures of barriers to entry directly due to government bureaucratic procedures. All three measures – the *number of procedures, time* and *cost* required to set up a new company legally – correlate positively with family-controlled banking and negatively with widely held banking systems. In contrast, state control over banks is insignificant, except for correlating with a higher cost of setting up a new firm.

These findings survive the battery of robustness checks enumerated in the previous section. All the robustness checks used above generate qualitatively similar results to those shown in the table with the following exceptions. If we restrict "family control" to mean control by tycoons or families who also control other firms, family control remains significant except in regressions of the cost of starting a new business and regressions controlling for privatizations of the number of procedures, the time required to start a new business, and our oligarchy measure. However, if we use the instrumental variables in Table 7 to estimate the exogenous component this modified family banking control measure, it reasserts significance throughout, save in regressions of the oligarchy measure.

Family control correlates positively with inequality, regardless of which dimension of inequality we measure. Of course, correlations do not resolve causation; however correlations with third variables relevant to one causal explanation and not others can further sharpen Ockham's razor. We interpret these findings as reinforcing the plausibility of family control over banking systems reflecting crony capitalism.

5. Conclusions

Banks are vital intermediaries allocating capital in an economy; and in many economies, banks are the only intermediaries available. Who controls the banks therefore matters. Controlling for capital market development and initial GDP per capita, we find that national banking systems controlled more predominantly by tycoons and families correlate with worse economy-level outcomes: less efficient capital allocation, more nonperforming loans, more frequent bank crises, greater macro volatility, and slower income and productivity growth rates. Of course, our results imply neither that all controlling tycoons and families are entrenched nor that their control has these associations in all time periods and all financial crises.

Recent work links crony capitalism, and the slow growth it entails, to elite capture of countries financial systems (Morck, Stangeland & Yeung 2000, Rajan & Zingales 2003, Morck, Wolfenzon &

Yeung 2005, Acemoglu, Johnson & Robinson 2001, 2005). Rajan & Zingales 2003 posit a detailed mechanism for this, whereby an initial cadre of entrepreneurs (or their heirs), made rich by their country's newly developed financial system, actively reverse that development to lock in their dominance by starving entrants of capital. Since banks provide essential capital for new and small firms across countries (Beck et al. 2008), control over the banking system is an obvious place to look for this effect. Consistent with these arguments, we find family control over banks correlated with traditional signs of crony capitalism, such as high inequality and barriers to entry.

Table 1
Control Structure of Banks across Countries

Family, *state* and *widely held* measure the fractions of banks (weighted by total credit) controlled by family groups, governments and neither, respectively. Control is presumed to lie with the largest voting block of ten percent or more. If no such block exists, we classify the bank as *widely held*. *Banks* is the number of banks in the country for which we have ownership data. *Code* abbreviates the country's name in the graphs. See Table 3 for variable definitions and data sources.

Country	*Code*	*Family*	*State*	*Widely held*	*# of Banks*
Argentina	AR	0.40	0.51	0.10	5
Australia	AU	0.01	0.00	0.99	11
Austria	AT	0.00	0.00	1.00	6
Brazil	BR	0.59	0.27	0.13	12
Canada	CA	0.00	0.00	1.00	9
Chile	CL	0.71	0.29	0.00	5
Colombia	CO	0.41	0.18	0.41	4
Denmark	DK	0.01	0.00	0.99	9
Egypt	EG	0.02	0.98	0.00	9
Finland	FI	0.00	0.00	1.00	1
France	FR	0.00	0.00	1.00	8
Germany	DE	0.14	0.24	0.62	8
Greece	GR	0.36	0.56	0.08	10
Hong Kong	HK	0.27	0.08	0.65	7
India	IN	0.00	1.00	0.00	13
Indonesia	ID	0.04	0.91	0.05	12
Ireland	IE	0.00	0.00	1.00	7
Israel	IL	0.48	0.43	0.09	8
Italy	IT	0.11	0.00	0.89	9
Japan	JP	0.00	0.22	0.78	7
Jordan	JO	0.91	0.09	0.00	8
Kenya	KE	0.03	0.83	0.15	5
Korea	KR	0.03	0.38	0.59	9
Malaysia	MY	0.93	0.00	0.07	6
Mexico	MX	0.70	0.00	0.30	3
Netherlands	NL	0.00	0.22	0.78	3
Norway	NO	0.00	0.43	0.57	9
Pakistan	PK	0.04	0.96	0.00	4
Peru	PE	0.49	0.19	0.33	4
Philippines	PH	0.68	0.21	0.11	13
Portugal	PT	0.43	0.29	0.29	7
Singapore	SG	0.56	0.44	0.00	3
South Africa	ZA	0.64	0.01	0.34	5
Spain	ES	0.34	0.01	0.65	14
Sri Lanka	LK	0.00	0.59	0.41	6
Sweden	SE	0.30	0.00	0.70	4
Switzerland	CH	0.09	0.21	0.70	9
Taiwan	TW	0.17	0.74	0.09	14
Thailand	TH	0.54	0.46	0.00	7
Turkey	TR	0.48	0.32	0.21	11
United Kingdom	GB	0.21	0.00	0.79	6
United States	US	0.02	0.00	0.98	10
Venezuela	ZM	0.76	0.00	0.24	2
Zimbabwe	ZW	0.00	0.00	1.00	2

Table 2
Descriptive Statistics of Main Variables

Sample is the countries listed in Table 1; variables are defined in Table 3.

		Mean	Median	Standard Deviation	Maximum	Minimum
Panel A. Bank control indexes						
1	*Family*	0.27	0.16	0.29	0.93	0.00
2	*State*	0.27	0.21	0.31	1.00	0.00
3	*Widely held*	0.46	0.38	0.38	1.00	0.00
Panel B. Financial system efficiency						
4	*Capital allocation efficiency, '63-'03*	0.54	0.55	0.28	1.12	-0.03
5	*Capital allocation efficiency, '93-'03*	0.43	0.47	0.42	1.32	-1.02
6	*Non-performing loans*	8.12	5.88	7.42	27.43	0.45
7	*Banking crises*	0.23	0.00	0.48	2.00	0.00
Panel C. Economic growth						
8	*Real GDP growth*	0.02	0.02	0.02	0.07	-0.02
9	*TFP growth*	0.02	0.02	0.01	0.07	-0.01
10	*Capital accumulation*	-0.01	-0.01	0.01	0.01	-0.04
11	*Growth rate volatility*	0.03	0.02	0.02	0.08	0.01
Panel D. Crony capitalism						
12	*Income inequality*	38.88	36.00	9.57	59.08	24.70
13	*Oligarchy*	0.62	0.70	0.33	1.00	0.00
14	*Computers*	165.84	85.27	151.88	462.72	3.53
15	*Number of Procedures*	2.10	2.20	0.56	2.89	0.69
16	*Time*	3.38	3.61	1.00	4.85	0.69
17	*Cost*	6.75	6.68	1.26	8.87	4.21
Panel E. Main controls						
18	*Initial income*	8.66	9.10	1.41	10.45	5.78
19	*Stock market size*	3.92	3.95	0.82	5.68	2.15
20	*Banking system size*	4.41	4.49	0.58	5.68	2.98
21	*Trade openness*	4.13	4.08	0.62	5.94	2.96
22	*Human capital*	2.05	2.05	0.30	2.54	1.49

Table 3
Variable Definitions and Sources

Panel A. Bank control

Family	Total 2001 credit-weighted fraction of listed and unlisted banks controlled by an individual or family. Control is imputed to the largest blockholder whose voting control, direct and indirect, sums to at least 10% for 2001 or the nearest year with data. Indirect control is inferred using the "weakest link" method, as in La Porta *et al.* (1999). Sources: Caprio *et al.* (2007), BankScope.
State	Total credit-weighted fraction of banks controlled by state organs. Constructed analogously to *Family*.
Widely held	Total credit-weighted fraction of banks with no controlling shareholder. Constructed analogously to *Family*.

Panel B. Financial system efficiency

Capital allocation efficiency	The efficiency of capital allocation is the estimated elasticity of manufacturing investment to value added, estimated as in Wurgler (2000). Note: Two versions of this variable are used, one using all available data and the other using data for 1993 through 2003 only.
Non-performing loans	Ratio of nonperforming loans as a fraction of total gross loans, averaged over 1993 through 2003. In regressions and correlations, this variable is log normalized by the formula: *normalized* $[x] = \ln [x/(1-x)]$. Source World Development Indicators (WDI).
Banking crises	The number of banking crises in each country covered in Demirguc-Kunt *et al.* (2006) plus Dell'Ariccia *et al.* (2008) after 1993.
Banking crises +2008	This variable adds 1 to "*Banking crises*" if governments directly intervened to large financial institutions in 2008 and 2009 according to the IMF Global Financial Stability Report (April 2009).

Panel C. Economic Growth

Income growth	Real *per capita* GDP growth is the coefficient in an OLS regression of log real per capita GDP time trend and intercept as in Beck *et al.* (2000). Data are for 1993 through 2003, and are from Penn World Tables.
TFP growth	Each country's total factor productivity (TFP) growth is A in the production function $Y = A K^{\alpha} L^{1-\alpha}$, with Y, K, and L the country's GDP, capital stock, and labor force, respectively; and with capital share $\alpha = 0.03$ as in Beck *et al.* (2000). Data are for 1993 through 2003, and are from Penn World Tables.
Capital accumulation	Average growth rate in capital stock from 1993 to 2003, assuming 1964 capital stocks are in steady state and using aggregate real investment and 7% depreciation recursively to generate capital stock estimates going forward, as in Beck *et al.* (2000). Data are from World Penn Tables.
Growth rate volatility	Standard deviation of real GDP per capita growth, 1993-2003. Source: Calculated from World Penn Tables data.

Panel D. Crony Capitalism

Income inequality	Average *Gini coefficients* measure the deviation of income distribution from uniformity (Gini 1912), from 1993 through 2003, where data are available. Otherwise it is the average across available data. Data are unavailable for most countries after 2001. In regressions and correlations, this variable is log normalized by the formula: *normalized* $[x] = \ln [x/(1-x)]$. Source: WDI.
Oligarchy	Fraction of the top ten largest (according to number of employees) non-financial private-sector domestically-controlled freestanding businesses or business groups, including listed and unlisted firms, controlled by business failies in 1996. In regressions and correlations, this variable is log normalized by the formula: *normalized* $[x] = \ln [x/(1-x)]$. Source: Fogel (2006).
PCs	Personal computers (PCs) per thousand people, averaged over 1993-2003. Personal computers are defined as self-contained and designed for use by one person. Source: International

	Telecommunication Union, World Telecommunication Development Report and database. Downloaded from WDI.
Cars	Passenger cars per 1000 people, average over 1993-2003. Passenger cars refer to road motor vehicles, other than two-wheelers, intended for the carriage of passengers and designed to seat no more than nine people (including the driver). International Road Federation, World Road Statistics and data files. Downloaded from WDI.
Telephone	Telephone lines per 1000 people, average over 1993-2003. Telephone mainlines are fixed telephone lines connecting a subscriber to the telephone exchange equipment. Source: International Telecommunication Union, World Telecommunication Development Report and database. Downloaded from WDI.
Internet	Internet user per 100 people, average over 1993-2003. Internet users are people with access to the worldwide network. International Telecommunication Union, World Telecommunication Development Report and database. Downloaded from WDI.
Number of Procedures	Log number of different procedures that a start-up has to comply with in order to obtain a legal status, i.e. to start operating as a legal entity. Source Djankov *et al.* 2002.
Time	Log time it takes to obtain legal status to operate a firm, in business days. A week has five business days and a month has twenty two. Source Djankov *et al.* 2002.
Cost	Log cost of obtaining legal status to operate a firm as a share of per capita GDP in 1999. It includes all identifiable official expenses (fees, costs of procedures and forms, photocopies, fiscal stamps, legal and notary charges, etc). The company is assumed to have a start-up capital of ten times per capita GDP in 1999. Source Djankov *et al.* 2002.

Panel E. Controls

Initial income	Logarithm of 1992 per capita GDP in US dollars at purchasing power parity. Source: Penn World Tables.
Initial income square	Square of logarithm of 1992 per capita GDP in US dollars at purchasing power parity. Source: Penn World Tables.
Banking system size	Log average credit outstanding to GDP averaged across 1993-2003. Source: World Development Indicators, World Bank.
Stock market size	Log of average stock market capitalization to GDP averaged across 1993-2003. Source: World Development Indicators, World Bank.
Financial development	Log sum of average stock market capitalization to GDP and average credit outstanding to GDP averaged across 1993-2003. Source: World Development Indicators, World Bank.
Human capital	Log of average schooling years in total population aged 15 or over, 1990. Source: World Development Indicators, World Bank.
Trade openness	Log of trade/GDP: the sum of exports and imports of goods and services measured as a share of gross domestic product, over GDP. Source: World Bank national accounts data, OECD National Accounts data.
Africa Dummy	Equals to 1 if the country is located in sub-saharan Africa.
Inflation	Inflation rates are calculated using average annual CPI data from the International Financial Statistics. Source Beck et al.(2000).
Size of the government	Real general government consumption as the share of real GDP. Source: Beck et al.(2000).
Black market premium	Source: Beck et al.(2000).

Average no. of coups	Source: Beck et al.(2000).
Average no. of assassinations	Source: Beck et al.(2000).
Ethnic diversity	Source: Beck et al.(2000).

Panel F. Instrumental Variables

Predominant religion	Fraction of Catholics, Protestants, Muslims, Buddhists and "other religions" in a country, from the World Christian Encyclopedia (1995) as reported by Stulz & Williamson (2003).
Legal origin	These are dummy variables, from La Porta *et al.* (1998), indicating each country's legal system as having originated from British Common Law, the French Napoleonic Code, the German Civil Code, or the Scandinavian system of legal codifications.
Latitude	Absolute value of average latitude of countries. Source: CIA Factbook.

Table 4
Main Variables: Simple Cross-sectional Correlation Coefficients

Variables are as defined in Table 3. Numbers in parentheses are probability levels for rejecting the null hypothesis of a zero correlation. Boldface indicates significance at ten percent or better.

		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1	Family	1.00										
2	State	-0.20 (0.19)	1.00									
3	Widely held	**-0.60** **(0.00)**	**-0.66** **(0.00)**	1.00								
4	Capital allocation efficiency, '63-'03	-0.21 (0.19)	**-0.65** **(0.00)**	**0.70** **(0.00)**	1.00							
5	Capital allocation efficiency, '93-'03	**-0.30** **(0.09)**	-0.24 (0.18)	**0.43** **(0.01)**	**0.54** **(0.00)**	1.00						
6	Non-performing loans	**0.30** **(0.05)**	**0.58** **(0.00)**	**-0.70** **(0.00)**	**-0.63** **(0.00)**	**-0.37** **(0.03)**	1.00					
7	Banking crises	**0.35** **(0.02)**	0.01 (0.95)	**-0.28** **(0.07)**	-0.26 (0.11)	0.02 (0.91)	**0.32** **(0.04)**	1.00				
8	Income growth	**-0.25** **(0.10)**	0.03 (0.87)	0.17 (0.27)	0.16 (0.32)	0.13 (0.48)	**-0.44** **(0.00)**	**-0.30** **(0.0)5**	1.00			
9	TFP growth	-0.20 (0.20)	0.13 (0.40)	0.04 (0.78)	0.05 (0.76)	0.05 (0.78)	**-0.31** **(0.04)**	**-0.30** **(0.05)**	**0.97** **(0.00)**	1.00		
10	Capital accumulation	**-0.26** **(0.09)**	**-0.40** **(0.01)**	**0.52** **(0.00)**	**0.43** **(0.01)**	**0.31** **(0.08)**	**-0.55** **(0.00)**	-0.07 (0.66)	**0.33** **(0.03)**	0.09 (0.57)	1.00	
11	Growth rate volatility	**0.51** **(0.00)**	0.08 (0.60)	**-0.45** **(0.00)**	**-0.37** **(0.02)**	**-0.31** **(0.08)**	**0.48** **(0.00)**	0.36 (0.02)	-0.20 (0.20)	-0.14 (0.36)	-0.24 (0.12)	1.00
12	Initial income	-0.21 (0.19)	**-0.59** **(0.00)**	**0.63** **(0.00)**	**0.66** **(0.00)**	**0.51** **(0.00)**	**-0.73** **(0.00)**	-0.23 (0.15)	0.18 (0.25)	0.06 (0.70)	**0.49** **(0.00)**	**-0.40** **(0.01)**

Table 5
Bank Control and Financial System Efficiency

The first 6 and final 2 columns show cross-country OLS regressions with robust standard errors. In the next two columns the coefficients are from negative binomial regressions with robust standard errors. Next two columns are from Poisson regression because the negative binomial does not converge. Dependent variables are in columns and independent variables are in rows. Variables are as defined in Table 3. P values are in parentheses.

	Capital Allocation Efficiency 1993-2003		Capital Allocation Efficiency 1963-2003		Non-performing Loans		Banking Crises		Banking Crises +2008		Growth Rate Volatility	
Widely held		**0.262**		**0.353**		**-1.312**		**-2.320**		-0.836		-0.015
		(0.08)		**(0.00)**		**(0.00)**		**(0.01)**		(0.19)		(0.12)
Family	**-0.372**		**-0.284**		**1.287**		**3.152**		**1.239**		**0.028**	
	(0.04)		**(0.00)**		**(0.01)**		**(0.00)**		**(0.09)**		**(0.01)**	
State	-0.088		**-0.462**		**1.349**		1.085		0.197		-0.004	
	(0.67)		**(0.00)**		**(0.01)**		(0.32)		(0.80)		(0.74)	
Banking system size	0.067	0.119	0.003	-0.030	0.356	0.364	0.073	-0.496	-0.013	-0.189	0.002	-0.002
	(0.78)	(0.63)	(0.98)	(0.71)	(0.26)	(0.20)	(0.92)	(0.38)	(0.98)	(0.68)	(0.70)	(0.71)
Stock market size	0.086	0.045	0.053	0.083	-0.266	-0.274	**-0.774**	-0.454	-0.237	-0.117	0.001	0.005
	(0.40)	(0.64)	(0.30)	(0.16)	(0.24)	(0.20)	**(0.09)**	(0.29)	(0.48)	(0.36)	(0.68)	(0.18)
Initial income	**0.093**	0.073	0.043	**0.055**	**-0.398**	**-0.401**	-0.105	0.160	0.138	0.199	**-0.006**	-0.004
	(0.04)	(0.16)	(0.15)	**(0.05)**	**(0.00)**	**(0.00)**	(0.69)	(0.37)	(0.48)	(0.18)	**(0.09)**	(0.26)
Constant	-0.851	-0.999	0.155	-0.282	-0.715	0.622	0.490	1.811	-1.645	-1.067	**0.057**	**0.059**
	(0.30)	(0.20)	(0.55)	(0.21)	(0.52)	(0.48)	(0.84)	(0.91)	(0.77)	(0.56)	**(0.05)**	**(0.04)**
R^2	0.35	0.33	0.61	0.59	0.65	0.65	0.21	0.16	0.03	0.02	0.37	0.25
N	33	33	39	39	43	43	43	43	43	43	43	43

Table 6
Bank Control and Economic Growth

The table shows results of cross-country OLS regressions with robust standard errors. Dependent variables are in columns and independent variables are in rows. Variables are as defined in Table 3. P values are in parentheses.

	Income Growth		TFP Growth		Capital Accumulation	
Widely held		0.015		0.010		**0.016**
		(0.16)		(0.34)		**(0.00)**
Family	**-0.035**		**-0.030**		-0.015	
	(0.01)		**(0.03)**		(0.19)	
State	-0.003		0.002		**-0.016**	
	(0.78)		(0.82)		**(0.05)**	
Human capital	0.012	0.015	0.011	0.014	0.004	0.004
	(0.19)	(0.18)	(0.19)	(0.16)	(0.77)	(0.77)
Trade openness	0.003	0.003	0.005	0.005	**-0.006**	**-0.006**
	(0.49)	(0.59)	(0.26)	(0.33)	**(0.02)**	**(0.02)**
Banking system size	0.006	0.008	0.004	0.006	0.005	0.005
	(0.28)	(0.17)	(0.43)	(0.29)	(0.27)	(0.32)
Stock market size	**0.005**	0.002	0.005	0.001	0.001	0.001
	(0.24)	(0.69)	(0.25)	(0.76)	(0.69)	(0.66)
Africa dummy	**-0.023**	**-0.024**	**-0.022**	**-0.023**	-0.004	-0.004
	(0.07)	**(0.05)**	**(0.08)**	**(0.06)**	(0.53)	(0.54)
Initial income square	**-0.004**	-0.001	**-0.004**	-0.001	-0.001	-0.001
	(0.09)	(0.60)	**(0.10)**	(0.73)	(0.57)	(0.24)
Initial Income	0.064	0.011	0.058	0.004	0.021	0.023
	(0.12)	(0.76)	(0.13)	(0.91)	(0.57)	(0.24)
Constant	-0.280	-0.077	-0.252	-0.041	-0.094	-0.120
	(0.13)	(0.62)	(0.14)	(0.77)	(0.54)	(0.17)
R^2	0.41	0.31	0.39	0.28	0.45	0.45
N	43	43	43	43	43	43

Table 7
Instrumental Variable Regressions

Panel A1 summarizes the control structure of banks by a country's legal origin, largest religion and capital city latitude. Numbers reported are fractions of top ten banks classified as widely held, family, or state-controlled. Religion dummies are one for the most commonly practiced in that country and zero for all others. Latitude dummies represent membership in latitude absolute value quartiles, with one designating lowest latitudes. Panel A2 reports LR statistics first stage Tobit regressions (censored at 0 and 1) predicting bank control proportions, one LR for each set of control variables used. Panels B and C replicate Tables 5 and 6 respectively, but as second-stage regressions using the first-stage estimated bank control proportions. Numbers in parentheses are p-levels. Variables are as defined in Table 3.

Panel A Instrumental Variables Verification

A1. Mean banking system control breakdowns in countries, by legal origin, religion, and latitude.

		Widely held	Family	State
Legal origin	British Common Law	0.467	0.233	0.300
	French Napoleonic Code	0.309	0.413	0.278
	German Civil Code	0.629	0.072	0.299
	Scandinavian	0.816	0.076	0.108
Principal religion	Catholic	0.525	0.336	0.139
	Muslim	0.053	0.405	0.542
	Protestant	0.703	0.125	0.172
	Others	0.310	0.238	0.452
Latitude	Lowest quartile	0.173	0.457	0.37
	Second quartile	0.307	0.316	0.377
	Third quartile	0.514	0.240	0.246
	Highest quartile	0.832	0.068	0.1

A2. First stage regression LR Chi-Square statistics and p-levels (in parentheses)

Regressions with	Widely held	Family	State
Controls for economic growth determinants	41.73	54.82	33.19
	(0.000008)	(0.000000)	(0.000124)
All other regressions	32.90	32.30	25.54
	(0.000011)	(0.000036)	(0.000110)

Panel B Instrumental Variable Regressions (Table 5)

	Capital Allocation Eff, (93-03)	Capital Allocation Eff, (63-03)	Non-performing Loans	Banking Crises	Banking Crises + 2008	Growth Rate Volatility
Widely held	0.593	**0.587**	**-5.338**	**-6.589**	-3.047	**-0.082**
	(0.27)	**(0.06)**	**(0.00)**	**(0.03)**	(0.20)	**(0.01)**
Family	**-0.743**	**-0.422**	**3.923**	**5.180**	**2.849**	**0.060**
	(0.05)	**(0.08)**	**(0.00)**	**(0.05)**	**(0.08)**	**(0.01)**
State	0.423	-0.705	**6.386**	3.688	3.638	**0.070**
	(0.53)	(0.13)	**(0.00)**	(0.85)	(0.28)	**(0.09)**

Panel C Instrumental Variable Regressions (Table 6)

	Income Growth	TFP Growth	Capital Accumulation
Widely held	**0.105**	**0.077**	**0.093**
	(0.02)	**(0.10)**	**(0.00)**
Family	**-0.058**	**-0.042**	**-0.052**
	(0.03)	**(0.11)**	**(0.00)**
State	-0.018	0.007	-0.041
	(0.51)	(0.77)	(0.25)

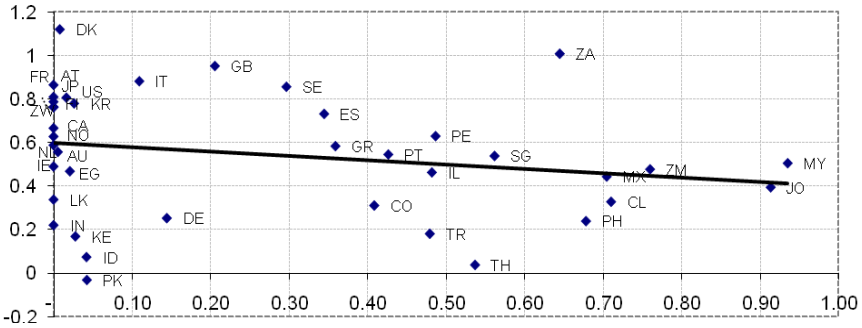
Table 8
Consistency with Crony Capitalism

The table shows cross-country OLS regressions with robust standard errors. Dependent variables are in columns and independent variables are in rows. Variables are as defined in Table 3. P values are in parentheses.

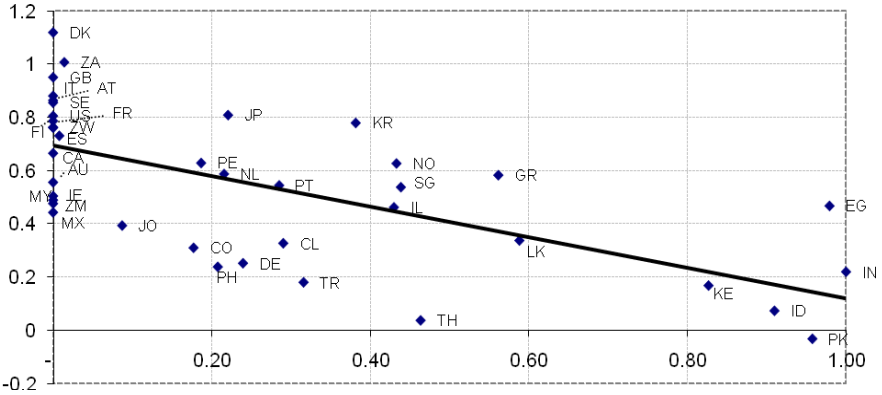
	Equality of Outcomes				Equality of Opportunity							
	Income Inequality (Gini coefficient)		Oligarchy (top families' holdings)		PCs per thousand population		Difficulty starting a new company legally					
							Number of procedures		Time		Cost	
Widely held		**-0.266** **(0.08)**		**-1.59** **(0.04)**		**118** **(0.00)**		**-0.785** **(0.00)**		**-1.136** **(0.02)**		**-1.39** **(0.00)**
Family	**0.629** **(0.00)**		**1.98** **(0.02)**		**-189** **(0.00)**		**1.028** **(0.00)**		**1.440** **(0.00)**		**1.277** **(0.02)**	
State	**-0.275** **(0.10)**		1.11 (0.21)		-11.5 (0.82)		0.415 (0.17)		0.674 (0.15)		**1.571** **(0.00)**	
Banking system size	**-0.174** **(0.10)**	**-0.303** **(0.01)**	0.520 (0.48)	0.573 (0.43)	-37.5 (0.17)	-12.1 (0.61)	**0.242** **(0.08)**	0.154 (0.20)	0.130 (0.59)	0.020 (0.93)	0.506 (0.17)	0.548 (0.13)
Stock market size	0.103 (0.13)	**0.229** **(0.01)**	-0.675 (0.16)	-0.653 (0.17)	**63.0** **(0.00)**	**39.9** **(0.04)**	**-0.382** **(0.00)**	**-0.302** **(0.00)**	**-0.545** **(0.00)**	**-0.446** **(0.01)**	**-0.583** **(0.02)**	**-0.621** **(0.00)**
Initial income	**-0.130** **(0.01)**	**-0.098** **(0.07)**	**-0.445** **(0.04)**	**-0.400** **(0.02)**	**72.9** **(0.00)**	**63.0** **(0.00)**	0.001 (0.98)	0.036 (0.58)	-0.102 (0.25)	-0.059 (0.55)	**0.880** **(0.00)**	**0.863** **(0.00)**
Constant	**0.924** **(0.01)**	**0.947** **(0.03)**	3.93 (0.21)	**4.74** **(0.05)**	**-493** **(0.00)**	**-537** **(0.00)**	**2.132** **(0.00)**	**2.662** **(0.00)**	**5.261** **(0.00)**	**6.078** **(0.00)**	-1.570 (0.17)	-0.054 (0.96)
R^2	0.60	0.40	0.60	0.56	0.86	0.80	0.44	0.39	0.49	0.46	0.57	0.57
N	42	42	27	27	43	43	43	43	43	43	43	43

Figure 1. Capital Allocation Efficiency and the Control of Banks
The vertical axis is the capital allocation efficiency (1963-2003), and the horizontal axes in panels A, B, and C are, respectively, the fractions of family-controlled, state-controlled, and widely held banks, as in Table 3. Observations are labeled with country codes, as defined in Table 1.

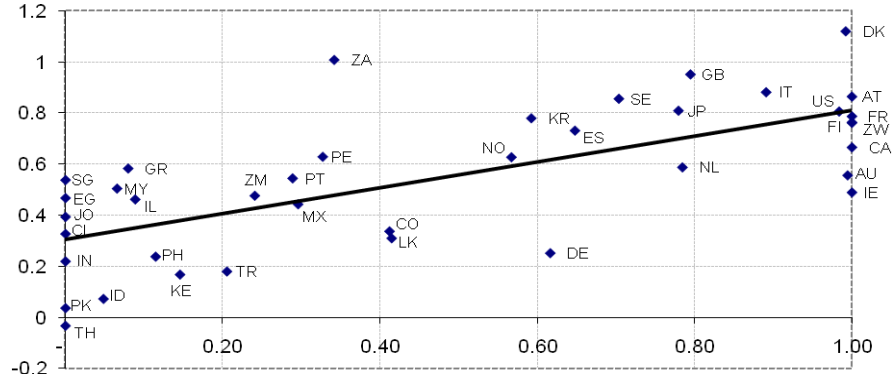
Panel A. Family-controlled banks



Panel B. State-controlled banks



Panel C. Widely held banks



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