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A Global Corporate Census: Publicly-Traded and Close Companies in 1910

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ABSTRACT

In 1910 the world had approaching a half-million corporations, only one-hundredth of today's total. About one-fifth, and over half of corporate capital, was publicly-tradable, higher portions than today. Most publicly-quoted corporations traded in Europe and the British Empire, but most close (private) corporations operated in the US, which, until the 1940s, had more corporations per capita than anywhere else. The 83 countries surveyed differed markedly in company numbers, corporate capital/GDP ratios and average corporate size. Enclave economies - dominated by quoted (and often foreign-owned) companies - had the largest average sizes, while other nations had more varied mixes of large quoted corporations and close company SMEs.

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A Global Corporate Census: Publicly-Traded and Close Companies in 1910.

There are now around fifty million extant corporations worldwide.¹ In evaluating nations' business climates, the World Bank reports their numbers and the ease and speed with which new companies can register.² Those not traded on stock exchanges account for around two-thirds of their capital or output.³ They are overwhelmingly "private limited companies," to use the term current in the UK, dozens of its ex-colonies and other independent nations, conveying roughly the same meaning as "close corporations" in American (or Dutch) parlance.⁴ A large minority have one owner and no employees.⁵ At the other end of the scale, the World Federation of Stock Exchanges reports that in 2012 only 46,396 companies were listed on its 58 stock exchanges,⁶ so, even allowing for other exchanges and OTC markets, those whose shares are freely traded may constitute less than 0.2% of extant corporations. Others are subsidiaries (some giant quoted corporations have over one thousand subsidiaries each), private companies, or rely on off-exchange equity financing by business "angels," private equity, mezzanine financiers, trusts, venture capitalists, rich families and other insider groups. Their shares less frequently and transparently change hands, with or without the formal restrictions on share transfers that many close corporations impose.

¹ authors' estimate from websites listed at www.commercial-register.sg.ch/home/worldwide.html and elsewhere.

² www.worldbank.org. For a critical evaluation see Fauvarque-Cosson and Kerhuel, "Law."

³ Brav, "Access," p. 264; Mayer, *Firm*, p. 14.

⁴ From 1907 private companies in the UK were limited to 50 shareholders, could not solicit funds from the public and were not required to publish balance sheets; GmbHs in Germany and Austria had similar characteristics, without the numbers cap. American "close corporations" (unlike the Dutch "*besloten vennootschap*") were not legally-defined and historically sometimes described US publicly-traded companies with large insider family holdings, not qualifying as private companies elsewhere. From 1934 the SEC distinguished US firms with less than 500 shareholders for regulatory purposes.

⁵ Hipple, "Self-Employment."

⁶ www.world-exchanges.com

Historical studies of national corporate developments have proliferated,⁷ but they lack a common framework and even those with a clearer focus, like stock exchange analyses around Rajan and Zingales' "Great Reversals" or La Porta et al's "Law and Finance" hypotheses, disagree on historical size estimates.⁸ Some researchers have preferred Goldsmith's statistics, his stated goal being to include unquoted as well as quoted companies, though sometimes he included only a subset of the latter.⁹ His pioneering numbers are patently unsuited to international comparisons, yet historians and economists - ignoring his own punctilious warnings - have found his numbers irresistible.¹⁰ Reported associations between such unstandardized historical indicators of corporate development and economic growth may not be entirely spurious, but they certainly require re-examination, not least in view of economists' recent modifications of earlier confident generalisations about the finance-growth nexus.¹¹ Basic financial innovations plainly support growth, but more sceptical evaluations of financial excess may be in order.

Economic historians thus need to develop more reliable, consistently-defined and finer-grained data sets. This essay proposes a globally appropriate framing, which might be more broadly applied. It covers 83 countries in 1910: decades after many of them allowed incorporation by simple registration, but before corporations became as ubiquitous as they are today. The first reliable Internal Revenue Service (IRS) report on the numbers and capital of all extant US corporations - for

⁷ Halbeisen et al, *Wirtschaftsgeschichte der Schweiz*, p. 332; Gianetti and Vasta, eds, *Evolution of Italian Enterprises*, p. 271; Statistics Bureau, ed., *Historical Statistics of Japan*, pp. 24-99; Owen, *Corporation under Russian Law*; Wright, *Corporation Nation*; Shannon, "Limited Companies;" Rungta, *Corporations in India*; Goo, *Incorporation in Hong Kong*; Neves, "Development;" Pepelasis and Emmanoulidi, "Joint-Stock Company Births;" Johnson, *Making: Jobert, Entreprises*; Davis and North, *Institutional Change*; North, Wallis and Weingast, *Violence*.

⁸ Rajan and Zingales. "Great;" La Porta et al, "Economic Consequences;" Musacchio, "Law;" Moore, "World;" Dimson et al, *Triumph and Global Investment*.

⁹ Goldsmith, *Comparative National Balance Sheets*; see online appendix 1 for inconsistencies. Rajan and Zingales' figures have also been criticised (Sylla, "Schumpeter Redux"), but, with notable exceptions (Cuba, Chile, India and the UK, see online appendix 2), they are more consistent than Goldsmith's.

¹⁰ Levine, "Finance and growth," pp. 889-90; Forsyth and Verdier, *Origins*; Rousseau and Wachtel, "Financial Intermediation," p. 660; Sylla, "Wall Street," pp. 168-72.

¹¹ Acemoglu and Johnson, "Unbundling Institutions;" Cecchetti and Kharroubi. "Re-assessing."

the financial year beginning July 1910 - determined the target date for this census worldwide.¹² We use definitions as near as feasible to this US source. An earlier global census would be more speculative,¹³ while by 1910 we have sufficient data to pinpoint reasons for contradictory assessments. We estimate that there were only approaching a half-million corporations at that time, less than one per cent of today's numbers.¹⁴ The striking feature of their later multiplication was the sustained growth in both numbers and aggregate values of *close* (private) corporations, except in nations enduring communist or nazi dictatorship.¹⁵ The trend *away* from publicly-listed companies - occasionally flagged by contemporaries¹⁶ and more recent commentators¹⁷ - has received little historical attention, but we attempt to parse its origins.

The following section defines the corporate forms included, reporting their geographical spread in 1910. The next details aggregate share values for most of the surveyed companies, which the third apportions between private and publicly-quoted; the fourth discusses average corporate sizes. The conclusion briefly reviews post-1910 developments and possible links between corporatization and growth, whose investigation these new descriptive statistics are intended to facilitate.

I

By 1910, all rich (and many developing) nations offered a general registration process for joint stock limited liability companies, with varying degrees of cheapness and administrative

¹² Commissioner, *Annual Report 1911*; returns for the prior financial year were incomplete.

¹³ Hannah, "Corporations."

¹⁴ We enumerate 458,956 corporations in 83 countries, with countries accounting for 6% or so of the world's population omitted and likely undercounting of private companies and double counting of multinational ones. In 1909-13 the annual growth (net of disappearances) in the numbers of corporations averaged 5% in France and the US, 7% in the UK, 8% in Japan and 10% in Germany. The half-million figure had probably not been reached by 1910, but soon was.

¹⁵ The elimination of Russia's capitalist corporations, intensifying after Lenin's NEP, was emulated by later communist regimes. The substantial reduction in corporations in Hitler's Germany was less remarked upon and not replicated in Italy or Japan.

¹⁶ Jordan, *Private companies*; (Balfour) Committee, *Factors*, pp. 125-6; Fuller, "Incorporated Individual."

¹⁷ *Economist*, 19 May 2012, pp.12, 24; Jensen, "Eclipse;" Harris, et al, "Private Equity;" Wells, "Rise." The "modernity" of the private company is not universally recognised (Hannah, "Strategic Games.")

simplicity, avoiding arduous, costly and sometimes monopoly-enhancing recourse to the legislature or executive branch.¹⁸ Joint-stock companies had often been formed (with or without government authority) even before such enabling legislation, but had been made simpler, cheaper, less risky and legally unambiguous by general incorporation laws. At the Paris World Fair of 1889 the international congress of corporate lawyers passed a resolution affirming the desirability of such statutory templates without a single dissenting voice.¹⁹ Yet Norway had no corporate statute law until 1910, though Norwegians could (and prolifically did) form companies by private contract.²⁰

Other nations maintained restrictive government controls: legislators cautious of encouraging speculation, default or disruptive competition shared with existing corporate incumbents a desire to maintain entry restrictions to what was still considered a privilege not a right. The “Young Turks” Ottoman Law of Associations was promulgated only in 1909, Siam’s general law in 1911, Greece’s in 1920. The Qing imperial edict of 1904, granting general incorporation in China, was a bigger step in principle than in practice: patronage of the powerful remained essential for many companies.²¹ Elsewhere bureaucrats also tried to “pick winners,” in the manner of seventeenth century English kings or early nineteenth century American legislators. In Russia corporations still required the Tsar’s authorization until his abdication in 1917, when the new (pre-Bolshevik) government rapidly introduced liberal corporate registration. In Korea and Taiwan the Japanese initially limited native incorporations, until Japan’s own liberal system of 1899 was extended to its colonies, in 1920 and 1923 respectively.

These processes generated statistical reports, but the decision in 1920 of the government-backed proto-OECD - the *Institut International de Statistique* - to abandon its corporate statistics programme, complaining of the lack of international standardization and missing data, hints at

¹⁸ Greenwood (*Foreign*) for a practitioner’s perspective; Bowstead’s (*Commercial Laws*) 24 volumes reproduce the corporate laws of many countries surveyed here.

¹⁹ Ministère, *Compte-rendu*, pp. 45-6.

²⁰ Ostergaard and Smith, “Corporate Governance.”

²¹ Williams, *Recent*; Yu, “Rethinking;” Zelin, “Chinese.”

problems we encountered.²² Corporate demographers lack the clarity of human death: there is some ambiguity, particularly at the smaller end, about whether a stillborn or failing corporation exists in any meaningful sense. The taxman had an annual trigger (in non-payment) impelling verification, though the initial margin of doubt in the US was as much as 10% of corporate numbers. Many countries' tax authorities, registration offices or government statisticians published data on the number and paid-up capital of corporations, not always agreeing. The UK tax data, for example, only include companies within the tax thresholds, whereas the UK Companies Registry (and America's IRS) included data on corporations outside the thresholds. We have attempted to standardise definitions internationally, preferring alternative sources where the tax data are incomplete. Official sources that were in a position to know at least what *they* deemed important are presumed reliable, as far as they go; most problems arise from shortfalls in inclusiveness, which can be corrected. Thus some data sources for Germany include only AGs (we add the data for GmbHs - private companies - and an estimate for *bergrechtliche Gewerkschaften*, mining companies); the Russian data exclude insurance companies (we add them), while the UK data on registered companies exclude statutory and chartered companies (we add both). Contemporary statisticians disagreed on whether to exclude companies entering the bankruptcy process or only when finally dissolved and on when to deregister companies which merely ceased to operate; treatment of foreign corporations operating branches also varied. We try to standardize where possible (for example, usually including foreign corporations with substantial local operations). Remaining inconsistencies are unlikely to affect the broad picture presented here: national figures differ by orders of magnitude, not modest percentages.

Many European and British Empire countries started publishing corporate statistics before the US, but official sources sometimes failed. The *Blue Books* of Jamaica and Mauritius, for example, show some well-established corporations, but not full Companies Registry information and

²² Anon, "Statistique des Sociétés."

we could not locate comprehensive counts for 1910 in their National Archives. Countries for which we could find no data had around 6% of the world's population in 1910, but probably hosted relatively few corporations. Our coverage of North America, Oceania and Europe is almost 100% and of Asia around 90% of their populations. Coverage is lower in Latin America and Africa, though for both continents it includes all populous countries and well over half their total population. We classify our estimates at three reliability levels.²³ Only a fifth - the US, Japan and most European economies - achieve the top A rating, while some countries with usually reliable statistics (Australia, Canada, France) and many developing economies are rated only B, indicating that, while there is a firm foundation, some less adequately supported assumptions have to be made to extrapolate data or supplement incomplete sources. 45% of the countries we survey were graded only "C:" conjectural estimates (usually for numbers only, not capital), based on incomplete sources or private directories, though (with the notable exception of mainland China) these are relatively small countries with (apparently) few corporations. Ours will not be the last word: our online appendixes encourage correction by expert national chiffréphiles.

Retrospective censuses of this kind require compromises among consistency, inclusiveness and availability. The terms "corporation" and "company" in various versions of English (and foreign language equivalents) are inconsistently used by historians, lawyers and economists and at different times.²⁴ Some characteristics other than separate legal personhood and entity-shielding - such as state authorization, multi-ownership, limited liability and perpetual succession - were commonly encountered (and sometimes compulsory) but not universal in all jurisdictions or all corporations; moreover, some non-corporate forms shared some of these corporate features. We have included

²³ shown selectively in Table 3, below, and, more fully, in online appendix 2.

²⁴ The term "company" (like its approximate translations, *société*, *Gesellschaft*, *bolag*, *vennootschap*, *kaisha* etc.) can include partnerships (and in British Victorian English and modern American English often does), but it is used in modern British English as shorthand for the fully corporate form, even without a qualifying adjective indicating the form implied (statutory, chartered, registered, limited, joint-stock etc.). Here it is used as a synonym of (business) corporation in American English. Linguistic confusion has been further confounded by the changed usage in American English from the 1980s of the term "limited liability company." Such newly legally-defined entities - having all the normal characteristics of corporations and considered corporate in most English-speaking countries - are now considered partnerships in the US.

all entities commonly accepted as corporations: including those authorized by legislatures, monarchs, dictators, empires, bureaucrats, magistrates and municipalities; companies with liabilities limited by stocks, shares, quotas, parts or guarantees, additionally subject to reserve, multiple or assessed liabilities, proportionally limited or even completely unlimited; statutory, chartered, ordered, notarized and registered companies; multi-owner corporations and corporations sole; and private (close and unquoted) companies as well as public (often quoted) ones.²⁵ Hence entities requiring the suffixes AG, GmbH, SA, AS, NV, AB, Ltd, Inc, Pty, KK and their like are all included. However, cooperatives, mutuals, credit unions, savings banks, building societies, friendly societies, municipalities, trusts, foundations, universities (and other non-capitalist but sometimes incorporated forms) and limited partnerships (*commandites*) are generally excluded, except, in deference to contemporary statisticians,²⁶ limited partnerships which issued tradable shares (such as the French *société en commandite par actions* or the Japanese *kabushiki goshi kaisha*). Further details of inclusions and sources for each country are provided in online appendix 2.

Some collective business ownership was undertaken by tribes or clans, or by the Muslim *sharika*, the Sufi brotherhood, the Taiwanese *ho-ku*, the Chinese *tang*, the Bulgarian *ishljem*, the Russian *arteli* and so on. Such diverse multi-owner forms (and unincorporated partnerships) doubtless provided efficient vehicles for some purposes, but lie beyond the scope of this census. Our emphasis on western-style corporations is somewhat culture-specific, but we plead not guilty to “form-fetishism:” anachronistically imposing a modern category on uncomprehending historical actors. There were, it is true, Chinese mutterings against western corporate laws,²⁷ but multicultural

²⁵ Literal translation of the German GmbH as “limited liability company” and AG as “joint stock company” is misleading, since each had both stocks (technically, in GmbHs, called *Anleihen* or “quotas”) and limited liability. We use the British English term “public company” to include all corporations whose shares could reasonably be considered publicly tradable. Not all such firms’ shares were actually traded: for the latter we use “publicly-traded.” An alternative usage - “public company” meaning one owned by government - is not intended here; state-owned companies are (willy-nilly) included only where a state owned shares in a normally-registered corporation.

²⁶ The German, Swiss and Japanese statistical offices combined AGs with KGaAs; Saint-Léon (“Commandite”) commended the practice. For alternatives to the dissentient perspective of Guinnane et al (“Pouvoir”), see Schadee, *L’inutilité*; Escarra, “Restrictions,” and (reference suppressed to preserve anonymity).

²⁷ Rosenthal and Wong, *Before*, p. 94.

political correctness on this issue did not commend itself to all Asians. Japanese reformers adopted western corporate forms *before* their government imposed Franco-German-inspired legal codes legitimizing and circumscribing their corporate forms.²⁸ Many mainland Chinese entrepreneurs preferred to register in Hong Kong rather than relying on family lineage trusts traditionally arbitrated by commercial chambers and Qing courts. Native Taiwanese, disliking their racial restriction to traditional *ho-ku*, co-opted Japanese shareholders to obtain access to limited liability forms.²⁹ The recent extensive espousal of western-style corporations in communist China suggests that our focus on incorporation may not be without interest or (combined with other policies) profound consequences. Moreover, there is modern evidence that incorporated businesses differ both in their *ex ante* planned activities and in superior *ex post* performance from the unincorporated.³⁰ We do not claim to measure the only organizational form which can be (or should be) measured, but it is a distinctive one.

Table 1 summarises the numbers of corporations in six regions, also expressed in per capita terms to facilitate comparison: the global (population-weighted) average was 273 corporations per million people.³¹ Numerically corporations were overwhelmingly located in North America and Europe; indeed most corporations were in the US alone, which accounts for nearly 59% of those enumerated (and, even with generous allowance for omissions, above 55% of the likely world total).³² Measures of central tendency rank continents inconsistently, given varied mixes of country size and corporatization level, though North America's lead is unambiguous. The US, with 93% of North America's population, completely dominates its region and similarly - in a much less populous region - Australia and New Zealand (both with high corporatization levels) dominate

²⁸ Miwa and Ramseyer, "Corporate Governance," pp. 179-80

²⁹ Wang, *Legal*, pp. 156-7.

³⁰ Levine and Rubinstein, "Smart."

³¹ for the measured population, though doubtless fewer per million for the whole world.

³² supporting some perspectives of Wright (*Corporation Nation*), while raising questions about Guinnane et al's ("Pouvoir") characterization of the USA's business law as less advantageous for SMEs than that of major European countries .

Oceania. On the other hand, Europe's most populous country, Russia, has the lowest European corporatization level,

Table 1. World Corporatization Levels in 1910.

Area	Number of countries companies		Companies per Million Population					Reliability Rating ³⁶
			Highest ³³	Mean	Weighted ³⁴ Mean	Median	Lowest ³⁵	
N. America ³⁷	3	285,009	2,913	1,626	2,849	2,032	833	A
Europe	23	138,521	2,117	477	299	251	10	A
Oceania	5	8,517	1,637	763	1,388	355	23	B
Asia	19	13,691	1,323	721	15	17	0	B
Africa	22	7,153	1,160	117	57	17	0	B
Latin America ³⁸	11	6,065	278	123	89	84	34	B
World ³⁹	83	458,956	2,913	328	273	61	0	A

dragging averages down, while the UK - with less than 10% of Europe's population - accounts for more than 40% of its corporations. Latin America has low levels of corporatization by all measures and is notably homogeneous, with a small range (among the countries surveyed) from 34 companies per million in Brazil to 278 per million in (highly urbanized) Uruguay. By contrast, Asia and Africa

³³ USA, Norway, New Zealand, Hong Kong, South-West Africa and Uruguay.

³⁴ The weights are population size.

³⁵ Newfoundland, Russia, New Guinea, Nepal, Ethiopia, Brazil.

³⁶ See statistical appendix 2. The reliability rating applies to col 2 and is based on ratings for countries with a substantial majority of the corporations in that column, the exception being that corporations with A, B and C ratings each accounted for about one-third of the Asian total. C-rated economies tended to have small populations and few companies, so, on the basis of arithmetic mean country ratings, later columns in this table would more frequently be C-rated.

³⁷ excluding Mexico: included in Latin America.

³⁸ including the Caribbean.

³⁹ as many countries are excluded as included, but they are mainly small, underdeveloped and with below-average corporatization levels, accounting for 6% or so of world population. The most populous countries excluded were Persia and non-Ottoman Arabia, whose versions of Islamic law were uncondusive to westernisation. They had no railways and many incorporated enterprises operating there were European banks, traders, shipping lines and oil prospectors, already counted elsewhere.

show great variation, their means (especially col 5) weighed down by populous countries like China, India and Nigeria, with low levels of corporatization. Their highly corporatized economies - like Singapore and South Africa - were (then) relatively small.

Data on individual countries are given in Table 3 and the online Statistical Appendix. The three major industrial powers of the day - the US, Germany and UK - had the largest absolute numbers of corporations, but they differed considerably in penetration levels, with the US and UK at 2,913 and 1,241 corporations per million people, respectively. Germany had only 403 per million: about the level of Singapore and well below other north European countries. Corporations had made less progress in France (306 companies per million people), Japan (101), Italy (78), Brazil (34), India (12), Russia (10) or China (1). And there were some countries - like Afghanistan - whose only corporations were occasional trespassers over their borders. Using the whole population as a scalar is not ideal. In Taiwan (where the figure was 12), only Japanese (3% of the population) were legally allowed to form corporations until 1923.⁴⁰ Racial and social discrimination elsewhere was sometimes more subtle, but the extent to which the immigrant and/or native elites who formed corporations were segmented from the masses differed only in degree. Most people in America, Oceania and Europe would have personally encountered a corporation, but in vast tracts of Asia or Africa such familiarity could still not be taken for granted.

Around three-quarters of the world's corporations were in just four countries of the "Anglosphere" (US, Canada, UK, Australia), mainly common law nations.⁴¹ Yet, even there, much economic activity was *not* undertaken by corporations. Judging by US national income accounts, only around a quarter of domestic business profits was generated by corporations, though corporations accounted for approaching two thirds of new capital investment.⁴² Sole proprietorships and

⁴⁰ Wang, *Legal*, pp. 156-8.

⁴¹ except (civil law) Louisiana, Quebec and Scotland.

⁴² Johnson, "Functional Distribution," p. 178; Kuznets, *Capital*, pp. 264-5.

partnerships dominated US farming, distribution, investment banking⁴³ and the professions, while corporations thrived in capital-intensive transport, manufacturing and mining. In Germany, the corporate share of business profits was below America's,⁴⁴ but in the UK it was higher (around half), much of this lead resulting from Britain's negligible agricultural sector (which had few corporations anywhere).⁴⁵ Adjusting for corporate profits being largely a return on capital (while sole proprietors' and partners' "profits" mixed in a return on their own managerial labour), the share of corporations in returns to *capital* in British business was probably already three-quarters or more.⁴⁶ For Germany, the low share of corporations is confirmed by employment data. In 1907, less than a fifth of German employees⁴⁷ were in corporations: unincorporated sole proprietors and partnerships remained the *overwhelmingly* important source of German employment, even in manufacturing.⁴⁸ In Belgium the proportion employed by corporations was nearer a third.⁴⁹ Corporations had impressively expanded, but, even in rich countries, one has to look selectively to find measures which show they already *dominated* economic activity.

The prevalence of personal (non-corporate) capitalism - in terms of business numbers or shares in employment - is hardly surprising in light of census data shown in Table 2 for the major industrial powers and the lead follower nation. A high proportion of their workforces remained in self-employment and the *modal* enterprise size was one person. The striking feature to modern minds (in our world in which more than half - not, as in 1900, a mere 15% - of the world's population are urban and many more are employees) is how little even the richest countries had yet displaced

⁴³ Only about 3% of more than 2,000 US investment banking firms were incorporated (Goldsmith, "Supplementary Appendixes," p. E21).

⁴⁴ The Statistisches Reichsamt (*Statistisches Jahrbuch 1911*, pp. 406, 416-8) collected accounting data for 4,579 AGs/KGaAs in 1909, which showed profits at 12.8% of Hoffman's estimate for total German business profits in that year. Assuming compatible definitions and that the omitted AGs/KGaAs/GmbHs made profits at a similar rate on their known share capital, the total share would rise to 18.0%.

⁴⁵ Worswick and Tipping, *Profits*, pp. 30, 47, 111-16; Feinstein, *National Income*, pp.157, T74.

⁴⁶ Johnson ("Functional ") and Stamp (*British Incomes*, pp. 303-5) for guesstimates of the functional distribution.

⁴⁷ in *Gewerbe*, a term which then included manufacturing, mining, quarrying, construction, entertainment, hospitality, distribution, finance, market gardening, livestock breeding, fishing and some transport and utilities, but *not* the liberal professions, railways, post, telegraphs, telephones, agriculture or forestry.

⁴⁸ Passow, *Aktiengesellschaft*, p. 25.

⁴⁹ Baudhuin, *Capital*, p. 34.

traditional, small-scale businesses in which a peasant-farmer, shopkeeper, merchant or craftsman had knowledge and control of his whole business. Small wonder, then, that there was distrust of large employers, not to speak of bourgeois fears that the shrinkage of the creative realm of entrepreneurial sole proprietors by corporate capitalism would drive the masses to socialism. The UK had gone farthest down this uncharted road: the proportion of Britons who were employers or self-employed was less than half that of other nations. We can infer from Table 2 that the *mean*

Table 2. Distribution of Civilian Working Population: Five Countries.

Country and Year	Employers and Self-Employed %	Salaried and Waged Employees %
UK 1911	12.3	87.7
Germany 1907	26.1	73.9
US 1910	30.0	70.0
Japan 1920	32.9	67.1
France 1906	52.6	47.4

Sources: authors' calculations from Feinstein, *National Income*, p. 227; *Historical Statistics of the United States*; Toutain, "Population," Table 66; Woytinsky, *Welt*, II, pp. 13-14; Bank of Japan, *Hundred-Year*, p. 52.

employer hired about one person (in addition to the proprietor) in France, two in America and Japan, three in Germany, but nearer seven in the UK.⁵⁰

But, even among giant enterprises, the age of the unincorporated sole proprietorship and partnership was barely drawing to a close. It was only in the last decade or so that some of America's and Britain's largest firms - including Baldwin Locomotive, Carnegie Steel, Du Pont, Baring's Bank and Imperial Tobacco - had incorporated, while others - like JP Morgan and Rothschild

⁵⁰ figures derived by dividing column 2 by column 1. The largest employer (the government) and many corporate employers of those in col 2 were significant but not counted, while multiple partners in col 1 might jointly own one business, but the appropriate adjustments to the denominator (col. 1) - with its enormous weight of sole proprietors - would be trivial and in opposite directions.

(merchant banking), American Express (rail and financial services),⁵¹ I & R Morley (textiles) and W H Smith (chain retailing) - still remained partnerships. The peak organisations of the major Japanese *zaibatsu* - Mitsui and Mitsubishi - were partnerships, though many subsidiaries were incorporated. Europe's largest chemical business (Belgium's Solvay) and France's leading steel producer (Schneider) and rubber manufacturer (Michelin) remained partnerships, as did the Oppenheim Bank and Merck and Henkel (chemicals) in Germany.⁵² Wealth was unequally distributed both within and among nations and the world's richest man - John D Rockefeller - could have afforded personally to buy control of almost any global corporation. Although this dollar billionaire chose to hold only 25% of Standard Oil (his main corporate asset), many multi-millionaires owned other large businesses outright, sometimes still in unincorporated form.

II

An alternative measure of corporatization - paid-up share capital⁵³ - gives more weight to large enterprises. In a period of stable prices,⁵⁴ par values roughly reflected the value of corporate capital paid in, but usually undervalued reinvested profits and organisational capabilities developed.⁵⁵ This measure is available for fewer than half the countries for which we have corporate numbers, though they account for over nine-tenths of extant corporations. Table 3 shows a narrower range for capital values - normalised, conventionally, as a percentage of GDP (col 2)⁵⁶ - than corporate numbers per million population (col 1), but a broadly similar ranking (Spearman's

⁵¹ Until 1965 a "joint stock association," technically an *unincorporated* organization, similar to British "deed-of-settlement" companies. Few of either form survived in 1910, but some were quoted on stock exchanges and we have included them in this census.

⁵² In the case of Michelin, Mitsubishiomit, Schneider and the three German firms, *commandites* with shares, so included in our census, though Mitsubishi and Solvay were *commandites simples* and Mitsui an unlimited partnership, and thus excluded, though their incorporated subsidiaries are counted. Mitsubishi incorporated in 1937, Solvay in 1967. Michelin remains a partnership today, though with one corporate partner and many incorporated subsidiaries.

⁵³ Where possible we report data on paid-up capital but for exceptions see online appendix 2.

⁵⁴ when most 1910 companies had been incorporated, there had been mild deflation in gold-standard countries up to 1896 and mild inflation thereafter.

⁵⁵ though these were sometimes reflected in bonus share issues ("stock dividends" in American English).

⁵⁶ Countries are ranked by descending order in col. 2. Logically we should calculate corporate capital as a percentage of total capital, but national estimates of capital stocks are less comparable than GDP estimates. Capital/GDP - a ratio of a stock to a flow - lacks any clear economic rationale, but is conventional.

rank correlation coefficient is 0.78). However some poor enclave economies (Egypt, Brazil) rank much higher by capital/GDP, while (rich) Australia falls. The UK replaces Norway as European leader, while Hong Kong - Asia's main trading node - overtakes the US as global leader. Many mainland Chinese entrepreneurs opted to register in Hong Kong, relying on its independent courts and political culture rather than Beijing autocracy, as their successors still do after the colony's recent integration into China.⁵⁷ One of the first companies registered there under its 1865 Companies Ordinance, the Hongkong & Shanghai Bank, had by 1910 extended well beyond its eponymous cities: it was a global deposit, exchange and investment bank, with branches throughout Asia and in America and Europe.

Table 3. Corporatization Indicators by Country, 1910.

Country	Corporations per million population	Corporate stock values at par/GDP % (at "market value" in brackets)		Reliability Index ⁵⁸
Hong Kong *	1,323	480	(1286)	B
Canada*	2,032	206	(220)	B
US*	2,913	173	(156)	A
UK*	1,241	162	(256)	A
South Africa*	901	120	(240)	B
Netherlands	1,262	85	(149)	A
Belgium	561	80	(104)	A
Switzerland	1,060	75	(127)	A
Sweden	1,055	66	na	A
Brazil	34	63	(106)	B
New Zealand*	1,637	54	na	B
Egypt	20	51	(100)	B
France	306	51	(76)	B
Norway	2,117	49	(61)	A

⁵⁷ Huang, *Capitalism*, pp. 5-6.

⁵⁸ See online statistical appendix 2. The index relates to column 1 but usually also applies to col 2; for the market/par ratios used in col 3 see statistical appendix 1.

Germany	403	44	(71)	A
Romania	68	43	(100)	B
Denmark	998	42	(45)	A
Finland	755	41	na	A
Argentina	84	37	(46)	B
Hungary	134	34	(54)	A
Australia*	1,545	33	(69)	B
Russia	10	33	na	B
Japan	101	32	(56)	A
Italy	78	31	(40)	A
Spain	106	27	(52)	B
Austria	70	26	(47)	A
Netherlands East Indies	46	25	(44)	C
British India*	12	24	(35)	B
Philippines*	39	22	na	B
Bulgaria	32	11	na	A
China	1	9	na	C
Korea	6	6	(9)	B
Afghanistan	0	0	(0)	A
Nepal	0	0	(0)	B

Countries in this table:⁵⁹

Mean	664	64	(130)
Median	120	42	(69)

All 83 countries surveyed:

Mean	328	na	na
Median	61	na	na

⁵⁹ 34 for col 2, 27 for col 3. The excluded majority lack capital data and are generally ranked C for reliability. Judging by the means and medians reported above, they were less corporatized than those in the table.

*Common law countries. Argentina and Egypt are counted as civil law countries, though a substantial portion of their corporate capital was registered under foreign common law. South Africa technically maintained Roman-Dutch civil law (Union Office, *Official*, p. 390), but in corporate affairs had adopted English statute law and common law juries: we count it as a common law jurisdiction. The Philippines are similarly shown as common law (although they maintained the Spanish civil code, American-style statutes and common law practices were introduced following the military occupation).

Source: online appendixes

Some differentials are explained by political choices: the nationalization of railways or municipal ownership of electricity removed enterprises from the capitalist corporate sector. Thus the US, UK or Canada (where investor-owned railways were among the largest companies) naturally had higher corporate capital/GDP ratios than Australia, Germany or Japan (where the state owned most railways).⁶⁰ Even after controlling for this effect, large differences persist. For example, deducting railway capital from both countries' corporate capital, Germany still registers one-third (rather than, as in Table 3 col. 2, one-quarter) of the ratio of the US.⁶¹

The US also had more "overcapitalized" firms, reflecting its weak regulation of capital subscriptions, though this was mainly transparent to investors and naturally reflected in lower market prices for US than European stocks.⁶² The available stock indexes showing market/par ratios typically encompass only a fraction of quoted companies, are inconsistently weighted and (by definition) exclude all private companies. The adjustment (shown in brackets in Table 3 col. 3) should be interpreted as a crude indicator of the direction in which par value/GDP ratios are biased by national propensities to overcapitalize (assumed to apply to all firms not just those in the index), not as a measure of realizable market values. This crude correction raises Germany to 46% of the US level and combining this with the rail correction would raise it further to above half. The market value correction also propels the UK's ratio well above the USA's, though Britain's corporate capital

⁶⁰ Since railway companies were generally large they had little impact on corporate *numbers*.

⁶¹ Appropriate sectoral information is not generally available, but see online appendix 2, for this and other examples.

⁶² Navin and Sears, "Rise," p. 132; Pistor et al, "Evolution," pp. 821-3. For market/par ratios see online Appendix 1.

remains below America's in absolute terms. The US then had 2.1 times the UK's population and 3.3 times the UK's GDP at current prices and market exchange rates.⁶³ However, British corporations had most foreign direct investments (in absolute as well as relative terms), while Russia and the US were leading international debtors. Much of the proportionately greater capital in UK-headquartered companies was actually invested in continental Europe, the Americas, Asia-Pacific and Africa.⁶⁴ Such cross-border enterprises were less likely than domestic businesses to be directly owned by individuals and more likely to incorporate.

The US led the world in *numbers* of corporations, while the UK had higher corporate capital *values* (at market as a proportion of GDP). Other British Empire countries with common law systems also populate the top of the table, though some colonies had low levels of corporatization. The international division of labour directed the latter to sectors (like agriculture) with a low propensity to incorporate. Native traditions and colonial inequalities also inhibited their human capital formation, conducive to a modern corporate economy. Thus India's population was dominated by its poor rural peasantry in 1910 and had few corporations, though it was twelve times' China's level by numbers per capita and approaching three times by capital/GDP ratio. In India's big coastal cities, where a literate local bourgeoisie prospered, incorporation by natives rivalled that by whites, judging by the corporate names registered, for example in Bombay, and the local investors' share was rising.⁶⁵ Although most of India's large-scale corporate capital - notably in railways and banking - was British-owned and imperially-chartered in London, its domestically-registered corporations were smaller. Some European colonies with modest numbers of white settlers - Hong Kong, Malaya, Singapore, Samoa and New Caledonia - had levels of corporatization above that of

⁶³ www.measuringworth.com. Maddison (*World Economy*, pp.427, 463) estimates US *real* GDP at only 2.2 times the UK's. Current prices and market exchange rates - faced by corporations and cross-border investors - are preferred here.

⁶⁴ Corley, "British Overseas Investment;" Hannah, "Multinationality;" Jones, *Evolution*, p. 30; Worswick and Tipping, *Profits*, pp. 101, 116, 118. Our sources generally allocate direct investments to the home economy and portfolio investments to the host economy. Thus the large UK portfolio investments in US corporations are here counted as American, not British.

⁶⁵ Ray, *Industrialization*, p. 52.

independent Japan, while other Asian countries (including American and Japanese colonies) generally did not.⁶⁶

III

A *legally* separate private company form existed in only a few jurisdictions before 1914, though these included two of the world's largest industrial economies.⁶⁷ In both Germany and the UK, private companies were already a numerical majority, though not yet dominant in terms of share capital. Most companies elsewhere were also *de facto* private, in the sense that they were closely held by relatively few shareholders and not quoted on stock exchanges. There were already many corporations with only one owner and some had no employees.⁶⁸ One motive for such incorporations was limiting the owner's personal liability, sometimes clearly to defraud creditors.⁶⁹ However, as judges were observed to refuse to "pierce the corporate veil," creditors were increasingly on their guard against such wiles: banks insisted on personal guarantees for unsecured loans, over-riding the owner's limited liability. At the other end of the scale, many companies were formed to raise capital on public markets, permitting the achievement of lower capital costs, economies of scale or other competitive advantages by large quoted companies with multiple owners (shareholder numbers, by 1910, already reached six figures in a few companies in Europe and the US).

⁶⁶ online statistical appendix 2. The use of the corporate form was more intensive among European than Asian inhabitants (Grist, *Nationality*).

⁶⁷ Additionally to Germany from 1892 and the UK from 1907 (and parts of their empires), versions of the private company dated from 1884 in Mexico (though abandoned in 1888), 1896 in Victoria, 1901 in Portugal and 1906 in Austria and Ecuador. Later adopters included Poland (1919), Spain (1919), Chile (1923), France (1925), Cuba (1929), Luxemburg (1933), Mexico (1934), Belgium and Palestine (1935), Yugoslavia and Switzerland (1937), Japan (1940) and Italy (1942).

⁶⁸ Information on owner numbers is sparse, but a Berlin *Handelskammer* survey of 1905 indicated that 10% of GmbHs had only one owner (two were required on formation, but, unlike in the UK before 1992, there was no penalty for subsequent reduction) and 66% between two and five (Fränkel, *GmbH*, pp. 149-50). See also Fuller ("Incorporated Individual") for US cases.

⁶⁹ In *Saloman v Saloman* (1897) what - to a moral observer unstained by legal training - was plainly a fraud on creditors received English judicial blessing (Johnson, *Making*, pp. 153-9), though American judges initially flirted with more righteous *alter ego* interpretations (Fuller, "Incorporated Individual").

Nations sometimes tilted the balance by placing restrictions on SME incorporation. Minimum numbers of three to ten founding shareholders were commonly specified, though in Germany, the UK and Japan the limit had been reduced to two. Where limits remained, “dummy” holders with negligible shareholdings could be used to evade them. Even where general incorporation was allowed, entry to specific industries like railways, mining, insurance or banking was in some countries restricted. Professionals like doctors, lawyers and stockbrokers often could not incorporate, nor could new sugar mills in Taiwan (from 1910), nor retailers in Pennsylvania (until 1901). California’s 1879 constitution required proportional (not limited) liability, a distinctive corporate regime which (until 1933) restricted (without removing) any individual’s liability in multi-owner enterprises, but left *de facto* sole proprietors with full individual liability. Despite this, at our census date of 1910 California had more corporations per capita than any other US state (and hence than any state on earth), so there were clearly other drivers than liability limitation, even among SMEs.

Small capitalists were also deterred from incorporating in some jurisdictions by discriminatory taxation, high fees or restrictive rules for registration, renewal or notarization, or high minimum amounts of capital.⁷⁰ For example, in Russia the normal minimum was R70,000 (\$35,000),⁷¹ in Germany M20,000 (\$5,000),⁷² in Delaware \$1,000 and in New York only \$500.⁷³ A high threshold size was self-evidently a constraint on incorporating smaller SMEs,⁷⁴ but even in the UK - with no size restriction - almost no companies were formed with less than New York’s minimum capital (\$500/£100, or less than two years’ unskilled wages). Indeed, only 9% of new UK formations in 1901-10 had less than £1,000 (\$5,000, M20,000) nominal capital - the German minimum - so this

⁷⁰ Rousseau, *Compte rendu*.

⁷¹ R30,000 for enterprises “of public utility” (Peacock, *Russian Year-Book*, p.24).

⁷² authorized capital for GmbHs, of which only M5,000 had to be paid-up, though owners of such companies were liable for the unpaid M15,000. AGs had a lower minimum (M7,000), but other conditions dissuaded SMEs from using that form.

⁷³ Kuhn, *Comparative study*, p. 107.

⁷⁴ One-fifth of GmbHs at the time of our census had just the minimum M20,000 capital and in the 1920s - when hyper-inflation negated the limit - there was a rapid multiplication of small GmbHs (Zahn, *Statistik*, p. 457; Anon, “Grundungstätigkeit,” pp.63-5).

contributes little to explaining why the UK had more than three times Germany's corporations per capita.⁷⁵

On the other hand, stock markets were then accessible to much smaller companies than is the case today. They also offered lower costs of listing and trading and were more numerous: the US, UK and Japan each had dozens of exchanges; New Zealand, with only a million people, had six; Norway, with 2.3 million, had nine.⁷⁶ Some markets remained informal.⁷⁷ Bogota had no formal exchange until 1929 but already in 1910 the Colombian press reported stock prices.⁷⁸ Some exchanges had private order rules enforced by elected committees of brokers; elsewhere state authorization was required, though government regulation generally remained light compared with today. Nonetheless the information, reputation and liquidity benefits of centralised trading gave large exchanges some natural monopoly features. The New York Stock Exchange (NYSE) Listing Committee was unique in using its market power to discourage IPOs below \$5m (so most quoted US industrials were not listed there), but issues one-hundredth that size and upwards were readily traded on the NY curb, regional markets, at auction or over the counter. London, St Petersburg, Berlin, Hamburg and Frankfurt all had a lower (M1m/R500,000/ \$250,000/£50,000) minimum (and thus attracted a higher share of national listings), while provincial exchanges accepted issues half that size.⁷⁹ Small countries' exchanges specified even lower minima (Belgrade's was only F100,000,

⁷⁵ Authors' calculations from data in Board, *Companies*, p. 5. Smaller GmbHs were allowed in Austria and in 1910 19% of them, accounting for just over 1% of *paid-up* capital in GmbHs, were in those with less than K20,000 capital (K20,000 was about 80% of the *authorized* capital limit in Germany of M20,000, though paid-up capital could be below authorized capital). Switzerland appears not to have published data on size classes until 1930, when 24% of its companies, accounting for 0.2% of capital, were in the lowest range of SF10,000 (\$2,000) or less authorized capital. If mean corporate sizes (Table 4) are a reliable indicator, perhaps more US than UK companies were below the \$5,000 threshold; for inconclusive earlier evidence see Falkner, "Statistics," pp. 60-4.

⁷⁶ For pre-1914 stock markets see Green et al, *Men*; Lavington, *English*; Michie, *Global*; Swoboda, *Arbitrage*; Taeuber, *Börsen*. Some countries (e.g. Siam, Korea, Tunisia, Jamaica) had no formal exchange, China (with a population of 423m) only two (expatriate enclaves in Hong Kong and Shanghai) and India (with a population of 314m) a more multicultural five (Bombay, Calcutta, Madras, Ahmedabad and Rangoon). All also had access to overseas markets, notably London.

⁷⁷ including the NY curb (though that was soon reorganized as a formal market) and English automobile shares (Coventry) and cotton shares (Oldham).

⁷⁸ Means, *Underdevelopment*, pp. xvi, 289, n. 58.

⁷⁹ legislated limits, except for London, where it was conventional advice (Bircham and Morris, *Public Companies*, p.6), with exceptions occasionally permitted.

about \$20,000), but irreducible fixed costs made many intermediated IPOs below \$100,000 expensive anywhere. That did not prevent banks, breweries, cotton mills and shop chains distributing their own stock locally among favoured managers, employees, customers, suppliers, relatives and acquaintances, without using formal channels, some literally selling their shares “over the counter.” If there was demand, local brokers or the companies themselves might decide to make a market.

By 1900, when the global number of companies remained below that of 1910, 51,000 of them were already known to the hundred investment analysts at *Crédit Lyonnais*' Paris office.⁸⁰ Ten years' later the global total that were in some sense “quoted” probably exceeded 100,000⁸¹ - over a fifth of existing companies - but informality and small scale had consequences for the meaning of that statement that today's observer of (the much smaller share of) modern corporations that are listed on today's (more highly regulated) exchanges might misinterpret.⁸² In the UK, for example, more than ten thousand companies appeared in directories of traded securities, but, at any one time, only around six hundred had an active market - with numerous bargains marked six days a week with minimal bid-ask spreads - on the London Stock Exchange.⁸³ On the other hand, regional exchanges, or those in small countries, sometimes only opened an hour or two a day or even only one day a week and some “listed” securities on an exchange like Lisbon or Colorado Springs might trade only a couple of times a year (with bid-ask spreads sometimes as high as 50%) or not at all. Most shareholders were individuals rather than institutions and many bought to hold.

⁸⁰ Fridenson, “Stock Certification,” p. 69. Comparing the bank's surviving files with *Moody's Manual* and the *Stock Exchange Official Intelligence* suggests that this total excluded many small quoted companies in the Anglosphere.

⁸¹ For the US alone (if we count many small banks with limited local markets) the figure was 20,000 or more in 1907 (*Moody's Manual*).

⁸² Some modern exchanges are similar: only 60 of the 569 companies listed on Karachi trade regularly (*Economist*, 27 July 2013, p. 66)

⁸³ Skinner's *Stock Exchange Year Book 1914* listed some 13,500 companies, including 730 registered overseas and 2,643 British-registered but mainly operating overseas (Houston and Dunning, *UK Industry*, pp. 37, 40).

There were, of course, speculative investors and arbitrageurs: London, Paris, Amsterdam, Brussels and New York welcomed such activity, while in Berlin it was discouraged. Bank lending on the security of shares and short-term investments of idle balances boosted daily turnover in easily-traded securities. “Stagging” of new issues by speculative subscribers was widespread and markets existed to raise start-up as well as expansion capital (they fulfilled some of the functions of the modern venture capitalist as well as floating established firms). Speculators underpinned the secondary market liquidity that supported that function. Most shareholders were already passive rentiers, but shareholder “voice” remained a serious option (sometimes bolstered by voting rules favouring small holders and by activist shareholder intervention in board elections, annual meetings and shareholder investigation committees), at a time when shareholder numbers remained modest (hundreds or thousands, rather than millions). “Exit” (getting out by selling in the market) - or contested takeovers - were correspondingly less favoured as responses to director misdeeds or underperformance.⁸⁴ With many buyers investing for the long term, the ratio of market turnover to market capitalisation was much lower than today. Such differences arguably deserve as much attention as those that have dominated the debate about historical - relative to modern - stock market sizes.

Corporate size distributions were skewed, with modest numbers of very large corporations and a long tail of small ones. For example, the largest hundred UK corporations - those with £4m+ (\$20m+) capital, mainly quoted banks, manufacturers, mines and railways - in 1910 alone accounted for over two-fifths of the £3,328m paid-up share capital in the 55,747 companies in this census and over three-fifths of the capital of the around ten thousand domestic companies that had quoted securities.⁸⁵ Size distributions were only sparsely reported but they appear to be similar in other countries in 1910 and less skewed to giant firms than is the case today.⁸⁶ The skewness of all

⁸⁴ Green et al, eds., *Men*, pp. 000-00.

⁸⁵ Authors’ calculations from data in the *Stock Exchange Official Intelligence 1911*, with an allowance for large private companies.

⁸⁶ compare <http://www.londonstockexchange.com/statistics/historic/main-market/dec-13.pdf> (accessed 26 February 2014)

firm size distributions (with a tendency to approximate to the lognormal) is a well-attested empirical law of modern social science and was already discerned in early twentieth century data.⁸⁷ Of course, size distributions for corporations alone tend to be truncated (sole proprietorships and partnerships occupy much of the lower tail) and *a fortiori* for *quoted* corporations (smaller corporations were rarely quoted, even in 1910).

We can reasonably presume that, worldwide, most giant companies (if not state-owned) were already then quoted, as they remain today. However, because of the proliferation of exchanges and off-exchange trading, the boundary between quoted and unquoted companies was less clear in 1910 than today (one reason why historians hotly dispute the sizes of stock markets, which appear uncontroversial to modern analysts). Nonetheless, it is evident that in Europe well over half of the par value of corporate capital shown in Table 3 was quoted on a formal exchange.⁸⁸ In the UK, the proportion appearing in the *Stock Exchange Official Intelligence* (which covered many, but not all, markets besides the LSE) was about 75% of all corporate paid-up share capital;⁸⁹ on six Italian exchanges, the quoted proportion was 70%; while the Berlin exchange alone accounted for two-thirds of Prussia's share capital (with, probably, a higher ratio for all exchanges in Germany overall). In Argentina, Australia, Belgium, Brazil, Egypt, France, India, Japan and New Zealand quoted capital also dominated (including, for some of these countries, that quoted on foreign stock exchanges).

On the other hand, *Moody's Manual* - which covered not only the few hundred corporations listed on the NYSE but many thousands more traded on the dozens of other exchanges, or on over-the-counter, auction and curb markets - lists only around 40% of corporate share capital. The USA's unparalleled numerical proliferation of companies - already noted - created a different

⁸⁷ Gibrat, *Inégalités*.

⁸⁸ The remainder of this paragraph is based on online statistical appendix 2. On possible reasons for high levels of stock exchange development, see Morck, ed., *History*, Burhop ("Technik"), Goetzmann and Ukhov ("British investment"), Hautcoeur and Riva, "Paris," Franks et al ("Spending"), Foreman-Peck and Hannah ("Extreme Divorce"), Fohlin (*Mobilizing*), Campbell and Turner ("Substitutes"), Musacchio (*Experiments*).

⁸⁹ perhaps nearer 67% if shares that appeared in the directory but were privately held - because only part of a company's capital was traded - is omitted.

pattern. Unusually, most of its *quoted* capital (by value) was traded elsewhere than on its major metropolitan exchange (the NYSE) and it also had a longer tail of *unquoted* companies, the latter alone accounting for *most* corporate capital. Such a large share of private companies in paid-up capital was then rare, but is now the global norm.⁹⁰

The average US company had less capital than non-US ones, even at par and more distinctly so at market. Hence, these figures imply that a majority of world corporate share capital by value was quoted around the time of our 1910 census (a higher portion than today), yet the ratio of world equity market capitalisation to global GDP remained distinctly lower than today's.⁹¹

IV

Table 4 col. 1 shows the share capital of the mean company by country (at par), converted to US\$, with similar indicators (cols. 2 and 3) for publicly-quoted companies (at market and par). Legally-defined categories of public and private are not used here, because few national statisticians then distinguished capital in this way. Our preferred indicator of quoted company capitals is the mean value of share listings on their major stock exchange, available for more countries at market than at par.⁹² Of course companies listed on major exchanges were larger than those traded on regional exchanges and, *a fortiori*, larger than public companies defined legally (many traded infrequently or not at all). The proportion of companies listed on major metropolitan exchanges differed more than the ratio of these companies' capital to GDP. For example, the St Petersburg exchange listed as many as one in six Russian companies, while the NYSE listed only around one in a thousand North American ones, so their main stock market capitalizations were

⁹⁰ n.3, above.

⁹¹ In recent years the World Federation of Stock Exchanges shows the combined equity capitalisation of its exchanges as above 100% of *global* GDP. Deducting the private portions from the GDP ratios in Table 3, perhaps only half a dozen countries (including only one of the four largest industrial economies: the UK but not the US, Germany or France) would have exceeded 100% before 1914.

⁹² Figures for 1910 are in most cases an average per equity security: usually lower than per company because a company can issue more than one type of equity. For some countries figures are available only per company and for nearby years.

much closer relative to GDP than their total corporate capital (including unquoted corporations) in Table 3.

Given skewed firm size distributions, the figures in cols 2 and 3 are highly sensitive to the numbers to which they relate, shown in brackets after the average capital. America's 298 NYSE-listed corporate stocks appear more than twice as large as the LSE's 1,198 "officially-listed," but if we take a similar *number* of large UK-owned quoted firms, their sizes are close together. No European industrial could match the size of the freak US Steel merger, but focus on such outliers seriously misleads: lower down the manufacturing size range and in banking, mining and other sectors many European corporations approached or exceeded American scale. British corporations, in particular, had more multinational investments serving wider markets.⁹³ The relatively low US ranking in column 1 reinforces the point that American "exceptionalism" consisted not in the NYSE's corporate giants but in its numerous closely-held corporate SMEs.

Table 4. Mean Sizes of all Companies (at par), arranged in descending order of mean size; and of publicly-traded Companies (at market and par), ca 1910.

Country	Mean Share Capital (US\$)		
a. Countries with Large Corporations			
	All Companies at par ⁹⁴	Publicly-traded Companies at market (number in brackets)	Publicly-traded Companies at par (number in brackets)
Argentina	2,476,885	16,391,893+ (117)	
Brazil	2,279,276 ⁹⁵	2,646,249+ (294)	
Chile	2,121,053 ⁹⁶	5,251,350 (68)	2,233,381 (68)
Russia	1,701,936	1,824,440+ (316)	
China	1,314,851		
Egypt	1,155,092	9,562,249 (75)	

⁹³ See notes 55 and 73 above.

⁹⁴ Except where footnoted, figures in this column relate to the numbers of companies in Table 3 and online statistical appendix 2.

⁹⁵ São Paulo companies only.

⁹⁶ 114 industrial companies only in 1916. The next two columns relate to 1917.

Mexico	719,002 ⁹⁷	
Uruguay	574,891 ⁹⁸	
Austria	483,740	5,379,315 (228)
India	410,339	
7 German Colonies	398,171 ⁹⁹	
Hong Kong	384,979	

b. Countries with Mid-Sized Corporations

Italy	358,054	2,818,218 (251)	2,202,063 (251)
Romania	345,277		
South Africa	327,554	7,081,504 (133)	
France	321,394	23,063,010 (146)	2,416,761 (720)
UK	290,540	14,065,640 (1,198)	27,815,556 (337) ¹⁰⁰
Canada	276,511	6,100,000 (160)	
Belgium	274,211	1,314,710 (833)	
Hungary	253,464	3,020,453 (93) ¹⁰¹	
Greece	237,793 ¹⁰²		
Philippines	224,607		
US	214,234	34,940,140 (294)	39,741,497 (294) ¹⁰³
Germany	187,963	4,756,659 (910)	

⁹⁷ Average of new registrations, 1886-1910.

⁹⁸ Average of new registrations, 1910-13.

⁹⁹ 1913 data

¹⁰⁰ 1911 data, from Foreman- Peck and Hannah (2012). The 1911 mean market value of these 337 larger companies (which are per company not per security) was \$37,272,844.

¹⁰¹ 1908 data for Budapest non-railway companies only.

¹⁰² Average of sample of 138 new registrations, 1840-1909.

¹⁰³ The NYSE data at par are from Pratt (assumed to comprise the same number as Moore found quotations for in 1910) and relate to 1911, while the market capitalization data in the previous column (from Moore) relate to 1910.

Bulgaria	180,298	
Spain	168,080	10,248,000 (40)

c. Countries with Small Corporations

Korea	152,431		
Australia	149,889	1,695,399 (213)	
Switzerland	140,035	2,968,667 (120)	
Straits Settlements ¹⁰⁴	138,678 ¹⁰⁵		
Neths E Indies	128,260		
Japan	125,819	5,146,182 (55)	2,766,402 (119) ¹⁰⁶
New Zealand	118,608		
Sweden	101,593	6,709,097† (108)	
Netherlands	92,398	2,801,431 (377)	
Norway	82,903	967,546† (80)	
Denmark	74,276	1,941,603† (114)	
Finland	47,773		

Sources: cols.1 and 3: online appendix 2.

col 2: Moore (“World” Tables II and IV) for ten countries (we are grateful to Lyndon Moore for providing precise figures for average capital). Moore’s data relate to December 1910 and are confined to the major national exchange (except for Canada, which includes both Montreal and Toronto) and sometimes to actively-traded equity shares, rather than all listed or traded companies. He includes foreign as well as domestic quoted companies, if they are listed on the domestic exchange, and counts each security separately (the numbers of securities is higher than the number of companies because some firms issued both ordinary and preference stock). Data with a † are for 1913 and derived from Rajan and Zingales (2003, Tables 2 and 5), including only domestic corporations and relating to companies, not securities. Their averages - Australia \$5,108,389, France \$13,440,782, Italy \$1,770,612, Japan \$3,208,129, the Netherlands \$1,557,951, Switzerland \$4,712,209, the US \$33,284,483 - differ from Moore’s. With the exception of Australia and Switzerland, Moore’s figures (preferred in col. 2) are higher: often because including foreign quoted

¹⁰⁴ Singapore, Penang, Malacca.

¹⁰⁵ 1916 data, locally-registered companies only

¹⁰⁶ The higher number of companies than of securities in the previous column arises because the newspaper sources used omitted at least half of the Tokyo Stock Exchange’s listed companies (see online appendix 2): it was generally the smaller listed companies that were not reported in the press. Rajan and Zingales figures for 1913 for 389 companies (including some quoted on other Japanese stock exchanges) show a smaller average size at market of \$3,208,129.

companies raises the mean, more than dividing by securities rather than companies reduces it, though there are other reasons for the variations: for example, Rajan and Zingales (but not Moore) include multiple exchanges for the US and Japan. Some figures from Rajan and Zingales (UK, Cuba, Chile, India) are discarded because, on the basis of their unpublished data appendix, they appear to be inaccurate/unsupported. For the capitalization of the Alexandria (Egypt) bourse in 1913 and for Chile the figures in Anon ("Statistique des Sociétés") and for Belgium the January 1911 figure from Neymarck ("Statistique," 1912) are substituted (see online appendix 2 for justification).

The means in column 1 offend other conventional wisdoms. The literature on why Argentina had the largest companies in the world and Japan among the smallest, or on why Italian companies were larger than German ones, is somewhat sparse. The paradox is simply resolved: the literature highlights conspicuous examples in the numerator (reflected in cols. 2 and 3), while the averages in col. 1 are driven by the denominator (the means are lower where corporations had higher numerical penetration). Finland (then an autonomous Grand Duchy within the Russian Empire) had the smallest companies in the table: its independent liberal legislation fostered many companies per million people. By contrast, partnerships in Russia proper (which in Finland would have incorporated) did not seek the Tsar's permission to incorporate. "Laggards" in Table 3 (col 1) are naturally "leaders" in Table 4 (col 1). Note, however, that this does not generally apply to Asian countries. These often had relatively few companies per million people, but their companies were still relatively small.

The distinctive grouping of countries ranked by the mean capital of all their corporations in col. 1 is remarkable. The top ("a") division of Table 4 consists almost exclusively of enclave economies in which large foreign enterprises dominated their corporate economies.¹⁰⁷ Only one corporation - a Khedival concession granted to French capitalists in 1858 - drives Egypt's result in 1910. The Suez Canal, paying reliable dividends around 36%, was quoted on the Alexandria, London and Paris stock exchanges at more than eight times par, accounting for half Egypt's equity

¹⁰⁷ Austria is an exception: its corporate law and taxes had been restrictive (Eddie, "Economic policy," p. 872). Its GmbHs had already overtaken the number of AGs three years after their introduction, but had still not reduced its mean company size to the European norm.

market valuation.¹⁰⁸ Elsewhere, if less extremely, much enclave corporate capital was foreign-owned and traded mainly on overseas stock exchanges. In some of these countries a racially-distinct, or distinctly immigrant, merchant-financier elite also dominated much domestic enterprise.¹⁰⁹ Given technological and financial disparities, political independence did not inoculate against enclave capital: most “a” economies were not colonies. Monopolistic or oligopolistic firms with crony capitalist links to government (often involving privileged concessions or financial access) were common, indeed more common than in colonies with relatively clean, liberal bureaucrats and deferential subalterns. Manufacturing corporations were typically more locally-owned than those in infrastructure and raw materials, but there is scant evidence of a significant and vibrant local private company sector in these economies; indeed the average size of all companies is near to that of those quoted on their major stock market. In Rio de Janeiro, only 49 of the 199 companies noted in the *Jornal de Comercio* were not registered with the Rio stock exchange and Brazil was by no means the least hospitable to new entry or most prone to crony capitalism: indeed the consensus is that it had relatively vibrant locally-owned companies and banks by the standards of Porfirian Mexico.¹¹⁰ This paucity of private companies may be a reflection at the corporate level of the domestic inequalities in these societies of wealth and human capital rooted in early factor endowments,¹¹¹ rather than primarily a consequence of their corporate laws.

The “b” countries, with middling average company sizes, included most of Europe and North America. Also, South Africa and the Philippines - despite distinct enclave characteristics - had a sufficiently large private company sector to be classed with more developed economies.¹¹² These economies, of course, had some very large companies: indeed the stock exchange data

¹⁰⁸ Its American twin, the quasi-colonial Panama Canal, was under construction for the US government, not for the capitalist sector.

¹⁰⁹ Haber, *Industry*.

¹¹⁰ Haber, “Industrial Concentration,” Hanley, “Business finance.” However, this census suggests that Mexico had significantly more corporations per million people than Brazil (though the Latin American data sources are particularly weak and difficult to compare).

¹¹¹ Sokoloff and Engerman, “Institutions.”

¹¹² If the native population which did not participate in the modern sector were omitted from the denominator, South Africa would have approached the USA’s number of companies per capita in Table 3.

unsurprisingly confirm that their publicly-quoted companies (cols. 2 and 3) included most of the largest in the world. They also (col. 1) had many small, private companies, bringing the mean size down.

The lower section (“c”) contains two disparate groups: small, mainly north-west European, nations (whose relatively liberal civil law, more corporation-friendly than that of larger continental countries, fostered exceptionally large numbers of companies per million people) and Asia-Pacific countries. The latter, like the enclave economies, had relatively few companies, but they had an impressive critical mass of smaller companies driving down their average size. Some “c” economies (notably Switzerland, Singapore, New Zealand, Korea and Australia) were substantial hosts to inward multinational investment, but they also seem to have created a significant and vibrant local corporate SME sector, less visible in the enclave economies.

V

The data in this census have obvious implications for issues in the new institutional economics. We explore some of them econometrically in related work¹¹³ and anticipate that these new statistics will encourage others to do more. Traditional lists of the gains from incorporation - economies of scale, cheaper capital through liquidity and diversification effects, and so on - apply principally to publicly-quoted companies, where they drive growth through productivity gains and increased capital accumulation.¹¹⁴ By contrast, governments, economists and historians have sometimes seen the role of private companies as something of a sideshow, or even a misuse of the corporate form with negative economic consequences.¹¹⁵ Thousands of the large, quoted companies in Table 4 - railways, steel mills, multi-branch banks or electric power companies - had multi-million dollar capitals. However, in the decades after 1910, while some of these expanded, overall such companies declined in relative importance. As Rajan and Zingales have shown, wars, revolutions and market crashes restricted or closed stock exchanges and government bonds crowded out quoted

¹¹³ References suppressed to preserve anonymity.

¹¹⁴ Rosenberg and Birdzell (*How*, pp. 189-241) provide a classic statement.

¹¹⁵ Johnson, *Making*.

equities.¹¹⁶ Scalable technologies like automobiles, electricity and telecoms depended more on family enterprises (Ford, Fiat, BMW, Siemens, Bosch, Michelin) and state undertakings (Volkswagen, Shanghai Automotive, electric power, telephone and road networks) than had railways, the enterprises that dominated nineteenth century stock exchanges. Giant companies also posed dangers: incumbent companies enjoying market power initially driven by scale economies resisted disruptive change by all means at their disposal, including political lobbying. Crony capitalist distortions led to business rent-seeking overwhelming the creation of new wealth, as in enclave economies, some state enterprises or in recent excesses by politically-favoured financial institutions.¹¹⁷

Modern work on path-dependency and the deep historical roots of development reminds us of the difficulties of changing national trajectories. Yet nations do sometimes change and promoting liberal incorporation was one way that progress could be made in encouraging the competitive diversity that helps overcome developmental logjams. After 1910, the numbers of corporations massively increased worldwide, even (after a barren interval) in once-communist societies and faster in many civil law countries than in the Anglosphere. This trend is difficult to characterize as ill-advised. Limited liability in the *private* corporate form slowly transmuted into the main event, rather than a sideshow, and promoted disciplined pluralism through encouraging new entry, limiting the downside not only for investors (as in the *commandite*, once popular in civil law countries, but in decline)¹¹⁸ but also for entrepreneurs, so that they were more willing to innovate and take risks. If competitive assortment of a myriad of small corporations driving Schumpeterian creative destruction - multiple innovations and widespread bankruptcies - increased the rate of successful innovation, politicians were perhaps sensible to socialize at least some of the associated risks by allowing limited liability more widely and for managers as well as investors.

¹¹⁶ Rajan and Zingales, "Great Reversals."

¹¹⁷ Levenstein, "Escape," p. 712.

¹¹⁸ Anon, "Statistique," p.41; Viandier et al, *Société*, pp. 66-8, 85-8, 307-27. In *commandite* partnerships, general (entrepreneurial) partners had full liability, but sleeping partners (investors) had limited liability.

Desirable as it might be to quantify the benefits of this nebulous process, it is tricky with our corporate data. We cannot easily measure the additional investment induced by limited liability,¹¹⁹ its role in disciplining cronyism and monopoly¹²⁰ and the benefits of risky experimentation that would have been shunned by only partly-limited or unlimited liability forms,¹²¹ against the social toll of creditors' (and shareholders') net losses from the unpaid debts of bankrupt limited companies. It is also clear from modern mutations like Russia (which arguably now has the finest corporate law in the world) that legal statutes alone are insufficient without the cultural and political underpinning that made them (sometimes) work elsewhere,¹²² while in post-reform China millions of new private businesses prosper, confident in political patronage, but with relatively weakly-defined systems of commercial law and property rights.¹²³

By the same token, though the world's politicians increasingly appreciated the benefits of liberal incorporation that has become the World Bank's ideal, we need to view corporate law mutations before 1914 not as simply trending towards one (or another) modern, legally-mandated, ideal model, but, critically, as promoting creative experimentation and hence most valuable for economies at the technological frontier, though contemporary economies and polities did not lack alternative/supplementary institutional mutations. Tardiness (relative to Anglo-Saxons) in embracing the corporate form plainly characterized France and Germany. They would possibly have benefitted from emulating Swiss, Norwegian or Dutch liberalism in (civil) corporate law for SMEs (Tables 3 and 4), but mild tardiness may still not have *egregiously* damaged their business performance. By the same token, Americans - culturally hostile to financial concentration - perhaps did not suffer *grievously* from channeling corporate investment less than Europeans through their central stock exchange. Britons, despite "advantages" on both dimensions, no longer forged ahead, perhaps for entirely unrelated reasons, or because their financial precocity led them to venture beyond where

¹¹⁹ Foreman-Peck, "1856."

¹²⁰ John et al, "Limited Liability."

¹²¹ Grossman and Imai, "Contingent capital."

¹²² Pistor et al, "Evolution."

¹²³ Bowen and Rose, "Absence."

the (inverted U-shaped?) finance/growth nexus turned downwards. Germans had an apparently enormous deficit of limited liability, but they focused what they had (or well-managed, state-owned, substitutes) where they offered the clearest benefits: railways, banks, insurers, utilities and large-scale manufacturing. Germany also had the world's finest research universities and largest reinsurance industry, so was hardly devoid of alternative spurs to innovation and risk-sharing. Americans, too, had other means of financing innovative industries, with arguably superior monitoring to that provided by their modestly-sized, under-regulated NYSE.¹²⁴ National business organization in 1910 showed considerable variation, but no major industrial country lacked some dynamic new industries, nor suffered excessively from sluggish SMEs. Liberal corporate organizational menus usefully encouraged experimentation, and some corporatization (or a state substitute) was a *necessary* condition for large-scale railway (and some other) developments, but recipes for success were diverse and corporations did not qualify as a *sufficient* condition for growth.

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¹²⁴ Lamoreaux et al, "Financing Innovation."

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Online appendixes 1 and 2 are available at xxx, in the version used in this article. Provisional data were first made available to researchers in February 2013 in (retracted to preserve anonymity) and finalised, following suggestions from many colleagues fully thanked online, in March 2014. We welcome further corrections and additions from national experts, which will, from time to time, be incorporated in the updated versions at (retracted to preserve anonymity).