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A Global Census of Corporations in 1910.¹

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ABSTRACT

Estimates of the extent of the corporate economy in eighty-one countries in 1910, when the number of corporations globally reached about half a million, show that the US and the British Empire alone accounted for three-quarters of these. The aggregate market value of approaching a hundred stock exchanges in the Empire exceeded that of the then similarly numerous US securities markets analyzed in *Moody's Manual*. However, American corporations outnumbered British ones, because the US had many more, small, private (unquoted and often family-owned) corporations. Continental Europe *collectively* lagged the Anglosphere both by number and value of corporations. The capitalist institution that now dominates global business thus initially prospered less under the French or German civil law systems - adopted by most world economies - than under English common law and its derivatives. Within these legal families, the corporate form was preferred to the limited partnership almost everywhere that offered simple, cheap and flexible registration for public and private companies. A century later, despite the suppression of the corporation for many decades in some countries, there were many times more corporations in all countries and patterns of adoption were converging. We find substantial differences in 1910 between relatively poor enclave economies with capital-importing corporate sectors and economies at various income levels with a vibrant local small private company sector. This new quantitative perspective challenges some orthodoxies and raises new questions about the relationship between early corporate development and economic outcomes.

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Many economists believe that legal institutions matter. La Porta et al (1998) and Djankov et al (2002) argued - using large, contemporary, cross-country datasets - that common law provides a better business environment than civil law. Though focusing on the resolution of agency problems in stock-exchange-traded firms, they also see common law as generally more flexible and more conducive to new entry and economic growth. Kuran (2011) portrays the failings of sharia law in relation to banks and corporations as delaying modern economic development in the Islamic world. Sylla (2002) and Wright (2011) portray the financial revolution masterminded after independence by Alexander Hamilton as driving the US's nineteenth century growth, with more enthusiastic encouragement of the corporate form than in Old England. Also maintaining the significance of law, but skeptical of American superiority, Guinnane et al (2008) argue that Europeans had a richer menu of organizational choice - ranging from distinctive private limited company forms to limited partnerships² - than Americans, an argument that mainly applies to smaller enterprises. Planners' dreams of economic growth instantly stimulated by good corporate laws have recently encountered the harsh reality of failed experiments: gradual, informed, locally-tailored legal developments may perform better than transplants of complex, evolved financial institutions (Pistor et al, 2002, Berkowitz et al, 2003). Russia has adopted the very finest legal blueprint for corporations, yet its shareholders' rights are systematically violated; while Meiji Japan, taking a "wrong" turning in 1899 by adopting German corporate law, adapted it cumulatively and creatively to overcome this "disadvantage."

In fact, not just Japan, but almost the entire world outside the British Empire and the US - notably Latin America and China - chose (or had imposed) variants of French (or German) civil law. We develop a large dataset for the year 1910, to assess the outcome a century ago for their

² Some translators describe limited partnerships as corporations (all were *kaisha* in Japanese, *sociétés* in French, *Gesellschaften* in German, *sociedades* in Spanish, etc) and even give them the suffix "Inc." or "Ltd." This is not the practice in the US or UK (though the term "company" was applied to partnerships in Victorian English, this usage is less common today) and is not followed here. We use the words "corporation" or "company" interchangeably to refer to joint stock corporations (which usually, but not always, had limited liability and capital divided into shares), not to other limited liability entities.

corporations. The decision of the contemporary government-backed proto-OECD - the *Institut International de Statistique* (Anon 1920) - to drop its quest for internationally comparable corporate statistics, due to the lack of standardization and missing data, hints at some problems we encountered. Historians of individual countries have analyzed national corporate statistics (which for some countries are comprehensive and fine-grained) though they have rarely made international comparisons, which can enrich our understanding of the corporate form but have some puzzling features. Can it really be true that Italy's corporations were larger than those of the US or Germany? (That is what their government statistics clearly show). We present a rationale that resolves such apparent anomalies by situating them in modern research findings. We have very full official counts of corporations for many countries and reasonable means of estimating others, but some problems remain. For two-fifths of the eighty-one countries that we survey in 1910, we are reduced to conjectures based on very partial information, though (with the notable exception of mainland China) these tend to be relatively small countries with (apparently) few corporations. In the spirit of Angus Maddison, we hope that this attempt at quantification will sharpen scholarly debate because it is contestable, not because it is the last word.³

In 1910 traditional individual proprietorships and simple partnerships (most with no more than two or three partners and lacking limited liability) remained globally the most numerous business organizations, generally favored by small and medium enterprises everywhere (as they still are in some countries). Even some of the largest businesses - including Rothschild, Mitsui and Morgan - still used the partnership form, though they preferred the corporate form for most of the investments they controlled. In some countries, corporations already accounted for most business assets or output, and in the twentieth century they were to become more dominant as an organizational form. It was, by our reckoning, only around 1910 that the number of extant

³ The sources of data for each country are fully described in Appendix 1, inviting correction.

corporations in the whole world first reached half a million, less than 300 per million people.⁴ Over the next century, many countries introduced (or increased) taxes discriminating against the corporate form, but this proved only a modest disincentive (Liu 2012). Even the communist countries that more vigorously suppressed capitalist companies for decades eventually experienced a rapid multiplication in corporate numbers. The Soviet Union tolerated companies under the 1920s NEP, but Stalin suppressed them, as did Mao from 1949, but their policies have been decisively abandoned in the last quarter century. Even North Korea now has (slightly) more companies than in 1910. Today the Hong Kong Companies Register (2012) *alone* contains a million corporations (about 142,000 per million people and twice as many as the whole world in 1910) and there are nearly three million in the UK (Companies House 2012): at around 43,000 per million people, thirty-eight times its - already relatively high - 1910 level.

Nicholas Butler (1911, p.82), president of Columbia University, famously asserted that “the limited liability corporation is the greatest single discovery of modern times.... Even steam and electricity are far less important than the limited liability corporation, and they would be reduced to comparative impotence without it.” The joint stock company has more recently been described by the editors of the *Economist* - with a nod acknowledging the possibly superior claim of the family - as “the most important organization in the world” (Micklethwait and Wooldridge, 2003, p.2). There are many tropes in the literature implying unequal facility in implementing this new general purpose technology - Germany used the joint-stock company more than England during industrialisation (Kocka 1978, pp. 538-9), British corporate law was an imperial incubus on its colonies (McQueen 1995 on Australia, Sylla 2006 on Canada), Japan took remarkably quickly to corporations and stock exchanges (Hoshi and Kashyap 2001), American managers and investment bankers precociously democratized ownership, realizing the potential of divorcing it from control (Chandler 1990, De Long

⁴ We have counted about 480,000 companies in eighty-one countries in 1910 with some (mainly African) countries still omitted and perhaps some undercounting of private companies (e.g in Latin America). In 1909-13 the annual growth (net of disappearances) in the numbers of corporations averaged 4% in the US, Hong Kong and India, 5% in France, 7% in the UK, 8% in Japan and 10% in Germany. If the world had not already attained the half million figure by 1910, it soon did.

1991). Doubters suggest such Whiggish views are as contestable as the common law's virtues or vices, but we lack systematic descriptions of the historical pattern of the growth of corporations that are an obvious first step in evaluating this contested terrain. The next section summarises access to incorporation around the world, setting the scene for a quantified account of the international spread of corporations. The following section demonstrates that the nature of corporatization in 1910 varied between countries, in particular in the prevalence of private (close) companies. The last section raises some questions which will be addressed in future work.

THE LEGISLATIVE RISE OF THE CORPORATION

By 1910, all rich (and many developing) nations offered a procedure for registering joint stock limited liability companies administratively, with varying degrees of cheapness and simplicity, avoiding the arduous, costly and sometimes monopoly-enhancing intervention either of the legislature or of the executive branch.⁵ Joint-stock companies, it is true, had often been formed (with or without government authorization) even before such enabling legislation, but companies had been made simpler, cheaper, less risky and legally unambiguous by such general incorporation laws. The location of the world's earliest truly general law facilitating limited liability and/or incorporation by simple registration is contested: Ireland in 1782, France in 1791, Spain in 1829 and Connecticut in 1837 all have (weak) support.⁶ More decisively, an assiduous generation of like-minded legislators promoting a competitive (in contemporary language "liberal") market economy (or conservatives fearful of legislative corruption or of falling behind the neighbors) ensured that most inhabitants of Europe, north America, the British Empire and some African and south American republics, if they were not among the modest numbers with access to general company registration procedures

⁵ Greenwood (1911) is a contemporary practitioner's perspective on international legal differences; Bowstead's (1911-14) 35 volumes outline in the original language (with English translations facing) the corporate laws of most countries that we survey.

⁶ These (and other) claims are contestable because the legislation was abandoned, little used, or conferred rights in restricted industries or geographical areas. Also contrary to received wisdom on civil law, French eighteenth century jurists influenced by natural law doctrines had pursued an interpretation more favorable to limited liability without state authorization than the US (Kessler 2003).

conferring limited liability in 1850, clearly were by 1870.⁷ A very few countries resolutely refused to follow the fashion for statutory regulation. In Norway there was no corporate law until 1910: anyone wanting to set up a company simply did so by private contract, devising their own governance rules, though subject to the requirements for public notification via the *Handelsregister* that applied to proprietorships and partnerships, as was the norm in civil law countries (Ostergaard and Smith 2011).

Some nations maintained central control of incorporation for a generation or two longer: legislators cautious of encouraging speculation and default shared with existing corporate incumbents a desire to maintain entry restrictions. Italy's commercial code did not allow incorporation by simple registration until 1883, Sweden's not until 1895 and Japan's not until 1899. The "Young Turks" Ottoman Law of Associations was promulgated in 1909, Siam's general law in 1911, Greece's only in 1920. Colombia precociously allowed incorporation by registration from 1829 but hardly used it and perversely reintroduced the requirement for state authorization toward the end of the century. The Qing imperial edict of 1904, granting general incorporation in China, was a bigger step for the Empress in principle than in practice: patronage of the powerful remained essential for many companies. In other countries bureaucrats also tried to "pick winners," in the manner of seventeenth century English kings or early nineteenth century American legislators. In Russia all corporations still required the Tsar's authorization until his abdication in 1917. In Korea and Taiwan the Japanese occupation initially limited native incorporations, until Japan's own liberal system was finally extended to its colonies, in 1920 and 1923 respectively. Even in jurisdictions which routinely granted charters by simple registration, some sectors like banking and insurance required additional state authorization. Railroads - the classic large-scale corporations of the nineteenth century - sometimes registered under general legislation, but also operated under legal forms appropriate to government ownership, control, subsidy, guarantee or lease.

⁷ Prussia and the North German Federation belatedly made it in 1870, though some smaller components had done so earlier. Many British colonies, including India and Canada, initially using English corporate law, developed their own registration laws in the 1850s or 1860s; others did so later. California did not offer limited liability until 1931, though registration conferred proportional liability from 1859.

At the opposite end of the corporate size spectrum, a German law of 1892 formally differentiated the GmbH (the private, unquoted - and usually small⁸ - company or, in American parlance, close(d) corporation) from the more strictly regulated AG (the corporation with publicly tradable shares, usually larger and often officially listed on a stock exchange).⁹ In 1896 Victoria and in 1901 Portugal enacted versions of the private company, followed in 1906 by Austria, using the German terminology. The next year the UK gave legal precision to its long-familiar informal terms “public company” and “private company” and many colonies soon copied the imperial metropolis.¹⁰ In 1919 Poland and Spain followed, in 1925 France, in 1933 Luxemburg, in 1934 Mexico,¹¹ in 1935 Belgium and Palestine, in 1937 Switzerland, in 1940 Japan¹² and in 1942 Italy. Incorporation laws typically specified a minimum number of shareholders (varying between two and ten), but, with “dummy” holders or post-formation share transfers, even one-person companies with limited liability were possible (Passow 1907, pp. 223-4 gives the example of Krupp). Private companies did not need to be explicitly allowed: the close corporation could be “the creation of business men and their counsel rather than of the courts and the legislatures,” as one American academic lawyer (Kramer, 1953, p. 433) put it.¹³ Corporations in countries with flexible legal systems could *de facto* be private companies, cheaply constituted and with shares that were closely held by a few holders and rarely (if ever) traded.

⁸ In Prussia in 1904 60% of GmbHs had capital below M100,000,, but only 11% of AGs, while less than 4% of GmbHs but 45% of AGs had capitals above M1m (Passow 1907, p. 11)

⁹ It is misleading to translate GmbH literally as “limited liability company” and AG as “joint stock company,” since each had both stocks *and* limited liability. We use the term public company to include AGs and their equivalents whose shares were publicly *tradable*. Not all such firms’ shares were actually traded: when wishing to refer strictly to the latter we use “publicly-traded.” An alternative usage (“public companies” meaning those owned by government) is clearly not intended in this article.

¹⁰ A UK public company was thereafter legally (rather than, as earlier, loosely and conventionally) defined as one with more than 50 shareholders, freely transferable shares and able to appeal for capital to the general public.

¹¹ Mexico had technically been the first in 1884, but abandoned it before it was much used in 1888 see Gómez-Galvariato et al 2012.

¹² Although Japan’s 1899 law was based on German precedent, it did not include the GmbH until 1940, and even then the form was little used, whereas in Germany (and Austria) GmbHs overtook the number of AGs within a few years of their introduction.

¹³ Guinnane et al (2008) - appropriately *de jure* - treat the private limited company as something that did not exist in the UK before 1907 or in the US until the later twentieth century, but our interpretation is that private companies existed *de facto* much earlier and abundantly.

CORPORATIONS IN 1910: A GLOBAL VIEW

1910 is the first year for which we have comprehensive official figures for all extant US corporations, detailing their numbers and share capitals (Commissioner 1911). Many other countries' corporate statistics go back further, but in the US (where chartering corporations was the prerogative of individual states, not the federal government) it was only in 1909 that the Internal Revenue Service began assembling *national* statistics, following the introduction of a new federal excise tax on corporations.¹⁴ Corporate demographers lack the clarity of human death: there is some ambiguity, particularly at the smaller end of the corporate spectrum, about whether a stillborn or failing corporation can reasonably be said to exist in any meaningful sense. The taxman is not only motivated to identify existence but also has an annual trigger (in non-payment) impelling verification of his judgment, though the initial margin of doubt in the US was around 10% of corporate numbers. Such statistical uncertainties are immaterial to the general picture presented in Table 1: national figures do not differ by small percentages but by orders of magnitude.

Table 1. Numbers of Corporations in 1910, arranged in descending order of corporations per million people.

Country	No.	No. per million people	Country	No.	No per million people
The Americas			Europe		
USA	270,202	2,913	Norway	5,048	2,117
Canada (B)	14,607	2,032	UK	55,747	1,241
Newfoundland (B)	200	833	Netherlands	6,874	1,161
Uruguay	450	416	Switzerland	3,960	1,060
Panama	90	276	Sweden	5,751	1,055
Mexico	2,800	187	Denmark	2,876	998

¹⁴ Wright (2011) has collected statistics of the flow of special incorporations between 1790 and 1860 nationwide and a minority of states published flow data for later years (*Historical Statistics of the United States*), but it remains difficult reliably to estimate *stocks* of all US corporations before 1910.

Cuba	375	169	Finland (R)	2,489	850
Chile	510	152	Belgium	4,128	551
Peru	210	107	Germany	25,346	403
Argentina	577	84	Luxemburg	80	308
French America (F)	23	54	France	12,606	306
Colombia	300	53	Portugal	1,151	196
Venezuela	130	46	Hungary	2,778	134
Brazil	750	34	Spain	2,102	106
			Gibraltar (B)	3	99
			Italy	2,836	78
			Austria	1,972	70
			Malta (B)	12	60
			Rumania	660	56
			Bulgaria	140	32
			Greece	85	32
			Serbia	80	27
			Russia	1,575	10
Asia-Pacific			Africa		
Australia (B)	6,758	1,545	SW Africa (G)	116	1,160
New Zealand (B)	1,711	1,637	South Africa (B)	5,651	952
Hong Kong (B)	577	1,323	Rhodesia (B)	400	258
Straits Settlements (B)	294	450	Algeria (F)	246	46
Fed. Malay States (B)	427	436	Tunisia (F)	86	44
Samoa (G)	13	351	Gold Coast (B)	50	33
French Oceania (F)	21	259	Egypt	271	23
Kiautschou (G)	14	116	Fr. Indian Ocean (F)	56	19
Japan	5,026	101	Somaliland (F)	4	19
Ceylon (B)	350	75	Morocco	80	18
E. Indies (N)	2,200	46	Cameroon (F)	40	16
Philippines (US)	327	37			
New Guinea (G)	14	23			
British India (B)	2,786	12			
Ind. Native States (B)	790	12			

French India (F)	3	11	E Africa (G)	79	11
Taiwan (J)	30	9	Sierra Leone (B)	14	11
Siam	40	5	Togo (G)	10	11
Ottoman Empire	60	4	Nigeria (B)	180	11
Korea (J)	66	4	Kenya (B)	16	7
Indochina (F)	54	3	Fr. Equat. Africa (F)	51	5
China	600	1	Fr. W. Africa (F)	53	5
Afghanistan	2	0	Uganda (B)	6	3
Nepal	0	0	Ethiopia	4	0

Source: Appendix 1.

* The letters in brackets after a country's name indicate, for colonies, protectorates and dominions, the Empire of which they were part.

The three major industrial powers of the day - the US, UK and Germany - had the largest absolute numbers of corporations, but differed considerably in their corporation-intensiveness. The US - with more than half of all corporations in the world - had 2,913 corporations per million people and the UK 1,241. Germany had only 403: ranking about the level of Uruguay, Malaya or Singapore on this measure. The small nations of north-west Europe ranked well above Germany - despite their civil law systems - and were very close to the UK's level of corporatization (indeed Norway exceeded it).¹⁵ Corporatization had made less progress in France, with 306 companies per million people, Japan with 101, Italy with 78, Brazil with 34, India with 12, Russia with 10 and China only 1. And of course there were some countries, like Afghanistan and Nepal, with no western-style companies, save the occasional foreign venture trespassing over their borders. Some colonies showed remarkably high levels. (German) South-West Africa had more corporations per million people than the mother country. (British) Hong Kong had above a thousand times the corporate density of

¹⁵ Norway offers striking support for the libertarian view that state sanction for the corporate form is unnecessary, since it had no corporation law until 1910. Norwegian companies were simply formed contractually and registered locally, like other businesses, somewhat like English "deed-of-settlement" companies before 1844.

(culturally similar) mainland China. Using the whole population as a scalar is not ideal. In Taiwan, only Japanese (3% of the population) were legally allowed to form corporations until 1923 (Wang, 2000, pp. 156-8). Racial and social discrimination elsewhere was sometimes more subtle, but the extent to which the native or immigrant elites who formed corporations were segmented from the general population differed only in degree. Many people in Asia or Africa would not have had the faintest idea what a corporation was, though some - from the Philippines to southern Africa - were intimately familiar with other aspects of western civilisation such as the Maxim gun.

Even among nations at similar levels of development, substantial differences are observed in Table 1. One reason, suggested by Guinnane et al (2008), is that *commandite* partnerships were preferred in many civil law countries, because they were more effective for small multi-owner enterprises than the corporation, while US partnership law made them unattractive.¹⁶ A *commandite* partnership was one in which the general partners (*gérants* or *commandités*) had unlimited liability but “silent” or “sleeping” partners (*commanditaires*) were liable only for the capital they contributed. We have followed contemporary European practice in including as corporations only those which issued shares (*commandites par actions*, which could be quite large, survive the death of a managing partner and were sometimes quoted) while excluding others (*commandites simples*, which were more akin to ordinary partnerships, though they did offer partly limited liability).¹⁷ In Japan there were almost as many limited partnerships as corporations, and in Russia there were possibly more, but counting them all as companies would hardly shift their country rankings in Table 1.¹⁸ For other countries, data on the stock of limited partnerships are

¹⁶ We suspect they exaggerate both the inability of shareholders in small close companies (lacking the capacity of partners to threaten dissolution) to use alternative informal means to protect their position and also overstate the legal problems of US relative to French limited partnerships. In the UK (though not in all its colonies) limited partnerships - common in the early nineteenth century - were more seriously suppressed by legislation and judicial interpretation, though, when they were again clearly statutorily permitted from 1907, with the alleged American common law problems mainly removed (Burdick 1908), the take-up was even lower than in the US.

¹⁷ This was the practice of the German imperial statistical office (which combined AGs and KGaAs in its reports) and also commended for France (Saint-Léon 1907)

¹⁸ In 1911 there were 5,801 “trading companies” (partnerships which could be created by municipal registration) in Russia (Owen, 1991, p. 11), many more than the corporations shown in Table 1, but it is not

sparse, but France, which particularly favored them, almost certainly had more than anywhere else. Including its *commandites simples* would probably double France's total in Table 1, vaulting it above Germany in limited liability entities per million people, though leaving it below Scandinavian or US levels.¹⁹ In point of fact the US may have approached France in absolute numbers of its limited partnerships, which appear to be as much complements as substitutes for corporations.²⁰ The argument of Guinnane et al that the American organizational menu for capitalist businesses was unappetizing by France's gourmet standards, thus faces the objection - even after thus extending definitions in its favor - that it failed to deter American businesspersons from consuming (in per capita terms) around five times as much as the French of all forms of limited liability on offer. It might further be urged that other forms of differently-constituted multi-owner enterprise - cooperatives, mutual insurers, credit unions, friendly societies, building societies, savings banks, municipal utilities and the like - were more common in Europe, though convincingly comprehensive internationally comparative statistics are lacking.²¹

clear what portion of these were *tovarishchestvo na vere* (limited partnerships en commandite). In Japan, 4,783 limited partnerships (*goshi kaisha*) in 1910 account for as much as 95% of the number of corporations proper (*kabushiki kaisha*) shown in the table, but less than 8% of their capital. There were special reasons in both cases. In Russia, while limited partnerships could be formed by a simple local registration process, corporations needed the Tsar's approval. In the Japanese Empire, limited partnerships could maintain confidentiality of accounts, while corporations could not, and the registration fee was only three-quarters of the rate charged to corporations.

¹⁹ From 1890, when we have statistics on new creations less formal dissolutions in France, Jobert (1991, pp. 107, 109) shows net increases of 13,569 for *commandites simples* but for the two categories we include in Table 1 only 10,238 (888 for *commandites par actions* and 9,350 for SAs). Some of these entities disappeared without being formally dissolved and *commandites simples*, being smaller, were more at risk of this, but, even discounting for that, there were likely as many *commandites simples* extant in 1910 as the corporations we count. By contrast in Germany *commandites* declined relatively after the legislation of 1892 (Guinnane et al, 2008, figure 4). The 1907 German industrial census (*Statistisches Jahrbuch 1911*, pp. 64-5) shows only 1,636 German plants still owned by KGs (*commandites simples*), just over 7% of the numbers owned by the "corporations" we capture in Table 1: 340 by KGaAs (*commandites par actions*), 9,832 by AGs (public companies) and 11,001 by GmbHs (private companies).

²⁰ The 1910 US *manufacturing* census reported 2,879 establishments owned by limited partnerships, more than in Germany. If the proportion in manufacturing was similar to New York in 1853 (Hilt & O'Banion 2009, p. 630) or Japan in 1911 (Department of Finance 1911, pp. 80-1), this would imply more than 10,000 limited partnerships economy-wide, amounting to about 4% of the number of US corporations at that date. Unlike the case in Europe, some US limited partnerships were entirely limited: there were no "general" partners (Burdick 1908, p. 527)

²¹ On German *Sparkassen* and *Raffeißen* credit cooperatives, see, for example, Guinnane (2002). Many early corporations, notably turnpikes and other utilities, bore some resemblance to consumer co-operatives rather than later for-profit corporations (Pargender and Hansmann 2013)

An alternative measure of corporation-intensity is the ratio of the paid-up capital of all corporations to GDP.²² This is also less exposed to the *commandite* objection, since almost all *commandites simples* were small relative to corporations, so values are affected much less than numbers. However, this measure is available for only two-fifths of the countries for which we have estimates of corporate numbers, though they account for nine-tenths of the half-million corporations then extant. Table 2 shows a narrower range in this

Table 2. Value of Corporate Stock (quoted and unquoted) as a Percentage of GDP in 1910 (arranged in descending order at par).

Country	Corporate stock values at par/GDP % (at market value in brackets)	
Hong Kong *	480	(1286)
Canada*	206	(187)
US*	173	(173)
UK*	162	(256)
South Africa*	120	
Egypt	106	(208)
Argentina	88	(108)
Netherlands	82	
Belgium	80	(104)
Switzerland	75	(127)
Sweden	66	
New Zealand*	54	
France	51	(76)
Norway	45	(56)
Germany	44	(71)
Denmark	42	

²² Goldsmith's (1985) estimates of corporate capital stock for 1912/14 differ markedly (and in both directions) from ours for 1910, because, while ours are standardized, his are variously at market, par and book, and (without acknowledgment in his tables) sometimes include stocks of financial corporations, unquoted companies, partnerships, cooperatives and stocks held overseas, while for other countries excluding some or all of these (see Appendix 2). His pioneering estimates are unusable (albeit much used) for international comparisons of corporate stocks.

Finland	40	
Hungary	34	
Australia*	33	
Russia	33	
Japan	32	(56)
Italy	31	(40)
Spain	27	(52)
Austria	26	(47)
British India*	24	
Bulgaria	10	
China	9	
Philippines	8	
Korea	2	(3)
Afghanistan	0	(0)
Nepal	0	(0)

*Common law countries. The Philippines are counted as a civil law country, since they maintained the Spanish civil code, though some aspects of common law practice were gradually introduced during the American occupation. Argentina and Egypt are counted as civil law countries, though a substantial portion of their corporate capital was registered abroad under foreign common law.

Sources: Appendixes 1 and 2

indicator of corporatization and some changes in rank. Norway is no longer the European leader, while Hong Kong overtakes the US as the clear global leader. Many mainland Chinese entrepreneurs then opted to register in common law Hong Kong, relying on its independent courts and political culture rather than Beijing autocracy, as their successors still do after the colony's recent re-integration into China (Huang, 2008, pp. 5-6). One of the first companies registered there under its own 1865 Companies Ordinance, the Hong Kong & Shanghai Bank, had by 1910 extended well beyond its eponymous cities: it was a global deposit, exchange and investment bank, with branches

throughout Asia, in America and in Europe. Paul Romer has famously argued that “China’s reintegration into Hong Kong” (as he prefers to express it) lies behind China’s successful modern development, seeing Hong Kong’s historic advantage as a prototype for his “charter” cities proposal.

Some differentials are explained by the role of the state: the nationalization of railways or municipal ownership of electricity, for example, removed some of the largest corporate enterprises from stock exchanges. Countries like the US or UK (where all railways were privately-owned) thus naturally had higher corporate capital/GDP ratios than Australia, Japan or Germany (where the state ran most railways).²³ We tried several methods of controlling for this effect, but large differences persist. For example, if we deduct railway capital from both countries’ corporate capital, Germany still registers only one-third (rather than, as in table 2, one-quarter) the ratio of the US.²⁴

More significant changes come from adjusting par values to market. The US had more “overcapitalised” firms, reflecting its weak regulation of capital subscriptions compared with civil law countries like Germany, though this was mainly transparent to investors and naturally reflected in low market prices for US stocks (Pistor et al, 2002, pp. 821-3). Fortunately stock indexes showing market/par ratios are available for many of these countries, though indexes typically encompass only a small fraction of quoted companies, are inconsistently weighted and, by definition, exclude all private companies. The adjustment (shown in brackets where it is available in Table 2) is best interpreted as an 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), rather than as a reliable indicator of actual market values. Subject to such *caveats*, this correction raises Germany to 41% of the US level (and combining this with the rail correction would raise it further to around 50%). The market value correction also propels the UK’s ratio above the US’s, though Britain’s corporate capital remains only half America’s in absolute terms. The US then had 2.1 times

²³ Since railway companies were generally large they have little impact on corporate *numbers*.

²⁴ The adjustment deducting rail capital is reported for some other countries in appendix 1.

the UK's population and 3.3 times the UK's GDP at current prices and market exchange rates.²⁵

However, Britain had a tiny agricultural sector (farms were only rarely incorporated anywhere) and its corporations had more international direct investments than other nations. By contrast the US and Russia were the leading international debtor nations. Much of the proportionately greater capital in UK-headquartered companies was actually invested in continental Europe, north and south America, Asia-Pacific and Africa.²⁶

Such cross-border enterprises everywhere were less likely than domestic businesses to be directly owned by individuals and more likely to be intermediated by corporations. Indeed, if we add all the colonial capital to the mother country's at market (with allowance for missing data) the British Empire more closely approached the USA's corporate capital in absolute terms though was smaller as a ratio of the Empire's larger GDP. This may seem surprising, given some of the higher figures in Table 2, especially since contemporaries reckoned that accumulated British wealth invested in traded securities remained higher than the USA's for more than half a century after the rapidly-expanding republic had overtaken the UK's population and national income (Neymarck 1915, p. 1309). However, much British wealth around 1910 was in (domestic and overseas) government securities and the remainder was not only overseas direct investment of UK corporations (which our measure counts as British) but also foreign portfolio investment, including large UK holdings of American corporate stock (which we count as American).²⁷ Japanese, Canadian, Australasian, South African and other foreign corporates were also large net debtors to UK investors.

²⁵ www.measuringworth.com for GDPs at current prices and market exchange rates. On the other hand, Maddison (2006, pp.427, 439, 463, 466) puts US real GDP - with a back-projected PPP exchange rate - at 2.2 times, not 3.3 times, the UK's. The implication is that prices were half as high again in the protectionist, high-wage US as in the free-trading UK (or that Maddison's backward projections of real GDPs misrepresent relative incomes). For our present purposes current prices and exchange rates are preferred, because corporations and their investors faced such prices.

²⁶ In 1909 5% of the UK's corporations assessed for tax and 13% of assessed profits were from "adventures outside the UK" (Worswick and Tipping, 1967, pp. 101, 116, 118) and UK companies with large home operations also had more extensive multinational investments than US equivalents (Hannah 1996).

²⁷ For example, nearly a quarter of the common stock of US Steel (America's largest corporation) was held in Europe. Corley (1994, p. 78) estimates British portfolio investment (including corporate bonds) in overseas corporations in 1910 at £1,766.2m (\$8,596m), which alone was 86% of UK GDP. Even if Britain had had *no* domestic corporations, this is a higher ratio than many European countries (Table 2)!

The market value adjustment, more remarkably, projects Egypt's ratio above the USA's, prompting questions about a measure which perhaps ought not to have been as widely used as it has been.²⁸ The mass of Egyptians were poor (producing a low GDP denominator) but a large sector of their economy was a western enclave: it is the massive British and French investment in this quasi-colonized outpost of the crumbling Ottoman domain that raises the numerator. In fact just one corporation - Egyptian-registered and French-headquartered - drives this result. The *Compagnie Universelle du Canal Maritime de Suez* accounted for around half of Egyptian corporate capital and had been so successful since incorporation in 1858 that it was quoted on the Alexandria, London and Paris stock exchanges in 1910 at more than eight times par (a figure about equal to Egypt's GDP). Its American twin, the Panama Canal, was still under construction and for the US government, not for the capitalist sector.

Thus the US led the whole world in the *numbers* of corporations, while the UK had higher corporate capital *values* (at market as a proportion of GDP). Other countries with common law systems - essentially British colonies - also populate the top of these tables. Some colonies, it is true, had less companies per million people than the UK, but this was likely because the international division of labour sensibly directed them to sectors (like agriculture) with a low propensity to incorporate or because native traditions, local culture, colonial inequalities or developments in world trade inhibited the formation of human capital, conducive to a modern corporate economy.²⁹ Thus India's population was dominated by its poor rural peasantry in 1910 and its numbers of corporations per head were low, albeit twelve times' China's. Yet where - as in India's big coastal cities - a literate local bourgeoisie prospered, incorporation under the common law was used as

²⁸ The common practice of comparing securities values to GDP (a ratio devoid of theoretical meaning) has arisen because measures of national capital stocks (a more natural denominator) are less internationally consistent than GDP measures.

²⁹ A paradox for most conventional institutional analysis based on the contemporary liberal vision of the "Manchester School" (now more commonly known as the "Washington consensus") is that British India at an early stage had advanced corporate law, free trade, secure property rights and western-style banks and stock exchanges but experienced only modest growth. For possible resolutions based on trade patterns see O'Rourke et al 2011, or on inappropriate technologies, see Headrick 1988.

enthusiastically by natives as by white settlers, judging by the corporate names that were registered. Although most of India's corporate capital was British (and the average size of such overseas-registered companies in India was \$1,037,852), its domestically-registered corporations averaged a more locally attainable \$91,866. Many other British colonies in Asia (notably Hong Kong, Malaya and Singapore, with tiny portions of white settlers) had levels of corporate development above that of independent Japan, while other countries' colonies generally did not.

It is been suggested that this apparent correlation of common law with financial and economic development implies causation, but it may actually mask a third causal factor shared within the Anglosphere. The idea of Pagano and Volpin (2005) that proportional representation systems (common in civil law countries) are less supportive of corporate investor protection than majoritarian ones (normal in common law countries) flies with 1990s data but not in 1910: the few countries that had then adopted proportional representation were actually relatively highly corporatized.³⁰ Another hypothesis - and one much favored by contemporaries - is an open and individualist culture, as proxied by the predominance of protestantism (Stulz and Williamson 2003). It is notable that small protestant northwest European nations (Norway, Sweden, Denmark, the Netherlands and Switzerland) - despite their civil law tradition - also rank among the leaders, while the Catholic nations of southern Europe and Latin America lagged.

Alternatively, it may be the flexibility of corporate law, rather than its systemic or cultural basis, which is the critical determinant. Even within the UK only England, Ireland and Wales had common law: Scotland preserved its civil law regime after the 1707 union. Westminster statutes nonetheless ensured that Scotland's corporate law was indistinguishable from England's. Moreover, Scots judges did not have the same difficulties as French ones, for example, in accepting preference

³⁰ Belgium, Finland, Sweden, South Africa and some Swedish cantons had introduced proportional representation, though so recently that it might be argued that the alleged processes had not had time to work. More significant contemporary political differences that might have had effects similar to that predicted by their model (such as the degree of democratization) are also uncorrelated with corporatization: Foreman-Peck and Hannah (2013) show little correlation of the Polity IV index with corporatization.

shares (even though they were not authorized by statute in either country): the reason for the difference cannot be civil law.³¹ Yet the Scots (and Louisianans, who also retained civil law within the US) were perhaps fortunate. Ottawa's parallel tolerance of Quebec's civil corporate law - or perhaps the lower literacy and/or Catholic culture of *Québécois* - left the French-speaking province with remarkably few corporations relative to common law Ontario.³²

Experience within the modern European Union suggests that flexible corporate laws are appreciated by those who lack them. Historically there was always some cross-border incorporation: dozens of Scandinavian and Benelux companies and some from all large European countries were registered and/or quoted in Britain before 1914. This habit was curtailed by the twentieth century's war-driven tide of national particularism of 1914-1945 and the peaceful reintegration of Europe after its long drawn-out "civil war" was painfully slow. However, recent European Court of Justice rulings have given cross-border registrations a renewed green light. Under pressure from Brussels for greater harmonization, corporate laws even in civil law regimes have become more standardized and nearer the Anglosphere's model. Moreover, thousands of European firms now again choose to incorporate outside their home jurisdiction and Britain has again become Europe's "Delaware." Notably many German firms now choose to incorporate under UK law, aided by specialist intermediaries helping them overcome the language and legal barriers (Becht et al 2008).

Recent economic analyses of the determinants of such corporate mobility have emphasised the cost of registration and its ease (measured, for example, by the speed with which registration can be completed). Unfortunately historical data on these variables are less accessible, but we may take as a benchmark the winner in the charter-mongering competition within the US at the end of the nineteenth century. Delaware was on the point of permanently taking over, but New Jersey still predominated in the early twentieth century, offering registration for as little as \$35 (0.7%) for a \$5,000 corporation and \$1,010 (0.02%) for a \$5m corporation. Since an 1868 court ruling

³¹ France belatedly authorized such shares by statute in 1902.

³² Ontario was creating corporations at more than seven times' Quebec's rate, see Appendix 1.

(*Paul vs Virginia*), states could not discriminate against “foreign” (i.e. out-of-state) corporations, so New Jersey fees were open to all, though most chose to pay - usually slightly higher fees - in their home state (Borgmeyer 1910 pp.19-547; Lough 1914, p. 53). Corporations elsewhere - for example, in Canada, Australia, Russia, China, Norway, Hong Kong and Singapore (Official 1911, p. 268, Trivett 1914, p. 421, Williams 1905, p. 142, Hong Kong 1911, pp. 696-7, Straits 1912, p. A5) - could register about as cheaply, or even more cheaply, than in New Jersey,³³ though corruption appears to have raised the effective cost in China and Russia (Borgmeyer 1910, p. 589). Metropolitan Britain was a little more expensive, feeling more able to tax itself than its colonies: 1776 still weighed heavily (Davis and Huttenback 1986). Although basic registration fees in London were low (a minimum of £2 and maximum of £50), stamp duties (a tax on the necessary documentation) significantly inflated this. The combined cost for a £100 company by the early twentieth century was £4.25 but for a £1m (about \$5m) company as much as £2,552 (0.26%, \$12,418) (Gore-Browne 1909, pp. 601-2). There was nothing inherent in civil law that required corporate registration to cost even more than this high British rate.³⁴ Yet in Germany, registering an AG with \$5m capital cost more than 5% of the capital, which was 250 times the contemporary New Jersey rate and twenty times the British rate, though GmbHs were cheaper (Burhop 2006).³⁵ In France and Japan, fees (at 0.6% and 0.4% respectively) were between the British and German rate, but there was no relief for private companies (Priez 1911).³⁶

Also potentially important was what companies were required to do subsequent to registration. Weak reporting and re-registration requirements, such as America’s, or the exemption

³³ Foreman-Peck and Hannah 2013.

³⁴ Except perhaps the greater compulsory or voluntary resort to notaries (Guinnane et al 2008, p. 18), whose comprehensive legal training and monopoly raised costs, relative to the competitive and specialized company registration agents favored in common law systems.

³⁵ Germany also restricted and taxed securities transactions early (Michie, 2006, p. 138).

³⁶ Partnerships (including limited partnerships) had a lower rate of 0.3% in Japan. I am grateful to Professors Okazaki and Kitaura for information on the fees under the 1899 law. Registration fees were only part of the story: there were also significant international differences in annual franchise fees, in taxation of profits, dividends and securities transactions, and in intermediation fees for public issues. For example, Austria’s tax regime strongly discriminated against corporations (Rudolph 1972, pp.40-1), while America’s unusually high investment banking fees were a strong deterrent to formal IPOs (Hannah 2011b)

of private companies from stringent public company regulations, like Germany's, encouraged use of the corporate form by quite small enterprises.³⁷ On the other hand, weak disclosure and shareholders' rights inhibited the flotation of larger companies on stock exchanges. One might therefore expect corporate laws to have ambiguous effects, depending on their differential treatment of the various types of corporation.

PRIVATE (CLOSE) CORPORATIONS

The statistics considered so far lump together public (quoted or tradable) and private (close) companies. Where there was a legal distinction, the contrasts were clear. In Germany, the mean share capital of the 19,650 GmbHs (private companies) of 1910 was only M197,506 (\$47,006), while the 5,296 AGs (public companies) averaged fifteen times that size, with mean capital of M2,954,305 (\$703,125). Thus 79% of German companies by *number* were in the private company sector, but they accounted for only 20% of corporate *capital* (though adding the AGs not listed on a stock exchange would increase that to nearer 30%).³⁸ In the UK, around 6,500 companies had securities traded on the London Stock Exchange in 1910. Some of the remainder were legally classified as public but were in fact private (not all firms had yet amended their status under the 1907 act), with securities that were never (or only occasionally) traded. Thus only about 23% of all UK corporate share capital at par was in the 90% of companies that were *de facto* private.³⁹ The average share capital at par of the 6,500 publicly-traded UK companies of 1914 (a year for which we have better information than 1910) was £504,369 (\$2.454m): thirty-four times the size of the 60,355

³⁷ GmbHs, for example, were exempt from the requirement of AGs to appoint an *Aufsichtsrat* (supervisory board) and publish accounts (Krüger 1912, pp. 20-3).

³⁸ Rajan and Zingales (2003, unpublished data appendix) report the 1913 par values of shares quoted on all German exchanges as M16b, 69% of the combined 1913 par values of all AGs and KGaAs (M17.537b) and GmbHs (M4.81b) plus our approximation of *Gewerkschaften* (M0.735b). AGs with unquoted stocks – the majority by number, but including many too small for an IPO – would include privately-held firms incorporated before the GmbH legislation, subsidiaries, those which only listed bonds and/or traded their shares informally, and those which might at some future stage float.

³⁹ Authors' calculations based on the number of companies in the LSE's own *Stock Exchange Official Intelligence* (which included those officially listed but also many which could be traded though not officially listed). Skinner's *Stock Exchange Year Book* listed many more, but the additions were mainly small and infrequently traded.

infrequently-traded and private ones, which averaged only £14,860 (\$72,309) share capital. The UK had more public and more private companies than Germany (a country with 40% more people and much the same real GDP) and in both categories its companies were of higher average size, so it is hardly surprising that the ratio of corporate capital to GDP was three times higher in the UK than in Germany.⁴⁰ This is consistent with Edwards and Ogilvie's (1996) and Cassis's (1997) skepticism about the earlier influential intuitions of Chandler (1990) and others. Germany remained pre-eminently a land of personal proprietorships, partnerships and family firms, though its corporations' modest aggregate numbers and capitals encompassed a dynamic capitalist sector in banking, shipping, chemicals, steel and electricals and it had more state-owned enterprises than the Anglosphere.⁴¹

In many other countries, no legal distinction between private and public companies was made until later. In France before 1925 private companies were inhibited by the relatively expensive and complex registration and reporting processes imposed on the juridically undifferentiated company sector, essentially to protect public company shareholders.⁴² Neymarck's figures for corporate securities quoted on the Paris bourse suggest only 20% at par were quoted elsewhere or were in private companies, an exceptionally low portion of all corporate capital.⁴³ In Belgium in 1914, the proportion of the share capital in domestic corporations that was private was 25% (Baudhuin 1924, p. 21) and in Italy in 1907 28% (Aganin and Volpin 2005, p. 334). In Asia-Pacific and Latin America, private companies also appear to have accounted for only a modest proportion of corporate capital.⁴⁴

⁴⁰ A figure hardly affected by the market value correction in Table 2, though it would be reduced to below three times by eliminating railways from both countries' totals.

⁴¹ Kocka and Siegrist (1979) show that in 1907 some of Germany's largest industrials were still owned by individuals and partnerships, not by corporations (AGs, GmbHs or *Gewerkschaften*).

⁴² Freedeman (1993, p. 23) suggests that French corporations that were *de facto* private were exempted from the publicity requirements, but this applied only to prospectus publicity: they still had to publish accounts, unlike German GmbHs or British private companies.

⁴³ Appendix 1. However, Neymarck's calculation includes bonds which were more likely to be quoted than shares.

⁴⁴ See Appendix 1. In 1920/21 19% of Indian-registered companies were private, accounting for 18% of capital (Narta 1992, p. 68). Neither the Canadian nor Australian data will support the calculation of similarly precise percentages, but it appears that a higher proportion of their corporate capital was quoted than in the USA, despite a weighty domestic literature bemoaning the underdevelopment of their capital markets.

In the US, by contrast, typical state regulatory requirements for companies were minimal,⁴⁵ so many private (close) corporations could exist unmolested by legal stringency, while US public corporations before 1933 faced federal apathy and were largely left to their own devices in developing governance standards.⁴⁶ Moody offers the best estimate before 1914 of the share capital of companies that had nonetheless gained listings on a US stock exchange or traded informally, at auction, on the curb or over-the-counter. There were nearly 20,000⁴⁷ such companies but the ratio of their share capital at par values to GDP was, at most, 65% in 1907, with about half of this capital in nearly 300 firms traded on the NYSE, which specialized in creating a large liquid market for corporate giants (Appendix 1). Comparison with the IRS figures for *all* 270,202 US corporations in 1910 suggests that well over 90% of American corporations, accounting for as much as 60% of all US corporate capital at par, were close companies or were too infrequently (or obscurely) traded to be noticed by Moody. The mean US corporation remained smaller than the mean British corporation, as had always been the case.⁴⁸ The modal American corporation was not widely-held but was rather a cloak for the individual proprietor seeking limitation of liability, the family firm, the crypto-partnership, or the small local utility or bank with shares parked privately by directors among their families and acquaintances and rarely (if ever) traded.⁴⁹ This proportion (around three-fifths) of US corporate capital in such companies is far above the figures (typically around a quarter) recorded in

⁴⁵ Only 12 US states required companies to publish balance sheets before 1914 (Wright 2012, pp. 6-7); and many of even America's largest industrial companies failed to do so (Hannah 2007, pp. 642-86.) This was less common in Europe and, even in the relatively laissez-faire UK, annual balance sheets had long been required by the LSE as a condition of new IPOs and were legally required for statutory companies from 1845 and for registered ones from 1900 (the new requirement being dropped for those registering as private companies from 1907). Similarly, when the SEC tightened up quoted company regulation on a federal level in the 1930s, closed corporations in the US remained exempt.

⁴⁶ Guinnane et al (2007) see US corporations' inability to protect minority interests as a severe constraint (as it probably was for the development of US stock exchanges), but the sheer numbers suggest that American owners of close corporations cheerfully carried on regardless.

⁴⁷ Most of these were small unit banks with locally marketed shares, which were much rarer outside the US

⁴⁸ Forbes (1986, p. 173) claimed otherwise, citing UK wealth inequality leading to large sole proprietorships and partnerships, in preference to corporate entities. In fact, British companies were more capital-intensive and larger, whether measured by share capital or numbers of shareholders (Hannah 2013). What was distinctive about American corporations was that they were smaller and more *numerous*, exceeding Britain's total perhaps as early as the 1830s.

⁴⁹ Taussig and Barker (1925) report some pre-1914 survey evidence on such closed companies.

Europe at this time. Even among US quoted companies, ownership by plutocratic families of large blocks of stock that were not traded remained more common in the US than the UK, where high levels of divorce of ownership from control were already the norm (Foreman-Peck and Hannah 2012).

This clarifies that, in order to explain the very large *numbers* of companies in the USA, the focus should be on the determinants of *corporatization* (the numbers of companies and the amount of their capital, whether publicly-traded *or* closely-held and however small) rather than the narrower issue of *securitization* (shares publicly-traded on stock exchanges of generally larger companies).⁵⁰ Indeed the US was well ahead in the former at a time when it was only a modest practitioner of the latter (Rajan and Zingales 2003, Hannah 2011). The market capitalization quoted on the nearly 100 British Empire stock exchanges exceeded that on all the similarly numerous US securities markets noticed by *Moody's Manual*.⁵¹ Even Europe's exchanges on some dimensions exceeded the USA's. There were more companies quoted on the Berlin or London exchanges in 1875 than on the NYSE forty years later (Gebhard 1928, p. 134; *Course of the Exchange* 1875; O'Sullivan, forthcoming). Around 1914, when Europe's real GDP was more than twice the USA's, there were ten times as many companies traded on eight major European exchanges (London, Paris, Berlin, Amsterdam, Brussels, Vienna, Milan and St Petersburg) combined than the 970 traded on ten leading US exchanges (the NYSE, NY curb, Boston, Philadelphia, Chicago, Baltimore, Cincinnati, Cleveland, New Orleans and Pittsburgh) combined, though the many companies traded off major

⁵⁰ The term "securitization" is currently used more specifically to describe the selling of bank loans and other asset-backed securities in capital markets, but seems equally appropriate for the similar process applied earlier to other assets.

⁵¹ Rajan and Zingales (2003,p.15) calculate the 1913 market value of all common and preferred stocks of US corporations quoted on five exchanges (NYSE, Chicago, Philadelphia, Baltimore and Boston) as \$15.4b and the dozens of smaller exchanges and over-the-counter markets perhaps doubled that (Appendix 1). Moore (2010 Table IV) calculates the market value of corporations listed on five Empire stock markets (London, Toronto, Montreal, Sydney and Johannesburg) in 1913 as £3,669m (\$17.9b), though correcting for overlaps would reduce this and this figure includes some foreign (as well as British Empire) common stocks. There were also dozens more local stock exchanges in these empire countries as well as in other parts of the Empire (New Zealand, a country of one million people, had six, British Columbia, with just over a third of a million people, about the same number, though the Wellington and Vancouver exchanges were locally dominant; India had only three exchanges). A higher portion of Empire companies were publicly traded than in the US. For example, Nash (1914) shows that all Australasian public companies had 2.7 times as much share capital (even at par) as was captured by Moore on the Sydney stock exchange, while Moody (1907) suggests a lower ratio in the US.

exchanges may have raised the totals to the same ballpark numbers (relative to their economic size) for both continents (Brenninkmayer 1920; Borodkin and Perelman 2011, p. 106; Burhop 2006, p. 10; De Luca 2002, p. 34; Eigner 2008 p. 33; Hannah 2011,p. 130; O’Sullivan 2007 p. 523)

Contrary to a common misconception encouraged by uncritical readings and imaginative backward extrapolations of Berle and Means’ (1932) classic work, an extensive population of small *unquoted* companies was the distinctive characteristic of “the modern corporation and private property” in the US. On the other hand, a corporate economy in which the great bulk of incorporated capital was publicly tradable was the distinctive characteristic of *early* twentieth-century Europe, the British Empire and Japan. The “managerial revolution” - creating an economy with shares traded on major stock exchanges with ownership somewhat (though in markedly varying degrees) divorced from control - is sometimes presented as a *late* twentieth century phenomenon, with other countries only hesitatingly copying the “modernizing” lead of the USA. The opposite is the case: the majority (by par value) of the corporate capital of Europe (but not the US) was already quoted in the pre-1914 period, though things changed later (Appendix 1, Faccio and Lang 2002, Morck 2005, Foreman-Peck and Hannah 2012). Moreover, it is the early US approach of abundantly developing the private (often personally- or family-owned) company sector that can more accurately be described as “modern,” in the sense that it was to grow in relative importance.⁵² By 1989 the *Harvard Business Review* was forecasting the “eclipse of the public corporation,” with the further rise of private equity control over mismanaged, once publicly-traded, bureaucratic corporations (Jensen 1989, see also Harris et al 2012). Today unquoted companies typically account for half or more of corporate assets in rich nations, while only in the USA do we clearly observe this dominance of personal corporate capitalism before 1914.⁵³

⁵²The widespread contrary view that family-owned closed corporations are “unprofessional” and “un-modern” is rooted in Weberian and Chandlerian conceptions of bureaucratization and corporatization, exaggerating their decline in the twentieth century. Compare Colli 2003, Hannah 2009.

⁵³ Private companies (defined to include unquoted but legally “public” companies) accounted for more than two-thirds of all UK corporate assets by 1993-2003 (Brav 2009 p. 264), as in the US in 1910. Since 1997, when

Table 3. Mean Sizes (share capital, converted to US\$) of all Corporations (at par) ca 1910, arranged in descending order of mean size; and of Publicly-traded Companies (at market and par, where available).

Country	Mean Share Capital (US\$)		
A. Countries with Large Corporations			
	All Companies at par ⁵⁴	Publicly-traded Companies at market (number in brackets)	Publicly-traded Companies at par (number in brackets)
Argentina	5,917,106	16,391,893 [†] (117)	
Brazil	2,279,276 ⁵⁵	2,646,249 [†] (294)	
Chile	2,121,053 ⁵⁶	5,251,350 (68)	2,233,381 (68)
Egypt	2,082,089	9,562,249 (75)	
Russia	1,701,936	1,824,440 [†] (316)	
China	1,314,851		
Mexico	719,002 ⁵⁷		
Uruguay	574,891 ⁵⁸		
Austria	483,740	5,379,315 (228)	
India	410,339		
7 German Colonies	398,171 ⁵⁹		
Hong Kong	384,979		

the number of listed companies in the US peaked at 7,888, it has declined by 38% (and by 48% in the UK) as the regulatory burden has increased (*Economist*, 19 May 2012, pp. 12, 24).

⁵⁴ Except where footnoted, figures in this column relate to the numbers of companies in Table 1.

⁵⁵ São Paulo companies only.

⁵⁶ Industrial companies only in 1916 and relates to 114 companies, exceptionally more than the listed companies in the next two columns, where the data relate to 1917.

⁵⁷ Average of new registrations 1886-1910

⁵⁸ New foundations only, 1910-13 (the true average would probably have been higher).

⁵⁹ 1913 data

B. Countries with Mid-Sized Corporations

Italy	358,054	2,818,218 (251)	2,202,063 (251)
Rumania	324,254 ⁶⁰		
France	321,394	23,063,010 (146)	
South Africa	310,055	7,081,504 (133)	
UK	290,540	14,065,640 (1,198)	27,815,556 (337) ⁶¹
Belgium	276,955	1,314,710 (833)	
Canada	276,511	6,100,000 (160)	
Hungary	253,464		
US	214,234	34,940,140 (294)	39,741,497 (294) ⁶²
Germany	187,963	4,756,659 (910)	
Bulgaria	180,298		
Spain	168,080	10,248,000 (40)	

C Countries with Small Corporations

Australia	149,889	1,695,399 (213)	
Switzerland	140,035	2,968,667 (120)	
Straits Settlements	138,678 ⁶³		
Japan	125,819	5,146,182 (55)	2,766,402 (119) ⁶⁴

⁶⁰ 1916 data.

⁶¹ 1911 data, from Foreman- Peck and Hannah, "Extreme Divorce." Data at par are not available for all the securities evaluated in the previous column: the 1911 figures are for only the larger companies within the broadly similar 1910 population. The equivalent 1911 mean market value of these 337 larger companies (which unlike the 1910 data are per company not per security) was \$37,272,844.

⁶² The NYSE data at par are from Pratt (see Appendix 1, 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) are for securities and relate to 1910. Rajan and Zingales' figures for 1913 add companies traded on four other US exchanges (making 464 in all) and come up with a figure very close to Moore's: \$33,284,483: the division by companies rather than securities presumably being neutralized by the extra (smaller) companies listed regionally.

⁶³ 1916 data, locally-registered companies only

New Zealand	118,608	
Sweden	101,593	6,709,097 [†] (108)
Netherlands	96,262	2,801,431 (377)
Philippines	85,440	
Denmark	74,276	1,941,603 [†] (114)
Korea	71,344	
Finland	40,861	
Norway	33,938	967,546 [†] (80)

Sources: cols.1 and 3. Appendix 1. Where the average size in col.1 is not the corporate capital used to calculate Table 2 divided by the number of corporations in Table 1, we have indicated why in a footnote. Col 2 Moore (2010 Tables II and IV) for ten countries (we are particularly 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 for the UK, which includes a few provincially-listed companies) and sometimes to actively-traded equity shares, rather than all listed or traded companies (though a revised version will eventually expand the coverage). 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, for example, 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 - for Australia \$5,108,389, for France \$13,440,782, for Italy \$1,770,612, for Japan \$3,208,129, for the Netherlands \$1,557,951, for Switzerland \$4,712,209, for the US \$33,284,483 - differ from Moore's. With the exception of Australia and Switzerland, Moore's figures (preferred in the second column) are higher: often because including foreign quoted 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. We have not reported some figures from Rajan and Zingales (UK, Cuba, Chile, India) because, on the basis of their unpublished data appendix, we believe they are inaccurate/unsupported and for the capitalization of the Alexandria (Egypt) bourse in 1913 and for Chile we have substituted the figures in *Annuaire Internationale de Statistique* and for Belgium the January 1911 figure from Neymarck (see Appendix 1 for our justification).

Table 3 shows the average share capital of all companies (at par) in column 1, all converted to US\$ at market exchange rates, with, in the following columns, indicators of the size of public companies (at market and par), where available. We do not here use the legally-defined

⁶⁴ 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 Appendix 1): 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.

figures already mentioned, because only Germany and Austria, among the countries that made a legal distinction, reported appropriate statistics for them separately at this time.⁶⁵ Instead we use as an indicator of public company size the mean size of listings on their major stock exchange, available for more countries at market than at par and usually for our target date of 1910 (figures for that year 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). Of course companies listed on major exchanges were larger than those then traded on the many regional exchanges and, *a fortiori*, larger than public companies defined legally (which were sometimes traded infrequently or not at all).⁶⁶ The proportion of companies listed on major metropolitan exchanges differed between countries 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 stock market capitalizations were much closer together relative to GDP than our statistics of corporate capital in table 2 covering all corporations.⁶⁷

The figures in columns 2 and 3 of Table 3 are highly sensitive to the numbers to which they relate (shown in brackets after the average capital). The US, for example, appears to have publicly-quoted firms on its major exchange which are larger than the UK's, but that is because the LSE was more developed than the NYSE, in that it listed many more firms and had a much higher ratio to GDP. If we take a similar *number* of large UK-owned firms traded in London as were listed on the NYSE, their companies were of similar average size. It is true that no European industrial companies could match the size of US Steel or Standard Oil, but focus on a few outliers seriously misleads: lower down the manufacturing size range and in banking, railways, shipping and other sectors many European corporations were as large or larger. British corporations, in particular, also

⁶⁵ For example, statistics of paid-up capital in public and private companies separately appear to be available for India only from 1920 and for the UK only from 1926.

⁶⁶ Michie (2006, chapter 5) is the best guide to the complexities of stock exchanges around 1910.

⁶⁷ At market prices in 1913 the NYSE ratio was 24% and the St Petersburg ratio 18% (Rajan and Zingales 2003, Moore 2010).

had far more multinational investments serving wider markets. The US's relatively low ranking in column 1 (despite its undoubted industrial giants) reinforces our earlier point: America's "exceptionalism" consisted not in its corporate giants but in its small corporations outnumbering those in all the rest of the world.

The mean figures in column 1 offend other conventional characterizations. We will search the business history literature in vain for explanations of why Argentina had the largest companies in the world and Japan among the smallest, or of why Italian companies were twice the size of German ones. Such paradoxes are also easily resolved: the literature highlights conspicuous examples in the numerator (reflected more obviously in column 2), while the averages in column 1 are driven by the denominator (the means tend to be lower where the corporate form had penetrated most in numerical terms). Norway had smaller companies than any other country, but it was also the only European country with more than two thousand companies per million people. Russia had high mean corporate sizes because many small partnerships and sole proprietorships (which in Norway would have been incorporated) did not seek the Tsar's permission to incorporate. Laggards in Table 1 are naturally "leaders" in Table 3: Argentina had only several dozen companies per million people. Note, however, that this explanation does not appear to apply to the Asia-Pacific region. These countries often had relatively few companies per million people (Australasia is the exception), but still had relatively small corporations.

The distinctive bunching of countries arranged by the mean capital of all their corporations in column 1 is remarkable. The top ("A") division of Table 3 consists almost exclusively of "enclave" economies in which large foreign enterprises dominated their corporate economies (Austria is the odd man out).⁶⁸ In some a racially-distinct, or distinctly immigrant, local merchant-financier elite also dominated much domestic enterprise (Haber 1989). Sometimes most of their corporate capital was foreign-owned - and sometimes traded mainly on overseas stock exchanges - and in all of them a large fraction was. Monopolistic or oligopolistic firms with crony capitalist links

⁶⁸ Austrian GmbHs had already overtaken the number of AGs three years after their introduction, but it took a few more years for them to reach German levels, reducing Austria's mean company size to the European norm.

to government (often involving monopolistic concessions or privileged financial access) were common. 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.⁶⁹ 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 it had relatively vibrant locally-owned companies and banks by Mexican standards (Haber 1991, Hanley 1998). The paucity of private companies may be a reflection at the corporate level of the inequalities in these societies of wealth and human capital rooted in early factor endowments that others have noted (Sokoloff and Engerman 2000), rather than a consequence of their corporate laws.

The central section (“B”), with middling average company sizes, basically consists of European economies, the US and Canada (though South Africa - despite distinct “enclave” characteristics - had a sufficiently large private company sector to join the more developed economies). These economies, of course, had some very large companies (indeed the stock exchange data in columns 2 and 3 suggest, unsurprisingly, that their publicly-quoted companies were among the largest in the world), but they also had significant numbers of small, private companies, bringing the mean size in column 1 down.

The lower section (“C”), with generally small companies, contains two disparate groups: the small north-west European nations (which had exceptionally large numbers of companies per million people) and Asia-Pacific countries (which did not). 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, a characteristic apparently lacking in most “A” economies at the top of the table. Although some “C” economies (notably Korea and the Philippines) had “enclave” characteristics and others (notably Switzerland, Singapore, Australia and New Zealand) were

⁶⁹ In India, public and private companies were much the same size (n. 44, above), though many public companies were informally traded rather than listed on the stock exchanges of Bombay, Calcutta or Ahmedabad.

substantial hosts to inward multinational investment, many of these countries also appear to have created a significant and vibrant local corporate sector, generally lacking in the “A” economies.⁷⁰

Perhaps that mattered.

SOME IMPLICATIONS AND FURTHER QUESTIONS

The corporate landscape of 1910 that we have painted contradicts some of the received wisdom and raises new questions about the nature and role of the corporation. But did variations in the level and nature of corporatization really matter? Or is our focus on corporations merely Anglo-centric “form-fetishism,” which abstracts from the numerous alternative ways in which different societies preferred to organise both collectively- and personally-owned businesses? Were the Muslim *sharika*, the Sufi brotherhood, the Taiwanese *ho-ku*, the Chinese family lineage trust, the Bulgarian *ishljem*, the socialist co-operative, the Asian managing agency house or the European partnership more culturally appropriate and just as serviceable for most purposes as the corporation that Anglo-Americans distinctively favored? We do not doubt that they *sometimes* were, though advocates of the point appear to stop short of demonstrating that they were equally numerous and effective. Moreover, corporations replicating all their characteristics (save their cultural familiarity) could be constituted in many common law jurisdictions and some civil law ones: for example, shareholders could be limited to named persons or a family lineage, some (or all) directors (and/or shareholders) could have unlimited liability, non-sharia-compliant loans could be banned by the corporate charter, profits could be distributed on mutual or cooperative rather than capitalist lines, and so on. If such modifications were desirable, the demand for them (rather than the western corporate norm) proved remarkably low.⁷¹

⁷⁰ Some of the small size of companies in “C” countries is because their railways were (mainly) nationalised, though this also applies to some “A” and “B” countries.

⁷¹ For example, in 1867 British legislation explicitly permitted companies with unlimited liability directors and limited liability shareholders, but there were hardly any takers. A similar effect could be - and frequently was - more flexibly achieved within ordinary corporations: lenders simply required directors personally to guarantee a loan.

The reverse did not generally apply. There were, it is true, some conservative mutterings against western corporate laws (Rosenthal and Wong, 2011, p. 94), but multicultural political correctness on this issue did not commend itself to all contemporaries. Many Chinese entrepreneurs preferred to register in Hong Kong rather than with Qing bureaucrats, native Taiwanese evaded their racial restriction to traditional *ho-ku* by forming corporations with co-opted Japanese shareholders (Wang 2000, pp. 156-7), the *colons* of Indochina bemoaned their slower corporate development than neighboring British colonists (*Bulletin 1910*, p.1) and French economists openly wondered whether the more liberal corporate laws of Belgium deserved emulation. Much modern work on path-dependency and the deep historical roots of development reminds us of the difficulties of changing developmental trajectories, but we should not forget that nations do sometimes achieve that change. The evidence seems clear that promoting easy incorporation was one way that progress could be made in encouraging the competitive diversity that helps in overcoming pervasive developmental logjams. The twentieth century simply did not treat form as unimportant: on the contrary the numbers of corporations massively increased in all countries, 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: the historical literature supports the view that there are - sometimes moderate, sometimes weaker - links between corporatization (and other aspects of financial development) and economic growth (Rousseau and Wachtel 2011, Foreman-Peck and Hannah 2013). Modern World Bank studies of business enterprise have also found a significant relationship between the ease of incorporating a business and the pace of economic development.⁷² In a world of path-dependency and information asymmetry, widespread adoption is not conclusive proof of optimality (and there are many interesting issues about whether something better would have been possible), but - unlike today's defense of intellectual property rights by foisting their patent laws on others by countries that did

⁷² The studies are reported at www.worldbank.org. Bruhn (201) argues that recent Mexican registration reforms increased corporate numbers by 5%, wage employment by 2.2% and reduced incumbents' profits by 3%.

not themselves respect such rights when they were developing - there is little evidence of coercion by the self-interested in the “imperialist” spread of the Anglosphere’s corporate law.

But what exactly did corporations contribute that other forms of business enterprise could not as easily (or as profoundly) reach? The traditional answer has been that by combining the resources of multiple owners they gave access to cheaper finance for economies of scale that would not have been available to individual proprietors with lesser resources seeking to attract funds from outside creditors or investors without the liquidity and risk benefits of the corporate form.⁷³ That argument applies mainly to large, stock-exchange-listed companies in railways, steel mills, multi-branch banking or electric power and thousands of such companies (as table 3 shows) had multi-million dollar capitals. Berle and Means believed that such public companies were “so essentially different in character that they must be regarded as distinct institutions” from private companies (Berle and Means 1937, p. 418). In the decades after 1910, however, such sectors were declining in relative importance (despite expanding scale economies in some industries), as wars, revolutions and market crashes restricted or closed stock exchanges; government securities increasingly crowded out quoted equities; and technologies like automobiles, electricity and telecoms depended more on family enterprises (Ford, Fiat, BMW, Siemens, Bosch, Michelin) and tax-financed state undertakings (Volkswagen, Shanghai Automotive, roads, electric power and telephone networks) than had railways, the enterprises that dominated corporate funding of scale economies by nineteenth century stock exchanges.⁷⁴ Giant companies also pose dangers: incumbent companies enjoying market power initially driven by scale economies may resist disruptive change by all means at their disposal, including political lobbying. Crony capitalist distortions may lead to business rent-

⁷³ While the Coase (1960) theorem has been used to argue that the liability structure is not important, the existence of transaction costs in monitoring makes limited liability an attractive option (Jensen and Meckling 1976, p. 331). However, there is an extensive modern literature arguing that limitation of liability is not essential to the corporate form, a view which acquires some credibility in light of the fact that in 1910 California had more corporations per million people (Commissioner 1911, p. 75) than anywhere on earth, yet did not introduce limited liability until 1931.

⁷⁴ Rajan and Zingales (2003). The decline of the ratio of equity capitalization to GDP in France, Germany, Denmark and Sweden was already massive before World War Two and even the US ratio belatedly declined after achieving a peak level in 1929 similar to Europe’s in 1913.

seeking overwhelming the creation of new wealth, as in some enclave economies or in recent excesses by politically-favored financial institutions.

However, we have noted that the spread of *small private companies* was also significantly differentiated internationally: being more common in many advanced economies (and some developing ones) than in others. Today the dominant corporate business form is the private limited company. Something more was going on in the twentieth century than increased scale: it was the promotion of disciplined pluralism through encouraging new entry. This was less evident than scale economies in the enclave economies at the top of the corporate size table, but flourished in North America and much of Europe and Asia-Pacific. That may have been no less critical for future growth. The most plausibly distinctive service provided by the *private* corporate form was that of limiting the downside risk of capitalists and entrepreneurs, so that they were more willing to innovate and take risks. This benefit was not a free good. The US - and similar promiscuously pluralist economies - not only had more corporations, but also many more corporate failures than those who chartered less freely and relied more on central direction by governments and core crony firms.⁷⁵ In more pluralist systems experiment and innovation were encouraged, but when they failed they were frequently and unceremoniously terminated. Corporations thus generated high social costs: it was the creditors of failed entrepreneurs who shouldered these risks of limited liability.⁷⁶ Analysts of successful economic institutions do not usually argue that this is a good idea: on the contrary allowing entrepreneurs to enjoy upside benefits to the full while externalising their downside costs is usually

⁷⁵ only about a quarter of US companies established before 1914 survived to that year; in continental Europe the proportion was nearer a half. However, it may be that the high pre-1914 corporate failure rates, especially noticeable in the US, were merely a consequence of the spread of the corporate form to firms which would have remained simple partnerships in other jurisdictions. Such multi-owner firms elsewhere no doubt had a similarly high failure rate, albeit in bankruptcies that enforced greater liability on principals and paid greater respect to the property rights of creditors (Jobert and Chevalier, 1986)

⁷⁶ An alternative argument is that creditors knowingly accept these risks (that is why the law usually requires limited companies to include Ltd, Inc. etc. in their names) and that anyhow - along the lines of the classic Coase (1960) theorem - liability rules are irrelevant, as long as liability is assigned to someone. As with many economic theorems, this is seriously unconvincing, but it provides a useful baseline for assessing why liability rules may actually matter. It should be noted that the political acceptance of capitalism depends partly on the perception of a fair distribution of property rights and that not all creditors are voluntary (in the sense that they have contracted the debt understanding and negotiating its terms): they may for example be tort claimants or day laborers.

believed to reduce economic welfare. Were corporations really different or did society pay a high price for what ought really to be considered a foolish institutional innovation?

The argument in favor of the private corporation is essentially that competitive assortment of a myriad of small corporate foundations driving Schumpeterian creative destruction - multiple innovations and widespread bankruptcies - increases the rate of successful innovation, so politicians are wise to socialize as well as privatize at least some of the associated risks. Desirable as it might be to measure the net benefits of this complex process of creative destruction, it is difficult with the available corporate data. We cannot easily measure the additional investment induced by limited liability (though see Foreman-Peck 1990); the role of limited liability in disciplining monopoly (John et al 2005); the benefits of risky experimentation that would have been shunned by full liability partnerships,⁷⁷ against the large social toll of creditors' (and shareholders') losses from the unpaid debts of corporations, relative to those of principals with full liability. This social downside had nurtured continuing opposition to the granting of general limited liability in mid-nineteenth century Britain and America (Kessler 2003, pp. 531-2, Bryer, 1997, pp. 45-8) and legislators later struggled hard (and often ineffectually) with corporate transparency laws, prospectus regulation and bankruptcy laws to magnify the positives and limit the negatives. Nonetheless, to borrow a phrase from an observer of Victorian skulduggery, "dishonesty magnificent in its proportions" (Trollope 1883) has recently reminded us of the downside of corporate fraud and hubris encouraged by limited liability: from Enron and Lehman Brothers, through Parmalat and Northern Rock to Olympus Camera .

The notion that economic growth in the Anglosphere was mainly driven by corporations fostered by flexibly innovative legal systems, while, say, Latin America, France and Japan were

⁷⁷ In principle something might be done with corporate and non-corporate patent statistics but we are not aware of that having been systematically attempted. In the special case of UK banks before 1914 (whose liability varied from completely limited to completely unlimited) there is clear evidence that limiting liability increased banks' appetite for risk (Grossman and Imai, 2012), though, of course, as our present discontents in that department suggest, the optimal level of risk-taking is not the maximum.

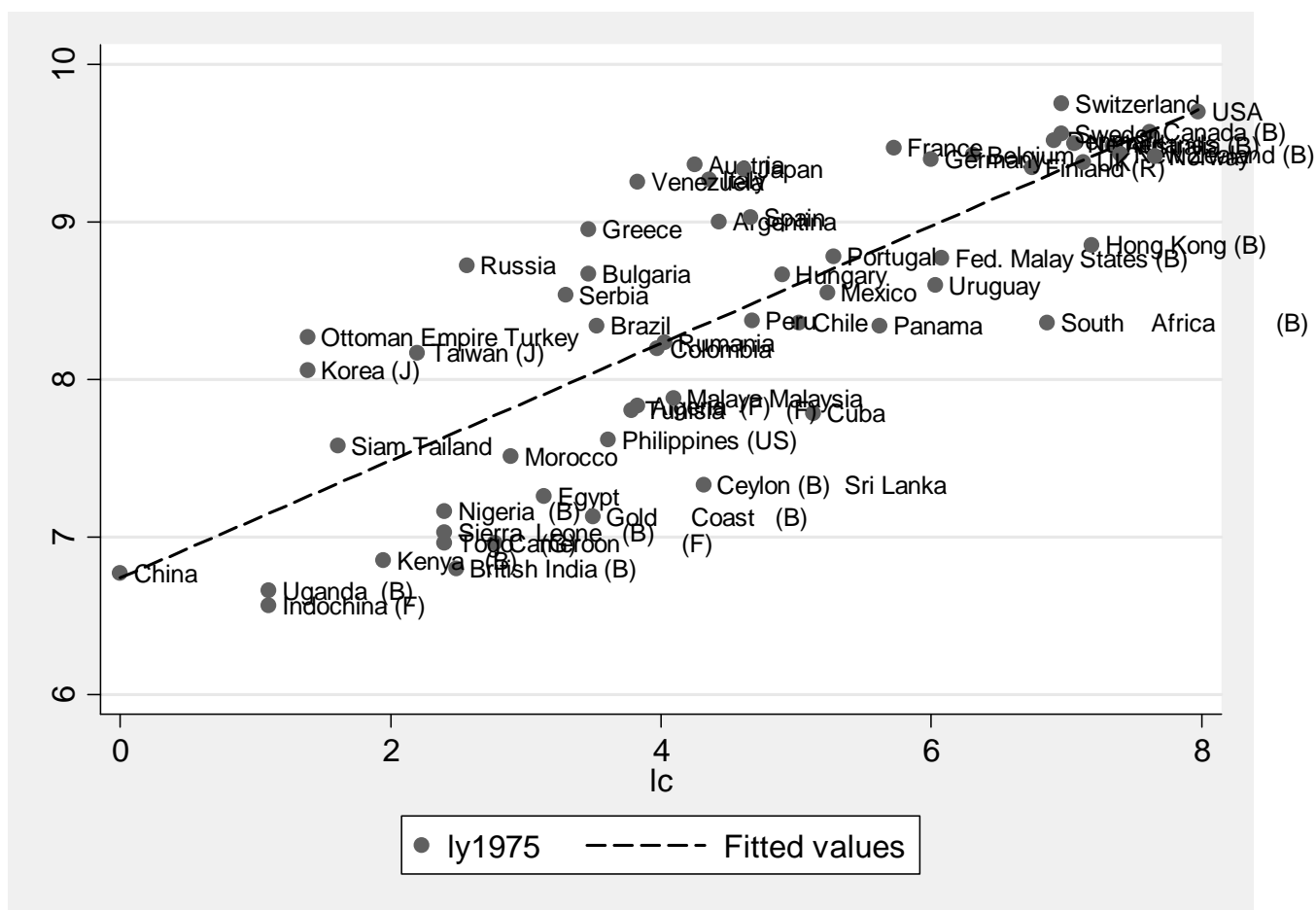
handicapped by a legal institutional pathology denying them similar corporatization and growth appears over-simplistic. The Scandinavian examples show that civil law could sometimes warm to corporations. Even civil law countries like France and Argentina that had relatively few corporations were already comfortably rich in 1910. Common law Malaya and Singapore had proportionately more corporations than civil law Japan, but were a little poorer. While cheap incorporation and flexible corporate laws promoted corporatization, other factors - perhaps various mixes of poor human capital endowments, inequalities inhibiting entrepreneurship, and baneful political, cultural or trade influences - slowed down the symbiotic growth of both corporatization and living standards in many developing countries. (Foreman-Peck and Hannah 2013 and see Appendix 3, below) In the twentieth century, it was often changes in these other variables, rather than in corporate laws, which enabled societies like the Asian tigers (not all of which began the twentieth century with high levels of corporatization) to reverse the divergence of their living standards from those in the west and at the same time to adopt the corporate form more wholeheartedly. Cheap, easy and flexible incorporations that were once concentrated in common law countries are, of course, only part of that story, but one which countries with civil law systems - especially the more sclerotic ones - were probably very wise to encourage.

Appendixes 1 and 2.

These are 140 pages long. The sections on individual countries can be made available on request to the author (lesliehannah@hotmail.com).

Appendix 3. Abstract from Foreman-Peck and Hannah (2013).

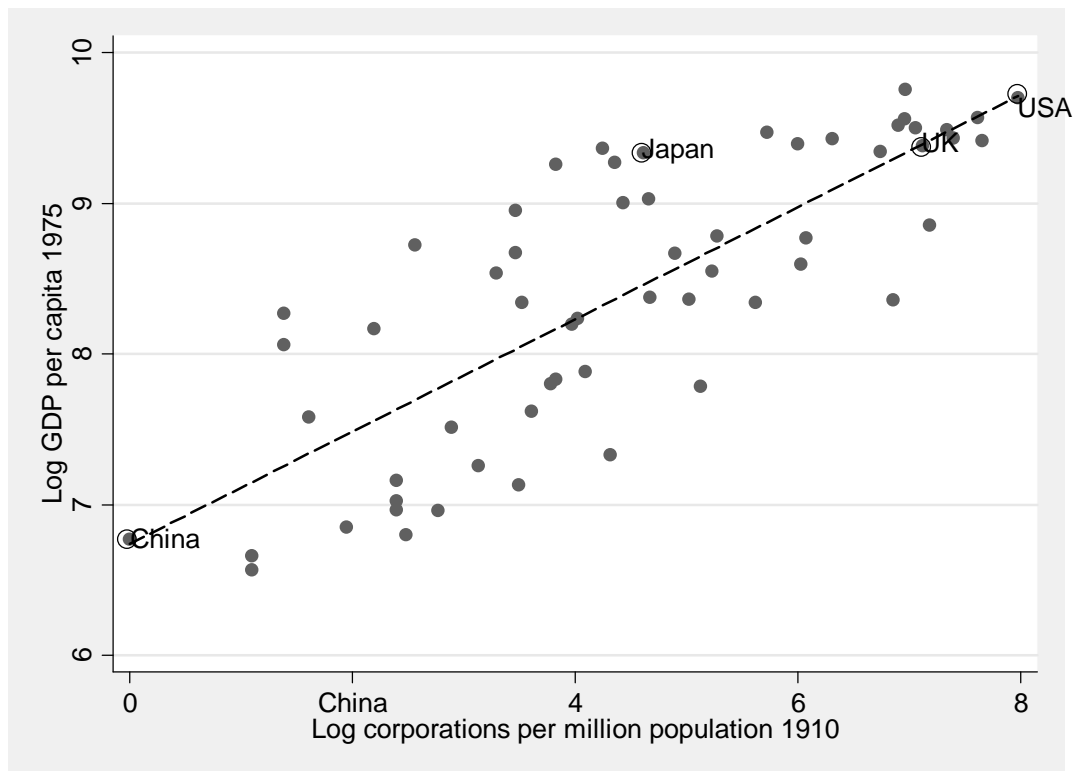
Log GDP in 1975 predicted by log corporations per head in 1910



The association of corporatization with high subsequent real incomes per head is confirmed by regression analysis. It might be thought the correlation arises because corporations per head in 1910 are correlated with GDP per head around that time (which is true), and the real association is between GDP in 1975 and in 1910/1913. However including 1913 GDP in the OLS regression, although markedly reducing the size of the coefficient on corporations from 0.36 to 0.13, does not eliminate its statistical significance.

What does it mean to say that corporatization in 1910 predicts GDP per capita in 1975? At one level, simply that those influences that boosted earlier corporatisation, unmeasured here, also seem to have enhanced subsequent GDP. The implication then is that corporatisation need have played no causal role at all; it is the correlation of the unmeasured influences with corporatisation which prevents the identification of corporatization's true effects on 1975 GDP. An approach to controlling for such unmeasured, and perhaps unmeasurable, influences on 1975 GDP is to instrument log of corporations with Scandinavian civil law and log of 1913 gdp. This yields a highly significant larger coefficient on corporatisation of 0.425. So it does look as if there is some evidence that corporate

development before the First World War laid the foundations for development half a century later.



The 'cleaned up' scatter diagram above can be interpreted as showing that the Japanese approach to industrial organization was different and no less effective. Whereas China, the US and the UK all lie on the line of best fit, Japan in 1975 had almost attained the UK's per capita GDP despite much lower earlier corporatization.

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