

Global equity markets in 1900: Why were East Asia and the USA so far behind Africa, Australia and Europe, and did it matter?

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ABSTRACT

This paper describes the domestic corporate equity quoted on the world's stock exchanges at the beginning of the twentieth century. It suggests:

1. US businesses - and, in some respects, Germany's - were dominated by plutocratic family ownership, and these countries had small metropolitan stock exchanges, relative to their economic size.
2. Britain and France showed the highest levels of divorce of ownership from control, and (with Belgium and the Netherlands) had the strongest equity culture.
3. South Africa, Egypt, India and Austria had proportionately more access to metropolitan equity capital than Italy or Japan. Australia and Canada were not obviously disadvantaged, in terms of stock market development, relative to the USA.
4. None of this mattered, at least in any simple way, for their future economic growth: divorcing ownership from control caused as many problems as it solved; capital had many other channels through which to flow; and the capital that flowed through stock exchanges was not necessarily the most productive.

Many of the world's financial economists, investment bankers and corporate lawyers gathered in June 1900 at the Congrès International des Valeurs Mobilières in Paris, one of more than a hundred academic and practitioner conferences held there in that centenary year.¹ Paris was certainly then the place to be – it was the year of the most popular ever World Fair, and was full of Americans - but this particular finance conference was (unbelievably to any modern financial economist!) light on Anglo-Saxons of all stripes.² This perhaps explains why the internationally comparative quantitative research of that generation of francophone finance specialists has been largely ignored in the English language literature.³ This article recovers some of their long-lost findings, integrating them with some additional data generated by the research on long-run stock market performance by London Business School/ABN Amro and by Lyndon Moore of the Victoria University of Wellington, to provide a snapshot of the

¹ Although not acknowledged as editor of these conference proceedings, it is clear that the true *animateur* of this event was Alfred Neymarck, brother of Pierre, the editor of *Le Rentier*, and member of the Paris Statistical Club. He regularly updated the statistics and coordinated international collaboration on finance research at least up to World War I.

² The official list mentions only Professor David Kinley, of the University of Illinois at Urbana-Champaign, Alfred Marshall of Cambridge, and a British Treasury official among several hundred participants from francophone Europe, Germany and Latin America.

³ Neymarck in his opening comments (Anon., *Rapport*, p.43) predicted: “L’attention des historiens sera plus tard vivement sollicitée par les phénomènes de cet ordre.” But he could not have been more wrong. Neymarck’s 1900 figures were sometimes quoted by his Anglo-Saxon contemporaries, sometimes without attribution, see Martin, *New York*, p. 90-91, sometimes with, see Conant, “World’s Wealth,” pp.98-99. Brief selections from the 1900 proceedings were translated into English and reproduced, with acknowledgment, by the US Government Printing Office ten years’ later in Vidal, “The History.” They then seem to have been forgotten, though a reference to Neymarck in Ranald Michie’s *Palgrave* entry on stock exchanges first alerted me to the existence of his large body of publications. French scholars have cited the work more often, but have exploited it principally as a domestic source, of which it is one among many on what was then certainly the best researched capital market.

world's leading stock markets at the beginning of the twentieth century.⁴ The result is a useful corrective to the misinterpretations of Anglo-Saxon hindsight that mar some current perspectives on the evolution of national capital markets.

II

National Stock Markets: Size and Composition.

On Tuesday 2nd January 1900, the main stock markets of the world opened for business (Brussels was the only major market to have resisted the Scottish custom of closing on New Year's Day, and most stock exchanges were also adopting the "English weekend", that is the rich man's habit of working only in the morning on Saturday). The Australasian markets opened first, but most of the world's serious trading was centered on Europe, whose exchanges typically opened nine or ten hours later. International traders then had an easier time than now: the two key international markets, Paris and London, were conveniently separated only by a (sun-determined) twelve minutes time difference, barely noticeable on the new telephone line that had linked them since 1891, though it was to be a few more years before other European exchanges supplemented their telegraph links with voice.⁵ The only really large extra-European stock market, New York, a precocious outlier of that financial world, inconveniently lagged London by 4 hours and 56 minutes, and it still lay beyond telephonic reach of the main financial centers. Nonetheless, most of the world's stockbrokers could consult the main international closing prices of 1899 in their New Year financial newspapers: the

⁴ Dimson, Marsh and Staunton, *Triumph*. Lyndon Moore and other participants at a Tokyo 2006 workshop greatly improved this draft. I am particularly grateful to Lyndon for his open-minded generosity with his data, enabling me significantly to widen the coverage of Table 1. All errors are mine.

⁵ Michie, *London and New York Stock Exchanges*, pp. 44-45.

international submarine telegraph enabled rapid reporting of the key European markets, even in New York.

These brokers faced domestic equity markets with the opening market capitalizations shown in Table 1.⁶ These equity valuations are mainly based on the previous weekend closing prices of what in British English were called ordinary shares of companies, though Americans were moving towards an alternative terminology: common stock of corporations.⁷ Some domestic firms were only (or also)

Table 1

Stock Market Values of *Domestic* Corporate Equities quoted on some major national exchanges at the beginning of 1900.

Country (and Stock Exchange)	Number of listed companies	Value of domestic corporate equities at market prices				Average listed company size (\$M)
		Total (\$M)	Per Head (\$)	Ratio to: :GDP %	:All Securities Quoted There %	
Egypt (Alexandria)	63	622	61	215	100	9.9
South Africa (Johannesburg)	na	527	105**	high	na	na
Belgium (Brussels)	163	723	108	65	47	4.4

⁶ In the table and text all currencies have, except where otherwise stated, been converted to 1900 \$US at the following rates: £(Egyptian)=497.4c, £(sterling)=486.7c, Chinese tael=149.4c, Russian rouble=51.0c, Japanese ¥=50.0c, Austrian florin=40.4c(kroner half that), Dutch guilder=40.2c, Nordic crown=27.0c, Reichsmark=24.0c, Belgian, French and Swiss francs=19.3c, Italian lira=18.1c, Spanish peseta=14.9c. As a matter of long-standing convention, US securities were quoted in Europe in sterling at a nominal rate of £1=\$5, but all American values in the text have been converted at the correct market rate. I have used the word equity to include only ordinary shares (common stock) and equivalents, but preference/preferred (though often fixed interest and non-voting) are technically also equity.

⁷ People like the Englishman Montagu Norman (taking up a partnership in his grandfather's New York firm in 1900) or young Jack Morgan (in London as a partner in his father's firm there) had to be careful when speaking mid-Atlantic English. "Corporation stocks" in the British financial press were municipal fixed interest securities; and "stocks" of UK companies had a different and precise legal meaning than shares (stocks, for example, had to be fully paid-up). However, I use both terms interchangeably in the now generally accepted mid-Atlantic sense.

Netherlands (Amsterdam)	237	434	84	60	na	1.8
UK (London)	744	4,300	104	49	10	5.8
France (Paris)	430	2,540	65	40	10	5.9
Australia (Melbourne)	130	231	62**	25**	73	1.8
(Sydney)	na	360	96**	39**	na	na
Switzerland (Zürich)	69	182	55	na	na	2.6
Canada (?)	na	235	43	23	na	na
Russia (all exchanges)	na	1,557	13	?	23	na
Austria-Hungary (Vienna)	na	925	20	21	16	4.6
Germany (Berlin)	719	1,580	28	20	10	2.2
USA (New York)	123	2,860	37	15	15-25	23.3
Italy (all exchanges)	119	360	11	14	11	3.0
Spain (Madrid)	na(123)	151	8	1?	na	(1.2)
Japan (all exchanges)	na	162	4	13	41	ca.0.44***

**Technically Australia and South Africa did not exist (as countries) in 1900. Yet Sydney and Melbourne already provided capital continent-wide and Australia is therefore taken as the denominator. The Australian data relate to September, rather than to early January 1900. The South African Republic (i.e. Transvaal, in which Johannesburg, the major exchange, was mainly run by and for German, French and British nationals) invaded its neighbour, Cape Colony, in 1899, so was soon to be part of a new Union of South Africa, whose total population is used in the denominator. A stricter definition of country by January 1900 conventions would propel both further up the table.

***estimated, for the top two exchanges only, on the basis that Tokyo (with 96 firms) and Osaka (with about 50) together accounted for 40% of all 38 Japanese stock exchanges' market values.

Na. Not Available

Source: unless otherwise stated the data comes from Alfred Neymarck's collection of the papers prepared by national experts for the *Congrès International des Valeurs Mobilières* in Paris in 1900, with his later follow-up reports. The US and UK data are from Dimson, Marsh and Staunton, *The Triumph of the Optimists*. The Melbourne data is from Hall, *The Stock Exchange of Melbourne*. The South African, Swiss, Spanish, Canadian, Sydney and Dutch data is from Lyndon Moore's unpublished database; in the case of Amsterdam it relates to August 1900, and of Johannesburg to January 1902 (the Exchange had earlier been closed by the Boer War); in other cases it relates to 27 January 1900, that is a little later than the year opening figure used by Neymarck and Dimson et al. The Alexandria estimate is based on the 31 December 1899 Suez Canal (accounting for half the total, and including the unlisted 40% British government holding) plus Neymarck's figure for other Cairo-listed firms in January 1906 (the first available).

quoted abroad, but the national aggregates in the table only include *domestic* companies quoted on the appropriate *national* exchange. London's total in the table includes British-registered, London-quoted companies with substantial UK operations; but it excludes the many British-registered and London-quoted "free-standing companies" essentially operating abroad, with little more than a brass plate, board members and a rented boardroom in London. It also, of course, excludes the large London markets in foreign and colonial railway and other corporate securities (though some are listed under the appropriate country, if there was also a domestic market in them there). These were actually bigger than the London market for domestic corporate securities, at a time when the New York market was almost purely national.⁸

In 1900, the world's businessmen, merchants and stockbrokers were of multicultural origins and maintained, in some cases, a cosmopolitan outlook; to a

⁸ judging by the nominal values of all issued securities (including debentures and preferences as well as ordinaries), London-quoted foreign railway securities alone had a nominal value of \$9.0 billion, compared with \$5.0 billion in home rails, and \$3.8 billion in (mainly domestic) industrial and financial securities, see *Stock Exchange Official Intelligence 1900*, pp.2636-7.

modern, they were also surprisingly free of passport controls, restrictions on capital movements and national business rules. Buying an American share in Paris or Amsterdam with sterling and selling it in London, crediting the proceeds to a German bank account, would today beat all but a hardened market professional with a lot of time and high tolerance of transaction costs, but was relatively easy for the innocent retail investor then and carried zero risk of criminal investigation as a money launderer. Only the British and a few others seriously tried to collect income and inheritance taxes from foreign investors, though many governments (including, from 1905, New York) levied some kind of stock exchange turnover tax.⁹ A resolution of the issue of corporate nationality and primary stock exchange quotation in such a world is not possible without a clearly determined and consistently applied set of decision rules, but the sources used in Table 1 do not always clarify how borderline cases were actually treated and the required information (for example, on nationality of shareholders) may not have been generally available. Fortunately, the registration of a company, its main place of business, its management, and its main stock exchange quotation (though, less rarely, its share-ownership) were all in only one country in the vast majority of cases that are clearly at issue, so this problem is unlikely to invalidate the results. However, it may lead to an overestimation of “domestic” issues in cosmopolitan European markets relative to parochial New York.¹⁰

If the data in the second column of Table 1 can be taken at face value, then they indicate that, at a time when Europe (excluding Russia) accounted for two and a half times as much of the world’s real GDP as the USA, the five major European stock

⁹ Leroy-Beaulieu, *L’Art*, pp. 310-11, but obviously not always, see Cosson in Anon., *Documents*, p.10.

¹⁰ I suspect the Brussels and Amsterdam figures, in particular, have not been properly purged of companies primarily operating overseas.

exchanges shown in the table together listed more than four times as much domestic corporate equity as the New York Stock Exchange.¹¹ London - capital of a country with half the USA's GDP - was still, in absolute terms, larger than New York, even for domestic corporations alone, and, if its international listings were also considered, massively larger. Paris - with a national GDP only one third the USA's - was not much smaller, and, again, larger if its quoted international equity is considered. The other surprisingly small market is Berlin. Germany was the largest economy in continental Europe, but its main stock market listed less than half as much domestic equity as the central bourses of France and not much more than Austria-Hungary, or Belgium, the latter less than one-fifth Germany's size.¹²

The third and fourth columns of Table 1 provide the most convenient way of making international comparisons of the apparent penetration of corporate equity in the various economies, but should be interpreted with care. The column showing quantity per head of population, for example, cannot be interpreted as an average holding within the country. As so many New York listed equities were then held in Europe, the average US citizen's holding of NYSE-listed equities was certainly lower than this figure; whereas, given the prevalence of foreign corporate equity listed on London but excluded from the

¹¹ Maddison, *Historical Statistics*, pp. 85, 233.

¹² Note that this is for domestic *equity* only; for *all securities* (including government, municipal and corporate bonds and foreign stock and bonds in 1895-99, Neymarck reckoned the ranking of European countries was different: in descending order of size, Britain was still dominant, followed by Germany, France, Austria, Russia, Italy and the Netherlands, with Belgium last, see Anon, *Documents*, vol. 2, p. 5. He did not rank the United States, feeling there was too much double counting in the US issue data, but several later writers have suggested American stock markets were the largest in the world already in 1900. That was not true of NYSE-listed equities, but, for those interested in different questions than those addressed by the present paper, alternative definitions may be appropriate. American stock markets look quite large if you are prepared to follow a common practice in the literature and omit foreign and government securities from European bourses and/or count the par value capital of all American incorporated enterprises as quoted (whether they were quoted in New York, elsewhere, or *not at all*: the latter being the state of all but a small proportion of them, whereas in Germany in 1900, for example, most AGs were quoted somewhere!). For alternative approaches, see Rajan and Zingales, "Great Reversals;" Goldsmith, *Comparative National Balance Sheets*.

table, the average UK citizen's holding of London equity was certainly higher.¹³ The "equity culture" was clearly more widespread in Britain at this time: it is generally accepted that the UK had the more experienced and sophisticated investors then.¹⁴ Given Germany's foreign holdings, moreover, it would be rash to conclude, solely on the basis of this evidence, that the USA had a more developed equity culture even than Germany.

The figures broadly suggest that a large pool of domestically quoted corporate equity was a characteristic of rich countries, even those, like Australia, on the periphery, but there are some startling exceptions: the two countries topping the list (arranged in descending order of their ratio of equity capitalization to GDP) are poor African ones. The average ratios of domestic equities (quoted on domestic exchanges) to GDP reported by the World Bank a century later – around 55% for "high income" countries and 15% for "low, middle income" countries – describes the range already attained on these markets in 1900.¹⁵ As the modern World Bank yardsticks would suggest, developing, low-middle income economies like Italy, Russia and Japan were then the home of family firms: their quoted companies still had the limited role indicated by their low corporate equity/GDP ratios in column 4.¹⁶ Railways, banks and cotton companies in Japan were

¹³ Bacon, "American International Indebtedness," p.276, estimated overseas holdings in 1899 of US securities of \$3.33 billion, but this included bonds and non-NYSE securities; comparable US holdings overseas were only \$0.5 billion.

¹⁴ Davis and Cull, *International Capital Markets*, p.71. The same goes for France, which was a major market for European foreign shares. The tax returns (which are likely to understate French holdings) suggest a 1900 value of foreign corporate equities held in France of \$375 million, see Anon, "Sociétés," pp. 394-99.

¹⁵ Demirgüç-Kunt and Levine, *Financial Structure*, p. 93. Now, as then, there remain significant differences among advanced countries, with no regression to the mean: Australia, Britain and Germany maintained their extreme positions, while others "over-converged" well beyond the mean. The early 1990s ratios are: Australia 71%, Austria 12%, Belgium 36%, France 33%, Germany 24%, Great Britain 113%, Japan 79%, USA 80%.

¹⁶The highly profitable, family-owned Japanese cigarette industry was (on the basis of multiplying what James Duke in 1900 paid for a quarter of it by four) worth \$80 million, nearly half as much as all Japanese quoted companies (Commissioner, *Tobacco*, vol 1, pp. 83-84.). The largest family-owned conglomerate

traded on the major stock exchanges, but, overall, families and trade credit were far more significant in financing Japanese enterprise than stock exchanges.¹⁷ However, the more advanced countries show surprising variations unrelated to their relative levels of development (at this time Belgian and UK per capita GDP levels were roughly similar to the USA's, with France and Germany around two-thirds of the U.S. level).¹⁸ Other things being equal, the table implies that modern techniques of financing corporations from the public markets as well as (or instead of) from their family owners had proceeded furthest in Belgium, the Netherlands, Britain and France. Germany and the USA, by contrast, had corporate equity/GDP ratios that the World Bank now associates with "low, middle income" countries, not rich ones. Indeed their ratios of domestic equity capitalizations to GDP were possibly still below the levels attained by the London Stock Exchange in the 1840s.¹⁹

The average size of companies is given in the last column of Table 1, but also requires careful interpretation. Critics of British financial institutions sometimes identify as a major failing the "Macmillan Gap" – the weakness of the stock exchange as a supplier of finance to small companies – and the fact that, on average, London-quoted companies were the largest in Europe seems to confirm this. Yet the *median* London-

enterprise at the time, Mitsui, had a capital of \$111 million and annual profits of \$12.2 million. Clearly, if floated on the Tokyo Exchange, it would have dominated.

¹⁷ Miwa and Ramseyer, "Industrial Finance." The par capitalization of all private railways in Japan in 1900 was ¥181 million (*ibid.*, p.31.) which, given rail stocks were above par, is compatible with the ¥228 million shown in Table 2. Railway capital was marketed directly to investors and traded over the counter as well as on exchanges, see Kasuya, "Securities Markets," p. 203. But Hamao, Hoshi and Okazaki Table 6 suggest the 96 firms quoted on Tokyo alone had a nominal paid in capital of \$202 million in 1900 and that they may perhaps account for only a third of Japanese listings. Unless market values were well below par (which was not generally the case) it is difficult to reconcile these figures.

¹⁸ Maddison, *Historical Statistics*, gives 1900 GDP per capita (in 1990 Geary-Khamis dollars) as \$4,492 in the UK, \$4,091 in the USA, \$3,731 in Belgium, \$2,895 in Germany and \$2,876 in France.

¹⁹ Spackman's £150 million estimate of the paid-up capital of companies quoted on the London Stock Exchange in 1842 (Morgan and Thomas, *Stock Exchange*, p. 279.) is at nominal not market values and includes at least £6 million of foreign companies and some corporate debt, but amounts to 33% of 1842 GDP.

quoted company was quite small: London had as many small quoted companies as Germany and more than any other continental country.²⁰ The London and Berlin stock exchanges had most listed companies, and were particularly hospitable to small enterprises, a type of listing that was most obviously disdained in New York. Of course the smaller issues had very thin markets, but the fact that they were listed indicated London brokers' readiness to deal.²¹ The minimum size of issue required for London listing was generally £100,000 (about \$500,000), a limit occasionally flexed downward; on the Berlin, Frankfurt and Hamburg exchanges it was a legally specified and inflexible 1 million marks minimum (about \$250,000), with half that level permitted on smaller exchanges.²² The NYSE listing committee rarely looked at new companies under several million dollars: hence New York's "top" ranking in the last column.²³ Dozens of modestly-sized local breweries were quoted on both Berlin and London, but not a single one was quoted on New York.²⁴ The American breweries with quoted stocks were listed

²⁰Note the numbers of companies in column 1. Data on the medians are not available, but the median can be approximated by estimating the impact of the values of large firms in the two countries on the means. Germany had far fewer large quoted firms, because her railways were state-owned, see p. 00 below.

²¹ Michie, *London and New York Stock Exchanges*, p. 272.

²²Jordan and Gore-Brown, *Handy Book*, p. 230. Watson, "Banks," p.59. Of 327 British brewing issues in 1886-1900 examined by Watson, 28 were for sums less than £50,000 (though these would probably have been provincial, not London issues). In fact London costs (some of which did not vary with issue size, so bore down heavily on small issues) were such that issues near the lower limit were rare. For the German regulations, see Schuster, "Promotion," p. 18.

²³ Lyons, *Capitalization*, pp.206-208. Lyons suggested that a listing was only strictly necessary for issues of \$15 million up; see below p. 00, for the proliferation of less formal markets in the USA. There were of course a large number of NYSE stocks with lower equity capitalizations: the restriction applied to par values, not market prices, and many unsuccessful flotations fell to way below par, though ultimately stocks with continuously low values were de-listed.

²⁴ The greater importance of breweries in Europe requires multiple explanations. Partly, Europeans were simply more addicted: US beer output in 1900 was 46 million hectoliters (60 liters per head per year), the UK's 60 million (146 liters per head) and Germany's 71 million (131 liters per head). (Mitchell, *International Historical Statistics: Europe*, pp.555-6; *The Americas*, p.398.) This comparison understates European alcoholism since American beer was very weak: one British director of American breweries unaffectedly described their product as "non-intoxicating." (O'Hagan, *Leaves*, p. 294.) Partly, as stated in the text, Berlin and London were more hospitable to quoting medium-sized companies: and breweries, particularly in Germany, were not large. Finally, UK breweries tended to be larger than those elsewhere: in a company like Guinness and some of the Burton breweries because of very large scale production and

regionally or on London: the latter are, of course, excluded from the UK's total in the table as "non-domestic".²⁵

The low average size of Japanese or Italian quoted companies, on the other hand, derives principally from their early stage of development and correspondingly smaller scale of enterprise.²⁶ The Japanese Stock Exchange Act had recently reduced the legal minimum size for stock listing from an already low \$50,000 to \$15,000.²⁷ One indicator of the small size of companies there is that it was the custom, until the 1920s, for Japanese companies to list all their shareholders by name in their annual reports!

The London Stock Exchange not only listed many more small domestic companies than New York, but also more large ones above \$80 million market capitalization.²⁸ The largest firm on any of these exchanges at the beginning of the twentieth century was the London & North-Western Railway (LNWR), which linked the world's largest city with the industrial heartlands of Lancashire (which, at that time had a population larger than Philadelphia, Boston and Chicago combined) and the Midlands. Its equity capitalization was \$405 million, so "Brums," as the shares were known in stock

successful branding and exporting; and in the case of many also because the restrictive UK licensing laws encouraged forward integration to pub owning to secure a share of the politically limited number of retail outlets. This created an enormous demand for brewery capital for property purchase rather than manufacturing assets. This property asset backing also explains why the British breweries were disproportionately financed by fixed interest securities rather than equity, see p. 00, below; and also why they were so large in capital terms. The proportion of the largest British industrial companies accounted for by breweries in the early twentieth century was an astounding 31%, compared with only 4% in the USA and 0% in Germany: German breweries were plentiful and quoted, but only medium-sized. For these percentages, compare Kocka and Siegrist with the US and UK populations described on pages 00-00 below. It is possible the number of large US and German breweries is understated by these statistics because of under-reporting of unquoted breweries there, but the general picture is correct: being a brewer required massively larger capital in Britain. Of course, some US breweries were locally quoted, see Legler and Sylla, "Integration," p. 139 for a New Orleans example.

²⁵ For British company promoters in the USA, see O'Hagan, *Leaves*, I, pp. 294-301.

²⁶ The main Italian exchanges were in Rome, Milan and Genoa.

²⁷ Hamao, Hoshi and Okazaki, "Emergence." The main issues of Japanese railways were typically much larger, but Japanese lines were built to very basic standards: Dunn, Fischer (*Japanese Securities*, p. 15.) estimated the construction costs at £8,000 per mile, compared with £16,000 in the USA, £20,000 in Germany, £25,000 in France and £60,000 in Britain.

²⁸ Dimson et al., *Triumph*.

exchange *argot*, accounted for 9% of the total London equities in Table 1.²⁹ France's largest company, the Paris-Lyon-Méditerranée (PLM) Railway, linked the capital with France's second city, Marseilles. With \$286 million of equity, it accounted for 11% of Paris equity values.³⁰ A little larger – and claiming in its 1899 corporate history to be “the most valuable railroad property in the world” - was the Pennsylvania Railroad, linking Philadelphia and other Atlantic seaboard cities with Pittsburgh and points west to the Mississippi, its common stock capitalized at \$373 million.³¹ The Pennsylvania had long resisted a New York quotation (preferring its long-established listings on the Philadelphia and London exchanges), but perspectives were changing with the sale in the 1890s by foreign investors of all but 20% of what had earlier been a majority London-based stockholding. (European investors were concerned at the combination of low returns with the apparently high exchange rate risk, given the silver debate, and weak corporate governance, given US railroad financial scandals). The persistence of New York brokers in encouraging unofficial dealing in “Penns” (shipping the paperwork to the railroad's Philadelphia transfer and registration office, in the absence of the Manhattan office that the NYSE required) finally persuaded the Philadelphia-based board of America's largest railroad to relent. Thus, only one month before our benchmark date for

²⁹ Ibid., p. 23. “Brums” were LNWR ordinaries, “Haddocks” Great North of Scotland ordinaries, “Middies” Midland railway ordinaries, “Penns” Pennsylvania Railroad common and “Soups” Southern Pacific common! (Poley, *History*, p. 106.)

³⁰ 28 February 1900 calculation, with the denominator in the percentage calculation also for that date (Decoudre, in Anon., *Documents*, vol. 1, Table X). The PLM equity appears smaller than its American and English equivalents because it was much more highly leveraged than they. Including all its bonds, the total enterprise value of PLM was \$1,247 million.

³¹ Marsh, Dimson and Staunton, p.23. but Moody suggests \$340 million. Wilson, *History*, p. 1. Because the company had many opaque off-balance sheet obligations and did not consolidate the accounts of 126 companies in which it invested, while the British and French companies had already largely consolidated their balance sheets and centralized management of once-subsidiary lines, it is possible that its claim to be larger than the LNWR was, on some measure now lost, correct, but was not reflected in the parent company equity capitalization, see Burgess and Kennedy, *Centennial History*, pp. 460-61, 507-09, 804

the table, the NYSE belatedly listed its largest common stock, representing as much as 13% of all its quoted equity at year-end.³²

Evidently not all firms were born with equal access to stock exchanges: scale was a decided advantage and large businesses, particularly railways and banks, had earlier and more extensively floated their stock; manufacturing and mining firms had followed them and were by 1900 rapidly catching up; while firms in agriculture, the professions and distribution were rarely quoted. Table 2 disaggregates the national totals of corporate equity further, into three broad sectors: railways (then clearly the largest sector), financials (mainly banks) and what will hereafter be called “industrials”, though it is simply the residual sector (very substantially mining and manufacturing, but including also some utilities and other services).

Table 2

Sectoral Composition of Quoted Domestic Corporate Equities at the beginning of 1900

(in \$M and %age of total equity capitalization of the exchange)

Country (and Stock Exchange)	Financials	Railways	Industrials	Total
UK (London)	744 (17%)*	2,116 (49%)*	1,441 (34%)*	4,300
USA (New York)	192 (7%)	1,796 (63%)	872 (30%)	2,860
France (Paris)	612 (26%)	994 (43%)	714 (31%)	2,321
Germany (Berlin)	494 (45%)	95 (9%)	522 (47%)	1,110
Austria-Hungary (Vienna)	315 (34%)	361 (39%)	240 (26%)	925

³² The Pennsylvania Railroad continued to deal with London Stock Exchange on the basis that Philadelphia was the lead US exchange: their London agents were apparently unaware of the New York listing, see the correspondence on the London listing of a further tranche of Pennsylvania common, dated 28 August 1900 in Guildhall 67B200. They continued to maintain a London office.

Belgium (Brussels)	163 (23%)	193 (27%)	367 (50%)	723
Italy (all)	100 (28%)	143 (40%)	117 (33%)	360
Australia (Melbourne)	65 (28%)	5 (2%)	161 (70%)	231
Japan (all)	11 (7%)	114 (70%)	37 (23%)	162
China (Shanghai)	60 (39%)	0 (0%)	94 (61%)	154
Totals	2,756 (21%)	5,807 (44%)	4,565 (35%)	13,140

Source: as Table 1

- the British division is estimated from the sectoral composition of equity calculated by Dimson et al., of only the top 100 of a total of 744 listed firms. The result is very similar to an alternative division – 13%/54%/34% -suggested by a “representative” selection of 129 London securities published by the *Banker’s Magazine* (averaging \$22.9 million in size compared with the \$5.8 million average size in Table 1). As both these samples are confined to large companies, they will underestimate the size of sectors with a larger tail of small companies - possibly the industrial and financial sectors - consequently also overestimating the size of railway equity. However, there were small railways too. The par value of all British railway equity at the end of 1899 was £440 million (\$2138 million) and, if its market value exceeded par by the same average (53%) as the 19 representative home rail ordinaries surveyed by the *Bankers’ Magazine*, this would on 16 December 1899 have been worth \$3,262 million. Even allowing for some double counting from pyramided subsidiaries and some provincial quotations, the figure for London-quoted railway equity in the table is not obviously an overestimate. The sample may, then, not be unrepresentative of the actual distribution of the three sectors’ entire quoted equity.

Low percentages in some cells of this table clarify the important direct (if unintended) role of political choices in determining the size of national equity markets. For example, railways account for 44% of the overall totals in the table, but only 9% of German equities. Railways were important in generating stock exchange turnover: in

New York, for example, accounting for around two-thirds of turnover in the later nineteenth century.³³ Germany's railways – largely state-owned - were, necessarily, a big hole in the Berlin Stock Exchange's potential equity business.³⁴ Many countries had embarked on increased public regulation of railways (major new initiatives being taken in the USA, UK and France in the 1880s) and many by 1900 had some state railways (including Japan, Belgium, Austria and Italy), but Germany had taken the latter course of nationalization most resolutely. The German railway cell of the table simply values the small, quoted, German lines that still remained independent. Yet the Preussische Staatsbahn (recently merged with the Hesse state railways, to control most of the north German system), if privatised in 1900, would probably have been the world's largest quoted company.³⁵ The already anaemic Berlin exchange had received a further blow in 1896, when the government heavily restricted futures trading, effectively consigning this business to Paris, London and Amsterdam. Deutsche Bank, for example, moved its European arbitrage operations to London³⁶. Berlin was also less internationally orientated than the major European exchanges further west. The weakness of Berlin was not due to a lack of financial skills – émigré Germans formed a significant portion of the pool of human capital on which Wall Street and the City of London drew – but to government actions. Nor was Germany the only domestic continental equity market whose potential size was constrained by government ownership and regulation. It was difficult for a France in which tobacco, telegraphs and telephones were state-owned to match American

³³ Michie, *London and New York Stock exchanges*, p. 197.

³⁴ Though not in overall securities: state debt was high in Germany, partly to fund the railways.

³⁵ The Prussian system alone had cost \$1,920 millions to build (Fremdling, *Statistik*, p.75) so, even allowing for depreciation and some bond finance, it is easy to envisage its equity being floated for more than the LNWR's market value. The German railways overall had about half the capital assets and the same revenue as Britain's, Picard, p.356

³⁶ Jonker, "Competing," pp. 83-84.

levels of industrials in 1900. However, such sectors did not then have the critical importance of railways.³⁷

There is one other, notably gaping hole in Table 2: American financial stocks. These account for only 7% of New York listed equity compared to 21% in the table overall. This was not because the USA lacked banks: indeed it had 13,000 of them, while the UK and Germany had only 253 between them.³⁸ The interaction of state and federal regulation (particularly near-ubiquitous bans on bank branching) meant that all American banks were smaller than the great European banks; and they were typically personally-owned, closely-held and/or quoted on local exchanges, though some were NYSE-listed.³⁹ The United States then had no central bank, at a time when the Bank of England (equity capitalization \$237 million), the Reichsbank (\$46 million) and the Banque de France (\$147 million) were investor-owned.⁴⁰ In addition to acting as government bankers, note issuers, holders of bullion reserves and managers of monetary policy (roles that in the US were variously undertaken by state-owned plants, government departments and commercial banks), central banks then typically had extensive branch networks doing an

³⁷ Western Union and tobacco companies alone accounted for 14% of the market capitalization of NYSE industrials.

³⁸ Coffin, *The ABC of Banks*, p. 20; Woytinsky, *Die Welt*, pp. 283, 286. The figures exclude savings banks and mutuals which were particularly important in Germany.

³⁹ Banks like J P Morgan & Co were proprietary partnerships. Goldsmith (*Institutional Investors*, p. 45) suggested that the market value of corporate banks and insurance companies was 20% of all US corporate stock outstanding, railways 39%, and industrials 41%; his estimate of the value of all non-financial stock outstanding (that is the last two categories) was \$35 billion. It is clear that this high estimate includes many unquoted companies.

⁴⁰ These appear not to be included in the financial figures in the table. The Japanese source certainly excluded both the Bank of Japan and the Yokohama Specie Bank (which together undertook the functions undertaken in Europe by one central bank per country), each of which was larger than the Japanese total for finance shown in Table 2. The 1900 equity capitalization of the Bank of Japan was \$31 million and of the Yokohama Specie Bank \$19 million, see *Financial and Economic Annual*, 1902, pp. 88, 90, 110. To the extent that central banks are excluded, the European figures understate the lead of the European financial sector here. The largest private bank at the end of 1899 was an unincorporated multinational partnership, the Rothschilds, whose ten partners in Vienna, Paris and London had a capital of \$201 million in the business, and much real estate and fine art to reassure their creditors besides (Ferguson, *World's Banker*, p. 1,036). This was more than any bank except the Bank of England.

ordinary commercial banking business. Other great European commercial banks, like Deutsche Bank (with quoted equity valued at \$75 million), Crédit Lyonnais (\$88 million) and Lloyds (\$44 million) also had extensive branch networks. The more branches and the larger the bank was, the more likely it was to be quoted, but the NYSE-quoted National City Bank – with large assets but no branches - was worth only \$18 million, less even than either of Japan’s largest two banks.⁴¹ The quoted financial sector in many countries also included insurance companies, investment trusts and the like, but overall they then accounted for a small part it.

Government ownership and government regulation thus accounted for some of the lag in the spread of the equity culture to Germany and the USA at the beginning of the twentieth century, but quoted sectors also varied between countries for economic and business reasons. The US rail system that was the critical infrastructure of a continental economy appears from column 2 of Table 2 to be worth less than the railways of a small island off the north-west coast of Europe that had only one-eighth its railway mileage and anyhow moved most of its freight by sea. The discrepancy is partly explained by Britain’s more centralized finance. The London stock exchange listed most of the UK rail network, while in the USA about a quarter of the system was owned by industrial companies or quoted on other US stock exchanges: correcting for this could make the rail equity capitalization of the US and UK about the same.⁴² If that still appears

⁴¹ The *Commercial and Financial Chronicle* quotes only a bid price of \$1,800 per \$100 share, with no ask price, which suggests the stock may rarely have been available, perhaps because of close Rockefeller/Stillman control. Of course, even without branches, the money center banks and investment banks had impressive financial weight. National City Bank’s total assets were double those of Deutsche Bank in 1900 (Ackrill and Hannah, *Barclays*, p. 407.) The private partnership of J. P Morgan (1900 profits: \$12 million) was also large. U.S. bank and insurance shares were often sold at auction, see Huebner, *Stock Exchange*, p.10.

⁴² I am currently doing some more investigation of this issue, and of the relative importance of bonds and preferred stock.

surprising, it should be recalled that British railway companies were more capital-intensive, more vertically integrated and financially better managed: all of which would increase their equity capitalization. The capital-intensiveness may have been a result of inadequate British regulation, but some of it was necessary and it also showed through in railway quality.⁴³ Many of the financial reconstructions of the many bankrupt railroads in the USA around the turn of the century essentially involved substantially increasing capital investment in decrepit lines that had been too cheaply constructed for the traffic they now had to bear, and financing the expenditure with more equity rather than the excessive bond finance that had been typical of the past. Construction costs in capital-rich and highly urbanized Britain had been three times those of American lines per mile. To put the point more concretely: British lines were expensively fenced, while the cowcatcher was the preferred American safety technology; London in 1900 had enjoyed underground railways to bypass street congestion for decades, at a time when the New York subway was still just a gleam in August Belmont's eye; and rail passengers between two mid-sized cities like Edinburgh and Dundee crossed the wide rivers Forth and Tay by modern bridges, while rail passengers from the US capital city to the nation's financial metropolis were still inconveniently deposited on the New Jersey side to complete their journey to Wall St by Hudson river ferry and cab. Britain's dense rail network also meant that passengers generally went by train for short journeys that in the USA were made by horse and buggy (or, for those willing to tolerate their unreliability, one of the 8,000 new automobiles in service in 1900). Finally, Britain's rail companies were also among the nation's largest manufacturers: for example, the LNWR's Crewe works (an integrated

⁴³ For the alleged wastefulness of UK competitive construction, see Foreman-Peck, "Natural Monopoly." Construction costs per mile in continental Europe, with similar urban congestion to Britain, were also above the USA, but well below Britain.

steel and locomotive building plant) rivaled Baldwin Locomotive in size and was only one of several plants (including manufacturers of passenger coaches and freight cars) that the company owned.⁴⁴ These manufacturing functions were generally outsourced by US railroads to the likes of Pullman and American Car & Foundry: such plants, of course, appear as rail equity in the British totals but in the USA figure prominently in the industrial listings.⁴⁵

The equities listed in Table 2 were a small proportion of the world's securities. In 1900 London alone listed 3,631 securities (nearly five times the equities listed in Table 1) and New York 1,157 (over nine times its Table 1 figure).⁴⁶ These were overwhelmingly at that time fixed-interest securities, including government and municipal (as well as corporate, especially railway) bonds. There were also, in the same countries, dozens of regional stock exchanges and quite small towns had their local exchange: in Lancashire, not just Manchester, but also Oldham; in Massachusetts, not just Boston, but also Fall River. These were particularly important for manufacturing stocks, in which there was very little cross-border investment.⁴⁷ There were, also, many more small national and regional exchanges in small European countries.

The table does, however, include some countries in what came to be known as the Third World, much of it then colonized by the European powers or by self-

⁴⁴ On the other hand, some US railroads owned coal, iron and oil properties.

⁴⁵ Pullman alone accounts for 16% of the New York "industrials" total in Table 2, though perhaps two-thirds of its assets were for operating luxury rail services, rather than manufacturing.

⁴⁶ Michie, *London and New York Stock Exchanges*, p. 264. The total (nominal/par) values of issued securities quoted in New York was about \$13.8 billion in 1902 and in London about \$44 billion in 1903, that is London's lead over New York was bigger in non-equities than in the equities shown in Figure 1, but this was substantially because London was an international market: there were many international bonds but only a small number of international "industrial" stocks like Anaconda, Rio Tinto, Suez or De Beers.

⁴⁷ Edelstein, *Overseas Investment*, pp. 41-42 argues that this market failure was due to the informational advantages of local quotation, a factor confirmed by the continuing role of provincial and regional exchanges.

governing European immigrants.⁴⁸ They sometimes took with them political stability, legal systems, management skills and access to capital that resulted in a larger proportionate equity penetration than is achieved in their independent successor countries today. Some “third world” equity was quoted only on local stock markets like Ahmedabad, Buenos Aires, Cairo or Kimberley, but the bigger companies were usually only (or also) floated in Europe. Such international issues are, by definition, excluded from the domestic equity totals of the countries shown in the tables, but the quantities involved dwarf those of the smaller markets in the table.⁴⁹ For example, India’s largest quoted company, the Great Indian Peninsula Railway, was listed on London and its ordinary shares were valued at \$163 millions at the beginning of the century. A comparison with the Japanese figure in Table 1 suggests that India’s single largest company’s equity was *alone* worth more than that of *all* Japanese companies quoted on *all* Japanese stock exchanges.⁵⁰

Large companies operating in the “third world” were not confined to railways. The major European-quoted companies involved in African mining and development (their equivalent of the US west) were more highly valued than any domestic European industrial. In 1900 their value was depressed because the Boers were

⁴⁸ Clemens and Williamson (“Wealth bias”) argue that British foreign investment was largely directed to countries with ample land natural resources populated by rich, educated emigrants and much sent abroad through the London Stock Exchange did indeed go to the USA, Canada, Argentina and Australia rather than the huddled masses of Africa and Asia.

⁴⁹ And some may be included. The distinction between a domestic company with very significant operations abroad and a freestanding company which is fundamentally not domestic is not easy to draw and the researchers on whose work the table is based did not specify their methodology precisely enough for us to be sure.

⁵⁰ This raises broader issues not appropriately pursued here: cheap Japanese narrow gauge railways, that British railway engineers had advised the impoverished Japanese to adopt, may, for example, have been more appropriate developmental technology than the costly railways British engineers built in India. State ownership does not explain the Japan/India difference: at this stage less than a quarter of Japan’s railway mileage was state-owned and as Table 2 shows most Japanese equity at this time was accounted for by the private railways.

invading the British Cape Colony: the war effectively closed their operations or cut off exports. Even so, the De Beers equity was still worth \$109 million, the British South Africa Company's \$94 million, Consolidated Goldfields \$71 million and Rand Mines \$62 million: all of these figures being larger than the largest continental European quoted manufacturers and De Beers about the same as the largest New York or London (domestic) listed industrials.⁵¹ Some of these were quoted on Johannesburg as well, which, of course, accounts for South Africa appearing in Table 1 as having the second highest ratio of metropolitan stock market equity values to local GDP (although we do not have a precise estimate of South African GDP for these years, its ratio would clearly rank well above all except Egypt). This is, in one sense, misleading, though the alternative - to add much of this figure to London and Paris, where most of their stocks were traded - would merely increase the apparent backwardness of New York (which, of course, then had a not entirely dissimilar relationship to Montana as London's to the Cape Colony or New South Wales.)

The largest *non-railway* company quoted on *any* of the exchanges featured in Table 1 was incorporated under Egyptian law, though with its primary quotation in Paris. The Compagnie Universelle du Canal Maritime de Suez was probably Europe's most popular "industrial" stock: it was quoted on many European exchanges, with a capital value for its listed shares of \$219 million at the beginning of 1900, and more unlisted shares owned by the British government (worth, at market prices, \$104 million), making a total equity value of \$323 million.⁵² This is, of course, the prime

⁵¹ 28 February 1900 quotations on the Paris *coulisse*, where Southern African issues were quoted, as well as in London.

⁵² They, vol 2. However it was only two thirds the equity capitalization of Standard Oil (America's largest non-railway stock, but not on the NYSE, see p.0, below), though its enterprise value (including bonds of

reason Egypt heads the table, though in fact, because of its well-developed financial sector, it would still rank high without the Canal. Suez shares were very widely held throughout Europe, but it was primarily the product of French enterprise and its senior managers occupied an administrative and legal headquarters in Paris, though its operating headquarters were in Alexandria. It was habitually considered a French company (and, when the canal was later expropriated, a French core continued as a major financial and utility stock). However, it really ought, like the other primarily overseas companies, to be excluded as non-domestic, and I have overridden standard French practice and omitted it from the French figures for industrials in Tables 1 and 2. The example of Suez was repeatedly drawn on to underline how initially risky investments could become safe and secure sources of income, yielding massively increased dividends and capital gains.⁵³ France's understandable attempt to replicate this earlier triumph in central America had become mired in geological problems and political corruption: the Panama Company's shares were nearly worthless by 1900 (under \$2 million), though its debt retained more value (\$41 million).⁵⁴ It was not to be the Paris Bourse, nor even Wall St, that was from 1904 to 1916 to spend the \$400 million more needed to achieve for the Western hemisphere what European equity capital had already achieved for the main trade artery between Europe and Asia-Pacific, but rather US federal government enterprise, driven by, barely suppressed (if counter-cultural) colonizing instincts.⁵⁵

\$60 million) was 79% of Standard's. Of course, both Suez and Standard Oil were arguably, like railways, then better described as transport monopolies than industrials. A striking feature of late nineteenth century capital markets in both Europe and America, contrasting strongly with modern ones (dominated by globally competitive industrials as well as service companies), is the overwhelming dominance of companies – like these and the railways - with geographically confined monopoly power.

⁵³ Neymarck, *Finances Contemporaines*,

⁵⁴ Anon., *Documents*, vol. 4, p. 3.

⁵⁵ Markham, *Financial History*, p. 11. Wall Street was indirectly involved, since the US government borrowed a third of the money, but, as with German railways, this did not appear in equity capitalizations.

There were also some large companies from the developing European periphery that were quoted outside their domestic markets, because their capital needs were more appropriately met by richer countries (again these companies will normally be excluded from our tables as “non-domestic”). Rio Tinto (\$80 million equity capitalization), the British-registered company that operated Europe’s largest copper mine in Spain, was quoted on many continental bourses as well as London and was larger than any domestic German or French quoted manufacturer.⁵⁶ Some large Russian companies were traded on Paris, London and Brussels rather than St Petersburg (though St Petersburg alone had an equity capitalisation relative to GDP that made it a match for New York).⁵⁷ There was some specialization by industry as well as by country among European bourses doing such cross-border work. London generally gave the lead in mining, while Brussels had a strong reputation for tramways and Berlin for financing electrical development. There was a real temptation, even among the domestic companies with access to strong national stock exchanges, to consider competing European financial centres as the sole listing. The drift was from the more regulated markets to the less regulated ones: French companies migrated to Brussels or London; the Germans sometimes looked to London, Brussels or Vienna. The multinational Compagnie Internationale des Wagons-Lits et des Grands Express Européens –the smaller (\$18 million market capitalization in 1899) continental equivalent of Pullman in the USA –

⁵⁶ Other big Spanish companies to be quoted abroad were Tharsis (sulphur, copper) and Almaden (mercury). The 1899 Rio Tinto production (33,705 tonnes of copper) and that of the other Spanish company, Tharsis, (12,000tonnes) can be compared to the largest American mines, Anaconda (47,830 tonnes) , Calumet & Hecla (41,101 tonnes), Boston & Montana (27,700 tonnes), United Verde (18,900 tonnes) and Copper Queen (15,066 tonnes) and the largest German mine, Mansfeld (18,045 tonnes). These eight mines together accounted for half of world copper production, see Anon., *Documents*, vol. 3, p. 14.

⁵⁷ Verstraete (in Anon, *Documents*, vol. 4, p. 39) reckoned there was \$400 million of foreign capital invested in Russia in 1900, much of it quoted on Brussels and Paris.

was based in Brussels, not Paris.⁵⁸ After the tightening of the Paris Bourse monopoly in 1898, it was suggested that as many as a third of Belgian issues in 1899 were for French companies and some French *coulissiers* established subsidiaries there.⁵⁹ No European businessmen then seriously considered the option of even more lightly-regulated New York; it was the 1920s before that happened on a significant scale.⁶⁰

It is difficult to square much of this evidence with the dominant Whiggish modes of American business and financial history writing, which present the NYSE as exceptionally developed and innovative and American (and German) corporations as pioneering the divorce of ownership and control, while the British and French wallowed in personal ownership and financial conservatism. (They have not, however, yet spilt much ink on explaining the USA's sub-African financial performance!) I have argued elsewhere that the weight of financial markets and other evidence is correct, while the dominant historical writings are best considered as, inaccurate, historical novels.⁶¹ Stock exchange investors had a better idea of what was going on than historians blinded by hindsight.

⁵⁸ Anon., *Documents*, vol. 2, p. 83.

⁵⁹ The French Ministry of Commerce in 1898 asked Rodolphe Rousseau to investigate the leakage to Brussels and London, see Freedeman, *Triumph*, pp. 48-53; his report (suggesting liberalization of Paris regulation) was published in the *Congrès International des Sociétés par Actions, 1900*, pp.397-463 and followed by some more permissive legislation. See also, Anon, *Documents*, vol. 1, p.30 for the comments of Lévy.

⁶⁰The 1910 NYSE listing of Underground Electric Railways of London was one of the first straws in the wind. On the 1920s, see Wilkins, "Cosmopolitan finance." New York listed only a small number of Canadian and Mexican equities and some foreign government bonds around 1900.

⁶¹ See, for example, Hannah, "Whig Fable;" "Divorce;" "What did Morgan's Men."

THE UPSHOT FOR SCALE AND EFFICIENCY

Did any of this matter? If the New York Stock Exchange struggled to penetrate the rapidly developing US continental economy as far as the London and Paris bourses had penetrated Europe and its financial diaspora, if plutocratic family ownership remained common in America, if European companies had access to more centralized, liquid stock markets, if medium-sized firms could more easily key into the main European exchanges, and if American shareholding was initially less democratically dispersed, did this apparent “backwardness” entail any serious economic consequences for the USA? The hugely successful development of the American economy over the next three decades required, among other things, the massive mobilization of financial resources that, on the face of it, Europe was in 1900 better equipped, at least in terms of national stock exchange capacity, to deliver. Yet Europe’s economic performance in this period was distinctly less impressive than the USA’s.⁶² The possibility has to be considered that the American miracle occurred *in spite of*, and/or perhaps *because of*, its distinctively small financial institutions.

The “in spite of” line of argument is that capital simply finds many channels in which to flow and the institutional details of how this happens are of little analytical interest: as Joan Robinson put it, “where enterprise leads, finance follows”⁶³. Keay and Readish’s case study of Canadian and American steel firms confirms their flexibility in

⁶² Between 1900 and 1929, the USA’s growth rate in GDP per head was 1.8% per annum, compared with 1.7% in France, 1.1% in Germany and Belgium, 0.9% in Austria and 0.7% in the UK (calculated from data in Maddison, *Historical Statistics*). Of course, factors such as war, macroeconomic disruptions and the erosion of free trade damaged Europe more than America in these decades.

⁶³ Robinson, “The Generalization,” p.52.

adjusting to the differing national financial conditions to minimize capital costs.⁶⁴ The hundred thousand men (they were mainly men) who occupied America's most expensive real estate in "Wall Street" (actually less than a square mile bounded by Broadway, Cedar, Beaver and South Streets) included not only the NYSE of Table 1 but the Consolidated Stock Exchange, curb brokers, the Cotton, Coffee and Produce Exchanges, the Assay Office, the New York Clearing House, the Custom House and the US Sub-Treasury, as well as many national, state and private bankers, foreign exchange traders, importers and exporters, corporate head offices, promoters, trust companies and commercial paper dealers.⁶⁵ The plutocrats of the banking, railway and industrial worlds - Morgans, Belmonts, Crossmans, Stillmans, Huntingtons, Rockefellers, Speyers and Vanderbilts - met there the corporate specialists - Choates, Reeds, Roots, Traceys, Dills and Parsons - of their legal world. Wall St was spatially separate from other cities' stock exchanges and from the many important companies they listed, while America's investors were also spread over a continent. Yet they were all linked by thousands of specialist investment bankers and brokers in hundreds of towns and cities by the ticker and the telephone. Where out-of-town, face-to-face contact was required, there was always the private railroad car: a favored status symbol (more the preserve of princes and prime ministers in Europe), but also the plutocrat's mobile office, in which many a private equity deal or other financing transaction was celebrated.

Apart from the strange, new, triple-height, steel-framed buildings inhabited by its office-workers, the complex, networked financial market of "Wall St," with its electronic and steel rail extensions, was more like the "Square Mile" of the contemporary

⁶⁴ Keay and Redish, "The micro-economic effects."

⁶⁵ Nelson, *ABC*, pp.9-11.

City of London than the brute statistics of relative equity listings (on which I have crudely relied) suggest.⁶⁶ The convergence of American interest rates analyzed by Lance Davis is testimony to the power of networks to overcome the disadvantages of disaggregated banking and underdeveloped stock exchanges the USA was initially saddled with, though as he also pointed out, that convergence was still incomplete, especially for the west and south, as late as 1913.⁶⁷ In interest rate terms, the urban areas of countries in the sterling monetary union (like Cape Town and Sydney) enjoyed greater convergence with London than remote cities in the greenback monetary union (including Vancouver and Havana as well as San Francisco and New Orleans) did with New York. There is reason to believe that the USA's stock exchange arrangements, unsophisticated though they appear in the mirror of contemporary European markets, were similarly partly surmountable by American plutocratic families, investment bankers and their networks, but it is plausible also that some disadvantages remained there too.

The complementary (it need not be alternative) "because of" argument takes its cue from modern agency theory, which stresses the serious problems of shareholding owners who do not manage their enterprises directly. It is difficult to exaggerate either the enormous challenges that this posed to nineteenth century owners and managers or the range and complexity of the solutions they attempted, with varying degrees of success⁶⁸. One way that America initially sidestepped these agency problems was by not having them in as serious a form as some parts of Europe and its diaspora. The commanding heights of the United States' corporate economy were in 1900

⁶⁶ The world described by Navin and Sears has many striking similarities with that described by O Hagan, and one can exaggerate the extent to which even the great J P Morgan changed things in the first decade of the twentieth century.

⁶⁷ Davis, "Investment Market."

⁶⁸ See the fuller discussion in Hannah, "Hollywood History."

overwhelmingly personally owned. Skepticism on the Whiggish idolization of the new “professional managers” has received widespread empirical support among European scholars in refutations of the simplistic equation of family ownership with inefficiency.⁶⁹ It is not difficult to find similar US evidence of the superior performance of entrepreneurially-owned relative to publicly-quoted companies. The personally-owned Carnegie Steel, for example, seems clearly more profitable around 1900 than Morgan’s contemporary NYSE-quoted steel mergers, like Federal Steel under Judge Gary. Carnegie’s lieutenant, the 39-year old Charles Schwab, became the first president of U.S. Steel on its formation in 1901, but was like a duck out of water in a bureaucratic enterprise under Gary’s and Morgan’s supervision. He was much happier and much more successful, when he switched to Bethlehem Steel, in which he had bought a controlling interest, and became the steel colossus’s most effective competitor, again achieving impressive results⁷⁰. The Guggenheims’ private smelters also seem to have been more profitable than smelters quoted on the NYSE.⁷¹

There is a considerable modern literature on transition economies suggesting that where legal systems are primitive (a plausible description of New Jersey, relative to European, corporate law in 1900) concentrated ownership structures may be more efficient.⁷² The possible perils of uninformed and inadequately monitored finance – the allocative inefficiencies caused by contemporary, highly developed British stock market -

⁶⁹Church, “Family Firm;” Colli, *History*; Hannah, *From Family Firm*; Rose, “The Family Firm;” but compare Okazaki, “” and Miwa and Ramseyer, “Corporate Governance,” p. 201.

⁷⁰ Hessen, *Steel Titan*, pp. 123-88. However, Schwab’s capacity to spend matched that to earn; he died insolvent.

⁷¹ Hoyt, *Guggenheims*, pp. 123-26. However, later legal cases suggested this might be because of transfer pricing aimed at stock manipulation, rather than true efficiency advantages.

⁷² La Porta et al, “Law,” p.1113; Bergloef, “Corporate Governance,” 81-82. American law at this stage was arguably bifurcated: strong on contract enforcement and creditors’ rights, but weak on corruption, accounting, minority shareholders’ rights and commercial banking.

have also received some attention in the literature.⁷³ If such views were endorsed, it could be argued that the New York had the best of both worlds: its leading stock exchange, through bonds, railroad stocks and a limited selection of large industrials, provided the money market liquidity that banks and other large investors required for their risk management, intermediation and maturity transformation activities; while many industrial equities were kept in safer, committed owner-controlled hands and not traded on the most liquid markets.⁷⁴ Given the informational inadequacies of US accounting at the time, it may even have been a positive that the contemporary norm of insider dealing by informed directors, who owned large amounts of common, gave useful market signals.

On the other hand, the fact is that the “backwardness” of New York in stock exchange matters *was* gradually, but spectacularly, remedied. American railroads *did* invest more capital to overcome the nineteenth century legacy of underinvestment. The Pennsylvania Railroad alone spent \$100 millions in the first decade of the new century on bridging and tunneling to Manhattan and opening that magnificent corporate monument, the Pennsylvania Station. Increasing quotation of railroad stocks and bonds in the first two decades of the twentieth century was at least as important as industrials in New York’s catching up with London as a centralized market for corporate securities (see Table 4). Moreover, slowly, but surely, America’s leading industrial firms *did* list on New York: Carnegie Steel (reborn as the core of US Steel) in 1901, Du Pont in 1909, Standard Oil in 1920, Procter & Gamble in 1929, Gulf Oil in 1943, Alcoa in 195?, Singer

⁷³ Kennedy, *Industrial Structure*. The point was more pithily explained by Keynes in the *General Theory*: “It is usually agreed that casinos should, in the public interest, be inaccessible and expensive and perhaps the same is true of stock exchanges.”

⁷⁴ Using more recent international comparisons, Levine and Servos (“Stock Markets”) argue that it is stock market liquidity, rather than stock market size as such, that is correlated with economic growth.

in 1967.⁷⁵ Many large industrial corporations (like Standard Oil, Anaconda and American Sugar) did not even publish accounts for stockholders in 1900 (and thus could not be formally listed on the NYSE) but *had* voluntarily submitted to NYSE rules by the time the United States belatedly compelled publication in 1933: the level of compliance in America then was already very similar to that achieved voluntarily in London before its 1900 legislation.⁷⁶ By then, Berle and Means *could* celebrate America's having caught up with, indeed probably overtaken Europe as a whole in the divorce of ownership from control. A complex and long drawn-out process of financial reconstructions (Westinghouse and Seiberling), merger (Studebaker), career changes to philanthropy (Carnegie and Rockefeller) or to politics (Harriman, Mellon), family squabbles (Du Pont, Hartford, Guggenheim), antitrust dissolution (Duke), dissipation and divorce (Vanderbilt), childlessness (Eastman), multiple suicides (Ryan) or lack of interest or skill in business (Procter and Armour) did, to a remarkable degree, replace American plutocratic entrepreneurs by banker and/or professional manager controllers. By 1935, in the typical American quoted company, the managers owned only 13% of the equity, a figure not far above my London estimate for 1900.⁷⁷ At the same time as the grip of American owning families faltered, the rise in progressive taxation after 1916 increased the relative attraction of stock ownership to non-plutocrats and the 1920s stock boom popularized the equity culture.⁷⁸ Morgan's dealings with a few elite institutions and

⁷⁵ By 1952, 73% of the market value of outstanding stock of domestic corporations was quoted on the NYSE, 8% on the American Exchange, 2% on other exchanges and 17% traded over the counter, see Goldsmith, *Institutional Investors*, p. 430.

⁷⁶ Hawkins, "Development." There was still a wide variety of standards adopted before SEC standardization, see Haney, "Corporation Accounting Data."

⁷⁷ Holderness, Kroszner and Sheehan, "Were the Good Old Days;" Hannah, "Divorce."

⁷⁸ Desai, Dharmapala and Fung, "Taxation." Hawkins, "Development," p.145, though without giving a source, estimates that the number of US shareholders quintupled to 10 million in the decade to 1930.

wealthy individuals were supplemented by extensive small investor participation.⁷⁹ In 1900 it is hard to trace more than a half dozen US companies that numbered their stockholders in above four figures (but easy to do so in Europe). By the 1930s several corporations (in America as in Europe) had six-figure totals, and AT&T, with 469,801 stockholders in 1929 and 642,180 in 1931, was almost certainly the world's most widely held stock.

America's enthusiastic and decisive acceptance of such changes suggests that a New York stock market that, in some respects, more closely resembled the London of 1900 than it did itself in 1900, was not without positive consequences. The pace of change in the USA in the decades following the turn of the century was much faster than that in Europe. That many continental Europeans at the same time turned away from stock markets was not (except perhaps in Germany) so much due to their markets' own shortcomings, as to the ravages of wars, revolutions and inflations that fatally afflicted their continent and abolished (or destroyed faith in) their originally more developed national equity culture.⁸⁰ It was later a short step for those with faulty memories to reconstruct the financial and business past to match the capital market present. Some historians, lawyers and economists even persuaded themselves that the USA had invented this aspect of modern capitalism; or that the disembodied, but no less powerful, spirit of Anglo-Saxon common law, triumphing over the inflexible, continental, Franco-Roman

⁷⁹ Smith and Sylla, "Transformation," p. 16.

⁸⁰ Rajan and Zingales, "The Great Reversals." Even France (which suffered less from war, inflation and revolution than Germany, Austria or Russia) saw a massive and permanent drop in its stock market capitalization / national income ratio in the 1920s, see Gueslin, "Banks," pp. 68-73. Outside the USA, only the UK and its offshoots remained strongly committed to stock exchange financing, though the Tokyo market was also then becoming increasingly committed to such Anglo-Saxon ways.

model, had done so.⁸¹ Meanwhile, for some continentals, the equity culture of stock exchanges, a culture they had actually pioneered, was reconstructed as an Anglo-Saxon plot to subvert their social order.⁸² Both schools would do well to read a little history.

A healthy skepticism, pending further research, about some of the more overarching macro-theories about relationships among national stock markets, divorce of ownership from control and economic performance is in order. National contrasts in early twentieth century stock exchange development may, nonetheless, point to solutions of some microeconomic puzzles of American economic history. The New York listing rules deprived the exchange of some of the initially small but rapidly growing and technologically advanced companies of the time: Kodak was initially quoted on London, AT&T on Boston (both exchanges, in a sense, fulfilling the specialist function that NASDAQ still does better than the NYSE). At the same time, as some of the older literature emphasized, the NYSE was a subsidiary cause of the intensity of the turn-of-the-century merger wave, because the threshold size for a New York listing was above that common in Europe.⁸³ This led to mergers with little industrial logic undertaken mainly to achieve scale for a public flotation. For example, US Leather – a loose holding company of many small firms in an industry with few scale economies - was the second most frequently traded NYSE-listed industrial stock in 1899 and National Cordage (later

⁸¹ Cheffins, “Mergers,” is a complex attempt to explain by legal and other factors why the levels of divorce from control achieved in America around the turn-of the century merger wave were not matched in Britain until around its 1960s merger wave. So powerful are the images of British declinism and American modernity in the literature, that it does not seem to have occurred to Professor Cheffins that he may be assiduously explaining something close to the opposite of what requires explanation. La Porta et al, “Law and Finance,” is the *locus classicus* of the legal tradition econometrics. Rajan (“Program report” p. 2) speculates that some third factor correlated with common law explains the finding of La Porta et al. That factor remains elusive. If the factor is the relative absence in 1914-1950 of hyper-inflation, wartime occupation, expropriation and revolution in common law countries with large stock exchanges, this may be a matter of luck or successful warmongering, not legal efficiency.

⁸² Albert, *Capitalisme*.

⁸³ Nelson; Davis.

Standard Rope & Twine) was a little earlier considered as one of America's great industrial stocks; but both were formed on a far greater scale than their industries required, and were destined to decline.⁸⁴ Similar, probably financially-induced, mergers floated on New York, which probably lacked industrial logic, were American Bicycle, Central Foundry, Consolidation Coal, Union Bag and Paper and United States Envelope. Morgan, in his zeal to create large saleable stocks, perhaps did better than earlier promoters, but was perhaps lucky that protectionism prevented many of his creations from having to face international competition from smaller, and sometimes more efficient, foreign competitors. The example of International Mercantile Marine suggests that when such protection was unavailable, the outcome was not as profitable as he otherwise achieved. De Long's suggestion that Morgan's men added value to the IPOs they monitored cannot survive a critical analysis.⁸⁵

Other comparisons suggest caution in equating the NYSE with modernity and success. Investors could choose in 1900 between the boring option of investing in railroads on the NYSE (knowing these businesses were well understood and provided adequate investor data), or investing in the new industrials and utilities that were NYSE-quoted, or even investing in similar securities in the better organized stock markets of Europe. Among all these options, the investors who actually had the lowest capital gains in the period to 1914, were those who chose NYSE industrials and utilities.⁸⁶ There were – fortunately for the growth and vitality of the U.S. economy - many other and better

⁸⁴ Dewing, *Corporate Promotion*, pp. 16-21, 112-41.

⁸⁵ Hannah, "What did J. P. Morgan's men?" See also Hannah, "Whig Fable," for a case of an industry (that *did* have some scale economies) being diverted from sensible strategies into predatory pricing and over-rapid growth, arguably encouraged and facilitated by exchange listing.

⁸⁶ Cowles, *Common-Stock*. From January 1900 to January 1914, the S&P NYSE railroad index (as retrospectively calculated by Cowles) rose by 59.2%, and industrials by 30.4%, while utilities fell by 27.3%: the all-stock index showing an overall gain of 37.1%.

ways of making money in 1900 (and after) than relying on the, surprisingly small, and sometimes dysfunctional, New York Stock Exchange.

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