

IPOs on the London Stock Exchange since 1900

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This short paper has three objectives. I describe the construction of this long-run IPO dataset in section 1 in the belief that it is desirable to have a common standard as to what is an IPO for the purpose of making cross-country comparisons. I then use this data to describe some important trends in LSE IPOs since 1900 in section 2. Finally, I summarise a few of the interesting research questions which can be addressed with such a data set in section 3. These are by no means exhaustive and certainly others will be suggested by the particular nature of other stock market jurisdictions.

Section 1: Data set construction

A. What is an IPO?

I define an IPO as the first occasion when any security issued by a firm is traded on a stock exchange and that is accompanied by the sale of securities either existing securities sold by insiders or new securities issued by the firm. It is possible for a company to go public by issuing a bond, a preference share or an ordinary share (common stock).

This definition could apply to an issuing entity other than a firm, for example, a sovereign issuer. However, I confine myself in the rest of this paper to discussing only corporate IPOs if only because there are lots more of them!

I exclude from the definition of IPOs “introductions” which are listings unaccompanied by a sale of securities by firms with a dispersed and broad prior stockholder base. Since one of the reasons for analysing IPOs is to estimate how much finance is raised via going public and at what price, introductions are not less interesting. However, they are relevant from the

point of view of ascertaining the growth in the size and trading liquidity of stock markets. Hence, where possible, we should separately count them. Since no issue of shares involved there may be no prospectus published which can make their identification problematic.

The sale of securities at the time of the IPO can employ either of three methods – a public offering via prospectus, a private placement (or placing), or an auction. In the first two cases, traditionally securities were sold at a fixed offer price. However, since the 1990s book-building has become the dominant method around the world. Auctions require the setting of a minimum price and the invitation of investors to make price and quantity bids, from which typically a uniform strike price is set to sell all securities.

IPOs are to be distinguished from Seasoned Equity Offerings (SEOs) which are issues made by firms already quoted either on the same market or on another market. The latter case would be classified as a “transfer”, either from a junior market to a main or official market, from a provincial market to say London, or from say Paris to London. Transfers again should be distinguished from IPOs. A firm which simultaneously lists and issues securities on more than one market is counted as an IPO. This is known as a dual listed company.

B. Identifying an IPO

Typically, an IPO is identified in two stages:

- (i) Find a notification in a newspaper of an issue, even better if this is a prospectus;
and
- (ii) then distinguish between an IPO and SEO by cross-checking with a company or stock exchange handbook, with stock exchange listing files, or by looking for new entries in stock exchange price lists.

It is extremely useful if a prospectus exists, since this should indicate what information, if any, was disclosed to investors at the time of the IPO. This can then generate

explanatory variables when employed in estimating IPO underpricing, and IPO survival models. In contrast, care must be taken when extracting data from handbooks, listing files and sponsoring bank or broker files not to include variables that would not have been known to investors at the time of IPO.

C. LSE IPO Data set

The primary sources for identifying issues on the LSE in the period since 1900 were:

- (i) published prospectuses compiled in the *Times Book of Prospectuses* (1917 to 1969), in the *Extel Book of New Issues* (1970 to 1986), and in electronic form from *Perfect Information* (1987 to 1990);
- (ii) data extracted from the Singer and Friedlander *New Equity Issue Statistics* (1970 to 1979) and the *KPMG New Issue Statistics* database (1991 to 1994); and
- (iii) since 1995 the data set compiled by Paleari, Piazzalunga, Redondi, Trabucchi, and Vismara (2009).

In the case of the *Times Books* and the *Extel Books* in source (i), the offer price and the number of shares offered are checked against the *Stock Exchange Year Books*, the *Issuing House Year Books*, and press reports in *The Times Digital Archive*.

Before WW1, firms went public both on the Official List and on a junior market by way of Special Settlement (Burhop, Chambers and Cheffins 2011). We are only unable to find stock prices of Official List IPOs before the publication of the Supplementary List in July 1916 at which point those firms that had traded under the Special Settlement method and were still viable appeared on the Supplementary List. Thereafter, virtually all IPOs up to 1947 first listed on the junior market, the Supplementary List. In 1947 the Supplementary List was merged into the Official List.

Stock prices used to calculate IPO returns are taken from the *Stock Exchange Daily Official List* (SEDOL) and the *Financial Times*. The LSE recorded bid-ask spreads for

Officially Quoted stocks but for Supplementary List stocks, they recorded price “marks” indicating prices. Since these are not time-ordered, we use the simple average of these marks to estimate the first-day price until the publication of closing bid-ask prices became commonplace after 1945, when we switch to the closing mid-price.

Consistent with previous studies, the data set excludes:

- (i) introductions
- (ii) closed-end funds (known in the U.K. as investment trusts)
- (iii) transfers from a junior market, and by firms already quoted on another exchange
- (iv) “penny” stock IPOs, defined as those with an offer price of two shillings or less (10 pence or less after decimalization in 1972); and
- (v) government privatizations of which there were relatively few, mainly in the 1980s.

Introductions were discussed above. Closed-end funds (CEFs) tend to be analysed separately. As with introductions, CEFs do not involve raising new finance; not do they represent an “exit” event. The number of and the premia/discount of CEF IPOs can be indicators of investor sentiment. See for example De Long and Shleiffer (1991). Penny stocks tend to be excluded because they are highly speculative stocks and are neither a reliable indicator of underpricing nor of corporate financing trends.

I have estimated the following IPO outcomes, underpricing or initial returns (1900-1994), IPO survival (1900-49) and long-run performance (1900-13).

OUTCOME	DEFINITION
UNDERPRICING	the first-day price divided by the offer price
SURVIVAL	whether a firm is still listed on the LSE five (or ten) years after going public, excluding those firms either acquired or liquidated.
SURVIVAL TIME	number of mths until a firm fails, rhs-censored at 60(120) mths
L-R PEFORMANCE	IPO performance over the following 3, 4 or 5 years

The table below summarises the main variables which can be ascertained from the prospectus at the time of IPO which can be employed in estimating underpricing and survival models. Whilst more recent IPO prospectuses of course disclose far more than this, these variables represent what was more or less consistently disclosed from 1900 onwards.

VARIABLE	DEFINITION
ISSUE METHOD	public offering, placing or auction
SECTOR/INDUSTRY	industry or sector classification
DOMESTIC	where main operations located – either domestic, empire or foreign
MCAP	total equity market capitalization at offer price (or par value in the case of non-listed securities)
AGE	no. of years since establishment of firm
TRACK	no. of years of past profits disclosed in prospectus
ASSET VALUE	dummy variable as to whether an asset value is disclosed or not
BVP	Book value to price ratio at IPO
SOLD	proportion of equity sold at IPO at the offer price
UNDERWRITTEN	dummy variable as to whether IPO underwritten by a third party
NEW MONEY	new money raised as a %age of IPO proceeds
PRESTIGE	indicator of underwriter reputation
NEW MONEY	new money raised as a %age of IPO proceeds

D. Provincial Stock Exchanges

Although, the LSE had probably become the first choice for many firms seeking a listing in the UK by the interwar period, there were 21 other stock exchanges throughout Britain, all established before WWI. Arthur Thomas's study remains the definitive source on the Provincial Stock Exchanges (PSEs). However, the quantitative evidence regarding IPO activity on the PSEs is elusive. Thomas cites as "provincial" new issues in the interwar years any issues on the LSE in the distribution of which a provincial broker participated (Thomas 1973, pp.249). After 1945, provincial activity declined. Ghandi (1964) was able to trace only 379 IPOs of mainly ordinary shares between 1951 and 1960, compared to 693 IPOs

launched on the LSE collected by Chambers and Dimson (2009) in the same period. These totals include introductions.

IPOs on the PSEs were substantially unregulated before 1914. Towards the end of the interwar years the main PSEs, Birmingham, Liverpool and Manchester, moved rapidly towards adopting the listing requirements of the LSE (Thomas 1973), and after WWII, all the PSEs effectively fell into line with LSE regulations regarding IPOs. Between 1964 and 1966, the 15 most important PSEs merged into three regional exchanges, Northern, Midland and Western, and Scottish, before formally merging with the LSE in 1973. Despite the LSE's importance, provincial firms had a degree of choice as to where to list until the mid-1960s. It therefore seems reasonable to assume that the large exchanges in industrial centres such as Birmingham, Glasgow, Liverpool and Manchester represented competition for the LSE in the late 19th and early 20th centuries.

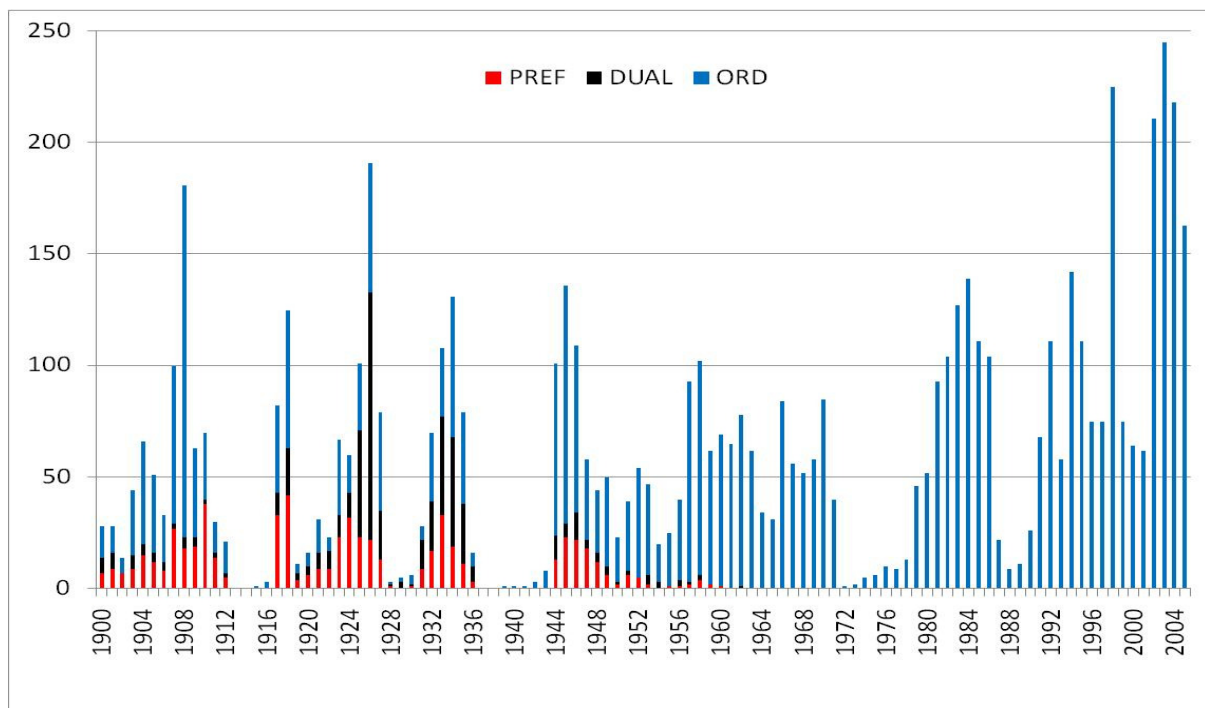
Section 2: Trends in LSE IPOs

With this data set it is possible to uncover long-term patterns in the development of the IPO market in London, some of which merely confirm prior findings and conjectures, others perhaps more surprising.

A. The rise of an equity culture

In the early 20th C there was considerable variety in security design. Figure 1 displays the evolution in the number of IPOs which involved the issue of ordinary shares, preference shares or a combination of both (“dual”). Up to 1939, taken together, there were almost as many preference share (538) and dual share (507) as ordinary share IPOs (1052). The last preference share IPO appeared in 1962 and the last dual share IPO 2 years later. Hence, ordinary shares had become the equity instrument of choice for both firms and investors by the late 1950s.

Figure 1: LSE IPOs since 1900 - security type



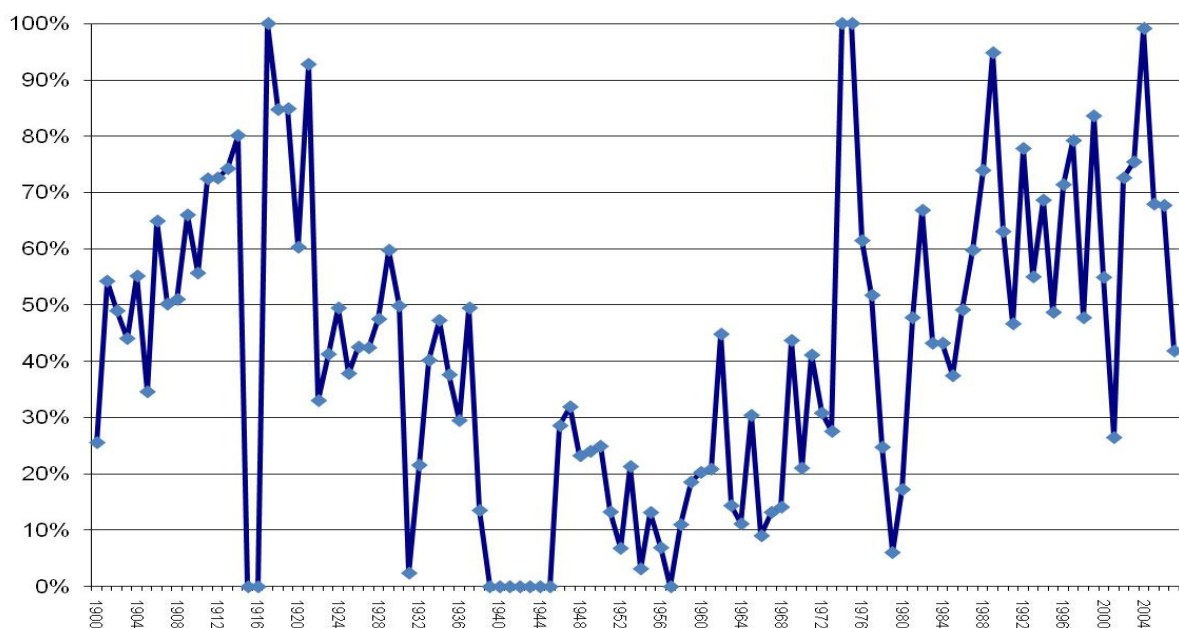
This rise of an equity culture can be attributed to the increasing importance of institutional investors (Scott 2002), and the tax disadvantages to fixed income securities, including preference shares with the rise of income tax rates after WW2.

Some firms issued preference, ordinary and deferred shares, where deferred shares were the most junior security representing the ultimate residual claim on cash flows. A substantial minority of preference shares, 20% before 1913, offered variable dividends. It is also of note that before WW2 preference shares frequently carried votes. For example, 85% of preference shares issued in IPOs between 1900 and 1913 carried voting rights. Firms were therefore more easily able to raise finance by selling cash flow rights without divesting control rights than is the case in the modern “one share one vote” world.

B. New money raised

The ordinary person in the street regards the primary purpose of a stock market as to facilitate corporate finance. Whilst raising capital is one objective a firm pursues in going public, it is not the only one.

Figure 2: LSE IPOs since 1900 – New Money (% IPO Gross Proceeds)



Since existing investors may want to liquidate some of their equity in the firm, an IPO also provides the opportunity for these investors to exit. A further possibility is that firms may

choose simply to establish a liquid market in their shares and to look to raise finance or exit at a more opportune moment once the shares are “understood” by the market. I will return to this subject below. A firm conducting an IPO may pursue all three of these objectives at the same time.

Figure 2 charts how on average the proportion of IPO gross proceeds has been split each year since 1900 between firms raising finance (new money %) and insiders exiting. There is a clear trend in that up to 1939 around 50% of IPO proceeds represented new money to finance capex or working capital. (I have excluded money raised to repay debt from this calculation). This proportion only rebounded consistently above 50% in the 1980s and 1990s.

This distinct u-shaped pattern is consistent with the observation that in the mid-20th C there was a large increase in the number of family firms going public, prompted by the substantial increase in income tax rates. The resulting large differential which emerged between income and capital gains tax rates led family owners to choose to capitalise their future dividend streams by selling their equity (Cheffins 2008).

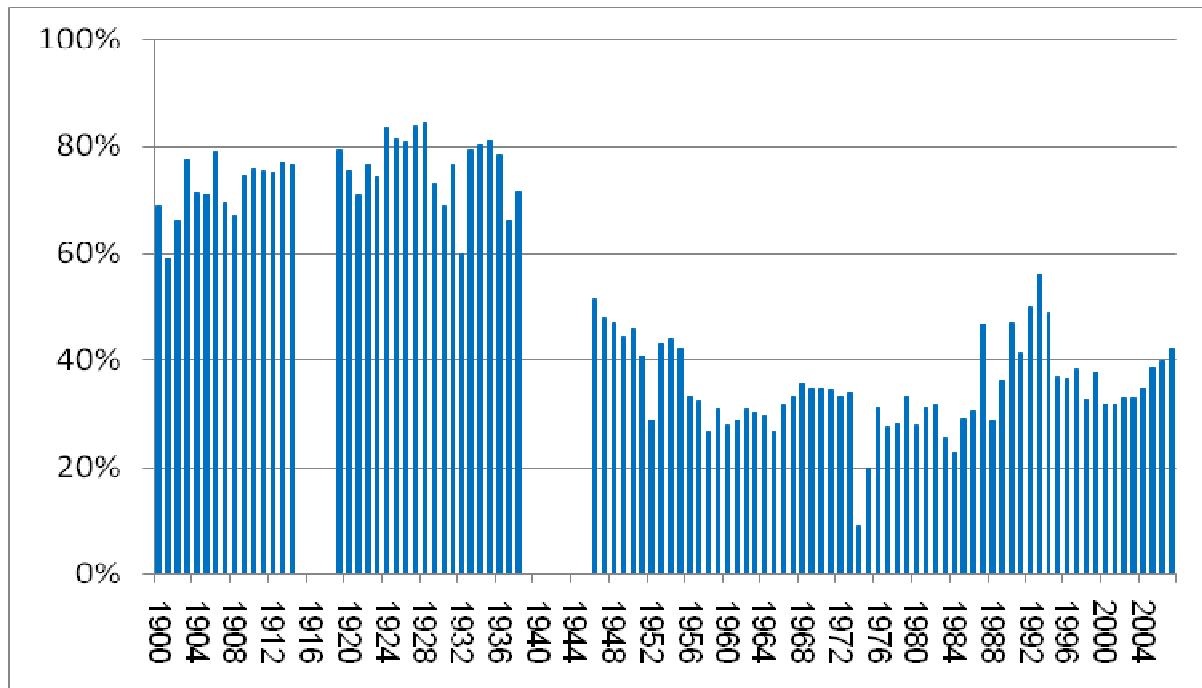
C. Separation of ownership and control

IPOs can also help shed light on when ownership separated from control. If we accept the proportion of shares sold at IPO correlates broadly with the number of votes sold then Figure 3 is very revealing. Before 1939 on average around 70% of shares were sold or placed at IPO with public investors; after 1945 this figure fell sharply settling at around 35%.

What accounts for this shift? The big most likely answer is the passage of the 1948 Companies Act. This piece of legislation radically overhauled financial reporting for the better - mandatory consolidated accounts, an end to hidden reserves, and the establishment of the “true and fair view” principle in accounting (Arnold and Matthews (2002)). In fact, disclosure had begun to improve with the publication of the recommendations of the Cohen Committee on Company Law Reform in 1945 and at the urging of the accounting profession from at

least the end of WWII (Richards (1989)). The effect of all this was that quoted firms now revealed for the first time to outside investors and potential acquirers far more about the intrinsic value of their assets and business.

Figure 3: LSE IPOs since 1900 - Proportion Sold (%)



From this point onwards, it now mattered what proportion of equity was sold at IPO if owner-managers wanted to retain control of their firms for the foreseeable future whilst maintaining a listing. Up to this point it hadn't really mattered if a majority of your shares were owned by outsiders since no unconnected third party was in a position to launch an unwanted bid for a firm whose financial condition it could not possibly understand. As Hannah (1983) has argued, contested merger activity really only began in the 1950s once the 1948 Act had taken full effect.

As the **Table 1** below taken from a study of a small matched sample of German and UK IPOs in the 1980s illustrates, a substantial minority of UK IPOs put themselves in play

once they decide to go public. In this study, around 40% of UK IPOs were either fully or partially acquired within 5 years of going public.

Table 1: Comparison of German and UK IPO ownership post-IPO

	Germany	UK
Full takeover	1	19
Partial takeover	18	5
Widely-held (<25%)	1	17
Still controlled by initial shareholders	34	13
Total	54	54

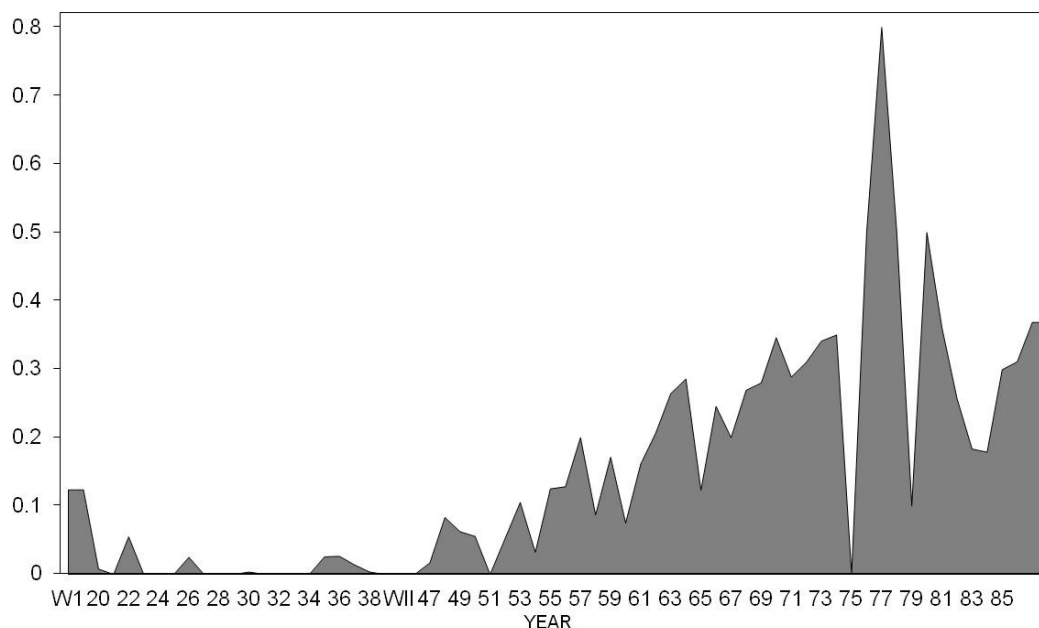
D. Underwriting

In theory, underwriters are paid a fee to certify the quality of an IPO to outside investors. However, IPOs on the LSE until the late 1920s were frequently not underwritten at all, and, when they were, the underwriters were a varied assortment of company promoters, syndicates, company directors, stockbrokers, and a new breed of industrial trust. Furthermore, considerable doubts existed about the capital backing of underwriters, especially when such information was not made public (Finnie (1934), pp. 137-60; *The Economist*, 5 July 1924, p. 13).

As the fallout from the 1909-10 and the 1928-29 IPO booms illustrated well, there were too many underwriters with insufficient capital or interest in building a sound reputation. The merchant banks, the most reputable of who sat on the *Accepting Houses Committee* (AHC), established in 1914, were slow to begin underwriting equity IPOs. Before 1914, these banks had been very active in underwriting foreign bond issues and to a lesser extent large corporate debenture issues. Yet, despite the contraction of this business in the interwar years, they were reluctant to commit themselves to underwriting industrial equity IPOs

(Roberts 1992). This reluctance contrasts with the support extended by both U.S. private banks (Ramirez 1995) and German universal banks (Fohlin 1998) to their respective industrial clienteles.

Figure 4: Proportion of LSE IPOs underwritten by a reputable bank 1915-86



London IPO underwriting changed radically in 1945 with the establishment of the *Issuing Houses Association* (IHA), intended to represent the interests of new issue underwriters to the regulatory authorities. Although membership quickly rose to around 50 and stayed at that level until shortly after the Big Bang, the merchant banking members of the AHC, led by Barings and Rothschilds, continued to represent the most reputable names in the City and were at the IHA's core. The most reputable underwriters were therefore defined by membership of the AHC, total membership of this body remaining at 17 for much of the period from 1945 to the Big Bang in 1986 (see below).

As Figure 4 shows, this group of underwriters exerted an increasing influence on equity underwriting in this period. Indeed, underwriting of both IPOs and SEOs at this time was too a comfortable business for the British investment banks so much so that a lack of

competition led to a failure to adopt the auction method for IPOs despite the fact that this method appeared to price IPOs more efficiently (Chambers 2009).

Beginning in 1986, the Big Bang induced competition in the securities business generally, and in IPO underwriting specifically, by allowing any bank including U.S. investment banks to own an LSE member firm. Thereafter, as US investment banks expanded in the City, book-building became a more important IPO method in London (see Ljungqvist (2003), p. 24 and endnote 25).

E. Time to IPO

Whilst as we have seen above stock markets provide families, entrepreneurs and other insiders with the opportunity to exit their investment, they also extend the opportunity to some firms to access finance in a timely manner. This opportunity can be extremely attractive to those firms that need to exploit rapidly a new business or technology. It is in this sense that “time to IPO”, a term first coined by Jovanovic and Rousseau (2001), becomes important. Hence during periods of intense technology change such as the 1920s and the 1990s, the opportunity to go public as soon as possible and raise money before your competitors can be very valuable.

Time to IPO is just another term for firm age. Table 2 summarises the decade by decade shifts in age, the proportion of IPOs which are start-ups and the proportion of IPOs which occurred on the junior market of the LSE. From 1900-29 there were a substantial number of start-up IPOs which then disappeared until the 1990s and 2000s. The few “start-ups” in the 1950s are in fact property development firms.

The disappearance of start-up IPOs is partly related to the surge in family firms going public in the mid-20th C we discussed above. However, a second factor is regulation and specifically the tougher listing requirements introduced by the LSE following WW2 (Michie 1999). These requirements included putting an end to the Supplementary List in 1947 and effectively requiring firms to have at least a 10 year history and to have paid dividends.

Table 2: Time to IPO

	N	JUNIOR AGE(YRS)	STARTUPS	
1900s	496	63%	16	29%
1910s	451	80%	9	38%
1920s	704	100%	25	12%
1930s	446	100%	28	5%
1940s	418	28%	48	0%
1950s	435	0%	50	3%
1960s	643	0%	30	0%
1970s	268	0%	42	0%
1980s	811	64%	29	0%
1990s	686	47%	24	7%
2000s	1263	80%	6	26%

This severe bout of LSE self-regulation constituted a very belated over-reaction to the poor long-run performance of these IPOs both before WW1 (Burhop, Chambers and Cheffins 2011) and in 1928-29 (Harris 1933, Chambers 2010). Their effect was to shut entrepreneurial firms out of the stock market completely as evidenced by the sharp rise in average firm age to in excess of 40 years from the 1940s to the 1970s.

The combination of stringent listing requirements and a weak economy led to a moribund IPO market in the 1970s. The position was remedied starting in 1980 when the LSE relaunched its junior market in the shape of the Unlisted Securities Market (USM), a response to the US launch of NASDAQ a decade earlier and the fore-runner of today's AIM which was established in 1995. In the first decade of the 20th century start-up IPOs appear to be flourishing once more.

Section 3: What can we do with this data?

Below I briefly review two types of research question which lend themselves to analysis using this long-run historical data: the conducting of out-of-sample tests of modern-day anomalies or stylised facts; and the question as to the role regulation plays in establishing IPO markets.

A. Conducting out-of-sample tests

There are well-known stylised facts about IPO markets, namely underpricing and IPO cycles. Both of these phenomenon can be subject to out-of-sample tests using historical data sets. Hence for example, Chambers and Dimson (2009) argued that early in the 20th C there was little or no underpricing. The implication is that the underpricing we see today may be a recent phenomenon which has arisen from the way in which markets have developed.

Similarly, the IPO cycle – the tendency of IPOs to cluster in time far more than the business cycle would suggest – lends itself to out-of-sample testing. The definitive existing study in this area is Lowry (2003). This study only uses data extending back to 1960 for the US market. Hence, by extending the IPO data set back to the beginning of the 20th C or even earlier we can double the number of hot markets that we observe.

B. IPOs and Regulation

IPO markets offer an interesting setting in which to calibrate the effectiveness of financial regulation and in particular to test whether the “law matters” thesis and its variants are able to explain IPO market development. This is an area where relatively little work has been done to date. Burhop, Chambers and Cheffins (2011) is one example of this type of research. The paper argues based on a comparison of Berlin and London pre-1913 that there is an alternative way to develop an IPO market other than robust regulation, namely, an unregulated junior market which is complementary to the main market, which attracts the bulk of IPOs and the investment risks of which are understood by investors.

A related research question is how should junior markets be constituted? On the one hand, minimal regulation will accelerate time to IPO for young innovative firms which may have substantial benefits for industrial and economic performance; on the other, unsophisticated investors can suffer substantial wealth losses in the absence of sufficiently robust listing requirements which can damage appetite for equity risk.

Finally, it would be interesting to be able to say something about the role of trust, a substitute for regulation, in getting IPO markets to work. It is clear that trust has an important role to play in establishing early financial markets. Naomi Lamoreaux in her study of kinship banks in 19th C New England is perhaps the best known example. However, returning to the earlier discussion, Provincial stock markets would seem to be a promising area in which to search for further evidence of this phenomenon operating amongst stock markets. If local investors felt more comfortable investing in local firms via local brokers, then this ought to be apparent in underpricing, survival or long-run performance.

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