

Why don't U.S. issuers demand European fees for IPOs?*

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Abstract

IPO techniques have converged over the last decade, but in this paper we find that fees charged by investment banks have not. Chen and Ritter (2000) were the first to document the “7% solution” for U.S. IPOs. We find that gross spreads in the U.S. have become even more clustered at exactly 7% in the last decade. However, although the same U.S. investment banks conduct IPOs in Europe using the same methods, we find that they charge fees that are roughly 3 percentage points lower, with far greater variance across issues. If U.S. issuers had paid European fees over the last decade they would have saved around \$6bn. One possible hypothesis is that more accurate pricing of IPOs in the U.S. compared with Europe compensates for the higher direct fees. However, we find the opposite to be the case. We investigate other possible explanations for the “3% wedge”, none of which is convincing. The evidence in this paper should encourage U.S. issuers to demand European fees for their IPOs.

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I. Introduction

Almost ten years ago, Chen and Ritter (2000) published the sensational result that IPO issuers in the United States almost always pay exactly seven percent of the proceeds to the underwriting syndicate when offerings have proceeds of between \$20m and \$80m. This observation, which the authors suggested could be evidence of implicit collusion (which they term ‘strategic pricing’), prompted a Department of Justice investigation. But subsequent papers by Hansen (2001) and Torstila (2003) cast doubt on this interpretation, and the Department of Justice withdrew the investigation. A class-action anti-trust lawsuit was also launched, and was ultimately settled privately after a 2007 appeals court decision allowing the claim against the underwriters to proceed.¹ What Chen and Ritter did not have, and could not have, was a representative and comparable sample of IPOs from another market. The passage of time and the integration of markets have changed this: not only have ten years passed, which allows us to assess whether the “7% solution” still stands in the U.S., but we are now also for the first time able to compare the U.S. and European markets, like-for-like, and reopen the debate on IPO fees.

The method of conducting IPOs in the U.S. was, for many years, unique. Unlike IPOs in the rest of the world, U.S. offerings have for decades been managed using the “bookbuilding” method, a process whereby investment banks canvass legally non-binding but nonetheless serious indications of interest from a wide network of institutional investors in advance of the

¹ The original class-action lawsuit was filed in 2000, alleging fee-fixing by 32 underwriters, over the period 1994-98. Most recently, the case has been pursued by two plaintiffs, one of which bought the right to bring a claim from a company that had conducted an IPO but had then become bankrupt, and the other being a group of creditors of another company that had similarly gone public and then become bankrupt. It is interesting to note that surviving companies are unlikely to bring such claims, as they may fear the impact on their access to future financing. In 2006 the District Court ruled that these plaintiffs were not qualified to serve as representatives of a class because the claims had been assigned to them. On appeal, in 2007, the principle that assignees cannot represent classes was rejected by the U.S. Court of Appeals for the 2nd Circuit, the lower court’s decision reversed, and the matter remanded to the district court to reconsider whether the class should be certified (see the case of Cordes & Company Financial Services Inc. v. A.G. Edwards & Sons, Inc. 06-2143-cv). The case was then settled privately in respect of the two individual plaintiffs prior to further district court rulings.

offering. IPOs in Europe, by contrast, used the less time-consuming and, in terms of direct costs, substantially cheaper fixed price method or tender/auction process (see, for instance, Jenkinson and Ljungqvist (2001) and Ritter (2003)). This widely-acknowledged difference was cited by industry participants as the reason why gross spreads – the proportion of proceeds raised at the IPO that accrue to the underwriting syndicate as commission – were so much lower in Europe than in the U.S.

In recent times, however, all this has changed: Ljungqvist, Jenkinson and Wilhelm (2003) indicated that by the end of their sample period (July 1999), approximately 80% of all non-U.S. offerings were being bookbuilt (Europe constitutes two thirds of their sample). The trend has continued. For the past decade, with the exception of some very small offerings and some periods when certain countries have experimented with auctions, the vast majority of European IPOs have used bookbuilding.

One of the major contributions of this paper has been to assemble a dataset of European bookbuilt IPOs with spread and underpricing data, both of which are notoriously difficult to source accurately. The last Europe-wide gross spread study can be found in Torstila (2001), but this covers the 1986-1999 period a multiplicity of offering techniques frustrated any attempt to generalize the results. Conversely, we are able to use our dataset, which covers ten years of data from 1998 to 2007, to match with a dataset of U.S. IPOs drawn from the same period using standard sources. Furthermore, the international integration of capital markets has resulted in some leading investment banks competing for IPO business on both sides of the Atlantic. In this paper we are able to compare how a given bank charges for its (almost identical) services at home and abroad. With accurate IPO data available from these two historically distinct but now comparable markets, we are able to assess the extent of any differences and cast some light on why these disparities may exist.

Our main findings are as follows. First, adjusting the Chen and Ritter (2000) \$20m-\$80m range for inflation – to become \$25m-\$100m – we find that the “seven percent solution” has become even more pronounced in the U.S.: 95.4 percent of the IPOs in this size range reported fees of exactly 7 percent fees over the period 1998-2007. The comparable figure over the decade from 1989-1998 (as reported by Chen and Ritter), was 84 percent, although signs of increased clustering at 7 percent were clearly evident towards the end of their sample period. Second, for larger U.S. IPOs with proceeds in excess of \$100m, clustering at 7 percent still exists but (as

would be expected) there are clear economies of scale. However, our multivariate analysis indicates that fees have risen, rather than fallen, in the past decade. Third, the European experience is quite different. European IPOs have no focal point for fees, and only 1 percent experience fees as high as 7 percent. Within the \$25m-\$100m range fees for European IPOs average around 4%. Fourth, European IPOs are always cheaper: we find that there is a “3% wedge” between European and U.S. IPOs after controlling for size, issue characteristics, syndicate structure and time or country effects. Furthermore, European IPOs have been getting cheaper over time: regression analysis shows that for IPOs with proceeds in excess of \$100m, fees have been falling in the past decade, and by more than 1 percentage point for large IPOs. Fifth, we find that the same investment banks charge significantly lower fees for conducting IPOs in Europe compared with the similar IPOs they underwrite in the U.S.

The economic significance of this difference in fees is considerable. The difference in mean gross spreads over the ten-year period between the U.S. and Europe is 3.07% while the average (median) U.S. IPO had proceeds of \$105.00m (\$97.04m). On this basis, if U.S. issuers had been charged European fees they would have saved \$3.5m (\$2.98m) per IPO; aggregated over the ten years that equates to a saving of about \$6bn, or \$600 million per year.²

Searching for explanations, the fact that the same investment banks set fees – on average – at around a 50% discount in Europe relative to the U.S., suggests that it cannot be the structure of the banks themselves that causes the price discrepancy. Although it would be incorrect to characterize the U.S. IPO market as uncompetitive, we calculate that the U.S. Herfindahl index is roughly double the European value. There have clearly been some entrants into the U.S. market. WR Hambrecht have been offering their auction-based Open IPO method for some years, which has considerably lower fees, but they have attracted only a tiny fraction of the market. Similarly, Google was clearly trying to break the mold when they used an auction for their IPO. However, the reluctance of many institutional investors – who clearly had nothing to gain from the auction approach succeeding and being more widely adopted, given their preferential access to valuable IPO allocations under bookbuilding (see Jenkinson and Jones, 2009) – to participate in the early part of the auction created some problems for the process, and was a set-back for those hoping

² This is based on the 1845 U.S. IPOs in our sample; the actual saving would be even larger as our sample is constructed using standard IPO omissions (investment companies, SPACs etc.).

that auctions might be encouraged by the Google offering. So, despite some competitive pressure, the U.S. market remains relatively concentrated in terms of the number of investment banks, with few deviations observed from standard bookbuilding techniques.

Even if competition is part of the answer, some argue that other differences between the two markets can explain the 3% wedge. We explore five of these favored explanations: legal costs, retail offerings, litigation risk, analysts and the possibility that lower underpricing might offset higher fees. However, we find no evidence that these explanations can materially explain the difference in fees. In terms of underpricing, if anything the European IPOs are somewhat more accurately priced. Ultimately, we can find no good answer to the question we raise in the title. Indeed, in a recent article in the Financial Times³ the CEO of AIG is quoted as wanting to “halve the fees paid to Wall Street banks to take the insurer’s units public”, and recounts his frustration that there seems to be no room for negotiation. This paper suggests his objective of halving fees is perfectly reasonable, and the evidence presented should provide support to those U.S. issuers who attempt to negotiate European rates.

The remainder of this paper is structured as follows. Section II describes the data collection exercise and tables summary statistics. Section III describes the dataset using a number of univariate sorts and reports multivariate regression results. Section IV investigates explanations other than competition for the difference in fees between the U.S. and Europe, and Section V discusses implications of the results and presents conclusions.

II. Data

Our sample of 1845 U.S. and 870 European IPOs, spanning the 1998-2007 period, represents the most up-to-date and internationally comparable dataset of its kind. The aim was to produce an equivalent sample of IPOs for two regions where a common issuing method was used. Previous cross-country studies addressing spread disparities have been constrained by the multiplicity of issuing methods – in this paper all the IPOs use the same bookbuilding process. We exclude auctions and hybrid offerings. This dataset is therefore the first of its kind and paves the way for a more powerful comparative analysis.

³ “Psychology behind high fees for underwriting”, The Financial Times, 9 September 2009.

Part of the contribution of this study is to provide an updated report on how spreads have evolved in the United States, following on from the seminal paper of Chen and Ritter (2000), which used data up until the end of 1998. The United States data is therefore drawn from the same SDC Platinum database used in that study, and comparable exclusions have been made. Chen and Ritter (2000) focus on IPOs where proceeds (excluding over-allotment options) are at least \$20 million, as measured in 1997 U.S. dollars.⁴ To ensure comparability between datasets we have restricted our sample to IPOs with proceeds of at least \$25 million, expressed in 2007 U.S. dollars, calculated using the GDP deflator.⁵ As we discuss later, we are able to replicate Chen and Ritter's sample almost exactly for 1998, the overlapping year in our dataset.

The dataset was constructed as follows. The universe of IPOs was drawn from the industry-standard Securities Data Company (SDC) Platinum database, for both United States and European offerings.⁶ The period of consideration runs from January 1998 to December 2007 and, as discussed previously, the sample is restricted to IPOs with proceeds of at least \$25 million, as measured in 2007 U.S. dollars, calculated using the U.S. GDP deflator to account for inflation over the ten year period.⁷

Importantly, the sample is also restricted to IPOs that use bookbuilding as an issue method. SDC Platinum specifies the issue method for IPOs; this field is used as the primary filter. However, SDC Platinum mistakenly includes several of WR Hambrecht's OpenIPO auction offerings in the dataset for the U.S. sample; 16 of these IPOs are manually removed. Although auction and fixed price techniques in Europe were almost exclusively confined to small (i.e. proceeds of less than \$25 million) IPOs during the sample period, the issuing method of every French IPO was matched against the dataset as a further check, and confirmed that all fixed price and auction IPOs had been excluded.⁸

⁴ The authors argue that IPOs with proceeds less than \$20 million will face significantly higher fees due to diseconomies of scale and that these offerings may also have associated underwriter warrants.

⁵ \$25 million in 2007 U.S. dollars is equivalent to \$20 million in 1998 U.S. dollars.

⁶ The nationality of an IPO is determined by the country of the primary exchange where the issue is listed.

⁷ The deflation factor between 2007 and 1998 is 1.24.

⁸ France is unique among European countries in that bookbuilt, auction and fixed price IPOs coexisted for many years during the 1990s. Furthermore, unlike many stock exchanges (including the London Stock Exchange), France's exchanges list issue method and thus allow for this check.

Having assembled a sample of bookbuilt IPOs for 1998-2007 in the United States and Europe, we then apply a number of standard exclusions used in IPO literature. We exclude closed-end funds, SPACs and REITs. We exclude unit offerings, and offerings where all tranches contain depositary receipts (e.g. ADR or GDR offerings). This produces a sample of 1885 U.S. and 1707 European IPOs for 1998-2007.

The primary variables of interest in this study are the gross spread and, to a lesser extent, the underpricing of IPOs. For the U.S. offerings, gross spread data is drawn exclusively from the SDC Platinum database, though this is checked against prospectuses and 3 spread adjustments were made.⁹ U.S. pricing data is drawn from the Center for Research in Security Prices (CRSP) database. Excluding offerings where spread or pricing data is unavailable leaves a final sample of 1845 United States IPOs.

Obtaining gross spread and pricing data for European offerings is fraught with difficulty, and probably accounts for the paucity of IPO analysis on this region as a whole. To begin, consider the disparity in gross spread coverage in the SDC Platinum database between the United States and Europe. For our sample, 1872 of the 1885 (99%) U.S. offerings have gross spread information in SDC Platinum; for European offerings only 487 of the 1707 (29%) have spread data. The scarcity of spread data is almost certainly a function of regulation: in the U.S., it is a regulatory requirement to disclose the level of underwriting fees prominently whereas in Europe, there is no express requirement to do so. Although the underwriting agreement should contain such information, this is sometimes included in a separate document. Even when underwriting expenses are disclosed in European offerings, they are often lumped together with other expenses (e.g. listing fees) to give an overall cost of the offering to the issuer, which includes but does not reveal the underwriting commission.¹⁰ To boost the gross spread coverage we bring in data from Dealogic, another source of European IPO data. This allows us to increase the coverage from 487 to 870 IPOs. Incorporating the Dealogic database required a hand-check of name data to ensure that the maximum additional information was included. There are 342 cases where SDC

⁹ Innotrak Corp, Main Street Corp and Susser Holdings Corp should all have spreads of 7%.

¹⁰ We should also note the confounding factor that most European prospectuses are printed in the language of the country where the primary exchange is located, whereas U.S. prospectuses are all printed in English.

and Dealogic data is available; in 288 of these (84%) the values are identical. The average absolute difference between SDC and Dealogic values for the 54 cases where the values did not match is 0.6%; in these cases Bloomberg, news searches and prospectuses (where available) were all used to reconcile the difference. In the absence of additional information, the SDC value was used.

The dataset of European IPO and aftermarket prices was drawn from Datastream, which is again regarded as the standard source for this data. However, Datastream is highly inconsistent in its reporting of IPO and prices and in the early aftermarket. The first price is sometimes the IPO price, sometimes the opening price of the first trading day, sometimes the closing price of the first trading day. To address this problem, all instances where the Datastream first price was not equal to the SDC Platinum reported IPO price were investigated using Factiva news searches. This required a painstaking search of 339 cases and the appropriate corrections to the pricing data where necessary. Excluding offerings where spread or pricing data were unavailable leaves the final sample of 870 European IPOs.¹¹

The summary statistics for the 2715 IPOs (1845 United States and 870 European) in the sample are presented in Table 1. The statistics are separated into four panels by proceeds. Panel A presents results for the full sample, while Panels B-D separate the results into three proceeds ranges. Panel B, which covers proceeds from \$25m to \$99.99m is equivalent to Chen and Ritter's (2000) \$20m-\$79.99 range.

The distribution of IPOs over time follows a similar pattern in both the United States and Europe, where 1999 and 2000 (which constitute more than a third of the sample in both markets) clearly show the influence of the bubble period on IPO activity, 2001-2003 the subsequent recession and 2004-2007 the recovery that preceded the credit crunch period. In both markets median proceeds spike during the quiet periods reflecting the trend away from small issuers going public following the collapse of the tech market. Even in the subsequent recovery, however, it appears that in both the U.S. and Europe median issue size was larger than in the 1998-2000 period, suggesting a permanent shift away from smaller issues.

¹¹ In addition, gross spread values that appeared unusually low in the U.S. or the EU are individually investigated using Bloomberg, news searches and prospectuses, resulting the reclassification of 5 IPOs and the omission of a further 15 IPOs.

One possible concern is that because the European sample is severely constrained by the availability of spread data, the dataset could be unrepresentative. Comparing the sample with the full universe of 1707 European IPOs shows that most of the omitted IPOs fall into the \$25m-\$100m category, as one might expect. This underlines the importance of running separate analyses on the different size categories, as is done in Section III. Nonetheless, within each size category, the median proceeds of the universal sample are approximately within 10% of the final European sample median proceeds and we are therefore satisfied that the sample is robust in this respect.

Syndicate composition is described in the columns headed “Bookrunners”. Given that bookrunners capture most of the gross spread awarded to the syndicate, and that banks compete fiercely for this position, we concentrate on the composition and number of bookrunners to characterize primary syndicate dynamics. Hu and Ritter (2007) note that the number of bookrunners has been increasing in the United States in recent years; Table 1 confirms that not only in the United States, but also in Europe there has been a steady increase in the number of bookrunners over the past decade. The increased propensity of issuers to require several bookrunners in their syndicates and the willingness of banks to split the spread in this way could indicate increased intra-syndicate competition over this period.

Turning to the percentage of offerings that contain at least one U.S. or non-U.S. bookrunner in the syndicate, three features in particular are noteworthy: (1) in both the United States and Europe, “local” bookrunners are dominant, with U.S. and non-U.S. bookrunners consistently appearing in about 85% of U.S. and European offerings respectively; (2) in both markets, the proportions of “foreign” bookrunners have increased over the time period; and (3) European issuers have a greater propensity to employ U.S. bookrunners than U.S. issuers employing non-U.S. bookrunners. The third observation is again given some depth by statistics presented in Panels B-D: we see that European IPOs very seldom have U.S. bookrunners for small offerings, but that for large offerings, nearly all European IPOs include a U.S. bookrunner. This is perhaps to be expected: small IPOs are best handled by regional investment banks, whereas large IPOs are frequently placed globally where the reach of a U.S. underwriter will be attractive. In the United States, however, non-U.S. bookrunners are only involved in a minority of offerings, regardless of size.

In the following section we turn to the direct costs to issuers of performing IPOs in the United States and Europe; Section IV then discusses possible explanations for the discrepancies by considering the indirect cost of underpricing and other potential direct costs.

III. How do U.S. and European IPO costs to issuers compare?

We now turn to a discussion of spreads in the U.S. and European IPO markets. We begin with a univariate characterization before extending the analysis to a multivariate setting in the second part of the section.

Returning to Table 1, perhaps the most startling feature is the difference in mean gross spread between the United States and Europe. Panel A suggests that there is a wedge of some 3 percentage points between U.S. and European spreads, a finding which is perhaps surprisingly robust across the sub-samples in Panels B-D. For the largest IPOs, it would appear true to say that European IPOs are “half the price” of U.S. IPOs. The level is not the only feature of interest, though. Comparing the evolution of spreads between 1998 and 2007, the U.S. seems to have remained reasonably steady around the 6.7% mark, whereas European spreads appear to have dropped from 4% to 3.2%. At first blush this would suggest that the European IPO market has continued to change and that, if anything, the cost of doing an IPO has fallen in the last decade; this is all-the-more remarkable when one considers that European banks have adopted what was previously considered to be the more-expensive bookbuilding method during this time.

Chen and Ritter (2000) showed that, remarkably, for U.S. offerings with proceeds of between \$20m and \$80m (measured in 1997 U.S. dollars), almost all gross spreads were 7% exactly. Using the equivalent range measured in 2007 U.S. dollars (that is, \$25m-\$100m), we have been able to replicate their results almost exactly for 1998 and have extended the results for the subsequent 9 years as well. This is graphically depicted in Figure 1. The pattern has remained consistent post-1998, with spreads remaining at exactly 7% for more than 80% of offerings in each year (and more than 90% of offerings for all but two of the years). Hansen (2001) has suggested that the continued presence of the “7% solution” or “7%-plus contract” in the face of the public scrutiny that followed Chen and Ritter’s paper is evidence that the market for IPO underwriting services is competitive.

As mentioned previously, what those papers were unable to do was to draw a comparison between the United States and other markets, primarily because of the considerable differences that existed between them. And while it is true that the United States IPO market has some institutional differences when comparing it to the European market (these are revisited in Section IV), our period of analysis – unlike previous studies – captures European IPOs that were managed using the same bookbuilding process that has been employed in the United States for decades.

Remaining for the moment with the \$25m-\$100m range, we have included United States and European spreads for our sample period on the same scatterplot in Figure 2. European spreads are shown as hollow dots, U.S. spreads are solid. The contrast between the markets is striking and clearly reveals three key differences. First, the sheer dominance of the 7% pricing in the United States is palpable (to get a grasp of the thickness of the 7% “line”, recall that for this price range there are almost three times as many offerings in the U.S. sample compared with our European sample). Second, European spreads are never in excess of 7%, suggesting that the U.S. pricing represents something of an “upper bound” on IPO pricing across the Atlantic. Finally, European pricing is not concentrated at any particular level: there is a wide range of prices, ranging from less than 1% to 7%. It is not clear from this graph whether there are any systematic reasons for price variation in Europe, though it is clear that for both markets, economies of scale do not seem to be active over this range of proceeds.

Economies of scale are nonetheless present in the U.S. and European IPO markets, as is evidenced from Figure 3, which separately shows the gross spreads for the full range of all U.S. and European IPOs in the sample in panels A and B respectively, plotted against the natural logarithm of proceeds expressed in millions of U.S. dollars. Panels A and B show not only the economies of scale, but also (1) the much greater variation in gross spreads in Europe and (2) the 3% wedge described earlier. Both markets show some clustering around 0.5 percentage point values: in the U.S. there are clusters at 7%, 6.5% and 6%, though proceeds need to be considerably larger than in Europe before the non-7% clusters take effect. Contrast this with Europe, where clusters at 3%, 4% and 5% are evident right from offerings at \$25m.

These considerable spread discrepancies do raise the question: who are the banks doing these offerings? Is it possible that a different set of banks are operating in the United States compared to those in Europe, and thus face different corporate structures that could account for

the price differences? To cast some light on these questions, Table 2 presents the top ten bookrunners by proceeds in the U.S. and European IPO samples. Table 2 makes it clear that the top banks operating in the two markets are the same – 8 of the 10 top banks are common to both markets. Again, three striking features are present in this table: (1) although the ranking is different, the top three banks in the United States – which are all U.S. operations – are also the top three banks in Europe; (2) the share of the top three banks in the U.S. is just shy of 50% whereas in Europe the share of the top three banks is 30% (the corresponding shares for the top ten banks are 85% and 67% respectively); and (3) comparing U.S. and European spreads bank-on-bank, U.S. spreads are greater by a factor that ranges from 1.81 (Goldman Sachs) to 2.36 (JPMorgan).

The dominance of U.S. banks in Europe is perhaps surprising given the presence of many “National Champion” banks in Europe, though from the top ten European banks only Mediobanca and Dresdner can be considered for this category (the remaining European banks are better considered as “pan-European players”). It appears instead that while National Champions may be included as one of the (often multiple) bookrunners in their largest national deals, the large U.S. banks often take a bookrunner role in large offerings across all European countries.¹²

The fact that the top three banks in the U.S. generate a significantly higher concentration than the corresponding share in Europe does hint at something of a discrepancy in the competitiveness of the two markets. Although standard measures would suggest that there is little indication that the concentration of the U.S. IPO underwriting services is anti-competitive, the dramatic difference in concentration between the markets may be an important part of the puzzle to explain the final observation: the considerable difference in bank-on-bank spreads between the markets.¹³ What is clear is that the “3% wedge” or “half-price IPO” observation we made in the full sample is not driven by “small” banks in the United States creating an upward bias: here the same banks charge half the price in Europe (the average spread of the 8 common banks is 6.53% in the U.S. vs. 3.27% in Europe), representing something similar to the 3% wedge that was found in the whole sample. The fact that the same banks price so differently in

¹² Rankings 11-20 for Europe feature 9 National Champions + Lehman Brothers.

¹³ The Herfindahl-Hirschman Index for the U.S. sample is 1072; the European value is 564.

the markets is ex ante evidence against the argument that the different internal structure of European and U.S. banks explains the pricing policy; instead it strongly supports the suggestion that the particular differences in the institutional structure of the IPO market in Europe and U.S. are responsible.

Having analyzed the dataset in some detail we now turn to a multivariate analysis, where we are able to control for issuer characteristics and syndicate composition as well as time and country effects in the decomposition of spread determinants for the United States and Europe. We have already discussed the importance of separating the dataset into three different partitions by proceeds (\$25m-\$100m, \$100m-\$500m and \$500m+ offerings); we will therefore run separate regressions on each of these sub-samples as well as the full U.S. and European datasets. Table 1 indicated that aside from pricing differences across the sub-samples, syndicate composition is substantially different.

Eight regressions are run and reported in Table 3, four for the United States and four for Europe: one on the full sample and the remaining three on the sub-samples described above. The regressions are all of the specification in the equation below; for European IPOs country dummies are included for the four most prominent European markets:

$$\begin{aligned} \text{spread}_i = & \alpha + \beta_1 \text{Proceeds}_i + \beta_2 \text{Tech}_i + \beta_3 \text{VCbacked}_i + \beta_4 \text{Privatisation}_i + \\ & + \beta_5 \text{USBook}_i + \beta_6 \text{SeveralUSBooks}_i + \beta_7 \text{SeveralNonUSBooks}_i + \\ & + \left(\sum_{j=1999}^{2007} \beta_j \text{Year}_j \right)_i + \left(\sum_k \beta_k \text{Country}_k \right)_i. \end{aligned}$$

The regressions are all run using ordinary least squares with standard errors calculated using the heteroskedasticity-consistent method of White (1980); the results are reported in Table 3. There are observations to be made about the sign and significance of the control variables, syndicate composition as well as time and country effects. However, we preface these by noting that the multivariate analysis essentially confirms the key findings from the univariate sorts that we have been discussing: (1) the United States has essentially no price variation in the \$25m-\$100m range (unlike Europe); (2) economies of scale exist in both markets beyond \$100m; (3) fees are substantially lower in Europe – by about 3 percentage points on average.

Taking these in turn, consider the first regression for the U.S. on the \$25m-\$100m range. The general lack of significance of the individual variables aside, note the adjusted R-squared

figure: 0.01. Contrast this with the equivalent European regression, where the adjusted R-squared value is 0.22. Whereas in Europe and in larger U.S. offerings several independent variables show significance and the regressions show reasonably good fits, this is not the case for U.S. IPOs below \$100m. This is not at all surprising given the extraordinary clustering observed in Figure 1. The constant enters at 7% in the U.S., confirming the “7% solution”. Note, again, the “3% wedge” when comparing the constants between U.S. and Europe for the \$25m-\$100m range. The regression analysis, in other words, confirms the univariate results for this range.

Turning to the remaining ranges, \$100m-\$500m and \$500m+, it is clear from the negative and highly significant coefficients on Proceeds that in both markets, larger IPOs are associated with lower fees, i.e. that economies of scale are present. Notice, however, that neither the United States nor Europe presents any significant evidence of scale economies in the < \$100m range. The larger adjusted R-squared value attached the European < \$100m regression is therefore not picking up scale economies but rather suggesting that the price variation, which is so evident in Figure 2, is brought about by other factors. A closer look at the independent variables for the European < \$100m regression reveals, for instance, that high technology offerings are priced at a premium, VC backed offerings at a discount, some year variation, and that Germany and France are significantly more expensive than the UK in this range.^{14,15,16}

Returning to the scale economies in the remaining ranges, it is noteworthy that while the coefficients of Proceeds for the middle range are of the same order in the United States and Europe, the U.S. coefficient of Proceeds for IPOs over \$500m is much larger than its European counterpart. This may lead one to the conclusion that the U.S. responds more to scale economies than Europe, but this is not necessarily the case when one recalls Figure 3 as well as taking the constants from these regressions into account. What is evident from those figures is that U.S.

¹⁴ We employ the detailed SIC code-specified definition of “tech” as used by Loughran and Ritter (2004).

¹⁵ Germany’s Neuer Markt was particularly active in the early part of the sample (it closed in 2003); offerings on this exchange were predominantly high technology and would have commanded a higher spread.

¹⁶ The privatisation dummy does not apply for the \$25m-\$100m range in Europe or for any U.S. offerings. Note, however, that in line with the findings of Torstila (2001), the privatisation dummy enters with a negative and significant (statistically and economically) coefficient for the remaining European sub-samples and the overall European regression.

economies of scale begin from a much higher level (7%) and only begin in earnest for larger IPOs than in Europe. Naturally this would have the effect of making the coefficient of Proceeds for U.S. \$500m+ IPOs larger in absolute value than for Europe, but will also suggest a much larger constant, which we see too. Whereas constants for the previous ranges have had a difference of 2-3 percentage points, the difference in constants between the United States and Europe for the largest range is more than 6 percentage points. Incidentally, the “3% wedge” is again reflected in a comparison of the constants for all IPOs: the U.S. regression reports a constant of 8.9%, whereas the Europe regression constant is 5.6%. In sum, these results again confirm the univariate graphical analysis, which indicates economies of scale in both markets; however, although both markets experience scale economies for larger offerings, European IPOs benefit from these economies for some smaller offerings where U.S. IPOs do not.

We have already drawn attention to the difference in constants, which points to the “3% wedge” noted in the univariate sorts earlier. The regression output allows for further insight into the evolution of spreads over time, and once again the difference between the United States and European markets is apparent. To begin, consider the regressions containing all IPOs in the U.S. and Europe samples. The year dummies, which should be interpreted as the difference in spread relative to the average 1998 spread, show considerable significance for both markets. However, whereas the sign of the significant dummies in the U.S. market is positive, the sign of significant dummies in the European market is negative. In other words, relative to 1998, spreads have risen in the United States, while they have fallen in Europe.

The differences are in fact more complex, as the sub-sample regression analysis reveals. We see, for example, that the increased cost reflected significantly in the overall U.S. regression appears to be driven by the pattern of the mid-range \$100m-\$500m regression. Although the year dummy coefficients of the largest range for the U.S. are also positive, they are not statistically distinguishable from zero. If one were to make the leap between price movements and competition, this may suggest that the mid-range IPO market in the U.S. has, if anything, become less competitive in the last decade.

This is in sharp contrast with the European experience. In both the mid-range and largest sub-sample regressions, we see that since 2004, prices have been substantially lower than in 1998. Moreover, the effect is larger for the largest IPOs. The magnitude of the reduction is also considerable: taken as a proportion of the constant, the average reduction for the mid-range IPOs

from 2004 has been 10% (the respective figure for mid-range U.S. IPOs is an increase of 2%) and for the largest range the average reduction from 2004 has been a colossal 21%. This is not only statistically but also highly economically significant. Although it is difficult to pin down any particular explanation for the dramatic decrease, it must be the case that the closest to hand is an increase in competition – recall from Table 1 that there has been a steady increase over the past ten years in the proportion of European IPOs that include U.S. bookrunners in the underwriting syndicate. Historically has Europe not only had a fragmented structure that is favorable for competition, but the continued integration of global markets has meant in increasing presence of foreign investment banks competing for business in Europe. This could plausibly be a material factor in the considerable reduction of European fees in recent years.

Lastly we consider syndicate composition. Table 1 provided some insights into the presence of “native” and “foreign” bookrunners in the underwriting syndicate; here we include three dummy variables to provide color to the multivariate analysis: from Equation (1) “USbookrunner” indicates whether there is a U.S. bookrunner in the syndicate, “SeveralUSbooks” and “SeveralNonUSBooks” indicate if there are at least two U.S. or non-U.S. bookrunners in a multiple bookrunner IPO respectively. The “base case”, i.e. if all the syndicate dummies report a zero, is a single non-U.S. bookrunner. The results indicate further differences between the U.S. and European IPOs markets.

To begin, consider the regression containing all European IPOs. Here we note two important features: firstly, although the coefficient for USbookrunner is positive, it is not significant. This is in contrast with previous studies using data from the 1980s and 1990s that have suggested that including a U.S. bank in the syndicate increases the spread. It would seem that in the past decade U.S. banks have not been able to command the same premium in European IPOs that they have historically enjoyed, perhaps an indicator that the European market for IPO underwriting services has become more competitive as pan-European and National Champion banks have all adopted the bookbuilding technique. The second feature is the economically and statistically significant coefficient on SeveralNonUSBooks, which suggests that the presence of multiple non-U.S. bookrunners (which can be read here as multiple European bookrunners) results in a decline in spread (the sign is the same for multiple U.S. bookrunners, but the statistical and economic significance is substantially less). At first blush one might expect that multiple bookrunners would increase, rather than decrease, spreads.

However, it is often the case that competition at the IPO beauty contest between underwriters desperate for the bookrunner position will result in lower spreads as a trailing bank offers a lower price to be joint bookrunner. This “rather a poor bookrunner than no bookrunner at all” explanation is supported not only anecdotally but also by this regression output which confirms the effect. Moreover, the sub-sample analysis shows that the overall effect is not just driven by the largest range but is instead present in both the \$100m-\$500m and \$500m+ ranges in equal measure. This effect, consistent with competitive pressures, is therefore present in all but small European IPOs.

The United States results are weaker but share some common characteristics. In the sample of all U.S. IPOs, we see that `SeveralUSBooks` enters with a negative and significant coefficient. This is comparable to the `SeveralNonUSBooks` result in the European sample – it would appear that multiple “native” bookrunners have the effect of reducing the spread, but that this effect does not extend to foreign bookrunners in either market. The sub-sample results reveal that the effect is driven by the largest range, where the coefficient is more economically significant, though – both proportionally and absolutely – the effect is less than that in Europe. Unlike Europe, however, the effect is confined to large IPOs as the mid-range coefficient is neither economically nor statistically significant. U.S. IPOs, therefore, have most in common with European IPOs in the large cap category, while European mid-cap IPOs appear to have more evidence consistent with heightened competition.

The regression results therefore appear to confirm the univariate analysis presented before, highlighting the difference in spread level between the markets and also revealing some effects that are consistent with greater and increasing competition in Europe. However, some academics and practitioners have pointed to explanations other than competition to reconcile the discrepancy in the cost of doing IPOs between the United States and Europe. In the following section we examine five of these alternative arguments and assess whether they can explain the spread differences.

IV. What factors could explain the differences in costs?

The results above suggest that, in terms of the gross spread, the level of competition among underwriters is lower in the U.S. than in Europe. Historically the difference between U.S. and European spreads has been attributed to differences in issue technique: the U.S. used the bookbuilding method, which in spread terms has been more expensive, while Europe typically employed less expensive fixed price procedures or auctions. In the last decade bookbuilding has become the predominant issue method in Europe as well, and yet the spread discrepancy persists. In this section we assess whether the difference in spreads can be explained by indirect or other direct costs. In particular we turn our attention to the main indirect cost of initial public offerings, underpricing, and four further explanations that are routinely offered by industry participants to explain the gap.

(i) Indirect costs

An explanation for higher U.S. gross spreads is that spreads are only one of the determinants of net proceeds to the issuer/vendor, and that they should be seen together with underpricing, which is the other major cost. If we return to Table 1, underpricing is indeed another dimension in which the U.S. and European samples differ considerably.¹⁷ In both cases, one can see some evidence of the “bubble” period of 1999 and 2000 where both mean and median values exceed all other years. In addition, both markets show a surge in IPO activity over the 1999-2000 period. However, average and median underpricing across the whole sample in Europe is approximately half the level of underpricing in the United States, and even when the “bubble” period is removed, both mean and median U.S. underpricing (14% and 8% respectively) are considerably higher than the mean and median in Europe (9% and 5% respectively). The sub-sample analysis reveals that the discrepancy is greatest in the \$100m-\$500m category, with U.S. underpricing outranking European underpricing by a factor of 3 for the period as a whole.

¹⁷ Underpricing is adjusted here for market movements using the S&P 500 index for U.S. offerings and the applicable local index for European offerings.

Perhaps it is the case that gross spreads and underpricing are substitutes, so higher spreads in the U.S. might be offset by lower underpricing. However, this cursory glance at the univariate sorts suggests this is not the case because both spreads and underpricing are much higher in the United States. To extend the analysis we run three further regressions with underpricing as the dependent variable to help characterize the difference between the markets in a multivariate setting. The three regressions are all of the following form, and are run using ordinary least squares with robust standard errors:

$$\begin{aligned} \text{underpricing}_i = & \alpha + \beta_1 \text{Proceeds}_i + \beta_2 \text{Tech}_i + \beta_3 \text{VCbacked}_i + \beta_4 \text{Privatisation}_i + \\ & + \beta_5 \text{IPOflow}_i + \beta_6 \text{IPOheat}_i + \beta_7 \text{Bookrunners}_i + \beta_8 \text{Europe}_i + \\ & + \left(\sum_{j=1999}^{2007} \beta_j \text{Year}_j \right)_i + \left(\sum_k \beta_k \text{Country}_k \right)_i. \end{aligned}$$

Underpricing is calculated as the return on a stock bought at the IPO and sold at the end of the 5th trading day, and is adjusted for market movements using the S&P 500 Index for U.S. offerings and the applicable local index for European offerings. The variable is then winsorized at a 5% level for each region to guard against the distorting effects of extreme underpricing values, particularly during the bubble period in the United States. The control variables are as in Equation (1); IPOflow and IPOheat here respectively record the number of IPO deals and the average underpricing of deals in the associated region that occurred in the previous 90 calendar days; Bookrunners captures the number of bookrunners in the underwriting syndicate. The regressions are separated by region: one includes all 2641 offerings in the sample, the remaining two are for the United States (1783) and Europe (858).¹⁸

The results are in Table 4. The first observation here is that when assessing all offerings in a multivariate setting, the Europe dummy is negative (though not statistically significant). This suggests that underpricing is certainly not higher in Europe than in the United States, and if we attach some weight to the coefficient, underpricing may be approximately 2 percentage points lower in Europe. The regressions reveal some surprising differences between the markets, but there are also some features where they behave similarly: high-technology offerings, for

¹⁸ As IPOflow and IPOheat both require 90 days of data, the first quarter of the 1998 sample is omitted in the regressions.

example, are associated with much higher underpricing in both markets (though the premium is higher in the United States) and the level of recent IPO underpricing in the region is also associated with higher underpricing (though, again, the premium is much higher in the United States). The number of bookrunners seems to have little significant effect, though the coefficient (2.1 percentage points) and significance (t -value of 1.43) in the U.S. regression is broadly comparable with the findings of Hu and Ritter (2007) who also find weak evidence suggesting that more bookrunners are associated with lower underpricing.

There are, however, some important discrepancies in the behavior of these markets. While significant in both regressions, VC backed has the opposite sign in United States and Europe. This may reflect the different schools of thought on VC backing (certification in Megginson and Weiss (1991) vs. grandstanding as proposed by Gompers (1996)); it may be that the ratio of small to large VC firms differs in the two regions (grandstanding) or that VC backing is viewed differently due to institutional or cultural factors (certification). Perhaps more surprisingly, while Proceeds is not significant in the overall regression, it is highly significant in the constituent regressions but with opposite sign. One would expect that larger offerings would be associated with lower underpricing as in Europe, but the United States regression suggests the opposite for that market. In unreported underpricing regressions that split the sample by Proceeds as in Table 3, we see that the U.S. positive effect is driven by IPOs in the \$25m-\$99.99m bracket; proceeds is otherwise not significant. In contrast, Europe's significance for Proceeds appears to be driven by IPOs in the largest \$500m+ bracket, as one might expect from theory.

The argument has also been put forward that U.S. underwriters underprice IPOs by less than other firms (e.g. Ljungqvist and Wilhelm 1999). As the same banks dominate IPO business on both sides of the Atlantic (see Table 2), it seems unlikely that the nationality of underwriters can explain these underpricing differences. Moreover, in unreported underpricing regressions, the presence of a U.S. underwriter had little statistical significance.

In sum, regardless of underwriter, one can say the following about underpricing in the two markets: (1) there is no evidence that Europe has higher underpricing than the United States, and there is weak evidence that it has lower underpricing; (2) smaller offerings in the United States are priced less accurately with offer size and (3) there appears to be a greater "bandwagon effect" in the United States where hot markets lead to proportionally greater underpricing than in

Europe. Taken together, this does not suggest that the value lost to the U.S. issuer in higher spreads is reclaimed via underpricing: the indirect costs are, if anything, higher in the United States than Europe.

(ii) *Other direct costs*

Industry participants point to four different explanations for the continuing difference in IPO spreads between the United States and Europe: (a) the treatment of legal expenses, the costs of (b) retail distribution and (c) research analysts, and (d) litigation risk. These are considered in turn below.

(a) *Legal expenses*

In U.S. IPOs, the underwriters' legal expenses are paid out of the gross spread while in Europe they are largely reimbursed by the issuers or vendor separately from the gross spread.¹⁹ We need, therefore, to subtract U.S. underwriters' legal costs from U.S. gross spreads to make a like-for-like comparison between markets. We have obtained from industry sources the typical underwriters' legal expenses for U.S. IPOs of various sizes.²⁰ These are given in Table 5, which also shows, for each size category of IPO, the U.S. gross spread adjusted for these expenses. Raw (unadjusted) U.S. gross spreads as well as European gross spreads (from Table 1) are also displayed. These adjustments narrow the gap between U.S. and European gross spreads but explain only a small fraction of the difference.

¹⁹ We understand from industry sources that, from around 2002, issuers in Europe have tended to cap the amount of the underwriters' legal expenses that they will reimburse separately. As a result, underwriters of European IPOs sometimes have to bear part (up to one-half) of their own legal expenses out of the gross spread. To be conservative we have not reflected this in our analysis. Legal expenses incurred by other parties are borne directly by those parties in both markets and do not concern us.

²⁰ It should be noted that actual figures vary widely to reflect factors other than offer size, notably complexity and time to completion.

(b) Retail

It is claimed by U.S. underwriters that the relatively high U.S. gross spreads reflect the high fixed costs of the retail distribution networks of U.S. banks. There are two assumptions behind this claim, which cannot be tested precisely: that U.S. banks' retail networks play a larger role in the distribution of U.S. IPOs than their European counterparts in European IPOs and/or that U.S. retail networks are more costly than those of European banks. However, a number of arguments cast doubt on the link between high U.S. gross spreads and retail distribution networks. First, retail networks do not exist solely for the distribution of IPOs: they sell secondary equity and fixed income instruments as well as a wide range of financial products and services which are not securities at all. To the extent that (underpriced) IPOs are attractive products for the banks' retail clients, a bank's retail network benefits from its IPO business as well as vice versa. Second, as the costs of retail networks are to some extent fixed, we should expect this effect to raise the gross spread for \$25m IPOs above that of \$100m IPOs. However, as we have seen, U.S. gross spreads persist stubbornly at 7% within this range.

Finally, if IPOs were paying for retail networks, IPOs with a larger retail component should command higher gross spreads than others. We have some evidence against this hypothesis: the Dealogic database which we used to supplement our European dataset with additional fee data also has an indicator for whether an IPO contained a retail component. For the 506 European IPOs where we have this data, 204 have a retail tranche. We then run (unreported) regressions with the same specification as in Table 4 on all these 506 European IPOs and include a dummy to capture whether there is a retail component in the offering. While not significant, the dummy is negative in the overall (and all size sub-sample) regressions; the coefficient suggests that retail offerings may be 11 basis points cheaper, after controlling for all necessary features including proceeds. This indicates that retail components need not be associated with higher fees.

As another check, we might expect IPOs bookrun by underwriters with significant retail networks (Merrill Lynch and Citigroup) to be targeted more to retail investors than those bookrun by others. If they were passing on the costs of these networks to issuers and vendors, we might expect their IPOs to have higher gross spreads. However, this not the case. In regressions unreported above, we examine the effect on U.S. gross spreads when one or both of the two

banks with extensive retail networks act as bookrunner. The presence of one or both of these banks has no significant effect on spreads overall.

(c) Analysts

According to this argument, IPO gross spreads reflect the high costs of research analysts. The objections are similar to those made above on retail networks. First, an analyst's involvement in an IPO may benefit him or her as much as vice versa. Second, the stickiness of gross spreads within the \$25-100m range shows that the deals where analyst involvement is greater (e.g. for companies which are especially difficult to value) do not command the higher spreads one would expect if analyst costs were a determinant in the U.S. Third, since the costs of an analyst are fixed, we should expect \$25m IPOs to pay higher spreads than \$100m IPOs.²¹ However, the assumption behind this claim – that the costs of an analyst for a U.S. IPO are higher than for a European IPO – can be challenged as well. For while in both the U.S. and Europe the underwriters' analysts are expected to provide continuing coverage of the floated company, in Europe it is usual for them to prepare written research before the IPO while in the U.S. this is prohibited. If anything the role of analysts is therefore greater in European IPOs than in U.S. IPOs. Different compensation levels for U.S. and European analysts are unlikely to be a factor either: the IPO business in both markets is dominated by the same banks, which in any case organize their research along sectoral rather than geographical lines.

(d) Litigation Risk

Industry participants point to greater litigation risk in the U.S. as a reason for higher U.S. gross spreads. This link has received scant attention in the academic literature, which has focused on the link between litigation risk and underpricing. Although even this link has been contested (e.g. Alexander 1993, Drake and Vetsuypens 1993), it has more intuitive appeal than a link between litigation risk and gross spreads. Most U.S. IPO-related lawsuits are brought under Section 11 of the Securities Act 1933, under which buyers in the IPO may sue for damages based on the difference between the IPO price and the price at which they sold the shares (or the price

²¹ Since the Global Settlement of 2003, analysts' compensation may not be linked to their role in investment banking business so, at least in terms of IPOs, their costs are fixed.

at the time of the lawsuit if the shares have not been sold). A lower IPO price reduces not only the likelihood of a suit but also the damages if the suit is successful, while a higher gross spread does neither. Moreover, a lower IPO price spreads the cost of insuring against litigation risk between the issuer/vendor and the underwriters, with the former suffering a reduction in proceeds and the latter suffering a reduction in compensation, which is a fixed percentage of proceeds. A high gross spread would, by contrast, compensate only the underwriters for this risk and would do so at the expense of the issuer/vendor. Since Section 11 of the 1933 Securities Act makes the parties to an IPO jointly and severally liable for damages (see Lowry and Shu 2002), the use of the gross spread as litigation insurance would effectively result in one potentially liable party insuring the other.

Even if we did accept that gross spreads were compensation for litigation risk, this would explain only a small part of the difference between the U.S. and Europe. In a sample of 1,841 U.S. IPOs between 1988 and 1995, Lowry and Shu (2002) found that 84 were the subject of Section 11 lawsuits, with a further 22 IPO-related actions being brought under other parts of U.S. securities legislation. The average damages in the 84 Section 11 cases represent 10.1% of IPO proceeds. Allowing for the larger average size of the IPOs which were subject to lawsuits (\$26.72m against \$20.84m for the rest), the cost of damages spread across all IPOs in their sample represents 0.58% of proceeds. If we subtracted this percentage from the ‘adjusted U.S. gross spreads’ in Table 5, and assumed that the costs of litigation in European IPOs were zero, we should still be left with a significant ‘wedge’ between U.S. and European figures, amounting to 3% or more for IPOs up to \$500m, and just under 2% for larger deals. Their sample ends in 1995 and therefore does not include the “bubble” period, when a large number of floated companies were the subject of class actions.²² As we see in Table 1, average U.S. gross spreads change little when we exclude IPOs from 1999-2000, so if there were greater litigation risk from these transactions, it is barely reflected in spreads. And given that the cases amount to fraud charges rather than negligence, it is unclear whether banks would have priced this risk into their spreads in the first place.

²² Stanford’s Securities Class Action Clearinghouse reports that there were 312 cases in 2001 related to IPO allocations. There had been no such cases in the years leading up to 2001 and only one such case has subsequently been filed, in 2002. See <http://securities.stanford.edu>

Even on the most conservative assumptions, then, the effect of litigation risk on gross spreads would do little to narrow the gap between the U.S. and Europe. However, as the discussion above indicates, it is unlikely that gross spreads are, in fact, used as insurance against litigation risk at all and that, if any of the cost components is being used, it is underpricing.

V. Discussion and conclusion

The stark finding from our analysis is that U.S. IPO gross spreads are consistently around 3% higher than those in Europe in our sample period. Even allowing for this difference, there are two other indications that, in terms of gross spreads, the U.S. IPO market is less competitive than its European counterpart. First, the ‘seven percent solution’ identified by Chen and Ritter still applies: the overwhelming majority of U.S. IPOs between \$25m and \$100m pay 7% while spreads on European IPOs in this size range vary widely. Second, while above this size range there are economies of scale in both markets, U.S. IPOs seem to respond less to competitive pressures than European IPOs: U.S. spreads decline less than European spreads when there are multiple bookrunners and, while U.S. spreads have changed little or risen over the sample period, European spreads have declined significantly.

We have reviewed five arguments, which claim that the disparity in spread reflects differences in costs in the two markets. One of these, the treatment of issue expenses, is justified, but accounts for only a small fraction of the gap. None of the other arguments stands up. Indeed, in reviewing the argument that U.S. indirect costs – in the form of underpricing – should be lower than in Europe to compensate for higher U.S. gross spreads, we actually find the opposite to be the case, with both direct and indirect issuing costs greater in the U.S.

If the different cost structures in the U.S. and European markets have little explanatory power over the disparity, a plausible explanation for the ‘wedge’ in gross spreads documented above is the different levels of competition in the two markets. As we have seen, the U.S. IPO business is concentrated in fewer hands than in Europe, reflected in a Herfindahl index for U.S. IPOs of twice the European value.

It is not just the level of market concentration that distinguishes the IPO business in the U.S. and Europe, for there are other key differences. The most obvious is that Europe is not just one market. Retail demand in Europe tends to be tapped in each country by local banks with

branch networks. Some institutional demand in Europe is also ‘local’ and most effectively covered by domestic banks: the vast German savings bank network is an example. If these sources of demand are large enough, then the ‘National Champions’ from the country concerned are likely to be contenders for the bookrunner position. And in European privatizations, governments routinely appoint a local bank as bookrunner. This means that, even if the shares are predominantly offered internationally, global banks face competition from National Champions in Europe of the sort that they do not face in the more homogeneous U.S. market.

More broadly, the two major categories of banks – U.S. and European – are evenly matched when competing for sizeable European IPO business, while in the U.S., domestic banks dominate. Table 1 shows that, whereas some 27% of all U.S. IPOs had a non-U.S. bank as at least one of the bookrunners, around 38% of European IPOs had at least one U.S. bookrunner. This disparity masks considerable variation by deal size. For, while U.S. IPOs between \$25m and \$100m more often have ‘away’ bookrunners than similarly sized European IPOs (23% against 13%) the opposite is true for medium- and large-sized U.S. IPOs. Indeed, for IPOs above \$500m, there is a non-U.S. bookrunner in only a third of U.S. offerings (and 95% have a U.S. bookrunner), while some 80% of European IPOs in this category have a U.S. bookrunner, around the same percentage that have a European bookrunner. U.S. banks seem to have more of their home market to themselves than European banks, particularly when it comes to large offerings.

The yawning gap in spreads may therefore partly reflect the fact that there are more constituencies of banks (National Champions, pan-European banks and U.S. banks) competing for mandates in Europe than in the U.S. However, as Table 2 shows, the same banks dominate the IPO business on both sides of the Atlantic, so the outcome of the competition is largely the same – and yet the banks charge different rates in the two markets. It is unlikely that these global, integrated firms are doing a ‘different job’ on U.S. and European IPOs, and we have seen that differences in the cost structure between U.S. and European IPOs cannot account for the disparity. We have found that banks, often the same banks, consistently charge twice as much to do the same job in the U.S. as in Europe. There is therefore no good reason why U.S. issuers don’t demand European fees for IPOs: the findings of this paper are an encouragement for them to do so.

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Table 1: Summary statistics for United States and European IPO samples

Sample contains 1845 U.S. and 870 European IPOs, spanning 1998-2007 where gross spread and underpricing data are available. The sample excludes closed-end funds, SPACs, REITs, ADR/GDR-only or unit offerings and auction and fixed price IPOs. Spread refers to the gross spread, calculated as a percentage of proceeds as disclosed by the underwriting syndicate. Bookrunners reports the average number of bookrunners in each IPO syndicate as well as the percentage offerings that contain at least one U.S. or non-U.S. bank in the bookrunner position of the underwriting syndicate. Proceeds exclude any over-allotment options and are reported in 2007 U.S. dollars, calculated using the U.S. GDP deflator. Underpricing is calculated as the return on a stock bought at the IPO and sold at the end of the 5th trading day, and is adjusted for market movements using the S&P 500 Index for U.S. offerings and the applicable local index for European offerings.

Panel A: All Proceeds

	United States								Europe							
	Count	Bookrunners			Spread, % (Mean)	Proceeds, \$m (Median)	Underpricing		Count	Bookrunners			Spread, % (Mean)	Proceeds, \$m (Median)	Underpricing	
		Mean	% US	% Non-US			Mean	Median		Mean	% US	% Non-US			Mean	Median
1998	228	1.04	80.97	19.47	6.76	65.24	0.22	0.09	100	1.39	23.00	91.00	4.01	85.91	0.21	0.09
1999	441	1.12	82.31	21.54	6.86	80.76	0.74	0.39	129	1.49	34.11	82.95	4.09	98.39	0.27	0.13
2000	295	1.13	78.98	25.42	6.83	100.63	0.58	0.22	195	1.43	34.87	81.03	4.23	120.88	0.30	0.13
2001	76	1.20	78.95	30.26	6.48	143.55	0.13	0.09	43	1.72	39.53	90.70	3.31	142.15	0.03	0.00
2002	71	1.34	80.28	33.80	6.68	132.45	0.07	0.09	17	1.82	41.18	76.47	3.37	363.65	0.04	0.09
2003	62	1.35	91.94	30.65	6.84	139.27	0.12	0.11	15	1.80	46.67	66.67	3.30	294.88	0.07	0.03
2004	181	1.40	89.50	26.52	6.76	98.14	0.12	0.07	56	1.84	39.29	92.86	3.19	150.76	0.07	0.04
2005	159	1.71	91.82	28.30	6.66	128.81	0.11	0.06	89	1.66	41.57	85.39	3.34	146.20	0.09	0.07
2006	166	1.78	90.36	33.13	6.71	118.57	0.13	0.07	108	1.70	43.52	88.89	3.31	167.01	0.08	0.06
2007	168	1.92	92.86	38.10	6.69	110.45	0.15	0.09	118	1.91	47.46	83.90	3.19	223.98	0.06	0.04
All Years	1845	1.34	84.93	26.67	6.76	97.04	0.35	0.13	870	1.61	37.70	85.17	3.69	130.35	0.17	0.07
All Years ex. 1999-2000	1109	1.49	87.56	29.04	6.71	105.00	0.14	0.08	546	1.71	39.56	87.18	3.41	150.62	0.09	0.05

Panel B: \$25m ≤ Proceeds < \$100m

	United States								Europe							
	Count	Bookrunners			Spread, % (Mean)	Proceeds, \$m (Median)	Underpricing		Count	Bookrunners			Spread, % (Mean)	Proceeds, \$m (Median)	Underpricing	
		Mean	% US	% Non-US			Mean	Median		Mean	% US	% Non-US			Mean	Median
All Years	955	1.14	81.68	22.83	6.99	60.00	0.34	0.13	363	1.20	12.67	91.18	4.16	51.76	0.23	0.08
All Years ex. 1999-2000	527	1.18	82.82	23.15	6.98	59.03	0.15	0.07	208	1.20	11.06	92.31	4.08	47.81	0.14	0.07

Panel C: \$100m ≤ Proceeds < \$500m

	United States								Europe							
	Count	Bookrunners			Spread, % (Mean)	Proceeds, \$m (Median)	Underpricing		Count	Bookrunners			Spread, % (Mean)	Proceeds, \$m (Median)	Underpricing	
		Mean	% US	% Non-US			Mean	Median		Mean	% US	% Non-US			Mean	Median
All Years	764	1.47	87.30	30.50	6.75	163.84	0.41	0.14	340	1.61	43.82	80.00	3.73	204.29	0.13	0.05
All Years ex. 1999-2000	492	1.63	90.85	33.33	6.71	170.81	0.15	0.09	221	1.70	44.34	83.26	3.33	215.58	0.07	0.04

Panel D: Proceeds ≥ \$500m

	United States								Europe							
	Count	Bookrunners			Spread, % (Mean)	Proceeds, \$m (Median)	Underpricing		Count	Bookrunners			Spread, % (Mean)	Proceeds, \$m (Median)	Underpricing	
		Mean	% US	% Non-US			Mean	Median		Mean	% US	% Non-US			Mean	Median
All Years	126	2.16	95.24	32.54	5.13	849.55	0.12	0.08	167	2.51	79.64	82.63	2.60	1059.40	0.10	0.07
All Years ex. 1999-2000	90	2.48	96.67	40.00	5.16	802.61	0.09	0.06	117	2.62	81.20	85.47	2.37	1059.40	0.06	0.05

Table 2: Top Ten Bookrunners by Proceeds for United States and European IPO samples

Sample contains 1845 U.S. and 870 European IPOs, spanning 1998-2007 where gross spread and underpricing data are available. The sample excludes closed-end funds, SPACs, REITs, ADR/GDR-only or unit offerings and auction and fixed price IPOs. Spread refers to the gross spread, calculated as a percentage of proceeds as disclosed by the underwriting syndicate. Proceeds exclude any over-allotment options and are reported in 2007 U.S. dollars, calculated using the U.S. GDP deflator. Deutsche Bank includes BT Alex Brown in the United States; Citigroup includes Salomon Brothers in the United States and Schroder and Schroder Salomon in Europe; UBS includes SBC Warburg and Warburg in Europe.

Rank	United States				Europe			
	Bookrunner	Total Proceeds, \$m	Percentage of U.S. IPO Proceeds (\$402,328m)	Average Spread, %	Bookrunner	Total Proceeds, \$m	Percentage of European IPO Proceeds (\$379,182m)	Average Spread, %
1	Goldman Sachs	76,751	19.07	6.42	Merrill Lynch	39,110	10.31	2.77
2	Morgan Stanley	69,392	17.25	6.44	Morgan Stanley	38,576	10.17	3.46
3	Merrill Lynch	43,847	10.90	6.50	Goldman Sachs	36,806	9.71	3.55
4	Citigroup	41,086	10.21	6.42	UBS	34,247	9.03	3.10
5	Credit Suisse	40,502	10.07	6.60	Credit Suisse	27,498	7.25	3.60
6	Lehman Brothers	23,998	5.96	6.59	Deutsche Bank	22,056	5.82	3.72
7	JPMorgan	17,883	4.44	6.46	JPMorgan	16,374	4.32	2.74
8	Deutsche Bank	10,681	2.65	6.78	Citigroup	15,374	4.05	3.23
9	UBS	9,966	2.48	6.65	Mediobanca	15,298	4.03	3.42
10	Bear Stearns	9,380	2.33	6.72	Dresdner	10,156	2.68	3.53

Table 3: Determinants of Gross Spreads in the United States and Europe

The dependent variable is gross spread, expressed as a percentage. Regressions include log of proceeds (Proceeds) as well as dummy variables for high-technology offerings, venture capital backed offerings and privatizations. Syndicate dummy variables indicate whether there is a U.S. bookrunner (U.S. bookrunner), and if there are at least two U.S. (Several U.S. bookrunners) or non-U.S. (Several non-U.S. bookrunners) in a multiple bookrunner IPO. Year dummies are also included, as are country dummies for the four most prominent European countries in European IPOs. Significance is based on robust *t* statistics, calculated using the heteroskedasticity-consistent method of White (1980). Results are separated by proceeds, which exclude over-allotment options, and are expressed in 2007 U.S. dollars calculated using the U.S. GDP deflator. * significant at 10%; ** significant at 5%; *** significant at 1%.

		United States				Europe			
		≥ \$25m < \$100m	≥ \$100m < \$500m	≥ \$500m	ALL	≥ \$25m < \$100m	≥ \$100m < \$500m	≥ \$500m	ALL
<i>Control</i>	Proceeds	-0.025	-0.520***	-1.033***	-0.486***	-0.060	-0.627***	-0.416***	-0.372***
<i>Variables</i>	Tech	0.009	0.063**	-0.053	0.017	0.241*	0.198	0.064	0.214**
	VC backed	0.032**	0.102***	0.261	0.076***	-0.469**	-0.046	-0.207	0.026
	Privatization	—	—	—	—	—	-0.573**	-0.769***	-0.821***
<i>Syndicate</i>	U.S. bookrunner	0.019	0.063	-0.269	0.015	0.045	0.194	0.111	0.145
	Several U.S. bookrunners	0.012	-0.033	-0.290**	-0.068**	—	-0.312	0.132	-0.190
	Several non-U.S. bookrunners	0.026*	0.022	-0.109	0.003	-0.166	-0.375***	-0.335**	-0.332***
<i>Year</i>	1999	0.008	0.135**	-0.007	0.126***	-0.281	0.391*	-0.429*	0.017
<i>Dummies</i>	2000	0.011	0.199***	0.401	0.204***	0.133	0.449**	-0.083	0.192
	2001	-0.038	0.149**	0.283	0.100*	-0.073	-0.226	-0.893***	-0.376**
	2002	-0.001	0.303***	0.414	0.242***	0.667	-0.063	-0.646***	-0.089
	2003	0.010	0.298***	0.423	0.341***	-0.088	-0.127	-0.687*	-0.167
	2004	-0.040	0.180***	0.237	0.132***	0.601**	-0.710***	-1.411***	-0.542***
	2005	0.000	0.125*	0.163	0.170***	0.955***	-0.844***	-1.372***	-0.404**
	2006	0.028	0.134**	0.210	0.187***	0.547*	-0.570***	-1.288***	-0.445***
	2007	-0.004	0.120*	0.283	0.172***	0.472	-0.571***	-1.294***	-0.430***
<i>Country</i> <i>Dummies</i>	UK	—	—	—	—	-0.759***	0.343**	0.216	-0.032
	Germany	—	—	—	—	1.039***	0.515***	0.341*	0.658***
	France	—	—	—	—	1.036***	0.176	-0.014	0.304*
	Italy	—	—	—	—	0.262	0.050	-0.007	0.169
	Constant	7.048***	9.186***	12.532***	8.872***	4.111***	7.046***	6.443***	5.610***
<i>R</i> ² adjusted		0.01	0.36	0.61	0.59	0.22	0.34	0.37	0.33
Observations		955	764	126	1845	363	340	167	870

Table 4: Determinants of Underpricing in the United States and Europe

The dependent variable is underpricing, which has been winsorized at a 5% level for each region. Underpricing is calculated as the return on a stock bought at the IPO and sold at the end of the 5th trading day, and is adjusted for market movements using the S&P 500 Index for U.S. offerings and the applicable local index for European offerings. Regressions include log of proceeds (Proceeds) as well as dummy variables for high-technology offerings, venture capital backed offerings and privatizations. Proceeds exclude over-allotment options, and are expressed in 2007 U.S. dollars calculated using the U.S. GDP deflator. Syndicate composition is controlled for using the number of bookrunners. Recent IPO activity in each region is incorporated in IPO flow (the number of IPOs in the last 90 days) and IPO heat (the average underpricing of IPOs in the last 90 days). A regional dummy reflecting European IPOs is included, as are year dummies and country dummies are also included for the four most prominent European countries in European IPOs. Significance is based on robust *t* statistics, calculated using the heteroskedasticity-consistent method of White (1980). * significant at 10%; ** significant at 5%; *** significant at 1%.

		All Offerings	United States	Europe
<i>Control Variables</i>	Proceeds	0.009	0.037***	-0.019***
	Tech	0.140***	0.159***	0.086***
	VC backed	0.102***	0.130***	-0.033*
	Privatization	0.041	—	0.078***
<i>IPO Activity</i>	IPO flow	0.000	-0.001	-0.001*
	IPO heat	0.507***	0.533***	0.214***
<i>Syndicate</i>	Number of bookrunners	-0.013	-0.021	0.003
<i>Region</i>	Europe	-0.020	—	—
<i>Control Dummies</i>	Year Dummies	Yes	Yes	Yes
	Country Dummies	No	No	Yes
	Constant	-0.023	-0.125	0.174***
<i>R</i> ² adjusted		0.26	0.25	0.18
Observations		2641	1783	858

Table 5: U.S. IPO Gross Spreads Adjusted for Underwriters' Legal Expenses

Typical underwriters' legal expenses represent average values drawn from legal and investment banking sources. Raw U.S. gross spread and European gross spread are from Table 1. Adjusted U.S. gross spread is calculated by subtracting the typical underwriters' legal expenses from the median deal size within each range from Table 1. In Europe the underwriters sometimes bear part of their own legal expenses out of the gross spread (see footnote 17) but this is not reflected in the table.

IPO size	Typical underwriter legal expenses for U.S. IPOs	Raw U.S. gross spread (%)	Adjusted U.S. gross spread (%)	European gross spread (%)
≥ \$25 < 100m	\$250,000	6.99	6.57	4.16
≥ \$100 < 500m	\$500,000	6.75	6.44	3.73
≥ \$500m	\$1,000,000	5.13	5.01	2.60

Figure 1: Proportion of 7% U.S. IPO Gross Spreads, \$25m-\$100m offerings, 1998-2007

Sample contains 955 U.S. IPOs with proceeds of $\geq \$25m < \$100m$, spanning 1998-2007 where gross spread and underpricing data are available. The sample excludes closed-end funds, SPACs, REITs, ADR/GDR-only or unit offerings and auction and fixed price IPOs. Spread refers to the gross spread, calculated as a percentage of proceeds as disclosed by the underwriting syndicate. Proceeds exclude any over-allotment options and are reported in 2007 U.S. dollars, calculated using the U.S. GDP deflator.

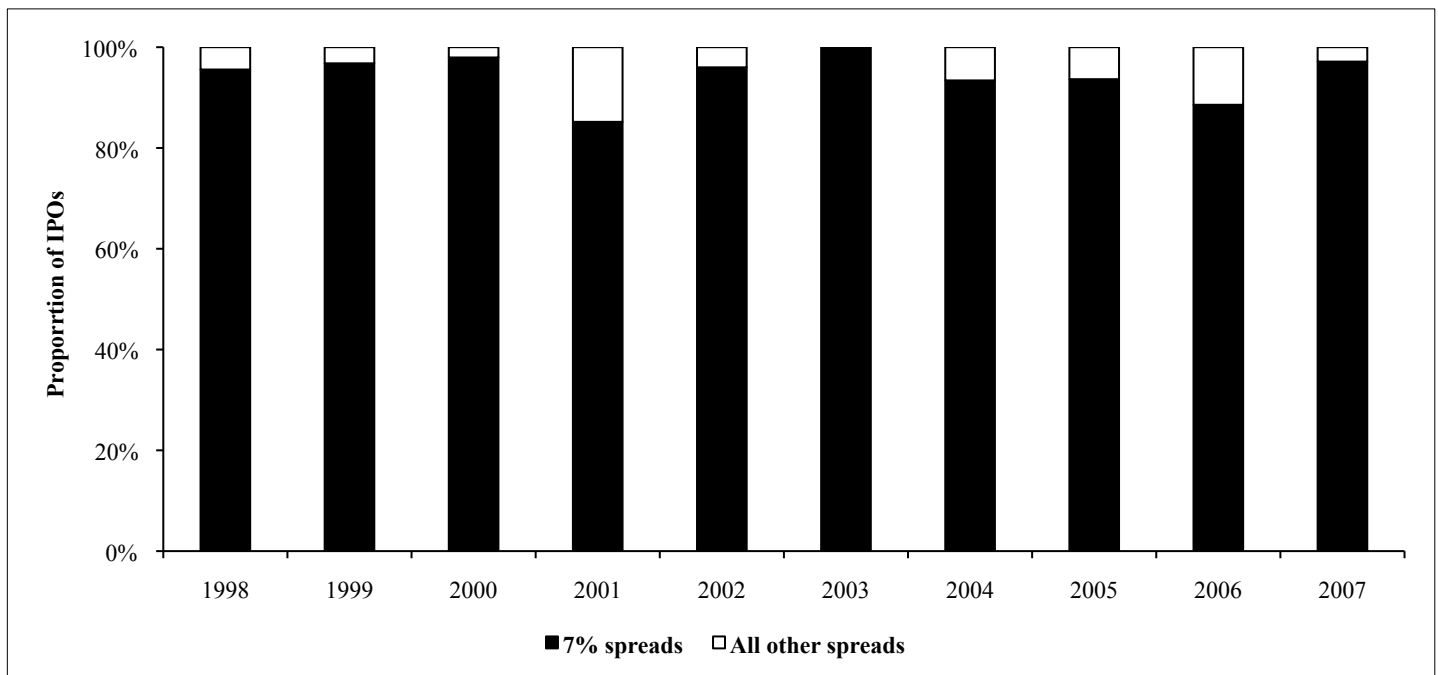


Figure 2: United States vs. European Gross Spreads, \$25m-\$100m offerings, 1998-2007

Sample contains 955 U.S. and 363 European IPOs with proceeds of $\geq \$25m < \$100m$, spanning 1998-2007 where gross spread and underpricing data are available. The sample excludes closed-end funds, SPACs, REITs, ADR/GDR-only or unit offerings and auction and fixed price IPOs. Spread refers to the gross spread, calculated as a percentage of proceeds as disclosed by the underwriting syndicate. Proceeds exclude any over-allotment options and are reported in 2007 U.S. dollars, calculated using the U.S. GDP deflator.

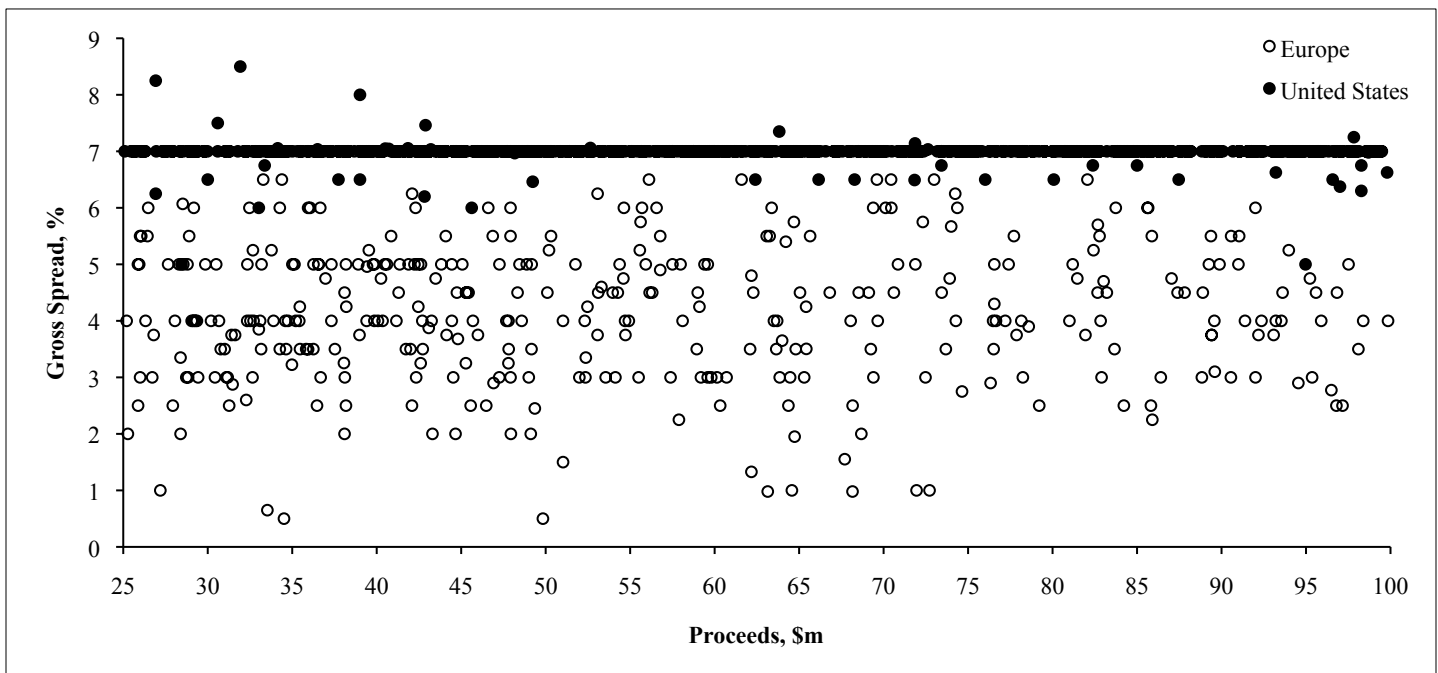
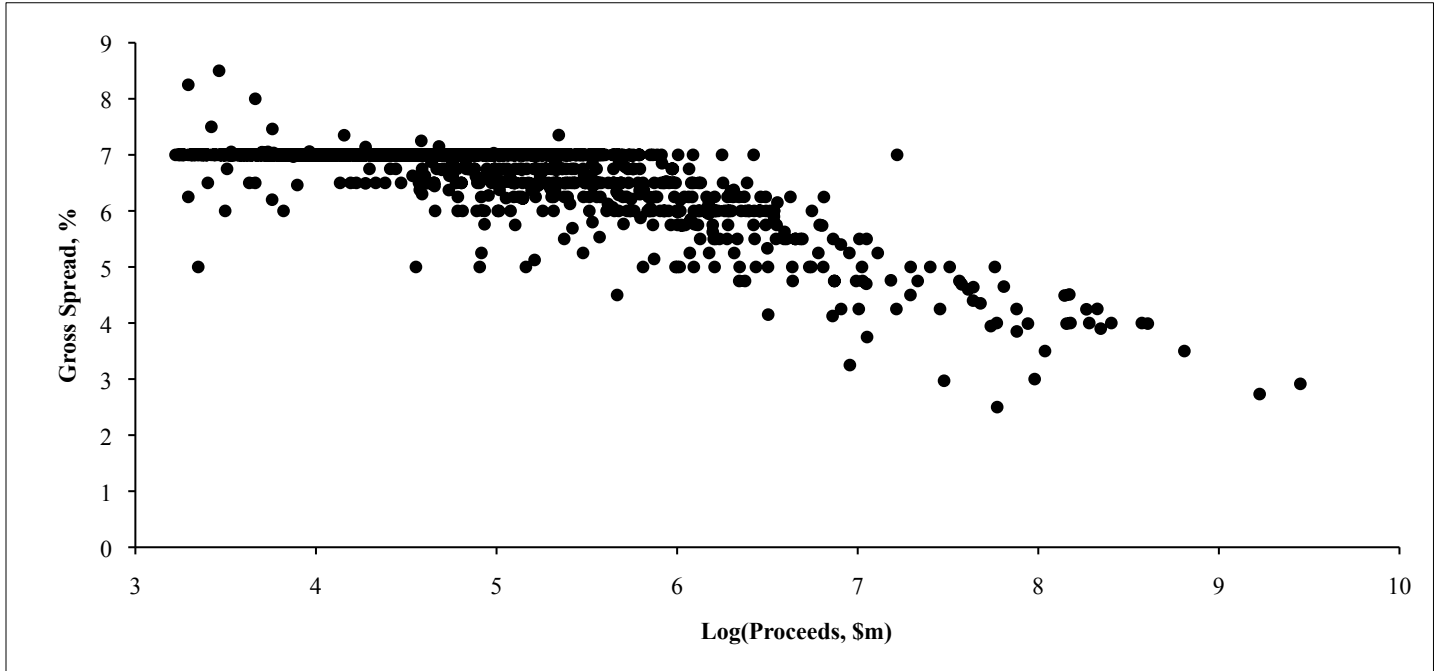


Figure 3: Gross Spreads, 1998-2007

Sample contains 1845 U.S. (Panel A) and 870 European (Panel B) IPOs, spanning 1998-2007 where gross spread and underpricing data are available. The sample excludes closed-end funds, SPACs, REITs, ADR/GDR-only or unit offerings and auction and fixed price IPOs. Spread refers to the gross spread, calculated as a percentage of proceeds as disclosed by the underwriting syndicate. Proceeds exclude any over-allotment options and are reported in 2007 U.S. dollars, calculated using the U.S. GDP deflator.

Panel A: United States



Panel B: Europe

