The **Journal of Law & Economics**

October, 1996

39 J. Law & Econ. 545

LENGTH: 25868 words

ARTICLE: ISSUER EXPENSES AND LEGAL LIABILITY IN INITIAL PUBLIC OFFERINGS*

Randolph P. Beatty, Southern Methodist University and Ivo **Welch,** University of California, Los Angeles

SUMMARY:
... An issuer of an initial public offering (IPO) faces numerous decisions, of which the selection and compensation of "experts"--the legal counsel, the auditor, and the investment banker--are among the most important. ... The close relation between underwriter compensation and offering size is apparent in Table 2, which classifies average expert compensation by offering size. ... (A Big 6 auditor [15 points market share] reduces percentage underwriter compensation by about 1.5 percent. ... As to other expert compensation, note that we multiply residual percentage underwriter compensation from the first-step regression by offering size to compute a dollar compensation figure (used here and in the subsequent lawyer compensation regression). ... The dispersion regressions confirm the findings for IPO underpricing: firms with better underwriters and more underwriter compensation have more IPO underpricing dispersion; firms with better auditors and low-price stocks had lower underpricing dispersion. ... Therefore, we are confident that the relation between IPO underpricing and underwriter compensation has reversed due to differences in the economic environment. ... The positive relation between underwriter compensation and IPO underpricing (documented in Table 8) is only among firms claiming few risk factors. For firms claiming high risks, underwriter compensation actually correlates *differently (negatively)* with IPO underpricing across risk groups. ... Without size/scale controls, underwriter market share predicts underwriter compensation negatively, reflecting the

economies of scale in underwriting. ...

ABSTRACT

Issuers of initial public offerings (IPOs) face numerous decisions, of which the selection and compensation of experts--the legal counsel, the auditor, and the investment banker--are among the most important. Our article investigates the role of the entire IPO coalition (including the legal counsel). In a comprehensive sample of 823 firm-commitment offerings from 1992 to 1994, we examine how expert compensation, IPO underpricing, and IPO underpricing uncertainty are related to (1) expert quality (we provide in the text our directly comparable ranking of the top 50 experts in each category in December 1994), (2) legal caution and liability, (3) nonlegal risk signals, and (4) one another. The results are contrasted with similar results from the 1980s.

TEXT:
 [*545] I. INTRODUCTION

An issuer of an initial public offering (IPO) faces numerous decisions, of which the selection and compensation of "experts"--the legal counsel, the auditor, and the investment banker--are among the most important. The issuer's available trade-offs are likely to be determined not only by differences in the functions of the three experts but also by the experts' differing legal exposure. These legal differences are in turn specified in the provisions of the Securities Act of 1933, which can cause differing asymmetric information scenarios. For example, the legal counsel is generally not only involved at a later stage in the IPO process than the auditor but is also held to lower legal standards. The auditor is fully liable for any material omission in the audited financial statements of the registration statement, while law firms are typically exempt from Section 11 liability. As such, the prevalent uncertainty may be different: the issuer may have to be more concerned with the quality of the legal advice than vice versa, while the auditor may have to be more concerned with the quality of the issuer than vice versa.

One focus of our analysis is the empirically observable riskiness of the
 [*546] issue. Issuers and experts (and primarily the auditor and underwriter) can reduce their exposure to legal liability under the Securities Act of 1933 by indicating more risk factors in the prospectus. Of course, by shifting risk to investors, the marketability of the issue is reduced, and the issue price should be lowered. Having lasted for over 60 years, this

mechanism may soon change: on June 14, 1995, the *Wall Street Journal* (sec. C1) reported that pending eleventh-hour changes to bills in the House and Senate will provide sweeping protection to publicly traded companies and their underwriters that conduct initial public offerings (and a safe harbor to prospectuses prepared to describe them). Specifically, if misstatements in the prospectus are found, IPO participants will no longer be liable for unrelated losses (for example, those caused by market movements), and courts will be advised only to consider suits by the investors with the biggest financial interests, and to look harder at frivolous lawsuits by class-action lawyers.

In addition to caution in the prospectus, there are also alternative mechanisms to signal risk. For example, Leland and Pyle n1 suggest that inside retention is an important signal, and Brennan and Hughes n2 suggest that a lower nominal price increases post-IPO trading commissions, which in turn attracts the attention of analysts. Thus, a high-risk issuer can signal quality by choosing a low offering price.

The IPO issuer has to consider not only the cost/quality trade-off in choosing and compensating *each* expert but also if one high-quality expert complements with or substitutes for another high-quality expert. The existing research on the role of the quality of the investment banker and the auditor (discussed later) has largely concentrated only on one participant, so far either the underwriter or the auditor, ignoring any effects that one expert may have on the other and any third variable influences that may effect these experts differently. Generally, these papers have concluded that the issuer's choice of one expert's reputation/quality is inversely related to short-run IPO underpricing n3 and positively related to own expert compensation. n4 Our article (1) describes the compensation of legal advisers in a comprehensive [*547] publicly available cross section--this is possible because the Securities Act of 1933 requires all experts to disclose their compensation, no matter how high or low n5 , n6 --and (2) it examines the issues involved in compensating the entire coalition of experts (underwriter, auditor, and lawyer) and first-day investors in one comprehensive piece.

Because we compare multiple experts in one paper, it was important to create a quality measure that is comparable across experts. Our measure of expert quality is based on time-weighted moving-window dollar market participation. (To provide future studies with such a comparable rating, Table 3 below lists the top 50 experts each as of December 1994.) In addition, unlike earlier studies that have used data from the late 1970s and 1980s, our study examines offerings from the 1990s. We find that at least two key results from earlier literature have reversed since then: issues

underwritten by low-quality underwriters and low-priced stocks are no longer more underpriced.

Because the questions analyzed pertain to the role of *three* experts and first-day investors, and their influence on (and by) a number of relevant IPO factors (ex ante risk, IPO underpricing, and IPO underpricing uncertainty), this article provides a substantial number of empirical findings. The most prominent findings are detailed and summarized in the conclusion, Section V. Section II explains the legal background under which experts advising IPO issuers operate. Section III lists the variables used in this article and provides descriptive statistics. Section IV presents our regressions predicting expert compensation and IPO underpricing and discusses our findings within the context of contemporary economic theories.

II. BACKGROUND

Section IIA describes the functions of the underwriter, auditor, and law firm in an IPO. Section II*B* discusses the influences of the Securities Act of 1933 on the compensation of the IPO coalition. Section II*C* describes [*548] sources of risk and risk signals and relevant past theoretical and empirical work. Section II*D* argues for caution in interpreting cross-sectional evidence too strongly in favor of underlying theories, highlighting a potentially important omitted variables problem.

A. Underwriter, Auditor, and Law Firm Functions in the IPO Coalition

Members of the IPO coalition prepare and disseminate information in the registration statement to potential investors in an IPO. The registration statement has both a formal and informal function. Formally, the registration statement is designed to disclose all information necessary for a reasonable investor to make an investment decision. n7 Informally, the registration statement is employed as a promotional document in the selling phase of the IPO. In producing the necessary documentation and marketing of the IPO, the underwriter, auditor, and law firm perform the following three separate functions:

1. The auditor performs an audit of the issuer's records and provides an *auditor's opinion* (required by the Securities and Exchange Commission [SEC] Regulation S-X) in the registration statement. n8 Because an auditor must observe inventory and confirm accounts receivable to form an *auditor's opinion*, the auditor is typically the first expert hired, often as early as 3 years before the public offering. n9 , n10 Also, the auditor typically provides a "comfort letter" to the underwriter to provide assurances of the auditor's examination of the client's financial records. This private

communication will generally refer to compliance with the applicable accounting requirements under the Securities Act of 1933 and is the result of evaluation and observation of evidence (in other words, inspection of inventories and verification of accounts receivable). n11

2. The legal counsel advises the IPO issuer concerning disclosures required [*549] in the narrative sections of the registration statement based on Regulation S-K. n12 These disclosures must include the management discussion and analysis, uses of proceeds, and risk factors sections of the registration statement. n13 Because these disclosures and the creation of the registration statement are only required for the public offering, the legal counsel typically becomes involved at a much later stage than the auditor.

3. Underwriters advise their clients on timing and pricing decisions and ultimately distribute the shares via a syndicate of underwriters to the general public. Syndication through diverse client contacts and "road shows" permit the underwriter to gather additional outside information, possibly not only about the demand for shares but also about the firm itself. The underwriter, like the legal counsel, is not as deeply involved with the issuer as the auditor--at least until the issuer decides to seek an infusion of equity capital. Unlike the auditors and lawyers, who are responsible only for narrative and financial statement elements of the registration statement, the underwriter organizes and performs the selling function. Interestingly, although issuer and underwriter agree on a possible range of offering prices, n14 the final offering price is usually negotiated with the firm within 24 hours of the issue.

Hence, the auditor is typically more actively involved with the IPO client at a much earlier stage of the issuer's development than either the law firm or underwriters. Furthermore, on March 1, 1993, *Business Week* reported in a story labeled "Why Accountants Are Bowing Out" (of initial public offerings):

Accountants are almost routinely sued when they're involved with an IPO that goes sour. n15 . . . Accountants are doubly nervous because of the laws on joint and several liability. Those laws say any one defendant may be liable for the entire loss sustained by the plaintiff in a court case, even though other defendants contributed to the loss. Accountants usually bear a small portion of the blame but often have to pony up the biggest slice of the damages because they typically have deeper pockets than other defendants. Even worse, since the Big Six firms are private partnerships, an individual partner is personally liable for all debts and legal judgments incurred during his or her stay at a firm.

[*550] In November 1992, Ernst and Young agreed to pay the

government $ 400 million to settle claims that its audits of hundreds of thrifts had been inadequate. Recent academic evidence, however, paints a different picture. Bunsis and Drake n16 report that suits against auditors for services rendered in an IPO have dropped significantly. In 1980-89, in 119 IPO lawsuits, auditors were attached in 45 cases. In 1990-94, in 92 lawsuits, auditors were attached in only 7 cases.

B. Legal Liability under the Securities Act of 1933

The Securities Act of 1933 requires that issuers seeking to offer ownership shares to the investing public must register those securities with the SEC. n17 The IPO coalition members are required by statute to disclose any material fact that a "reasonable" investor would consider in deciding whether to invest in the IPO. Section 11 of the Securities Act of 1933 mandates that accountants (auditors), underwriters, issuers, persons signing the registration statement, and other experts (the IPO coalition) preparing any part of the registration statement are jointly and severally liable for damages resulting from false or misleading information presented in an initial public offering (IPO) registration statement. n18 Joint and several liability places the IPO coalition at risk of suffering damages from all activities of all participants involved in the preparation of the IPO registration statement. Importantly, a judgment of an expert's violation, regardless of *relative* fault, exposes that expert to the *entire* damage award. n19 The imposition of joint and several liability in the law suggests that compensations of the IPO experts will be fundamentally related to each other.

The Securities Act of 1933 specifies *both* maximum damages for violations of Section 11 that could be awarded and permissible legal defenses for IPO coalition members. The maximum assessable damages for Section 11 violations are the maximum of either (1) the difference between the amount paid and the value of the security at the time of the lawsuit, or (2) the market value at the time of sale of the security. Defendants in a legal action are permitted the defense of "due diligence"; that is, the expert must [*551] only show that he or she undertook an investigation that would allow a reasonable person to conclude that there were no untrue statements or material omissions.

Section 11 of the 1933 act lists the individuals subject to this liability as the issuer, persons signing the registration statement, directors, partners, individuals that "expertised" portions of the registration statement (including auditors), and all underwriters. However, the legal counsel for the issuer is not held to the same standard as the auditor and underwriter, except in rare circumstances when the legal counsel is considered to be an

expert. n20 For example, legal counsel might be considered to be an expert if an expert opinion is offered in the registration statement concerning the tax status of a transaction. n21 The difference in the imposition of legal liability for different experts suggests that auditors and underwriters are more likely to be compensated for the risk of legal liability than the company counsel. In the aforementioned *Business Week* article, Enrique M. Tejerina, a partner at KPMG Peat Marwick, states explicitly that potentially risky audits in IPOs indeed require ex ante compensation for expected future legal costs.

Section 12 of the 1933 act targets the seller of securities (persons soliciting investors) who materially omitted facts or conveyed untrue statements in oral or written communications. n22 Hence, Section 12 places an additional avenue beyond Section 11 for lawsuits against issuers and underwriters. Section 12 liability is different from Section 11 liability in that the latter requires that sellers have exercised "reasonable investigation" while the former requires "reasonable care." Although the law is unclear on this distinction, in reality, underwriters are likely held to a similar standard under either section. Damages under Section 12 require a refund of the purchase price of the securities. Section 12 has been narrowly construed to define the seller to include only persons that solicit investors.

In sum, IPO experts are involved at different stages and perform fundamentally different tasks in the IPO process. A typical issuer might experience an auditor's influence on reported results for up to 3 years prior to an IPO. At a later date, company counsel and the underwriter become involved [*552] in the information production and selling activities. Provisions of the Securities Act of 1933 impose legal liability on experts involved in the IPO. Unlike the auditor and the underwriter, the company counsel is typically not considered to be an expert under the Securities Act of 1933. Thus, the IPO environment allows us to examine how the tasks and both legal risk (statutory imposed liability) and nonlegal risk influence expert compensation and IPO underpricing.

C. Theories of Risk and IPO Expenses

There have been numerous previous attempts to explain IPO underpricing. Most of these theories can explain how riskier offerings require more IPO underpricing, for example, either to better signal quality, n23 to lower the risk of a subsequent lawsuit, n24 to facilitate pre-selling n25 or to compensate uninformed investors for a winner's curse. n26 In empirical work, Beatty and Ritter n27 use (the reciprocal of) offering size and the number of uses of proceeds to measure ex ante risk in a winner's curse context. Carter and Manaster n28 extend this risk argument to underwriter

quality, insider shares, offering size, and firm age, and find that underwriter quality performs best, followed by insider selling. n29 And a number of papers show that offering price, age, sales revenue, after-market standard deviation, and a variety of other variables may be important.

Expert compensation has also received some academic attention. Models of expert compensation/selection have been put forward by Titman and [*553] Trueman n30 and Balvers, McDonald, and Miller. n31 Titman and Trueman assume that hiring a high-quality expert can reduce investor uncertainty. They show how noise can allow better firms to signal quality by hiring a high-quality expert and still provide incentives for experts to investigate firm quality. This can lead to the presence and compensation of a high-quality expert with a positive influence on the compensation of other experts and a negative influence on IPO underpricing. (However, it is an empirical matter whether investors perceive additional expert compensation as purchasing more investigation or as a "bribe" to accept lower quality.) Balvers, McDonald, and Miller extend this literature with a model that allows for two signals, underwriter and auditor reputation. They show that IPO underpricing is inversely related to both experts' reputations. This suggests that expert reputations may be individually and jointly important.

Yet empirical work on the determinants of expert compensation in the underwriting business has been sparse. James n32 theorizes that underwriters can reap benefits in future repeat business and finds empirically that future repeat business is (weakly) negatively related to underwriter compensation. Controlling for firm risk--underwriting a subsequent poor performer costs the underwriter reputation and perhaps a legal battle--James finds that the issue size (logged) is an overwhelming determinant of underwriter compensation as a percentage of the offering proceeds, followed by the Carter-Manaster rank of the underwriter and the reciprocal of the offering price. Barry, Muscarella, and Vetsuypens n33 similarly find that issue size (logged) is the overwhelming determinant, with warrants granted to the underwriter being positively correlated with explicit underwriter compensation.

Simunic n34 models auditor fees as the cost of performing an audit plus expected losses from legal liability. His results indicate that auditor fees are positively related to client size, complexity of client operations, and type of audit opinion issued. n35 Beatty n36 confirms these factors in a sample of IPO [*554] firms. Beatty n37 provides additional evidence that auditor compensation is positively related to measures of financial distress, bankruptcy, delisting, and lawsuits. Thus, we expect auditor fees to be related to client size, IPO underpricing, and potential legal liability. Beatty n38 also shows that abnormally large IPO auditor compensation is

associated with lower IPO underpricing, suggesting that IPO firms signal quality by selection and compensation of the auditor. Finally, the aforementioned Balvers, McDonald, and Miller n39 also document empirically evidence of diminishing reductions in underpricing from hiring both a high quality underwriter and auditor.

To the best of our knowledge, there has been no prior attempt to explain the determinants of law firm compensation; or evidence that examines the influence of law firm quality and law firm compensation on IPO riskiness, IPO underpricing, and IPO underpricing dispersion; or evidence that considers how the presence of all three IPO experts interacts. n40 At the very least, our results can be of descriptive help to IPO practitioners grappling with the issue of what "comparable" companies are paying for and of interest to academics in providing an appropriate benchmark for judging the relative importance of the underwriters and auditors compared with law firms.

D. Omitted Variables

An important concern in work in this area is an omitted variable: the perception of issue quality by experts and investors. The importance of holding perception constant can be illustrated with an example. Assume that, when a firm indicates more risk factors in its prospectus, the underwriter is less likely to be sued and thus demands a lower spread. However, if firms that are perceived to be most risky are indicating more risk-factors in their prospectuses, these riskier firms might agree to a higher underwriter spread. Consequently, the presence of more risk-factors may be associated with less underwriter compensation (the direct influence) or with more underwriter compensation (the riskier firms). If we could hold the perception of firms' [*555] riskiness constant, we could eliminate the second directional influence. n41 The hypothesis suggests, though, that including more risk/size controls would lower the coefficient on the number of risk factors.

We address the omitted perception variable problem by checking our results with a procedure similar to Granger-Sims causality. n42 We first eliminate the influence of some empirically observable (control) variables that experts and investors can use to form perceptions: firm sales and its log, firm assets and its log, firm age, and the industry and year of the IPO. n43 We then run second-stage regressions to predict *otherwise unexplained* expert compensation/IPO underpricing with *otherwise unexplained* expert quality and risk proxies. This procedure is illustrated in the Appendix B. Table 11, discussed below, checks how the results from this procedure differ from simple regressions where the raw variables without controls are used.

We are explicitly trying to exclude ex ante perception--itself a "murky" concept--as best we can, because we are interested mostly in how our risk proxies and expert qualities influence perception, expert compensation, and IPO underpricing net of size/age and ex ante perception. But perceptions develop over time, and listed risks can themselves influence the perception of firm quality in the market. In other words, even if indicating more riskfactors insulates the underwriter from liability, the underwriter may assess the client to be riskier (and therefore ask for more compensation) if the client wants to indicate more risk factors.

We offer three different ways to assess our results. First, because perceptions develop over time and because they are so difficult to measure, we remain agnostic and simply report how our empirical evidence can be interpreted in light of different assumptions of how the issue quality is perceived. Second, although each of the three experts and investors are different (and discussed above), some conclusions can be drawn from considering the effect of each independent variable in the three different expert compensation and the IPO underpricing regressions. And third, we discuss in Section IV below how inclusion/omission of size/scale/year/industry controls alters the risk and quality coefficients. If perception must be held constant to reverse an effect, we would expect to see certain directional changes in coefficients when more controls are added. For example, returning [*556] to the above risk example, if the coefficient on the number of risk factors in predicting underwriter compensation is more positive without size/risk adjustment than with size/risk adjustment, then this favors one version of the risk hypothesis: holding size/risk constant, listing more risk factors in the prospectus reduces underwriter compensation, although in the overall regression, the number of risk factors proxies for firm risk, increasing underwriter compensation.

III. THE DATA

A. Time Period

The first draft of this article examined 952 firm-commitment and best-efforts IPOs from 1981 to 1984 (which is used in many other studies). This article uses a more recent sample of 960 firm-commitment n44 IPOs from January 1992 through December 1994 and introduces sharper variable definitions. Because lack of data availability prevents us from running the exact same regressions in the two time periods, and because our first sample included many best-efforts offerings, we report only the latter sample results and note in the text how our earlier results suggest

differences in the economic environments between the two decades. n45

Much of the data in this article were provided by Securities Data Corp. (SDC). Price data on American Depository Receipts (ADRs) and unit-offerings were deemed unreliable, and thus such offerings were excluded. Similarly, closed-end funds were excluded; their large size (and low technological risk in an efficient market) distorts any IPO measures based on market share. Firm age was collected from Standard and Poor's Corporate Descriptions File (Lexis). The number of uses and number of risks in the prospectus were collected from Disclosure's Compact D New Issues File. The 960 firms represent *all* IPOs from the 1992-94 sample period with sufficient data in our sources. Table 1 describes our issuers and their offerings. All nominal variables (except 1/op, the reciprocal of the offer price) were deflated to 1990s levels, using the consumer price index.

 [*557] *B. Control Variables*

Panel D of Table 1 shows that, on average, the IPO issue size (itself highly endogenous, and thus classified separately) was about 45 million dollars ($ 23 million median) in 1990 dollars. On average, firms were 12.7 years (7 years median) old, had sales of about 140 million dollars ($ 37 million median) and assets of about 200 million dollars ($ 27 million median). There were some startups (with close to zero assets and sales) among our firms, but less than 75 (300) of our firms were younger than 1 (5) year(s) old. There appears to be no unusual concentration (for an IPO sample) in our industry groupings or offering years.

C. Issuer Expenses

Panel A of Table 1 describes the expenses incurred by the issuers. Average underwriter fees were about 2.8 million dollars (1.6 million dollar median). A data inspection (not in the table) reveals that about 600 underwriters received 7 percent of the offering in spread plus underwriter expenses. n46 (Although underwriters can receive additional compensation in the form of warrants, we did not have data thereto. Thus, we added only underwriter spread and direct underwriter expenses.) Consequently, although offering size itself is endogenous, estimating underwriter compensation in anything but a percentage of the offering does not make sense.

The close relation between underwriter compensation and offering size is apparent in Table 2, which classifies average expert compensation by offering size. Unlike underwriter compensation, auditor and law firm compensation are not "determined" by (only increasing with) the offering size. (Note 64 and Table 4 below show that much of this correlation for

auditors and law firms can be explained by firm size alone [which is known before the offering, unlike offering size].) The mean auditor compensation was 169 thousand dollars (median $ 129.1 thousand), and the mean law firm compensation was a *larger* 255 thousand dollars (median $ 202.2 thousand). Finally, IPO underpricing has a mean of 11.7 percent (median 9.8 percent), in line with evidence reported in numerous studies from earlier time periods, and the average value of absolute IPO underpricing, from a subsequent [*558] [*559] [*560] [*561] regression and discussed in detail in Section IVD2, is about 4.7 percent (median 0 percent).

TABLE 1

DESCRIPTIVE STATISTICS

Description	Mean	Median
A. IPO expenses:		
Underwriter compensation (in millions]	2.827	1.609
Percent underwriter compensation (in percent)	7.27	7.00
Auditor compensation	168.887	129.122
Lawyer compensation	255.417	202.151
IPO underpricing (in percent)	11.70	9.80
Absolute IPO underpricing residual	4.68	.42
(in percent)		
B. Expert quality:		
Underwriter market share	3.398	1.410
Auditor market share	15.147	15.650
Lawyer market share	.628	.170
C. Risk measures:		
Risk factors	14.201	14.000
Log(1 + risks)	2.678	2.079
Uses of proceeds	3.131	3.000
Log(1 + uses)	1.340	1.386
Inside retention	42.092	43.400

Offer price	11.614	11.500
1/(offer price)	.103	.087
D. Controls:		
Offering size	44.963	22.768
Log(1 + offering size)	3.210	3.125
Step 1 controls:		
Firm age	12.698	7.000
Log(1 + age)	2.055	2.079
Sales	139.187	36.697
Log(1 + sales)	3.562	3.603
Assets	202.296	27.035
Log(1 + assets)	3.487	3.297

Description	SD	Minimum	Maximum
A. IPO expenses:			
Underwriter compensation (in millions]	5.083	.134	89.759
Percent underwriter compensation (in percent)	1.06	4.00	11.80
Auditor compensation	175.584	.454	2,205.679
Lawyer compensation	224.893	4.544	2,646.815
IPO underpricing (in percent)	18.20	-23.90	142.50
Absolute IPO underpricing residual (in percent)	14.50	.00	203.10
B. Expert quality:			
Underwriter market share	4.708	.000	25.220
Auditor market share	7.107	.000	31.170
Lawyer market share	1.097	.000	9.330
C. Risk measures:			
Risk factors	4.322	.000	33.000

Log(1 + risks)	.306	.000	3.526
Uses of proceeds	1.540	.000	10.000
Log(1 + uses)	.419	.000	2.398
Inside retention	21.192	.150	88.000
Offer price	4.865	3.000	64.000
1/(offer price)	.050	.016	.333
D. Controls:			
Offering size	100.905	1.337	1,869.974
Log(1 + offering size)	.977	.849	7.534
Step 1 controls:			
Firm age	19.158	.000	175.000
Log(1 + age)	1.041	.000	5.170
Sales	680.349	.087	17,950.344
Log(1 + sales)	1.593	.083	9.795
Assets	1,627.531	.185	47,239.816
Log(1 + assets)	1.584	.170	10.763

	Mean (Percent)	Description	Mean (Percent)
Chips/electronics	13		
Retail	15	1992	33
Service	22	1993	42
Transport	16	1994	25
Manufacturing	33		
Others	2		

SOURCES.--The primary data source was Securities Data Corp. Uses of proceeds and the number of prospectus risk factors were hand collected from Disclosure's Compact D New Issues File. Firm age was collected from Standard and Poor's Corporate Descriptions File.

NOTE.--These are statistics on 960 initial public offerings from 1992 to 1994 with complete data, except for "Inside Retention," which has only 823 complete observations. American Depository Receipts, closed-end funds, and best-effort offerings were excluded. All nominal variables except 1/op have been discounted (using the consumer price index) to 1990 levels.

TABLE 2

AVERAGE EXPERT COMPENSATION BY OFFERING SIZE

N	OFFERING SIZE RANGE, IN MILLION $	OFFERING SIZE, IN MILLION $	UNDERWRITER COMPENSATION	
			In Thousand $	Percentage
69	0-5	3.935	372	9.52
112	5-10	7.190	587	8.31
126	10-15	12.823	927	7.25
119	15-20	17.417	1,236	7.10
105	20-25	22.512	1,589	7.06
87	25-30	27.170	1,909	7.03
52	30-35	32.436	2,276	7.02
49	35-40	37.343	2,602	6.97
98	40-59	48.106	3,377	7.02
40	60-80	70.348	4,724	6.73
25	80-100	90.081	5,813	6.46
45	100-200	142.179	8,633	6.12
33	200-1,870	423.552	21,993	5.37

960   All   44.963   2,827   7.27

	AUDITOR COMPENSATION		LAW FIRM COMPENSATION		IPO UNDERPRICING	
N	In Thousand $	Percentage	In Thousand $	Percentage	In Thousand $	Percentage
69	57	1.49	93	2.40	578	15.36
112	96	1.36	147	2.08	611	9.26
126	130	1.02	202	1.60	1,169	9.32
119	144	.82	205	1.18	1,866	10.66
105	173	.77	230	1.02	2,147	9.58
87	161	.59	253	.93	3,439	12.68
52	161	.50	212	.65	7,800	24.12
49	173	.46	271	.73	4,413	11.82
98	202	.42	314	.65	6,686	14.07
40	268	.38	359	.51	10,400	14.91
25	346	.39	459	.51	6,925	7.74
45	272	.20	496	.36	12,310	8.63
33	407	.10	698	.20	29,817	6.33
960	169	.77	255	1.16	4,590	11.72

NOTE.--These are statistics on 960 initial public offerings from 1992 to 1994 with complete data. American Depository Receipts, closed-end funds, and best-effort offerings were excluded. All variables except 1/op have been discounted (using the consumer price index) to 1990 levels.

D. Expert Quality

In this article, we gave special attention to producing measures of expert quality that are comparable across underwriters, auditors, and law firms. n47 We first downloaded all SDC offerings from 1970 to 1994. (Securities Data Corp. has law firm and auditor information only after 1985.) We then computed for each month a ranking based on each expert's market share 3 months before each IPO used in our sample. To smooth historical volume in a parsimonious fashion, we computed a weight for each offering that declines exponentially with time:

[See formula in printed version]

where *t* is a monthly time index, and $S[i, t]$ is the sum of all offering sizes conducted by the expert *i* in month *t*. Offerings 1 year old received half as much weight as contemporaneous offerings (6-month-lagged offerings received 70 percent as much weight, 6-year-old offerings received 1.6 percent as much weight). The expert's share $S[i, T]$ in month *T* is then computed by adding up all experts and computing which percentage $W[i, T]$ represents

$$S[i,T] = (W[i.T]/[SIGMA][i)W[i,T]) \times 100.$$

Table 3 identifies the fifty largest experts by their smoothed market shares, based on all SDC offerings at the end of 1994. The last four columns provide September 1991 ratings (ratings used in our study are based on market share 3 months prior to each specific offering), which are the expert quality measure we would assign to an offering in January 1992 (when our sample [*562] [*563] [*564] [*565] [*566] [*567] begins). The "All Eq" columns report equivalent expert rankings in the overall equity offering market. As the high correlations (by visual inspection of Table 3) suggest, for the most part, when we later used those rankings instead of the IPO market-share rankings, our regression coefficients changed very little. n48

TABLE 3

IDENTITY AND MARKET SHARE OF TOP 50 EXPERTS IN DECEMBER 1994

DECEMBER 1994

EXPERT AND RANK	IPO	Rank	All Eq		Rank
A. Underwriters:					
1. Goldman Sachs	14.24	1	14.11		2
2. Merrill Lynch	13.28	2	14.89		1
3. Morgan Stanley	10.47	3	9.11		3
4. Donaldson Lufkin Jenrette	6.91	4	4.83		7
5. Lehman			6.86	5	7.23	4
6. Paine Webber			5.56	6	4.68	8
7. Smith Barney			4.32	7	3.82	9
8. Salomon			4.01	8	5.08	6
9. CS First Boston			3.81	9	6.85	5
10. Alex-Brown			3.22	10	2.95	11
11. Montgomery			1.98	11	3.15	10
12. Prudential Securities			1.68	12	1.17	16
13. Bear Sterns			1.65	13	1.94	12
14. JP Morgan			1.41	14	1.38	14
15. Dean Witter Reynolds			1.40	15	.95	19
16. Robertson, Coleman, Stephens			1.33	16	1.37	15
17. Dillon Read			1.11	17	.86	21
18. Hambrecht			1.07	18	.99	17
19. Oppenheimer			1.06	19	.96	18
20. Morgan-Keegan			.93	20	.78	23
21. Lazard			.84	21	.80	22
22. Natwest-Mkts			.81	22	.94	20
23. Schroders			.80	23	.48	26
24. William Blair			.69	24	.75	24
25. Warburg-Group			.57	25	.66	25
26. Wheat-First Boston			.41	26	.32	27

Note: The table has columns: EXPERT AND RANK, IPO, Rank, All Eq, (blank), Rank. For rows 1–4, the "All Eq" value appears under the "Rank" (first Rank) column position and the final Rank is in the last column. For rows 5–26, IPO value is in the "All Eq" column, its rank in the next "Rank" column, and the All Eq value in the 5th column with rank in the last column.

27. Raymond	.40	27	.30	28
28. Piper Jaffray	.36	28	.24	31
29. Kemper	.36	29	.20	33
30. Friedman	.32	30	.14	44
31. Bradford	.31	31	.26	30
32. Chicago	.29	32	.20	32
33. Nomura	.27	33	.12	48
34. Cowen	.26	34	.19	34
35. Mabon-Sec	.25	35	.26	29
36. Ladenburg	.22	36	.13	46
37. Mcdonald	.22	37	.15	40
38. Volpe-Welty	.22	38	.11	<50
39. Furman-Selz-Inc	.21	39	.16	38
40. Allen	.20	40	.14	43
41. Dain-Bos	.19	41	.18	37
42. Allen & Co	.18	42	.12	47
43. Whale	.17	43	.08	<50
44. Blech	.17	44	.09	<50
45. Tucker	.17	45	.15	41
46. Gerard-Klauer	.15	46	.14	45
47. Commonwealth-As	.14	47	.07	<50
48. Wessels	.13	48	.09	<50
49. Josephthal-Lyon	.13	49	.09	<50
50. Stephens	.13	50	.18	35

B. Auditors:

1. Ernst-Young	20.44	1	18.36	2
2. Arthur-Andersen	18.62	2	18.85	1
3. Coopers-Lybrand	17.86	3	15.13	4

4. Deloitte-Touche	14.58	4	15.67	3
5. Kpmg-Peat	10.99	5	13.76	5
6. Price-Waterhouse	9.63	6	10.25	6
7. K-Leventhal	2.72	7	1.37	7
8. Individual	1.46	8	.65	11
9. Grant-Thornton	.79	9	.95	9
10. Bdo	.73	10	1.01	8
11. Mcgladrey-Pullen	.28	11	.24	13
12. Igal-Brightman	.14	12	.08	16
13. Richard-Eisner	.11	13	.08	15
14. Other	.09	14	.05	18
15. Matthews-Carter	.07	15	.03	19
16. Kesselman	.07	16	.06	17
17. Decosimo	.06	17	.03	21
18. Semple-Cooper	.05	18	.02	25
19. Almagor-Bash	.04	19	.02	27
20. J-Gelzer	.03	20	.01	29
21. Kost-Levary	.03	21	.02	24
22. Kerber-Eck	.02	22	.01	32
23. Hein-Associates	.02	23	.02	23
24. Piercy-Bowler	.02	24	.01	35
25. M-H-Pullen	.02	25	.01	38
26. Goldstein-Golub	.02	26	.01	34
27. Seidman-Seidman	.02	27	.01	37
28. Somekh-Chaikin	.02	28	.01	40
29. Wolinetz	.02	29	.01	41
30. Rothstein-Kaas	.02	30	.01	42
31. Lurie-Besikof	.01	31	.01	39
32. Olson-Hartman	.01	32	.01	50

33. Mauldin-Jenkins	.01	33	.01	<50
34. Ehrhardt-Keefe	.01	34	.01	<50
35. Weinick-Sanders	.01	35	.01	<50
36. Robert-Moe	.01	36	.01	<50
37. Laventhol	.01	37	.01	30
38. Morrisson-Brown	.01	38	.01	47
39. Wipfli-Bertelson	.01	39	.00	<50
40. Faulk-Winkler	.01	40	.00	<50
41. Boulay-Heutmaker	.01	41	.00	<50
42. Jh-Cohn	.01	42	.00	<50
43. Blanski-Peter	.01	43	.01	31
44. Amper-Politziner	.01	44	.00	<50
45. Virden-Johnson	.01	45	.00	<50
46. Baird-Kurtz	.01	46	.01	28
47. Raymond-Chabot	.01	47	.00	<50
48. Feldman-R	.01	48	.00	<50
49. Ronel-Stettner	.01	49	.00	<50
50. Pannell-Kerr	.01	50	.00	<50

C. Lawyers:

1. Skadden-Arps	5.49	1	4.11	2
2. Latham-Watkins	2.90	2	1.95	4
3. Willkie-Farr	2.81	3	1.63	7
4. Vinson-Elkins	2.38	4	1.55	8
5. Mayer-Brown	2.36	5	2.04	3
6. Fried-Frank	1.99	6	1.35	11
7. Pillsbury	1.98	7	1.06	24
8. Shearman	1.94	8	1.27	14
9. General-Counsel	1.88	9	8.11	1

10. Sonnenschein	1.87	10	.83	35
11. Goodwin-Procter	1.79	11	.99	26
12. Andrews-Kurth	1.68	12	1.08	22
13. Wilson-Sonsini	1.61	13	1.75	5
14. Paul-Weiss	1.57	14	1.22	17
15. Weil-Gotshal	1.52	15	1.48	10
16. Sullivan	1.48	16	1.33	12
17. Wachtell-Lipton	1.48	17	1.26	15
18. Hogan-Hartson	1.38	18	.75	36
19. Morrison	1.25	19	.87	32
20. Cahill-Gordon	1.24	20	1.07	23
21. Brobeck-Phleger	1.24	21	.84	34
22. Kirkland-Ellis	1.20	22	1.65	6
23. Gibson-Dunn	1.17	23	.91	29
24. Jones-Day	.98	24	1.02	25
25. Shaw-Pittman	.93	25	.55	48
26. Rogers-Wells	.93	26	.56	45
27. Davis-Polk	.93	27	1.20	18
28. Akin-Gump	.79	28	.51	<50
29. Jenner-Block	.76	29	.37	<50
30. Cooley-Godward	.75	30	.68	39
31. Hale-Dorr	.75	31	.67	40
32. King-Spalding	.73	32	.51	50
33. Lansden	.72	33	.45	<50
34. Stroock-Stroock	.72	34	.63	42
35. Simpson-Thacher	.71	35	1.50	9
36. Baker-Botts	.69	36	.71	38
37. Omelveny-Myers	.68	37	.85	33
38. Hunton-Williams	.68	38	1.10	21

39. Morgan-Lewis	.66	39	.60	43
40. Weinberg-Green	.64	40	.28	<50
41. Cravath-Swaine	.62	41	1.23	16
42. Sidley-Austin	.60	42	.72	37
43. Ropes-Gray	.59	43	.87	31
44. Robinson-Berman	.59	44	.55	47
45. Brown-Wood	.57	45	.25	<50
46. Holme-Roberts	.55	46	.97	27
47. Baker-Hostetler	.51	47	.87	30
48. Piper-Marbury	.50	48	.24	<50
49. Ballard-Spahr	.49	49	.29	<50
50. Testa-Hurwitz	.48	50	.58	44

SEPTEMBER 1991

EXPERT AND RANK	IPO	Rank	All Eq		Rank
A. Underwriters:					
1. Goldman Sachs	25.22	1	18.01		1
2. Merrill Lynch	13.81	2	12.23		3
3. Morgan Stanley	2.89	9	8.10		5
4. Donaldson Lufkin Jenrette	1.99	12	2.85		9
5. Lehman			3.56	7	7.44	6
6. Paine Webber			7.15	4	5.70	7
7. Smith Barney			3.15	8	2.45	10
8. Salomon			5.11	6	13.56	2
9. CS First Boston			9.13	3	8.77	4
10. Alex-Brown			5.30	5	3.82	8

11. Montgomery	2.37	11	1.54	11
12. Prudential Securities	2.57	10	1.22	14
13. Bear Sterns	.86	19	1.50	12
14. JP Morgan		<50		<50
15. Dean Witter Reynolds	1.45	14	.97	17
16. Robertson, Coleman, Stephens	1.77	13	1.16	16
17. Dillon Read	1.39	15	1.20	15
18. Hambrecht	1.15	17	.78	18
19. Oppenheimer	.68	22	.53	21
20. Morgan-Keegan		<50		<50
21. Lazard	1.13	18	.54	20
22. Natwest-Mkts		<50		<50
23. Schroders	.20	27	.28	26
24. William Blair	.68	21	.67	19
25. Warburg-Group		<50		<50
26. Wheat-First Boston		<50		<50
27. Raymond		<50		<50
28. Piper Jaffray	.69	20	.37	23
29. Kemper	.54	24	.32	25
30. Friedman		<50		<50
31. Bradford	.47	25	.21	28
32. Chicago		<50		<50
33. Nomura		<50		<50
34. Cowen	.06	50	.02	<50
35. Mabon-Sec		<50		<50
36. Ladenburg	.12	36	.06	43
37. Mcdonald	.09	39	.04	<50
38. Volpe-Welty		<50		<50
39. Furman-Selz-Inc	.14	33	.36	24

40. Allen	.55	23	.44	22
41. Dain-Bos	.40	26	.21	29
42. Allen & Co		<50		<50
43. Whale	.19	28	.10	35
44. Blech		<50		<50
45. Tucker		<50		<50
46. Gerard-Klauer		<50		<50
47. Commonwealth-As		<50		<50
48. Wessels	.13	35	.05	47
49. Josephthal-Lyon	.14	32	.09	36
50. Stephens	.07	47	.22	27

B. Auditors:

1. Ernst-Young	18.10	2	21.50	1
2. Arthur-Andersen	15.27	5	13.18	4
3. Coopers-Lybrand	17.46	4	11.54	5
4. Deloitte-Touche	17.77	3	17.76	2
5. Kpmg-Peat	18.52	1	17.57	3
6. Price-Waterhouse	7.34	6	10.77	6
7. K-Leventhal	.33	10	.11	
8. Individual		<50		<50
9. Grant-Thornton	.68	8	1.34	7
10. Bdo	.25	11	.27	9
11. Mcgladrey-Pullen	.14	13	.07	15
12. Igal-Brightman		<50		<50
13. Richard-Eisner	.02	25	.01	31
14. Other	1.64	7	.66	8
15. Matthews-Carter		<50		<50
16. Kesselman	.00	<50	.00	<50

17. Decosimo	.11	15	.09	14
18. Semple-Cooper		<50		<50
19. Almagor-Bash		<50		<50
20. J-Gelzer		<50		<50
21. Kost-Levary	.06	16	.02	19
22. Kerber-Eck		<50		<50
23. Hein-Associates		<50		<50
24. Piercy-Bowler		<50		<50
25. M-H-Pullen		<50		<50
26. Goldstein-Golub	.04	19	.05	16
27. Seidman-Seidman	.54	9	.18	11
28. Somekh-Chaikin		<50		<50
29. Wolinetz		<50		<50
30. Rothstein-Kaas		<50		<50
31. Lurie-Besikof		<50		<50
32. Olson-Hartman		<50		<50
33. Mauldin-Jenkins		<50		<50
34. Ehrhardt-Keefe		<50		<50
35. Weinick-Sanders		<50		<50
36. Robert-Moe		<50		<50
37. Laventhol	.33	10	.22	10
38. Morrisson-Brown	.03	23	.01	30
39. Wipfli-Bertelson		<50		<50
40. Faulk-Winkler		<50		<50
41. Boulay-Heutmaker		<50		<50
42. Jh-Cohn	.02	24	.01	23
43. Blanski-Peter		<50		<50
44. Amper-Politziner		<50		<50
45. Virden-Johnson		<50		<50

46. Baird-Kurtz	.05	<50	.02	20
47. Raymond-Chabot		<50		<50
48. Feldman-R		<50		<50
49. Ronel-Stettner		<50		<50
50. Pannell-Kerr	.03	20	.01	25

C. Lawyers:

1. Skadden-Arps	4.22	2	5.88	3
2. Latham-Watkins	1.60	15	1.72	8
3. Willkie-Farr	1.81	11	1.05	19
4. Vinson-Elkins	.63	37	.45	50
5. Mayer-Brown		<50		<50
6. Fried-Frank	.71	29	1.15	18
7. Pillsbury	.46	48	.47	47
8. Shearman	4.57	1	2.31	5
9. General-Counsel	3.39	6	7.98	1
10. Sonnenschein		<50		<50
11. Goodwin-Procter	.68	32	.38	<50
12. Andrews-Kurth	1.63	14	.81	24
13. Wilson-Sonsini	2.24	10	1.67	9
14. Paul-Weiss		<50	6.07	2
15. Weil-Gotshal	3.92	4	1.55	10
16. Sullivan	2.63	8	2.04	7
17. Wachtell-Lipton		<50		<50
18. Hogan-Hartson		<50		<50
19. Morrison		<50	.48	45
20. Cahill-Gordon	3.83	5	1.38	13
21. Brobeck-Phleger	1.18	20	.74	27
22. Kirkland-Ellis		<50	.85	23

23. Gibson-Dunn	.80	27	.91	20
24. Jones-Day	.56	43	.78	25
25. Shaw-Pittman		<50		<50
26. Rogers-Wells		<50		<50
27. Davis-Polk		<50		<50
28. Akin-Gump		<50		<50
29. Jenner-Block		<50		<50
30. Cooley-Godward	1.49	17	.66	31
31. Hale-Dorr	1.36	18	.67	30
32. King-Spalding		<50		<50
33. Lansden		<50		<50
34. Stroock-Stroock	.52	45	.34	<50
35. Simpson-Thacher	2.88	7	3.24	4
36. Baker-Botts	1.04	22	.56	36
37. Omelveny-Myers	.71	30	.51	42
38. Hunton-Williams		<50		<50
39. Morgan-Lewis	.98	25	.54	39
40. Weinberg-Green		<50		<50
41. Cravath-Swaine	2.25	9	1.37	14
42. Sidley-Austin	.62	39	.41	<50
43. Ropes-Gray	.98	24	1.21	16
44. Robinson-Berman		<50		<50
45. Brown-Wood		<50		<50
46. Holme-Roberts		<50		<50
47. Baker-Hostetler		<50		<50
48. Piper-Marbury		<50		<50
49. Ballard-Spahr		<50		<50
50. Testa-Hurwitz	.44	49	.30	<50

NOTE.--This table presents a ranking of experts, computed as a moving, exponentially declining average of participating offering sizes. (Offerings 1 year lagged count half as much as contemporaneous offerings.) Underwriter, auditor, and lawyer offering participation information is available from 1970, 1985, and 1985, respectively. Consequently, 1994 underwriter ranks are computed from 15 years of data, while December 1994 auditor and lawyer ranks are computed from 10 years of data. Unit and nondomestic offerings, average daily returns, and mutual funds were excluded. Co-lead underwriters receive full credit for the offering. The reported numbers are the percentages of the total market share (both computed as the moving average) in this particular month. A notable departure from the 1994 ranking is Drexel, from rank 15 in September 1991. Updated versions of this table may be available at http://next.agsm.ucla.edu.

In panel A, the "bulge-bracket" underwriters Goldman-Sachs and Merrill Lynch hold the top spots in December 1994. From the end of 1991, Merrill gained substantial ground, however, passing by Salomon (hurt by the treasury scandal). The only notable major drop from the 1991 rankings is Drexel-Burnham-Lambert, which also was hurt by a criminal investigation. Initial public offering specialists such as Hambrecht and Oppenheimer (high-technology firms) and Oppenheimer (funds and high technology issues) rank around 20. In panel B, the Big 6 accounting firms place first, with Ernst and Young and Arthur Anderson taking top spots. Behind the Big 6 are such known experts as Leventhal and Grant-Thornton, but neither commands much of a share of the market. Subsequent auditors are basically occasional participants. Indeed, it is noteworthy that some IPO prospectuses and SDC do not identify the auditor (instead calling them "INDIVIDUAL" or "OTHER"). In such circumstances, we assigned a quality (market-share) rating of zero.

Because the rankings computed for underwriters and auditors are intuitively appealing, we conjecture that our relatively objective measure is likely to also provide reasonable results for our ranking of law firms. We find in panel C that Skadden-Arps takes the top spot in 1994, up from a second rank to Shearman in the IPO market in September 1991. At about half the market share of Skadden-Arps, there are Latham-Watkins, Wilkie-Farr, Vinson-Elkins, and Mayer-Brown, followed by a large number of law firms with

similar market share. As with auditors, a good number of experts are not identified (described in the IPO prospectus as "General Counsel"), which is the route adopted by a full 8 percent of all equity offerings. (Again, such IPOs receive a quality rank of zero in subsequent regressions.)

One interesting observation is how different the market depth among experts is. After the Big 6 and perhaps Leventhal, there is no depth in the market for auditors. The tenth largest underwriter and law firm still command a 3 percent and 2 percent market share, respectively, while the tenthlargest auditor commands a modest 0.17 percent. But the legal market in general is flatter, with Skadden-Arps commanding only about two times the [*568] share of the tenth largest law firm, whereas the top underwriters command three to four times the share of the tenth largest underwriter. The table also indicates (1) how IPO market share differs from general market share, and (2) how these market shares changed by the end of our sample period.

Among both underwriters and auditors, there is practically no difference between IPO and general equity market experts, especially among the top ten experts. Among law firms, Fried-Frank, Pillsbury, and Shearman have a higher IPO rank, but this reflects more the lack of strong overall equity advisers than an unusually high IPO rank. Similarly, Kirkland-Ellis and Simpson-Thacher have an unusually low 1994 IPO rank relative to their general equity underwriting participation. As to time changes, Donaldson-Lufkin-Jenrette and Morgan-Stanley improved their relative positions, while Salomon and First Boston (and, of course, Drexel) declined. n49

If we return to Table 1, panel B shows that, in our IPO firms with complete data, on which subsequent analysis is performed, the mean under-writer quality (based on market share) in our sample is above 3.4 (median 1.4), the mean auditor quality is 15.2 (median 15.7), and the mean law firm quality is around 0.6 (median 0.2). That is, only a few IPOs had important law firm representation, many IPOs had name-brand underwriters, but most IPOs employed a Big 6 accounting firm. Indeed, only 93 firms employed a non Big 6 auditor, about 20 of which each chose BDO-Seidman, and about 10 each chose Grant-Thornton or Richard Eisner. This stands in contrast to our earlier 1980s sample, where 30 percent of our issuers did not employ a Big 6 auditor. This is for two reasons: first, our earlier sample included 150 best-effort offerings, most of which did not have Big 6 auditors, and second, among firm-commitment offerings, the percentage of firms that were represented by non Big 6 auditors dropped from about 15 percent to below 10 percent. (The audit market has become more concentrated since the 1980s.) Consequently, auditor quality as an independent variable is likely to be influenced by a couple of influential data points.

E. Risk Characteristics

Panel C of Table 1 describes our risk proxies, which fall into three groups:

 [*569] 1. *Legal Characteristics*. A central issue examined in our article is the role of the IPO prospectus. We are especially interested in measuring the caution in the registration statement: the number of risk factors described in the prospectus. Because Section 11 of the Securities Act of 1933 imposes legal liability on members of the IPO coalition for misrepresentation in the registration statement, an increase in the quantity of potentially adverse disclosures (proxied by the number of risks and uses of proceeds) in the registration statement reduces the likelihood of a successful class-action lawsuit. Thus, when the issuer indicates many risk factors in the prospectus, his and his experts' liability exposure under the Securities Act of 1933 may be reduced. Consequently, *holding ex ante perception of risk constant, firms citing more risk factors can reduce expert compensation*.

The cost of this liability reduction is a loss of issue desirability, for both IPO offer price and after-market valuation. Yet, as suggested by Beatty and Ritter, n50 legal caution is likely to be positively related to the dispersion of investor beliefs. Consequently, *firms citing more risk factors must increase IPO underpricing*.

This implication holds both conditionally (on perception) and unconditionally because investors have less ability to subsequently sue when there are more risk factors. n51

Although less sharp, similar logic applies to the number of uses of proceeds in the IPO prospectus (used in Beatty and Ritter n52 as a risk proxy). A firm that lists numerous possible uses of proceeds exposes outsiders to additional risks but implicitly purchases flexibility and insurance against legal liability if future plans change. n53 In our sample, the average firm cites 14.2 (median 14) risk factors (up from 9-10 in 1982-84) and 3.1 (median 3) uses of proceeds. In logs, this translates into 2.7 and 1.3 mean risks and uses, respectively. Interestingly enough, some firms indicate no risks or uses, whereas other firms list as many as 33 possible risks and 10 possible uses of proceeds.

2. *Insider Retention*. Leland and Pyle n54 derive a model in which insider [*570] retention can signal (otherwise unobservable) issue quality. n55 Grinblatt and Hwang n56 further point out that insider retention and IPO underpricing together can signal two multivariate firm characteristics, mean

and variance. In their model, holding risk constant, more inside retention requires more IPO underpricing: n57 *holding the ex ante perception of risk constant, more insider retention could increase IPO underpricing*.

The same directional effect could be predicted if riskier firms needed to both retain more inside ownership and pay their experts more: *firms in which insiders retain more shares may also have to pay more expert compensation (and IPO underpricing)*.

In the latter hypothesis, however, if we properly adjusted for ex ante perception, we could generate the opposite implication. A firm in which insiders retain more interest is likely to be of higher quality and less risky-- indeed, some experts and investors may revise down their perceptions of a firm *because* it sells more shares. Beatty and Ritter, n58 for example, argue that variables positively associated with the dispersion of beliefs about after-market values induce higher IPO underpricing. Thus, low inside retention could increase the dispersion of beliefs ("riskiness") and induce the opposite relations: *holding the ex ante perception of risk constant, more insider retention could lower IPO underpricing*.

This prediction can also be constructed from an assumption that demand curves are downward-sloping (relative to firm and offer size). When a larger fraction of the firm is sold and if a onetime placement of the entire float is difficult, we could expect firms that sell more shares to offer more IPO underpricing to expand the demand for shares. As to expert compensation, the intuitive implication is that, when insiders remain more involved in their firms, risk to experts is lower. Consequently, we would expect that, *holding the ex ante perception of risk constant, more insider retention could lower expert compensation*.

Panel C of Table 1 shows that insiders retain 42 percent of their firms on average post-IPO (median 43.4 percent). The range varies from practically zero to 88 percent. It is important to note that inside retention is missing in 137 offerings with otherwise complete data.

 [*571] 3. *Offer Price*. Our final risk proxy is the reciprocal of the nominal offering price. n59 Brennan and Hughes n60 argue that the nominal offer price has an economic effect because lower share prices increase relative brokerage commissions. In their view, this increases the incentives for analysts to follow such stocks in more detail. Thus, some high-risk firms can attract analysts by signaling their quality with a low offer price--but at a cost to investors who then face more transaction costs: *holding ex ante perception of risk constant, firms pricing lower can signal quality by attracting more subsequent outside scrutiny. Consequently firms with low*

offer price (high 1/op) can require less IPO underpricing and less expert compensation.

Yet, if a low offering price disproportionately benefits riskier firms, investors might revise their perception of the firm's intrinsic riskiness, resulting in the opposite implication: *IPOs priced lower (by riskier firms, who wish to signal quality by increasing investor transaction costs to attract more analysts) are associated with more IPO underpricing*.

It is mostly the underwriter himself who later provides analysts coverage and market making. Lower pricing translates directly into a wealth transfer from investors/owners to the underwriter (in subsequent commissions).

We adopt the functional form (the reciprocal) of the nominal offer price that has been used in other studies. n61 With offer prices ranging from $ 3 to $ 64 per share (mean of $ 11.60, median of $ 11.50), the mean of reciprocal price is 0.1. Consisting of firm-commitment offerings only, however, our sample does not contain the penny stocks for which the reciprocal of the offering price (1/op) has screened effectively in the past. n62 Moreover, there is reason to believe that the role of the offering price could have changed from our earlier 1970s and 1980s sample period. As of January 1, 1990, the SEC adopted Rule 15c-2-6, which prohibits sales of low-priced stocks (less than $ 5) by broker-dealers without obtaining sufficient information from the purchaser to make an appropriate suitability determination. n63 Further, Congress passed the Securities Enforcement Remedies and Penny Stock Reform Act of 1990 requiring broker-dealers to provide trade and market information [*572] to purchasers prior to a transaction in a penny stock. n64 These regulatory interventions suggest that offering price conveyed information, if only of fraud, to more sophisticated investors, concerning IPO firm risk before the 1990s. Figure 1 plots the percentage of offerings with prices below $ 1 and $ 5 for each month (when there are fewer than 50 offerings, all offerings are counted into the next month). It is immediately apparent that offer prices below $ 1 practically disappeared in mid-1989 and that offer prices below $ 5, very common in the early eighties and used in earlier IPO studies, are now fairly rare.

The above list of risk proxies is in order of decreasing legal liability. Holding ex ante riskiness constant, omission of risk factors or proceeds uses in the prospectus is likely to result in more litigation, low retention by insiders may result in more litigation, and a nominal price signal is likely to be ex-post legally unenforceable.

F. Controlling for Size/Scale/Perception with a Two-Step Regression

Procedure

As already noted, it is quite possible that both regressors and regressand are determined by such factors as firm size, industry, or offering year. To account for variation caused by firm type, we run first-step regressions on all dependent and independent variables, using as regressors (1) sales and log(sales), (2) assets and log(assets), and (3) industry and year dummies. (We subsequently repeated our analysis also including offering size and its log in our first-stage regressions [now used as controls in our second step], and found little difference.) Because these explanatory variables are somewhat multicollinear and (close to) unalterable characteristics of the firms (in which we have little interest per se), we do not report the coefficients but instead only hint at the relations for sales, assets, and age.

Table 4 presents statistics on the transformed variables. A high reduction in variance means that given firm characteristics are strong determinants of a variable. Although R^2s are not directly comparable, the reported variance reductions indicate that underwriter compensation as a percentage of the offering size is highly predictable n65 --even more so than the raw auditor and [*573] [*574] [*575] law firm compensation--as is the offering size. Surprisingly, ex ante firm characteristics are major determinants also of the chosen offer price, suggesting only a limited role for the reciprocal of offering price (1/op) as an independent risk proxy. In other words, 1/op may have functioned as a risk proxy in earlier work because it correlated with firm scale (possibly in a nonlinear fashion); once accounted for, this correlation may be different.

TABLE 4

DESCRIPTIVE STATISTICS ON SIZE/SCALE/YEAR/INDUSTRY ADJUSTED VARIABLE

	UNTRANSFORMED	TRANSFORMED
DESCRIPTION	SD	SD
Perc underwriter compensation (in percent)	1.06	.83
Auditor compensation	175.584	151.102
Lawyer compensation	224.893	185.471
IPO underpricing (in percent)	18.20	17.70

Absolute IPO underpricing residual (in percent)	14.50	12.90
Underwriter market share	4.708	4.026
Auditor market share	5.905	5.789
Lawyer market share	.899	.861
Log(1 + risks)	.306	.260
Log(1 + uses)	.419	.383
Inside retention	21.192	20.462
1/(offer price)	.050	.040
Offer size	100.905	62.847
Log(1 + offer size)	.977	.613

  NOTE.--This table presents information on the residuals from our first-step

regressions, where the dependent variables are the step 1 controls from Table

1, panel D. (Subsequent table regressions use only transformed variables.)

For a description of the data sources, refer to Table 1. All regressions use

960 complete observations, except for the inside retention regression, for

which only 823 observations were available. The last three columns hint at

the significance of the six first-step variables (sales, assets, age, and

their logs). A negative sign indicates a negative relation; a positive sign,

a positive relation; a zero, no relations; and a question mark, a nonlinear

relation (opposite signs and significance on a variable and its log).

SIGNIFICANT

VARIABLES

FIRST
STEP

DESCRIPTION	R^2	Sales	Assets	Age
Perc underwriter compensation (in percent)	39.06	-	--	0
Auditor compensation	25.94	?	++	-
Lawyer compensation	31.99	+	++	?
IPO underpricing (in percent)		5.42	0	-	0/-
Absolute IPO underpricing residual (in percent)		20.85	0	-	0/-
Underwriter market share		26.87	+	?/+	-
Auditor market share		3.89	0	+	0
Lawyer market share		8.28	0	?	-
Log(1 + risks)		27.81	?	-	0
Log(1 + uses)		16.45	+	--	?
Inside retention		6.77	?	?	-
1/(offer price)		35.81	?	--	0
Offer size		61.21	++	++	-
Log(1 + offer size)		60.63	++	?/+	-

NOTE.--This table presents information on the residuals from our first-step regressions, where the dependent variables are the step 1 controls from Table 1, panel D. (Subsequent table regressions use only transformed variables.) For a description of the data sources, refer to Table 1. All regressions use 960 complete observations, except for the inside retention regression, for which only 823 observations were available. The last three columns hint at the significance of the six first-step variables (sales, assets, age, and their logs). A negative sign indicates a negative relation; a positive sign, a positive relation; a zero, no relations; and a question mark, a nonlinear relation (opposite signs and significance on a variable and its log).

The final three columns in the table provide a description of the role of six of our ex ante variables (sales, assets, age, and their logs). A minus denotes negative significance, a plus denotes positive significance, a zero denotes no significance, and a question mark indicates a nonlinear relation (positive significance on the raw variable and negative significance on its logged form, or vice versa). Most reported correlations are as expected. Percentage underwriter compensation displays some economies of scale (larger firms pay relatively less per share, indicating a fixed cost component to place the issue). Auditor compensation correlates positively with assets (but not sales) and slightly negatively with the log of age. Law firm compensation correlates *very* positively with assets and log(assets), positively with sales, and nonlinearly with age. Initial public offering underpricing relates somewhat negatively to log(assets), and year and industry factors appear to play a role, but in general investor compensation is fairly independent of our first-step variables.

The fact that some first-step regressions are successful indicates that control for firm characteristics might be important, especially explaining expert compensation. (Section IV*G* below discusses how omitting scale controls changes some independent variable estimates.) Although not reported, after controlling for ex ante controls, none of our dependent variables are highly correlated, with one exception (unexpected auditor and unexpected lawyer compensation, 53 percent). Correlations exceeding 10 percent are rare, surprisingly even among such variables as unexpected log risks and log uses (8.4 percent). (Similar findings extend to multivariate correlations.) Consequently, our regressions do not suffer from multicollinearity.

IV. MULTIVARIATE SPECIFICATIONS EXPLAINING EXPERT COMPENSATION AND IPO UNDERPRICING

We now examine whether we can explain expert and IPO compensation with variables suggested by our analysis of the legal environment and resulting economics of the IPO market. Tables 5-7 explain expert fees with our prespecified variables, and Table 8 explains investor compensation (IPO underpricing). All regression tables follow the same format: we report White heteroskedasticity-adjusted *t*-statistics for ordinary least squares (OLS) regression coefficient estimates. All regressions are performed on the [*576] subsample of firms including inside retention (losing 137 observations) and include a set of five additional control variables whose coefficients are not reported (a constant, the offering size and its log, and the residual [from step 1] offering size and its log). The reported enclosed

independent and dependent variables are all the "whitened" versions, in other words, the residuals from the first-step regressions, as described in Table 4. The independent variables are grouped into three sets: expert quality (our market share measured 3 months prior to the offering), other experts' compensation, and risk proxies. n66 Good candidates for causes of positive correlation among expert compensation are omitted ex ante perception, omitted bargaining skills, omitted workload measures, or omitted outside sources of alternative capital, all available to one firm and influencing the compensation of all experts. Good candidates for negative correlations are the ability of one expert to substitute for another expert or help the firm negotiate lower compensation for another expert.

To examine whether the relations differ across (or are driven by) firm type, we derive the first factor (principal component) from log(age), log(sales), and log(assets). The respective factor loadings are 0.45, 0.94, and 0.92. Four hundred ninety-eight firms with negative factor realizations are named "young, small," 497 firms with positive factor realizations are named "old, large." The average age and sales in the large firm subset are 18.8 years and 260 million dollars (388 firms with insider data), 6.4 years and 15.7 million dollars in the small firm subset (435 firms with insider data). The left-most regression in each table presents regression on the full set of observations, the middle regression on the set of young, small firms only, and the right-most regression on the set of old, large firms only.

A. The Determinants of Underwriter Compensation

Table 5 examines (of course, residual) underwriter compensation as a percentage of the offering size. Underwriters receive a clear quality premium. This premium derives from the variation in underwriting across firm/risk groups. Both subsample coefficients are much smaller than the overall regression coefficients. The positive coefficient suggests that underwriters earn a return on their built-up reputation capital and primarily do so [*577] [*578] by taking larger, less risky firms public. Overall, with the estimated coefficient of about 1.5, a 4.0 point higher market share (about 1 SD) suggests about an 0.06 percent higher percentage compensation for the underwriters--that is, 1 SD in underwriter quality can explain roughly one-fifteenth of the observed 0.83 percent per-share cross-sectional variation in underwriter compensation. A Goldman Sachs rather than a Hambrecht-Quist (15 point difference) can expect to receive a $ 1.5 . 15 [approximately equal to] 0.2 percent higher percentage fees.

TABLE 5

DETERMINANTS OF PERCENTAGE UNDERWRITER COMPENSATION

ALL FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic
Underwriter market share	1.653	3.81
Auditor market share	-.989	-2.97
Lawyer market share	-7.234	-4.26
Auditor compensation	-.023	-.83
Lawyer compensation	.000	.00
Log(1 + listed risks)	13.608	1.71
Log(1 + uses of proceeds)	8.687	1.59
Inside retention	.002	.02
1/offer price	843.630	10.65
N	823	
R^2	42.49	
Adjusted R^2	41.57	

  NOTE.--This table presents regression results that predict underwriter compensation for 823 IPOs with complete observations from the 1992-94 period. For a basic data description and univariate statistics, refer to Tables 1 and 4. All reported variables are residuals from the described step 1 regression. (Offering size and log offerings size were included both in raw form, and as residuals after step 1 regressions; the constant and the four offering size proxies are not reported to avoid detracting from the variable of interest.) The first group of variables measures the compensation of other experts, and the third group measures risks; t-statistics are

White-heteroskedasticity-adjusted.

YOUNG, SMALL FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic
Underwriter market share	.418	.60
Auditor market share	-1.123	-2.60
Lawyer market share	-4.143	-2.06
Auditor compensation	.002	.05
Lawyer compensation	-.128	-4.19
Log(1 + listed risks)	22.276	1.63
Log(1 + uses of proceeds)	14.725	1.94
Inside retention	.284	1.79
1/offer price	560.650	5.24
N	435	
R<2>	57.92	
Adjusted R<2>	56.66	

  NOTE.--This table presents regression results that predict underwriter

compensation for 823 IPOs with complete observations from the 1992-94 period.

For a basic data description and univariate statistics, refer to Tables 1 and

4. All reported variables are residuals from the described step 1 regression.

(Offering size and log offerings size were included both in raw form, and as

residuals after step 1 regressions; the constant and the four offering size

proxies are not reported to avoid detracting from the variable of interest.)

The first group of variables measures the compensation of other experts, and

the third group measures risks; t-statistics are

White-heteroskedasticity-adjusted.

OLD, LARGE FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic
Underwriter market share	.312	.65
Auditor market share	-.152	-.59
Lawyer market share	-2.818	-1.38
Auditor compensation	-.040	-1.26
Lawyer compensation	.036	1.02
Log(1 + listed risks)	12.178	1.29
Log(1 + uses of proceeds)	-3.625	-.56
Inside retention	-.023	-.24
1/offer price	244.350	1.33
N	388	
R<2>	45.14	
Adjusted R<2>	43.24	

NOTE.--This table presents regression results that predict underwriter compensation for 823 IPOs with complete observations from the 1992-94 period. For a basic data description and univariate statistics, refer to Tables 1 and 4. All reported variables are residuals from the described step 1 regression. (Offering size and log offerings size were included both in raw form, and as residuals after step 1 regressions; the constant and the four offering size proxies are not reported to avoid detracting from the variable of interest.)

The presence of a high-quality auditor may reduce the compensation that has to be paid to the underwriters, especially among small firms. (A Big 6 auditor [15 points market share] reduces percentage underwriter compensation by about 1.5 percent.) Presumably, auditors certify (or provide quality assurance for) small issuers to their underwriters. In large issues, the correlation is insignificant.

The presence of a high-powered law firm also reduces the fees demanded by the underwriter. High-quality legal representation either helps provide quality assurance to underwriters or helps the issuer negotiate better terms with their underwriters, and more so among small, young firms. A Skadden-Arps relative to a lesser-known law firm (5 points) could lower underwriter percentage fees by 0.35 percent. In addition, the -4.2 *t*-statistic on lawyer *compensation* in the small firm regression shows that paying lawyer compensation can be a substitute for paying underwriter compensation per share. In terms of economic significance, 1 SD in lawyer compensation ($ 208 thousand) changes percentage underwriter compensation by about 0.2 percent.

The coefficient signs hint that riskier offerings and offerings with more possible proceed uses have to pay *more* to their underwriters (the sum is statistically significant at conventional levels in the overall regression and small firm regressions). The extra insurance against future liability thus does not outweigh the increase in risk perceived by the underwriter or the extra selling effort required by the underwriter to attract investors to such "risky" offerings. Inside retention may play a role in young, small firms. It appears that riskier firms (where issuers need to retain more shares) also have to pay more to their underwriters. Low-priced offerings (high 1/op) pay more to their underwriters, indicating that such issuers pay their underwriters a risk premium or fee for extra services rendered (such as extraanalyst coverage). It also suggests that paying the underwriter at the offering and after the offering (in extra commissions) are substitutes. Without offering size controls, the 1/op significance increases further--larger offerings tend to price higher.

Our (unreported) evidence from the 1980 period confirms most of the relations in the 1990s. Although insignificant in our earlier paper, the

underwriter [*579] quality coefficient was positive, and the auditor quality coefficient was negative. The caution in the prospectus was also significantly positive, although it formerly had statistically positive significance also among the smaller issues. In contrast to the 1990s, underwriters in the 1980s who chose lower nominal pricing received more compensation *only* among large firms, albeit with lower significance. The only outright coefficient reversal from the 1980s is that the formerly positive correlation with lawyer compensation has reversed in our small-firm subsample.

In sum, taking into account both sample periods, underwriter compensation seems to reflect an underwriter quality premium; high-quality auditors and lawyers can reduce underwriter compensation; and more caution in the prospectus (plus a low issue price) increases the necessary underwriter compensation.

B. The Determinants of Auditor Compensation

Table 6 examines (residual) auditor compensation. Overall, there are economies of scale to auditing. As Table 2 indicated, there is a large fixed-cost component to auditing and less of a variable cost than there is for underwriters. Consequently, estimation as a percentage would have been misleading: in the reported overall regression in Table 6, once adjusted for firm size, industry, and year, the unreported coefficient on offering size comes in with a negative but insignificant coefficient (the relation between size and auditor compensation is highly nonlinear, but all four size controls have *t*-statistics below 3).

Although we knew beforehand that the auditor quality measure had only limited variation, driven by a few influential non-Big 6 observations, n67 it is still remarkable that there is no observed premium for auditor quality in the 1990s (unlike a weak positive relation observed in the early 1980s and in Beatty). n68 If at all, old firms paid *less* to better auditors than old firms paid to worse auditors! The referee suggested that this may be because better auditors generate more repeat business from old firms and may thus be able to recoup lower fees later. The -2.0 coefficient among large firms might be due to reverse causality: when a Big 6 auditor accumulates market share (which we interpret to be quality), it may have been able to do so because lower auditing fees were attractive to cash-starved IPO firms. (Similarly, in non-IPO settings, for large firms, no significance of auditor quality in [*580]   [*581] determining auditor fees was observed in Palmrose n69 and Simon and Francis). n70 For small firms, the sign is positive but not statistically significant at conventional level.

TABLE 6

DETERMINANTS OF AUDITOR COMPENSATION

ALL FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic
Underwriter market share	.612	.59
Auditor market share	-.516	-1.27
Lawyer market share	-.792	-.16
Underwriter compensation	-.001	-.64
Lawyer compensation	.418	6.67
Log(1 + listed risks)	29.977	2.24
Log(1 + uses of proceeds)	-19.743	-2.14
Inside retention	.299	1.44
1/offer price	34.065	.39
N	823	
R<2>	32.33	
Adjusted R<2>	33.40	

YOUNG, SMALL FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic
Underwriter market share	.854	.64
Auditor market share	-.352	.91

DEPENDENT VARIABLE	Coefficient	t-Statistic
Lawyer market share	-1.248	-.38
Underwriter compensation	-.003	-.86
Lawyer compensation	.282	3.48
Log(1 + listed risks)	7.466	.59
Log(1 + uses of proceeds)	-.752	-.09
Inside retention	-.193	-.95
1/offer price	115.820	1.33
N	435	
R<2>	21.95	
Adjusted R<2>	24.29	

OLD, LARGE FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic
Underwriter market share	.350	.24
Auditor market share	-2.029	-2.36
Lawyer market share	1.544	.16
Underwriter compensation	-.000	-.22
Lawyer compensation	.475	6.02
Log(1 + listed risks)	55.602	2.62
Log(1 + uses of proceeds)	-33.035	-2.09
Inside retention	.623	1.82
1/offer price	-182.220	-.83

N	388
R<2>	36.98
Adjusted R<2>	39.10

NOTE.--This table presents regression results that predict auditor compensation for 823 IPOs with complete observations from the 1992-94 period. For a basic data description and univariate statistics, refer to Tables 1 and 4. All reported variables are residuals from the described step 1 regression. (Offering size and log offerings size were included both in raw form, and as residuals after step 1 regressions; the constant and the four offering size proxies are not reported to avoid detracting from the variables of interest.) The first group of variables measures expert quality, and the second group measures the compensation of other experts, and the third group measures risks; t-statistics are White-heteroskedasticity-adjusted.

The presence of other high-quality experts seems similarly irrelevant to the amount of auditor compensation. As to other expert compensation, note that we multiply residual percentage underwriter compensation from the first-step regression by offering size to compute a dollar compensation figure (used here and in the subsequent lawyer compensation regression). This keeps the units in the dependent variable in line with the units of both other expert compensation independent variables. We observe a very high positive correlation of auditor compensation with lawyer compensation, indicating--as Defeo and Sarath n71 note--that law firm compensation is a good measure for omitted workload or other characteristics that are not related to legal exposure (as explained above, lawyer compensation is unlikely to reflect direct legal liability). Firms with $ 1 more lawyer compensation also pay $ 0.42 more auditor compensation. (It should be noted that the log of the number of uses of proceeds, discussed below, achieves negative significance only after lawyer compensation is included.)

As to our risk proxies, we expected a negative correlation. Listing more risks insulates the auditors from liability. We indeed found this negative relation between listed risks and auditor compensation in the early eighties. Yet, in the 1990s, we find that more caution in the prospectus (risk factors)

is always associated with *more* auditor compensation--especially among large firms. The positive coefficient suggests that firms with more risk factors are more suspicious to the auditor (as they were to the underwriters). The listing of these extra risk factors in the prospectus was not sufficient to fully insulate the auditor from possible subsequent liability. In contrast, the number of (future) possible uses of proceeds is likely chosen by the firm, not to shield the auditor from liability, but to provide more flexible capital use (if this requires more investigation/work by the auditor, we would have expected a positive coefficient). Yet, we find issuers with more possible proceed uses to pay *less* to their auditors.

Inside retention has some effect, but only among large firms and positive. In the 1980s, 1/op (now featuring a positive coefficient in the overall regression) was significantly negative among small firms.

 [*582] In sum, the existing IPO data suggest shifts in the determinants of auditor compensation in the past decade. We cannot reliably detect if better auditors demand more compensation or if better underwriters or better lawyers reduce or increase auditor compensation. Effort, as measured by lawyer compensation and offering size variables (with *t*-statistics on log-offering size of around 25!), are the most reliable predictors of lawyer compensation.

C. The Determinants of Law Firm Compensation

Table 7 presents the first regressions in the literature that to our knowledge examine IPO lawyer compensation. As in the auditor compensation regression (and also not reported), there are significant economies of scale (the fixed cost component overwhelms the variable cost component): offering scale is related to law firm compensation, but not enough to warrant estimating percentage lawyer compensation. n72

There is a strong quality premium for high-quality law firms. n73 A firm that uses a Skadden-Arps quality lawyer (5 market-share points) rather than a lesser-known law firm would have had to pay an extra 15 . 5 [approximately] $ 75 thousand. On average, the presence of neither a high-quality underwriter nor a high-quality auditor changes lawyer compensation.

As in the auditor regression, we find that auditors' and lawyers' compensation are strong complements, or at least that they are compensated similarly in cross section (by the same issuers). The 0.63 coefficient indicates that firms which paid $ 1,000 more to their auditors also paid $ 630 more to their lawyers.

Given the legal structure, as discussed in Section II*B* above, we would expect law firms not to be subject to much legal liability. However, involvement with a bad or fraudulent offering is likely to be undesirable for a law firm, too. We find that law firms are not concerned about listed risk factors. (Among small firms, the *t*-statistic reaches 1.22, though, which is still insignificant at conventional levels.) Law firms are, however, paid more when the firm indicates more proceed uses.

The regressions further indicate that lawyers are paid less when insiders retain more of their offerings. Law firms are thus quite sensitive to Leland-Pyle-type risks. The offering price variable is insignificant. The positive coefficient on 1/op contrasts with our 1980s regressions, in which a strongly [*583] [*584] negative offering price reciprocal was one of two significant findings (a positive coefficient on auditor compensation was the other).

TABLE 7

DETERMINANTS OF LAW FIRM COMPENSATION

	ALL FIRMS	
DEPENDENT VARIABLE	Coefficient	t-Statistic
Underwriter market share	-.881	-.67
Auditor market share	.668	1.15
Lawyer market share	14.920	3.81
Underwriter compensation	-.003	-1.04
Auditor compensation	.630	9.07
Log(1 + listed risks)	5.286	.28
Log(1 + uses of proceeds)	28.738	2.33
Inside retention	-.843	-3.30
1/offer price	198.620	1.31

N	823	
R<2>	38.54	
Adjusted R<2>	39.51	

YOUNG, SMALL FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic
Underwriter market share	-1.496	-1.13
Auditor market share	-.500	-.99
Lawyer market share	10.810	3.34
Underwriter compensation	.025	2.93
Auditor compensation	.467	5.05
Log(1 + listed risks)	17.998	1.22
Log(1 + uses of proceeds)	20.749	1.97
Inside retention	-.402	-1.85
1/offer price	177.700	.96
N	435	
R<2>	37.21	
Adjusted R<2>	39.09	

OLD, LARGE FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic

Underwriter market share	-.424	-.24
Auditor market share	2.208	1.79
Lawyer market share	16.876	2.16
Underwriter compensation	-.004	-1.37
Auditor compensation	.671	7.90
Log(1 + listed risks)	-7.568	-.21
Log(1 + uses of proceeds)	36.809	1.81
Inside retention	-1.159	-2.79
1/offer price	595.600	1.85
N	388	
R<2>	41.92	
Adjusted R<2>	43.87	

  NOTE.--This table presents regression results that predict law firm
compensation for 823 IPOs with complete observations from the 1992-94 period.
For a basic data description and univariate statistics, refer to Tables 1 and
4. All reported variables are residuals from the described step 1 regression.
(Offering size and log offerings size were included both in raw form, and as
residuals after step 1 regressions; the constant and the four offering size
proxies are not reported to avoid detracting from the variables of interest.)
The first group of variables measures expert quality, the second group
measures the compensation of other experts, and the third group measures
risks; t-statistics are White-heteroskedasticity-adjusted.

In sum, given that lawyers are well insulated from legal liability and given
that lawyers are reputed to be relegated to a supporting role in the IPO
only, their compensation is surprisingly closely related to their own quality,

the compensation of auditors, and the retained insider percentage (but not the formal caution in the prospectus).

D. The Determinants of IPO Underpricing and Its Dispersion

1. IPO Underpricing Determinants in the 1990s

Table 8 examines the determinants of residual underpricing, paid to subscribers/first-day investors. (Note that high or low pricing does not directly map into IPO underpricing--risks and other factors are likely to influence *both* the offering *and* the first-day after-market price.)

We find that higher-quality underwriters underpriced *more*, especially among smaller firms. Among such small firms, a Merrill or Goldman (about 15 market-share points) rather than, say, a Hambrecht-Quist, would have offered an extra $ 1.6 . 15 [approximately] 25 percent IPO underpricing--more than the observed 18 percent standard variation in IPO underpricing. This finding is discussed in more detail below. As in the 1980s, the presence of a high-quality auditor reduces the underpricing required to be paid to first-day investors. With a coefficient of about -0.2, a Big 6 auditor (15 points market share) would lower IPO underpricing by about 3 percent. For the most part, the presence of a high-quality lawyer is not an important determinant of IPO underpricing.

Although we again include individual expert compensation, these data may not be available to first-day investors. Securities Data Corp. often collects these data from amendments updating the registration statement, which can appear months after the offering. (Beatty n74 examined 30 firms and found expert compensation detailed in only six IPO prospectuses.) It is plausible that there is reverse causality; that is, IPO underpricing could itself influence expert compensation.

As in our earlier 1980s sample, when underwriters receive more funds, they also ensure more IPO underpricing to be distributed to their first-day investors. Initial public offering underpricing and percentage underwriter compensation are *complements*. Although a positive underpricing relation can be found for underwriter compensation, there is no evidence that more fees to lawyers or auditors matter positively, which leads us to reject a hypothesis [*585] that, when auditors receive more compensation, they are "bribed" n75 to accept more legal liability (which would induce investors to demand more IPO underpricing; see also Section IV*E* below). Instead, high legal fees reduce the need for IPO underpricing--either because they provide quality insurance to the underwriters and investors or because they help the issuer negotiate aggressively with the underwriters for less IPO

underpricing (the offer price is negotiated on the day of the offering; underwriters gain indirectly from IPO underpricing, not only by requiring less selling effort, but also by being able to allocate underpriced shares to their favorite clients). A 1 SD higher lawyer pay (about $ 200 thousand) can reduce predicted percentage IPO underpricing by $ 3.6 percent . 200 [approximately] 7 percent for small firms, 2 percent for the average firm.

Firms with more risk factors in the prospectus offered more IPO underpricing. (The sign of the number of uses measure is positive, too, but insignificant. The log uses of proceeds was one of two risk proxies used in Beatty and Ritter, n76 who documented a strongly positive relation [$t > 3$] and interpreted this as evidence that risk is priced ex ante.) Having 0.3 higher log risks (the cross-sectional standard deviation) increases IPO underpricing by about 1.5 percent (assuming a coefficient of about 5). This implies that firms in which investors have been given adverse information in the prospectus that would reduce their chances of prevailing in a subsequent lawsuit are indeed riskier for first-day investors. In our earlier 1980s sample, the coefficient on log-risks was significant (and positive) only among large offerings. Low-priced offerings underpriced significantly less (also to be discussed below). For investors, a low price is of course a double-edged sword: on one hand, it may signal more analyst coverage (good); on the other hand, it increases their transaction costs (bad).

2. Initial Price Offering Underpricing Dispersion Determinants in the 1990s

Theories of IPO underpricing predict that risk proxies increase average IPO underpricing because risk proxies increase the uncertainty of investors (firms). For example, the winner's curse and cascades arguments rely on uncertainty about the first-day return, which is hypothesized to correlate with the average underpricing these models predict. n77 Such theories have a more direct prediction on the *dispersion of residual IPO underpricing*. [*586] [*587] [*588] Proxies that purport to measure ex ante uncertainty of the investor about the first-day return should correlate positively with the variance of ex-post observed underpricing realizations. In panel B, the regressions from the previous panel are duplicated with the dependent variables replaced by the absolute values of the residuals from the same underpricing regressions. The dispersion regressions confirm the findings for IPO underpricing: firms with better underwriters and more underwriter compensation have more IPO underpricing dispersion; firms with better auditors and low-price stocks had lower underpricing dispersion. The coefficient on risk factors just drops below significance but remains positive.

TABLE 8

DETERMINANTS OF IPO UNDERPRICING AND ABSOLUTE IPO UNDERPRICING DISPERSION

ALL FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic
A. IPO underpricing:		
Underwriter market share	.424	1.83
Auditor market share	-.164	-1.96
Lawyer market share	-.334	-.60
Underwriter compensation	.042	4.13
Auditor compensation	-.003	-.68
Lawyer compensation	-.012	-3.04
Log(1 + listed risks)	4.628	1.80
Log(1 + uses of proceeds)	2.071	1.45
Inside retention	.040	1.45
1/offer price	-97.038	-4.02
N	823	
R<2>	8.76	
Adjusted R<2>	10.32	
B. IPO Underpricing deviation from		
panel A, first regression:		
Underwriter market share	.51	3.55
Auditor market share	.05	-2.04
Lawyer market share	.23	.73

	Coefficient	t-Statistic
Underwriter compensation	.04	5.77
Auditor compensation	-.00	-.09
Lawyer compensation	-.01	-2.47
Log(1 + listed risks)	3.16	1.69
Log(1 + uses of proceeds)	1.49	1.56
Inside retention	.03	1.53
1/offer price	-74.15	-4.25
N	823	
R<2>	15.57	
Adjusted R<2>	14.11	

YOUNG, SMALL FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic
A. IPO underpricing:		
Underwriter market share	1.630	3.05
Auditor market share	-.224	-1.81
Lawyer market share	-1.055	-1.12
Underwriter compensation	.038	2.83
Auditor compensation	-.000	-0.03
Lawyer compensation	-.036	-4.14
Log(1 + listed risks)	5.135	1.31
Log(1 + uses of proceeds)	1.349	0.52

	Coefficient	t-Statistic
Inside retention	.073	1.46
1/offer price	-52.616	-1.66
N	435	
R<2>	14.19	
Adjusted R<2>	16.96	

B. IPO Underpricing deviation from

 panel A, first regression:

	Coefficient	t-Statistic
Underwriter market share	.78	2.30
Auditor market share	-.15	-2.05
Lawyer market share	.03	.07
Underwriter compensation	.03	3.54
Auditor compensation	-.01	-1.00
Lawyer compensation	-.01	-2.03
Log(1 + listed risks)	1.85	.74
Log(1 + uses of proceeds)	1.58	.98
Inside retention	.03	1.07
1/offer price	-42.50	-2.09
N	435	
R<2>	14.90	
Adjusted R<2>	12.06	

OLD, LARGE FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic

A. IPO underpricing:

Underwriter market share	-.077		-.52
Auditor market share	-.174		-1.95
Lawyer market share	.587		.82
Underwriter compensation		.043	1.77
Auditor compensation		-.006	-1.46
Lawyer compensation		-.004	-.90
Log(1 + listed risks)		4.274	1.68
Log(1 + uses of proceeds)		1.961	1.45
Inside retention		-.001	-.03
1/offer price		-157.450	-3.97
N		388	
R<2>		9.88	
Adjusted R<2>		13.14	

B. IPO Underpricing deviation from panel A, first regression:

Underwriter market share		.07	.69
Auditor market share		-.07	-1.24
Lawyer market share		.90	2.02
Underwriter compensation		.05	4.70
Auditor compensation		.00	.35
Lawyer compensation		-.00	-1.41
Log(1 + listed risks)		4.04	2.22
Log(1 + uses of proceeds)		1.06	1.07

Inside retention	-.01	-.31
1/offer price	-72.93	-2.34
N	388	
R<2>	11.69	
Adjusted R<2>	8.38	

NOTE.--This table presents regression results that predict IPOs percentage

underpricing (in panel A) and its absolute residual from panel A regressions

(in panel B) for 823 IPOs with complete observations from the 1992-94 period.

For a basic data description and univariate statistics, refer to Tables 1 and

4. All reported variables are residuals from the described step 1

regressions. (Offering size and log offering size were included both in raw

form, and as residuals after step 1 regressions; the constant and the four

offering size proxies are not reported to avoid detracting from the variable

of interest.) The first group of variables measures expert quality, the

second group measures the compensation of other experts, and the third group

measures risks; t-statistics are White-heteroskedasticity-adjusted.

3. Initial Price Offering Underpricing in the 1980s and Interpretation of Our Underpricing Findings

We found two of the reported IPO underpricing coefficients to be surprising. In the 1980s, we had found that by far the most important determinant of IPO underpricing was the presence of high-quality underwriters, who underpriced *less*. But in the 1992-94 time period, we now find that higher-quality underwriters (especially among large firms) and higher nominalprice issuers (especially among small firms) underpriced *more*. Further, the negative relation between initial return and 1/op also runs opposite to that which we and other researchers reported in the 1980s. This evidence on IPO underpricing is different from the following key findings of two important earlier articles, which relied on 1970s and 1980s data:

Tinic n78 reports a strong positive relation between 1/op and underpricing

and a strong negative relation between underwriter quality and underpricing. He interprets this as evidence that underwriters insure themselves with IPO underpricing against legal liability. n79 In our sample period, and controlling for firm size, both relations are reversed and statistically significant.

Carter and Manaster n80 describe a positive relation between IPO underpricing and their IPO expert quality measure. They interpret this to imply a meaningful role of the underwriter in signaling IPO risk. Again, this relation reverses in our sample period.

To check if our reported coefficients on 1/op and underwriter quality are due to our new definition of underwriter market share or due to our better [*589] size controls, we ran a simple one-step regression on the 1980-85 SDC data with similar but raw (that is, not stage 2) variables:

our sample:

IPO return = 10.87 -.000 1/op +0.002 underwriter market share + noise t-statistic   6.82-0.00   1.43

and

1980-85:

IPO return = 10.70 +6.198 1/op -0.3175 underwriter market share + noise t-statistic   12.70 11.90   -2.37

The underwriter quality correlation thus reverses from the earlier time period, regardless of different variable definitions. Therefore, we are confident that the relation between IPO underpricing and underwriter compensation has reversed due to differences in the economic environment. The offering price reciprocal (1/op) is reversed from that reported in earlier studies, not only because of environmental change (perhaps because of the aforementioned Penny Stock Reform Act), but also because of our different offering size controls.

Of course, we could conclude that high-quality underwriters insure themselves (their capital) by underpricing relatively more, but this would interpret Tinic n81 and Hughes and Thakor n82 to be confirmed either by a negative sign (as run and reported in Tinic) or by a positive (1990s) correlation. Similarly, it is difficult to interpret the sometimes positive relation between 1/op and IPO underpricing in the 1990s or the negative relation in the 1980s to indicate that after-market investors in firms with

high offering price receive a compensation premium. One would not want to accept either a positive or a negative relation between 1/op and IPO underpricing as confirming Brennan and Hughes. n83 We do not know "what it takes" to control properly for ex ante perceptions to allow a credible ex ante test to accept or reject this theory.

[*590] *E. Does the Market Perceive Expert "Bribes"?*

An interesting question concerns the market's reaction to unusual combinations of legal insurance and expert compensation. Specifically, it is interesting to ask if firms which pay experts unusually large compensation and indicate unusually few risk factors are perceived by the market as particularly risky, requiring more IPO underpricing.

Table 9 describes the IPO underpricing, both the residuals from the first-step and the residuals from the full regression detailed in the table. The row is classified by a simple factor (really a simple sum) derived from log(1 + risks) and log(1 + uses). The column is classified by the expert compensation. The joint hypothesis that experts can be "bribed" and that the market perceives such offerings to be risky predicts a positive number in the upper-right corner.

There is some evidence supporting this hypothesis for underwriters. The positive relation between underwriter compensation and IPO underpricing (documented in Table 8) is only among firms claiming few risk factors. For firms claiming high risks, underwriter compensation actually correlates *differently (negatively)* with IPO underpricing across risk groups. Thus, the evidence suggests that *suspicious first-day investors demand more compensation for offerings with the combination of few indicated risks and high underwriter compensation*. There appears to be no systematic cross relation between auditor or lawyer compensation and legal risk in influencing IPO underpricing.

F. The Determinants of Legal Caution

Our final question about IPO behavior concerns the role of the number of risk factors in the prospectus. Although we have already used this variable to predict expert compensation and IPO underpricing, the question remains if higher-quality experts help to reduce the required number of risk factors or demand more risk factors to insure them against future lawsuits. In particular, it is reasonable to presume that competent lawyers, themselves insulated from legal liability, might allow an issuer to be more aggressive in the prospectus.

Table 10 shows that higher-quality experts are not any different in how many risk factors are reported in the prospectus *on average*. Firms that pay high underwriter or auditor compensation tend to also display more caution in the prospectus (or tend to be intrinsically riskier firms, a less likely hypothesis). And firms with a lower price tend to indicate more risk factors, more likely because they are intrinsically riskier, less so because they are more cautious.

 [*591]

TABLE 9

AVERAGE IPO UNDERPRICING BY PROSPECTUS CAUTION AND EXPERT COMPENSATION

A. UNDERWRITERS

LEGAL RISK	UNDERWRITER COMPENSATION			UNDERWRITER COMPENSATION-- RESIDUAL FROM TABLE 5		
	Low	Medium	High	Low	Medium	High
Low	-1.79	-.09	1.25	-3.07	-1.23	3.17
	(-1.13)	(-.07)	(.57)	(-2.48)	(-.90)	(1.45)
Medium	2.00	-2.81	-.04	-.27	-.23	-.06
	(1.09)	(-2.09)	(-.03)	(-.20)	(-.14)	(-.03)
High	2.67	1.41	-1.88	-1.49	3.92	-.47
	(1.12)	(.63)	(-1.15)	(-1.16)	(-.47)	(-.24)

B. AUDITORS

	AUDITOR COMPENSATION	AUDITOR COMPENSATION-- RESIDUAL FROM TABLE 6

LEGAL RISK	Low	Medium	High	Low	Medium	High
Low	1.15	1.09	-3.02	-.09	.53	-1.26
	(.63)	(.59)	(-2.18)	(-.06)	(.24)	(-.85)
Medium	-2.07	-.31	2.07	-1.39	-1.78	2.69
	(-1.69)	(-.17)	(1.22)	(-.93)	(-1.23)	(1.42)
High	-.88	-.12	2.13	.48	-1.16	1.99
	(-.46)	(-.06)	(.99)	(.25)	(-.66)	(-.86)

C. LAWYERS

LEGAL RISK	LAWYER COMPENSATION			LAWYER COMPENSATION-- RESIDUAL FROM TABLE 7		
	Low	Medium	High	Low	Medium	High
Low	.97	-1.43	-.44	-1.87	.52	.28
	(.50)	(-.88)	(-.30)	(-1.11)	(.27)	(.18)
Medium	.17	.34	-1.36	1.01	-.84	-.90
	(.12)	(.19)	(-.85)	(.55)	(-.57)	(-.59)
High	-.40	2.14	-.62	2.01	.29	-1.02
	(-.18)	(1.02)	(-.35)	(.89)	(.14)	(-.61)

NOTE.--t-statistics are in parentheses. Firms are grouped into nine portfolios, based on their residual (after step 1 regressions) expert compensation and based on a factor extracted from residual (after step 1 regressions) log-number of risks in the IPO prospectus and log-uses of proceeds in the IPO prospectus (a simple equally weighted sum). On the left,

for each group, the table presents average IPO underpricing (of the residuals, in other words, after step 1 regressions). On the right, the table presents the same statistics, but with residuals from the main regression in Table 8, panel A, instead of from the step 1 regression. The sample consists of 823 IPOs with complete observations from the 1992-94 period. For a basic data description and univariate statistics, refer to Tables 1 and 4.

[*592] TABLE 10

DETERMINANTS OF PROSPECTUS CAUTION (LOG OF THE NUMBER OF RISK FACTORS)

	ALL FIRMS	
DEPENDENT VARIABLE	Coefficient	t-Statistic
Underwriter market share	.153	.61
Auditor market share	.068	.49
Lawyer market share	.783	.72
Underwriter compensation	.023	1.84
Auditor compensation	.019	2.33
Lawyer compensation	.004	.44
Inside retention	.037	.78
1/offer price	99.435	2.99
N	823	
R^2	5.20	
Adjusted R^2	3.80	

NOTE.--This table presents regression results that predict the log for risk factors in the IPO prospectus for 823 IPOs with the complete observations from the 1992-94 period. For a basic data description and the univariate statistics, refer to Tables 1 and 4. All reported variables are residuals from the described step 1 regression. (Offering size and log offering size were included both in raw form, and as residuals after step 1 regression; the constant and the four offering size proxies are not reported to avoid detracting from the variables of interest.) The first group of variables measures expert quality, the second group measures the compensation of other experts, and the third group measures risks; t-statistics are White-heteroskedasticity-adjusted.

YOUNG, SMALL FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic
Underwriter market share	.384	1.10
Auditor market share	-.169	-.58
Lawyer market share	.292	.24
Underwriter compensation	.035	2.00
Auditor compensation	.012	.73
Lawyer compensation	.012	.85
Inside retention	-.070	-.92
1/offer price	58.470	1.47
N	435	
R<2>	3.88	

Adjusted R<2>   1.14

   NOTE.--This table presents regression results that predict the log for risk

factors in the IPO prospectus for 823 IPOs with the complete observations

from the 1992-94 period. For a basic data description and the univariate

statistics, refer to Tables 1 and 4. All reported variables are residuals

from the described step 1 regression. (Offering size and log offering size

were included both in raw form, and as residuals after step 1 regression; the

constant and the four offering size proxies are not reported to avoid

detracting from the variables of interest.) The first group of variables

measures expert quality, the second group measures the compensation of other

experts, and the third group measures risks; t-statistics are

White-heteroskedasticity-adjusted.

OLD, LARGE FIRMS

DEPENDENT VARIABLE	Coefficient	t-Statistic
Underwriter market share	.181	.55
Auditor market share	.322	1.88
Lawyer market share	.687	.35
Underwriter compensation	.042	1.18
Auditor compensation	.024	2.37
Lawyer compensation	-.002	-.21
Inside retention	.101	1.71
1/offer price	208.110	3.42
N	388	

R<2>	7.46
Adjusted R<2>	10.33

  NOTE.--This table presents regression results that predict the log for risk

factors in the IPO prospectus for 823 IPOs with the complete observations

from the 1992-94 period. For a basic data description and the univariate

statistics, refer to Tables 1 and 4. All reported variables are residuals

from the described step 1 regression. (Offering size and log offering size

were included both in raw form, and as residuals after step 1 regression; the

constant and the four offering size proxies are not reported to avoid

detracting from the variables of interest.) The first group of variables

measures expert quality, the second group measures the compensation of other

experts, and the third group measures risks; t-statistics are

White-heteroskedasticity-adjusted.

 [*593] *G. Interpreting Risk Proxies' and Other Independent Variables'
Coefficients*

We mentioned in Section II*D* above that one can assess theories by seeing
how the addition of more size controls changes the direction of a variable.
In particular, Table 4 shows that some variables are more sensitive to firm
size controls than others. The sensitivity of 1/op in the underpricing
regression to inclusion/exclusion of offering and firm size proxies, noted
earlier, is not too surprising, given its high correlation with the first-step
variables. We now discuss the results of unreported regressions without any
size/scale controls (either firm size or offering size) or even year/industry
controls.

Table 11 shows that most independent variables are not very sensitive to
the omission of all size controls and other expert compensation (which can
proxy for size). The exceptions are now described. Without size/scale
controls, underwriter market share predicts underwriter compensation
negatively, reflecting the economies of scale in underwriting. Without size
adjustments, (larger) firms with higher-quality underwriters pay a lower
spread. Other relations between issuer expenses and underwriter quality
retain their sign; in particular, the new positive correlation between IPO

underpricing and higher-quality underwriter is stable even if size controls are omitted. Similarly, the relation between issuer expenses and other experts' qualities remains stable.

As to our risk proxies, we are interested to see if better scale controls tilt the reported relation between risk and expert compensation/underpricing toward a negative one. Without controls, the coefficient estimate of the log of the risk factors in the prospectus indeed increases to about 21 (with controls [wc] = 13.6), in the lawyer compensation regression to about 24 (wc = 5), and in the IPO underpricing regression to about 7.6 (wc = 4.6); but it decreases in the auditor compensation regression to about 23 (wc = 30). Adding to the evidence that the log of the number of listed risk factors is significant in the IPO underpricing regression, the underwriter, auditor, and perhaps the small-firm law firm compensation regressions, we find that the first three coefficient changes are consistent with a scenario in which issuers signal risk with the number of risk factors in the prospectus because indicating more risks decreases the necessary expert compensation/IPO underpricing, but the positive relation arises from the fact that firms with more risk factors in the prospectus are also sufficiently riskier to increase the required compensation. Overall, our estimated coefficients, our coefficient changes, and the evidence from the 1980s suggest that the number of risk factors in the prospectus positively correlates with expert and investor compensation. [*594]   [*595] But the perception of the firm conveyed by more risk factors empirically dominates the caution/insurance more printed risks and uses provides.

TABLE 11

DETERMINANTS OF ISSUER EXPENSES WITHOUT SIZE/SCALE CONTROLS

	UNDERWRITER		AUDITOR	
DEPENDENT VARIABLE	Coefficient	t-Statistic	Coefficient	t-Statistic
Underwriter market share	-.94188	-1.9941	3.8963	2.8666
Auditor market share	-1.2039	-3.4039	.00145	.002815
Lawyer market share	-8.2985	-4.5418	7.4463	1.116
Log(1 + listed risks)	21.26	2.7656	23.098	1.5777

	Coefficient	t-Statistic	Coefficient	t-Statistic
Log(1 + uses of proceeds)	19.035	3.4067	-27.679	-2.1716
Inside retention	.15778	1.3832	-.16284	-.70543
1/offer price	1,326.6	22.054	-571.04	-6.3437
N	823		823	
R<2>		57.56		11.79
Adjusted R<2>		57.20		11.03

	LAWYER		IPO UNDERPRICING	
DEPENDENT VARIABLE	Coefficient	t-Statistic	Coefficient	t-Statistic
Underwriter market share	5.6565	3.0545	.62778	2.7479
Auditor market share	.77341	1.0823	-.17423	-2.0609
Lawyer market share	21.989	3.4715	-.53557	-.9571
Log(1 + listed risks)	24.082	1.0582	7.634	2.9119
Log(1 + uses of proceeds)	-10.323	-.63537	4.324	2.9641
Inside retention	-1.3087	-4.0274	.059846	2.1536
1/offer price	-811.63	-7.0793	-47.078	-2.749
N	823		823	
R<2>		18.50		5.549
Adjusted R<2>		17.79		4.730

  NOTE.--This table presents the equivalent "All Firms" regressions from
Tables 5-8, but without controls for firm size, firm scales, firm age, firm
industry, or offering year. For a basic data description and univariate
statistics, refer to Table 1. The first group of variables measures expert

quality, and the second group measures risks.

In our earlier regressions, uses of proceeds--our second measure of "liability insurance"--is sometimes positive, sometimes negative, sometimes insignificant. Inside retention tended to be insignificant or significant only for a subsample of firms, except in the law firm regression. This is either a statistical or time-period anomaly, or it indicates that law firms are the only experts that are skeptical when the issuers try to leave their firms. Without size/scale controls, the coefficient estimate of the log of the number of possible uses of proceeds in the prospectus increases in the underwriter compensation regression to about 19 (wc = 8.7), and in the IPO underpricing regression to about 4.3 (wc = 2.1), but it decreases in the auditor and lawyer compensation regressions to -27 (wc = -19.7) and -10 (wc = 28.7), respectively. Similarly, the coefficient estimate of inside retention increases in the underwriter compensation regression to 0.15 (wc = 0.002), and the IPO underpricing regression to 0.60 (wc = 0.04), but decreases in the auditor and lawyer compensation regressions to -0.16 (wc = 0.3) and -1.3 (wc = -0.84), respectively. Thus, we would be hesitant to attribute too much of a risk interpretation to either the log of uses in the prospectus or inside retention.

Without size/scale controls, the most dramatic changes of any variable appear on the 1/op coefficients. It correlates highly with offering size, and thus its coefficient, although almost always statistically significant, tends to be sensitive to specification. Without very careful control for size/scale, coefficient estimates on 1/op are likely to pick up the linear or nonlinear component of size in issuer expense regressions. Under a Brennan-Hughes hypothesis, where a lower price signals more quality through more subsequent analyst coverage, we would have expected to find better controls to reduce its coefficient. In the underwriter regression, the coefficient estimate increases to 1,326 (wc = 844), and the IPO underpricing regression to -47 (wc = -97), and decreases in the lawyer and auditor compensation regressions to -571 (wc = 34) and to -811 (wc = 199), respectively. Again, the direction of these changes is too inconclusive to consider 1/op to be a generic signal of risk. Overall, the reciprocal of the offering price does not carry the same information it carried in the 1980s, possibly due to the regulatory reforms. One view of the role of offering price is that the offering price is just "too cheap" a signal to be reliable. Another is that the regulatory elimination of penny stocks has robbed offer price of its ability to reliably signal "junk" to sophisticated investors.

V. SUMMARY

Our article has set out to examine how experts in general and lawyers in particular are compensated in initial public offerings. Initial public offerings [*596] are unique in that *all* participating lawyers have to disclose their compensation. In this sense, it is probably the only truly comprehensive source of law-firm compensation in *any* market. In examining underwriters', auditors', and lawyers' compensation (plus first-day investors' compensation), this article proposed a mutually comparable time-weighted moving-window ranking of experts based on market participation and attempted to control systematically for firm scale, age, industry, and year. And, unlike earlier studies that have used data from the late 1970s and 1980s, our study examines offerings from the 1990s.

What have we learned about the role of the lawyer? We know that the lawyer's role has changed from the early eighties, where lawyer compensation was almost independent of economic risk proxies and (our then, albeit poorly measured) own lawyer quality. Further, in the 1980s, lawyer compensation made very little difference as to the compensation of other experts or IPO underpricing. In the 1990s, there are interesting relations: High-quality lawyers charged significantly more (size-adjusted). Among smaller firms, there is a strong negative influence of lawyer quality/compensation on percentage underwriter compensation: high-quality lawyers allow issuers to pay less to their underwriters. Well-paid lawyers further reduce IPO underpricing and underwriter percentage compensation for small issuers. (Paying lawyers and paying underwriters appear to be substitutes.) Either law services help the issuer in negotiations, or they provide quality assurance to the underwriter. Despite their insulation from legal liability, lawyer compensation itself is related to risk proxies: riskier offerings (more uses of proceeds and [when other expert compensation is not included] also more risk factors) pay more, and insiders who retain more shares pay less (and there is some evidence that firms with low-nominal offer price pay more to their lawyers, too).

What have we learned about the determinants of other experts' compensation? In both sample periods, we know that underwriter compensation is primarily a function of the offering size and that higher-quality underwriters are better compensated (percentage-wise) than lower-quality underwriters. (As we already mentioned, for small firms, paying lawyers more reduces underwriter compensation--lawyer services can assure issuer quality to the underwriter, or substitute for underwriter services, or help issuers negotiate with their underwriters.) We know that offerings which indicate more risks and proceed uses (and signal with a lower price) pay more to their underwriters. We also know that lawyer and auditor compensation are strong strategic complements. But there are also

important differences from the 1980s, especially for auditors (and lawyers): we no longer find a systematic relation between legal risk and auditor compensation. Indeed, auditor compensation, although still highly correlated with lawyer compensation, is a [*597] mystery in the 1990s: we cannot even reliably detect a quality premium in auditor compensation! This is probably because the market has come to be dominated almost exclusively by Big 6 auditors, across whom there is virtually no quality difference. So, we find that firm size/required work remains the most and perhaps only reliable determinant of auditor compensation.

Yet our biggest surprises came where we least expected them: the strong negative relations between IPO underpricing on the one hand and either underwriter quality or offering price on the other, as documented prominently in earlier literature from the 1980s, have *reversed* in our early 1990s sample. As to stable influences on IPO underpricing, high-quality auditors in both sample periods reduced IPO underpricing. Economically intuitive, legal risk factors in the prospectus are now (in the 1990s) more positively related to underpricing, indicating that first-day investors must be compensated for accepting more firm caution. Finally, we found that firms which have the odd combination of high unusual payments to their underwriters and an unusually low number of described risks in the IPO prospectus are more underpriced on average. This is consistent with an efficient market that reacts skeptically when underwriters are unusually aggressive.

APPENDIX A

HYPOTHESIS ON FIRST-STEP REGRESSIONS

We use the following variables as control variables, partially to adjust for ex ante perceptions, partially because we want to first separate out scale variables, and partially because we want to make sure that our results do not derive from multicollin-earity between their effects and our risk effects. By using these variables in a first-stage regression, we discriminate *against* our risk variables used in the second-stage regressions. (Explanatory power common to both risk and control variables is thus attributed only to our control variables.)

Firm Size and Sales. These two variables, not surprisingly, correlate well with offering size but are "relatively" exogenous to the offering. (Offering size is clearly endogenous.) A smaller offering size reduces the maximum penalties under the Securities Act of 1933 n84 and thus trades off proceeds and future liability one to one. Further, firm size controls for the effort level of IPO experts. Because it is alleged that larger clients are more difficult to

audit (that is, it is more difficult to gain confirmation of accounts receivable, observation of inventories, and attestation to the "fairness" of the annual report), it has been argued that firm size is positively related to auditor compensation. n85 Analogously, underwriters and lawyers effort levels may be captured by firm size.

Firm Age. Firm age controls for the information that investors might have collected about the firm.

Year and Industry. Initial public offering year and industry indicator variables [*598] control for "hot issue" markets. n86 Because "hot issue" markets are likely to induce unexpected excess demand for expert services, we control for this influence with industry and year dummies. Offering size is an endogenous choice, but not one about which we can offer many hypotheses. Scale is just too ubiquitous a variable. Consequently, we decided not to use offering size in the first stage, but we did include offering size and its log (both the raw sizes and a first-stage regression adjusted measure) in all regressions.

APPENDIX B

ILLUSTRATION OF TWO-STAGE REGRESSION USEFULNESS

A few simple equations can illustrate this procedure. Assume a theory suggests that *x* is an independent variable (for example, the number of risk factors in the prospectus) assumed to influence *y* (for example, underwriter compensation), and let *z* be a third variable (for example, ex ante perception [or offer scale]), correlated with both *x* and *y* in a fashion that it has to be held constant to detect the theory's influence of *x* on *y:*

$$y = [alpha] + [beta] x + [gamma] z + [epsilon]. \quad (B1)$$

Taking expectations with respect to *z*, and assuming that E([epsilon]) = E([epsilon]/z) = 0, we find that

$$E(y\ z) = [alpha] + [beta] E(x\ z) + [gamma] E(z\ z). \quad (B2)$$

Subtracting the two equations, and noting that E(z z) = z, the theory suggests

$$[y - E(y\ z)] = [beta] [x - E(x\ z)] + [epsilon]. \quad (B3)$$

Running a regression of unexpected *x* (given *z*) on unexpected *y* (given *z*) is thus valid if the theory is correct. However, the opposite is not the case

because a regression in differences could possibly fail if the theory were incorrect. n87

An important part of this procedure is the selection of proper instruments, z. Fortunately, the cost of our procedure is relatively low: if the z variables are irrelevant, E(y z) [approximately] E(y), and our second-stage regressions reduce to the standard one-stage regressions. Equivalently, our two-stage procedure can be interpreted as a simple allocation of the explanatory power that is common to both x and z to the "control variables" z alone, with residual x explaining only the residual in stage 2.

Furthermore, it is possible that there might be an interaction term so that the theory predicts a relation

y = [alpha] + [beta] x + [gamma] z + [delta] xf(z) + [epsilon],   (B4)

where $f(z)$ is an as-of-yet unspecified transformation of z. For example, one might expect that, for very low risk firms (z), an x such as underwriter type might have a stronger influence on IPO underpricing, y. Such a relation would indicate not only a positive [beta] but also a positive [delta]. Taking expectations and subtracting in a procedure analogous to that above yields

 [*599] [y - E(y z)] = [beta] [x - E(x z)] + [delta] f(z)[x - E(x z)] + [epsilon].   (B5)

Unfortunately, the intuition for such cross relations is not straightforward. Consider, however, a transformation, $f(z)$, that takes k discrete values. In this case, equation (B5) can be equivalently run in k simpler bivariate regressions, where [beta] + [delta] [f(z) = k] is the coefficient in

[y - E(y z)] = [[beta] + [delta] [f(z) = k]] [x - E(x z)] + [epsilon].   (B6)

We therefore also split up our sample based on three of our z (ex ante perception) measures, specifically according to the first principal component of the log of age, the log of firm sales, and the log of firm assets, our three ex ante variables for which we have specific directional priors (older, larger firms are likely to be less risky). n88

Nevertheless, the reader must be warned: many of our empirical findings are consistent only with joint hypotheses that perception z is held constant or works in a direction congruent with the influence of x and y. In the above example, although we predict that reduced liability should have a negative influence of more risk factors on underwriter compensation, we must point out that the finding of a positive association would argue that underwriters

might have a different perception of firms with more risk, even when risk factors reduce underwriter liability. *Indeed, the number of risk factors themselves might change underwriter perception*.

GRAPHIC:
FIGURE 1.--Percentage of firm-commitment initial public offerings with offer prices below $ 1 and $ 5. When there were fewer than 50 offerings in 1 month, offerings were counted into the next month. American Depository Receipts, unit offerings, and closed-end fund offerings were excluded.

FOOTNOTES:
n1 Hayne E. Leland & David H. Pyle, Informational Asymmetries, Financial Structure, and Financial Intermediation, 32 J. Fin. 371 (1977).

n2 Michael J. Brennan & Patricia Hughes, Stock Prices and the Supply of Information, 46 J. Fin. 1665 (1991).

n3 Richard Carter & Steven Manaster, Initial Public Offerings and Underwriter Reputation, 45 J. Fin. 1045 (1990); Ronald J. Balvers, Bill McDonald, & Robert E. Miller, Underpricing of New Issues and the Choice of Auditor as a Signal of Investment Banker Reputation, 63 Acct. Rev. 605 (1988); Randolph P. Beatty, Auditor Reputation and the Pricing of Initial Public Offerings, 64 Acct. Rev. 693 (1989).

n4 For underwriters, see Chris James, Relationship-Specific Assets and the Pricing of Underwriter Services, 47 J. Fin. 1865 (1992). For auditors, see Beatty, *supra* note 3; and Randolph P. Beatty, The Economic Determinants of Auditor Compensation in the Initial Public Offerings Market, 31 J. Acct. Res. 294 (1993).

n5 Regulation S-K requires "insofar as practicable, registration fees, Federal taxes, States' taxes and fees, trustees' and transfer agents' fees, costs of printing and engraving, and legal, accounting, and engineering fees shall be itemized separately." See Bowne, Regulation S-K, at 66 (December 1985).

n6 Legal counsel and other experts may be employed by the IPO firm in other capacities (that is, preparing bond indentures, providing tax advice, or transacting in outstanding bonds [underwriters]). Of course, company counsel could transfer a share of their IPO compensation to other non-IPO business and thus manipulate the reported compensation. Therefore, our analysis must assume that experts do not manage compensation disclosures in such a way as to induce a relation between observable measures of client risk and expert compensation.

n7 C. W. Schneider, J. Manko, & R. Kant, Going Public: Practice, Procedure, and Consequences 12 (1983). The relevant formal role is spelled out in Section 11 of the Securities Act of 1933.

n8 SEC Regulation S-X, 17 C.F.R. 210.1-01 through 210.12-22 (1982).

n9 American Institute of Certified Public Accountants, Statement of Accounting Standards (SAS), No. 1, Sec. 331 (1991).

n10 Privately held corporations commonly employ auditors to prepare audited financial statements to facilitate borrowing funds from various sources such as banks. Conventional wisdom urges IPO firms to engage a "Big 6" CPA firm for the IPO. Thus, the "Big 6" auditor may be hired to observe inventory and confirm receivables to assure that the client can obtain an unqualified audit opinion for the IPO. The auditors may be hired as early as 3 years before the public offering to assure that they can attest to two balance sheets and three income statements required in an S-1 registration statement.

n11 SAS No. 49, Sec. 634.06, and SAS No. 72 (supersedes SAS No. 49), para. 21, 22, and 33.

n12 Schneider, Manko, & Kant, *supra* note 7, at 13-14.

n13 Regulation S-K requires management discussion and analysis (Item 303), use of proceeds (Item 504), and risk factors (Item 503). See Bowne, Securities Act of 1933 as Amended 15 (January 1983).

n14 Kathleen Weiss Hanley, The Underpricing of Initial Public Offerings and the Partial Adjustment Phenomenon, 34 J. Fin. Econ. 231 (1993).

n15 The article also states that, when accounting firms drop their clients for fear of subsequent legal liability, ironically they are sometimes sued by their ex-clients for dropping coverage.

n16 Howard Bunsis & Philip Drake, The Decline of Auditors and Defendants in Initial Public Offering Lawsuits: An Empirical Analysis (working paper, Southern Methodist University 1995).

n17 L. Y. Smith, G. G. Roberson, R. A. Mann, & B. S. Roberts, Smith and Roberson's Business Law 1050 (7th ed. 1988). Janet Cooper Alexander, The Lawsuit Avoidance Theory of Why Initial Public Offerings Are Underpriced, 17 UCLA L. Rev. 17 (1993), provides a synthesis of the relevant law, both of the 1933 and the 1934 acts.

n18 Smith et al., *supra* note 17, at 1057.

n19 If expert A causes $ 10 of damage, while expert B causes $ 100 of damage, either expert is liable for $ 110 of damage.

n20 Smith et al., *supra* note 17, at 1070; and Escott v. Barchris Construction Corporation U.S. District Court, Southern District of New York, 283 F. Supp. 643 (1968).

n21 For example, a motion to dismiss a Section 11 legal liability suit against the firm's legal counsel was denied in district court in Schneider v. Traweek. This suit alleged that legal counsel consented to be an expert for a section of the prospectus that allegedly contained a materially misleading tax opinion (see Robert J. Haft, Liability of Attorneys and Accountants for Securities Transactions (1991)). See Fed. Sec. L. Rep. (CCH) para. 95, 507 (C.D. Cal. 1990).

n22 Philip Drake & Michael Vetsuypens, IPO Underpricing and Insurance against Legal Liability, 22 Fin. Mgmt. 64 (1993).

n23 Franklin Allen & Gerald Faulhaber, Signalling by Underpricing in the IPO Market, 23 J. Fin. Econ. 303 (1989); Mark Grinblatt & Chuan-Yang Hwang, Signalling and the Pricing of New Issues, 44 J. Fin. 393 (1989); Ivo **Welch,** Seasoned Offerings, Imitation Costs and the Underpricing of Initial Public Offerings, 44-2 J. Fin. 421 (1989); Thomas J. Chemmanur, The Pricing of Initial Public Offerings: A Dynamic Model with Information Production, 48 J. Fin. 285 (1993).

n24 Seha Tinic, Anatomy of Initial Public Offerings of Common Stock, 43 J. Fin. 789 (1988); Patricia J. Hughes & Anjan V. Thakor, Litigation Risk, Intermediation, and the Underpricing of Initial Public Offerings, 5 Rev. Fin. Stud. 709 (1992).

n25 Lawrence M. Benveniste & Paul A. Spindt, How Investment Bankers Determine the Offer Price and Allocation of New Issues, 24 J. Fin. Econ. 343 (1989).

n26 Kevin Rock, Why New Issues Are Underpriced, 15 J. Fin. Econ. 187 (1986).

n27 Randolph P. Beatty & Jay R. Ritter, Investment Banking, Reputation, and the Underpricing of Initial Public Offerings, 15 J. Fin. Econ. 213 (1986).

n28 Carter & Manaster, *supra* note 3.

n29 Christopher James & Peggy Wier, Borrowing Relationships, Intermediation, and the Cost of Issuing Public Securities, 28 J. Fin. Econ. 149 (1990), find that age and the existence of borrowing relations are related to IPO underpricing. In their sample, they did not detect any influence of underwriter quality or insider selling.

n30 Sheridan Titman & Brett Trueman, Information Quality and the Valuation of New Issues, 8 J. Acct. & Econ. 159 (1986).

n31 Balvers, McDonald, & Miller, *supra* note 3.

n32 James, *supra* note 4.

n33 Christopher B. Barry, Chris J. Muscarella, & Michael R. Vetsuypens, Underwriter Warrants, Underwriter Compensations, and the Costs of Going Public, 29 J. Fin. Econ. 113 (1991).

n34 Daniel Simunic, The Pricing of Audit Services: Theory and Evidence, 18 J. Acct. Res. 161 (1980).

n35 Jere R. Francis & Daniel T. Simon, A Test of Audit Pricing in the Small-Client Segment of the U.S. Audit Market, 62 Acct. Rev. 145 (1987).

n36 Beatty, Auditor Reputation and the Pricing of Initial Public Offerings, *supra* note 3; and Beatty, The Economic Determinants of Auditor Compensation in the Initial Public Offerings Market, *supra* note 4.

n37 Beatty, *supra* note 4.

n38 Beatty, *supra* note 3.

n39 Balvers, McDonald, & Miller, *supra* note 3.

n40 Jay R. Ritter, The Costs of Going Public, 19 J. Fin. Econ. 269 (1987), provides descriptive evidence on the relative magnitudes of all experts' compensation in firm-commitment (low IPO underpricing) and best-efforts offerings (high IPO underpricing) but does not further examine the determinants or role of expert compensation. He also does not break out individual expert compensation. Inmoo Lee, Scott Lochhead, Jay Ritter, & Quanshui Zhao, The Costs of Raising Capital, 19 J. Fin. Res. 59 (1966), update and extend this study to seasoned equity and debt offerings.

n41 Failure to find a negative association can thus always be interpreted as a failure to completely control for ex ante perception. The choice is thus either to accept a flawed test which can reject but which is open to the criticism that ex ante perception has not been perfectly controlled for or to reject the empirical testability of *all* aforementioned theories altogether.

n42 C. W. J. Granger, Investigating Casual Relations by Econometric Models and Cross-Spectral Methods, 37 Econometrica 424 (1969).

n43 Appendix A outlines some hypotheses that attribute explanatory power to these variables. Appendix B illustrates why the control may be effective.

n44 Securities Data Corp. does not collect information on best-efforts offerings. This omission is also economically justifiable. The Bus. Wk., January 23, 1989, cover story, The Penny Stock Scam, describes how many penny stocks are a scam because quoted after-market prices are not realizable by investors.

n45 Our earlier paper had no data on log(uses), a poor measure of law firm quality, and could not compute inside retention, using insider sales and the percentage of secondary shares instead. Consequently, we can only note coefficients on the variables that are comparable.

n46 Eight offerings demanded 5 percent or less, 53 offerings demanded between 5.1 percent and 6 percent, 89 offerings demanded between 6.1 percent and 7 percent, 592 offerings demanded 7 percent, 95 offerings demanded between 7.1 percent and 8 percent, 36 offerings demanded between 8.1 and 9.5 percent, 82 offerings demanded 10 percent, and 5 offerings demanded between 10.1 percent and 11.8 percent.

n47 Our earlier draft used different measures: Carter-Manaster (*supra* note 3) ratings for underwriters, a Big 6 (then Big 8) rating for auditors, and the number of employed lawyers for law firms. The latter measure was particularly weak. Thus, we caution against directly comparing coefficients across our two drafts. As to the underwriter ratings, Richard B. Carter, Frederick H. Dark, & Ajai K. Singh, A Comparative Evaluation of Underwriter Prestige Measures (working paper, Iowa State Univ., March 1995), provide newer ratings and note that William Megginson & Kathleen Weiss, Venture Capitalist Certification in Initial Public Offerings, 46 J. Fin. 879 (1991), find a high correlation between the Carter-Manaster ratings and a market-size measure of underwriter quality. (They also conclude that the Carter-Manaster rank provides more significantly negative coefficients on IPO underpricing on the margin for the Carter-Manaster rank [in the ex-post sample which they use to create their ranking] than the Megginson-Weiss

ranking. In light of our positive coefficients on underwriter quality, this ex post quality measure is dubious.)

n48 Law firms are private, and thus no central registry of name changes and mergers exists. We investigated by hand the top 50 law firms and found some mergers and name changes, but we are uncertain as to how well one can track law firms over time. Our significant results, though, suggest that our measure is not simply noise.

n49 In our earlier draft using 1982 data, our top law firms were Thompson, Hine, Flory (Ohio) (who do not seem to do equity underwriting in the 1990s); Weil-Gotshal (N.Y.), who now have dropped to No. 27; Squire, Sanders, Dempsey (Ohio); and Hunton-Williams (Los Angeles), who have dropped to No. 49. Skadden-Arps (N.Y.) was only the eighteenth law firm, and Brown-Wood did not appear. In contrast, our auditor ranking is virtually stable. As to underwriters, there was some stability but also major changes. E.F. Hutton dropped from second rank, Rothschild, Unterberg dropped from third rank, First Boston dropped from fourth to about tenth place, and Morgan-Stanley and Goldman advanced from fifth and sixth spots, respectively. Due to criminal complications, Drexel dropped from its seventh spot.

n50 Beatty & Ritter, *supra* note 27.

n51 However, experts may react in a different way. For example, investment bankers are involved later than auditors and are less aware of the underlying risk, relying on the auditor's and issuer's own desire to avoid legal liability. Further, an offering with more risk factors is likely to be more difficult to sell, a function exclusively allotted to the underwriter. Hence, underwriters could be confronted with offerings which require both more risk factors and more compensation. Although our earlier paper supported opposite correlations, both auditors and underwriters seem to demand a positive risk premium in the 1990s (Tables 6 and 7).

n52 Beatty & Ritter, *supra* note 27.

n53 The number of uses of proceeds is a noisy measure. A large number of uses may actually signal specificity, while a small number (one) may simply be "for general purposes."

n54 Leland & Pyle, *supra* note 1.

n55 It is very important to keep in mind that a higher IPO price does not automatically imply less IPO underpricing. Not only IPO pricing but also IPO

after-market valuation are effected by insider selling (and other independent variables).

n56 Grinblatt & Hwang, *supra* note 23.

n57 *Id.* Grinblatt and Hwang are consistent with this prediction on absolute IPO underpricing, but they require further parameter restrictions to uniformly predict exclusively a positive correlation between insider retention and *percentage* IPO underpricing.

n58 Beatty & Ritter, *supra* note 27.

n59 Brennan & Hughes, *supra* note 2; and Tinic, *supra* note 24.

n60 Brennan & Hughes, *supra* note 2.

n61 Roger G. Ibbotson, Price Performance of Common Stock New Issues, 2 J. Fin. Econ. 235 (1975); and Tinic, *supra* note 24, have suggested that a reduction in offering price reduces the probability of a lawsuit because market prices are bounded from below at zero.

n62 Our earlier paper did contain these stocks, and 1/op had much significance. However, even in the subsample of 1982-84 firm-commitment offerings, the sign on IPO underpricing was strongly positive, whereas it is now strongly negative. Section IV*D* below discusses this further.

n63 Securities Exchange Act Release No. 27160 (August 22, 1989), 54FR 35468.

n64 Penny Stock Sales Practice and Disclosure Rules, Securities and Exchange Commission Release No. 34-32576; 17 C.F.R. Part 240; RIN: 3235-AF46 (1993); Sec Lexis 1588 7/2/93.

n65 Offering size is, of course, an endogenous variable, not known when underwriter compensation is set. However, raw underwriter compensation is very highly predictable. Without offering size variables, the R^2 is 61 percent; with offering size variables (raw and log), it shoots up to above 99 percent. In contrast, even with offering size variables, auditor compensation reaches an R^2 of about 30 percent, and law firm compensation reaches an R^2 of about 40 percent.

n66 We do not assume that auditor compensation and law firm compensation are exogenous. Still, we do not estimate a multiple system of equations because we do not feel confident specifying adequate restrictions

to reliably estimate a simultaneous system. It is well-known that many non-OLS methods, such as two-stage least squares or three-stage least squares, are sensitive to misspecification and, furthermore, biased in small samples. In fact, these methods are typically recommended as a complement to OLS, not as a substitute. See, for example, G. S. Maddala, Econometrics 231 (1977); or Peter Kennedy, A Guide to Econometrics, 157-58 (3d ed. 1992).

n67 Oddly, about three-quarters of the 93 non-Big 6 auditors were used by firms classified into the large subsample. The auditor quality mean (SD) in the large firm subsample was 15.8 (6.4), and in the small subset it was 14.4 (7.7). In contrast, underwriter quality in the large firm subsample was 5.1 (5.3), in the small subsample 1.7 (3.2).

n68 Beatty, *supra* note 4.

n69 Zoe-Venna Palmrose, Audit Fees and Auditor Size: Further Evidence, J. Acct. Res. 97 (1986).

n70 D. Simon & J. Francis, The Effects of Auditor Change on Audit Fees: Test of Price Cutting and Price Recovery, 63 Acct. Rev. 255 (1988).

n71 Victor Defeo & Bharat Sarath, The Pricing of Litigation Risk in the Market for Initial Public Offerings (working paper, New York Univ.; Rutgers Univ. 1995).

n72 The *t*-statistic on offering size is negative, although the relation of lawyer compensation with offering size is nonlinear. Yet none of the offering size controls are individually significant.

n73 Our 1980s evidence relied on a very weak proxy for lawyer quality. Consequently, the earlier evidence is not directly comparable.

n74 Beatty, *supra* note 4.

n75 Throughout the article, we are using the word "bribe" loosely in the economic sense, not in the legal sense.

n76 Beatty & Ritter, *supra* note 27.

n77 *Id.*

n78 Tinic, *supra* note 24.

n79 In a legal review, Alexander, *supra* note 17, critiques models that argue

that IPO underpricing serves as a substitute for caution in the prospectus. One of her primary concerns is that, in addition to suing under the 1933 act, claimants regularly file under the 1934 act, for which IPO underpricing is not relevant.

n80 Carter & Manaster, *supra* note 3.

n81 Tinic, *supra* note 24.

n82 Hughes & Thakor, *supra* note 24.

n83 Brennan & Hughes, *supra* note 2.

n84 Alexander, *supra* note 17; and Drake & Vetsuypens, *supra* note 22.

n85 Francis & Simon, *supra* note 35; and Beatty, *supra* note 3.

n86 Ibbotson, *supra* note 61; and Jay R. Ritter, The "Hot Issues" Market of 1980, J. Bus. 215 (1984).

n87 If there is a causal relation between the variables (as hypothesized by the theory), the relations should appear stable when ex ante variables are taken out.

n88 The first principal component is the linear function of the *x's* (log of age, log of firm sales, and log of assets) that has the highest variance subject to normalizing the coefficients on the *x's* to one (see Maddala, *supra* note 66, at 193). In essence, the first principal component identifies a common linear factor composed of age, size, and sales of our IPO firms.