

Do economies of scale exist in the costs of raising capital?

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ABSTRACT

This study, using 1980-2011 U.S. data, investigates whether economies of scales exist in costs of raising capital. In equity issuance, both IPOs and SEOs exhibit economies of scale in gross spreads including underwriter fee, and in other expenses such as legal expenses and accounting audit fee. However, initial return is the major disruption factor in IPO issues and as a result, total direct and indirect costs (TDIC) of IPOs do not exhibit economies of scale. But for SEO issues, initial return is relatively small and thus economies of scale exists even in total direct and indirect costs (TDIC). Time series and decade statistics show that economies of scale existed in a strict sense during 1990s' only and that costs of issuing equity has decreased for many proceeds size categories. In debt issuance, both straight and convertible debt issues do not exhibit economies of scale partly because speculative issues cluster in certain proceeds size categories.

Keywords: economies of scale, costs of raising capital, initial public offerings

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INTRODUCTION

In the securities underwriting business, a significant portion of the services underwriters provide to the issuing firms requires similar amounts of efforts and time across different issues. This means that on average, across the issue sizes, near fixed amounts of fees can be charged to the issuers for the services where similar amounts efforts and time are needed. Thus anyone can assume that economies of scale would exist in the costs of raising capital, i.e., as issue amounts or proceeds from the issues increase, the costs of raising capital will decrease.

Numerous studies on raising external capital reported that costs of raising external capital (primarily, underwriting spreads or gross spreads) are lower for larger offerings, implying the existence of significant economies of scale in issuance costs of external capital, in other words, i.e., decreasing underwriting spreads as the size of the offering increases (Smith (1977), Hansen and Pinkerton (1982), Bhagat and Frost (1986), Booth and Smith (1986), and Hansen (1988), Lee, Lochead, Ritter, and Zhao (1996), Chen and Mohan (2002), and Kim, Palia, and Saunders (2008)).

However, a series of studies challenged the existence of economies of scales in the costs of raising external capital. For example, Bhagat and Frost (1986), Hansen and Torregrosa (1992) report diseconomies of scale in underwriting spreads for straight debt and seasoned equity offerings (SEOs) of more than \$100 million. Hansen and Torregrosa (1992) and Altinkilic and Hansen (2000) offer results that show a U-shaped curve for straight debt and SEO underwriting spreads. They explain that as conventional wisdom suggests, economies of scale becomes possible due to the fixed costs in the issues of relatively small proceeds, but as proceeds increase diseconomies of scale appear in underwriting spreads due to increasing placement costs.

This study is descriptive in nature but uses more comprehensive time period sample of 1980 – 2011, compared to prior studies, to investigate whether there has been a significant variation in the costs of raising capital over time and provides a bigger picture on economies of scale in the costs of raising capital, for which conflicting results exist in the literature. Also added in this study is the detailed breakups of component expenses such as underwriting fee, legal expenses and accounting audit fee. The results confirm diseconomies of scale during 1980s' by Hansen and Torregrosa (1992) and economies of scale with equity issues and convertible bonds during 1990's by Lee, Lochhead, Ritter and Zhao (1996). Thus it seems safe to say that patterns of economies of scale in the costs of raising capital change over time.

DATA

Securities Data Company (SDC)'s New Issues database is the primary source of samples used in this study. The New Issues database contains firm commitment offerings of public placements. ADRs and unit offerings were excluded in the sample. Also excluded were closed-end fund, real estate investment trust (REIT) offerings, right offerings and shelf registrations. Only issues by U.S. firms were considered. As Hansen (1988) reported, rights offerings were extremely rare and excluded from the sample.

The sample period is from 1980 to 2011. Since this sample period is more than three decades, proceeds were converted to 1994 constant dollars using Consumer Price Index (CPI) to avoid any impact from the inflation. Proceeds are gross proceeds in the U.S. markets only, excluding amount raised in non-U.S. markets or through the overallotment options.

For bond offerings, issues with less than one year maturity, mortgage-backed bonds, and serial bonds were excluded. For convertibles, only the issues which can be converted into shares of the issuing firm were considered.

EMPIRICAL RESULTS

In security issuance, total issuance costs (i.e., total direct and indirect costs, TDIC) can be decomposed into direct costs and indirect costs. Direct costs include gross spreads and other direct costs. Gross spreads are the commissions paid to underwriters when securities are issued and includes management fees, underwriting fee, and selling concession. Other direct expenses includes registration fee and printing, legal, and auditing costs. Total direct costs (TDC) will be then sum of gross spreads and other direct expenses.

Indirect costs are primarily initial return (IR) calculated as (first trading day close price – offer price)*100/ offer price. This will be significant for equity issuances but mostly negligible for debt issues.

Total direct and indirect costs (TDIC) are simply the sum of Total direct costs (TDC) and indirect costs (initial return, IR).

Time series pattern of total costs of raising capital

Figure 1 shows the monthly time series patterns of total direct costs of Initial Public Offerings (IPOs) and Seasoned Equity Offerings (SEOs) of equity. Total direct costs of IPOs have been a little over 10% and those of SEOs have been a little below 10%. This difference may reflect the higher uncertainty of IPOs because of relatively scarce information on IPO issuers. While the trend is slightly downward, there were periods when total direct costs were significantly higher like early 1990s, departing significantly from the long term trend.

Figure 2 shows the monthly time series patterns of total direct costs of straight debt and convertibles. While total direct costs of both straight debt and convertibles have been significantly lower than those of IPOs and SEOs around 1% and 2% respectively, the total direct costs of convertibles, on average, have been higher than those of straight debt.

Figures 1 and 2 show significant variations of total direct costs of raising capital over time.

Average gross spreads and total direct costs of IPOs and SEOs

Table 1 shows the costs of issuing IPOs as a percentage of the proceeds. Average gross spread and other expenses of IPOs are 7.44% and 4.62 % of proceeds respectively and these are significantly higher than those reported in Lee, Lochhead, Ritter and Zhao (1996) but lower than those reported in Ritter (1987). For IPOs, Gross Spread (GS), other expenses (E), and total direct cost (TDC = GS + E) show economies of scale. In other words, as the proceeds increase, costs

decrease. A component of GS, underwriting fee (Underwrite), and components of other expenses (E), Legal expenses and Accounting Audit fee also exhibit economies of scale.

Table 2 shows the costs of issuing SEOs as a percentage of the proceeds. Average gross spread and other expenses of SEOs are 5.28% and 1.69 % of proceeds respectively. The results exhibit economies of scale in GS, E, TDC, Underwrite, Legal expenses, and Accounting Audit fee. This is consistent with Lee, Lochhead, Ritter and Zhao (1996) and Smith (1977) but in contrast to Hansen and Torregrosa (1992).

Tables 1 and 2 also show indirect cost, initial return (IR), and total direct and indirect costs (TDIC = TDC + IR). The results in table 1 show that initial return in IPOs increases in proceeds up to \$200 million proceeds category and decreases above that, except the category of issues less than \$10 million proceeds where average initial return is highest with 58.1%. Because of the impact of initial return on TDIC, TDIC shows a similar pattern as in initial return; it increases in proceeds only up to issues with \$80 million and then decreases above that, except the issues less than \$10 million. Table 2 shows a similar pattern of initial return of SEOs. However, the difference in initial returns is not big across the proceeds categories in determining the pattern of TDIC. As a result, TDIC of SEOs exhibits the economies of scale.

Gross spreads and other expenses of IPOs and SEOs by decade

Figure 3 shows Gross Spreads of IPOs by decade. 1990's is the only decade when economies of scale exists in a strict sense, while economies of scale exist with minor exception in general. As hypothesized by Lee, Lochhead, Ritter and Zhao (1996), during 1980s economies of scale do not exist in GS of IPOs and SEOs primarily because of the exceptionally high gross spread in largest issues. Also true is the general downward trend of costs of issuing IPOs over time as seen in figure 1.

Figure 5 shows that economies of scale exist for other direct expenses of IPOs with minor exception. Figure 4 shows Gross Spreads of SEOs by decade. Like in IPOs, 1990s and 2010s are the only two decades when economies of scale exist in a strict sense, while economies of scale exist with minor exception in general. Also true is the general downward trend of issuing costs of SEOs over time as seen in figure 2. Figure 6 shows that economies of scale exist for other direct expenses of SEOs with minor exception.

Utilities vs. non-utilities of IPOs and SEOs

Panels A and B of table 3 show the comparison of issuing costs of IPOs between utilities and non-utilities. Panel A shows the results in table 1 is primarily driven by non-utilities. There is a high similarity between table 1 and panel A of table 3. However, the results of utilities in panel B of table 3 show quite a different pattern. Economies scale do not exist for utilities in any of GS, E, TDC, Underwrite, Legal Expenses, Accounting Audit fee, IR, and TDIC. This result cannot be generalized, though, since the sample size is small for utilities. It is notable that issuing costs are significantly lower for utilities IPOs, consistent with Bhagat and Frost (1986).

Panels A and B of table 4 show the comparison of costs of SEOs between utilities and non-utilities. Panel A shows the results in table 2 is primarily driven by non-utilities. There is a high similarity between table 2 and panel A of table 4. However, results of utilities in panel B of table 4 show quite a different pattern. Economies scale do not exist for utilities in GS, TDC,

Underwrite, Legal Expenses, IR, and TDIC. Again issuing costs are significantly lower for utilities SEOs.

Average gross spreads and total direct costs of straight debt and convertibles

Table 5 shows the costs of issuing straight debt and convertibles as a percentage of the proceeds. The results of straight debt do not exhibit economies of scale in GS but they do in E and TDC. In contrast, economies of scale in issuing costs do exist for convertibles with one exception for each type of issuing costs.

Table 6 compares the costs of issuing straight bonds between investment grade vs. speculative grade. Bond issues rated BBB- or above are classified and considered investment grade and bond issues rated below BBB- are considered speculative. Table 6 shows for both investment grade and speculative bond issues, economies of scale exist in E but not in GS or TDC. This is partly because more speculative issues tend to be bigger sizes (above \$100 mil), hence increases the average costs of bigger size of proceeds categories. As anyone expects, speculative issues have to pay significantly higher costs, approximately 2% more in TDC than investment grade issues do.

Table 7 compares costs of issuing convertibles between investment grade vs. speculative grade. The results show that for speculative grade bonds, economies of scale exist in GS except the largest issue category (\$500 mil and above) and in E and TDC except \$80-99.99 million proceeds category. For investment grade issues, economies of scale exist in TDC but not in E and GS. The reason convertibles exhibit a difference pattern in economies of scale from straight bonds is that speculative grade convertibles are mostly mid-size issues between \$20 million and \$200 million while investment grade convertibles are mostly bigger size issues between \$100 million and \$500 million. But again investment grade issues experience about 1.2% lower total direct costs.

CONCLUSION

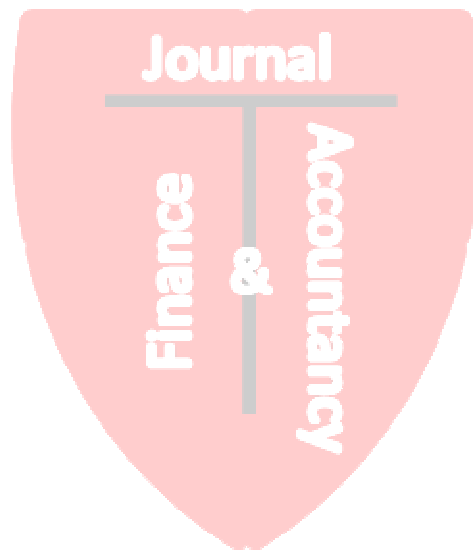
This study, using longer time period sample of 1980 – 2011, reports that there has been a significant variation in the cost of raising capital over time. The results confirm diseconomies of scale during 1980s' reported by Hansen and Torregrosa (1992) and economies of scale with equity issues and convertible bonds during 1990s' reported by Lee, Lochhead, Ritter and Zhao (1996). Thus it seems safe to say that patterns of economies of scale in the costs of raising capital change over time.

Overall, companies paid considerable amounts of costs in raising outside capital. Over 1980-2011 period, IPO issuers paid on average 7.44% of proceeds as gross spreads, 4.62% as other expenses and experienced 26% initial underpricing as indirect costs. In the same time period, SEO issuers paid on average 5.28% of proceeds as gross spreads, 1.69% as other expenses and experienced 4.67% initial underpricing as indirect costs. Both IPOs and SEOs exhibit economies of scale in gross spreads including underwriter fee, and in other expenses such as legal expenses and accounting audit fee. Initial return is the major disruption factor for IPO

issues and as a result, total direct and indirect costs (TDIC) do not show economies of scale for IPOs. But for SEO issues, initial return is relatively small and thus economies of scale exists even in total direct and indirect costs (TDIC).

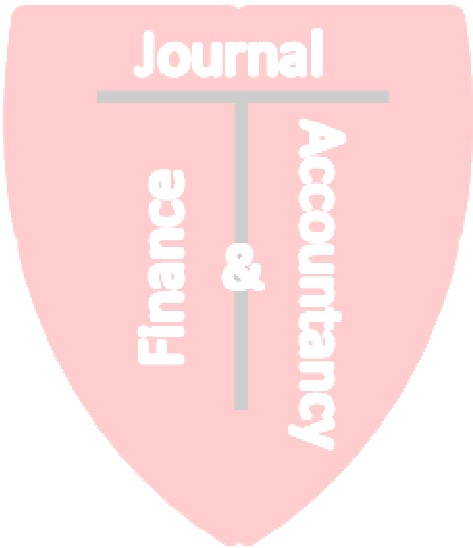
Time series and decade statistics show that economies of scale existed during 1990s' only and that costs of issuing equity has decreased for many proceeds size categories.

In contrast to equity issues, debt issues paid significantly lower issuing costs. Straight debt issuers paid on average 0.84% of proceeds as gross spreads, 0.24% as other expenses and convertible bond issuers paid on average 2.63% of proceeds as gross spreads, 0.71% as other expenses. Both types of debt issuers do not exhibit economies of scale partly because of issues clustering in certain proceeds size categories are speculative grades.



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APPENDIX

Figure 1

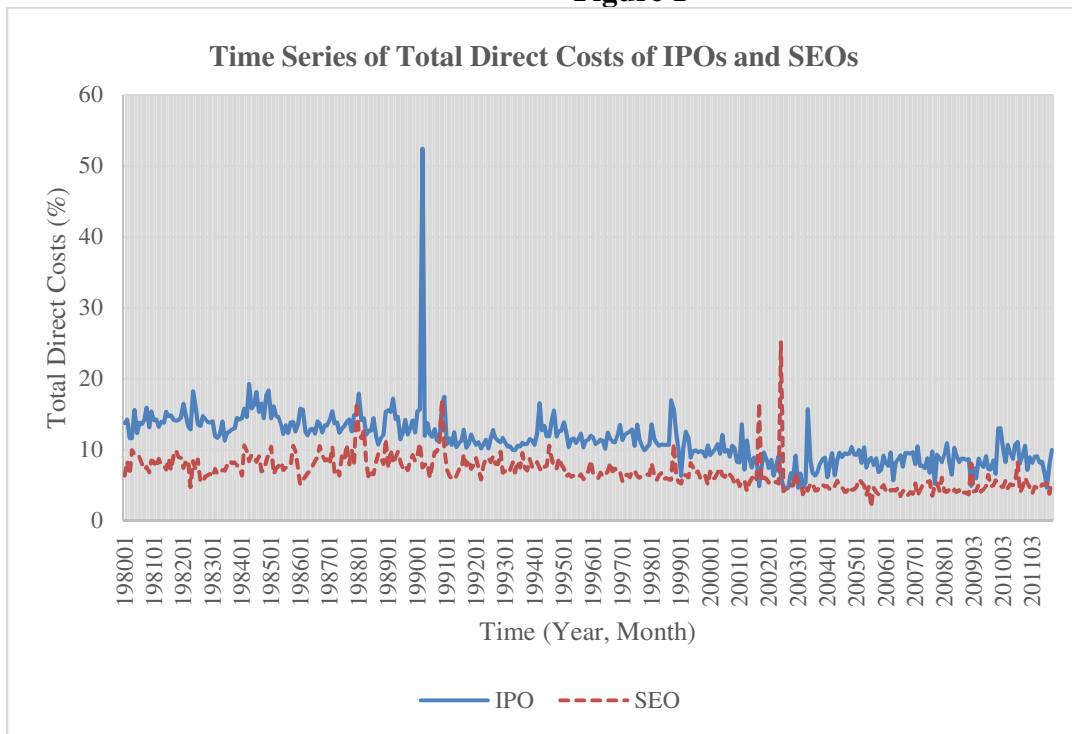


Figure 2

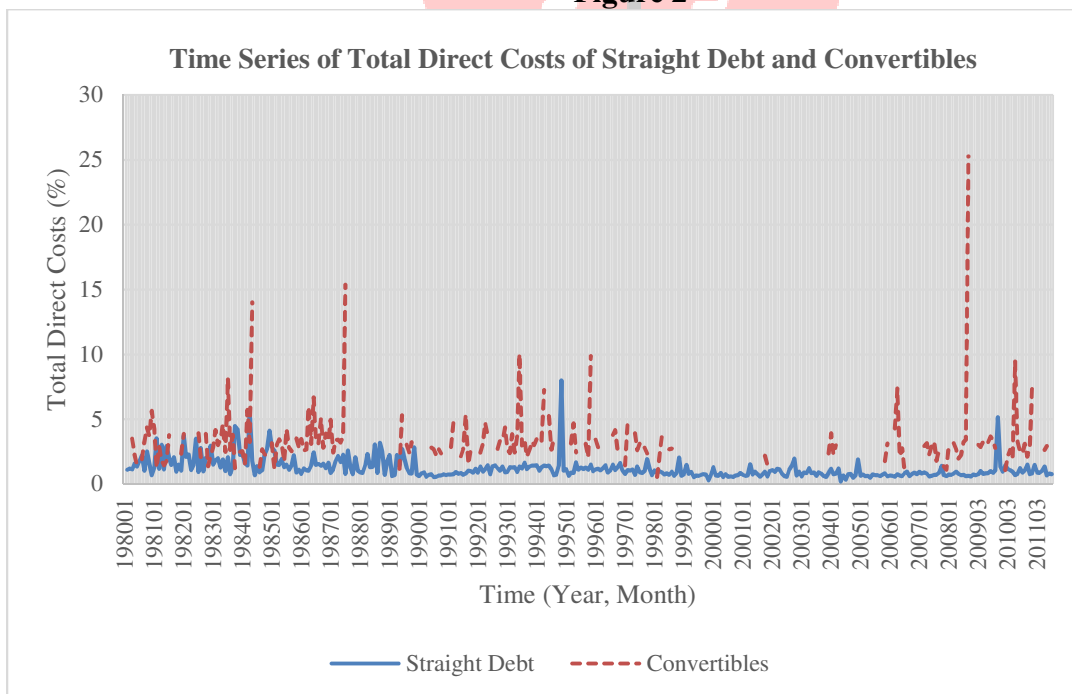


Table 1
The Costs of Raising Capital for IPOs as a percent of the proceeds

Proceeds (\$millions)	N	GS	E	TDC	IR	TDIC	Underwrite	Legal	Accounting
2-9.99	3156	9.38	8.65	18.01	58.10	78.24	2.14	2.83	1.64
10-19.99	1687	7.43	4.68	12.11	9.73	21.99	1.82	1.66	1.03
20-39.99	2392	6.96	3.40	10.38	16.79	25.52	1.68	1.14	0.81
40-59.99	1300	6.86	2.17	9.06	22.84	28.65	1.58	0.87	0.65
60-79.99	798	6.72	1.77	8.50	25.88	31.98	1.49	0.76	0.56
80-99.99	492	6.52	1.62	8.19	26.96	29.09	1.45	0.66	0.43
100-199.99	1142	6.28	1.39	7.73	27.82	18.64	1.33	0.54	0.33
200-499.99	677	5.72	0.77	6.64	9.02	13.20	1.13	0.32	0.18
500-up	285	4.92	0.43	5.58	6.42	9.92	0.91	0.16	0.10
Total/Avg	11929	7.44	4.62	12.23	25.99	36.31	1.65	1.21	0.79

Notes: Closed-end funds (SIC 6726), REITs (SIC 6798), ADRs, and unit offerings are excluded from the sample.

Proceeds: Total proceeds in U.S. markets, and excluding proceeds from the exercise of overallotment options.

N: Number of issues.

GS: Gross spreads as a percentage of total proceeds including management fees, underwriting fee, and selling concession.

E: Other direct expenses as a percentage of total proceeds including registration fee and printing, legal, and auditing costs.

TDC: Total direct costs as a percentage of total proceeds (sum of gross spreads and other direct expenses).

IR: Initial return calculated as (first trading day close price – offer price)*100/ offer price.

TDIC and TDIC (=TDC + IR) were calculated for each issue and then averaged.

Table 2
The Costs of Raising Capital for SEOs as a percent of the proceeds

Proceeds (\$millions)	N	GS	E	TDC	IR	TDIC	Underwrite	Legal	Accounting
2-9.99	1171	8.13	6.16	14.30	18.83	32.90	1.83	2.42	1.21
10-19.99	1391	6.27	2.50	8.77	6.23	14.90	1.52	1.01	0.46
20-39.99	2031	5.47	1.34	6.81	3.92	10.74	1.33	0.56	0.29
40-59.99	1471	4.89	1.05	5.94	2.88	8.99	1.17	0.32	0.18
60-79.99	995	4.60	0.72	5.32	3.13	8.59	1.09	0.23	0.12
80-99.99	607	4.41	0.51	4.92	2.22	7.26	1.04	0.19	0.10
100-199.99	1335	4.06	0.37	4.43	2.18	6.71	0.93	0.15	0.08
200-499.99	659	3.48	0.25	3.73	2.12	5.93	0.83	0.08	0.04
500-up	201	2.89	0.14	3.03	2.53	5.57	0.65	0.04	0.02
Total/Avg	9861	5.28	1.69	6.97	4.67	11.28	1.23	0.60	0.30

Notes: Rights offerings are excluded from SEOs.

Proceeds: Total proceeds in U.S. markets, and excluding proceeds from the exercise of overallotment options.

N: Number of issues.

GS: Gross spreads as a percentage of total proceeds including management fees, underwriting fee, and selling concession.

E: Other direct expenses as a percentage of total proceeds including registration fee and printing, legal, and auditing costs.

TDC: Total direct costs as a percentage of total proceeds (sum of gross spreads and other direct expenses).

IR: Initial return calculated as (first trading day close price – offer price)*100/ offer price.

TDC and TDIC (=TDC + IR) were calculated for each issue and then averaged.

Table 3, Panel A

The Costs of Raising Capital for Non-Utility IPOs as a percent of the proceeds

Proceeds (\$millions)	N	GS	E	TDC	IR	TDIC	Underwrite	Legal	Accounting
2-9.99	3145	9.38	8.66	18.02	58.32	78.50	2.14	2.83	1.65
10-19.99	1680	7.43	4.68	12.10	9.76	22.00	1.82	1.66	1.03
20-39.99	2382	6.96	3.40	10.38	16.83	25.58	1.68	1.14	0.81
40-59.99	1292	6.87	2.17	9.06	22.95	28.76	1.59	0.87	0.65
60-79.99	792	6.72	1.74	8.47	26.01	32.09	1.49	0.75	0.55
80-99.99	488	6.53	1.61	8.19	27.13	29.24	1.45	0.66	0.43
100-199.99	1131	6.28	1.38	7.72	27.80	18.64	1.33	0.53	0.32
200-499.99	655	5.72	0.77	6.64	9.03	13.12	1.12	0.32	0.18
500-up	279	4.93	0.43	5.60	6.58	10.42	0.90	0.16	0.09
Total/Avg	11844	7.45	4.62	12.24	26.13	36.45	1.65	1.22	0.79

Notes:

Proceeds: Total proceeds in U.S. markets, and excluding proceeds from the exercise of overallotment options.

N: Number of issues.

GS: Gross spreads as a percentage of total proceeds including management fees, underwriting fee, and selling concession.

E: Other direct expenses as a percentage of total proceeds including registration fee and printing, legal, and auditing costs.

TDC: Total direct costs as a percentage of total proceeds (sum of gross spreads and other direct expenses).

IR: Initial return calculated as (first trading day close price – offer price)*100/ offer price.

TDC and TDIC (=TDC + IR) were calculated for each issue and then averaged.

Table 3, Panel B

The Costs of Raising Capital for Utility IPOs as a percent of the proceeds

Proceeds (\$millions)	N	GS	E	TDC	IR	TDIC	Underwrite	Legal	Accounting
2-9.99	11	9.14	6.79	15.84	-4.59	11.35	1.95	2.23	1.02
10-19.99	7	8.04	5.41	13.78	2.48	18.20	1.90	1.77	0.96
20-39.99	10	6.85	2.88	9.76	7.87	10.15	1.56	1.05	0.53
40-59.99	8	6.16	2.42	9.22	7.01	9.82	1.34	2.35	0.58
60-79.99	6	6.33	5.32	12.07	6.47	14.69	1.53	1.63	1.54
80-99.99	4	6.31	2.19	8.38	8.25	9.38	1.33	0.85	0.77
100-199.99	11	6.00	3.10	9.41	29.76	17.50	1.27	0.91	1.02
200-499.99	22	5.62	0.84	6.81	8.72	16.33	1.33	0.38	0.23
500-up	6	4.50	0.61	4.92	-1.93	-7.72	1.02	0.18	0.21
Total/Avg	85	6.52	3.52	10.53	8.60	11.48	1.47	0.96	0.68

Proceeds: Total proceeds in U.S. markets, and excluding proceeds from the exercise of overallotment options.

N: Number of issues.

GS: Gross spreads as a percentage of total proceeds including management fees, underwriting fee, and selling concession.

E: Other direct expenses as a percentage of total proceeds including registration fee and printing, legal, and auditing costs.

TDC: Total direct costs as a percentage of total proceeds (sum of gross spreads and other direct expenses).

IR: Initial return calculated as (first trading day close price – offer price)*100/ offer price.

TDC and TDIC (=TDC + IR) were calculated for each issue and then averaged.

Table 4

Panel A. The Costs of Raising Capital for Non-Utility SEOs as a percent of the proceeds

Proceeds (\$millions)	N	GS	E	TDC	IR	TDIC	Underwrite	Legal	Accounting
2-9.99	1103	8.28	6.33	14.61	19.62	34.01	1.88	2.48	1.23
10-19.99	1298	6.38	2.57	8.94	6.63	15.48	1.56	1.02	0.47
20-39.99	1915	5.56	1.37	6.93	4.08	10.99	1.36	0.56	0.30
40-59.99	1372	5.00	1.09	6.09	2.94	9.14	1.20	0.32	0.18
60-79.99	916	4.72	0.75	5.47	3.24	8.79	1.13	0.23	0.13
80-99.99	552	4.52	0.53	5.06	2.33	7.43	1.08	0.19	0.10
100-199.99	1152	4.21	0.40	4.61	2.36	7.01	0.98	0.15	0.09
200-499.99	588	3.52	0.26	3.78	2.35	6.21	0.84	0.08	0.04
500-up	196	2.87	0.15	3.02	2.52	5.55	0.65	0.04	0.02
Total/Avg	9092	5.41	1.77	7.18	4.92	11.65	1.28	0.60	0.31

Proceeds: Total proceeds in U.S. markets, and excluding proceeds from the exercise of overallotment options.

N: Number of issues.

GS: Gross spreads as a percentage of total proceeds including management fees, underwriting fee, and selling concession.

E: Other direct expenses as a percentage of total proceeds including registration fee and printing, legal, and auditing costs.

TDC: Total direct costs as a percentage of total proceeds (sum of gross spreads and other direct expenses).

IR: Initial return calculated as (first trading day close price – offer price)*100/ offer price.

TDC and TDIC (=TDC + IR) were calculated for each issue and then averaged.

Table 4

Panel B. The Costs of Raising Capital for Utility SEOs as a percent of the proceeds

Proceeds (\$millions)	N	GS	E	TDC	IR	TDIC	Underwrite	Legal	Accounting
2-9.99	68	5.76	3.39	9.15	3.47	11.31	1.16	1.09	0.57
10-19.99	93	4.72	1.57	6.29	0.44	6.58	0.99	0.76	0.24
20-39.99	116	3.94	0.83	4.77	0.76	5.75	0.81	0.46	0.20
40-59.99	99	3.37	0.50	3.87	1.34	5.46	0.65	0.17	0.08
60-79.99	79	3.18	0.32	3.49	0.51	3.90	0.57	0.11	0.06
80-99.99	55	3.25	0.29	3.54	0.13	4.10	0.63	0.22	0.05
100-199.99	183	3.13	0.22	3.35	0.38	3.86	0.59	0.07	0.04
200-499.99	71	3.12	0.18	3.30	-0.09	3.27	0.69	0.10	0.04
500-up	5	3.63	0.07	3.70	2.93	6.63	0.77	0.04	0.00
Total/Avg	769	3.72	0.80	4.53	0.75	5.22	0.74	0.40	0.17

Proceeds: Total proceeds in U.S. markets, and excluding proceeds from the exercise of overallotment options.

N: Number of issues.

GS: Gross spreads as a percentage of total proceeds including management fees, underwriting fee, and selling concession.

E: Other direct expenses as a percentage of total proceeds including registration fee and printing, legal, and auditing costs.

TDC: Total direct costs as a percentage of total proceeds (sum of gross spreads and other direct expenses).

IR: Initial return calculated as (first trading day close price – offer price)*100/ offer price.

TDC and TDIC (=TDC + IR) were calculated for each issue and then averaged.

Table 5

The Costs of Raising Capital for Straight Debt and Convertibles as a percent of the proceeds

Proceeds (\$millions)	Straight Debt				Convertibles			
	N	GS	E	TDC	N	GS	E	TDC
2-9.99	1770	0.80	2.36	4.75	6	5.73	-	-
10-19.99	1054	0.75	1.33	2.97	34	5.13	2.03	9.57
20-39.99	2022	0.86	0.72	2.48	163	3.46	1.20	4.79
40-59.99	1838	0.76	0.59	2.11	197	2.69	0.74	3.27
60-79.99	1497	0.98	0.38	1.53	172	2.37	0.58	3.15
80-99.99	1784	0.82	0.36	1.38	99	2.23	0.66	3.19
100-199.99	7882	0.88	0.24	1.13	330	2.02	0.37	2.44
200-499.99	8119	0.77	0.16	0.94	200	1.97	0.28	2.22
500-up	3154	0.57	0.18	0.72	64	2.02	0.17	2.24
Total/Avg	29120	0.80	0.23	1.04	1265	2.47	0.54	2.95

Notes: Bond offerings do not include securities backed by mortgages and issues by Federal agencies (SIC 6011, 6019, 6111, 999A, and 999B).

Proceeds: Total proceeds in U.S. markets, and excluding proceeds from the exercise of overallotment options.

N: Number of issues.

GS: Gross spreads as a percentage of total proceeds including management fees, underwriting fee, and selling concession.

E: Other direct expenses as a percentage of total proceeds including registration fee and printing, legal, and auditing costs.

TDC: Total direct costs as a percentage of total proceeds (sum of gross spreads and other direct expenses).

IR: Initial return calculated as (first trading day close price – offer price)*100/ offer price.

TDC and TDIC (=TDC + IR) were calculated for each issue and then averaged.

Figure 3

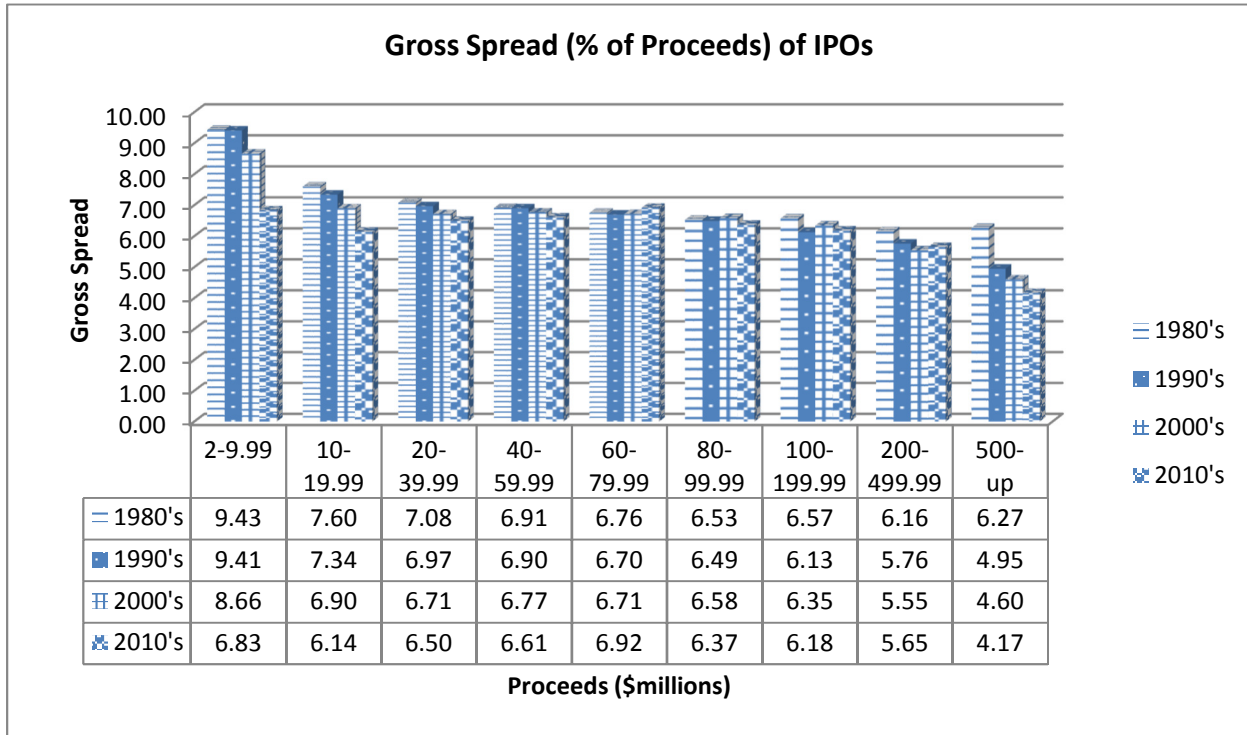


Figure 4

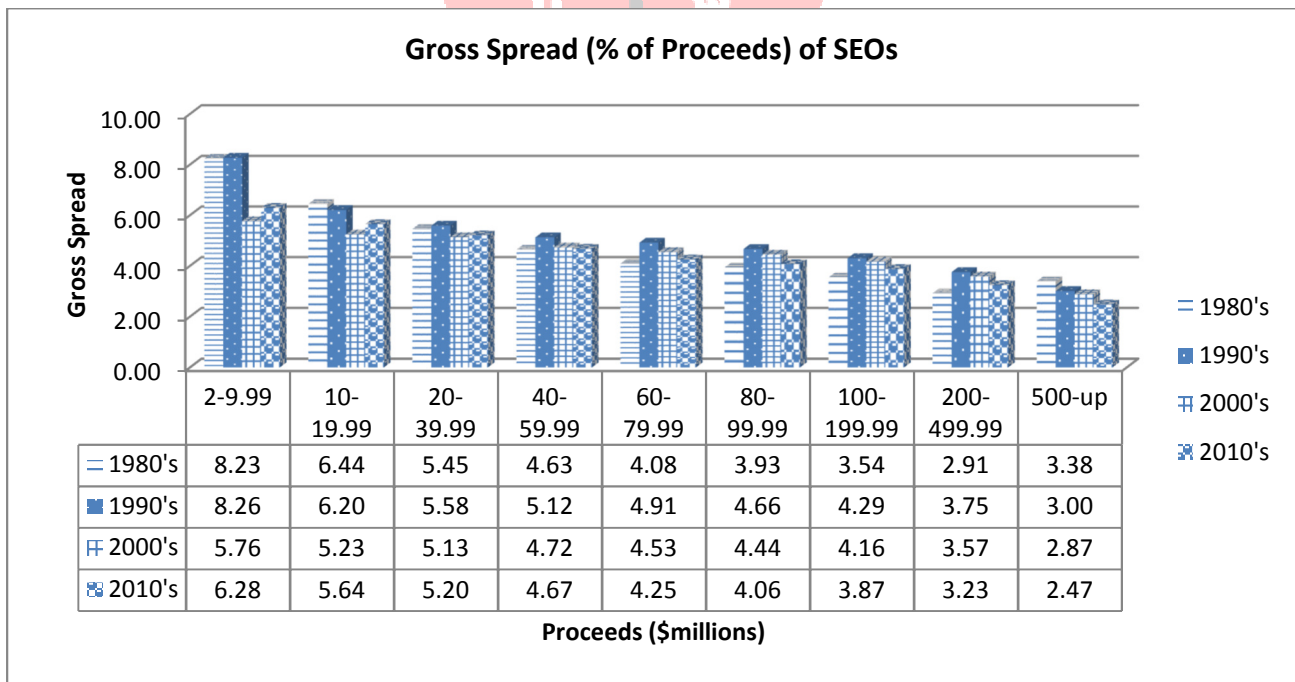


Figure 5

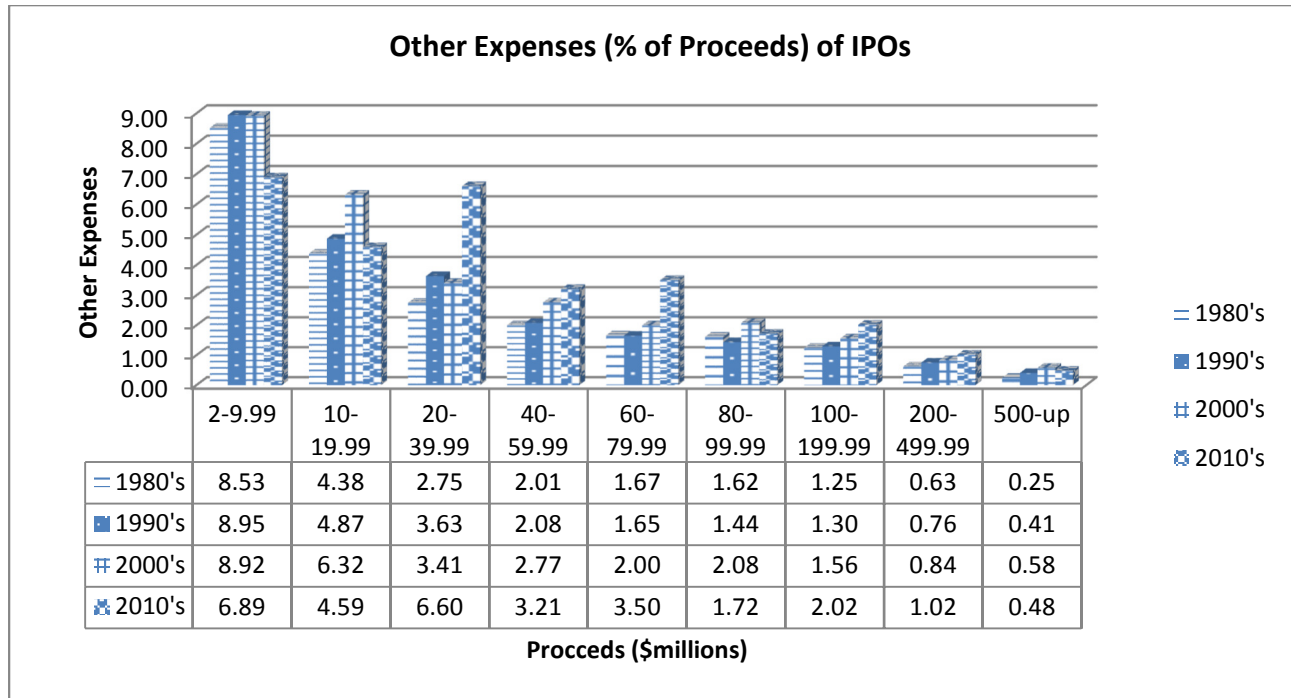


Figure 6

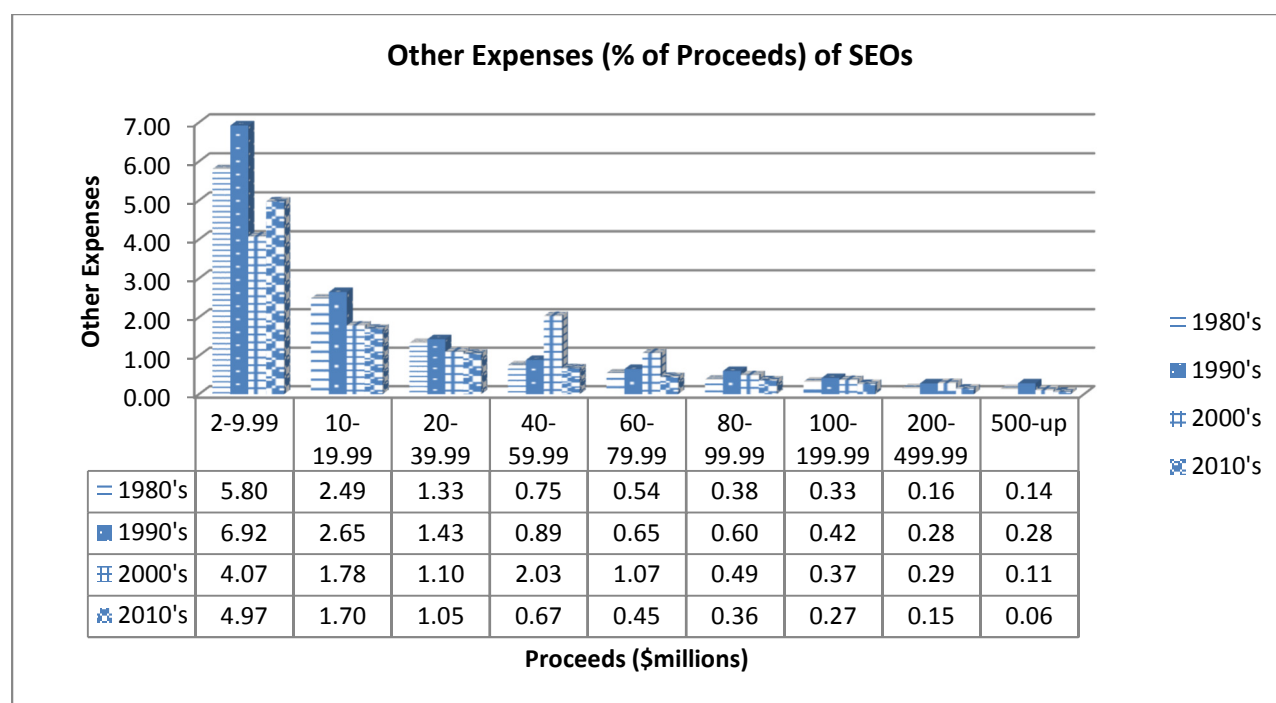


Table 6
The Costs of Raising Capital for Straight Debt as a percent of the proceeds:
Investment Grade vs. Speculative Issues

Proceeds (\$millions)	Speculative Grade				Investment Grade			
	N	GS	E	TDC	N	GS	E	TDC
2-9.99	53	1.09	-	-	1717	0.79	2.36	4.75
10-19.99	26	3.25	2.16	4.72	1028	0.69	1.23	2.76
20-39.99	149	3.27	1.18	4.38	1873	0.67	0.58	1.86
40-59.99	171	3.01	1.00	4.02	1667	0.53	0.47	1.54
60-79.99	202	3.06	0.73	3.66	1295	0.65	0.29	0.98
80-99.99	203	2.75	0.80	3.43	1581	0.57	0.27	1.01
100-199.99	1031	2.57	0.53	3.03	6851	0.62	0.20	0.84
200-499.99	832	2.27	0.32	2.45	7287	0.60	0.15	0.78
500-up	171	2.16	0.11	1.84	2983	0.48	0.19	0.67
Total/Avg	2838	2.55	0.48	2.85	26282	0.61	0.19	0.82

Notes: Bond offerings do not include securities backed by mortgages and issues by Federal agencies (SIC 6011, 6019, 6111, 999A, and 999B).

Proceeds: Total proceeds in U.S. markets, and excluding proceeds from the exercise of overallotment options.

N: Number of issues.

GS: Gross spreads as a percentage of total proceeds including management fees, underwriting fee, and selling concession.

E: Other direct expenses as a percentage of total proceeds including registration fee and printing, legal, and auditing costs.

TDC: Total direct costs as a percentage of total proceeds (sum of gross spreads and other direct expenses).

Table 7
The Costs of Raising Capital for Convertibles as a percent of the proceeds:
Investment Grade vs. Speculative Issues

Proceeds (\$millions)	Speculative Grade				Investment Grade			
	N	GS	E	TDC	N	GS	E	TDC
2-9.99	6	5.73	-	-	0	-	-	-
10-19.99	33	4.86	2.11	6.37	1	14.12	1.87	15.98
20-39.99	144	3.64	1.22	4.77	19	2.12	0.87	5.37
40-59.99	162	2.83	0.79	3.38	35	2.08	0.51	2.67
60-79.99	123	2.58	0.65	3.38	49	1.83	0.41	2.61
80-99.99	70	2.48	0.66	3.52	29	1.63	0.65	2.36
100-199.99	176	2.43	0.38	2.83	154	1.71	0.35	2.06
200-499.99	82	2.31	0.38	2.71	118	1.74	0.24	2.05
500-up	18	2.45	0.19	2.69	46	1.86	0.15	1.96
Total/Avg	814	2.86	0.66	3.40	451	1.76	0.35	2.27

Notes: Same as table 6.