KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Michael A. Miller

130. Please provide a copy of the most recent bond rating agency report (Standard & Poor's, Moody's and Fitch) for American Water Works Company, Inc. [Note: Reports provided should be most recent complete multi-page in-depth report, not a one or two-page update.]

Response:

Please see attached.

For the electronic version, refer to KAW_R_AGDR1#130_122308.pdf.

STANDARD &POOR'S

RATINGSDIRECT®

June 19, 2008

Research Update:

American Water Works, Capital Corp Downgraded To 'BBB+', Off CreditWatch; Outlook Stable

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Table Of Contents

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Research Update:

American Water Works, Capital Corp Downgraded To 'BBB+', Off CreditWatch; Outlook Stable

Rationale

On June 19, 2008, Standard & Poor's Ratings Services lowered its corporate credit ratings on American Water Works Co. Inc. (AWW) and its funding subsidiary American Water Capital Corp. (AWCC) to 'BBB+' from 'A-'. At the same time, we removed the ratings from CreditWatch with negative implications. The outlook is stable.

The downgrade primarily reflects our concern that the pace and extent of cash flow improvement will be considerably slower than we previously expected. Despite an 8% increase in revenues in the first quarter of 2008, key credit metrics, including adjusted funds from operations (FFO) to total debt of around 9%, FFO interest coverage under 3x, and adjusted debt to total capital of 60%, were unchanged from the prior quarter and are weak for the 'A-' rating. Over the intermediate term, the company will be engaged in a greater number of rate proceedings than we expected, as AWW seeks to phase in rate increases incrementally to avoid rate shock while prudently financing capital spending of up to $1 billion per year over the next several years. This is likely to result in sizable back-to-back rate filings in a number of states and make achieving financial metrics appropriate for the 'A' category a longer term proposition. Funding from the secondary equity market could be more challenging as RWE AG's attempts to divest its holdings will compete with offerings by AWW, which may slow improvements in leverage.

Notwithstanding the medium-term weakness in AWW's financial profile, these risks are partially offset against AWW's excellent business risk profile. A favorable competitive position, diverse and supportive regulatory environment, and stable, above-average service territory characterize AWW's business risk profile. AWW's regulatory framework includes reasonably allowed ROEs and various cost-recovery mechanisms, including incentives for infrastructure improvements. The company's geographic diversity provides it with some market, cash flow, and regulatory diversification. In addition, we view AWW's operating risks associated with its regulated and nonregulated operations as fairly low. AWW's aggressive financial profile, uncertainties associated with planned equity offerings, elevated capital-spending requirements for infrastructure replacement, increased compliance costs with water-quality standards, and the company's reliance on acquisitions to provide growth partly offset these strengths.

AWW provides regulated water and wastewater services to more than 3.3 million customers in 20 states. AWW's regulated utility subsidiaries represent almost 90% of total revenues, but have provided almost 100% of adjusted EBIT for the past three years. The company's nonregulated subsidiaries consist of water and wastewater facility management and maintenance, as well as design

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and construction consulting services related to water and wastewater plants. We view these nonregulated segments as having modest incremental risk to AWW due to their lack of cash flow contribution and modest expected capital requirements.

AWW's financial metrics are acceptable for the 'BBB+' rating. RWE's agreements to not file rate cases for up to three years following its AWW acquisition in 2003, as well as significant goodwill impairments, resulted in a deterioration of the financial profile. AWW has since filed a number of rate cases, which total about $300 million to cover rising operating costs, capital expenditures, and pension and other postretirement obligations.

Adjusted FFO was $514 million for the 12 months ended March 31, 2008. FFO to total debt was 9%, which are somewhat weak, but acceptable, for the rating. The uncertainties associated with the timing of the company's rate cases and the substantially higher capital plans are significant risks that may prevent adequate improvements to the company's financial profile. Adjusted debt to capital was 60% at March 31, 2008, from 49% as of the previous year. A portion of the increased leverage metric is attributed to the $750 million goodwill impairment related to a post-IPO valuation test and the issuance of unsecured notes to redeem the company's outstanding preferred stock, which we consider to have intermediate equity characteristics.

Short-term credit factors

The 'A-2' short-term ratings on AWW and AWCC reflect sizable borrowing capacity under the company's revolving credit facility and stable cash flows from regulated subsidiaries. However, AWW's cash uses include high levels of capital spending, substantial upcoming debt maturities, and expectations that the company will institute a common stock dividend. Capital expenditures are projected at $4 billion to $4.5 billion during the next five years for infrastructure replacements, new facility construction, maintenance of water-quality and environmental standards, and system reliability.

With cash from operations for the past 12 months of only $550 million, AWW's cash flow generation is insufficient to meet its ongoing operating and capital needs, and will require additional access to the capital markets over the intermediate term. Scheduled debt maturities of $196 million in 2008, $55 million in 2009, and $54 million in 2010 are also fairly sizable. Contingent on board approval, AWW is expected to declare dividends equal to about $128 million per year, starting in the third quarter. This equals a 3.8% dividend yield at recent market prices, which is materially higher than the average dividend yield of other companies in its peer group of about 2%.

As of March 31, 2008, AWW had $9 million in unrestricted cash, about $420 million available under its $800 million revolving credit facility, which matures on Sept. 15, 2011, and a $10 million short-term working-capital line of credit. Financial covenants include a maximum debt to capital (with adjustments) of 70% and restrictions on liens, distributions, debt incurred at AWW, and asset sales.

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Outlook

The stable outlook reflects our expectation that AWW will be granted supportive rate increases over the intermediate term to address rising costs and increased capital spending plans. The current rating can accommodate some acquisitions, assuming management funds the acquisitions in a balanced manner. The outlook could be revised to negative if financial performance stalls or deteriorates, which could result from substantial debt-financing of capital expenditures or acquisitions or if rate increases or allowed returns are set at levels substantially below the requested figures and significantly slower to be resolved than currently expected. Although less likely in the near term, the outlook could be revised to positive if higher-than-expected rate increases or favorable cost recovery mechanisms allow for adjusted FFO to total debt of closer to 12% and adjusted leverage between 50% to 55%.

Ratings List

Ratings Lowered, Off CreditWatch

American Water Works Co. Inc.

	To	From
Corp. credit rating	BBB+/Stable/A-2	A-/Watch Neg/A-2

American Water Capital Corp.

Corp. credit rating	BBB+/Stable/A-2	A-/Watch Neg/A-2
Senior unsecured debt	BBB+/Stable/A-2	A-/Watch Neg/A-2
Preferred stock	BBB-	BBB/Watch Neg

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Moody's Investors Service

Global Credit Research
Credit Opinion
17 OCT 2007

Credit Opinion: American Water Works Company, Inc.

American Water Works Company, Inc.

New Jersey, United States

Ratings

Category	Moody's Rating
Outlook	Stable
Issuer Rating	Baa2

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Key Indicators

American Water Works Company, Inc. (New)

	2004	2005	2006	LTM 6-2007
Funds from Operations / Adjusted Debt [1][2]	7.0%	6.7%	6.9%	7.9%
Retained Cash Flow / Adjusted Debt [2]	7.0%	6.7%	6.9%	7.9%
Common Dividends / Net Income Available for Common	0.0%	0.0%	0.0%	0.0%
Funds from Operations + Adjusted Interest / Adjusted Interest [3]	2.6x	2.4x	2.2x	2.4x
Adjusted Debt / Adjusted Capitalization [2][4]	67.0%	68.8%	59.3%	53.5%
Net Income Available for Common / Common Equity	-2%	-12%	-4%	-3%

[1] FFO includes add-back of 2/3 annual operating lease expense [2] Debt is adjusted to include preferred stock, 6X rent, and underfunded pension obligation [3] Interest is adjusted to include 1/3 rent and preferred stock dividends [4] Adjusted capitalization reflects the adjustments made to debt

Note: For definitions of Moody's most common ratio terms please see the accompanying User's Guide.

Opinion

Company Profile

Headquartered in Voorhees, New Jersey, American Water Works Company, Inc. ("American Water"), is an indirect wholly-owned subsidiary of RWE AG and is the largest investor-owned provider of water, wastewater and related services in North America. It is the parent company of numerous regulated water utility subsidiaries in the United States and reported revenue in 2006 of $2.1 billion. American Water is multiples larger than other investor owned water utility companies within its peer group in the U. S. Assets supporting this revenue base include its operations in 32 states serving a population of approximately 16.2 million. Although American Water has non-regulated businesses (approximately 12% of revenues) it is primarily viewed, on a consolidated basis, as a regulated water utility company.

American Water is a parent holding company with no direct debt obligations. Its primary financing vehicle is American Water Capital Corp. ("Capital"), a finance subsidiary. American Water also incurs debt at the regulated subsidiary level.

Recent Developments

On October 12, 2007, Moody's downgraded to Baa2 from Baa1 the senior unsecured issuer rating of Capital. Moody's also confirmed Capital's P-2 short-term rating. At the same time, Moody's assigned a (P) Baa2 senior

unsecured rating to Capital's planned $1.5 billion note offering and a Baa2 senior unsecured issuer rating to Capital's parent, American Water.

The downgrade of Capital's long-term rating was prompted by RWE AG's planned divestiture of the company, via initial public offering. The initial sale of RWE's interest in American Water is expected to happen in late-2007; however, preceding that transaction, Capital is expected to issue $1.5 billion of senior unsecured notes in order to substantially repay approximately $2.0 billion of inter-company debt currently owed to RWE. These notes are expected to be issued in October 2007. It is Moody's understanding that the company will also issue $500 million of "equity units" concurrent with the IPO that will fund out the balance of inter-company debt owed to RWE.

The one-notch downgrade of Capital's senior unsecured issuer rating, and the assignment of a Baa2 issuer rating to its parent, American Water, reflects the loss of implied support from RWE following the IPO, historically weak consolidated credit metrics, and the increase in financial and operating risk going forward as a publicly traded, stand-alone company. Moody's has also taken this opportunity to equalize the new rating for American Water, a holding company, with its finance subsidiary, Capital, due to the existence of a "support agreement" between the two entities that effectively backstops Capital's timely payment of principal and interest, as needed.

Rating Rationale

American Water has a number of positive rating factors contributing to its investment grade rating including geographic diversity of operations and a mostly regulated rate structure which provides stability to cash flows over time (approximately 88% of revenues were derived from regulated operations in 2006). The importance of water to the communities it serves is also an important rating consideration. The ratings also reflect the company's current soft consolidated credit metrics, large capital spending forecast, and risks surrounding the company's transition to a stand-alone publicly traded company.

The key factor's influencing American Water's rating and outlook include:

GEOGRAPHIC DIVERSITY AND REGULATED OPERATIONS

With operations in 32 states and areas of Canada, American Water's operating reach is considerable. On the regulated side, American Water operates in 20 states including its largest operations in New Jersey, Pennsylvania, and Illinois, which together accounted for nearly 50% of consolidated revenues in 2006. Although there can be differences in the level of profitability at each subsidiary jurisdiction, the regulated nature of the business should ensure a relatively stable and healthy return over time. Barriers to entry in this business are also very high given the importance of water and the constraints related to collection and distribution of water. The geographic diversity can also provide a balancing effect on the company's cash flows due to seasonal weather effects or timing of rate filings.

SOFT CREDIT METRICS

American Water's cash flow derived credit metrics have exhibited weakness for some time and are considered somewhat soft for the Baa2 rating (funds from operations (FFO) to total adjusted debt was approximately 7.9% for the trailing twelve month period ended June 30, 2007). Moody's believes there is capacity for improvement as the company has either filed or is planning to file for rate increases in many of the jurisdictions in which it operates after a long period following RWE's acquisition where the company's ability to increase rates was limited due to stay-out provisions agreed to in some jurisdictions. Going forward as a public company, we expect American Water will also be under pressure to initiate and continually pay dividends on its common stock.

CAPITAL INTENSIVE INDUSTRY

The regulated water utility business is highly capital intensive. Capital spending rates for American Water have averaged 240% of depreciation from 2004-06 and this level of expenditures often leads to negative free cash flow, which is not uncommon for regulated water and electric utilities. This funding is often financed with debt until "rate-base" is established and factored into allowed returns. This typically requires equity contributions to maintain the targeted balance of debt and equity in the capital structure. Timely rate increases and the ability to attract new equity capital will be two key drivers for maintaining the rating going forward as the water utility industry remains capital intensive with infrastructure spending often a multiple of depreciation. American Water is facing a sizeable capital spending plan and will need to finance additional rate base with debt and equity at levels appropriate for the rating category to avoid future downward pressure on the rating or outlook given the magnitude of the planned expenditures.

SUPPORT AGREEMENT WITH AMERICAN WATER CAPITAL CORP

Capital, a Delaware corporation, is the wholly-owned finance subsidiary of American Water and whose purpose is to streamline the financing function, create cash management efficiency, and lower the cost of capital for American Water's regulated water utility subsidiaries. Capital's senior unsecured Baa2 rating is now equalized with its parent, American Water. We note that American Water has provided credit enhancement through a support agreement between American Water and Capital. American Water will continue to own, during the term of the support

agreement, all of the voting stock of Capital. American Water has also committed to ensure that a positive tangible net worth at Capital will be maintained at all times. In addition, if Capital is unable to make timely payment of interest, principal, or premium on any debt issued and outstanding, American Water has committed to provide immediate and timely funds to Capital.

Moody's effectively views this structure a guarantee and has made no notching differentiation between the two entities. Nevertheless, we note that approximately 60% of American Water's consolidated debt will be borrowed at Capital, with the balance at the various regulated operating subsidiaries where the material cash flows are generated. We note that debt at Capital does not benefit from any explicit upstream guarantees from the regulated utility operations nor does the debt obligations of the subsidiaries, including Capital, benefit from any explicit downstream guarantee from American Water. Also important to note is that American Water's primary source of cash to service debt at Capital comes from the company's regulated utility operations. Although Moody's believes the current ratings capture the cash generating ability of those subsidiary operations, we note that dividends will be limited to the retained, undistributed or current earnings of each jurisdiction.

NON-REGULATED OPERATIONS

We note that American Water also has a much smaller non-regulated water-related services segment (approximately 12% of fiscal 2006 revenues) that will remain a part of its business model going forward. While this business segment is considered a growth area and is less capital intensive, it is also less profitable. We note the segment reported negative EBIT in 2005 and 2006. Consequently, the regulated operating subsidiaries will continue to be the primary source of funds to service debt and to pay the expected dividends to its public shareholders.

Liquidity

In terms of internal liquidity, Moody's generally expects American Water to generate at least $500 million in FFO per year, with a weighting towards the second half of the year due to seasonality. In addition to internally generated cash flows, Moody's expects that American Water will fund some short-term capital needs with commercial paper borrowings. The $700 million commercial paper program established at Capital is backstopped by a five-year $800 million revolving credit agreement that expires in September 2012. There is a relatively balanced maturity schedule for existing debt. Although currently lightly utilized, Moody's expects the company may moderately increase its utilization of commercial paper borrowings over the balance of 2007. Despite the modest negative free cash flow expected over the next four quarters, American Water's liquidity appears to be sufficient to meet the company's needs.

Rating Outlook

The rating outlook is stable. Moody's considers the company's current weak cash flow driven credit metrics but also the room for improvement as the company files for additional rate increases across many of its operating jurisdictions. Although Moody's does not expect a material increase in leverage post-IPO, there are number of other potential cash flow uncertainties to consider, including possible dividend pressure as new publicly traded company.

What Could Change the Rating - Up

The ratings for American Water are not likely to be upgraded in the near-term given the credit metrics and the planned large capital spending program. Levels that would be seen as appropriate for the category include consolidated FFO to adjusted debt in the mid teens with retained cash flow (FFO - dividends) to adjusted debt measuring near 10%.

What Could Change the Rating - Down

There are a number of considerations that Moody's would take into account and likely see as placing negative pressure on American Water or Capital's rating. These considerations include any changes to the existing support agreement between Capital and American Water as well as any significant deterioration in credit metrics due to fundamental business pressure. A prolonged period of financial results leading to FFO to adjusted debt in the low-to-mid single digits for an extended period would place severe pressure on the rating.

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KENTUCKY AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S INITIAL REQUEST FOR INFORMATION

Witness: Michael A. Miller

131. Please provide the following:

a. Please provide the monthly short-term debt balances for American Water Works Company, Inc. and Kentucky-American Water for each month from January 2006 through the most recent month available. Please explain how the monthly short-term debt balance was determined (e.g., month-ending balance, average daily balance) and provide a sample calculation.
b. Please provide, for each month, the monthly cost-rate of that short-term debt for each corporation (American Water Works and Kentucky-American), as well as a sample calculation showing how that monthly cost rate is derived.
c. Please provide a narrative description of American Water Works' and Kentucky-American's short-term debt financing arrangements. If there is an inter-corporate money-pooling arrangement, please provide a narrative description of that arrangement.

Response:

a. See attached.

b. See attached.

c. Both American Water Works Company and Kentucky-American use American Water Capital Corp (AWCC) for their short-term borrowing needs. American Water Capital Corp is an in-house bank that was created to bundle the American Water System's working capital needs and uses a variety of funding sources to get better rates than the system companies could receive standing alone.

American Water Capital Corp issues commercial paper, and utilizes bank debt to finance the daily working capital needs of the American System companies. Subsidiary loan balances are adjusted daily based on their incoming receipts and disbursements that flow through AWCC. All fees and interest earned or incurred by American Water Capital Corp are charged to the in-house participants based on the amount of their total credit line with AWCC and their outstanding balances.

For the electronic version, refer to KAW_R_AGDR1#131_122308.pdf

Kentucky-American Water Company
Attorney General Question #131a&b

Monthly Short-term Debt 2006 - 2008

2006	January	February	March	April	May	June	July	August	September	October	November	December
American Water Works Company	$ 163,950,047	$ 173,500,078	$ 148,814,532	$ 162,516,759	$ 171,716,467	$ 186,242,176	$ 189,376,152	$ 153,781,096	$ 152,834,709	$ 140,848,964	$ 181,348,469	$ 148,407,042
Kentucky-American	$ 10,142,502	$ 7,350,896	$ 8,939,990	$ 8,280,886	$ 6,882,618	$ 8,454,364	$ 8,049,740	$ 6,475,433	$ 6,796,128	$ 6,962,897	$ 6,318,861	$ 3,297,056
Weighted Avg Borrowing Rate	5.2148%	5.0391%	4.6896%	4.7382%	4.7349%	5.4335%	5.2504%	5.7880%	5.4158%	5.7341%	5.1422%	5.8341%

2007	January	February	March	April	May	June	July	August	September	October	November	December
American Water Works Company	$ 148,407,042	$ 126,042,096	$ 134,058,165	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Kentucky-American	$ 7,677,627	$ 9,328,586	$ 15,864,490	$ 15,962,994	$ 16,696,196	$ 18,271,357	$ 17,883,531	$ 18,651,170	$ 19,792,355	$ 9,427,771	$ 10,979,253	$ 18,115,917
Weighted Avg Borrowing Rate	5.5016%	5.4197%	5.4852%	5.39457%	5.3913%	5.4441%	5.3701%	5.7541%	5.7530%	5.3286%	5.1709%	5.2819%

2008	January	February	March	April	May	June	July	August	September	October	November	December
American Water Works Company	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Kentucky-American	$ 19,803,451	$ 20,620,671	$ 18,261,635	$ 20,069,583	$ 21,113,442	$ 13,859,800	$ 12,169,482	$ 15,632,131	$ 22,680,041	$ 25,290,080	$ 32,852,340	
Weighted Avg Borrowing Rate	5.1649%	4.1223%	3.4775%	3.21620%	3.2763%	3.0400%	2.9644%	2.9602%	3.2695%	4.0676%	3.3257%	

Note:

The short term debt figure above represents the month-end balance of short-term debt with American Water Capital Corp (AWCC)
American Water Works Company paid down their short term borrowings in April 2007 and has not had any short term debt with AWCC through November 2008
The weighted average interest rate represents the average cost of debt to AWCC for the month from all borrowing sources. For November 2008 it was calculated as follows:
$944,353.83 total interest for November divided by $340,752,214.30 of total STD x (360 days divided by 30 days in November)

	Outstanding	Interest
PNC	8,316,917.84	25,643.83
CP interest	103,982,169.65	320,143.77
Revolver (paid)	-	-
Rev Sept Accrued	-	-
Revolver	228,453,126.81	598,566.23
Total	340,752,214.30	944,353.83
	Weighted average	**3.3257%**

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Keith Cartier/Nick Rowe/Michael A. Miller

132. Please provide a description of Kentucky-American's ten largest industrial and commercial customers (name of customer can be withheld) and indicate what percentage of the Company's total 2006 and 2007 usage and revenues each represents. Also, if one customer comprises more than 5% of total company usage or revenues in either year, please provide any studies undertaken by Company management regarding operating contingency plans related to the loss of that load.

Response:

See attached.

For the electronic version, refer to KAW_R_AGDR1#132_122308.PDF.

KAWC - Top 10 Industrial Customers - 2006

Year	Account Number	Rate Class	Description	Annual Usage - 1000 Gallons	Total 13,271,823	Annual Revenue	Total 48,312,405
2006	97151	3	Manufacturing	420,041	3.16%	788,863.73	1.63%
2006	100163	3	Manufacturing	86,956	0.66%	176,799.55	0.37%
2006	100160	3	Manufacturing	69,296	0.52%	131,573.88	0.27%
2006	97457	3	Manufacturing	35,504	0.27%	66,167.75	0.14%
2006	100319	3	Manufacturing	32,894	0.25%	66,132.43	0.14%
2006	100344	3	Manufacturing	26,948	0.20%	53,981.92	0.11%
2006	100313	3	Manufacturing	18,840	0.14%	37,569.24	0.08%
2006	97703	3	Manufacturing	11,339	0.09%	21,651.86	0.04%
2006	100208	3	Manufacturing	8,536	0.06%	18,874.70	0.04%
2006	100065	3	Manufacturing	6,159	0.05%	13,644.10	0.03%

KAWC - Top 10 Industrial Customers - 2007

Year	Account Number	Rate Class	Description	Annual Usage - 1000 Gallons	Total 13,965,196	Annual Revenue	Total 50,059,051
2007	97151	3	Manufacturing	420,814	3.01%	791,757.46	1.58%
2007	100163	3	Manufacturing	112,865	0.81%	224,910.74	0.45%
2007	100160	3	Manufacturing	61,990	0.44%	118,226.16	0.24%
2007	97457	3	Manufacturing	34,422	0.25%	64,291.69	0.13%
2007	100319	3	Manufacturing	30,969	0.22%	62,824.62	0.13%
2007	100344	3	Manufacturing	30,912	0.22%	61,280.58	0.12%
2007	100313	3	Manufacturing	20,152	0.14%	40,054.91	0.08%
2007	97703	3	Manufacturing	15,277	0.11%	29,020.95	0.06%
2007	100208	3	Manufacturing	10,363	0.07%	22,278.74	0.04%
2007	100065	3	Manufacturing	8,950	0.06%	18,831.50	0.04%

KAWC - Top 10 Commercial Customers - 2006

Year	Account Number	Description	Rate Class	Annual Usage - 1000 Gallons	Total 13,271,823	Annual Revenue	Total 48,312,405
2006	100276	Healthcare	2	52,801	0.40%	122,340.25	0.25%
2006	100340	Equine	2	38,640	0.29%	94,547.71	0.20%
2006	97163	Trailer Park	2	35,551	0.27%	80,956.93	0.17%
2006	97149	Trailer Park	2	35,419	0.27%	82,584.68	0.17%
2006	100240	Healthcare	2	31,052	0.23%	70,221.96	0.15%
2006	100052	Healthcare	2	26,396	0.20%	62,740.21	0.13%
2006	98633	Healthcare	2	26,118	0.20%	59,813.30	0.12%
2006	100345	Service	2	26,113	0.20%	60,503.01	0.13%
2006	97189	Manufacturing	2	23,155	0.17%	53,036.64	0.11%
2006	100230	Healthcare	2	21,251	0.16%	54,777.90	0.11%

KAWC - Top 10 Commercial Customers - 2007

Year	Account Number	Description	Rate Class	Annual Usage - 1000 Gallons	Total 13,965,196	Annual Revenue	Total 50,059,051
2007	100340	Equine	2	62,752	0.45%	148,975.66	0.30%
2007	100276	Healthcare	2	58,491	0.42%	135,911.26	0.27%
2007	497151	Healthcare	2	51,672	0.37%	133,734.62	0.27%
2007	97163	Trailer Park	2	43,373	0.31%	74,001.62	0.15%
2007	97149	Trailer Park	2	39,588	0.28%	92,226.77	0.18%
2007	100032	Golf Course	2	30,423	0.22%	70,497.46	0.14%
2007	100052	Healthcare	2	26,705	0.19%	63,636.02	0.13%
2007	100345	Service	2	25,168	0.18%	58,545.08	0.12%
2007	97189	Manufacturing	2	23,600	0.17%	54,499.70	0.11%
2007	100215	Hotel	2	22,981	0.16%	54,265.79	0.11%

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Michael A. Miller

133. At page 89 of American Water Works Company, Inc.'s S.E.C. Form S-1, the company indicates that the expected long-term return on its pension plan assets was 8.25% in 2006.

a) Please provide the most recent expected long-term rate of return on plan assets (EROA) as well as documentation supporting that expected long-term return assessment, including long-term expectations for each class of asset in the portfolio (i.e., equities, debt, real estate and other).
b) Please provide any internal documents prepared by the Company that support the long-term investment return expectations, as well as any documents or studies related to the expected long term rate of return on plan assets prepared by outside investment advisors employed by the Company to manage its retirement portfolio or for pension fund accounting.

Response:

This request seeks confidential information for which the Company will seek confidential protection. The Company will provide it to those who execute a confidentiality agreement. For the electronic version of the confidential documents, refer to KAW_R_AGDR1#133_CONFIDENTIAL_122308.pdf.

For the electronic version of this page, refer to KAW_R_AGDR1#133_122308.pdf.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Vander Weide

134. Regarding Dr. Vander Weide's discussion of market-value capital structures at pages 8 through 11 of his Direct Testimony, please respond to the following:

a) Is Dr. Vander Weide recommending an upward adjustment to the market-based cost of equity in this proceeding to account for the differences between the leverage apparent in the market-value capital structure of his sample groups and the leverage in Kentucky-American's requested ratemaking capital structure? If so, please quantify that amount of increase, if not, please explain why not.
b) Please list all the cases and regulatory jurisdictions since 2000 in which Dr. Vander Weide, in his cost of capital testimony, has recommended an upward adjustment to the market-based cost of capital to recognize capital structure differences between market-value capital structures and book-value capital structures.
c) In which of the rate cases listed in "b" above, was Dr. Vander Weide's upward adjustment to the market-based cost of equity adopted?
d) Please provide copies of the final orders in each rate proceeding listed in "c" above.

Response:

a) No. See Dr. Vander Weide's testimony at p. 5, Question and Answer 7, and pp. 44 – 45, Questions and Answers 87 – 89.
b) Attached is a list of all cases in which Dr. Vander Weide has provided expert testimony since 2000. Dr. Vander Weide does not keep a record of the requested information. Further, the information being sought is irrelevant because Dr. Vander Weide did not recommend an upward adjustment to the market-based cost of equity in this proceeding.
c) Dr. Vander Weide does not routinely receive and maintain regulatory agency decisions in the proceedings in which he has presented testimony.
d) Dr. Vander Weide does not routinely receive and maintain copies of regulatory agency decisions in the proceedings in which he has presented testimony.

For the electronic version, refer to KAW_R_AGDR1#134_122308.pdf.

SUMMARY
EXPERT TESTIMONY
DR. JAMES H. VANDER WEIDE

COMPANY	JURISDICTION	DATE	DOCKET NO.
EPCOR, FortisAlberta, AltaLink	Alberta Utilities Commission	Nov-08	
Trans Québec & Maritimes Pipeline Inc.	Alberta Utilities Commission	Nov-08	
North Carolina Rate Bureau (homeowners)	North Carolina Dept. of Insurance	Nov-08	
Kentucky-American Water Company	Kentucky	Oct-08	2008-00427
Atmos Energy	Tennessee	Oct-08	0800197
North Carolina Rate Bureau (workers compensation)	North Carolina Dept. of Insurance	Aug-08	
Dorsey & Whitney LLP-Williams v. Gannon	Montana 2nd Judicial Dist. Ct. Silver Bow County	Apr-08	DV-02-201
Atmos Energy	Georgia	Mar-08	27163-U
North Carolina Rate Bureau (auto)	North Carolina Dept. of Insurance	Jan-08	
Trans Québec & Maritimes Pipeline Inc.	National Energy Board (Canada)	Dec-07	
Xcel Energy	North Dakota	Dec-07	PU-07-776
Verizon Southwest	Texas	Nov-07	34723
Empire District Electric Company	Missouri	Oct-07	ER-2008-0093
North Carolina Rate Bureau (workers compensation)	North Carolina Dept. of Insurance	Sep-07	
Verizon North Inc. Contel of the South Inc.	Michigan	Aug-07	Case No. U-15210
Georgia Power Company	Georgia	Jun-07	25060-U
Duke Energy Carolinas	North Carolina	May-07	E-7 Sub 828 et al
MidAmerican Energy Company	Iowa	May-07	SPU-06-5 et al
Morrison & Foerster LLP-JDS Uniphase Securities Litigation	U.S. District Court Northern District California	Feb-07	C-02-1486-CW
TransCanada Pipelines Ltd.	National Energy Board (Canada)	Feb-07	
North Carolina Rate Bureau (homeowners)	North Carolina Dept. of Insurance	Dec-06	
San Diego Gas & Electric	FERC	Nov-06	ER07-284-000
North Carolina Rate Bureau (workers compensation)	North Carolina Dept. of Insurance	Aug-06	
Union Electric Company d/b/a AmerenUE	Missouri	Jun-06	ER-2007-0002
North Carolina Rate Bureau (homeowners)	North Carolina Dept. of Insurance	May-06	
North Carolina Rate Bureau (dwelling fire)	North Carolina Dept. of Insurance	Mar-06	
Empire District Electric Company	Missouri	Feb-06	ER-2006-0315
PacifiCorp Power & Light Company	Washington	Jan-06	UE-050684
Verizon Maine	Maine	Dec-05	2005-155
Winston & Strawn LLP-Cisco Systems Securities Litigation	U.S. District Court Northern District California	Nov-05	C-01-20418-JW
Dominion Virginia Power	Virginia	Nov-05	PUE-2004-00048
Bryan Cave LLP--Omniplex Comms. v. Lucent Technologies	U.S. District Court Eastern District Missouri	Sep-05	04CV00477 ERW
North Carolina Rate Bureau (workers comp)	North Carolina Dept. of Insurance	Sep-05	
Empire District Electric Company	Kansas	Sep-05	05-EPDE-980-RTS
Verizon Southwest	Texas	Jul-05	29315
PG&E Company	FERC	Jul-05	ER-05-1284
Dominion Hope	West Virginia	Jun-05	05-034-G42T
Empire District Electric Company	Missouri	Jun-05	EO-2005-0263
Verizon New England	U.S. District Court New Hampshire	May-05	04-CV-65-PB
San Diego Gas & Electric	California	May-05	05-05-012
Progress Energy	Florida	May-05	50078
Verizon Vermont	Vermont	Feb-05	6959
North Carolina Rate Bureau (homeowners)	North Carolina Dept. of Insurance	Feb-05	
Verizon Florida	Florida	Jan-05	050059-TL
Verizon Illinois	Illinois	Jan-05	00-0812
Dominion Resources	North Carolina	Sep-04	E-22 Sub 412
Tennessee-American Water Company	Tennessee	Aug-04	04-00288
Valor Telecommunications of Texas, LP.	New Mexico	Jul-04	3495 Phase C
Alcoa Power Generating Inc.	North Carolina Property Tax Commission	Jul-04	02 PTC 162 and 02 PTC 709
PG&E Company	California	May-04	04-05-21
Verizon Northwest	Washington	Apr-04	UT-040788
Verizon Northwest	Washington	Apr-04	UT-040788
Kentucky-American Water Company	Kentucky	Apr-04	2004-00103
MidAmerican Energy	South Dakota	Apr-04	NG4-001
Empire District Electric Company	Missouri	Apr-04	ER-2004-0570
Interstate Power and Light Company	Iowa	Mar-04	RPU-04-01
North Carolina Rate Bureau (auto)	North Carolina Dept. of Insurance	Feb-04	
Northern Natural Gas Company	FERC	Feb-04	RP04-155-000
Verizon New Jersey	New Jersey	Jan-04	TO00060356
Verizon	FCC	Jan-04	03-173, FCC 03-224
Verizon	FCC	Dec-03	03-173, FCC 03-224

COMPANY	JURISDICTION	DATE	DOCKET NO.
Verizon California Inc.	California	Nov-03	R93-04-003,I93-04-002
Phillips County Telephone Company	Colorado	Nov-03	03S-315T
North Carolina Rate Bureau (homeowners)	North Carolina Dept. of Insurance	Oct-03	
PG&E Company	FERC	Oct-03	ER04-109-000
Allstate Insurance Company	Texas Department of Insurance	Sep-03	2568
Verizon Northwest Inc.	Washington	Jul-03	UT-023003
Empire District Electric Company	Oklahoma	Jul-03	Case No. PUD 200300121
Verizon Virginia Inc.	FCC	Apr-03	CC-00218,00249,00251
North Carolina Rate Bureau (dwelling fire)	North Carolina Dept. of Insurance	Apr-03	
Northern Natural Gas Company	FERC	Apr-03	RP03-398-000
MidAmerican Energy	Iowa	Apr-03	RPU-03-1, WRU-03-25-156
PG&E Company	FERC	Mar-03	ER03666000
Verizon Florida Inc.	Florida	Feb-03	981834-TP/990321-TP
Verizon North	Indiana	Feb-03	42259
San Diego Gas & Electric	FERC	Feb-03	ER03-601000
North Carolina Rate Bureau (auto)	North Carolina Dept. of Insurance	Jan-03	
Gulf Insurance Company	Superior Court, North Carolina	Jan-03	2000-CVS-3558
PG&E Company	FERC	Jan-03	ER03409000
Verizon New England Inc. New Hampshire	New Hampshire	Dec-02	DT 02-110
Verizon Northwest	Washington	Dec-02	UT 020406
PG&E Company	California	Dec-02	
MidAmerican Energy	Iowa	Nov-02	RPU-02-3, 02-8
MidAmerican Energy	Iowa	Nov-02	RPU-02-10
Verizon Michigan	US District Court Eastern District of Michigan	Sep-02	Civil Action No. 00-73208
North Carolina Rate Bureau (workers comp)	North Carolina Dept. of Insurance	Sep-02	
Verizon New England Inc. New Hampshire	New Hampshire	Aug-02	DT 02-110
Interstate Power Company	Iowa Board of Tax Review	Jul-02	832
PG&E Company	California	May-02	A 02-05-022 et al
Verizon New England Inc. Massachusetts	FCC	May-02	EB 02 MD 006
Verizon New England Inc. Rhode Island	Rhode Island	May-02	Docket No. 2681
NEUMEDIA, INC.	US Bankruptcy Court Southern District W. Virginia	Apr-02	Case No. 01-20873
North Carolina Rate Bureau (homeowners)	North Carolina Dept. of Insurance	Mar-02	
MidAmerican Energy Company	Iowa	Mar-02	RPU 02 2
North Carolina Natural Gas Company	North Carolina	Feb-02	G21 Sub 424
North Carolina Rate Bureau (auto)	North Carolina Dept. of Insurance	Jan-02	
Verizon Pennsylvania	Pennsylvania	Dec-01	R-00016683
Verizon Florida	Florida	Nov-01	99064B-TP
PG&E Company	FERC	Nov-01	ER0166000
Verizon Delaware	Delaware	Oct-01	96-324 Phase II
Florida Power Corporation	Florida	Sep-01	000824-EL
North Carolina Rate Bureau (workers comp)	North Carolina Dept. of Insurance	Sep-01	
Verizon Washington DC	District of Columbia	Jul-01	962
Verizon Virginia	FCC	Jul-01	CC-00218,00249,00251
Sherburne County Rural Telephone Company	Minnesota	Jul-01	P427/CI-00-712
Verizon New Jersey	New Jersey	Jun-01	TO01020095
Verizon Maryland	Maryland	May-01	8879
Verizon Massachusetts	Massachusetts	May-01	DTE 01-20
North Carolina Rate Bureau (auto)	North Carolina Dept. of Insurance	Apr-01	
PG&E Company	FERC	Mar-01	ER011639000
Maupin Taylor & Ellis P.A.	National Association of Securities Dealers	Jan-01	99-05099
USTA	FCC	Oct-00	RM 10011
Verizon New York	New York	Oct-00	98-C-1357
Verizon New Jersey	New Jersey	Oct-00	TO00060356
PG&E Company	FERC	Oct-00	ER0166000
Verizon New Jersey	New Jersey	Sep-00	TO99120934
North Carolina Rate Bureau (workers comp)	North Carolina Dept. of Insurance	Sep-00	
PG&E Company	California	Aug-00	00-05-018
Verizon New York	New York	Jul-00	98-C-1357
PG&E Company	California	May-00	00-05-013
PG&E Company	FERC	Mar-00	ER00-66-000
PG&E Company	FERC	Mar-00	ER99-4323-000
Bell Atlantic	New York	Feb-00	98-C-1357
USTA	FCC	Jan-00	94-1, 96-262

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Vander Weide

135. Regarding Dr. Vander Weide's testimony at page 19, which discusses his use of earnings growth estimates, please provide copies of the I/B/E/S publication from which the earnings growth rates for each of his sample companies (water and gas) are drawn.

Response:

The I/B/E/S earnings growth estimates for each of the sample companies are downloaded directly from Thomson Reuters and are as shown on Dr. Vander Weide's schedules.

For electronic version, refer to KAW_R_AGDR1#135_122308.pdf.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Vander Weide

136. Please provide a complete copy of the State Street Financial Advisors study cited at page 21 of Dr. Vander Weide's testimony.

Response:

Please see attached.

For electronic version, refer to KAW_R_AGDR1#136_122308.pdf.

INVESTOR GROWTH EXPECTATIONS

Summer 2004

A study done by Vander Weide and Carleton in 1988[1] suggests that consensus analysts' forecast of future growth is superior to historically oriented growth measures in stock valuation process for domestic companies. We worked with one of the original authors of the study, Dr. James H. Vander Weide, and closely followed his suggestions and methodology to investigate whether the results still hold in more recent times (2001- 2003).

We used the following equation to determine which estimate of future growth (g) best predicts the firm's P/E ratio when combined with the dividend payout ratio, D/E, and risk variables, B, Cov, Stb, and Sa.

$$P/E = a_0(D/E) + a_1 g(\text{Growth}) + a_2 B(\text{Beta}) + a_3 \text{Cov}(\text{Interest Coverage Ratio}) + a_4 \text{Stb}(\text{Stability}) + a_5 \text{Sa}(\text{Std Dev}) + e$$

Data Description

Earnings Per Share: IBES consensus analyst estimate of the firm's earnings for the unreported year.

Price/Earnings Ratio: Closing stock price for the year divided by the consensus analyst earnings per share for the forthcoming year.

Dividends: Ratio of common dividends per share to the consensus analyst earnings forecast for the forthcoming fiscal year (D/E).

Historical Growth measures

EPS Growth Rate: Determined by a log-linear least squares regression for the latest year, two years, three years, …, and ten years.

Dividend per Share Growth Rate: Determined by a log-linear least squares regression for the latest year, two years, three years, …, and ten years.

Book Value per Share Growth Rate: Common equity divided by the common shares outstanding. Determined by a log-linear least squares regression for the latest year, two years, three years, …, and ten years.

Cash Flow per Share Growth Rate: Ratio of gross cash flow to common shares outstanding. Determined by a log-linear least squares regression for the latest year, two years, three years, …, and ten years.

Plowback Growth: Firm's retention ratio for the current year times the firm's latest annual return on equity.

3yr Plowback Growth: Firm's three-year average retention ratio times the firm's three-year average return on equity.

Consensus Analysts' Forecasts

Five-Year Earnings Per Share Growth: Mean analysts' forecast compiled by IBES.

[1] Vander Weide, J. H., and W. T. Carleton. "Investor Growth Expectations: Analysts vs. History." *The Journal of Portfolio Management*, Spring 1988, pp. 78-82.

Risk Variables

B: Beta, the firm's beta versus NYSE from Value Line.

Cov: The firm's pretax interest coverage ratio from Compustat.

Stb: Five-year historical earnings per share stability. Average absolute percentage difference between actual reported EPS and a 5yr historical EPS growth trend line from IBES.

Sa: The standard deviation of earnings per share estimate for the fiscal year from IBES.

We set five restrictions on the companies included in the study in order to be consistent with the original study and to obtain more meaningful results.

- Excluded all firms that IBES did not follow.
- Eliminated companies with:
  - Negative EPS during any of the years 1991-2003.
  - No dividend during any one of the years 1991-2003.
  - P/E ratio greater than 60 in years 2001-2003.
  - Less than five years of operating history.

The final universe consisted of 411 US firms, fifty-nine of which are utility companies.

Results

The study was performed in two stages.

Stage 1

In order to determine which historically oriented growth measure is most highly correlated with each firm's end-of-year P/E ratio, we computed spearman (rank) correlations between all forty-two historically oriented future growth measures and P/E.

The result of the stage 1 study is displayed in Table 1. Three-year plowback ratio has the highest correlation with P/E in 2001 and 2002, and five-year EPS growth rate has the highest correlation with P/E in 2003.

Table 1

Stage1 Results for Utility and Non-Utility Companies Combined

Correlations between Historically Based Growth Estimates by Year with P/E

Current Year		y1	y2	y3	y4	y5	y6	y7	y8	y9	y10
2001	EPS	0.232	0.210	0.145	0.122	0.059	0.034	-0.007	-0.076	-0.117	-0.154
	DPS	-0.243	-0.297	-0.296	-0.293	-0.313	-0.316	-0.336	-0.334	-0.329	-0.333
	BVPS	0.059	-0.017	-0.098	-0.138	-0.150	-0.182	-0.219	-0.259	-0.271	-0.273
	CFPS	0.092	0.092	0.087	0.042	-0.063	-0.102	-0.141	-0.193	-0.237	-0.262
	plowback	0.203									
	plowback3	0.308									
2002	EPS	-0.007	0.147	0.076	0.080	0.083	0.050	0.030	-0.018	-0.060	-0.089
	DPS	-0.126	-0.202	-0.251	-0.224	-0.215	-0.239	-0.232	-0.233	-0.211	-0.198
	BVPS	-0.036	-0.036	-0.078	-0.115	-0.114	-0.127	-0.152	-0.162	-0.175	-0.171
	CFPS	0.056	0.045	0.017	0.021	0.030	-0.024	-0.050	-0.080	-0.125	-0.162
	plowback	0.093									
	plowback3	0.180									
2003	EPS	0.073	0.084	0.214	0.231	0.244	0.228	0.182	0.158	0.104	0.049
	DPS	0.120	0.054	-0.001	-0.078	-0.090	-0.126	-0.152	-0.165	-0.183	-0.185
	BVPS	0.097	0.076	0.067	0.036	-0.045	-0.062	-0.063	-0.083	-0.105	-0.131
	CFPS	0.146	0.196	0.243	0.239	0.206	0.178	0.107	0.089	0.039	-0.022
	plowback	-0.017									
	plowback3	0.038									

We also independently examined utility and non-utility firms. Table 2 shows the result for the fifty-nine utility firms. Two-year growth in EPS has the highest correlation with P/E in 2001, four-year EPS has the highest correlation in 2002, and six-year EPS has the highest correlation in 2003.

Table 3 exhibits the result for the remaining non-utility firms. EPS one-year growth, two-year growth, and five-year growth has the highest correlation with P/E in 2001, 2002, and 2003, respectively.

Table 2

Stage1 Results for Utility Companies

Correlations between Historically Based Growth Estimates by Year with P/E

Current Year		y1	y2	y3	y4	y5	y6	y7	y8	y9	y10
2001	EPS	0.305	0.330	0.305	0.319	0.238	0.157	0.129	0.107	0.079	0.048
	DPS	-0.215	-0.321	-0.302	-0.294	-0.316	-0.281	-0.332	-0.414	-0.435	-0.429
	BVPS	0.164	0.137	0.147	-0.027	-0.072	-0.135	-0.117	-0.104	-0.106	-0.140
	CFPS	0.194	0.135	0.020	-0.018	-0.122	-0.157	-0.135	-0.134	-0.103	-0.219
	plowback	-0.143									
	plowback3	-0.027									
2002	EPS	-0.065	0.044	0.069	0.119	0.071	0.004	-0.038	-0.069	-0.061	-0.070
	DPS	-0.333	-0.327	-0.278	-0.313	-0.280	-0.321	-0.277	-0.226	-0.203	-0.210
	BVPS	-0.325	-0.239	-0.182	-0.177	-0.230	-0.237	-0.250	-0.247	-0.235	-0.235
	CFPS	-0.205	-0.132	-0.172	-0.166	-0.216	-0.289	-0.285	-0.265	-0.227	-0.218
	plowback	-0.151									
	plowback3	-0.133									
2003	EPS	0.010	0.136	0.186	0.263	0.365	0.367	0.344	0.343	0.309	0.302
	DPS	0.151	-0.029	-0.014	-0.022	-0.054	-0.117	-0.142	-0.137	-0.105	-0.092
	BVPS	0.212	0.060	0.047	0.019	0.003	0.040	0.022	0.005	0.003	-0.002
	CFPS	0.222	-0.046	0.173	0.115	0.165	0.100	0.017	0.077	0.057	0.077
	plowback	-0.365									
	plowback3	-0.403									

Table 3

Stage1 Results for Non-Utility Companies

Correlations between Historically Based Growth Estimates by Year with P/E

Current Year		y1	y2	y3	y4	y5	y6	y7	y8	y9	y10
2001	EPS	0.1843	0.1660	0.1293	0.1218	0.0873	0.0829	0.0618	0.0106	-0.0194	-0.0412
	DPS	-0.2036	-0.2211	-0.2042	-0.1935	-0.2098	-0.2066	-0.2186	-0.2155	-0.2046	-0.1975
	BVPS	0.0757	0.0084	-0.0791	-0.0997	-0.0916	-0.1146	-0.1388	-0.1783	-0.1866	-0.1823
	CFPS	0.0864	0.0710	0.0956	0.0704	-0.0033	-0.0162	-0.0366	-0.0747	-0.1186	-0.1325
	plowback	0.0781									
	plowback3	0.1781									
2002	EPS	0.0762	0.1767	0.0755	0.0817	0.0936	0.0757	0.0708	0.0316	-0.0011	-0.0254
	DPS	-0.0804	-0.1693	-0.2103	-0.1672	-0.1519	-0.1720	-0.1645	-0.1636	-0.1394	-0.1226
	BVPS	0.0527	0.0236	-0.0363	-0.0777	-0.0710	-0.0753	-0.0953	-0.1019	-0.1118	-0.1061
	CFPS	0.0905	0.0488	0.0143	0.0237	0.0563	0.0246	0.0097	-0.0079	-0.0458	-0.0821
	plowback	0.0634									
	plowback3	0.1306									
2003	EPS	0.1254	0.1783	0.2788	0.2689	0.2791	0.2622	0.2219	0.2039	0.1559	0.1090
	DPS	0.1810	0.1290	0.0655	-0.0128	-0.0101	-0.0400	-0.0630	-0.0772	-0.0930	-0.0952
	BVPS	0.1555	0.1740	0.1534	0.1056	0.0127	-0.0069	-0.0054	-0.0218	-0.0416	-0.0636
	CFPS	0.1479	0.2200	0.2512	0.2429	0.2004	0.1839	0.1349	0.1286	0.0892	0.0388
	plowback	-0.1109									
	plowback3	-0.0402									

Stage 2

We compared the multiple regression model of historical growth rate with the highest correlation to the P/E ratio from stage 1 to the five-year earnings per share growth forecast.

$$P/E = a_0(D/E) + a_1 g + a_2 B + a_3 Cov + a_4 Stb + a_5 Sa + e$$

The regression results are displayed in table 4. The results show that the consensus analysts' forecast of future growth better approximates the firm's P/E ratio, which is consistent with the results found by Vander Weide and Carleton. In both regressions, R^2 in the regression with the consensus analysts' forecast is higher than the R^2 in the regression with the historical growth.

Table 4
Stage2 Results for Utility and Non-Utility Companies Combined
Multiple Regression Results
P/E = a0 + a1 **D/E** + a2 **g** + a3 **B** + a4 **Cov** + a5 **Stb** + a6 **Sa**

Historical

	a0	a1	a2	a3	a4	a5	a6	Rsq	F Ratio
2001	10.43	8.46	10.79	6.79	0.02	-0.03	-18.83	0.20	13.90
	4.73	5.53	2.93	3.54	3.05	-3.06	-3.32		
2002	12.36	7.60	6.66	1.01	0.00	0.01	-32.48	0.15	9.46
	7.21	6.18	2.61	0.66	1.57	1.48	-4.04		
2003	13.34	5.96	9.87	5.27	0.01	-0.01	-20.46	0.24	17.61
	7.29	4.04	2.95	3.39	3.62	-1.31	-4.25		

Analysts' Forecasts

	a0	a1	a2	a3	a4	a5	a6	Rsq	F Ratio
2001	-1.26	16.14	144.75	-0.64	0.01	-0.03	-10.76	0.47	48.00
	-0.62	11.63	13.22	-0.38	3.07	-4.04	-2.29		
2002	3.37	13.37	106.07	-3.60	0.00	0.01	-21.85	0.35	29.73
	1.93	10.97	10.59	-2.57	1.25	1.50	-3.06		
2003	4.77	12.76	61.93	4.38	0.01	0.00	-19.41	0.33	26.38
	2.65	9.48	7.25	3.01	2.45	-0.81	-4.33		

*T-stats below the coefficients in smaller font

For utility companies shown in table 5, consensus analysts' forecast of future growth is superior to historically oriented growth in 2002 and 2003. R^2 is lower in the regression with the consensus analysts' forecast in 2001. For non-utility companies, we found that consensus analysts' forecast of future growth is superior to the alternative in all three years (table 6).

Table 5
Stage2 Results for Utility Companies

Multiple Regression Results

P/E = a0 + a1 **D/E** + a2 **g** + a3 **B** + a4 **Cov** + a5 **Stb** + a6 **Sa**

Historical

	a0	a1	a2	a3	a4	a5	a6	Rsq	F Ratio
2001	7.90	11.07	-11.19	-3.00	0.29	0.00	-9.37	0.44	6.38
	2.16	4.80	-5.71	-0.86	0.88	0.64	-1.51		
2002	13.87	7.00	-3.80	-6.89	0.56	0.00	-29.89	0.38	5.11
	4.02	3.54	-0.66	-2.01	1.48	0.42	-2.70		
2003	11.29	7.74	-1.65	-1.40	0.32	0.00	-5.69	0.25	2.68
	3.22	3.30	-0.23	-0.43	1.05	-0.73	-0.75		

Analysts' Forecasts

	a0	a1	a2	a3	a4	a5	a6	Rsq	F Ratio
2001	9.61	9.20	66.61	-7.92	0.50	-0.01	-12.83	0.27	2.95
	2.31	3.45	3.66	-1.86	1.31	-1.33	-1.76		
2002	12.43	7.86	50.74	-9.61	0.50	0.00	-24.94	0.48	7.56
	3.89	5.29	3.10	-2.94	1.50	0.17	-2.41		
2003	5.81	11.06	101.12	-1.69	-0.19	0.00	-4.75	0.50	7.81
	1.89	6.32	4.80	-0.58	-0.74	-0.22	-0.74		

*T-stats below the coefficients in smaller font

Table 6
Stage2 Results for Non-Utility Companies

Multiple Regression Results

P/E = a0 + a1 **D/E** + a2 **g** + a3 **B** + a4 **Cov** + a5 **Stb** + a6 **Sa**

Historical

	a0	a1	a2	a3	a4	a5	a6	Rsq	F Ratio
2001	15.90	8.39	2.82	3.53	0.02	-0.03	-21.05	0.21	12.45
	6.57	4.13	1.96	1.68	2.97	-2.14	-3.40		
2002	17.76	8.46	6.02	-3.06	0.00	0.02	-36.97	0.27	16.78
	9.39	5.19	3.28	-1.88	1.37	2.52	-4.31		
2003	14.24	9.86	8.85	3.46	0.01	0.00	-19.00	0.30	19.89
	7.49	5.89	2.49	2.11	3.23	-0.15	-3.73		

Analysts' Forecasts

	a0	a1	a2	a3	a4	a5	a6	Rsq	F Ratio
2001	-0.51	17.28	140.84	-1.06	0.01	-0.03	-8.63	0.44	36.00
	-0.22	11.21	10.73	-0.59	2.88	-2.62	-1.63		
2002	5.05	15.67	91.22	-4.06	0.00	0.02	-22.93	0.38	27.65
	2.48	11.23	7.66	-2.74	1.18	2.33	-2.87		
2003	7.25	14.47	45.60	3.47	0.01	0.00	-19.09	0.33	22.30
	3.56	9.42	4.68	2.20	2.36	-0.12	-3.89		

*T-stats below the coefficients in smaller font

This material is for your private information. The views expressed are the views of Anita Xu and Ami Teruya only through the period ended July 26, 2004 and are subject to change based on market and other conditions. The opinions expressed may differ from those with different investment philosophies. The information we provide does not constitute investment advice and it should not be relied on as such. It should not be considered a solicitation to buy or an offer to sell a security. It does not take into account any investor's particular investment objectives, strategies, tax status or investment horizon. We encourage you to consult your tax or financial advisor. All material has been obtained from sources believed to be reliable, but its accuracy is not guaranteed. There is no representation nor warranty as to the current accuracy of, nor liability for, decisions based on such information. Past performance is no guarantee of future results.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Vander Weide

137. At pages 22 and 23 of his testimony in this proceeding, discussing flotation costs, Dr. Vander Weide cites three studies (Lee, et al; Smith, and Pettway). Please provide complete copies of each of those articles.

Response:

Please see attached.

For electronic version, refer to KAW_R_AGDR1#137_122308.pdf

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THE COSTS OF RAISING CAPITAL

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Abstract

We report the average costs of raising external debt and equity capital for U.S. corporations from 1990 to 1994. For initial public offerings (IPOs) of equity, the direct costs average 11.0 percent of the proceeds. For seasoned equity offerings (SEOs), the direct costs average 7.1 percent. For convertible bonds, the direct costs average 3.8 percent. For straight debt issues, the direct costs average 2.2 percent, although they are strongly related to the credit rating of the issue. All classes of securities exhibit economies of scale, although they are less pronounced for straight debt issues. IPOs also incur a substantial indirect cost due to short-run underpricing. Most large equity offers include an international tranche, although debt issues do not.

I. Introduction

In this article we present the average costs of raising external capital for U.S. corporations from 1990 to 1994. Specifically, we report the average spreads on public equity offerings and debt offerings, along with the other direct costs of raising capital, as a percentage of the proceeds. We find substantial economies of scale for initial public offerings (IPOs) of equity and seasoned equity offerings (SEOs). We also find substantial economies of scale for both straight bond offerings and convertible bond offerings. Spreads on bond offerings are highly sensitive to the credit rating of the offering. This article is descriptive in nature; no theories are tested. Its purpose is to provide benchmark numbers for use by issuers of securities. We do not address why firms issue the securities they do. This much broader corporate finance question would have to address taxes, corporate control, debt capacity, long-run performance patterns, investment-financing interactions, etc.

We would like to thank Charles Calomiris and Tim Loughran for useful comments on an earlier draft.

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KAW_R_AGDR1#137_122308
Page 3 of 57

II. Data and Terminology

Securities Data Company's (SDC) New Issues database is the primary source of information. After downloading SDC's data, we identified outliers and checked suspicious numbers in other publicly available sources. The New Issues database includes publicly placed firm commitment offerings only. In all of our tables, we exclude ADRs and unit offerings.[1] We restrict our sample to securities offered by domestic operating companies, and so exclude closed-end fund and real estate investment trust (REIT) offerings. We also exclude rights offerings and shelf registrations.[2]

We use security offerings from January 1990 to December 1994, a five-year period of relatively low inflation. Consequently, we do not make any inflation adjustments; all proceeds are the nominal proceeds. Proceeds reflect the gross proceeds raised in the U.S. and do not include money raised from the exercise of overallotment options or an international tranche, if any. In the case of equity offerings, the proceeds include the amount raised from both primary and secondary components. Primary shares are those being sold by the company, thereby increasing the number of shares outstanding. Secondary shares are those being sold by existing shareholders (managers, venture capitalists, etc.), which neither increase the number of shares outstanding nor provide capital for the company. Many IPOs include both primary and secondary components, with the fraction that is primary generally higher for younger companies. A few IPOs, sometimes involving spin-offs from parent companies, are pure secondaries. All of our SEOs involve primary shares; we exclude "registered secondaries," in which the entire issue is composed of shares being sold by existing shareholders, from our SEO sample.

For our sample of bond offerings, we exclude issues with a maturity date of one year or less. Our sample includes both zero-coupon, original-issue discount bonds, and coupon bonds. We include serial, floating-rate, and reset bonds, as

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[1]ADRs are American Depository Receipts (also called American Depository Shares) that are traded in the United States for foreign issuers. Unit offerings are bundles of securities (frequently, a share plus a warrant to buy a share at some exercise price), commonly issued in small IPOs by young, speculative companies taken public by less-prestigious investment bankers.

[2]Rights offerings give existing shareholders the right to buy the securities offered. While they are common in many countries, rights offerings have been rare in the United States during the last twenty years. See Smith (1977), Hansen and Pinkerton (1982), and Hansen (1988) for a discussion of rights offerings. Shelf registrations are offerings whereby a company meeting certain qualifications is permitted to issue securities without issuing a prospectus (taking the securities "off the shelf" and selling them). In our sample period, shelf equity offerings are practically nonexistent, although there are many bond offerings (typically smaller issues) using shelf registrations that we exclude.

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well as traditional coupon bonds.[3] We exclude mortgage-backed bonds. For zero-coupon and original-issue discount bonds that are sold for less than their par value, our percentage spreads and costs are based upon the offer price, and not the face value. Our convertible bond sample includes only issues that are convertible into shares of the issuing company. Exchangeable bonds, where the bond is convertible into shares of a different company, are not in our sample. None of our convertible bonds has a maturity date of less than five years.

We refer to new equity issues by publicly traded companies as seasoned equity offerings, reserving the use of "secondary" to identify the source of shares. Among practitioners, the term "secondary offering" is frequently used to refer to an SEO. Seasoning refers to whether the security being offered is already publicly traded; IPOs are unseasoned new issues. For that matter, the term "new issues" is sometimes used to refer to any security offering, and sometimes used to refer to equity IPOs alone. Although a new bond issue is an unseasoned new issue, and therefore a debt initial public offering, we use the term IPO to refer to unseasoned equity offerings exclusively.

Gross spreads are the commissions paid to investment bankers when securities are issued. Since buyers do not pay commissions on new security issues, these spreads implicitly reflect both the buyer and seller commissions. Other direct costs include the legal, auditing, and printing costs associated with putting together a prospectus.

III. Evidence

Average Spreads and Total Direct Costs

In Table 1 we report the average investment banker commissions (gross spreads) and other direct expenses for four classes of securities: IPOs, SEOs, convertible bonds, and straight bonds. In addition to reporting the average direct costs for each class, we also classify issues by proceeds categories. By going across a row, a reader can see how the expenses vary by security type, holding proceeds constant. By going down a column, a reader can see the magnitude of the economies of scale for a given type of security. Also reported is the number of observations in each category.

In Table 1 the median IPO is $24.4 million, the median SEO is $33.8 million, the median convertible bond is $75 million, and the median straight

[3]Serial bonds have the individual bonds maturing on different dates, with the coupons varying depending upon the maturity date. Reset and floating-rate bonds have the interest rate changing periodically, with the new interest rate determined either by an auction (reset) or a formula (floaters).

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TABLE 1. Direct Costs as a Percentage of Gross Proceeds for Equity (IPOs and SEOs) and Straight and Convertible Bonds Offered by Domestic Operating Companies, 1990–94.

	Equity								Bonds							
	IPOs				SEOs				Convertible Bonds				Straight Bonds			
Proceeds[a] ($ millions)	N[b]	GS[c]	E[d]	TDC[e]	N	GS	E	TDC	N	GS	E	TDC	N	GS	E	TDC
2–9.99	337	9.05	7.91	16.96	167	7.72	5.56	13.28	4	6.07	2.68	8.75	32	2.07	2.32	4.39
10–19.99	389	7.24	4.39	11.63	310	6.23	2.49	8.72	14	5.48	3.18	8.66	78	1.36	1.40	2.76
20–39.99	533	7.01	2.69	9.70	425	5.60	1.33	6.93	18	4.16	1.95	6.11	89	1.54	0.88	2.42
40–59.99	215	6.96	1.76	8.72	261	5.05	0.82	5.87	28	3.26	1.04	4.30	90	0.72	0.60	1.32
60–79.99	79	6.74	1.46	8.20	143	4.57	0.61	5.18	47	2.64	0.59	3.23	92	1.76	0.58	2.34
80–99.99	51	6.47	1.44	7.91	71	4.25	0.48	4.73	13	2.43	0.61	3.04	112	1.55	0.61	2.16
100–199.99	106	6.03	1.03	7.06	152	3.85	0.37	4.22	57	2.34	0.42	2.76	409	1.77	0.54	2.31
200–499.99	47	5.67	0.86	6.53	55	3.26	0.21	3.47	27	1.99	0.19	2.18	170	1.79	0.40	2.19
500–up	10	5.21	0.51	5.72	9	3.03	0.12	3.15	3	2.00	0.09	2.09	20	1.39	0.25	1.64
Total	1767	7.31	3.69	11.00	1593	5.44	1.67	7.11	211	2.92	0.87	3.79	1092	1.62	0.62	2.24

Notes: Closed-end funds (SIC 6726), REITs (SIC 6798), ADRs, and unit offerings are excluded from the sample. Rights offerings for SEOs are also excluded. Bond offerings do not include securities backed by mortgages and issues by Federal agencies (SIC 6011, 6019, 6111, and 999B). Only firm commitment offerings and nonshelf-registered offerings are included. Standard Industrial Classification (SIC) codes are from Securities Data Co. (SDC).

[a]Total proceeds raised in the United States, excluding proceeds from the exercise of overallotment options (SDC variable: PROCDS).
[b]Number of issues.
[c]Gross spreads as a percentage of total proceeds (including management fee, underwriting fee, and selling concession) (SDC variable: GPCTP).
[d]Other direct expenses as a percentage of total proceeds (including registration fee and printing, legal, and auditing costs) (SDC variables: EXPTH/(PROCDS)*10).
[e]Total direct costs as a percentage of total proceeds (total direct costs are the sum of gross spreads and other direct expenses).

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KAW_R_AGDR1#137_122308
Page 5 of 57

KAW_R_AGDR1#137_122308
Page 6 of 57

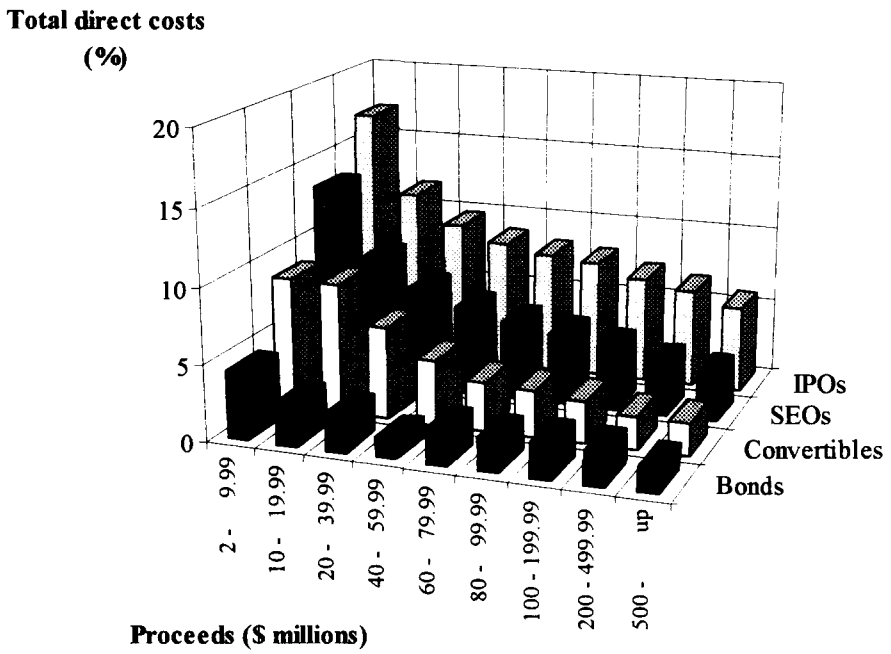

Figure I. Total Direct Costs as a Percentage of Gross Proceeds. The total direct costs for initial public offerings (IPOs), seasoned equity offerings (SEOs), convertible bonds, and straight bonds are composed of underwriter spreads and other direct expenses. Closed-end funds (SIC 6726), REITs (SIC 6798), ADRs, and unit offerings are excluded. Rights offerings for SEOs are also excluded. Bond offerings do not include securities backed by mortgages and issues by federal agencies (SIC 6011, 6019, 6111, and 999B). Only firm commitment offerings and nonshelf-registered offerings are included. The numbers plotted are reported in Table 1 for issues from 1990 to 1994.

bond is $100 million. For both IPOs and SEOs, substantial economies of scale exist in both the gross spreads and the other expenses.

For SEOs, the lack of any diseconomies, even for offerings over $500 million, is inconsistent with the findings of Hansen and Torregrosa (1992), who report diseconomies of scale for offers over $100 million. Hansen and Torregrosa use a sample of SEOs from 1978–86, in contrast to our 1990–94 sample period. Our conjecture is that while diseconomies of scale may have existed for very large issues before the mid 1980s, a structural change has probably occurred since then, possibly because of the market's greater experience with absorbing large numbers of big offerings. While they are not in our sample, the large number of multibillion dollar privatizations that have occurred around the world in the last decade have made megaofferings routine events.

In all of our tables, we report the averages based upon the number of observations for which we have data. For the gross spreads, SDC reports numbers for our entire sample. For the other direct expenses, however, many observations are missing. Consequently, the averages for the expenses are based upon a

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KAW_R_AGDR1#137_122308
Page 7 of 57

TABLE 2. Direct Costs of Raising Capital, 1990–94: Utility versus Nonutility Companies.

	Equity						Bonds					
	IPOs			SEOs			Convertible			Straight		
Proceeds[a] ($ millions)	N[b]	GS[c]	TDC[d]	N	GS	TDC	N	GS	TDC	N	GS	TDC
Panel A. Nonutility Offerings Only												
2–9.99	332	9.04	16.97	154	7.91	13.76	4	6.07	8.75	29	2.07	4.53
10–19.99	388	7.24	11.64	278	6.42	9.01	12	5.54	8.65	47	1.70	3.28
20–39.99	528	7.01	9.70	399	5.70	7.07	16	4.20	6.23	63	1.59	2.52
40–59.99	214	6.96	8.71	240	5.17	6.02	28	3.26	4.30	76	0.73	1.37
60–79.99	78	6.74	8.21	131	4.68	5.31	47	2.64	3.23	84	1.84	2.44
80–99.99	47	6.46	7.88	60	4.35	4.84	12	2.54	3.19	104	1.61	2.25
100–199.99	101	6.01	7.01	137	3.97	4.36	55	2.34	2.77	381	1.83	2.38
200–499.99	44	5.65	6.49	50	3.27	3.48	26	1.97	2.16	154	1.87	2.27
500–up	10	5.21	5.72	8	3.12	3.25	3	2.00	2.09	19	1.28	1.53
Total	1742	7.31	11.01	1457	5.57	7.32	203	2.90	3.75	957	1.70	2.34
Panel B. Utility Offerings Only												
2–9.99	5	9.40	16.54	13	5.41	7.68	0	—	—	3	2.00	3.28
10–19.99	1	7.00	8.77	32	4.59	6.21	2	5.13	8.72	31	0.86	1.35
20–39.99	5	7.00	9.86	26	4.17	4.96	2	3.88	5.18	26	1.40	2.06
40–59.99	1	6.98	11.55	21	3.69	4.12	0	—	—	14	0.63	1.10
60–79.99	1	6.50	7.55	12	3.39	3.72	0	—	—	8	0.87	1.13
80–99.99	4	6.57	8.24	11	3.68	4.11	1	1.13	1.34	8	0.71	0.98
100–199.99	5	6.45	7.96	15	2.83	2.98	2	2.50	2.74	28	1.06	1.42
200–499.99	3	5.88	7.00	5	3.19	3.48	1	2.50	2.65	16	1.00	1.40
500–up	0	—	—	1	2.25	2.31	0	—	—	1	3.50	na[e]
Total	25	7.15	10.14	136	4.01	4.92	8	3.33	4.66	135	1.04	1.47

Notes: Closed-end funds (SIC 6726), REITs (SIC 6798), ADRs, and unit offerings are excluded from the sample. Rights offerings for SEOs are also excluded. Bond offerings do not include securities backed by mortgages and issues by Federal agencies (SIC 6011, 6019, 6111, and 999B). Only firm commitment offerings and nonshelf-registered offerings are included. Standard Industrial Classification (SIC) codes are from Securities Data Co. (SDC).

[a]Total proceeds raised in the United States, excluding proceeds from the exercise of overallotment options (SDC variable: PROCDS).
[b]Number of issues.
[c]Gross spreads as a percentage of total proceeds (including management fee, underwriting fee, and selling concession) (SDC variable: GPCTP).
[d]Other direct expenses as a percentage of total proceeds (including registration fee and printing, legal, and auditing costs) (SDC variables: EXPTH/(PROCDS)*10).
[e]Not available because of missing data on other direct expenses.

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KAW_R_AGDR1#137_122308
Page 8 of 57

more limited number of observations.[4] For computing the average total direct costs in Table 1 (and other tables), we add the average gross spread and the average other expenses. In Figure I we show the average total direct costs for the four classes of securities, categorized by their gross proceeds.

The Appendix table reports the interquartile ranges for both the gross spreads and the total direct costs. (We report the interquartile range of the offerings for which we have complete data.) The largest variability of spreads occurs for bonds. As we document below, this can largely be explained based on differences in the credit quality of the issues.

Utility versus Nonutility Offerings

In Table 2 we report the direct costs of raising capital after categorizing offerings into utility and nonutility offerings. During the early 1990s, utilities were relatively minor issuers, representing roughly 10 percent of SEOs and straight bond offerings, and less than 5 percent of IPOs and convertibles. Spreads and direct costs are lower for utilities than for nonutilities. This pattern, previously documented by Bhagat and Frost (1986), may be partly due to the use of competitive bidding, rather than negotiated deals, for choosing an investment banker. Alternatively, it may be partly due to the relative noncomplexity of typical utility offerings.

Debt Offerings and Credit Quality

In Table 3 we report the costs of raising debt capital after categorizing issues by whether they are investment grade or noninvestment grade.[5] Following industry practice, we classify offerings as investment grade issues if they have a Standard & Poor's credit rating of BBB- or higher.[6]

Inspection of Table 3 discloses that for both convertibles and straight bonds, spreads are lower for investment-grade issues. For straight bonds, this difference is especially pronounced. Note that for issues raising less than $60

[4]If the offerings with missing expense information have systematically higher or lower expenses than those for which SDC reports information, our procedure would result in biased estimates of average expenses. To check this, for a sample of bond offerings in 1994 that are missing expense information, we used the Securities and Exchange Commission's Edgar electronic database (http://www.sec.gov/cgi-bin/srch-edgar) to find the expense information. The expenses for these issues are representative of those for which SDC reports information, suggesting our numbers do not have important biases.

[5]Following the practice of SDC, we report as separate offerings two bond issues by the same company on the same day if they have different maturity dates, provided they are not explicitly serial bonds. For example, on September 22, 1994, Southern Pacific Transport issued two bonds, one with proceeds of $8.1 million with a coupon rate of 7.61 percent, and the other with proceeds of $8.8 million and a coupon rate of 7.77 percent. We treat these as two distinct offerings.

[6]The highest credit rating is AAA, followed by AA, A, BBB, BB, B, C, and D, in order of their perceived default probabilities. These ratings are further partitioned by pluses and minuses.

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KAW_R_AGDR1#137_122308
Page 9 of 57

TABLE 3. Average Gross Spreads and Total Direct Costs for Domestic Debt Issues, 1990–94.

Proceeds[c] ($ millions)	Convertible Bonds						Straight Bonds					
	Investment Grade[a]			Noninvestment Grade[b]			Investment Grade			Noninvestment Grade		
	N[d]	GS[e]	TDC[f]	N	GS	TDC	N	GS	TDC	N	GS	TDC
2–9.99	0	—	—	0	—	—	14	0.58	2.19	0	—	—
10–19.99	0	—	—	1	4.00	5.67	56	0.50	1.19	2	5.13	7.41
20–39.99	1	1.75	2.75	9	3.29	4.92	64	0.86	1.48	9	3.11	4.42
40–59.99	3	1.92	2.43	19	3.37	4.58	78	0.47	0.94	9	2.48	3.35
60–79.99	4	1.31	1.76	41	2.76	3.37	49	0.61	0.98	43	3.07	3.84
80–99.99	2	1.07	1.34	10	2.83	3.48	65	0.66	0.94	47	2.78	3.75
100–199.99	20	2.03	2.33	37	2.51	3.00	181	0.57	0.81	222	2.75	3.44
200–499.99	17	1.71	1.87	10	2.46	2.70	60	0.50	0.93	105	2.56	2.96
500–up	3	2.00	2.09	0	—	—	11	0.39	0.57	9	2.60	2.90
Total	50	1.81	2.09	127	2.81	3.53	578	0.58	0.94	446	2.75	3.42

Notes: Closed-end funds (SIC 6726), REITs (SIC 6798), ADRs, and unit offerings are excluded from the sample. Bond offerings do not include securities backed by mortgages and issues by Federal agencies (SIC 6011, 6019, 6111, and 999B). Only nonshelf-registered offerings are included. Standard Industrial Classification (SIC) codes are from Securities Data Co. (SDC).

[a]Firms with a BBB- or higher Standard & Poor's credit rating.
[b]Firms with a BB+ or lower Standard & Poor's credit rating.
[c]Total proceeds raised in the United States, excluding proceeds from the exercise of overallotment options (SDC variable: PROCDS).
[d]Number of issues.
[e]Gross spreads as a percentage of total proceeds (including management fee, underwriting fee, and selling concession) (SDC variable: GPCTP).
[f]Other direct expenses as a percentage of total proceeds (including registration fee and printing, legal, and auditing costs) (SDC variables: EXPTH/(PROCDS)*10).

million, very few noninvestment-grade issues exist. This reflects that smaller issues with lower credit quality are commonly placed privately, and thus do not appear in our sample.

This correlation of credit quality and issue size also explains why in Tables 1 and 2 straight bond issues do not appear to display large economies of scale: as the issue size increases, the credit quality of public issuers decreases, masking some of the economies of scale. Still, in Table 3, where we hold credit quality constant, the economies of scale for debt issues are more modest than those for equity issues in Tables 1 and 2. The correlation between issue size and credit quality also explains why the average spread is so low for bonds with $40–$59.9 million in proceeds. The average spread of only seventy-two basis points in Table 1 reflects that for this issue size, economies of scale are largely realized, while, at the same time, very few noninvestment-grade issuers exist. For smaller offerings, the lack of economies of scale keeps the average spread high. For larger offerings, the high proportion of noninvestment-grade issues pushes

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KAW_R_AGDR1#137_122308
Page 10 of 57

TABLE 4. Direct and Indirect Costs, in Percent, of Equity IPOs, 1990–94.

Proceeds[a] ($ millions)	Gross Spreads[b]	Other Expenses[c]	Total Direct Costs[d]	Average Initial Return[e]	Average Direct and Indirect Costs[f]
2–9.99	9.05	7.91	16.96	16.36	25.16
10–19.99	7.24	4.39	11.63	9.65	18.15
20–39.99	7.01	2.69	9.70	12.48	18.18
40–59.99	6.96	1.76	8.72	13.65	17.95
60–79.99	6.74	1.46	8.20	11.31	16.35
80–99.99	6.47	1.44	7.91	8.91	14.14
100–199.99	6.03	1.03	7.06	7.16	12.78
200–499.99	5.67	0.86	6.53	5.70	11.10
500–up	5.21	0.51	5.72	7.53	10.36
Total	7.31	3.69	11.00	12.05	18.69

Notes: There are 1,767 domestic operating company IPOs in the sample. The first four columns express costs as a percentage of the offer price, and the last column expresses costs as a percentage of the market price.

[a]Total proceeds raised in the United States, excluding proceeds from the exercise of overallotment options (SDC variable: PROCDS).
[b]Gross spreads as a percentage of total proceeds (including management fee, underwriting fee, and selling concession) (SDC variable: GPCTP).
[c]Other direct expenses as a percentage of total proceeds (including registration fee and printing, legal, and auditing costs) (SDC variables: EXPTH/(PROCDS)*10).
[d]Total direct costs as a percentage of total proceeds (the average total direct costs are the sum of average gross spreads and average other direct expenses).
[e]Initial return = 100*{[closing price one day after the offering date (SDC variable: PR1DAY)/offering price (SDC variable: P)] - 1}. If PR1DAY is missing, PR2DAY is used.
[f]Total direct and indirect costs = (d + e)/(1 + e/100), computed for each issue individually (excluding firms with other expenses or initial returns missing), and then averaged, where *d* is the percentage of total direct costs, and *e* is the percentage initial return.

the average spread up. In other words, the average spread of only seventy-two basis points for this category is not a typographical error.

Although not reported in any table, the average maturity of bond offerings is about ten years for all of the proceeds categories and investment grades.

Initial Public Offerings

In Table 4 we report not only the direct costs for IPOs, but also the indirect costs of short-run underpricing.[7] Inspection of the table reveals that, consistent with previous findings, IPOs are underpriced on average. With average direct costs of 11.0 percent and average initial returns of 12.0 percent, a typical

[7]We compute the average initial return only for those offerings for which SDC reports the market price at the end of the first day of trading or, if this is missing, at the end of the second day of trading. In computing the average direct and indirect cost, we compute this number for each individual firm for which we have the gross spread, other expenses, and the initial return, and then compute the average.

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KAW_R_AGDR1#137_122308
Page 11 of 57

issuer with an offer price of $10.00 receives net proceeds of $8.90 on a share that trades at $11.20. Taking the difference between the market price and the amount realized of $8.90, the total direct and indirect costs amount to $2.30, which is 20.5 percent of the market value of $11.20. In Table 4 the average direct and indirect cost as a percentage of market value is 18.7 percent, since the average that is reported is the average of this percentage for each firm. (The average ratio of costs to market value is different from the ratio of the averages.) This number is less than the 21.2 percent that Ritter (1987) reports for firm commitment offerings from 1977 to 1982 for several reasons. First, our 1990–94 sample period reveals less underpricing than in 1977-1982. Second, we exclude offerings of less than $2 million, whereas he includes them. Third, spreads have experienced some downward movement the past fifteen years.[8] Still, the direct and indirect costs of going public are substantial.[9]

Note that we may be understating the extent of the economies of scale. This is because we are not including the value of any warrants granted to underwriters as part of their compensation. These warrants are common among small, speculative offerings underwritten by less-prestigious underwriters. Their inclusion would boost the average costs of the smallest offerings, but not the larger offerings. For evidence on the quantitative effect of this omission, see Barry, Muscarella, and Vetsuypens (1991) and Dunbar (1995).

While the average gross spread on IPOs is 7.31 percent, we find a large "bunching" at exactly 7.00 percent. Most issues with proceeds of $20–$60 million have a spread of exactly 7 percent, as shown in the Appendix table.

For IPOs, we include the indirect cost of underpricing in Table 4, but we do not include this as a cost for other security offerings. This is because of the lack of economically important underpricing effects for other offerings. Smith (1977) documents underpricing of 0.5 percent for SEOs. We suspect that much of this represents the practice of pricing the offering at the bid price, rather than the mean of the bid and the ask price, and the tendency to round down to the nearest eighth or integer. For example, if a stock traded at $30.125 bid and $30.375 ask, it would be common to set a $30.00 offer price. Depending upon which price had been the most recent transaction price, this would be measured as underpricing of either 0.4 percent or 1.2 percent. Barclay and Litzenberger (1988) report excess returns of 1.5 percent for SEOs during the month after issuing. Since companies typically issue after a large stock price run-up, it is not clear how much of this 1.5 percent is due to momentum effects, and how

[8]Calomiris and Raff (1995) report that for convertible bonds, the average spread in 1963–65 was 3.7 percent and in 1971–72 it was 3.2 percent. Our 1990–94 sample has an average spread of 2.9 percent.

[9]Beatty and Welch (1996) report the average direct and indirect costs for a sample of 980 IPOs from 1992 to 1994. Whereas we aggregate auditing, legal, printing, and other direct expenses, they report audit expenses and legal expenses separately. For all proceeds classes, legal expenses are slightly higher than auditor expenses.

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KAW_R_AGDR1#137_122308
Page 12 of 57

TABLE 5. Number of Issues Containing an International Tranche for Domestic Operating Companies That Are Issuing, 1990–94.

	Equity				Bonds			
	IPOs Int'l Tranche?[a]		SEOs Int'l Tranche?		Convertible Int'l Tranche?		Straight Int'l Tranche?	
Proceeds ($ millions)	Yes	No	Yes	No	Yes	No	Yes	No
2–9.99	2	335	4	163	0	4	1	31
10–19.99	12	377	12	298	1	13	0	78
20–39.99	45	488	36	389	3	15	0	89
40–59.99	40	175	42	219	0	28	4	86
60–79.99	33	46	45	98	1	46	8	84
80–99.99	25	26	30	41	9	4	2	110
100–199.99	81	25	72	80	22	35	14	395
200–499.99	39	8	48	7	14	13	13	157
500–up	10	0	8	1	2	1	2	18
Total	287	1480	297	1296	52	159	44	1048

Notes: Closed-end funds (SIC 6726), REITs (SIC 6798), ADRs, and unit offerings are excluded from the sample. Rights offerings for SEOs are also excluded. Bond offerings do not include securities backed by mortgages and issues by Federal agencies (SIC 6011, 6019, 6111, and 999B). Only firm commitment offerings and nonshelf-registered offerings are included. Standard Industrial Classification (SIC) codes are from Securities Data Co. (SDC).

[a]If (TOTDOLAMT/PROCDS) > 1.05, the issue is treated as having an international tranche. TOTDOLAMT is the total proceeds raised globally, and PROCDS is the total proceeds raised in the United States.

much is due to issue effects. Kang and Lee (1996) document that convertible bonds are underpriced by about 1 percent on average. Straight bonds, especially those with high credit ratings, seem to be underpriced very little.

International Tranches

In Table 5 we report the frequency with which domestic operating companies include an international tranche in their offerings. Recall that we are excluding Eurobonds from our debt offerings and ADRs from our equity offerings. Inspection of the table reveals that equity offerings and convertibles that raise less than $60 million in domestic trading rarely include an international tranche. Straight debt offerings, no matter what their size, rarely include an international tranche. Now, foreign investors can always participate in a domestic offering regardless of whether it is explicitly marketed overseas. Thus, the existence/nonexistence of an international tranche largely reflects the degree to which

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KAW_R_AGDR1#137_122308
Page 13 of 57

the selling efforts are expanded to find international buyers. Domestic operating companies issuing debt with foreign buyers in mind frequently issue Eurobonds.[10]

Overallotment Options

The Rules of Fair Practice of the National Association of Security Dealers (NASD) permit firm commitment offerings to include an overallotment option, where more securities can be sold if demand is strong.[11] Since August 1983, the size of this overallotment option has been limited to 15 percent of the issue size. Investment bankers typically have thirty days to exercise this option. In practice, investment bankers typically presell at least 115 percent of the offering, and then stand ready to buy back the incremental 15 percent if demand is weak when some of the buyers immediately sell their securities (a practice known as "flipping").[12]

The NASD Rules of Fair Practice require that investment bankers sell securities at or below the stated offer price. Normally, all of the securities are sold at the offer price, but occasionally, if demand is weak, the investment banker winds up selling some of the securities below the offer price. In this arrangement the underwriter writes a put option to the issuing firm, with the value of this put included in the gross spread. The overallotment option can be viewed as a call option that the issuing firm has written, where investors hold this call.

On securities sold through the exercise of overallotment options, investment bankers collect the same gross spread as on the rest of the issue. However, since the direct expenses do not change, these fixed costs are spread over a larger issue size. Thus, the total direct cost numbers that we report would be lower if overallotment options were included in the gross proceeds. On the other hand, since overallotment options are generally exercised only if the issue is underpriced, the value of this call option is a cost to the issuing firm that we do not include in our total cost calculations.

In Table 6 we report the frequency with which overallotment options are used and the frequency with which they are exercised. Inspection of the table reveals that in recent years, essentially all IPOs have included an overallotment option. The vast majority of SEOs and convertibles include an overallotment option, but straight bond issues rarely do.

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[10]The relative yields on Eurobonds versus domestic bonds also play a role in the decision of what to issue (see Kim and Stulz (1988)).

[11]Overallotment options are sometimes called Green Shoe options. The Green Shoe Company was apparently the first company to use one.

[12]See Schultz and Zaman (1994) for evidence on the exercise of overallotment options on IPOs. With IPOs, if the underwriter expects aftermarket demand to be weak, 135 percent of the issue may be presold, with the underwriter's taking a naked short position equal to the amount exceeding 115 percent of the offering. This allows the underwriter to support, or stabilize, the price by buying back the increment in open market purchases. These shares are then treated as if they were never issued. If the underwriter expects the price to jump, typically only 115 percent of the issue size will be presold, to avoid losing money on a naked short position.

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TABLE 6. Number of Issues Containing an Overallotment Option, for Domestic Operating Companies That Are Issuing, 1990–94.

	Equity								Bonds							
	IPOs Overallotment Option?				SEOs Overallement Option?				Convertible Overallotment Option?				Straight Overallotment Option?			
	Yes			No[d]	Yes			No	Yes			No	Yes			No
	Sold?				Sold?				Sold?				Sold?			
Proceeds ($ millions)	Yes[a]	No[b]	?[c]		Yes	No	?		Yes	No	?		Yes	No	?	
2–9.99	159	115	51	12	100	41	21	5	0	0	4	0	1	0	4	27
10–19.99	198	151	40	0	209	58	38	5	1	2	8	3	2	1	4	71
20–39.99	306	164	60	3	269	100	49	7	4	2	8	4	6	0	9	74
40–59.99	123	67	25	0	173	50	33	5	6	6	13	3	1	0	1	88
60–79.99	45	27	7	0	81	37	21	4	21	6	16	4	3	0	0	89
80–99.99	25	17	9	0	44	9	15	53	10	0	3	0	0	1	1	10
100–199.99	54	34	16	2	96	24	28	4	23	2	28	4	4	1	3	401
200–499.99	21	17	8	1	35	4	14	2	7	2	15	3	3	1	1	165
500–up	6	0	3	1	6	2	1	0	0	0	3	0	0	0	1	19
Total	937	592	219	19	1013	325	220	35	72	20	98	21	20	4	24	1044

Notes: Closed-end funds (SIC 6726), REITs (SIC 6798), ADRs, and unit offerings are excluded from the sample. Rights offerings for SEOs are also excluded. Bond offerings do not include securities backed by mortgages and issues by Federal agencies (SIC 6011, 6019, 6111, and 999B). Only firm commitment offerings and nonshelf-registered offerings are included. Standard Industrial Classification (SIC) codes are from Securities Data Co. (SDC).

[a]If OVERAMT > 0 and OVERC = Yes, where OVERAMT is the amount that can be raised through the overallotment option and OVERC is "Yes" if any overallotment option is exercised.
[b]If OVERAMT > 0 and OVERC = No.
[c]If OVERAMT > 0 and OVERC = Missing.
[d]If OVERAMT = "-"; this may include offerings with missing data on OVERAMT.

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KAW_R_AGDR1#137_122308
Page 14 of 57

APPENDIX. Interquartile Range of Direct Costs as a Percentage of Gross Proceeds for Equity (IPOs and SEOs) and Straight and Convertible Bonds Offered by Domestic Operating Companies, 1990–94.

Proceeds[a] ($ millions)	Equity				Bonds			
	IPOs		SEOs		Convertible Bonds		Straight Bonds	
	GS[b]	TDC[c]	GS	TDC	GS	TDC	GS	TDC
2–9.99	8.00–10.00	14.34–19.23	6.50–10.00	10.03–16.16	5.45–6.69	7.38–10.04	0.64–3.38	3.47–6.21
10–19.99	7.00–7.14	9.94–12.44	5.74–6.94	7.42–9.63	4.25–6.00	6.65–9.70	0.35–2.90	1.55–5.68
20–39.99	7.00–7.00	8.82–10.09	5.22–6.00	6.19–7.57	3.00–5.00	4.56–6.50	0.57–3.00	1.10–4.55
40–59.99	7.00–7.00	8.23–9.00	4.73–5.48	5.26–6.31	2.88–3.50	3.63–4.65	0.15–0.71	0.91–2.88
60–79.99	6.55–7.00	7.69–8.51	4.24–5.00	4.51–5.70	2.50–3.00	2.83–3.54	0.65–3.00	0.94–3.64
80–99.99	6.21–6.85	7.26–8.44	3.87–4.75	4.22–5.38	2.25–3.00	2.56–3.66	0.63–2.76	0.94–3.70
100–199.99	5.72–6.47	6.43–7.49	3.15–4.47	3.38–4.89	2.15–2.75	2.36–3.19	0.65–2.75	1.01–3.55
200–499.99	5.29–5.86	5.92–6.78	2.79–3.58	2.92–3.79	1.25–2.50	1.40–2.69	0.65–2.63	1.43–3.16
500–up	5.00–5.37	5.33–5.95	2.75–3.00	2.82–3.17	1.00–2.50	1.11–2.60	0.29–2.75	1.05–3.18
Total	7.00–7.05	8.57–12.04	4.51–6.08	5.12–8.20	2.25–3.00	2.66–3.96	0.60–2.75	1.02–3.60

Notes: Closed-end funds (SIC 6726), REITs (SIC 6798), ADRs, and unit offerings are excluded from the sample. Rights offerings for SEOs are also excluded. Bond offerings do not include securities backed by mortgages and issues by Federal agencies (SIC 6011, 6019, 6111, and 999B). Only firm commitment offerings and nonshelf-registered offerings are included. Standard Industrial Classification (SIC) codes are from Securities Data Co. (SDC).

[a]Total proceeds raised in the United States, excluding proceeds from the exercise of overallotment options (SDC variable: PROCDS).
[b]Gross spreads as a percentage of total proceeds (including management fee, underwriting fee, and selling concession) (SDC variable: GPCTP).
[c]Total direct costs as a percentage of total proceeds (total direct costs are the sum of gross spreads and other direct expenses).

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KAW_R_AGDR1#137_122308
Page 15 of 57

KAW_R_AGDR1#137_122308
Page 16 of 57

The frequency with which overallotment options are exercised varies across security type. In Table 6 we use the SDC classification where an overallotment option is considered to be exercised as long as at least part of it is exercised. In practice, most overallotment options are for 15 percent of the issue size. Most commonly, either all or none of the additional shares are sold, but sometimes only part of the overallotment option is exercised. On securities sold as part of an overallotment option, the spread is the same as on the rest of the issue.

IV. Conclusions

Firms have many choices for financing their activities: internal versus external, private versus public, and debt versus equity. This article focuses on public external financing and documents the cost of this financing from 1990 to 1994. We report the direct costs of raising capital for IPOs, SEOs, convertible bonds, and straight bonds. These are, respectively, 11.0 percent, 7.1 percent, 3.8 percent, and 2.2 percent of the proceeds. We find substantial economies of scale for all types of securities, although for straight bond offerings, these are largely exhausted for proceeds over $40 million. Spreads on bonds are sensitive to credit quality, with gross spreads more than 200 basis points higher on noninvestment-grade issues. Except for bonds, most large issues include an international tranche.

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KAW_R_AGDR1#137_122308
Page 17 of 57

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ALTERNATIVE METHODS FOR RAISING CAPITAL

Rights Versus Underwritten Offerings

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This paper provides an analysis of the choice of method for raising additional equity capital by listed firms Examination of expenses reported to the SEC indicates that rights offerings involve significantly lower costs, yet underwriters are employed in over 90 percent of the offerings The underwriting industry, finance textbooks, and corporate proxy statements offer several justifications for the use of underwriters However estimates of the magnitudes of these arguments indicate that they are insufficient to justify the additional costs of the use of underwriters The use of underwriters thus appears to be inconsistent with rational, wealth-maximizing behavior by the owners of the firm The paper concludes with an examination of alternate explanations of the observed choice of financing method

1. Introduction and summary

In this paper I examine an apparent paradox Based on a comparison of costs, simple finance theory suggests that listed firms should use rights offerings to raise additional equity capital, rather than employing underwriters Yet the majority of firms choose underwritten offerings, rather than rights offerings

In an underwritten offering, underwriters contract to purchase shares from the issuing firm at a price usually set within 24 hours of the offering, and then resell the shares to the public In a rights offering the shareholder receives a right from the firm giving him the option to purchase new shares for each share owned In section 2, I show that with the proper specification of the subscription price, the proceeds of a rights offering are identical to the proceeds of an underwritten offering

Not identical, however, are costs In section 3, I examine the out-of-pocket costs of underwritten and rights offerings reported to the Securities and Exchange

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KAW_R_AGDR1#137_122308
Page 19 of 57

Commission for issues registered under the Securities Act of 1933 between January 1971 and December 1975. Rights offerings are significantly less expensive. I also examine additional out-of-pocket expenses associated with both types of offerings. These include extras (options sold to underwriters), unreported expenses such as employee compensation, and the costs of rights offerings imposed directly on the owners of the firm. With these costs considered, I find rights offerings still are less expensive than underwritten offerings.

It has been suggested that selling efforts by underwriters raise stock prices while rights offerings lower them. In section 4 I study price behavior around the date of the offering. I find no empirical support for the hypothesis that abnormal positive returns are associated with underwritten offerings. Moreover, underwriters appear to set the offer price below the market value of the stock by at least 0.5 percent. While stock prices fall when rights are issued, the fall equals the market value of the rights received by the shareholder. Examination of the total rate of return to shareholders around the offer date indicates no abnormal returns; thus the wealth of the firm's owners is not reduced by a rights offering.

Section 5 provides an examination of other benefits presumed to accrue from the use of underwriters. Finance texts, corporate proxy statements, and the underwriting industry itself claim the existence of advantages in timing, insurance, distribution of ownership and from future consulting advice. My estimates of the magnitudes of the costs and benefits associated with these arguments are not sufficient to outweigh the lower costs of rights offerings as a means of raising capital. I can find no differential legal liability associated with the use of rights offerings which might explain the observed use of underwriters. Furthermore, there is no apparent difference in the sets of firms employing the alternative methods which could attribute the reported cost differences to selection bias.

In section 6, I offer a two-part hypothesis which is consistent with the observed frequency of employment of underwriters, with their higher costs, by the majority of listed firms. First, since managers' and directors' interests are different from those of shareholders in general, their financing decisions are not always in the best interests of the owners; benefits flow to management from the use of underwriters although not to shareholders. Second, I hypothesize that the cost to shareholders of monitoring their directors and managers is greater than the cost imposed by the choice of the more expensive financing method.

In section 7 I briefly present my conclusions.

A detailed description of the institutional arrangements for rights offerings and underwritten offerings is not easily available; I have provided one in Appendix 1. The reader unfamiliar with this institutional material will find it valuable to read this appendix before the body of the paper.

Appendix 2 presents a Black–Scholes (1973) option pricing analysis of rights issues and underwriting contracts, given here since general equilibrium analyses of these contracts have not been published.

KAW_R_AGDR1#137_122308
Page 20 of 57

2. Comparison of proceeds from rights and underwritten offerings

In a firm commitment underwritten offering, the underwriting syndicate purchases the new shares from the firm at an agreed upon price, and offers the shares for sale to the public at the offer price If the shares cannot be sold at the offer price, the underwriting syndicate breaks and the shares are sold for whatever price they will bring The underwriters bear the risk associated with adverse price movements, the proceeds to the firm are guaranteed Of course the difference between the offer price and the proceeds to the firm are expected to compensate the underwriter for bearing this risk

In a rights offering, each shareholder receives one right for each share owned This right is an option issued by the firm to purchase new shares The right states the relevant terms of the option, specifying the number of rights required to purchase each new share, the subscription price for each new share, and the expiration date of the option Since issuing rights is costly, it is in the firm's interest to insure the success of the offering A lower subscription price for the rights provides this insurance, a lower subscription price raises the market value of the right and reduces the probability that at the expiration date of the rights offering the stock price will be below the subscription price There is a corresponding fall in the market value of the stock, but this fall is like a stock split It does not affect the wealth of the owners of the firm [1]

If the shareholder does not exercise his rights, or does not sell his rights to someone who will exercise the rights, his wealth is reduced by the market value of the rights Thus the firm can make the probability of failure of the rights offering arbitrarily small by setting the subscription price low enough

Thus, since rights offerings and underwritten offerings can be specified so that the amount of capital raised by each is essentially equivalent, the decision as to which method to employ depends on the costs, the firm should employ that method which has lower net costs

3. Out-of-pocket expenses of rights and underwritten issues

"Expenses involved in a preemptive common stock rights offering are significantly greater than expenses involved in a direct offering of common stock

[1]The adjustment for the 'split effect' of a rights offering can be calculated as follows The ex-rights price of the shares, P_x, equals the with-rights price, P_w, minus the value of the right, R

$$P_x = P_w - R.$$

Ignoring the 'option value' of the right, the market value of a right is the difference between the ex-rights price and the subscription price, P_s, divided by the number of rights required to purchase one share, n

$$R = (P_x - P_s)/n$$

Substituting the second expression into the first and simplifying yields

$$P_x = (nP_w + P_s)/(n+1)$$

KAW_R_AGDR1#137_122308
Page 21 of 57

to the public due to additional printing and mailing costs, expenses associated with the handling of rights and the processing of subscriptions, higher underwriters' commissions and the longer time required for the consummation of financing." [2]

3.1. Reported out-of-pocket expenses

To examine the out-of-pocket expenses referred to in the quotation above (from Commonwealth Edison's 1976 proxy statement) I obtained a tape from the Securities and Exchange Commission covering the reported costs of all issues registered under the Securities Act of 1933 between January, 1971 and December, 1975. The tape contains data covering the following costs: (1) compensation received by investment bankers for underwriting services, (2) legal fees, (3) accounting fees, (4) engineering fees, (5) trustee's fees, (6) listing fees, (7) printing and engraving expenses, (8) Securities and Exchange Commission registration fees, (9) Federal Revenue Stamps, and (10) state taxes.

To restrict my analysis to equity issues by listed firms, I established the following criteria for inclusion: (1) the offering is of common stock and contains no other classes of securities; (2) the company's stock is listed on the New York Stock Exchange, American Stock Exchange, or a regional stock exchange prior to the offering; and (3) any associated secondary distribution is less than 10 percent of the gross proceeds of the issue. Table 1 is based on the issues meeting these criteria.

The data summarized in table 1 contradict Commonwealth Edison's Proxy Statement. My information, consistent with findings of previous SEC studies,[3] indicates that costs are *highest* for underwritten public offerings, and *lowest* for pure rights offerings. Furthermore, the difference in costs is striking. For a $15 million issue, the reported cost difference between an underwritten public offering and a pure rights offering is 4.83 percent, or $720,000; and for a $100 million issue the cost difference is 3.82 percent, or $3,820,000.[4] Yet underwriters were employed in over 93 percent of the issues examined.

3.2. Extras

Systematic understatement of the costs of underwriting presented in table 1 occurs because extras are omitted. Extras refer to the warrants which are associated with some underwritten issues and are used as partial payment to the underwriter. The warrants are options which are usually convertible into the

[2]Commonwealth Edison Proxy Statement, 1976.

[3]See SEC (1940, 1941, 1944, 1949, 1951, 1957, 1970, 1974).

[4]One empirical regularity in the data presented in table 1 should be noted. To a first approximation, the differences in costs among financing methods are explained by the differences in underwriter compensation. Compare 'Other Expenses' for Underwriting and Rights with Standby Underwriting with 'Total Costs' for Rights.

Table 1

Costs of flotation as a percentage of proceeds for 578 common stock issues registered under the Securities Act of 1933 during 1971–1975 The issues are subdivided by size of issue and method of financing underwriting, rights with standby underwriting, and pure rights offering [a]

	Underwriting				Rights with standby underwriting				Rights	
Size of issue ($ millions)	Number	Compensation as a percent of proceeds	Other expenses as a percent of proceeds	Total cost as a percent of proceeds	Number	Compensation as a percent of proceeds	Other expenses as a percent of proceeds	Total cost as a percent of proceeds	Number	Total cost as a percent of proceeds
Under 0 50	0	–	–	–	0	–	–	–	3	8 99
0 50 to 0 99	6	6 96	6 78	13 74	2	3 43	4 80	8 24	2	4 59
1 00 to 1 99	18	10 40	4 89	15 29	5	6 36	4 15	10 51	5	4 90
2 00 to 4 99	61	6 59	2 87	9 47	9	5 20	2 85	8 06	7	2 85
5 00 to 9 99	66	5 50	1 53	7 03	4	3 92	2 18	6 10	6	1 39
10 00 to 19 99	91	4 84	0 71	5 55	10	4 14	1 21	5 35	3	0 72
20 00 to 49 99	156	4 30	0 37	4 67	12	3 84	0 90	4 74	1	0 52
50 00 to 99 99	70	3 97	0 21	4 18	9	3 96	0 74	4 70	2	0 21
100 00 to 500 00	16	3 81	0 14	3 95	5	3 50	0 50	4 00	9	0 13
Total/Average	484	5 02	1 15	6 17	56	4 32	1 73	6 05	38	2 45

[a] Issues are included only if the company's stock was listed on the NYSE, AMEX or regional exchanges prior to the offering, any associated secondary distribution represents less than ten percent of the total proceeds of the issue, and the offering contains no other types of securities The costs reported are (1) compensation received by investment bankers for underwriting services rendered, (2) legal fees, (3) accounting fees, (4) engineering fees, (5) trustees' fees, (6) listing fees (7) printing and engraving expenses (8) Securities and Exchange Commission registration fees (9) Federal Revenue Stamps, and (10) state taxes

KAW_R_AGDR1#137_122308
Page 22 of 57

KAW_R_AGDR1#137_122308
Page 23 of 57

stock of the firm at prices ranging from well below to considerably above the offering price When the underwriters acquire these warrants at a price below their market value, this represents a form of compensation to the underwriter, and it is not included in table 1

Although extras have historically been most often associated with new issues, their use in the compensation of underwriters of seasoned firms is not unusual For the years 1971–1972, the SEC (1974) reported that of the 1,599 issues which were underwritten, 530, or 33 1 percent, included extras However, since extras were included primarily with the smaller offerings, the total dollar volume of issues with extra compensation was only 7 percent of the gross proceeds from all underwritten offerings

The average exercise price of the warrants granted as a percentage of the offering price was 11 72 percent A lower bound on the value of the option is the difference between the subscription price of the offering and the exercise price of the extras, here that is 88 28 percent of the subscription price [5] Since these warrants are typically purchased by the managing investment banker at a minimal price, usually one to ten cents, the options appear to be significantly underpriced The SEC also found that the average ratio of shares granted the underwriters through extras to the number of shares offered in the underwriting was 7 99 percent To assess the impact on the figures reported in table 1, assume that the value of the warrant is 80 percent of the offering price, that the underwriter pays 5 percent of the offering price for the extras, and that the ratio of warrants received as extras to shares offered through the underwriting is 0 07, then the compensation represented by the extras would be 4 95 percent of the total proceeds These numbers suggest that for the issues employing extras, the figures in table 1 understate the underwriters' compensation on the order of 50 to 100 percent

3 3 Unreported out-of-pocket expenses

Such items as the opportunity cost of the time of the firm's employees and postage expenses[6] are not included in the summary of costs reported in table 1 However, unreported employee expenses are unlikely to explain the deviations reported in table 1 For a $15 million issue, the $720,000 difference would not be explained if 20 employees with an average salary of $30 thousand worked

[5] This is a conservative estimate of the value Merton (1973) has demonstrated that the lower bound on the value of an option is the difference between the stock price and the discounted exercise price

[6] Although postage expenses are not reported to the SEC, estimates were obtained from summaries of expenses reported to the New York State Public Utilities Commission for a sample of firms For the sample, the maximum postage expense as a percentage of total proceeds was one-tenth of one percent Even if this were understated by a factor of ten, it would be of insufficient magnitude to explain even the smallest reported difference in costs Moreover, the marginal postage expense could be reduced to zero by mailing the rights with other required mailings, such as dividend checks or quarterly reports

KAW_R_AGDR1#137_122308
Page 24 of 57

full time on a rights offering for a year For a $300 million issue the difference in reported costs of underwriting versus a rights issue exceeds $11 million, it would require over 350 man-years to explain this difference

It should be noted that expenses allocated to raising capital do *not* reduce the tax liability of the firm [7] These expenses are deducted from the capital account without affecting the income statement Thus, the use of internal resources can lower the tax liability of the firm if it is more expensive for the Internal Revenue Service to monitor the allocation of internal resources between capital raising activities and other activities In the above examples, if the firm's marginal tax rate is 50 percent, and if they were able to deduct all their wages for tax purposes, the required number of man-years to explain the reported cost differential would be doubled

There are strong reasons to believe that table 1 also omits significant unreported costs of the issuing firm's employees' time for underwritten offerings There are important parameters (e g , the offering price and the fee structure) which must be negotiated between the underwriter and the representatives of the firm, these parameters have wealth implications for the owners of the firm as well as the underwriter Such negotiation can be lengthy and usually directly involves top management These unreported costs of underwriting must be significantly greater than the costs of setting a subscription price for a rights issue, since the subscription price has no wealth implications for the owners of the firm as long as it is low enough to ensure that the rights will be exercised

Moreover, with an underwritten issue the firm has the same tax incentives to substitute internal for external resources if it is more expensive for the IRS to monitor the allocation of costs of internally acquired resources to capital raising activities than of those which are externally acquired Thus, it is not clear that rights offerings employ fewer unreported internal resources than do underwritten offerings

3 4 Costs imposed directly on shareholders

If a shareholder chooses to sell his rights, he incurs transactions costs and tax liabilities These costs, although not borne by the firm, are relevant because they affect the wealth of the owners [8]

[7] If the firm sells bonds rather than stock, the costs of selling the issue can be amortized over the life of the issue In no case, however, may these costs be expensed either for tax or reporting purposes

[8] There is a limited benefit from issuing rights to the owners of the firm under Regulation T, the Federal Reserve regulation restricting margin credit For an owner who wishes to borrow to acquire additional stock, Reg T provides for the establishment of a 'Special Subscription Account' which lowers the effective margin requirement by permitting a customer to purchase on an installment basis a margin security acquired through the exercise of subscription rights expiring within 90 days Under this provision, 75 percent of the market value of the acquired stock can be borrowed initially Quarterly installments are required over a 12 month period to bring the position up to proper margin

KAW_R_AGDR1#137_122308
Page 25 of 57

To determine the impact of the selling costs, let us assume generally extreme values for the relevant parameters For small dollar transactions (less than $1,000), the brokerage fee can be as much as 10 percent And for rights, the bid-ask spread can be as high as 10 percent, this represents another selling cost If half the bid-ask spread is taken as an implicit selling cost the total cost can be as much as 15 percent of the value of the rights To make the figures comparable to those in table 1, calculate transactions costs as a fraction of the proceeds of the offering to the firm The 15 percent must be multiplied by the ratio of the value of the rights to the total proceeds For the offerings in the sample, this ratio was approximately 10 percent If all individuals sold their rights, transactions costs would be 1 50 percent of the proceeds, a figure less than the difference in transactions costs for any reported issue size [9] But rights offerings are generally 50 percent subscribed by existing shareholders who do not beat these transactions costs [10] Therefore this cost appears to be less than one percent

Selling rights also has tax consequences for the shareholder For tax purposes, the cost basis of the stock must be allocated between the stock and the rights when the rights are received based on the market values of the rights and stock at that time [11] The acquisition date of the rights for tax purposes is the date on which the stock issuing the rights is acquired If the stock has risen in value since it was acquired, a relevant cost of employing a rights offering is the difference between the shareholder tax liability incurred now and the present value of the taxes which would have been paid had the rights issue not occurred [12]

To determine the impact of this cost again postulate generally extreme values for the relevant parameters Assume (1) that the marginal tax rate for the average shareholder is 50 percent (note this would be an unattainably high rate if the capital gain were long term), (2) that in the absence of the rights offering the taxes could have been postponed forever (3) that the allocated cash basis for the rights is 50 percent of the current rights price (4) that the ratio of the value of the rights to the proceeds of the issue is 10 percent, and (5) that only 20 percent of the current stockholders subscribe to the rights offering In this

[9]Note that since the expenses associated with raising equity capital are not tax deductible, these figures are comparable without further adjustment

[10] Estimates vary but ballpark figures on how investors react [to rights offerings] are as follows 50% exercise their rights 40% sell out for cash, and 10% do nothing [Vanishing Rights' (May 2, 1977) *Barron s* p 25]

[11]If the fair market value of the rights is less than fifteen percent of the fair market value of the stock, the shareholder can choose to set the basis of the rights at zero leaving unaffected the basis of the stock The shareholder might choose this alternative if the cost of the bookkeeping exceeded the present value of the tax saving or if he anticipated being in a higher tax bracket when his remaining holdings were sold

[12]See Bailey (1969) for a discussion of the effective rate of capital gains tax, discounted to reflect the liability deferral

KAW_R_AGDR1#137_122308
Page 26 of 57

case, the cost would be 2 percent of the capital raised by the firm This is less than any reported cost differential in table 1 [15]

One other argument involving shareholder-borne costs has been offered by Weston and Brigham (1975) They argue that in a rights offering some stockholders may neither exercise nor sell, and by allowing their rights to expire unexercised they incur a loss [16] However, if an oversubscription privilege is employed with the offering, current owners in the aggregate receive full market value for the shares sold Admittedly, the oversubscription privilege affects the distribution of wealth among the owners, but it does not impose costs on owners as a whole

4. Security price behavior associated with rights and underwritten offering

4 1 Rights offerings lower the stock price

> "A rights offering, under market conditions then existing, could well have a long-term depressing effect on the market price of the stock " [17]

Given the investment policy of the firm, a rights offering *will* lower the price of the stock in both the short run and in the long run as AT&T s Proxy Statement suggests But this is irrelevant to the choice of financing methods because the drop in price is *not* a reduction in the wealth of the owners and thus cannot be considered a cost of a rights issue

The fall in the stock price when rights are issued can be illustrated by the following argument Rights give the shareholders the option to purchase new shares at less than market prices Other things equal, the total market value of the firm after a rights offering, V, will then be the previous value, V' plus the subscription payments, S

$$V = V' + S \tag{1}$$

The per share price before the offering is V'/n, where n is the number of old shares If m new shares are sold, the per share price after the offering, $(V'+S)/(n+m)$ must be less than the price per share before the offering [18]

[15] If taxes were important, firms would avoid rights offerings when share prices had risen However the evidence presented in table 2 shows that, on average, firms have had abnormal positive price changes during the 12 months before an offering

[16] Stockbrokers holding securities for safekeeping do not allow the warrants to expire unexercised If no instructions are received, the broker will sell the rights immediately before expiration

[17] American Telephone and Telegraph Co , Notice of 1976 Annual Meeting and Proxy Statement

[18] Also note that arbitrage profits must not be available When a stock trades ex rights, a right is issued for each share outstanding At the ex rights date, the expected change in the stock price must equal the expected value of the right, or profit opportunities would exist if the sum of the ex rights value of the stock plus the value of the right at the ex rights date were

KAW_R_AGDR1#137_122308
Page 27 of 57

The fall in the stock price on the ex rights day is similar to the expected fall in the stock price at the ex dividend date. The two cases differ only in what is distributed – in the latter instance cash, in the former rights. Thus, the fall in the stock price simply reflects the fact that the shareholders have been given a valuable asset, the right.

The argument that the fall in the stock price is a relevant cost of a rights offering also appears in two related forms: (1) if an underwriter is used, the firm can raise a greater amount of capital with the same number of shares; (2) a rights offering lowers the earnings per share of the firm.[19] Both statements are true but if the fall in the stock price equals the market value of the rights, then the impact of the additional shares issued through the rights offering is the same as that of a stock split and the wealth of the owners of the firm is unaffected.

To examine whether, after correcting for the expected normal fall in the stock price, there were also abnormal price changes,[20] I studied the 853 rights offerings on the CRSP master file between 1926 and 1975. Following Fama, Fisher, Jensen and Roll (1967), I estimated the regression,

$$R_{jt} = \alpha_j + \beta_j R_{mt} + \varepsilon_{jt}, \tag{2}$$

where R_{jt} is the return to security j in month t, adjusted for capital structure changes (including rights offerings) and R_{mt} is the return to the market portfolio in month t. I estimated (2) for each of the 853 offerings, using data from the CRSP monthly return file, excluding the 25 months around the date of the offering. Setting $t = 0$ for the month of the rights offering, I used the estimated α_j and β_j to calculate the ε_{jt} for each security for the 25 months around the offering. I then calculated the average residual over all firms for each month in the interval -12 to $+12$. The average residuals were then cumulated from month -12 to the event month. The results are presented in table 2 and figure 1.

In the months subsequent to 'event month minus two' the average residuals

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systematically different from the value of the stock immediately before the ex rights date, then profits could be made by taking an appropriate position in the stock upon the announcement of the rights issue.

[19] 'Thus, if the amendment [to remove the preemptive right from the corporate charter] is adopted, the company will be able to obtain the amount of capital needed through the issuance of fewer shares. Over a period of time this will result in slightly less dilution, higher equity value per share and better earnings per share.' [Commonwealth Edison Proxy Statement, 1976.]

[20] E.g., Commonwealth Edison suggests, 'Selling pressures often unduly depress both stock and rights values during the two or three week offering period which is a practical necessity when stock is sold with preemptive rights. Because the majority of stockholders do not exercise their rights but offer them for sale, the market value of the rights is driven far too low. Outsiders are then able to benefit by selling large amounts of stock during the offering period while buying rights for almost nothing and then exercising their rights to purchase stock at a discount to cover their sales. As a result, rights offerings tend to cost the company more than the rights themselves are worth to the stockholders who get them.'

KAW_R_AGDR1#137_122308
Page 28 of 57

are all insignificantly different from zero[21] and there is no significant sign pattern in the time series of average residuals. The cumulative average residuals in table 2 are also at approximately the same level three months before the

Table 2

Summary of average residual and cumulative average residual analysis of 853 rights offerings between 1926 and 1975 for the 25 event months [−12 to +12] surrounding the offer date.

Event month	Average residual	Cumulative average
−12	0.00721	0.00721
−11	0.01004	0.01725
−10	0.00255	0.01980
− 9	0.00629	0.02609
− 8	0.00388	0.02997
− 7	0.01062[a]	0.04059
− 6	0.00750	0.04809
− 5	0.00622	0.05431
− 4	0.01334[a]	0.06765
− 3	0.00662	0.07427
− 2	0.01624[a]	0.09051
− 1	−0.00649	0.08401
0	−0.00739	0.07663
+ 1	0.00779	0.08441
+ 2	0.00412	0.08853
+ 3	0.00405	0.09258
+ 4	−0.00110	0.09149
+ 5	−0.00047	0.09102
+ 6	0.00053	0.09155
+ 7	−0.00338	0.08817
+ 8	−0.00387	0.08430
+ 9	0.00256	0.08686
+10	−0.00264	0.08422
+11	−0.00013	0.08408
+12	−0.00476	0.07933

[a]Greater than 2σ. (Computation of the standard deviation is described in footnote 21.)

offering, on the date of the offering and 12 months after the offering. The significant positive residuals prior to the offer date are to be expected because of selection bias; firms which raise capital tend to have been doing well.

[21]As an estimate of the dispersion of an average residual, the approximation

$$\sigma^2 = (\sigma^2_M/r^2)(1-r^2)/N$$

was employed where σ^2_M is the variance of the market return, r^2 is the squared correlation coefficient between the return to an asset and the market return, and N is the number of securities in the sample. If σ_M is 0.089 [from Black Jensen Scholes (1972)], $r^2 = 0.25$, and $N = 853$ then $\sigma^2 = 0.000028$ and $\sigma = 0.00528$.

KAW_R_AGDR1#137_122308
Page 29 of 57

The results presented in table 2 are consistent with previous studies of this question Nelson (1965) examined all the rights offerings by firms listed on the New York Stock Exchange between January 1, 1946 and December 31, 1957. He found after the price series is adjusted for the 'split effect' in the rights offerings and general market movements are removed, prices six months after a rights offering are not significantly different from prices six months before the offering [22] Scholes (1972) found that the price of shares generally rose in value before the issue, fell 0 3 percent during the month of the issue, but experienced no abnormal gains or losses after the issue

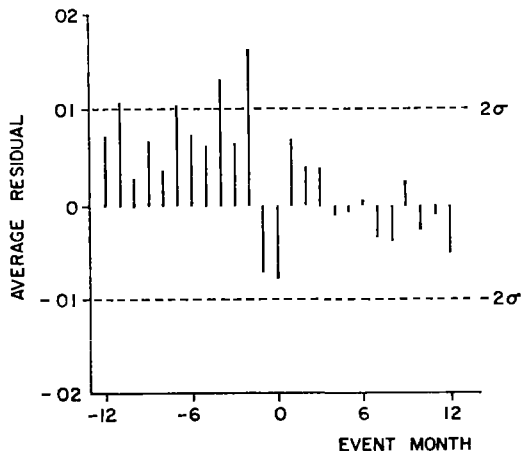

Fig 1 Plot of average residuals for 853 rights offerings between 1926 and 1975 for the 25 event months [−12 to +12] surrounding the offer date

4 2 Underwriters increase the stock price

Some argue that underwriters cause an increase in the stock price (1) by increasing 'public confidence' through external certification of the legal, accounting, and engineering analyses and (2) by the selling efforts of the underwriting syndicate.[23]

To examine the behavior of stock prices around the offer date of underwritten offerings and rights offerings, I obtained the returns for those securities which were included both in the sample of 578 firms covered in table 1 and on the CRSP daily return file There were 344 underwritten offerings and 52 rights offerings in this sample I set the offer date equal to day zero for all offerings and formed a portfolio of underwritten offerings and a portfolio of rights offerings I weighted securities in the portfolio of underwritten offerings so that

[22]The 'split effect' adjustment used by Nelson is derived in footnote 1
[23]See e g Brigham (1977, pp 473–474)

KAW_R_AGDR1#137_122308
Page 30 of 57

the two portfolios had equal betas. Then I calculated the difference in the portfolio returns for the 130 days before and 130 days after the offerings. The difference in average returns between two portfolios with equal risk will measure abnormal returns from either underwritten offerings or rights offerings. Table 3 presents the results for the period 20 days before the offering to 20 days after the offering; and figure 2 graphically presents the results for the period 40 days before to 40 days after the offering.

The average difference in returns to the two portfolios over the 260 days around the offer date is +0.00006, with a sample standard deviation of 0.00265. Therefore rights offerings have marginally higher returns during the 40 days around the offer date, but there is no obvious abnormal price behavior around the offer date for either underwritten offerings or rights offerings.

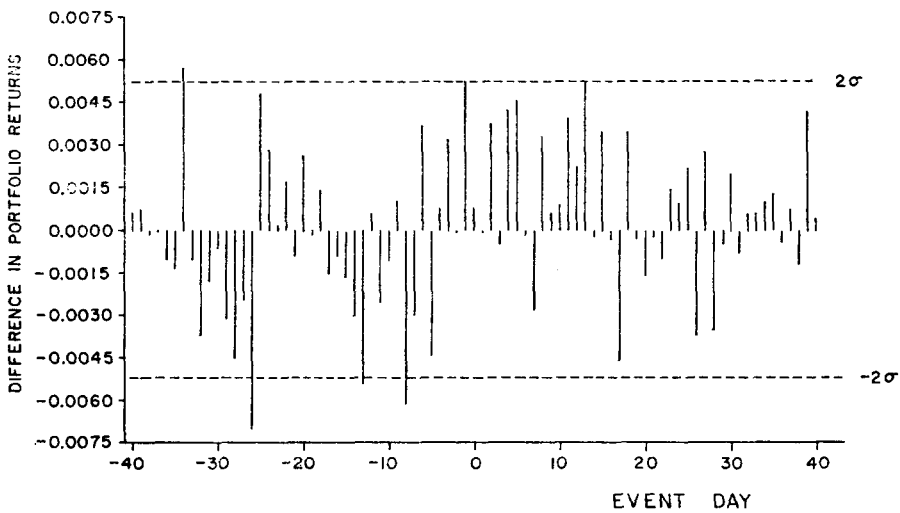

Fig. 2. Differences in daily returns between a portfolio of 52 rights offerings and a portfolio of 344 underwritten offerings for the 81 event days [−40 to +40] surrounding the offer date. (Portfolio weights are adjusted so that the two portfolios have the same beta.)

That underwriters are unable to generate abnormal positive price behavior should not be surprising. The firm always has the option of disclosing more information than is required by the Securities and Exchange Commission. The firm will expend resources on certification by external legal, accounting, and engineering firms until the net increase in the value of the firm is zero. Since the firm can contract for external certification of any disclosure, the benefit of whatever 'expert' valuation by the investment banker associated with an underwriting is limited to the difference in costs between certification through the underwriting process and independent certification.

But if underwriters are employed they influence the firm's decision about the

KAW_R_AGDR1#137_122308
Page 31 of 57

Table 3

Differences in daily returns between a portfolio of 52 rights offerings and a portfolio of 344 underwritten offerings between January 1971 and December 1975 for the 41 event days [−20 to +20] surrounding the offer date (Portfolio weights are adjusted so that the two portfolios have the same beta)

Event day	Rights average return	Underwritten average return	Difference (rights-und)	Cumulative difference
−20	−0 000361	−0 003007	0 002646	0 002646
−19	−0 001642	−0 001523	−0 000120	0 002526
−18	0 000072	−0 001361	0 001433	0 003959
−17	−0 001325	0 000175	−0 001500	0 002458
−16	−0 001134	−0 000231	−0 000902	0 001556
−15	−0 002865	−0 001229	−0 001636	−0 000080
−14	−0 002245	0 000732	−0 002977	−0 003057
−13	−0 004471	0 000949	−0 005420	−0 008477
−12	0 001722	0 001110	0 000611	−0 007866
−11	−0 002834	−0 000264	−0 002570	−0 010436
−10	−0 001226	−0 000125	−0 001102	−0 011538
− 9	0 001961	0 000960	0 001000	−0 010537
− 8	−0 004966	0 001151	−0 006117	−0 016654
− 7	0 001031	0 001327	−0 000296	−0 016950
− 6	0 002433	−0 001257	0 003690	−0 013260
−	−0 002373	0 002069	−0 004442	−0 017702
4	0 002180	0 001384	0 000797	−0 016905
− 3	0 001978	−0 001284	0 003262	−0 013642
− 2	−0 000570	−0 000557	−0 000013	−0 013656
− 1	0 004425	−0 000803	0 005228	−0 008428
0	0 001413	0 000583	0 000829	−0 007598
1	−0 000000	0 000054	−0 000054	−0 007653
2	0 003127	−0 000605	0 003732	−0 003921
3	−0 001182	−0 000700	−0 000482	−0 004403
4	0 003059	−0 001195	0 004254	−0 000149
5	0 005288	0 000710	0 004577	0 004428
6	0 000311	0 000477	−0 000166	0 004262
7	−0 002551	0 000206	−0 002757	0 001505
8	0 004396	0 001072	0 003324	0 004829
9	0 000851	0 000221	0 000630	0 005458
10	0 001601	0 000720	0 000881	0 006339
11	0 004703	0 000768	0 003934	0 010273
12	0 002369	0 000099	0 002271	0 012544
13	0 004764	−0 000502	0 005267	0 017811
14	−0 000734	−0 000495	−0 000239	0 017572
15	0 002944	−0 000527	0 003471	0 021043
16	−0 001089	−0 000790	−0 000299	0 020744
17	−0 001809	0 003065	−0 004874	0 015870
18	0 001228	−0 002196	0 003424	0 019294
19	0 000169	0 000458	−0 000289	0 019004
20	−0 000823	0 000711	−0 001534	0 017471

KAW_R_AGDR1#137_122308
Page 32 of 57

level of disclosure The underwriters will request that level of disclosure for which the marginal private costs and benefits to the underwriter are equal Given the legal liability of underwriters under the 1933 Act, the incentives of the firm and underwriter can differ Any divergence from the level of disclosure which maximizes the market value of the firm imposes a cost on the shareholders, and underwriters do ask for 'comfort letters' from accountants, frequently requiring expensive auditing procedures not produced without underwriters Thus, I conclude that the disclosure incentives of the underwriters lead to an over-investment in information production However, the costs of this over-investment should be reflected in the figures in table 1

4 3 Do underwriters underprice the securities?

In Ibbotson's (1975) study of unseasoned new issues he found that the offer price on average is set 11 4 percent below the market value of the shares If seasoned new issues are also underpriced, the difference between market value and offer price would represent another cost of employing underwriters

There are reasons to believe that underwriters underprice the seasoned new issues For a firm commitment underwriting agreement the Rules of Fair Practice of the National Association of Securities Dealers[24] require that once the offer price is set, the underwriter cannot sell the shares at a higher price. If the offer price is set above the market value of the shares excess supply results If the offer price presents a binding constraint to the underwriter, the limit order placed with the specialist by the managing underwriter results in the purchase of additional shares at the offer price If continued this purchasing would cause the underwriting syndicate to break Since very few underwriting syndicates break,[25] the implication must be either that the offer price is generally set below the market value of the shares, or that the offer price constraint can be circumvented

There are two ways in which the offer price could be circumvented First, for hot issues (i e , underpriced issues for which there is significant excess demand) the underwriters allocate the shares to preferred customers One way to achieve preferred customer status is to purchase issues for which there is an excess supply Second, underwriters employ 'swaps' In a swap, the underwriter buys another security from a customer while selling the underwritten security at the offer price Through this tie-in sale, the underwriter can shift the profit or loss These two tying arrangements allow the underwriter to minimize the impact of the regulation

[24]Although the rules of fair practice were established by the NASD, and not Congress or the SEC, there is little difference in the impact These rules are a response to the SEC's self regulatory position If the SEC found them unsatisfactory the SEC could establish superseding regulation

[25]See *History of Corporate Finance for the Decade* (1972)

KAW_R_AGDR1#137_122308
Page 33 of 57

To see if seasoned new issues are underpriced I calculated the return from the closing price the day prior to the offer date to the offer price, and the return from the offer price to the close on the offer date For the 328 firms with the requisite data, the average return from the close to the offer price is −0 0054 and the average return from the offer price to the close on the offer date is +0 0082 For the 260 days around the offer date the average daily return is 0 0005 with a sample standard deviation in the time series of average returns of 0 0013 Therefore, both figures, although much smaller than the 11 4 percent found by Ibbotson, are significantly different from the average daily return [26] Thus the underpricing imposes an additional cost on the owners of the firm of between 0 5 and 0 8 percent of the proceeds of the issue, a cost which is not reflected in table 1

5. Miscellaneous arguments favoring underwritten offerings

5 1 *Insurance*

It is frequently argued that employing an underwriter provides an 'insurance policy', reducing uncertainty of the offering's success [27] In effect, the firm

[26]One difference between Ibbotson's unseasoned issues and the seasoned issues examined here is that the unseasoned shares trade on the OTC market One hypothesis which has been suggested to explain the differences in the results is that the underpricing is a method of compensating the underwriter for maintaining a secondary market in the security Although the argument can explain why underwriter's compensation (including underpricing costs) for unseasoned issues is higher than for seasoned issues it does not explain the differential underpricing

[27]Another type of 'insurance' might be relevant If material errors are found in the registration statement of a public issue, parties who allege damage can bring suit The suit typically names as co-defendants the firm, the board of directors of the firm, the firm s accountants, and the firm s underwriter If the underwriter assumes a large share of the liability for the error, sheltering the firm from suit, then the underwriter will receive a normal compensation for bearing that risk

Direct evidence on the hypothesis that underwriters reduce the firm's liability in case of a suit is expensive to obtain, economic studies of securities fraud suits have not been published However indirect evidence suggests that this factor cannot be of a sufficiently large magnitude to make this an important factor in the choice of underwritten issues over rights issues First, damage must be demonstrated – i e in addition to finding a material misstatement in the registration statement, the share price must have fallen after the offering Second, the underwriters explicitly seek to limit their liability as much as is legally feasible '[Issuer-Underwriter Indemnification] agreements are universally used in today s underwriting These agreements, although varying in specific language provide essentially for indemnification of the 'passively' guilty party by the party whose omissions or misstatements were the source of the liability ' (See 'The Expanding Liability of Security Underwriters', *Duke Law Journal*, Dec 1969, pp 1191–1246) Thus underwriters contracts seek to minimize their exposure in this area Third if the courts imposed a significant share of the responsibility for material errors on the underwriter, it would be expected that accounting firms would recognize this by offering lower rates for securities work to firms employing underwriters This does not seem to be the case At least when this issue was raised with several partners of eight big accounting firms, this effect was denied The judicial procedure tends to make the liability of each of the groups of defendants in this type of suit virtually independent.

KAW_R_AGDR1#137_122308
Page 34 of 57

purchases an option to sell the shares to the underwriter at the offer price (See Appendix 2) Note four things about this option First, in an underwritten issue, the offer price is not set generally until within 24 hours of the offering when the final agreement is signed, and hence the net proceeds are not determined until that time Second, as shown in section 4 3, the offer price on average is set below the market value of the stock Thus, the firm purchases a one-day option to sell shares at a discount of ½ percent below their market value Third, subject to certain conditions specified in the letter of intent, the underwriter has the option of backing out of the tentative agreement until the date the final agreement is signed Thus, the 'insurance policy' is of limited value because its effective duration is short Fourth, as argued above, the subscription price for a rights offering can be set low enough so that the probability of failure of the rights offering becomes arbitrarily close to zero So an alternate source of 'self-insurance' is available through the rights offering For these reasons, the possible value of the 'insurance policy' associated with underwritten issues must be small

5 2 Timing

Commonwealth Edison claims that the proceeds of an underwritten issue are available to the firm sooner than in a rights issue [28] But timing benefits provided by underwriters must be small First, the settlement date for an underwritten issue is generally seven days after the offer date, while the settlement date for a rights offering is generally seven days after the expiration of the offering Since the offering generally lasts about 18 days, any reasonable estimate of the cost in terms of the lost interest which would be imposed on the firm by waiting that short period of time would have to be small Second, since it is not expected that the rights will be exercised prior to their expiration,[29] the owners of the firm have the use of the funds during the period of the offering Thus, the time period which entails an opportunity cost of the funds is reduced to a seven- to ten-day period both for rights and underwritten offerings Third, if the services provided by the underwriter and transfer agents are competitively supplied, the fees charged will reflect the opportunity cost of the funds at their disposal This would imply that the timing cost is impounded in the figures in table 1 And fourth, unless there is an unforeseen urgency associated with obtaining the funds, the firm can simply initiate the rights procedure at an earlier date

Moreover, under certain circumstances, the registration procedure with the SEC is simpler when a rights issue is employed It is my belief that with a rights offering, the SEC is more likely to presume a regular dialogue between the firm and its owners and thus impose less restrictive disclosure requirements There-

[28] Commonwealth Edison Proxy Statement, 1976
[29] See Merton (1973) or Smith (1976)

KAW_R_AGDR1#137_122308
Page 35 of 57

fore, the time until the registration becomes effective can be expected to be shorter with a rights offering than with an underwritten offering. This shorter registration time reduces the total time from the point where the decision is made to raise additional capital to the receipt of the proceeds.

5 3 *Distribution of ownership*

Weston and Brigham (1975) argue that underwriters provide a wider distribution of the securities sold, 'lessening any possible control problem' Since change in control may result in a change in management, this is likely to be a relevant issue for the current management. Yet it is not clear that possible control problems should be a concern of the owners I know of no reason to believe that one group of owners is any better (i e , will price the firm any higher) than another group

Furthermore, it is not obvious that underwriters will achieve a wider distribution of ownership than will a rights offering For most rights offerings of listed firms, the consensus among investment bankers is that the subscription rate of the current owners of the firm ranges from 20 to 50 percent It is difficult to estimate what percentage of an underwritten issue is purchased by the current owners of the firm, but there is no reason to believe it is zero Further, underwritten issues seem to attract more institutional interest, resulting in large block purchases and therefore more concentration of ownership

These factors preclude any general conclusions about the effect of financing method on ownership distribution With this uncertainty it is not clear that management, even if concerned with control issues, should prefer the use of an underwriter

5 4 *Consulting advice*

Van Horne (1974) suggests that 'advice from investment bankers may be of a continuing nature, with the company consulting a certain investment banker or group of bankers regularly' It is more expensive for the firm to compensate the investment banker for future consulting services by including in the underwriting fee a payment for the present value of the expected advice Costs incurred in raising capital are not tax deductible, they directly reduce the capital account and do not enter the income statement Thus, compared to separate billing for services rendered, paying for future consulting through a higher underwriting fee doubles its cost for a firm with a marginal tax rate of 50 percent

5 5 *Expected legal costs*

If there were a law, regulation, or merely an unresolved judicial principle which might impose additional liability on a firm using rights offerings, then the

KAW_R_AGDR1#137_122308
Page 36 of 57

expected legal costs of using rights could explain the observed use of underwriters But I can find no differential legal liability associated with the use of rights offerings

5 6 *Selection bias*

If the firms which employ rights offerings were systematically different from the firms which employ underwritten offerings, then the observed cost differences could be attributable to selection bias It could be that if the firms which employed underwriters had used rights, their expenses would have been greater

There is a significant difference in the betas of the firms in the two groups I calculated the betas for those firms in the sample which were listed on the New York Stock Exchange and included on the daily CRSP tape The average beta for the 344 underwritten offerings is 0 731 with a standard deviation of 0 560, and the average beta for the 52 rights offerings is 0 493 with a standard deviation of 0 330 But I can find no other systematic difference between the two populations

Examination of the data shows similar distributions of firms across industries, 80 8 percent of the firms employing rights and 73 2 percent of the firms employing underwritten offerings were utilities (electric, gas, or telephone companies) I attempted to predict the choice of underwritten versus rights offering based on the following variables (1) the percentage of the firm which is sold through the offering, (2) the market value of the firm, and (3) the variance of the returns on the stock The r^2 for the regression is 0 016 None of the t statistics for the variables appears to be significant

Although differences exist between the two sets of firms, the nature and magnitude of the differences seem insufficient to account for the observed cost differences

6. A monitoring cost hypothesis

6 1 *Why not monitor the choice of financing method?*

My examination of alternative financing methods suggests that rights offerings are significantly less expensive than underwritten offerings Yet underwriters are employed in over 90 percent of the offerings studied One hypothesis consistent with the evidence is (1) managers and members of the board of directors receive benefits from the use of underwriters which do not accrue to the other owners of the firm, and (2) the expenses which would be imposed on the owners of the firm by monitoring the managers and directors in the choice of financing method are greater than the costs without monitoring

Managers or members of the board of directors may recommend that offerings be underwritten because their welfare increases as a by-product of the use of

KAW_R_AGDR1#137_122308
Page 37 of 57

underwriters in several ways [30] First, firms frequently include an investment banker as a member of the board of directors It is in his interest to lobby for the use of underwriters, particularly the use of his investment banking firm as managing underwriter Second, there is the possibility of 'bribery' This may be simply consumption for the managers and directors through 'wining and dining' by the underwriters But there is a more important possibility In an underwritten issue, if the offer price is set below the market value of the shares, the issue will be oversubscribed To handle this excess demand, underwriters ration the shares In the rationing process the underwriters presumably favor their preferred customers, and preferred customer status could be given to key management people or members of the board of directors of firms employing the underwriter This form of payment would be virtually impossible to detect, since the shares the officer of Company A would favorably acquire are those of Company B and would therefore call for no disclosure [31]

Further possible benefits to managers include the reduction of possible control problems, if underwritten offerings produce a wider distribution of ownership than rights offerings Finally, managers whose compensation is a function of reported profits will prefer an underwriter's fee which includes a payment for future consulting advice, the manager's compensation will be higher because payment through underwriting does not affect reported profits while separate billing for consulting does

Jensen and Meckling (1976) show that the costs which the managers and directors can impose on the other owners of the firm are limited by the costs of monitoring their activities Thus the cost to shareholders of monitoring the method of raising capital must be greater than the costs imposed by the financing method chosen Given the dispersion of ownership in modern corporations, the benefit to any single shareholder from voting his shares is small Thus the costs that he would rationally incur in voting are small,[32] and the resources the shareholder would rationally devote to deciding whether a 'yes' or 'no' vote is more in his interest are few Moreover, voting procedures in most corporations ensure that management has a disproportionate voice in the outcome Management is often assigned votes by proxy, and in many firms management has the

[30]Certain management compensation plans, such as stock option plans, make managers' compensation a function of the price of the firm's shares If the compensation plan were not adjusted to reflect the effect of the rights offering on the share price, management could be expected to provide a strong lobby in favor of employing underwriters In fact, however, employee stock option plans have general clauses calling for adjustment of the terms of the plan to reflect relevant capital structure changes Furthermore, most plans include specific reference to rights issues Thus, agency costs resulting from compensation plans do not seem to offer an explanation of the observed behavior

[31]This argument is similar to that of Manne (1966), especially Chapter V

[32]See Downs (1957) Basically, if a person owns 100 shares in a firm, his vote only matters if the vote is tied or his 'side' would have lost by 100 votes or less The probability is low that out of 50 million votes, the issue will split that way Thus the expected benefit (benefit times probability) of voting is very small

KAW_R_AGDR1#137_122308
Page 38 of 57

power to vote unreturned proxies They are also permitted to vote proxies on specific questions when the stockholder does not specify a choice These factors raise the cost of monitoring management

6 2 *The preemptive right as a monitoring tool*

There appears to be a low cost method of monitoring the use of underwriters the preemptive right The preemptive right is a provision which can be included in a firm s charter requiring the firm to offer any new common stock first to its existing shareholders But the inclusion of the preemptive right does not solve the problem firms can still employ underwriters through a standby under-

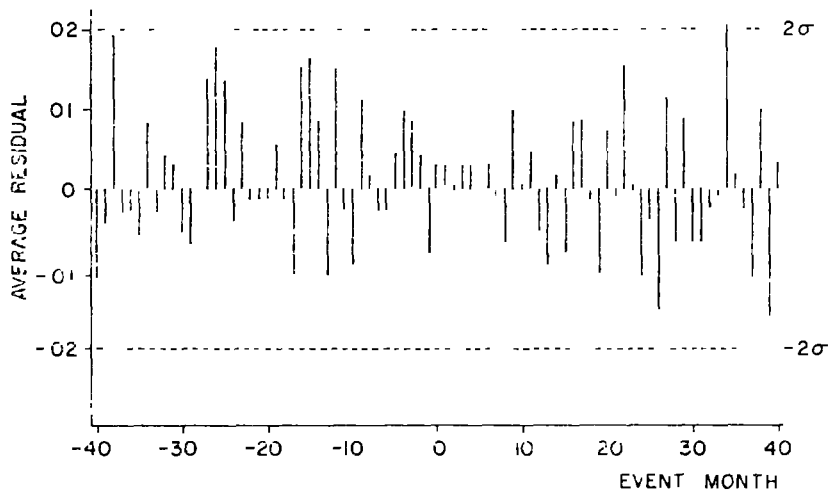

Fig 3 Plot of average residuals from 89 firms which removed the preemptive right from their corporate charter for the 81 event months [−40 to +40] surrounding the month of removal

writing agreement Since the figures in table I suggest a negligible difference in costs between a firm commitment underwritten offering and a rights offering with a standby underwriting agreement what becomes important is not a requirement to use rights, but a prohibition against using underwriters

To test the hypothesis that the impact of removing the preemptive right from the corporate charter is negligible, I collected a sample of 89 firms listed on the New York Stock Exchange which have removed the preemptive right The results of this study are presented in table 4 and figure 3 The average residual in the month of removal is 0 277 percent, and the mean average residual for the six prior months is 0 309 percent There is no apparent impact

I believe the results in table 4 provide a plausible explanation for why the intellectual level of the argument involving the preemptive right is so low on both sides of the question For example, the above quotes from Commonwealth

KAW_R_AGDR1#137_122308
Page 39 of 57

Table 4

Summary of residual analysis of 89 firms which removed the preemptive right from their corporate charter for the 81 event months [−40 to +40] surrounding the month of removal

Event month	Average residual	Cumulative average residual	Event month	Average residual	Cumulative average residual
−40	−0 00995	−0 00995	1	0 00363	0 11718
−39	−0 00382	−0 01376	2	0 00028	0 11745
−38	0 01999	0 00623	3	0 00293	0 12038
−37	−0 00258	0 00365	4	0 00276	0 12315
−36	−0 00160	0 00205	5	0 00101	0 12415
−35	−0 00414	−0 00209	6	0 00336	0 12751
−34	0 00842	0 00633	7	−0 00017	0 12734
−33	−0 00238	0 00395	8	−0 00537	0 12196
−32	0 00483	0 00878	9	0 00963	0 13159
−31	0 00375	0 01254	10	0 00002	0 13162
−30	−0 00419	0 00834	11	0 00406	0 13568
−29	−0 00632	0 00202	12	−0 00446	0 13122
−28	0 00082	0 00284	13	−0 00855	0 12266
−27	0 01337	0 01621	14	0 00210	0 12476
−26	0 01839	0 03460	15	−0 00696	0 11780
−25	0 01440	0 04900	16	0 00903	0 12683
−24	−0 00397	0 04503	17	0 00752	0 13435
−23	0 00800	0 05303	18	−0 00096	0 13339
−22	−0 00102	0 05201	19	−0 00942	0 12397
−21	−0 00007	0 05195	20	0 00701	0 13097
−20	−0 00072	0 05123	21	−0 00021	0 13077
−19	0 00602	0 05725	22	0 01591	0 14668
−18	−0 00067	0 05658	23	0 00090	0 14758
−17	−0 01032	0 04626	24	−0 01043	0 13715
−16	0 01575	0 06201	25	−0 00281	0 13434
−15	0 01608	0 07809	26	−0 01389	0 12046
−14	0 00828	0 08637	27	0 01069	0 13115
−13	−0 00943	0 07694	28	−0 00566	0 12548
−12	0 01496	0 09190	29	0 00901	0 13449
−11	−0 00183	0 09007	30	−0 00592	0 12857
−10	−0 00833	0 08174	31	−0 00624	0 12233
− 9	0 01103	0 09277	32	−0 00240	0 11993
− 8	0 00138	0 09415	33	−0 00071	0 11922
− 7	−0 00185	0 09230	34	0 02059	0 13981
− 6	−0 00170	0 09060	35	0 00183	0 14165
− 5	0 00508	0 09568	36	−0 00263	0 13901
− 4	0 00998	0 10566	37	−0 01103	0 12799
− 3	0 00816	0 11382	38	0 00971	0 13770
− 2	0 00477	0 11859	39	−0 01524	0 12246
− 1	−0 00782	0 11078	40	0 00300	0 12546
0	0 00277	0 11355			

KAW_R_AGDR1#137_122308
Page 40 of 57

Edison's Proxy Statement are demonstrably false, and the quote from AT&T's Proxy Statement is irrelevant The primary lobbying effort in favor of the preemptive right is from Lewis D Gilbert, John J Gilbert and Wilma Soss who regularly introduce proposals to reincorporate the preemptive right into the corporate charter of corporations which have removed it However, their reason for the use of rights is so that shareholders can maintain their proportionate interest in the firm For large firms this 'benefit' has negligible value [33]

6 3 Other considerations

It should be emphasized that the monitoring cost hypothesis is consistent with both observed institutional arrangements and rational, wealth-maximizing behavior by the stockholders Rational behavior implies that actions will be taken if the benefits exceed the costs I have pointed out certain costs associated with the voting mechanism within corporations inclusion of an investment banker on the board of directors, and certain management compensation plans These practices, while costly, would still be in the stockholders' best interests if there are offsetting benefits

Furthermore, the monitoring cost hypothesis does not imply that there are rents which accrue to the underwriting industry There are two available 'technologies' with which additional equity capital can be raised If the underwriting industry is competitive, the underwriting fees reported in table 1 would reflect a normal return to the resources required in employing that technology

However, the monitoring cost hypothesis does present some problems I do not observe the costs of monitoring management Hence the hypothesis is not directly tested Furthermore, while the incentives set up through the voting mechanism suggest that it is plausible that monitoring costs are large enough to explain the observed use of underwriters, competition in the market for management should reduce the required monitoring expenditures If the use of rights offerings is in the best interests of stockholders, then it will pay potential managers to incur bonding costs to guarantee not to use underwriters

7. Conclusions

In my examination of the choice of method for raising additional equity capital by listed firms I demonstrate that properly constructed rights offerings provide proceeds which are equivalent to those of an underwritten offering Furthermore, estimates of expenses from reports filed with the Securities and

[33]For a firm with 50 million shares outstanding, a ten percent increase in the number of outstanding shares would change the percentage ownership for someone with 100 shares only in the sixth decimal place With so many inexpensive alternate ways for a stockholder to maintain his proportionate interest in the firm the proportionate interest argument lacks importance

KAW_R_AGDR1#137_122308
Page 41 of 57

Exchange Commission indicate that rights offerings involve lower out-of-pocket costs than underwritten offerings Yet underwriters are employed in over 90 percent of the issues Examination of the arguments to justify the use of underwriters advanced by the underwriting industry, finance textbooks, corporate officers, and securities lawyers suggest that none of the arguments are capable of explaining the observed choice of financing method in terms of rational, wealth-maximizing behavior by the stockholders of the firm

The one hypothesis I find which is consistent with the available evidence relates to the costs of monitoring management Although direct expenses imposed on shareholders are higher per dollar raised through the use of underwriters, I hypothesize that management derives benefits from their use From the shareholders' standpoint, the firm's use of underwriters is optimal because the cost of monitoring management exceeds the savings in out-of-pocket expenses from using rights If this hypothesis is correct, then the present value of the stream of differences in costs reported in this paper provides a lower bound on the costs of getting shareholders together to monitor and control management on the method of raising capital Thus, the present value of the differences in costs establishes a lower bound on the expected costs of control mechanisms such as proxy fights, tender offers, and takeover bids

The monitoring cost hypothesis does present some problems I do not observe directly the costs of monitoring management While it is possible that the monitoring costs are large enough to explain the observed choice of underwriters, consideration of competition in the market for management reduces the plausibility of this hypothesis But if the monitoring cost hypothesis is rejected, then the observed choice of financing method cannot be explained in terms of rational, wealth-maximizing behavior by the owners of the firm, unless it can be shown that I have either ignored or misestimated a relevant cost of using rights or benefit from using underwriters

Appendix 1: A description of the institutional arrangements for rights and underwritten offerings

A description of the procedures followed in the various types of offerings specified in sufficient detail to answer the questions addressed in this study is not available This appendix provides that information Some of this material comes from written sources [34] However, much of the material comes from conversations with underwriters, corporate financial officers, and SEC officials.

Underwritten offerings

The firm typically selects an underwriter in one of two ways – either by competitive bidding or by negotiated underwriting In competitive bidding, the firm

[34] See Weston and Brigham (1975), SEC (1974), and Pessin (1976)

KAW_R_AGDR1#137_122308
Page 42 of 57

files appropriate papers with the SEC, then specifies the terms of the issue and has potential underwriters submit sealed bids Government regulation requires the use of this procedure by electric utility holding companies the primary users of competitive bidding In a negotiated underwriting bid, the important variables in the underwriting contract are determined by direct negotiation between firm and underwriter

Negotiated underwriting begins with a series of pre-underwriting conferences, when decisions as to the amount of capital, type of security, and other terms of the offering are discussed Several general forms of the underwriting agreement can be employed [35] The first is a 'firm commitment' underwriting agreement, under which the underwriter agrees to purchase the whole issue from the firm at a particular price for resale to the public Almost all large underwriters employ this form In the second form, a 'best efforts' underwriting, the underwriter acts only as a marketing agent for the firm The underwriter does not agree to purchase the issue at a predetermined price, but sells the security for whatever price it will bring The underwriters take a predetermined spread and the firm takes the residual A variant of this agreement employs a fixed price but no guarantee on the quantity to be sold The third possibility is an 'all-or-nothing' commitment which requires the underwriter to sell the entire issue at a given price, usually within thirty days, otherwise the underwriting agreement is voided

If the corporation and underwriter agree to proceed,[36] the underwriter will begin his underwriting investigation, in which he assesses the prospects for the offering This investigation includes an audit of the firm s financial records by a public accounting firm, which aids in preparing the registration statements required by the Securities and Exchange Commission A legal opinion of the offering will be obtained from lawyers who typically participate in writing the registration statement Reports may also be obtained from the underwriter s engineering staff when applicable

Before a company can raise capital through a public offering of new stock it must comply with the Federal Law that governs such a sale – the Securities Act of 1933, and the Securities Exchange Act of 1934 The Securities and Exchange Commission, established to administer both laws, requires full disclosure of all pertinent facts about the company before it makes a public offering of new stock The firm must file a lengthy registration statement with the SEC setting forth data about its financial condition For underwritten issues,

[35]The underwriter may make a 'standby commitment' during a rights offering under which he will purchase and distribute to the public any amount of the rights issue not purchased by the present security holders This form will be discussed further below

[36]Agreements are usually subject to conditions, most allow the underwriters to void their obligation in the event of specified adverse developments For example, a negative finding in the lawyer's or auditor's reports may allow voiding the contract

KAW_R_AGDR1#137_122308
Page 43 of 57

the firm usually files the form S-1 or S-7 registration statement Form S-7 is less expensive, but requires certain conditions to qualify [37]

The SEC has 20 days to examine the registration statement for material omissions or misrepresentations If any error is found, a deficiency letter is sent to the corporation and the offering is delayed until the deficiency is corrected If no deficiency letter is sent, a registration statement automatically becomes effective 20 days after filing, except when the SEC notifies the firm that the commission's workload is such that it requires more time to review the registration statement [38] The firm will typically amend the registration statement to include the offer price and the offer date after the SEC has examined the rest of the statement This procedure allows the firm and underwriter to postpone the effective date of the registration statement until they agree the offering should proceed

In addition to the registration requirements under the Securities Act of 1933, firms must qualify their securities under the state securities laws, the so-called 'Blue Sky Laws', in those states where the securities are to be sold Some states are satisfied with SEC approval, others require a registration statement be filed with state securities commissioners

The underwriter usually does not handle the purchase and distribution of the issue alone, except for the smallest of security issues The investment banker usually forms a syndicate of other investment bankers and security dealers to assist the underwriting [39] During the waiting period between the filing and the offer date, no written sales literature other than the so-called 'red herring'

[37]For example, the majority of the board of directors have been members for the last three years, there have been no defaults on preferred stock or bond payments for the past 10 years, net income after taxes was at least $500,000 for the past five years, and earnings exceeded any dividend payments made over the past five years

[38]In 1960 and 1961, delays of four to six months occurred for this reason

[39]Prior to the passage of the Securities Act in 1933 most new issues were purchased by an originating house The originating house would resell the issue at a small increase in price to a so-called banking group, generally a few large houses The banking group would then sell the issue to an underwriting group, which in turn sold it to a selling syndicate – each sale occurred at a fractional increase in price The selling syndicate members, however, were liable for their proportional interest of any securities remaining unsold Late in the 1920s it became frequent practice to make the final group a so-called selling group, the members of which had no liability except for securities which they had purchased from the underwriting syndicate

The Securities Act, as amended shortly after its passage, contained a provision limiting an underwriter s liability for misstatements and omissions in the registration statement to an amount not 'in excess of the total price at which securities underwritten by him and distributed to the public were offered to the public' This Act changed the method of wholesaling securities, the use of the joint syndicate in handling registered securities disappeared Because of the provisions of the Act, it was to the advantage of the manager of the offering to have his fellow participants purchase direct from the company, since then the manager's liability under the Act became limited to the amount which the firm itself underwrote Liability for transfer taxes that would have been payable on the sale by the manager to the underwriters was thus avoided At the present time, underwriters of securities registered under the Act contract to buy directly from the issuer even though the manager of the offering signs the agreement with the issuer on behalf of each of the underwriting firms

KAW_R_AGDR1#137_122308
Page 44 of 57

prospectus[40] and 'tombstone' advertisements[41] are permitted by the SEC However, oral selling efforts are permitted, and underwriters can and do note interest from their clients to buy at various prices These do not represent legal commitments, but are used to help the underwriter decide on the offer price for the issue Underwriters typically attempt to obtain indications of interest for approximately 10 percent more shares than will be available through the offering [42]

Before the effective date of the registration, the corporation's officers meet with the members of the underwriting group Given the personal liability provisions of the 1933 Act, this meeting is often identified as a due diligence meeting An investment banker who is dissatisfied with any of the terms or conditions discussed at this session can still withdraw from the group with no legal or financial liability Discussed at this meeting are (1) the information in the firm's registration statement, (2) the material in the prospectus, (3) the specific provisions of the formal underwriting agreement As a rule, all the provisions of the formal underwriting agreement are set except the final sales price

The 'Rules of Fair Practice' of the National Association of Security Dealers require that new issues must be offered at a fixed price and that a maximum offering price be announced two weeks in advance of the offering However, the actual offering price need not be established until immediately before the offering date In fact, the binding underwriting agreement which specifies the offer price is not normally signed until within 24 hours of the effective date of the registration

Once the underwriter files the final offering price with the SEC, the underwriters are precluded from selling the shares above this price The SEC permits the managing underwriter to place a standing order with the specialist to buy the stock at the public offer price If the underwriter buys more than 10 percent of the shares to be issued through this order, the syndicate usually breaks, permitting the stock to be sold below the offer price The syndicate can also be broken if the managing underwriter feels that the issue cannot be sold at the offer price [43] On the other hand, if all the indications of interest become orders

[40]The red herring prospectus derives its name from the required disclaimer on the front printed in red

A registration statement relating to these securities has been filed with the Securities and Exchange Commission but has not yet become effective Information contained herein is subject to completion or amendment These securities may not be sold nor may offers to buy be accepted prior to the time the registration statement becomes effective This prospectus shall not constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of these securities in any state in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state

[41]The very limited notice of the offering permitted is often presented in a form resembling the inscription on a tombstone – hence the name

[42]This procedure is like 'over-booking' on airplane flights

[43]Syndicates break infrequently, my impression is that this occurs less than five percent of the time See *History of Corporate Finance For the Decade* (1972)

KAW_R_AGDR1#137_122308
Page 45 of 57

for shares, the issue is oversold In that case the managing underwriter typically sells additional shares short and covers these short sales in the aftermarket

The final settlement with the underwriter usually takes place seven to ten days after the registration statement becomes effective At that time, the firm receives the proceeds of the sale, net of the underwriting compensation

Rights offering

Offering of stock to existing shareholders on a pro rata basis is called a rights offering Each stockholder owning shares of common stock at the issue date receives an instrument (formally called a warrant) giving the owner the option to buy new shares [44] One warrant or right is issued for each share of stock held [45] This instrument states the relevant terms of the option (1) the number of rights required to purchase one new share, (2) the exercise price (or subscription price) for the rights offering, (3) the expiration date of the rights offering

Before the offering, the firm must file a registration statement for these securities For rights offerings, the firm typically files either a form S-1 or S-16 registration S-16 is simpler, but has usage requirements similar to those of form S-7

After the SEC approves the registration statement, the firm establishes a holder of record date The stock exchange establishes the date five business days earlier as the ex rights date [46] All individuals who hold the stock on the ex rights date will appear in the company's records on the holder of record date and will receive the rights However, the rights can be traded on a 'when issued' basis Usually trading begins after the formal announcement of the rights offering To ensure that there is adequate time for the stockholders to exercise or sell their rights, the New York Stock Exchange requires that the minimum period during which rights may be exercised is 14 days Rights trade on the exchange where the stock is listed

Issuing rights is costly in terms of management s time, postage and other expenses, so it is in the best interest of the firm to ensure the success of the offering Therefore, the firm has an incentive to set the subscription price of the rights low enough to ensure that the rights will be exercised But some of

[44] In the 1880s it was customary to require a stockholder to appear in person in the office of the corporation to subscribe to the issue After the 1880s, it became customary to send out a printed slip of paper so the stockholders could sign and subscribe for the stock without actually having to appear Later, it became the practice to make these slips of paper transferable, so that they could be sold Around 1910 the engraved form of warrant was first issued

[45] The Uniform Practice Code of the National Association of Security Dealers, Inc , provides that subscription rights issued to security holders shall be traded in the market on the basis of one right accruing on each share of outstanding stock, except when otherwise designated by the National Uniform Practice Committee Thus, the price quotation will be based on a single right even though several rights may be necessary to purchase one new share

[46] This procedure is comparable to that used in setting the ex dividend date

KAW_R_AGDR1#137_122308
Page 46 of 57

the warrants of most offerings do expire unexercised These unexercised rights can be offered through an over-subscription privilege to subscribing shareholders on a pro rata basis Shares not distributed through the rights offering or through the over-subscription privilege can be sold by the firm either to investment bankers or directly to the public

Rights offerings with a standby underwriting agreement

A formal commitment with an underwriter to take the shares not distributed through a rights offering is called a standby underwriting agreement Several types of fee schedules are generally employed in standby underwriting agreements A single fee may be negotiated, the firm paying the underwriter to exercise any unexercised rights at the subscription price A two fee agreement employs both a standby fee', based on the total number of shares to be distributed through the offering and a take-up fee , based on the number of warrants handled The take-up' fee may be a flat fee or a proportioned fee [47] These agreements generally include a profit sharing arrangement on unsubscribed shares (e g , if the underwriter sells the shares for more than the subscription price, this difference in prices is split between the underwriter and the firm according to an agreed formula)

Underwriters are prohibited from trading in the rights until 24 hours after the rights offering is made [48] After that time, they can sell shares of the stock short and purchase and exercise rights to cover their short position in the stock, thus hedging the risk that they bear

Appendix 2: A contingent claims analysis of rights and underwriting contracts

The derivation of general equilibrium pricing implications of rights and underwriting contracts has not been presented Black and Scholes (1973) suggest the approach I employ to value rights, but they do not carry out the analysis or present the solution Ederington (1975) provides a model of under-

[47] A proportioned fee involves more than one price for the shares handled by the underwriter For example there may be one price for the first 15% of the issue, a higher price for from 15% to 30% of the issue, and a still higher price for any of the issue over 30% which is unexercised through the rights offering and must be purchased by the underwriter

[48] Through the late 1940s underwriters were prohibited from trading in the rights during the offering This arrangement increased the underwriter s risk because the 14-day time period allowed large adverse price movements in the stock The NYSE instituted a study in 1947 after the failure of three rights offerings They found than on 43 rights offerings which had been successful the total underwriting profit was approximately $2 4 million, while on the three unsuccessful offerings, their losses were in excess of $3 million Underwriters were reportedly refusing to sign standby agreements unless the offering period were as short as five days Since this violated NYSE rules no NYSE listed firms used rights issues with standby underwriting agreements In response to this impasse, the NYSE now allows underwriters to trade in the rights 24 hours after the rights offering is made

KAW_R_AGDR1#137_122308
Page 47 of 57

writer behavior, but his model assumes underwriters maximize expected profits, and thus does not represent a general equilibrium solution in a market where the agents are risk averse The option pricing framework employed here will yield a solution which is consistent with general equilibrium, no matter what the risk preferences of the agents in the market.

I employ the contingent claims pricing techniques to derive a specification of the equilibrium value of these contracts For valuing both contracts I assume

(1) There are homogeneous expectations about the dynamics of firm asset values and of security prices The distribution of firm values at the end of any finite time interval is log normal The variance rate, σ^2, is constant
(2) Capital markets are perfect There are no transactions costs or taxes and all traders have free and costless access to all available information Borrowing and perfect short sales of assets are allowed Traders are price takers in the capital markets
(3) There is a known constant instantaneously riskless rate of interest, r, which is the same for borrowers and lenders
(4) Trading takes place continuously, price changes are continuous and assets are infinitely divisible
(5) The firm pays no dividends

Rights offerings

To derive the equilibrium value of the rights offering I make the following assumptions about the specification of the rights offering

The total proceeds to the firm if the rights are exercised is X (the exercise price per share times the total number of shares sold through the rights issue) The rights expire after T time periods If the rights are exercised, the shares sold through the offering will be a fraction, γ, of the total number of shares outstanding ($\gamma \equiv Q_R/(Q_S+Q_R)$, where Q_R is the number of shares sold through the rights offering and Q_S is the existing number of shares) Any assets acquired with the proceeds of the rights offering are acquired at competitive prices [49]

Given the above assumption, Merton (1974) has demonstrated that any contingent claim, whose value can be written solely as a function of asset value and time must satisfy the partial differential equation

$$\frac{\partial f}{\partial t} = \frac{1}{2}\frac{\partial^2 f}{\partial V^2}\sigma^2 V^2 + rV\frac{\partial f}{\partial V} - rf, \qquad \text{(A1)}$$

[49] This last assumption is necessary to avoid the problem of the dependence of the dynamic behavior of the stock price on the probability of the rights being exercised

KAW_R_AGDR1#137_122308
Page 48 of 57

where $f(V, t)$ is the function representing the value of the contingent claim [e.g., $R = R(V, t)$]. To solve this equation, normally two boundary conditions are required, one in the time dimension and one in the firm value dimension.

To derive the appropriate boundary condition in the time dimension, note that when the time to expiration is zero, R^*, the value of the rights at the expiration date will be either zero (in which case the rights will not be exercised) or, if the rights are valuable and are exercised, their value is their claim on the total assets of the firm, $\gamma(V^*+X)$ (where V^* is the value of the firm's assets and X is the proceeds from the exercise of the rights) minus the payment the right-holders must make, X:

$$R^* = \text{Max}[0, \gamma(V^*+X)-X], \tag{A2}$$

where:

V^* is the value of the firm's assets at the expiration date of the issue.

X is the proceeds to the firm of the exercise of the rights.

γ is the fraction of new shares issued through the rights offering to the total shares of the firm (both old and new).

The most natural boundary condition in the firm value dimension is that when the value of the firm is zero, the value of the rights issue, R, is zero. However, the first assumption, that the distribution of firm values is log normal, insures that V can never be zero; therefore, this boundary condition will never be binding.

This equation can be solved by noting that no assumptions about risk preferences have been made, thus the solution must be the same for any preference structure which permits equilibrium. Therefore choose that structure which is mathematically simplest.[50] Assume that the market is composed of risk-neutral investors. In that case, the equilibrium rate of return on all assets will be equal. Specifically, the expected rate of return on the firm, and the rights will equal the riskless rate. Then the current rights price must be the discounted terminal price:

$$R = e^{-rT} \int_{((1-\gamma)/\gamma)X}^{\infty} [\gamma V^* - (1-\gamma)X] L'(V^*) dV^*, \tag{A3}$$

where $L'(V^*)$ is the log normal density function.

Eq. (A3) can be solved to yield:[51]

[50] See Cox and Ross (1976) or Smith (1976). For a mathematical derivation of this solution technique, see Friedman (1975), especially page 148.

[51] See Smith (1976, p. 16) for a theorem which can be employed to immediately solve (A3) to yield (A4).

KAW_R_AGDR1#137_122308
Page 49 of 57

$$R = \gamma VN\left\{\frac{\ln(\gamma V/(1-\gamma)X)+(r+\sigma^2/2)T}{\sigma\sqrt{T}}\right\}$$
$$-e^{-rT}(1-\gamma)XN\left\{\frac{\ln(\gamma V/(1-\gamma)X)+(r-\sigma^2/2)T}{\sigma\sqrt{T}}\right\}$$
$$= R(V, T, X, \gamma, \sigma^2, r) \tag{A4}$$

where $\partial R/\partial V$, $\partial R/\partial T$, $\partial R/\partial\gamma$, $\partial R/\partial\sigma^2$, $\partial R/\partial r > 0$ and $\partial R/\partial X < 0$

The indicated partial effects have intuitive interpretations Increasing the value of the firm, decreasing the exercise price (holding the proportion of the firm's shares offered through the rights offering constant), or increasing the proportion of the firm's shares offered through the rights offering (holding the total proceeds of the issue constant) increase the expected payoff to the rights and thus increases the current market value of the rights offering An increase in the time to expiration of the riskless rate lowers the present value of the exercise payment, and thus increases the value of the rights Finally, an increase in the variance rate gives a higher probability of a large increase in the value of the firm and increases the value of the rights

Underwriting agreements

To analyze the appropriate compensation to the underwriter for the risk he bears in the distribution of the securities make the following assumptions about the underwriting contract

Underwriters submit a bid, B, today which specifies that on the offer date, T time periods from now, the underwriter will pay B dollars and receive shares of stock representing fraction γ of the total shares of the firm He can sell the securities at the offer price and receive a total payment of Ω, or (if the share price is below the offer price) at the market price, $\gamma(V^*+B)$ If his bid is accepted, he will be notified immediately

Again, (A1) can be employed where $f(V, t)$ is the function representing the value of the underwriting contract (i e , $U-U(V, t)$) The boundary condition for this problem is

$$U^* = \text{Min}[\gamma(V^*+B)-B, \Omega-B] \tag{A5}$$

This assumes that at the offer date the underwriter will pay the firm B dollars The shares which the underwriter receives represent a claim to a fraction γ of the total assets of the firm, V^*+B If the offer price is greater than the value of the shares, $\gamma(V^*+B)$, then the underwriter will be unable to sell the shares at the offer price, hence he will receive $\gamma(V^*+B)$ If, at the offer date the offer price is less than the value of the shares, the underwriter receives the offer price Therefore, the boundary condition is that at the offer date the underwriting contract is worth the minimum of the market value of the shares minus the bid, B, or the proceeds of the sale at the offer price minus the bid

KAW_R_AGDR1#137_122308
Page 50 of 57

Again, the above solution technique can be employed to solve (A1) subject to (A5). In a risk-neutral world, the expected value of the underwriting contract can be expressed as [52]

$$U = \int_0^{(\Omega/\gamma)-B} [\gamma(V^*+B)-B]L'(V^*)\mathrm{d}V^* + \int_{(\Omega/\gamma)-B}^{\infty} [\Omega-B]L'(V^*)\mathrm{d}V^*. \tag{A6}$$

Note that this can be rewritten as

$$U = \int_0^{\infty} [\gamma(V^*+B)-B]L'(V^*)\mathrm{d}V^* - \int_{(\Omega/\gamma)-B}^{\infty} \gamma\left[V^*-\left(\frac{\Omega}{\gamma}-B\right)\right]L'(V^*)\mathrm{d}V^* \tag{A7}$$

Eq (A7) can be solved for the risk-neutral case to yield

$$U = \mathrm{e}^{rT}\gamma V-(1-\gamma)B-\mathrm{e}^{rT}\gamma V N\left\{\frac{\ln(\gamma V/(\Omega-\gamma B))+(r+\sigma^2/2)T}{\sigma\sqrt{T}}\right\} + (\Omega-B\gamma)N\left\{\frac{\ln(\gamma V/(\Omega-\gamma B)+(r-\sigma^2/2)T}{\sigma\sqrt{T}}\right\} \tag{A8}$$

Examination of (A8) reveals that the underwriting contract is equivalent to a portfolio consisting of a long position in the firm, a cash payment, and writing a call on γ of the firm with an exercise price equal to $(\Omega-\gamma B)$

$$U = \mathrm{e}^{rT}\gamma V-(1-\gamma)B-\mathrm{e}^{rT}C(\gamma V, T, \Omega-\gamma B) = \mathrm{e}^{rT}\gamma V-(1-\gamma)B-\mathrm{e}^{rT}\gamma C\left(V, T, \frac{\Omega}{\gamma}-B\right), \tag{A9}$$

where $C(\ )$ is the Black-Scholes call option function

If the process of preparing and submitting a bid is costless, then in a competitive equilibrium, the value of the underwriting contract must be zero [53]

[52] Since the contract calls for the payment only at t^*, to find the current value of the underwriting contract does not require discounting

[53] If this were not the case, arbitrage profits could be earned by acquiring an underwriting contract and establishing the above hedge

KAW_R_AGDR1#137_122308
Page 51 of 57

Therefore the bid which would represent a normal compensation for the risk he bears is implicitly defined by the equation [54]

$$B-e^{rT}\frac{\gamma}{1-\gamma}\left[V-C\left(V,T,\frac{\Omega}{\gamma}-B\right)\right]=0 \tag{A10}$$

The firm generally receives less than the market value of the stock[55] given the specification of the underwriting contract, if the equilibrium stock price at the offer date is above the offer price then the initial purchaser of the issue receives 'rents', he obtains the shares for less than the market value of the shares Therefore, if the offer price in the underwriting agreement represents a binding constraint to the underwriter, then in a perfect market underwriting must be a more expensive method of raising additional capital than is a rights issue Therefore, under these conditions, underwriting would not be employed

The above analysis implicitly assumes that the terms of the underwriting contract represent a binding constraint to the underwriter, i e , if the security price is above the offer price, then the offer price presents a constraint to the underwriter and a pure profit opportunity to the potential investor However, in a market without transactions costs, this could not be the case If the security price is above the offer price there will be excess demand for the issue To the extent that the underwriter can, through the rationing process, extract those profits, they will accrue to the underwriter rather than to the initial purchaser In this situation competition among underwriters would ensure that the profits were in fact garnered by the firm In that case the offer price presents no effective constraint and the competitive bid becomes simply

$$B=e^{rT}\left(\frac{\gamma}{1-\gamma}\right)V \tag{A11}$$

Therefore, if through tie-in sales or other means the offer price in an underwriting agreement can be circumvented, then underwriting is no more expensive a method of raising additional capital than a rights offering

[54]This equation implicitly defines the bid because B appears twice in the equation The explicit solution for equilibrium bid can be found by standard numerical analysis techniques

[55]A sufficient condition for the bid to be less than the market value of the shares is that $(1-\gamma)$ be less than e^{rT} Since T is generally a matter of days, this condition should be met

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KAW_R_AGDR1#137_122308
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The Effects of New Equity Sales Upon Utility Share Prices

By RICHARD H. PETTWAY*

Public knowledge of a forthcoming sale of new equity by a utility company often precipitates a decline in the market price of that equity and continues to impact share prices after the sale has taken place. Such price changes are part of the real cost of selling the new issue. The market pressure costs of new equity capital have been the subject of much speculation in utility rate cases, but have received little detailed study. The author of this article has made such a study and here presents a quantitative analysis of price-return movements encountered by utility stocks in the market, after first defining market pressure as it applies particularly to the regulated utility environment. He concludes that investors clearly view a new sale of equity shares with disfavor and regulators, as well as company managements, should be concerned with the resultant decline in utility stock prices.

When a public utility decides to sell a new issue of equity capital and publicly discloses this information, share prices are thought to decline. Often these selling firms ask for an adjustment to their costs of equity capital for the effects of this market pressure upon share prices. The subsequent argument and debate about the magnitude of an adjustment for market pressure at rate hearings is well known.

The electric utility industry has been one of the largest issuers of new equity shares during the past twenty-five years. Therefore, it is surprising that there has not been much more research to determine the magnitude of market pressure of these numerous new equity sales in this industry. The objective of this article is to report on the results of an analysis of 368 equity sales by 73 different electric utilities from January 1, 1973, through December 31, 1980. The analysis will measure two effects of new common equity sales upon share prices: market pressure and sales effect. Specifically, this article will determine the magnitude of market pressure defined as the effect of the sale upon share prices which reduces the funds received by the issuing company at the sale date, and will determine the size of the sales effect defined as the total effect of the sale upon share prices from before the announcement until after the sale.

There have been studies into the size of market pressure defined as a temporary price decline in share values when a large block of shares is said to be "overhanging" the market. However, most of this research concentrates upon the price effects of new issues of industrial companies sold in the primary markets or of large blocks of existing stock sold in the secondary market [1, 2, 4, 5, 6, 9].** This literature defines market pressure as the amount of recovery in market prices *after* the issue has been sold. A review of this literature indicates either no market pressure existing in large block trades of outstanding shares, or only a small amount of pressure associated with primary market sales of new issues.

Under utility regulation, the concern is with a different definition of market pressure. Market pressure in the public utility industry is generally defined as the decline in prices *while* the issue is still overhanging, *before* it is sold. The main question is how much did the utility's stock decline in the secondary market associated with the sales announcement to the date of sale. This decline is a real cost of selling the new issue as the firm will receive only the reduced price at the sales date. An

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**Numbers in brackets refer to the list of references at the end of the article.

article by Bowyer and Yawitz (BY) [3] measured the decline in share prices between the announcement date and the sales date of 278 new equity issues of public utilities from 1973 through 1976. But that research had some obvious problems which are corrected by this study.

The first problem with BY is their definition of the announcement date (AD). They defined this critical AD as the initial Securities and Exchange Commission filing date of the issue prospectus. This may not be the true AD as often public utilities make prior announcements of their new issues to state public service commissions, to investors in the *Irving Trust Calendar*, to underwriters, or to financial analysts much earlier than the SEC filing date. This study redefines the critical announcement date through a detailed questionnaire survey of electric utility companies. Further, an analysis of price changes prior to the established announcement date for each issue will be made to determine the actual impact of new equity sales upon share prices. It is very important to measure the complete decline in market prices associated with the information about the forthcoming sale of new equity shares.

Another problem with the BY study concerns its authors' use of the Dow-Jones utility index to measure differential declines in share prices and returns. The use of this index is flawed for at least four reasons. First, the number of companies included is small, 15 firms, and only 11 are electric companies; whereas four are gas transmission and distribution companies. The inclusion of the gas companies raises serious questions concerning the similarities of risks between electric utilities tested and the companies which make up their comparison index. Second, their index does not capture the dividend portion of the return and thus only measures the changes in prices without adjusting for dividends paid. In the electric power industry, the dividend yields tend to be a high portion of the total return and the omission of dividends could impart a bias to the index. Third, if there is evidence of market pressure in new sales of equity shares by utilities as BY found, then it is certain that this market pressure is contained also in share prices of Dow-Jones utility index firms when they sold new equity shares. The effect of using an index which contains market pressure to measure the size of market pressure of a particular firm which sold new equity naturally will understate the true amount of market pressure which is present. Fourth, if utilities are impacted differently from unregulated firms, there may be an additional "industrial effect" which will not be observed by looking only at other utilities rather than a broadly based comparison index of share prices and returns.

Finally, there are some technical problems with the way that BY measured the decline in stock returns or market pressure. These problems concern the use of average residual returns versus a more correct measure (geometric residual returns) and the way BY handled underwriting costs.

Data

A questionnaire survey was conducted of the 93 New York Stock Exchange-listed, investor-owned electric utilities from which 73 usable company replies were obtained for a response rate of over 78 per cent. Each company provided all identifiable costs and critical dates for each new equity capital sale made by the firm from January 1, 1973, through December 31, 1980. The survey results contain data on 368 actual equity sales over the eight-year survey period. The data represent more than five new equity sales per company on average over the study period. The size of these equity sales ranged from $4.7 million to $198 million with a mode sale value in a range between $30 and $49.9 million per issue. The frequency of the issues over the eight years of the survey shows that 1975 was the most popular year followed by 1976 and 1980. Yet, the individual year variation was not dramatic as the range over the eight years was from a low of 37 issues in 1974 to a high of 64 issues in 1975. Eighty-two per cent of the sales were through negotiated underwriting, 16 per cent through competitive bidding, and 2 per cent through rights offerings. See [7] for a thorough review of the data and details on the flotation costs of these issues.

Data on realized share returns including dividends for each company were obtained on a daily basis for a period which began sixty-five trading days before the announcement date and ended thirty trading days after the sale date (SD). Thus, company returns were obtained from a fixed period prior to the AD through a fixed period after the SD for each issue. It is best to think of these data sets as 368 separate arrays of returns. Because the interim time period between the AD and the subsequent SD varied for each issue, the number of return observations in each array is different. Each collected array of returns is unique to the particular announcement and issue dates and is not impacted by other equity sales of the same company.

Methodology

In order to control for risk, to adjust for movements in general prices and returns, and to reduce estimating bias, a two-stage regression process was used to measure the effects of new equity sales upon share returns and prices. First, during the estimating period, the market regression model (1) was applied to a firm's daily equity returns over a uniform estimating period which began sixty-five trading days prior to the AD and ended fifteen days before the AD for each issue. The market regression model asserts that:

$$\tilde{R}_{i,t} = \hat{a}_i + \hat{B}_i \tilde{R}_{m,t} + \tilde{e}_{i,t} \qquad (1)$$

where $\tilde{R}_{i,t}$ is the daily return including dividends of the issuing company for equity issue i — i.e., one to 368 — at time t; where daily returns of the issuing company concerning issue i are defined as $(P_{i,t} + D_{i,t} - P_{i,t-1}) / (P_{i,t-1})$; P is the price and D is the dividend per share; $\tilde{R}_{m,t}$ is the daily return at time t on a market portfolio for comparison; $\hat{a}_i$ and $\hat{B}_i$ are the estimated parameters of the market model; and $\tilde{e}_{i,t}$ is the error term of the model.

In order to make comparisons, an electric utility portfolio index of returns was created over the period January 1, 1973, through December 31, 1980, containing an equal investment in each of 73 electric companies which sold equity during the period. It is a daily returns index including dividends and provides the average return for each day on a portfolio consisting of an equal dollar investment in each of the 73 electric utilities.

Thus, the first stage uses an estimating period of fifty trading days, approximately two and one-half months, to determine the parameters of the market regression model. The second stage then applies these estimated parameters to the returns series during the subsequent test period after the estimating period in each array in order to calculate the expected returns for each company on each issue i using:

$$\hat{R}_{i,t} = \hat{a}_i + \hat{B}_i \hat{R}_{m,t} \qquad (2)$$

where $\hat{R}_{i,t}$ is the expected return for the issuing company associated with issue i at time t. Then residual returns during the test period are obtained by comparing the actual versus the predicted returns using:

$$\tilde{R}_{i,t} - \hat{R}_{i,t} = \tilde{u}_{i,t} \qquad (3)$$

where $\tilde{u}_{i,t}$ is the daily residual return of the issuing company for issue i at time t.

In order to display these residual returns properly, a decision must be made of how to combine the individual company residuals centered on a common date during the test period. The method of combining residuals used by Bowyer and Yawitz is called cumulative average residual or CAR. This method would find the average residual return of all issues on a specific day relative to the common AD or SD and would accumulate these averages over the period in an additive way. A different way of combining residual returns, average geometric residual return (AGRR), was chosen for this study. It is a theoretically better measure of residual returns over time than CAR. AGRR does not use the average residual returns on a specific date but takes the individual issue residual ($\tilde{u}_{i,t}$) from (3) and converts it into a price relative for each t and then forms a geometric return series by multiplying successive price relatives from fourteen days prior to AD to the end of the residual data for each company using formula (4). Thus, a geometric return series which precisely measures the change in investment worth for each individual issue is created. At any point in time relative to the common dates, AD and SD, the AGRR was determined as the numeric average of the geometric returns up to that point in time of all issues using formula (5).

$$GRR_{i,T} = \prod_{t=1}^{T} (1 + u_{i,t}) \qquad (4)$$

$$AGRR_T = \sum_{i=1}^{N} GRR_{i,T}/N \qquad (5)$$

where i is the issue number, t is time, T is the specific point in time (T=1, 2, 3, . . . total number of observations in the test period which was from fourteen days before the AD until thirty trading days after the SD), and N is the number of issues. For further details concerning the specifics of the methodology employed see [8].

In observing the pattern of these residuals over the test period, it is important to be able to use common definitions to describe their movements. "Market pressure" is defined as the decline of share prices and average geometric residual returns from fourteen days before the AD until the SD. "Sales effect" is defined as the change in share prices and AGRRs from fourteen days before the AD until thirty trading days after the SD. This sales effect would be the net change over the entire test period from before the announcement until well after the sale.

Price-Return Movements

Because the number of days between the AD and the SD are not identical for each issue, arrays of residual returns had to be centered on two separate common dates. The first common date is the AD and then data are centered on the common SD. To begin measuring any price effects of these new equity sales, the study first observed movements in residual returns when the data are centered on the common AD.

Common Announcement Date

Figure 1 illustrates the AGRRs derived from the use of the electric utility market index of returns for comparison.† The derived residuals are accumulated for 128 days starting fourteen days before the announcement date. All issues are centered on the AD. The trend of the AGRRs are clearly downward and below one during the entire span of 128 days. The downward trend is most noticeable immediately before and around the AD and is then followed by a period of relative stability. During this initial decline, share prices had fallen between one per cent and 1.4 per cent. The downward trend resumes again beginning about sixty-seven days after the AD. The latter downward trend may be associated with the SD, but since these data are centered on the AD, the SD did not occur at a common point in time in the data. Further, because SD is not a common point in the data, the amount of market pressure cannot be measured from the data in this format.

Panel 1 of the accompanying table contains statistical summaries of changes in AGRRs over the entire period shown in Figure 1. It is clear from the data that the change over the 128-day period centered on the AD was a negative 3.019 per cent, indicating a sales effect of this

†If there were no effects of new equity sales upon electric utilities which sold new shares, then the AGRRs shown on Figure 1 would be very close to one over time. A detrimental effect and a relative decline in share prices would be represented as a decline in AGRRs below one. A favorable effect would be represented as an increase in AGRRs. Also notice that the x-axis displays time with negative numbers as days before the AD and positive numbers as days after the AD. The AD, or centering date, is designated as zero.

FIGURE 1
AGRR CENTERED ON ANNOUNCEMENT DATE
(UTILITY INDEX)

magnitude. Thus, comparing the returns over the same time period of an electric utility which sold new equity shares with returns of a portfolio of electric companies which also sold equity during the eight-year study period, there appears to have been a substantial and significant decline or sales effect of −3 per cent. There appear to be two periods of rapid declines, one just before and around the AD and another which appears to begin about sixty-seven days after the AD. Measuring the initial decline during a period from fourteen days before the AD to fourteen days after the AD, the specific decline was −1.2 per cent. This first major decline which begins before the AD suggests that the market was either anticipating the new equity sale or obtaining information about the new equity sale just prior to the public announcement.

Because of the decline in these residuals, it is clear that the market considered the potential new equity sale as detrimental to the future prospects of the current equity holders of the selling firm. Since the decline begins before the AD, this article measures more precisely the *total* decline in share prices than did the work of Bowyer and Yawitz.

Common Sales Date

Figure 2 shows the AGRRs using the electric utility returns index for comparison with all issues centered on the SD. This plot is clearly one whose trend is also downward across the entire time period, although it appears not to begin its major decline until eighty-five to ninety days prior to the SD.

In Panel 2 of the table are found the summary statistics describing the magnitudes of the AGRRs shown on Figure 2. The changes or sales effect during the period from fourteen days before the AD to after the SD over 147 days was −2.041 per cent.

Panel 3 of the table contains the magnitudes of AGRRs shown on Figure 2 but stopping at the SD. This decline in relative share prices and returns, called market pressure, is caused by the equity sale and is the discount required to sell the new issue. These costs of new equity issues were 1.893 per cent on average. Thus, market prices of shares of electric utilities which sold new equity declined by about 1.9 per cent from before the AD until the SD over 104 days. This is the decline in price that the firm did not receive when it sold new equity shares at the SD and is the market pressure of the new equity issue.

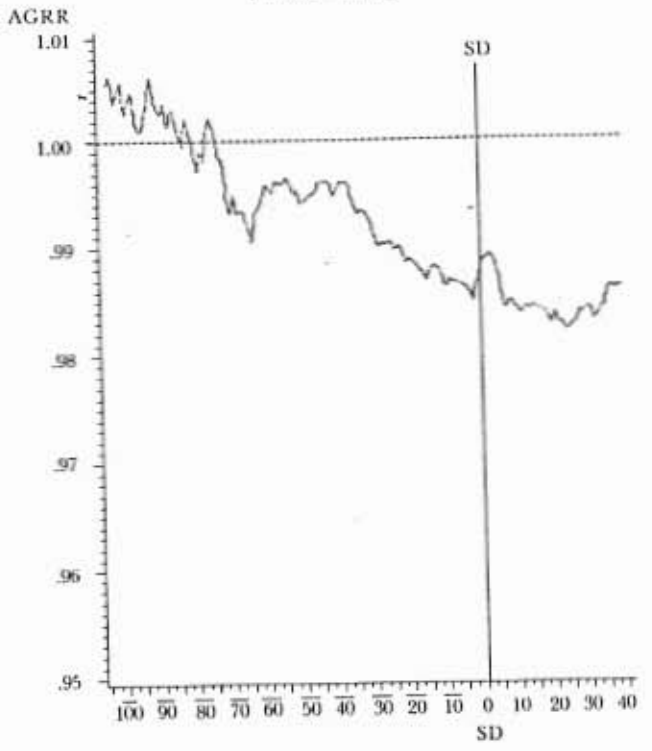
EFFECTS OF NEW EQUITY SALES OF UTILITIES UPON SHARE PRICES
CHANGES IN THE AVERAGE GEOMETRIC RESIDUAL RETURNS

368 New Equity Issues of 73 Electric Utilities from January 1, 1973, through December 31, 1980

Using the Utility Index

	Panel 1	*Panel 2*	*Panel 3*
Measurements	Centered on AD (Sales Effect)	Centered on SD (Sales Effect)	Centered and Ending on SD (Market Pressure)
Change over the Period	−3.019%	−2.041%	−1.893%
Length of Period (Days)	128	147	104
Change from −14 AD to +14 AD	−1.170%		
Length of Period (Days)	29		

FIGURE 2
AGRR CENTERED ON SALE DATE
(UTILITY INDEX)



Summary and Conclusions

When electric utilities sold new equity shares between January 1, 1973, and December 31, 1980, the share prices of these companies were depressed downward because of the sale. This downward movement or market pressure measured from before the announcement date to the sales date of the new issue was −1.9 per cent when compared with returns of other electric utilities which sold new equity regularly. Further, a sales effect ranging from −3 per cent to −2 per cent was found over the period from before the announcement date until after the sales date depending upon whether the data were centered on the AD or on the SD.

These averages are conservative and the minimum estimated average declines as they were derived from using a return index of comparison (electric utility) which itself contains the effects of market pressure. Further, the use of another index of return for comparison which was composed of regulated and unregulated firms would substantially raise these average costs. (In fact, if the comparison were to be made against the return of all equities listed on the New York and American stock exchanges over the same time period, the average estimate for market pressure would rise to −3 per cent and the average estimates for sales effect would rise to −4.4 per cent centered on the AD to −3.6 per cent centered on the SD. See [8] for details.)

The sizeable sales effect over the entire period from before the announcement date to after the sales date using the portfolio of electric companies for comparison provides direct evidence that share prices of electric utilities which sell new equity continue to decline after the sale has taken place. This condition may be explained as the impact of other factors than market pressure alone upon share prices. Perhaps some of these factors are due to the investors' perceptions of increased dilution problems caused by regulatory lag and regulatory risk associated with these public utilities not being allowed a rate of return on new equity equal to the investors' required rate of return over the eight-year survey period.

Even though the exact causes are not known precisely, it is definitely clear that investors view the new sale of equity shares with disfavor and that the new equity sale results in a substantial decline in equity prices. Public utility regulators should be concerned with these impacts of new equity sales upon share prices and returns and attempt to make proper adjustments in the allowed rate of return to offset or eliminate these effects in the future.

References

1. "Market Pressure: The Sales of New Common Equity and Rate of Return Regulation," by Raymond Armknecht, Fred Grygiel, and Patrick Hess, "Proceedings of the Business and Economic Statistics Section of the American Statistical Association," 1974, pp. 80-91.

2. "The Effect of the Size of Public Offerings of Common Stocks upon Preoffering Stock Prices," by Lee Bodenhamer, unpublished dissertation, Harvard University, Graduate School of Business, May, 1968.

3. "The Effect of New Equity Issues on Utility Stock Prices," by John W. Bowyer, Jr., and Jess B. Yawitz, 105 PUBLIC UTILITIES FORTNIGHTLY 25, May 22, 1980.

4. "On the Existence, Measurement, and Economic Significance of Market Pressure in the Pricing of New Equity Shares," by Robert E. Evans, unpublished dissertation, University of Wisconsin-Madison, 1978.

5. "Price Impacts of Block Trading on the New York Stock Exchange," by Alan Kraus and Hans Stoll, *Journal of Finance,* June, 1972, pp. 569-588.

6. "New Issue Stock Price Behavior," by J. G. McDonald and A. K. Fisher, *Journal of Finance,* March, 1972, pp. 97-102.

7. "A Note on the Flotation Costs of New Equity Capital Issues of Electric Companies," by Richard H. Pettway, 109 PUBLIC UTILITIES FORTNIGHTLY 68, March 18, 1982.

8. "Impacts of New Equity Sales upon Electric Utility Share Prices," by Richard H. Pettway and Robert C. Radcliffe, working paper series, Public Utility Research Center, Graduate School of Business, University of Florida, Gainesville, Florida, May, 1983.

9. "The Market for Securities: Substitution versus Price Pressure and the Effects of Information on Share Prices," by Myron S. Scholes, *Journal of Business,* April, 1972, pp. 179-211.

Utilities Raise Their Capital Appropriations

The nation's investor-owned utilities appropriated $7.2 billion (seasonally adjusted) for new plant and equipment in the final quarter of 1983, up 25 per cent over the unusually low figure recorded in the third quarter, the Conference Board reported in April. Both the gas and electric utilities shared in this fourth-quarter gain. (Capital appropriations are authorizations to spend money in the future for new plant and equipment. Appropriations are the first step in the capital investment process, preceding the ordering of equipment, the letting of construction contracts, and finally the actual expenditures. Appropriations are considered to be a leading indicator for capital spending.)

Electric utility appropriations rose to $5.8 billion in the fourth quarter, their first quarterly increase since the third quarter of 1982. Cancellations of previously approved projects were widespread, however, amounting to $2.7 billion in the final quarter of 1983.

Gas utility appropriations climbed to $1.4 billion in the fourth quarter, a 68 per cent jump over the third quarter. It was the highest quarterly total recorded last year. For the full year, however, the gas utilities appropriated only $4.4 billion, down by a third from 1982, and canceled a record $1.3 billion worth of earlier-approved projects.

Actual capital spending by the investor-owned utilities fell to $8.3 billion in the fourth quarter, an 8 per cent dip from the third quarter. The electric utilities accounted for all of the fourth-quarter decline. For 1983 as a whole, the electric utilities spent a record $32.2 billion on new plant and equipment, up 3 per cent over 1982. Gas utility expenditures amounted to $3.5 billion in 1983, down 30 per cent from 1982.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Vander Weide

138. Regarding Dr. Vander Weide's discussion of his gas distributor sample group, at pages 26 through 28 of his testimony, please provide the following:

a) What percentage of revenues for each company is derived from gas distribution operations (as opposed to gas merchant or exploration operations):
b) Which gas companies were eliminated from the sample group, and why?
c) Please explain why Dr. Vander Weide elected to rely on earnings growth projections provided by only two analysts. Which of the gas companies had only two analysts?
d) Please provide support for Dr. Vander Weide's statement that gas distribution companies are "a conservative proxy for the risk of investing in water companies."

Response:

a) Dr. Vander Weide does not maintain information on the percent of revenues each company receives from gas distribution operations as opposed to gas merchant or exploration operations. Such information is publicly available in each company's annual report. Further, the information being sought is implicitly incorporated in the Value Line Safety Ranks that Dr. Vander Weide uses to compare the risk of investing in his gas distribution sample group to the risk of investing in his water company group (see Dr. Vander Weide's testimony at p. 29, Question and Answer 28). In addition, Dr. Vander Weide notes that the DCF and CAPM results for his gas comparable group are lower than the DCF and CAPM results for the water comparable group.

b) Vander Weide specifies his selection criteria in his Direct Testimony at page 28. Companies which were eliminated include Laclede, National Fuel Gas, New Jersey Resources, UGI Corp., and WGL Holdings Inc. Each of these companies was eliminated because it had fewer than 2 I/B/E/S analysts' estimates of long-term growth. No companies were eliminated for other reasons.

COMPANY	TICKER	NO. OF ESTIMATES OF LONG-TERM GROWTH
Laclede Group	LG	0
National Fuel Gas	NFG	1
New Jersey Resources	NJR	1
UGI Corp.	UGI	0
WGL Holdings Inc.	WGL	1

c) As described in his direct testimony at pp. 26 - 28, Dr. Vander Weide normally specifies that a company's long-term growth forecast be based on the average of at least three analysts' growth forecasts. However, at the time of his studies, there were only five companies that had growth forecasts from three analysts. Dr. Vander Weide believes that it is better to estimate the cost of equity using as large a comparable group as possible; thus, he decided to include companies in his studies that had growth forecasts from two analysts.

The companies which had only two analysts contributing to the August 2008 I/B/E/S mean long-term earnings growth forecast include AGL Resources, Atmos Energy, Energen, Nicor, and Southwest Gas.

d) Dr. Vander Weide provides support for his statement that gas distribution companies are "a conservative proxy for the risk of investing in water companies" in his direct testimony. As Dr. Vander Weide states at page 29:

> Q 58 Do you have any empirical evidence that the LDCs in your proxy group are a conservative proxy for KAWC?
>
> A 58 Yes. The average Value Line Safety Rank for my proxy group of LDCs is 2, on a scale where 1 is the most safe and 5 is the least safe, whereas the water companies have an average Value Line Safety Rank of 3.

In addition, Dr. Vander Weide notes that his DCF results for his LDC group, 11.1 percent, are lower than his DCF results for his water company group, 11.8 percent.

For electronic version, refer to KAW_R_AGDR1#138_122308.pdf.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Vander Weide

139. Regarding Dr. Vander Weide's Ex-Ante Risk Premium study discussed at pages 31 and 32 of his testimony:

a) Are the gas distribution companies constant in each month throughout the 1998-2008 study period? If not, please list the companies used in each month and explain any differences.
b) Has Dr. Vander Weide used this Ex-Ante Risk Premium analysis in every rate of return testimony he has submitted over the past five years? If not, please explain why not.
c) The footnotes in Schedule 3-4 indicate the "g" in the DCF model used is "I/B/E/S forecast of future earnings growth for each month." Does I/B/E/S update long-term growth rates every month? If not, how often are the growth rates updated?

Response:

a) No. As described in Appendix 3, a company is included in the study in each month in which it meets the same selection criteria as specified in my direct testimony. The companies used in each month are shown in the work papers supporting Schedule 3, provided in response to AG-143.
b) Yes.
c) Yes. I/B/E/S compiles and reports the long-term earnings growth forecasts of the analysts contributing to the survey on a monthly basis.

For electronic version, refer to KAW_R_AGDR1#139_122308.pdf.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Vander Weide

140. Regarding Dr. Vander Weide's Ex-Post Risk Premium analysis, has he consistently examined the historical returns on the S&P 500 as well as that of S&P Utility Index? If not, when did he begin to examine both of those stock indicies in determining his Ex-Post Risk Premium estimate and why?

Response:

Yes.

For electronic version, refer to KAW_R_AGDR1#140_122308.pdf.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Vander Weide

141. With regard to Dr. Vander Weide's testimony at page 40, line 23 that the current market risk premium is 9.37%, please provide support from the financial literature that investors' current expected return for the stock market in general is 9.37% above long-term Treasury bond yields.

Response:

Dr. Vander Weide's testimony at page 40, line 23, is supported by his studies of the DCF-based market risk premium, described in his testimony at pp. 39 - 43 and Schedule 8.

For electronic version, refer to KAW_R_AGDR1#141_122308.pdf.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Vander Weide

142. Please provide the book value capital structures (including short-term debt) of each of the water and gas utility sample companies shown in Dr. Vander Weide's Exhibit__(JVW-1), Schedule 9.

Response:

Please see attached.

For electronic version, refer to KAW_R_AGDR1#142_122308.pdf.

Response to AG 142

Line No.	Company	Short-Term Debt	Long-Term Debt	Preferred Equity	Common Equity	Total Capital	%Short-ter	%Long-ter	%Preferrec	%Common
1	American States Water	38	267	0	302	607	6%	44%	0%	50%
2	Aqua America	81	1,215	0	976	2,272	4%	53%	0%	43%
3	California Water Service (	3	289	4	382	678	0%	43%	1%	56%
4	Middlesex Water	12	131	4	137	284	4%	46%	1%	48%
5	SJW Corp.	11	217	0	237	465	2%	47%	0%	51%
6	Southwest Water Co.	2	145	1	159	307	1%	47%	0%	52%
7	York Water Co.	5	70	0	67	142	4%	49%	0%	47%
8	Composite	151	2,336	8	2,261	4,755	3%	49%	0%	48%
9	Average						3%	47%	0%	50%

Line No.	Company	Short-Term Debt	Long-Term Debt	Preferred Equity	Common Equity	Total Capital	%Short-ter	%Long-ter	%Preferrec	%Common
1	AGL Resources	580	1,674	0	1,661	3,915	15%	43%	0%	42%
2	Atmos Energy	154	2,126	0	1,966	4,247	4%	50%	0%	46%
3	Energen Corp.	144	562	0	1,379	2,085	7%	27%	0%	66%
4	Equitable Resources	29	754	0	1,098	1,880	2%	40%	0%	58%
5	Nicor Inc.	444	423	1	945	1,812	25%	23%	0%	52%
6	Northwest Nat. Gas	148	512	0	595	1,255	12%	41%	0%	47%
7	ONEOK Inc.	623	4,215	0	1,969	6,807	9%	62%	0%	29%
8	Piedmont Natural Gas	196	825	0	878	1,899	10%	43%	0%	46%
9	South Jersey Inds.	118	358	0	481	957	12%	37%	0%	50%
10	Questar Corp.	362	1,021	0	2,578	3,961	9%	26%	0%	65%
11	Southwest Gas	47	1,366	0	984	2,397	2%	57%	0%	41%
12	Composite	2,846	13,836	1	14,533	31,215	9%	44%	0%	47%
12	Average						10%	41%	0%	49%

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Vander Weide

143. Please provide each of Dr. Vander Weide's Schedules in spreadsheet format with source data, formulas available, and cells unlocked.

Response:

Please refer to the electronic Excel spreadsheet titled KAW_R_AGDR1#143_122308.xls for requested information.

For electronic version of this document, refer to KAW_R_AGDR1#143_122308.pdf.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Vander Weide

144. Please provide any and all of Dr. Vander Weide's workpapers and source documents not otherwise requested.

Response:

Dr. Vander Weide is unaware of documents not provided. If the Attorney General has requests for other specific documents, Dr. Vander Weide will respond to the request.

For electronic version, refer to KAW_R_AGDR1#144_122308.pdf.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Dr. James Van der Weide

145. Please provide a copy of the contract under which Dr. Vander Weide is providing his services for Kentucky-American in this proceeding.

Response:

Please see attached.

For electronic version, refer to KAW_R_AGDR1#145_122308.pdf.

Financial Strategy Associates
James H. Vander Weide, Ph.D.

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Durham, NC 27705

Tel. (919) 383-6659 or (919) 383-1057
Fax: (919) 383-6659
jim.vanderweide@duke.edu

September 18, 2008

Mr. Mike Miller
American Water Works Service Company
Southeast Region
PO Box 1906
Charleston, WV 25327-1906

Dear Mike:

This letter confirms my agreement to perform cost of capital studies and to provide testimony on behalf of Kentucky-American Water Company ("KAWC" or "the Company") in its 2008 cost of capital proceeding before the Public Service Commission of the Commonwealth of Kentucky ("KPSC").

Work. I will: (1) conduct an independent study of the cost of equity capital for KAWC; (2) prepare written testimony on my cost of equity findings and return on equity (ROE) recommendation; (3) respond to data requests; (4) defend this testimony as required before the KPSC; (5) as required, evaluate intervenor testimony and prepare and defend rebuttal testimony; and (6) work with KAWC's staff and attorneys as required. I understand that KAWC requires my cost of equity estimate no later than October 1, 2008, and that written testimony is to be filed in October 2008. Direct testimony and schedules will be delivered to KAWC in timely manner for filing.

If this proceeding is settled or otherwise ended prior to completion of the work items set forth above, I will be compensated for work completed up to that time, and no additional work will be undertaken or compensated without KAWC's advance written approval.

As part of my work, I will analyze risks, study comparable companies, estimate the cost of equity using several cost of equity models, and provide an opinion as to the appropriateness of the estimate based upon the capital structure of KAWC. I will refine the studies and analyses and prepare written testimony that presents my cost of capital studies and recommendations, defend my testimony at hearings, evaluate intervenor testimony, and prepare and defend rebuttal testimony and assist Company staff and attorneys in preparation of briefs as requested.

Fee. My fee is $425 per hour for services related to the preparation and submission of the analyses and testimony. Partial hours will be pro-rated. I estimate that total expenses will be approximately $40,000. I will be reimbursed for travel expenses incurred in connection with the case. My fee covers all aspects of the case including, but not limited to, consultation, preparation and submission of analyses, direct and rebuttal testimonies and exhibits, and providing testimony at the hearings.

Confidentiality:
During the course of performing the work set forth above, the Consultant may receive, deliver, prepare, review, analyze, reproduce, summarize or otherwise work with confidential, proprietary and/or secret information. All information received by the Consultant from the Company, or obtained or generated by the Consultant, as part of the work shall be treated by the Consultant as strictly confidential and as privileged information. The Consultant shall not disclose such information to any person other than the Managing Attorney and those persons assisting him, and shall not use such information for any purpose, except as necessary (1) to perform the work, (2) when ordered by a court of competent jurisdiction, or (3) when a document is shown to be entirely public information, without any reference to CLIENT or the work being performed by the Consultant. The Consultant shall not remove documents or other materials containing such information from the Company's premises nor use or copy such documents or other materials for any purpose, except as necessary to perform the work. The Consultant shall not under any circumstances retain, after such time as the Consultant's work is completed, any documents or other materials pertaining to the Company, or copies thereof, that come into the Consultant's possession in the course of performing the work UNLESS APPROVED BY the Company.

If this accurately describes our understanding, please acknowledge your agreement by signing in the space below and returning the original to me. I look forward to working with you and your staff.

Sincerely,
James H. Vander Weide
James H. Vander Weide, Ph.D.
President, Financial Strategy Associates
Date

Kentucky-American Water Company
Date

CONTRACT APPROVAL FORM

Section I: General Contract Information

☐ CHECK THIS BOX IF THIS IS AN AMERICAN WATER CONTRACT APPROVED FOR STANDARD USE BY THE AMERICAN WATER LAW AND FINANCE DEPARTMENTS (NO CHANGES MADE)

1) Contract Name* FINANCIAL STRATEGY ASSOCIATES 2) Contract Number N/A

3a) Contract Owner* MICHAEL A. MILLER Phone number* 304-340-2009

3b) Contract Owner taking responsibility after the contract is signed (if different than original Contract Owner)

Phone number

4) Secondary contact name and phone number: SHEILA A. MILLER 304-353-6317

5) Physical location of document(s) (office location and department name)*:
CHARLESTON, WV – RATES AND REGULATION

6) Name of the American Water company entering into the contract*: KENTUCKY AMERICAN WATER COMPANY

7) Other company or companies signing the contract* FINANCIAL STRATEGY ASSOCIATES

8) Contract description*: COST OF CAPITAL STUDY, TESTIMONY, DATA REQUESTS AND ATTENDANCE AT HEARING IF NECESSARY FOR THE KAWC RATE CASE ANTICIPATED TO BE FILED IN OCTOBER 2008.

9) Relationship to other contracts (amendment, change order with new terms, etc)* NONE

10a) Estimated Lifetime Contract Payments* $40,000

10b) Estimated Lifetime Contract Receipts* $N/A

Estimated Lifetime Contract Payments should be expressed in gross

11) Effective Date*: 9 / 23 / 08

12) Renewal terms* (check one). ☐ Perpetual unless cancelled ☐ Annual automatic renewal unless cancelled
☐ Monthly automatic renewal unless cancelled ☒ Not renewable
☐ Renewable with prior notice (notice date: ____/____/____)
☐ Other (describe on item 15)

13) Termination Date*: UPON COMPLETION OF RATE CASE

14) Termination provisions* (check all that apply). ☐ At-will by either party ☐ At-will by AW only
☐ At-will by other party only ☐ For cause by either party
☐ For cause by AW ☐ For cause by other party
☒ No termination provisions in contract

15) Miscellaneous Notes: NONE

*Mandatory information

CONTRACT APPROVAL FORM

16) Contract Type* (check only one box)

NOTE See Appendix 1 for a description of each contract type
Contract types marked with an "F" require the prior input and approval of the Finance Department (regardless of total value)
Contract types marked with an "F$" require the prior input and approval of the Finance Department only if the total value exceeds $100,000
Contract types marked with a "P" require the prior input and approval of the Supply Chain Department
See Instructions for description of approval process

☐	(F)(P)	Benefit/Pension Agreement	☐	(F)	Joint Venture Agreement
☐		Billing/Shut-Off Agreement	☐		Labor Agreement
☐	(F)	Debt/Securities Agreement	☐	(F) (P)	Lease Agreement
☐		Confidentiality Agreement	☐	(P)	License Agreement
☐	(F$)	Construction Agreement	☐	(F)	Merger/Acquisition/Disposition Agreement
☐		Developer Service/Main Extension Agreement	☐	(F)	Miscellaneous Agreement
☐	(F$)	Easement Agreement	☐	(F)	Operating Agreement
☐	(F)	Employment Agreement	☐	(F$)(P)	Purchase/Sale Agreement
☐	(F)	Environmental Agreement	☒		Rate Agreement
☐	(F)	Financial Agreement	☐	(F$)(P**)	Serv ices Agreement
☐		Fire Protection Agreement	☐	(F)	Settlement Agreement
☐	(F)	Franchise Agreement	☐	(P)	Supply Agreement
			☐	(F)	Water Supply/Wastewater Agreement

**- Only when the company is receiving the services

17) If the contract contains a non-cancellable payment commitment by AW in the current or future years (such as a long-term take-or-pay supply agreement or lease), fill out the following schedule*:

Year	Commitment Amount (in $'s)
2008	$40,000
2009	
2010	
2011	
2012	
2013	
2014	
2015	

Year	Commitment Amount (in $'s)
2016	
2017	
2018	
2019	
2020	
2021	
2022	
2023 and beyond	

CONTRACT APPROVAL FORM

Section II: Approvals

Business Unit Review:

CONTRACT OWNER*

MICHAEL A. MILLER (Name) — (Signature) — 9/22/08 (Date)

By checking this box, Contract Owner represents he/she has reviewed the Delegation of Authority and is authorized to sign the contract: ☒

CONTRACT SIGNER (only if Contract Owner does not have authority to sign contract pursuant to the DOA; see instructions)

(Name) — (Signature) — (Date)

Comment (use back if necessary)

Law Department Review by:

ATTORNEY*

A.W. TURNER (Name) — (Signature) — 9/22/08 (Date)

Comment (use back if necessary)

Finance Department Review by:

(Name) — (Signature) — (Date)

Check box if Finance Department review is not required: ☒

Comment (use back if necessary)

Supply Chain Department Review by:

(Name) — (Signature) — (Date)

Check box if Supply Chain Department review is not required: ☒

Comment (use back if necessary)

*Mandatory information

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Michael A. Miller

146. Please refer to Application Exhibit 37B, pages 30 through 33.
   a. Provide these pages in Excel format with all formulae intact.
   b. Provide a source for the "% Net Salvage," "Average Service Life," and "Curve Form" parameters shown on those pages.
   c. Explain how those parameters were derived and demonstrate how they relate to the depreciation rates adopted in the settlement in Case No. 2007-00143.

Response:

   a. Refer to the excel file labeled as KAW_R_AGDR1#146_Exhibit 37B-3_122308.xls. In order to maintain the formulae the file begins on Schedule B-3 and includes pages 24 through 33 of the original exhibit.
   b. The source of the "% Net Salvage", "Average Service Life", and "Curve Form" parameters was derived from the 2007 Depreciation Study prepared by Gannett Fleming that was adopted in the settlement of Case No. 2007-00143.
   c. The life and net salvage parameters are explained in the 2007 depreciation study that was filed in Case No. 2007-00143.

   For the electronic version, refer to KAW_R_AGDR1#146_122308.pdf.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Sheila Miller

147. Please refer to W/P 4-1 (Depreciation and Amortization workpapers) provided in response to PSC DR No. 1-1a. Provide an Excel version of these workpapers with all formulae intact.

Response:

Please refer to the electronic document labeled as KAW_R_AGDR1#147_WP 4-1_122308.xls.

For the electronic version of this document, refer to KAW_R_AGDR1#147_122308.pdf.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Sheila Miller/Michael A. Miller

148. Please refer to W/P 3-5 (Service Company Expense workpapers) provided in response to PSC DR No. 1-1a. Provide an Excel version of these workpapers with all formulae intact.

Response:

Please refer to the electronic document labeled as KAW_R_AGDR1#148_WP 3-5_122308.xls.

For the electronic version of this document, refer to KAW_R_ AGDR1#148_122308.pdf.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2008-00427
ATTORNEY GENERAL'S FIRST REQUEST FOR INFORMATION

Witness: Michael A. Miller

149. Please provide any and all internal studies and correspondence concerning the Company's implementation of FASB Statement No. 143 and FIN 47.

Response:

There are no internal studies. Please see responses to AGDR1#150 and AGDR1#155.

For electronic version, refer to KAW_R_AGDR1#149_122308.pdf.