STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF INDIANA-AMERICAN WATER COMPANY, INC. FOR AUTHORITY TO INCREASE ITS RATES·AND CHARGES FOR WATER AND SEWER UTILITY SERVICE, FOR APPROVAL OF NEW SCHEDULES OF RATES AND CHARGES APPLICABLE THERETO, FOR APPROVAL OF CHANGES TO RULES AND REGULATIONS APPLICABLE TO SUCH SERVICE, AND FOR AUTHORIZATION TO DEFER IN A PENSION/OPEB BALANCING ACCOUNT OVER- AND UNDER-RECOVERIES FOR PASS THROUGH TO CUSTOMERS	)	**CAUSE NO. 43680**

PREFILED TESTIMONY

JON DAHLSTROM - PUBLIC'S EXHIBIT #5

ROGER A. PETTIJOHN – PUBLIC'S EXHIBIT #6

HAROLD L. REES – PUBLIC'S EXHIBIT #7

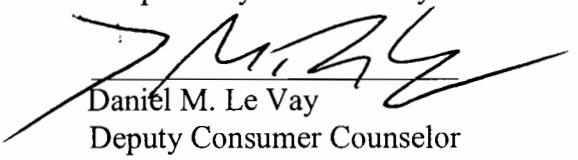
EDWARD R. KAUFMAN – PUBLIC'S EXHIBIT #8

VOLUME II

THE INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

OCTOBER 27, 2009

Respectfully Submitted by



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CERTIFICATE OF SERVICE

This is to certify that a copy of the foregoing has been served upon the following attorneys of record in the captioned proceeding by electronic mail on October 27, 2009.

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TESTIMONY OF JON C. DAHLSTROM
CAUSE NO. 43680
INDIANA-AMERICAN WATER COMPANY, INC.

Q: Please state your name and business address.

A: My name is Jon C. Dahlstrom, and my business address is 115 West Washington, Suite 1500 South, Indianapolis, IN 46204

Q: By whom are you employed and in what capacity?

A: I am employed by the Indiana Office of Utility Consumer Counselor (OUCC) as a Senior Utility Analyst.

Q: Please describe your background and experience.

A: My expertise is in utility marketing, rates, and supply planning and acquisition. I hold an Associates of Science degree in Computer Technology, a Bachelors of Science degree in Business Administration and a MBA. I have 15 years of utility experience in a variety of areas including marketing, rates (cost of service and rate design) and supply planning and acquisition. I served as Chair of the American Gas Association (AGA) Statistics and Load Forecasting Committee. While Chair, I was responsible for development of the AGA Load Forecasting Manual and a Utility Forecasting and Supply Planning course held for two years at Indiana University. Additional training includes attending the AGA Rates Course and numerous utility seminars.

Q: What is the scope of your testimony?

A: My testimony discusses various aspects of the Cost of Service and Rate Design

testimony and exhibits submitted by Petitioner's witness, Kerry A Heid, from Heid Rate and Regulatory Services. I also recommend changes to cost allocations and rate design proposed by Mr. Heid.

Q: What have you done to prepare for your presentation of testimony in this proceeding?

A: I reviewed the prefiled testimony and exhibits of Petitioner's witness Mr. Heid, describing in detail the methods used to develop Petitioner's proposed Cost of Service and Rate Design. I also reviewed the direct testimony and exhibits of both Mr. Heid and Scott A Bell (OUCC) from Cause No. 42520, which was the last rate case before this case in which Petitioner filed a Cost of Service and Rate Design Study.

Q: Please explain how your testimony is organized.

A: I address the following issues in this order:

I. Relationship between allowed costs, expenses, returns, and Cost of Service and Rate Design.

II. Cost of Service

III. Rate Design and Revenue Recovery by Customer Class

I. RELATIONSHIP BETWEEN ALLOWED COSTS, EXPENSES, RETURNS AND COST OF SERVICE AND RATE DESIGN

Q: What is the relationship between the plant costs, expenses, return allowed and their impact on the Cost of Service?

A: The Cost of Service does not calculate any expenses, plant costs, taxes, returns. It simply takes these costs and allocates them to the various customer classes based

on a set of allocators selected by the person performing the cost of service.

Q: If allowed costs are reduced, how will the Cost of Service be affected?

A: If various expenses, plant costs, taxes, and returns are lowered, then the Cost of Service will need to be re-calculated reflecting these lower costs.

Q: Please explain the relationship between the Cost of Service and Rate Design Study, and how the pricing structure and rates are developed.

A: Rate Design takes the costs allocated to the various customer classes and creates pricing structures (Monthly Service Charges, Consumption Block Levels, etc) and rates to recover the costs assigned to the various customer classes. Normally, the pricing structure and rates are set to recover, as closely as possible, the Cost of Service for each class of customers.

Q: If the allocated plant, expenses, and returns are reduced and the Cost of Service is re-calculated based on these changes, how will the Rate Design be affected?

A: If the Cost of Service is re-calculated, the pricing structure and rates must be recalculated to allow the proposed rates and revenues collected to match the new updated cost of service.

Q: In your opinion, if any of the allocated costs, expenses, and returns are changed, then must the Cost of Service be recalculated and the Rate Design updated to reflect these new costs and their recovery?

A: Yes. These components are all interrelated and it is not proper to update just one aspect of the study without updating all the components. For example, if the Cost of Service is updated, then the Rate Design, including the pricing structure, and the actual rates would need to be reviewed and updated. You cannot simply

change the rates without looking at the Price Structure as well.

II. Cost of Service

Q: Did Petitioner file a Cost of Service and Rate Design Study in this Cause?

A: Yes. Mr. Heid filed written testimony along with a Cost of Service and Rate Design Study (Exhibits KAH, KAH-1 through KAH-6).

Q: What is your understanding of when the last complete Cost of Service Study was completed for Indiana-American Water?

A: Although Indiana-American's last general rate case was Cause No. 43187, Indiana-American's last Cost of Service and Rate Design Study was filed in Cause No. 42520. In that case, Mr. Heid filed written testimony along with a Cost of Service and Rate Design Study. Previous to that case, Mr. John F. Guastella, Guastella Associates, Inc., filed written testimony along with a Cost of Service and Rate Design Study in Cause No. 41320.

Q: Do you have any comments or concerns with respect to Indiana-American's Cost of Service and Rate Design Study?

A: Yes. I have comments and recommendations with respect to (1) the Capacity Factors used in this Cost of Service Study, 2) how Transmission and Distribution Mains related costs are allocated, and (3) how Equivalent Hydrants are calculated.

(1) Capacity Factors

Q: Did Mr. Heid use Capacity Factors in his Cost of Service Study, Exhibit KAH-2, Schedule 9?

A: Yes. Mr. Heid explains on pages 18-19 of his testimony that "Maximum rates of use may be expressed in terms of capacity factors – that is, a percentage

relationship of the customer class maximum rate of use to its average annual rate of use."

Q: Were there any changes to the Capacity Factors between Cause No. 42520 and the current case, Cause No. 43680?

A: No, the capacity factors used in Cause No. 43680 are the same as the ones used in Cause No. 42520.

Q: Were any changes made to the Capacity Factors between Cause No. 42520 and Cause No. 41320?

A: Yes. In Cause No. 42520, Mr. Heid made adjustments to some of the Capacity Factors, including a large increase to the Residential Maximum Day and Maximum Hour. I have included the Capacity Factors used in Cause No. 42520 and Cause No. 41320.

	Cause No. 42520	Cause No. 41320
Maximum Day C.F.		
Residential	275	200
Commercial	175	175
Industrial – Large	120	130
Industrial – Other	150	150
Public Authority	175	175
Sales for Resale	160	175
Maximum Hour C.F.		
Residential	350	275
Commercial	250	250
Industrial – Large	160	175
Industrial – Other	200	225
Public Authority	225	225
Sales for Resale	225	250

Q: Did Mr. Heid explain why he made these changes in Cause No. 42520?

A: Yes, Mr. Heid stated, during cross examination in this Cause that the change was made because he considered the Capacity Factors used in Cause No. 41320 were

too low.

Q: Are you aware of any changes in customer classification between Cause Nos. 42520 and 43680?

A: Yes. Mr. Heid testified that he re-allocated some customers previously classified as Large Industrial to the Industrial customer classification.

Q: Were any changes in Capacity Factors made due to these customer Re-classifications?

A: No.

Q: Do you have any recommendations regarding the calculation of the Capacity Factors used in Cause No. 42520?

A: Although the Capacity Factors used in this case fall within the guidelines of an acceptable range, set by the AWWA (AWWA M11 Manual, Appendix A, Pages 297-303), a significant amount of time has passed since the factors were last analyzed in Cause No. 42520. Indiana-American has made some acquisitions since then, and some customer reclassifications have taken place. Due to these factors I recommend that Indiana-American perform a new Capacity Factor study in its next rate case.

(2) <u>Allocation of Transmission and Distribution Mains</u>

Q: Are you aware of any changes in the allocation of transmission and distribution mains in the Cost of Service between Cause Nos. 42520 and 43680?

A: Yes. In Cause No. 42520, the Transmission and Distribution (T&D) Mains Plant costs were broken down into three (3) classes (4-inch, 6-inch, and greater than 10-inch). In this Cause, Transmission and Distribution (T&D) Mains Plant costs

were broken down into only two classes (less than 12-inch and 12-inch and greater).

Q: Are you aware of any other changes in the Cost of Service between Cause Nos. 42520 and this Cause?

A: Yes. In this Cause, the T&D Mains related costs (for example, T&D Mains Depreciation Reserve, T&D Mains Depreciation & Amoritization Expenses, O&M Expenses, Contributions in Aid of Construction and Customer Advances) are being allocated to only Small customers. In Cause No. 42520, the costs were allocated to both All and Small Customers using the same allocation method used for the T&D Mains Plant.

Q: Was there a reason T&D Mains related costs are only allocated to "Common to Small" and not "Common to All"?

A: Yes. It appears that a formulaic error has caused the misallocation. The formulaic error is in both Allocator Number 113 (the "Mains Plant" Allocator) and Allocator Number 114 (the "Mains and Hydrants Plant" Allocator) located in Petitioner's Exhibit KAH-2, Schedule 2, Page 2 of 2. It appears that in changing the breakdown of T&D Mains Plant into two components, as opposed to three components in the last rate case, the formula referencing these cells may not have been updated to reflect this change, causing the formulaic error. In response to OUCC Data Request No. 24-325, Mr. Heid agreed that the formula inadvertently omits the plant investment related to mains 12-inches and larger and that it should be corrected.

Q: What is the potential impact on cost allocations due to these changes?

A: Changing the allocation method so that T&D Mains related expenses are allocated

as in the last rate case, the change in COS to each customer class is approximately:

Residential	($280,000)
Commercial	($190,000)
Industrial	($40,000)
Large Industrial	$149,000
Sales for Resale	$429,769

Q: Do you have any recommendations concerning these allocations?

A: Without having a Mains Plant cost breakdown (by main size) in the current case, it is difficult to determine what changes should be made in the T&D Mains Plant Allocations. But, as in the last case, I propose that once the formulaic error is corrected, the T&D Mains related costs be allocated with the same method used to allocate the T&D Mains Plant.

(3) Equivalent Hydrants

Q: In Cause No. 42520, OUCC witness Scott A. Bell pointed out that the Equivalent Hydrants Units were not being calculated correctly. In Cause No. 42520, he acknowledged that correcting thes error could cause rate shock to some customers, so he recommended that the correction be done in the next rate case. Was this correction shown in the current rate case workpapers?

A: No. Therefore, I recommend that the Equivalent Hydrant Units be re-calculated as suggested by Mr. Bell in Cause No. 42520 if it does not cause additional rate shock to some customers.

III. Rate Design and Revenue Recovery by Customer Class

Q: Please describe Petitioner's Rate Design and its attempt to move toward Single Tariff Pricing.

A: Mr. Heid has designed Petitioner's proposed rates in an attempt to move further toward Single Tariff Pricing. The proposed rate design has created a single

Monthly/Bi-Monthly Customer Charge applicable to all customers (eg. all 5/8" metered customers pay a $14.39 monthly customer charge). The proposed rate design also created common rate blocks for all customers (Block 1 (First 20 Ccf); Block 2 (Next 4,980 Ccf); and Block 3 (Over 5,000 Ccf)). However, the proposed rate design maintains two distinct volumetric rates. One set of volumetric rates is applicable to the existing Group1, Group 2 and Northwest customers and the other set of volumetric rates is applicable to the Mooresville, Warsaw, Winchester, Wabash and West Lafayette customers.

Q: Are the rates, as proposed by Mr. Heid, designed to recover the cost to serve each customer class?

A: No. I have summarized information contained in Petitioner's Exhibit KAH-3, Schedule 2, to show the relationship between the cost to serve each customer class and the revenues proposed to be recovered from each customer class:

Customer Class	Total Revenues Proposed Rates	Cost of Service	Revenues as a % of COS
Residential	$113,173,682	$110,267,157	102.64%
Commercial	$ 51,711,744	$ 51,190,338	101.02%
Industrial – Large	$ 3,840,551	$ 4,614,599	83.23%
Industrial	$ 8,700,229	$ 9,147,072	95.11%
Sales for Resale	$ 10,304,316	$ 12,562,147	82.03%

As the table above demonstrates, the proposed rate structure does not recover the cost to serve the Industrial – Large, Industrial and Sales for Resale customers and over-recovers the cost to serve the Residential and Commercial customers. The Residential and Commercial customers' proposed revenues are approximately $2.9 million and $520,000 higher, respectively, than the proposed Cost of Service. While the Industrial Large, Industrial, and Sales for Resale customers' proposed

revenues are lower than the Cost of Service by $775,000, $445,000, and $2.25 million, respectively (See Exhibit KAH-3, Schedule 2, pages 3-5). Therefore, the Residential and Commercial customers are subsidizing the Industrial – Large, Industrial and Sales for Resale customers by over $3.4 million dollars. In response to OUCC Data Request No. 24-326b., Mr. Heid acknowledged that the differences between the proposed revenues and cost of service reflect a subsidy by the Residential and Commercial customer. He then explained that this is not an intential subsidy to mitigate rate shock "but is soley a result of the rate design process."

In addition, Mr Heid provided the following explanation in response to OUCC Data Request No. 24-326c., as to why there are large differences between the cost of service and proposed revenue amounts:

> c. The reason for the differences between the previous case and the current case is due to differences in the rate design between the two cases. In the last cost of service and rate design study in Cause No. 42520, the rate design was comprised of a number of rate groups that enabled the difference between proposed revenues and cost of service to be minimized. In the current case, the focus was on making a more substancial move toward single tariff pricing while minimizing rate shock to the Area 2 customers. This limited the ability to minimize the differences between the proposed customer class revenues and the customer class costs of service.

Q: Is your belief that rates should be set to recover revenues that match as closely as possible the Cost of Service for each customer class?

A: Yes

Q: Did revenues more closely match the cost of service for each customer class in Petitioner's Cause No. 42520?

A: Yes

Q: Do you have any specific recommendations on the Rate Design Petitioner is proposing?

A: Yes. According to Mr. Heid's response to OUCC discovery above, the subsidies by the Residential and Commercial customers are a result of the rate design process when moving to Single Tariff Pricing. It appears that Petitioner's move to Single Tariff Pricing in this case is too aggressive. Therefore, I recommend Petitioner moderate its proposed move to Single Tariff Pricing in a way that significantly lessens or eliminates the subsidy on the Residential and Commercial customers. The movement toward Single Tariff Pricing that Petitioner intends to accomplish in this case could be done, over two rate cases. This postion is consistent with the OUCC's desire to have cost based rates.

Q: Does this conclude your testimony?

A: Yes.

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.

By: Jon C. Dahlstrom
Indiana Office of
Utility Consumer Counselor

10/23/09
Date

TESTIMONY OF ROGER A. PETTIJOHN
CAUSE NO. 43680
INDIANA-AMERICAN WATER COMPANY, INC.

I. INTRODUCTION & BACKGROUND

Q: Please state your name and business address.

A: My name is Roger A. Pettijohn, and my business address is 115 West Washington Street, Suite 1500 South, Indianapolis, Indiana 46204.

Q: By whom and in what capacity are you employed?

A: I am employed by the Indiana Office of Utility Consumer Counselor (OUCC) as a Senior Utility Analyst for the Water/Wastewater Division.

Q: What are the duties and responsibilities of your current position?

A: My duties include evaluating the condition, operation, and planning of water and sewer utilities that are subject to IURC jurisdiction.

Q: What is your professional background and experience?

A: After teaching several years for the Department of Defense Dependents Schools in Japan and the Philippines, I accepted an administrative position as Utility Director for the City of Elwood, Indiana in 1976. Subsequently, I assumed the responsibilities of operator in charge of the water and wastewater facilities. In 1980, I accepted a position as Waterworks Superintendent for the City of Marion, Indiana. After taking early retirement from the City of Marion in 1995, I served

as a project manager and representative for a firm representing various manufacturing companies in the business of providing water and wastewater treatment equipment to municipalities and industry. I currently maintain a Class I Wastewater Treatment License, as well as Water Treatment System 3 and System 5 designations (WTS-3 and WTS-5), which are ground and surface water treatment plant certifications, respectively. Finally, I hold a Distribution System Large (DS-L) license issued by the State of Indiana.

Q: Have you previously testified before the Commission?

A: Yes, both on behalf of utilities for which I worked and as an analyst for the OUCC.

Q: What investigations have you performed in this Cause?

A: I reviewed Petitioner's case-in-chief. I prepared discovery questions and reviewed the responses. I toured Petitioner's facilities and operations, reviewed Petitioner's operational reports and records. I consulted with OUCC staff. Finally, I have reviewed customer comments and attended field hearings. I sponsor the public comments we have received that have not already been entered into the evidentiary record. (See Volume VIII.)

Q: What is the scope of your testimony?

A: I will address significant capital additions detailed in Mr. Stacey Hoffman's testimony, Mr. Alan DeBoy's testimony regarding excess plant at the Southern

Indiana Operations Treatment Center, and a capital cost deferral in Petitioner's five-year-plan.

II. PETITIONER'S CHARACTERISTICS

Q: Please describe Petitioner and its utility plant.

A: Petitioner is a for-profit corporation providing water service in 21 counties throughout the State of Indiana. Petitioner provides wastewater service to the communities of Somerset and Farmington. Its larger water operations include facilities in Greenwood, Terre Haute, New Albany/Jeffersonville, West Lafayette, the Gary/Merrillville area northwest Lake County, Noblesville and Richmond. In total, Petitioner provides utility service to approximately 283,000 customers thereby making it the second largest water provider in the State; the City of Indianapolis being the largest with over 300,000 customers.

Petitioner's Witness Alan DeBoy stated in his testimony that in 2008 the Company, through its 32 water treatment facilities, pumped an average of 110,000 million gallons per day or approximately 40 billion gallons per year. Further, the Company owns and maintains approximately 4,331 miles of water main, more than 22,000 fire hydrants and 87 storage tanks containing prospectively 64 million gallons.

III. MAJOR PROJECTS

Q: What are the major projects enumerated by Mr. Stacy Hoffman in this

Cause?

A: Mr. Hoffman lists 18 major projects (the "Projects") to be included in rate base before the conclusion of the Final Hearing in this Cause. The cost of the projects are in a range of approximately 500,000 to approximately $35 million involving a new well field with treatment plant and renovation of an existing treatment plant.

Q: Have you seen or inspected any of the Projects?

A: Yes. On October 12, 2009, I toured the Noblesville operation with Petitioner's Witness Mr. Hoffman, and on October 13, 2009, I toured the Northwest service area with David Elmer, Project Delivery Manager. At the Noblesville operation, I inspected the Promise Road Tank and connecting transmission main as well as the Conner Street Pump Station Improvements. The costs of those improvements totaled approximately $4.4M. In addition, I visited the White River North Well Field where a new well has been installed and connected. Filter improvements are also listed however the filters, normally under pressure, would have to be taken out of service to be viewed internally. The source of supply and filter improvements were approximately $3.2M.

In the Northwest service area, I viewed the Borman Park flocculation improvements (est. $1.65M), Portage elevated tank (est. $3.0M), Ogden Dunes chemical feed improvements (est. $3.36M), Taft Street transmission main and Pump Station improvements (est. $2.2M), Coffee Creek Pump station and transmission main improvements (est. $1.92M), some general SCADA (Supervisory-Control-And-Data-Acquisition) improvements (est. $1.0M),

Cleveland Street transmission main and Pump Station (est. $9.8M), and the Ogden Dunes Backwash recycle tank and pumping equipment/controls (est. $7M). Other Projects were reviewed by OUCC Witness Harold Rees and are discussed in his testimony.

Q: What was the operational status of the major Projects you inspected?

A: Except for the Cleveland Pump Station, all of the projects were in use or operational. As of October 12, power has yet to be installed at the Cleveland Pump Station. Petitioner expects to have this Station in use by December of this year or earlier, and I see no reason why this would not be accomplished.

IV. DEFERRAL OF CAPITAL PROJECTS

Q: Has Indiana-American reduced its capital improvement plan?

A: In response to questioning at the evidentiary hearing on Petitioner's case-in-chief, Mr. Hoffman indicated Indiana-American reduced its capital improvements by approximately $100 million. When asked to elaborate on this statement in OUCC Data Request 11, Q-132, Mr. Hoffman responded that Petitioner's five-year-plan was achieved "largely through deferral of projects and updating of planned budget estimates." Tables were also included in the response showing its initial five-year plan of 5/2/08, its revised plan of 12/16/08 and a table comparing the two plans. The difference in plans indicated a project deferral reduction of over $107,000,000 or approximately 25% (See RAP Attachment 1). The OUCC supports public utilities re-evaluating their capital improvement plans to avoid

imposing unnecessary costs on the ratepayer while ensuring the provision of safe and adequate service.

V. SIOTC EXCESS CAPACITY

Q: What is the excess capacity issue at the Southern Indiana Operations Treatment Center ("SIOTC") facility?

A: In Cause No. 42520, the Commission found that Petitioner's rate base should be reduced by $753,378 for excess capacity at the SIOTC and that the accumulated depreciation should be reduced by $232,248. The issue was raised by the OUCC which asserted that Petitioner had excess pumping capacity at the SIOTC. Assuming a SIOTC has a peak demand of approximately 22 million gallons per day ("MGD"), the Commission noted that individually four of the five high service pumps could pump 37.7 MGD with the largest pumping unit out of service. Mr. DeBoy's testimony in this Cause repeats his assertion that that all five of the pumps are necessary to ensure that Petitioner can meet its peak demand with one of its two clearwell reservoirs out of service. In other words, Mr. DeBoy asserts that with either of the two cells out of service, the remaining cell of the clearwell must be capable of meeting peak demand.

Q: Is there a standard that a water utility be able to meet peak day demand with any pump out of service?

A: Yes. Recommended Standards for Water Works, commonly referred to as "Ten States Standards," states in pertinent part the following at Section 6.3:

With any pump out of service, the remaining pump or pumps shall be capable of providing the maximum pumping demand of the system.

Q: Is there a requirement that each individual cell must meet peak day demand?

A: No. Petitioner can cite no requirement or standard that a utility must be able to meet peak demand from one only one cell of a clearwell being in service.

Q: Can the other cell (the east cell) of Petitioner's clearwell meet a peak day demand?

A: No. Petitioner maintains it has a peak day demand of 21.7 MGD. (Petitioner's pumping records show a peak day demand for the SIOTC facility of 21.7 MGD, which occurred on August 12, 2002.) However, according to Mr. DeBoy the east cell of the reservoir (the side with two pumps) has a pumping capacity of only 20 MGD (DeBoy p. 9). Thus, according to Indiana American's own numbers, the east cell would not meet peak day demand. But there has not been any suggestion in this cause or earlier causes that Indiana-American has failed to meet any standard with respect to the east cell.

Q: Why does the west cell have three pumps?

A: Three pumps are not necessary but rather two as is the case with the east clearwell cell. It is not necessary for each well to provide peak day capacity while the other is out of service.

Q: Mr. DeBoy notes the Utility's need to have two compartments in its clearwell. Does the OUCC disagree with the clearwell compartmentalized design?

A: No. As I read Mr. De Boy's testimony for the first time, it seemed to suggest that the OUCC does not agree with the concept of having a bifurcated clearwell. The OUCC has never disagreed with or even mentioned the clearwell design. Clearly, it makes good sense from an operational and engineering standpoint to have a large clearwell divided in order that while one side can be taken out of service to be cleaned while the other continues to providing finished water to distribution. Petitioner's clearwell needs an isolation feature because of its size. However, most clearwells providing the same function do not have an isolation feature since they are much smaller.

Q: What is the normal function and operation of a clearwell?

A: The clearwell is a type of reservoir that stores and provides finished water to be pumped to distribution by way of high service or high lift pumps. Petitioner's clearwell is normally in-service and is rarely taken out of service except for cleaning or inspection. The cells should be thought of as one unit normally in operation. In other words, except when either cell is taken out of service for maintenance, both sides are in operation. Maintenance in the form of cleaning or inspection would take place during low production periods such as winter months or on a week-end. Clearwells can be readily taken out of service and put back into service.

Q: How often are the SIOTC cells in the clearwell cleaned or inspected?

A: Petitioner indicates a clearwell inspection every five (5) years. In the rather

unlikely event of sudden demand, such as a major fire or main break, during a time when one of the cells is out of service, the elevated storage tanks would provide a reserve until which time the cell could be put back on line and service normalized.

Q: Since the Commission's final order in Cause No. 42520, has the Peak day demand changed for this system?

A: No. Petitioner's case-in-chief indicates a peak day demand of 21.7 MGD. This is precisely the demand asserted in Cause No. 42520.

Q: Are you aware of any other changes to this system's requirements since Cause No. 42520 that would change whether a third pump in the west cell is warranted?

A: No.

Q: Does this conclude your testimony?

A: Yes.

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.

By: Roger A. Pettijohn
Indiana Office of
Utility Consumer Counselor

10/23/09
Date

05/02/08 VERSION STRATEGIC CAPITAL EXPENDITURE PLAN

05/02/08 VERSION

FP #	fp_descr	2009 Total	2010 Total	2011 Total	2012 Total	2013 Total	5-Year Total
RECURRING AND DV PROJECTS							
DV-10	Projects Funded by Others	11,277,500	11,731,875	12,320,139	12,611,908	12,740,169	60,681,589
RP-10-A	Recurring New Mains (Upsizing, Close Loops,etc.)	657,845	685,709	711,459	742,779	779,676	3,577,468
RP-10-B	Recurring Mains - Replaced/Restored	13,739,900	15,423,641	17,218,309	19,011,026	20,587,426	85,980,302
RP-10-C	Recurring Unscheduled Mains (Main Breaks)	583,106	623,305	652,265	673,080	693,433	3,225,189
RP-10-D	Recurring Relocated Mains (INDOT)	4,253,461	4,353,413	4,555,802	4,758,246	5,059,508	22,980,430
RP-10-E	Recurring New Hydrants, Valves & Manholes	116,155	110,996	121,109	124,113	131,665	604,037
RP-10-F	Recurring Hydrant, Valve & Manhole Replacements	1,574,161	1,629,316	1,686,590	1,743,887	1,797,544	8,431,497
RP-10-G	Recurring New Services & Laterals	3,155,905	3,242,151	3,408,861	3,573,111	3,774,592	17,154,620
RP-10-H	Recurring Service & Lateral Replacements	1,422,594	1,449,221	1,512,335	1,556,013	1,605,588	7,545,750
RP-10-I	Recurring New Meters	1,310,314	1,367,665	1,425,412	1,479,812	1,538,841	7,122,043
RP-10-J	Recurring Meter Replacements	5,966,281	5,063,240	5,192,006	5,240,422	5,261,690	26,723,640
RP-10-K	Recurring ITS Equipment and Systems	156,284	200,657	90,843	718,274	154,959	1,321,017
RP-10-L	Recurring SCADA Equipment and Systems	605,678	759,747	707,373	621,736	579,175	3,273,708
RP-10-M	Recurring Security Equipment and Systems	151,260	153,648	158,167	158,167	158,156	779,398
RP-10-N	Recurring Offices and Operations Centers	203,970	141,939	160,545	148,083	154,028	808,565
RP-10-P	Recurring Tools and Equipment	610,386	451,898	449,749	476,577	464,771	2,453,381
RP-10-Q	Recurring Process Plant Facilities & Equipment	2,140,311	1,898,532	1,849,754	1,898,003	1,770,256	9,556,856
RP-10-R	Capitalized Tank Rehabilitation/Painting	4,055,000	4,260,500	4,477,000	4,700,000	4,940,000	22,432,500
RP-10-S	Engineering Studies	150,000	154,500	159,135	163,909	168,826	796,370
RP/DV TOTAL		52,130,111	53,701,952	56,856,852	60,399,144	62,360,302	285,448,361
INVESTMENT PROJECTS							
IP-1055-1	London Rd SOS and WTF	6,506,606	0	0	0	0	6,506,606
IP-1055-4	JCO Transmission Main from LDR WTF	1,372,938	0	0	0	0	1,372,938
10900605	Cleveland St 30" Main	5,589,174	0	0	0	0	5,589,174
IP-1090-24	Ogden Dunes WFP Backwash Recycle	988,010	0	0	0	0	988,010
IP-1010-7	Waterworks Dam #2	322,496	0	0	0	0	322,496
IP-1015-2	Prairie Creek Reservoir Improvements	322,496	0	0	0	0	322,496
IP-1045-2	1.0 MG Elevated Tank & Mains	0	53,225	1,275,174	903,316	0	2,231,716
IP-1060-6	206th Street WME	1,074,010	0	0	0	0	1,074,010
IP-1065-1	SHL Main from London Road WTF	34,745	4,504,402	0	0	0	4,539,147
IP-1075-1	New Well	0	5,264	276,477	0	0	281,741
IP-1090-4	Borman Park BW Recycling, Residuals	207,832	1,880,375	0	0	0	2,088,207
IP-1090-6	Borman Park Substation Improvements	1,000,000	0	0	0	0	1,000,000
IP-1090-28	Winfield Elevated Storage	1,076,427	615,134	0	0	0	1,691,561

IP-1090-34	Distribution Service Center Improve	208,255	477,918	0	0	0	686,173
IP-1001-13	IN Post Acquisition Costs	2,565,000	277,000	693,000	924,000	924,000	5,383,000
IP-1047-1	West Lafayette SOS & WTF	15,575,833	1,624,248	0	0	0	17,200,081
IP-1055-5	Sugar Creek Plant Improvements	3,817,067	0	0	0	0	3,817,067
IP-1090-3	10th Street, Hobart - 12" Main	249,973	0	0	0	0	249,973
IP-1090-18	16" Main 93rd Avenue, Taft-Broadway	200,030	1,499,995	0	0	0	1,700,025
IP-1090-31	Borman Park Floc Equipment	840,393	0	0	0	0	840,393
IP-1010-3	Main WTP Improvements	0	98,962	3,372,171	549,515	0	4,020,648
IP-1015-4	Main WTP Improvements - Stage 2	0	247,405	3,729,729	4,105,103	0	8,082,237
IP-1025-8	Middle Fork Reservoir Improvements	0	98,962	1,887,740	557,737	0	2,544,439
IP-1046-1	New Treatment Plant	2,414,502	9,304,555	9,190,567	0	0	20,909,624
IP-1060-8	New Treatment Plant	2,215,243	2,126,302	9,960,103	8,696,345	0	22,997,993
IP-1001-2	Statewide SPCC Improvements	110,879	0	0	0	0	110,879
IP-1001-14	GIS Mapping Conversion	251,193	513,747	249,799	0	0	1,014,740
IP-1070-4	Farmersburg Interconnection (B8)	0	0	0	98,962	898,115	997,077
IP-1090-27	Borman Park Coagulant Storage	359,108	0	0	0	0	359,108
IP-1010-2	Main WTP Lagoon Improvements	418,210	0	0	0	0	418,210
IP-1010-8	Waterworks Dam #2 (Add'l Rip Rap)	0	0	0	494,740	0	494,740
IP-1025-7	Middle Fork Reservoir Improvements	296,844	0	0	0	0	296,844
IP-1055-8	Earlywood Booster Improvemnts (A-3)	0	0	98,962	102,610	0	201,572
IP-1060-4	HPZ Elevated Tank	8,422	563,317	2,110,482	2,582,800	0	5,265,021
IP-1075-3	South Trans Main to New Albany	0	799,066	2,000,528	2,000,248	0	4,799,842
IP-1090-15	Ogden Dunes Filters-Rehabilitation	1,200,008	0	0	0	0	1,200,008
IP-1090-33	US Hwy 12; 36 inch main Miller Hwy	103,925	900,781	0	0	0	1,004,706
IP-1060-9	2011 SOS Land Acquisition	0	0	0	0	0	0
IP-1060-3	Noblesville Well and Filter @WR WTP	0	0	0	0	0	0
IP-1060-5	Stony Creek Lane WME	0	0	0	0	0	0
IP-1090-23	SR-149 30-inch Main Extension	0	0	0	0	0	0
IP-1090-29	24-inch Main along Taft St.	0	0	0	0	0	0
10600601	Promise Rd Elevated Tank	0	0	0	0	0	0
IP-1090-10	Distribution System Automation and	0	0	0	0	0	0
IP-1001-8	IN Enterprise System Enhancements	855,578	427,789	855,578	855,578	855,578	3,850,101
IP-1001-15	Pumping System Optimization	312,587	307,817	804,777	608,617	500,000	2,533,799
IP-1001-17	Dist Improvements - Mult Districts	0	0	0	500,000	5,000,000	5,500,000
IP-1001-18	IN Underprogrammed Capex	-4,573,000	-3,674,000	-4,389,000	-3,884,000	-3,240,000	-19,760,000
IP-1001-20	Production Improvements	0	0	0	499,022	3,000,165	3,499,187
IP-1010-1	Tank & Mains in Southwest	0	0	611,712	1,345,394	0	1,957,106
IP-1010-4	US31 Bypass Distribution	0	247,405	1,255,500	0	0	1,502,905
IP-1010-9	Off-Channel Dam Improvements	0	0	0	0	1,979,242	1,979,242
IP-1015-3	Prairie Creek Reservoir Improvements	0	0	494,810	513,052	0	1,007,862
IP-1015-5	Pump Station at Jackson St Tank	138,527	0	0	0	0	138,527
IP-1025-1	National Road Pump Station Replacement	0	208,255	345,724	0	0	553,979

IP-1055-7	Marlin/Orme WTF Improvements	0	0	210,558	988,649	0	1,199,207
IP-1055-9	Pumping & Transmission Capacity	0	0	197,924	601,012	0	798,937
10700507	WBV-Source of Supply	5,505,665	6,301,922	0	0	0	11,807,587
IP-1070-1	High Pressure Zone Consolidation	2,000,020	600,016	0	0	0	2,600,036
IP-1075-2	Floyd's Knobs Tank	1,930,791	0	0	0	0	1,930,791
IP-1090-1	16" Main 73rd Avenue from Mississip	40,000	510,000	0	0	0	550,000
IP-1090-30	Schererville 3rd Supply Connection	1,791,927	0	0	0	0	1,791,927
IP-1025-6	Distribution Main Reinforcements	0	0	0	1,700,000	0	1,700,000
IP-1015-6	Centennial Avenue WME (A-9)	0	494,740	0	0	0	494,740
IP-1015-7	Selma County Rd 138 South	0	0	0	79,170	668,919	748,089
IP-1047-2	WLF Elevated Storage Tank	0	263,197	1,546,392	1,189,392	0	2,998,981
IP-1058-1	Aeration & Filters added to WTP (ra	0	0	0	76,242	1,635,744	1,711,986
IP-1080-2	West Dist. System Improvements	0	99,488	999,226	400,674	0	1,499,389
IP-1085-1	Poplar Street main reinforcement	0	0	0	600,000	0	600,000
IP-1090-2	12" Main Rep, Water St.-6th to 10th	0	0	0	21,216	426,269	447,485
IP-1090-7	SR Hwy 130 from Sullivan to County	0	0	0	50,000	350,000	400,000
IP-1090-13	Ground Storage Portage	0	296,886	1,506,812	1,209,819	0	3,013,518
IP-1090-36	Booster Station Improvements	0	300,045	2,001,861	699,205	0	3,001,111
IP-1090-37	Borman Pk HS Pump/Piping Improve	0	500,074	6,007,007	3,500,872	0	10,007,954
IP-1090-38	Coffee Creek Elevated Tank	300,000	2,000,000	1,200,000	0	0	3,500,000
IP-1090-41	MLK Booster Transmission Improvemen	0	0	0	100,000	900,005	1,000,005
IP-1090-42	Hobart Transmission Improvements	0	0	0	150,022	1,499,951	1,649,974
IP TOTAL		57,631,715	34,474,294	48,493,613	32,819,313	15,397,989	188,816,925
GROSS TOTAL		109,761,826	88,176,246	105,350,465	93,218,457	77,758,292	474,265,286
	Contributions	0	0	0	0	0	0
	Advances	-10,848,500	11,694,875	-12,283,139	12,574,908	12,703,169	-60,104,589
	Refunds	2,536,242	2,461,592	2,699,670	2,694,986	2,732,280	13,124,770
NET TOTAL		**101,449,569**	**78,942,964**	**95,766,996**	**83,338,536**	**67,787,403**	**427,285,467**

12/16/08 VERSION STRATEGIC CAPITAL EXPENDITURE PLAN		12/16/08 VERSION					
FP #	fp_descr	2009 Total	2010 Total	2011 Total	2012 Total	2013 Total	5-Year Total
RECURRING AND DV PROJECTS							
DV-10	Projects Funded by Others	11,277,500	11,731,875	12,320,139	12,611,908	12,740,169	60,681,589
RP-10-A	Recurring New Mains (Upsizing, Close Loops,etc.)	493,400	685,709	711,459	742,779	779,676	3,413,023
RP-10-B	Recurring Mains - Replaced/Restored	1,400,000	12,000,000	4,000,000	14,850,000	4,000,000	36,250,000
RP-10-C	Recurring Unscheduled Mains (Main Breaks)	583,106	623,305	652,265	673,080	693,433	3,225,189
RP-10-D	Recurring Relocated Mains (INDOT)	8,243,491	4,353,413	4,555,802	4,758,246	5,059,508	26,970,460
RP-10-E	Recurring New Hydrants, Valves & Manholes	87,200	110,996	121,109	124,113	131,665	575,082
RP-10-F	Recurring Hydrant, Valve & Manhole Replacements	1,259,000	1,629,316	1,686,590	1,743,887	1,797,544	8,116,336
RP-10-G	Recurring New Services & Laterals	2,250,000	3,242,151	3,408,861	3,573,111	3,774,592	16,248,716
RP-10-H	Recurring Service & Lateral Replacements	1,209,205	1,449,221	1,512,335	1,556,013	1,605,588	7,332,361
RP-10-I	Recurring New Meters	985,000	1,367,665	1,425,412	1,479,812	1,538,841	6,796,729
RP-10-J	Recurring Meter Replacements	5,966,281	5,063,240	5,192,006	5,240,422	5,261,690	26,723,640
RP-10-K	Recurring ITS Equipment and Systems	54,700	200,657	720,000	115,000	158,156	1,248,513
RP-10-L	Recurring SCADA Equipment and Systems	211,987	759,747	707,373	621,736	579,175	2,880,017
RP-10-M	Recurring Security Equipment and Systems	30,252	153,648	158,167	158,167	158,156	658,390
RP-10-N	Recurring Offices and Operations Centers	61,191	141,939	160,545	148,083	154,028	665,785
RP-10-P	Recurring Tools and Equipment	305,000	451,898	449,749	476,577	464,771	2,147,995
RP-10-Q	Recurring Process Plant Facilities & Equipment	1,391,202	1,898,532	1,849,754	1,898,003	1,770,256	8,807,747
RP-10-R	Capitalized Tank Rehabilitation/Painting	0	500,000	1,250,000	2,000,000	1,500,000	5,250,000
RP-10-S	Engineering Studies	150,000	154,500	159,135	163,909	168,826	796,370
RP/DV TOTAL		35,958,514	46,517,811	41,040,700	52,934,845	42,336,074	218,787,944
INVESTMENT PROJECTS							
IP-1055-1	London Rd SOS and WTF	7,280,130	0	0	0	0	7,280,130
IP-1055-4	JCO Transmission Main from LDR WTF	1,714,752	0	0	0	0	1,714,752
10900605	Cleveland St 30" Main	6,434,061	0	0	0	0	6,434,061
IP-1090-24	Ogden Dunes WFP Backwash Recycle	6,800,000	0	0	0	0	6,800,000
IP-1010-7	Waterworks Dam #2	0	0	350,000	0	0	350,000
IP-1015-2	Prairie Creek Reservoir Improvements	0	0	350,000	0	0	350,000
IP-1045-2	1.0 MG Elevated Tank & Mains	0	0	75,000	900,000	1,300,000	2,275,000
IP-1060-6	206th Street WME	0	1,200,000	0	0	0	1,200,000
IP-1065-1	SHL Main from London Road WTF	35,546	2,000,000	2,540,000	0	0	4,575,546
IP-1075-1	New Well	0	0	0	25,000	275,000	300,000
IP-1090-4	Borman Park BW Recycling, Residuals	0	0	0	3,000,000	3,000,000	6,000,000

IP-1090-6	Borman Park Substation Improvements	1,500,000	600,000	800,000	0	0	2,900,000
IP-1090-28	Winfield Elevated Storage	0	1,400,000	600,000	0	0	2,000,000
IP-1090-34	Distribution Service Center Improve	0	350,000	350,000	0	0	700,000
IP-1001-13	IN Post Acquisition Costs	500,000	277,000	693,000	924,000	924,000	3,318,000
IP-1047-1	West Lafayette SOS & WTF	11,040,953	679,608	0	0	0	11,720,561
IP-1055-5	Sugar Creek Plant Improvements	2,659,978	0	0	0	0	2,659,978
IP-1090-3	10th Street, Hobart - 12" Main	46,182	0	0	0	0	46,182
IP-1090-18	16" Main 93rd Avenue, Taft-Broadway	150,000	1,499,995	0	0	0	1,649,995
IP-1090-31	Borman Park Floc Equipment	21,966	0	0	0	0	21,966
IP-1010-3	Main WTP Improvements	150,000	1,900,000	1,900,000	0	0	3,950,000
IP-1015-4	Main WTP Improvements - Stage 2	150,000	3,700,000	4,100,000	0	0	7,950,000
IP-1025-8	Middle Fork Reservoir Improvements	200,000	1,000,000	1,300,000	0	0	2,500,000
IP-1046-1	New Treatment Plant	500,000	11,204,555	9,190,567	0	0	20,895,121
IP-1060-8	New Treatment Plant	150,000	12,500,000	8,696,345	0	0	21,346,345
IP-1001-2	Statewide SPCC Improvements	110,879	0	0	0	0	110,879
IP-1001-14	GIS Mapping Conversion	251,193	513,747	249,799	0	0	1,014,740
IP-1070-4	Farmersburg Interconnection (B8)	0	0	0	98,962	898,115	997,077
IP-1090-27	Borman Park Coagulant Storage	359,108	0	0	0	0	359,108
IP-1010-2	Main WTP Lagoon Improvements	0	0	418,210	0	0	418,210
IP-1010-8	Waterworks Dam #2 (Add'l Rip Rap)	0	0	0	0	500,000	500,000
IP-1025-7	Middle Fork Reservoir Improvements	0	0	300,000	0	0	300,000
IP-1055-8	Earlywood Booster Improvemnts (A-3)	0	0	0	98,962	102,610	201,572
IP-1060-4	HPZ Elevated Tank	8,422	563,317	0	2,110,482	2,582,800	5,265,021
IP-1075-3	South Trans Main to New Albany	0	0	800,000	2,000,000	2,000,000	4,800,000
IP-1090-15	Ogden Dunes Filters-Rehabilitation	0	1,200,000	0	0	0	1,200,000
IP-1090-33	US Hwy 12; 36 inch main Miller Hwy	0	500,000	500,000	0	0	1,000,000
IP-1060-9	2011 SOS Land Acquisition	1,225,000	0	0	0	0	1,225,000
IP-1060-3	Noblesville Well and Filter @WR WTP	600,000	0	0	0	0	600,000
IP-1060-5	Stony Creek Lane WME	72,000	750,000	0	0	0	822,000
IP-1090-23	SR-149 30-inch Main Extension	0	750,000	0	0	0	750,000
IP-1090-29	24-inch Main along Taft St.	1,688,653	0	0	0	0	1,688,653
10600601	Promise Rd Elevated Tank	296,092	0	0	0	0	296,092
IP-1090-10	Distribution System Automation and	20,000	0	0	0	0	20,000

IP-1001-8	IN Enterprise System Enhancements	0	0	0	0	0	0
IP-1001-15	Pumping System Optimization	0	0	0	0	0	0
IP-1001-17	Dist Improvements - Mult Districts	0	0	0	0	0	0
IP-1001-18	IN Underprogrammed Capex	0	0	0	0	0	0
IP-1001-20	Production Improvements	0	0	0	0	0	0
IP-1010-1	Tank & Mains in Southwest	0	0	0	0	0	0
IP-1010-4	US31 Bypass Distribution	0	0	0	0	0	0
IP-1010-9	Off-Channel Dam Improvements	0	0	0	0	0	0
IP-1015-3	Prairie Creek Reservoir Improvements	0	0	0	0	0	0
IP-1015-5	Pump Station at Jackson St Tank	0	0	0	0	0	0
IP-1025-1	National Road Pump Station Replacement	0	0	0	0	0	0
IP-1055-7	Marlin/Orme WTF Improvements	0	0	0	0	0	0
IP-1055-9	Pumping & Transmission Capacity	0	0	0	0	0	0
10700507	WBV-Source of Supply	0	0	0	0	0	0
IP-1070-1	High Pressure Zone Consolidation	0	0	0	0	0	0
IP-1075-2	Floyd's Knobs Tank	0	0	0	0	0	0
IP-1090-1	16" Main 73rd Avenue from Mississip	0	0	0	0	0	0
IP-1090-30	Schererville 3rd Supply Connection	0	0	0	0	0	0
IP-1025-6	Distribution Main Reinforcements	0	0	0	0	150,000	150,000
IP-1015-6	Centennial Avenue WME (A-9)	0	0	0	0	75,000	75,000
IP-1015-7	Selma County Rd 138 South	0	0	0	0	80,000	80,000
IP-1047-2	WLF Elevated Storage Tank	0	0	0	0	250,000	250,000
IP-1058-1	Aeration & Filters added to WTP (ra	0	0	0	0	250,000	250,000
IP-1080-2	West Dist. System Improvements	0	0	0	0	100,000	100,000
IP-1085-1	Poplar Street main reinforcement	0	0	0	0	50,000	50,000
IP-1090-2	12" Main Rep, Water St.-6th to 10th	0	0	0	0	50,000	50,000
IP-1090-7	SR Hwy 130 from Sullivan to County	0	0	0	0	50,000	50,000
IP-1090-13	Ground Storage Portage	0	0	0	0	300,000	300,000
IP-1090-36	Booster Station Improvements	0	0	0	700,000	1,400,000	2,100,000
IP-1090-37	Borman Pk HS Pump/Piping Improve	0	0	0	0	1,000,000	1,000,000
IP-1090-38	Coffee Creek Elevated Tank	0	2,000,000	1,200,000	0	0	3,200,000
IP-1090-41	MLK Booster Transmission Improvemen	0	0	0	0	100,000	100,000
IP-1090-42	Hobart Transmission Improvements	0	0	0	0	150,000	150,000

IP TOTAL	43,964,915	44,588,222	34,412,921	9,857,406	15,587,525	148,410,989
GROSS TOTAL	79,923,429	91,106,033	75,453,621	62,792,251	57,923,599	367,198,932
Contributions	0	0	0	0	0	0
Advances	10,848,500	11,694,875	12,283,139	12,574,908	12,703,169	-60,104,589
Refunds	2,536,242	2,461,592	2,699,670	2,694,986	2,732,280	13,124,770
NET TOTAL	**71,611,171**	**81,872,750**	**65,870,152**	**52,912,329**	**47,952,710**	**320,219,113**

VARIANCE BETWEEN 05/02/08 VERSION AND 12/16/08 VERSION - FOR 2008-2013

VARIANCE BETWEEN 05/02/08 VERSION AND 12/16/08 VERSION

FP #	fp_descr	VARIANCE 2009 Total	2010 Total	2011 Total	2012 Total	2013 Total	5-Year Total	DISCUSSION	Variance By Project Category
RECURRING AND DV PROJECTS									
DV-10	Projects Funded by Others	0	0	0	0	0	0	No Change	
RP-10-A	Recurring New Mains (Upsizing, Close Loops)	-164,445	0	0	0	0	-164,445	Reduction 2009 only	
RP-10-B	Recurring Mains - Replaced/Restored	12,339,900	-3,423,641	13,218,309	-4,161,026	16,587,426	-49,730,302	Reduction overall in Main Replacement Program	
RP-10-C	Recurring Unscheduled Mains (Main Breaks)	0	0	0	0	0	0	No Change	
RP-10-D	Recurring Relocated Mains (INDOT)	3,990,030	0	0	0	0	3,990,030	Increase in Relocations projected for 2009	
RP-10-E	Recurring New Hydrants, Valves & Manholes	-28,955	0	0	0	0	-28,955	Reduction 2009 only	
RP-10-F	Recurring Hydrant, Valve & Manhole Repl	-315,161	0	0	0	0	-315,161	Reduction 2009 only	
RP-10-G	Recurring New Services & Laterals	-905,905	0	0	0	0	-905,905	Reduction 2009 only	
RP-10-H	Recurring Service & Lateral Replacements	-213,389	0	0	0	0	-213,389	Reduction 2009 only	
RP-10-I	Recurring New Meters	-325,314	0	0	0	0	-325,314	Reduction 2009 only	
RP-10-J	Recurring Meter Replacements	0	0	0	0	0	0	No Change	
RP-10-K	Recurring ITS Equipment and Systems	-101,584	0	629,157	-603,274	3,197	-72,504	Reduction overall in IT Program	
RP-10-L	Recurring SCADA Equipment and Systems	-393,691	0	0	0	0	-393,691	Reduction 2009 only	
RP-10-M	Recurring Security Equipment and Systems	-121,008	0	0	0	0	-121,008	Reduction 2009 only	
RP-10-N	Recurring Offices and Operations Centers	-142,779	0	0	0	0	-142,779	Reduction 2009 only	
RP-10-P	Recurring Tools and Equipment	-305,386	0	0	0	0	-305,386	Reduction 2009 only	
RP-10-Q	Recurring Process Plant Facilities & Equip	-749,110	0	0	0	0	-749,110	Reduction 2009 only	
RP-10-R	Capitalized Tank Rehabilitation/Painting	-4,055,000	-3,760,500	-3,227,000	-2,700,000	-3,440,000	-17,182,500	Reduction overall in Tank Painting/Rehab Program	
RP-10-S	Engineering Studies	0	0	0	0	0	0	No Change	
RP/DV TOTAL		16,171,597	-7,184,141	15,816,152	-7,464,299	20,024,229	-66,660,417		-66,660,417
INVESTMENT PROJECTS									
IP-1055-1	London Rd SOS and WTF	773,524	0	0	0	0	773,524	[redacted]	
IP-1055-4	JCO Transmission Main from LDR WTF	341,814	0	0	0	0	341,814		
10900605	Cleveland St 30" Main	844,887	0	0	0	0	844,887		
IP-1090-24	Ogden Dunes WFP Backwash Recycle	5,811,990	0	0	0	0	5,811,990		
IP-1010-7	Waterworks Dam #2	-322,496	0	350,000	0	0	27,504		
IP-1015-2	Prairie Creek Reservoir Improvements	-322,496	0	350,000	0	0	27,504		
IP-1045-2	1.0 MG Elevated Tank & Mains	0	-53,225	-1,200,174	-3,316	1,300,000	43,284		
IP-1060-6	206th Street WME	-1,074,010	1,200,000	0	0	0	125,990		
IP-1065-1	SHL Main from London Road WTF	801	-2,504,402	2,540,000	0	0	36,399		
IP-1075-1	New Well	0	-5,264	-276,477	25,000	275,000	18,259		

IP-1090-4	Borman Park BW Recycling, Residuals	-207,832	-1,880,375	0	3,000,000	3,000,000	3,911,793	[redacted]
IP-1090-6	Borman Park Substation Improvements	500,000	600,000	800,000	0	0	1,900,000	
IP-1090-28	Winfield Elevated Storage	-1,076,427	784,866	600,000	0	0	308,439	
IP-1090-34	Distribution Service Center Improve	-208,255	-127,918	350,000	0	0	13,827	
IP-1001-13	IN Post Acquisition Costs	-2,065,000	0	0	0	0	-2,065,000	
IP-1047-1	West Lafayette SOS & WTF	-4,534,880	-944,640	0	0	0	-5,479,520	
IP-1055-5	Sugar Creek Plant Improvements	-1,157,089	0	0	0	0	-1,157,089	
IP-1090-3	10th Street, Hobart - 12" Main	-203,791	0	0	0	0	-203,791	
IP-1090-18	16" Main 93rd Avenue, Taft-Broadway	-50,030	0	0	0	0	-50,030	
IP-1090-31	Borman Park Floc Equipment	-818,427	0	0	0	0	-818,427	
IP-1010-3	Main WTP Improvements	150,000	1,801,038	-1,472,171	-549,515	0	-70,648	
IP-1015-4	Main WTP Improvements - Stage 2	150,000	3,452,595	370,271	-4,105,103	0	-132,237	
IP-1025-8	Middle Fork Reservoir Improvements	200,000	901,038	-587,740	-557,737	0	-44,439	
IP-1046-1	New Treatment Plant	-1,914,502	1,900,000	0	0	0	-14,502	
IP-1060-8	New Treatment Plant	-2,065,243	10,373,698	-1,263,758	-8,696,345	0	-1,651,648	
IP-1001-2	Statewide SPCC Improvements	0	0	0	0	0	0	No Change
IP-1001-14	GIS Mapping Conversion	0	0	0	0	0	0	No Change
IP-1070-4	Farmersburg Interconnection (B8)	0	0	0	0	0	0	No Change
IP-1090-27	Borman Park Coagulant Storage	0	0	0	0	0	0	No Change
IP-1010-2	Main WTP Lagoon Improvements	-418,210	0	418,210	0	0	0	No Change (Shifted within 5-Yr BP)
IP-1010-8	Waterworks Dam #2 (Add'l Rip Rap)	0	0	0	-494,740	500,000	5,260	No Change (Shifted within 5-Yr BP)
IP-1025-7	Middle Fork Reservoir Improvements	-296,844	0	300,000	0	0	3,156	No Change (Shifted within 5-Yr BP)
IP-1055-8	Earlywood Booster Improvemnts (A-3)	0	0	-98,962	-3,648	102,610	0	No Change (Shifted within 5-Yr BP)
IP-1060-4	HPZ Elevated Tank	0	0	-2,110,482	-472,318	2,582,800	0	No Change (Shifted within 5-Yr BP)
IP-1075-3	South Trans Main to New Albany	0	-799,066	-1,200,528	-248	2,000,000	158	No Change (Shifted within 5-Yr BP)
IP-1090-15	Ogden Dunes Filters-Rehabilitation	-1,200,008	1,200,000	0	0	0	-8	No Change (Shifted within 5-Yr BP)
IP-1090-33	US Hwy 12; 36 inch main Miller Hwy	-103,925	-400,781	500,000	0	0	-4,706	No Change (Shifted within 5-Yr BP)
IP-1060-9	2011 SOS Land Acquisition	1,225,000	0	0	0	0	1,225,000	3,860. [redacted]
IP-1060-3	Noblesville Well and Filter @WR WTP	600,000	0	0	0	0	600,000	
IP-1060-5	Stony Creek Lane WME	72,000	750,000	0	0	0	822,000	
IP-1090-23	SR-149 30-inch Main Extension	0	750,000	0	0	0	750,000	
IP-1090-29	24-inch Main along Taft St.	1,688,653	0	0	0	0	1,688,653	
10600601	Promise Rd Elevated Tank	296,092	0	0	0	0	296,092	
IP-1090-10	Distribution System Automation and	20,000	0	0	0	0	20,000	

IP-1001-8	IN Enterprise System Enhancements	-855,578	-427,789	-855,578	-855,578	-855,578	-3,850,101	Project Deferred out of Plan Period
IP-1001-15	Pumping System Optimization	-312,587	-307,817	-804,777	-608,617	-500,000	-2,533,799	Project Deferred out of Plan Period
IP-1001-17	Dist Improvements - Mult Districts	0	0	0	-500,000	-5,000,000	-5,500,000	Project Deferred out of Plan Period
IP-1001-18	IN Underprogrammed Capex	4,573,000	3,674,000	4,389,000	3,884,000	3,240,000	19,760,000	Project Deferred out of Plan Period
IP-1001-20	Production Improvements	0	0	0	-499,022	-3,000,165	-3,499,187	Project Deferred out of Plan Period
IP-1010-1	Tank & Mains in Southwest	0	0	-611,712	-1,345,394	0	-1,957,106	Project Deferred out of Plan Period
IP-1010-4	US31 Bypass Distribution	0	-247,405	-1,255,500	0	0	-1,502,905	Project Deferred out of Plan Period
IP-1010-9	Off-Channel Dam Improvements	0	0	0	0	-1,979,242	-1,979,242	Project Deferred out of Plan Period
IP-1015-3	Prairie Creek Reservoir Improvements	0	0	-494,810	-513,052	0	-1,007,862	Project Deferred out of Plan Period
IP-1015-5	Pump Station at Jackson St Tank	-138,527	0	0	0	0	-138,527	Project Deferred out of Plan Period
IP-1025-1	National Road Pump Station Replacement	0	-208,255	-345,724	0	0	-553,979	Project Deferred out of Plan Period
IP-1055-7	Marlin/Orme WTF Improvements	0	0	-210,558	-988,649	0	-1,199,207	Project Deferred out of Plan Period
IP-1055-9	Pumping & Transmission Capacity	0	0	-197,924	-601,012	0	-798,937	Project Deferred out of Plan Period
10700507	WBV-Source of Supply	-5,505,665	-6,301,922	0	0	0	-11,807,587	Project Deferred out of Plan Period
IP-1070-1	High Pressure Zone Consolidation	-2,000,020	-600,016	0	0	0	-2,600,036	Project Deferred out of Plan Period
IP-1075-2	Floyd's Knobs Tank	-1,930,791	0	0	0	0	-1,930,791	Project Deferred out of Plan Period
IP-1090-1	16" Main 73rd Avenue from Mississip	-40,000	-510,000	0	0	0	-550,000	Project Deferred out of Plan Period
IP-1090-30	Schererville 3rd Supply Connection	-1,791,927	0	0	0	0	-1,791,927	Project Deferred out of Plan Period
IP-1025-6	Distribution Main Reinforcements	0	0	0	-1,700,000	150,000	-1,550,000	[redacted]
IP-1015-6	Centennial Avenue WME (A-9)	0	-494,740	0	0	75,000	-419,740	
IP-1015-7	Selma County Rd 136 South	0	0	0	-79,170	-588,919	-668,089	
IP-1047-2	WLF Elevated Storage Tank	0	-263,197	-1,546,392	-1,189,392	250,000	-2,748,981	
IP-1058-1	Aeration & Filters added to WTP (ra	0	0	0	-76,242	-1,385,744	-1,461,986	
IP-1080-2	West Dist. System Improvements	0	-99,488	-999,226	-400,674	100,000	-1,399,389	
IP-1085-1	Poplar Street main reinforcement	0	0	0	-600,000	50,000	-550,000	
IP-1090-2	12" Main Rep, Water St.-6th to 10th	0	0	0	-21,216	-376,269	-397,485	
IP-1090-7	SR Hwy 130 from Sullivan to County	0	0	0	-50,000	-300,000	-350,000	

IP-1090-13	Ground Storage Portage	0	-296,886	-1,506,812	-1,209,819	300,000	-2,713,518	
IP-1090-36	Booster Station Improvements	0	-300,045	-2,001,861	795	1,400,000	-901,111	
IP-1090-37	Borman Pk HS Pump/Piping Improve	0	-500,074	-6,007,007	-3,500,872	1,000,000	-9,007,954	
IP-1090-38	Coffee Creek Elevated Tank	-300,000	0	0	0	0	-300,000	
IP-1090-41	MLK Booster Transmission Improvemen	0	0	0	-100,000	-800,005	-900,005	
IP-1090-42	Hobart Transmission Improvements	0	0	0	-150,022	-1,349,951	-1,499,974	
IP TOTAL		13,666,801	10,113,927	14,080,692	22,961,907	189,536	-40,405,936	-40,405,936
GROSS TOTAL		29,838,397	2,929,786	29,896,844	30,426,207	19,834,692	107,066,354	107,066,354
	Contributions	0	0	0	0	0	0	0
	Advances	0	0	0	0	0	0	0
	Refunds	0	0	0	0	0	0	0
NET TOTAL		**29,838,397**	**2,929,786**	**29,896,844**	**30,426,207**	**19,834,692**	**107,066,354**	**107,066,354**

TESTIMONY OF HAROLD L. REES
CAUSE NO. 43680
INDIANA-AMERICAN WATER COMPANY, INC.

I. INTRODUCTION

Q: Please state your name and business address.

A: Harold L. Rees; Indiana Office of Utility Consumer Counselor; 115 West Washington Street; Suite 1500 South; Indianapolis, Indiana, 46204.

Q: By whom are you employed and in what capacity?

A: I am employed by the Indiana Office of Utility Consumer Counselor ("OUCC") as a Senior Utility Analyst for the Water/Wastewater Division.

Q: Please describe your background and experience.

A: I graduated from Purdue University with a Bachelor of Science degree in Electrical Engineering. I also completed a management development program at Wabash College. I worked for the Indiana Bell Telephone Company from 1960 through 1991 where I was involved in several engineering and management assignments. I began employment with the OUCC in January of 1992. I obtained my Professional Engineer registration in the State of Indiana in 1967.

Q: Have you previously testified before this Commission?

A: Yes, I have testified in causes concerning electric, gas, sewer, telephone, and water utilities.

Q: What have you done to prepare your testimony?

A: I read the Verified Petition in this proceeding. I reviewed the testimonies of Indiana-American's witnesses Stacy Hoffman and Alan DeBoy. I studied the responses to particular data requests that involve matters I address in my testimony, and I attended the field hearing held at Gary on September 15, 2009 at Indiana University Northwest. In addition, I visually inspected plant operated by Indiana-American.

Q: What is the scope of your testimony?

A: In my testimony, I review the results of my field inspection of certain construction projects that are planned to be completed by December of this year and which Petitioner proposes to include in its rate base. I also comment on the cost-effectiveness of Indiana-American's plans to install on-site-generation ("OSG") of chlorine compounds for disinfection. In addition, I address the utility's high rate of unaccounted for water in several of Indiana-American's operating areas. Finally, I discuss the effectiveness of the utility's water storage tank painting and repair program.

II. PETITIONER'S CHARACTERISTICS

Q: Please describe the Indiana American-Water Company.

A: The Indiana-American Water Company, Inc. is a for-profit corporation organized in June 1969 to provide water service, and to a lesser extent wastewater service, in 21 counties throughout the State of Indiana. Some of its larger operations include facilities in Greenwood, Terre Haute, New Albany/Jeffersonville, West Lafayette, the

Gary/Merrillville area in Lake County, Noblesville and Richmond. Petitioner provides utility service to approximately 283,000 customers.

Petitioner's Witness, Alan DeBoy stated in his testimony (page 3) that in 2008 the Company, through its 32 water treatment facilities, pumped an average of 110 million gallons per day or approximately 40 billion gallons per year. Further, the Company owns and maintains 4,331 miles of water mains, more than 22,000 fire hydrants and 87 water storage tanks in its distribution system containing about 64 million gallons of water.

III. SIGNIFICANT CAPITAL ADDITIONS

Q: What projects have you inspected?

A: I have inspected several of the projects that Mr. Hoffman has listed in his testimony (pages 3 - 6) as "Significant Projects."[1] An example is the estimated $4,200,000 worth of improvements for the Sugar Creek Treatment Plant that I toured in Johnson County. During and following my field visit conducted on June 16, 2009 with Stacy Hoffman and other representatives of Indiana-American, I determined that one high service pump had been added to the plant (making the total four), as well as a new aerator (total now two), a new pressure filter (total now five), and two new wells (total now six). The improvements also include a new chlorine manufacturing arrangement ("OSG") and a variable frequency drive ("VFD") for one of the high service pumps. At the time of my visit, a substantial amount of work was required to finish the project (painting, cleaning,

[1] In his testimony, Mr. Pettijohn reports on the other projects in this group that he inspected on site visits.

grading, etc.). The treatment plant is now in full operation providing a capacity of seven million gallons per day ("MGD").

Q: Please summarize information on the other projects that you have inspected.

A: Following is a list of the other projects that I have inspected:

London Road Source of Supply, Treatment Plant, and Transmission Main

On June 16, I toured these new facilities, which have an estimated cost of $20,200,000. The new well field has three wells (expandable to six wells) and is located at the edge of Shelby County in the flood plain of Sugar Creek. The 40 HP pump motors equipped with VFD are mounted on towers to permit operation during flooding. The well ratings are one (1) MGD each. A portable generator is available in non-flood conditions in the event of a power failure (the associated treatment plant facility has two other wells not in the flood plain that are backed-up by a permanent generator serving the plant). During my inspection tour, the wells were in operation with clean-up and road work still in process.

Although the new London Road Treatment Plant is located in Shelby County, it furnishes finished water for some of the customers in Johnson County. This plant has a capacity of three (3) MGD and is equipped with two horizontal filters, three high service pumps (the motors are high efficiency units with VFD), two backwash pumps (40 HP), backwash lagoons, one aeration tower, a large stand-by generator, and a chlorine manufacturing tank ("OSG"). When I was at the site, the plant was in full operation with clean-up, grading, etc. in process.

The third part of this project is the 24-inch Rocklane Road Transmission Main. When I toured the site, this improvement was all finished (water flowing with grading and other work completed).

West Lafayette Source of Supply and Water Treatment Improvements

I inspected these new facilities on June 18 this year. The estimated cost for all the facilities is $35,000,000. The new well field is close to the Wabash River with five wells in total having a production per well of two to three (2-3) MGD. One of the wells is near the treatment plant with access to emergency power which is not affected by flooding. The other wells are located in the flood plain and have the pump motors installed on towers to permit operation during floods.

Associated with the new well field is the new Davis Ferry Treatment Plant, which has a capacity of nine (9) MGD. It contains six horizontal filters, four high service pumps (one at 300 HP with VFD), two backwash pumps, three backwash lagoons, two aeration towers, one clear well (630,000 gallons), a large generator, and a chlorine manufacturing tank ("OSG"). When I visited the site, the plant was in full operation with some clean-up work nearing completion.

Another piece of this project is the Finished Water Main near Highway 43. This ductile-iron main is planned to start at 24-inches in diameter reducing to 12-inches along its length to serve some of the growth areas of the eastern part of West Lafayette. Most of this improvement is complete except a small section to be finished near the end of 2009.

Finally, significant improvements are being made to the existing Happy Hollow Treatment Plant in West Lafayette. This will bring the facility's capacity to three (3) MGD and include the addition of a new vertical pressure filter (total of two), three high service pumps (150 HP each), a new backwash settling basin with two pumps (30 HP each) for recycling the water, three existing wells (1–2 MGD each) located out of the flood plain, a generator, and a new 630,000 gallon clear well. As of my June 18, 2009 visit, the existing treatment plant building had been substantially rebuilt and was in the finishing stages. However, work had not yet started to demolish three storage and maintenance sheds in order to make room for the new large maintenance building being constructed at a cost of about $1,100,000. Work on this structure and the finishing activity may take until the very end of 2009. (It is possible that some of this work will not be completed until 2010).

Newburgh Treatment Plant Improvements

This work was completed in 2008, which I verified on my August 11, 2009 visit. The plant capacity was increased to four (4) MGD (full capacity). The additions made were one aeration tower, one horizontal pressure filter (a large unit), a new backwash lagoon, and one new high service pump. The water supplied to this facility is primarily from the well field nearby and the remainder from the City of Evansville.

Q: Which projects that you inspected do you think may not be completed by December 15, 2009, the final hearing date?

A: I think the most significant risk of non-completion involves a couple of pieces to the large $35,000,000 project providing several improvements to the utility's water system in and around West Lafayette. One piece is the large steel-framed maintenance and storage

building being constructed at the Happy Hollow Treatment Plant at a cost of about $1,100,000. When I visited the site in June, demolition of the three existing obsolete structures had not yet commenced. Demolition of these buildings is necessary to provide space for the proposed new building. I understand now the small buildings have been removed and construction of the new maintenance building has commenced. Completion by the deadline under the MSFR's is not certain.

The other improvement activity that may not be totally completed by the target date is a portion of the Finished Water Main Project near Highway 43 in West Lafayette.

Q: Do you have any recommendations regarding capital additions?

A: Yes. I recommend that Petitioner provide the Commission and the OUCC verification that all proposed capital additions to be included in rate base are in service and operational by the December 15, 2009 hearing date.

IV. OTHER ISSUES

Non-Revenue Water

Q: Is the utility's non-revenue water an area of concern?

A: Looking at individual systems within Indiana-American's system as a whole, I have some concerns with Indiana-American's non-revenue water levels in specific service districts. In particular, I note Indiana-American's response to Schererville's Q-05-036. (See Attachment HLR-1 to this testimony.) This response provides non-revenue producing water figures as a twelve-month rolling average for 19 of Indiana-American's operating areas for the last five years. In the response to a data request by Schererville

(05-036), Petitioner states that non-revenue water is the commonly accepted industry measure. I reviewed the non-revenue water results for the Districts and noted Indiana American's non-revenue water result for August of 2009 is 15.3% (a twelve-month rolling average). Also, I determined that the Company has several operating areas (districts) with results that well exceed 15%. (Typically, when non-revenue water exceeds 15%, the OUCC considers it appropriate for the utility to take corrective action.)

Q: If the utility as a whole is not exceeding 15% non-revenue water, does this indicate there is no cause for corrective action?

A: No. Several of Indiana-American's operating districts have more customers than many water utilities within the State. (Refer to Attachment HLR-2.) Indiana American is the second largest water utility in Indiana by customer count now serving over 283,000 customers. Both the Kokomo and Muncie Districts each serve over 20,000 customers and have a non-revenue water level nearing 23% each. Indiana-American's Richmond District shows a non-revenue water level of 24.9%. (During the last five years, Richmond has had the poorest non-revenue water performance with 34.8% in 2005).

Q: List the Districts with the highest level of lost water.

A: Following are the Districts with high non-revenue water levels (twelve-month rolling averages as of August 2009):

District	Non-Revenue Water Level
Kokomo	22.6%
Muncie	22.6%
Richmond	24.9%
Somerset	17.4%
Wabash	17.9%
Warsaw	20.6%
Winchester	18.9%

The total customers for these districts amount to 74,589 or 26.3% of the total for the Company.

Q: Is it true that earlier this year Indiana-American received IURC approval for a statewide water conservation plan?

A: Yes. The utility received approval on August 26, 2009 in Cause No. 43649 for its Wise Water Use Plan ("WWUP"), which set into motion some activities that over several years could provide water saving devices and encourage customers to use water more efficiently. However, as I read the plan it doesn't necessarily guarantee that metering errors will be reduced and major leaks will be located and fixed. These are two areas of concern, in addition to replacing obsolete mains that I think would be suspect in these seven Indiana-American Districts.

Q: What is your recommendation with respect to non-revenue water?

A: I recommend that Indiana-American be required to file a report with the IURC and the OUCC within 120 days following the final order in this proceeding. The report should identify the seven Districts and list the actions the utility is currently taking and/ plans to take in the future to lower the non-revenue water levels below 15%.

On-Site Generation of Chlorine for Disinfection

Q: Where has Indiana-American installed on-site-generation ("OSG") of chlorine compounds for disinfection?

A: As part of the capital improvements being accomplished in this proceeding, Petitioner has installed chlorine manufacturing facilities at the new London Road Treatment Plant in Shelby County and the new Davis Ferry Treatment Plant at West Lafayette. In major rehabilitations to the Sugar Creek Treatment Plant in Johnson County and the Happy

Hollow Treatment Plant in West Lafayette, Indiana-American has decided to continue to use conventional chlorine gas disinfection while making improvements to these chemical feed arrangements (such as addition of a chlorine scrubber at Sugar Creek). Discovery responses from Indiana-American indicate that by the end of 2009, the utility will have about 8% of its treatment plants equipped with the OSG system. (See Attachment HLR-9.)

Q: What are the benefits of relying on an OSG system?

A: The utility indicates that OSG systems were selected to improve safety for employees, residents of the community, and the larger community through which the supply chain for gaseous chlorine passes. (See Attachment HLR-3.) Producing chlorine on-site in the quantities required as they are needed avoids the dangers of transporting and storing chlorine. This should diminish the need to install chlorine scrubbers as a safety measure for employees and residents in the event of a chlorine gas leak.

Q: Is the OSG system more costly to construct and operate than a conventional gaseous chlorine system?

A: According to Petitioner, yes. Petitioner's response to the OUCC's Data Requests (OUCC 11-139) indicates that an OSG system can be more costly to construct. (See Attachment HLR-3.) An informal data request response says that the construction cost for the installed OSG system at the London Road Treatment Plant was approximately $400,000, which is somewhat higher than the cost of a gaseous chlorine system. (See Attachment HLR-4.) In addition, the discovery responses state that current annual operating cost estimates (mainly chemicals) for the London Road Treatment Facility are $28,000 for a gaseous chlorine system compared to $52,000 for an OSG system (OUCC 15-204). (See

Attachment HLR-5.) (The OSG process is driven by high purity salt, which is delivered in dry bulk shipments and added to a fiberglass brine tank.)

Q: Do you agree that an OSG system is more costly to construct and operate than a conventional gaseous chlorine system?

A: I agree that the construction cost of an OSG system is higher than a conventional gaseous system. However, I have obtained information stating that the operating costs of such a system is not necessarily higher. In "On-Site Generation of Disinfectants," an article published by the National Environmental Services Center, the author Andrew K. Boal, Ph.D., asserts that one of the benefits of installing an OSG system is substantial economic savings including lower safety-related costs, lower transportation costs, and lower insurance premiums. (See Attachment HLR-10.)

Q: Is the OUCC making any downward adjustment in operating costs due to the OSG?

A: No. The OUCC has not removed any of the amounts from rate base for OSG, nor has it changed operating expenses to the level for those of a gaseous chlorine system.

Tank Painting

Q: Describe Indiana-American's tank painting program.

A: In a tank painting program, a water utility usually schedules tanks to be painted within a particular number of years. (Fifteen years is a common interval.) A plan like this is used to compute annual painting costs so the utility will have the funds when they are needed to do the painting. As the proposed time for a particular tank painting draws closer, utility management may determine more accurately the need by reviewing each tank's condition and estimating what the painting will cost. Indiana-American apparently has 111 steel storage tanks in its tank painting program with 87 of these tanks in its

distribution system. (See Attachment HLR-6.) Those tanks not included in the distribution system include clearwells and steel detention tanks used for water treatment.

Q: What is the utility's goal in its tank painting program?

A: I believe Petitioner's goal for its tank painting program is to have the funds available when needed and in the amounts required when painting and repair of its water storage tanks is required. Quality coatings are needed for water storage tanks to help maintain water quality and to protect the assets (to realize the projected lives).

Q: How long is a tank painting expected to last before a new tank painting becomes necessary and prudent?

A: Tank paint life is a function of factors such as local environmental conditions, seasonal moisture conditions, paint product technology, and the quality of the preparation and the coating application. Petitioner advised that generally a tank painting is expected to last between ten and fifteen years. Petitioner further advised that Indiana-American determines the actual need to repaint a particular tank based on a physical inspection of the tanks (interior and exterior). (See Attachment HLR-7.) When a tank is to be inspected and repainted is a matter of management judgment.

Q: Based on your inspection of the facilities, has Indiana-American kept pace with its tank painting needs?

A: It is not entirely the case that Indiana-American has kept pace with its tank painting. For instance, I observed Petitioner's 750,000 gallon elevated tank identified as the Glen Park Tank (located in or near Gary Indiana). The exterior is in poor condition. Based on my investigation, I determined this tank has not been painted for 23 years and had been scheduled for blasting and painting in 2008 at an estimated cost of $868,000, but the

painting was delayed as part of capital investment prioritizations. (Petitioner capitalizes its tank painting compared to most other water utilities that expense this type of activity).

The next evidence is from the tank painting schedule. (See Attachment HLR-6.) I categorized the data into five-year groups regarding the time in years from the last painting up to the present. I was surprised to find that 31 of the 111 steel tanks have not been painted for 16 years or more. (For nine entries the year of last painting is unknown.) The groups were populated as follows: 16-20 years – 11 tanks, 21-25 years – 19 tanks, and 26-30 years – 1 tank. The longest period without painting is the Jefferson Tower (250,000 gallon elevated) in Warsaw which has not been painted since 1980 (29 years).

Another one of my concerns with the tank painting plan is from the list of tanks with lead concentrations greater than 0.06%. (See Attachment HLR-8.) Granted, if the lead paint has been treated so that the lead is encapsulated, this may not be an immediate problem. However, eventually some lead may get into the water – as the coating continues to deteriorate. All of these tanks with lead concentrations have not been repainted for more than twenty years.

Q: Is there some inconsistency in Indiana-American's actual annual tank painting expenditures for tank painting and repairs?

A: Yes. The actual expenditures vary from about $296,000 in 2004 to nearly $3,400,000 in 2007 and then down to $2,400,000 for 2008. I would not expect the tank painting expenditures to be the same every year, but with the number of tanks to be maintained, the Company should consistently paint a number of tanks each year (See Attachment HLR-11.) Additionally, Petitioner's discovery response (OUCC-15-198) indicates that

"The 2009 tank painting budget was $0." This information is another example of the inconsistent expenditures for tank painting. A number of water tank painting plans that I have been involved with in utility rate cases have a proposed funding target for each year that the utility strives to use.

Q: Is it your opinion that in general Indiana-American is not engaging in enough capital projects?

A: No. Although Indiana-American capitalizes its tank painting, tank painting should be considered maintenance. This is borne out by the fact that Indiana-American is the only water utility in the state of which I am aware that capitalizes and therefore earns a return on its tank painting. This practice of Indiana-American, which appears to be long-standing, has the consequence of increasing the cost to rate-payers of Indiana-American maintaining its tanks. Delaying capital improvements may be appropriate in these tough economic times. But timely maintenance of its tanks should be done in a timeframe that does not risk the safe and efficient delivery of water. Moreover, Indiana-American should explain why it is more appropriate to treat this maintenance as a capital project, and why the ratepayers do not end up paying more for this maintenance as a result.

Q: Do you have any other recommendations with respect to Tank Painting?

A: The data for the year of each tank's last painting was incomplete. (Nine of the 111 tanks are not in the data base. (OUCC 15-193)) I think the tank information should be 100% populated for a proper management job to be accomplished. Also, Petitioner should explain why the coatings for 32 of its tanks are beyond the expected life of 15 years and 20 tanks are beyond the expected life of 20 years. Finally, the utility should place the tanks with lead based paint on a high priority list.

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.

By: Harold L. Rees
Indiana Office of
Utility Consumer Counselor

10/23/09
Date

Schererville 05-036

DATA INFORMATION REQUEST
Indiana-American Water Company
Cause No. 43680

Date Requested: 9/15/09

Information Requested:

What is the percentage of unaccounted for water on a system-wide basis, as well as on a district basis, for IAWC for calendar years ending 2004 through 2008.

Requested By: Parvin Price, Bose McKinney & Evans LLP - Attorneys At Law
317-684-5213 – pprice@boselaw.com

Information Provided:

Indiana American does not track unaccounted for water. However, non-revenue water ("NRW") is monitored, which is the commonly accepted industry measure. The attached document labeled "Schererville 05-036-R1" provides 2005 through YTD historical NRW figures. Figures for 2004 are not available. Twelve month rolling average figures are used to account for billing lag.

Prepared By: Alan DeBoy

Indiana American Water
Non Revenue Water
12 month rolling average

Schereville 05-036

NRW % 12 month rolling Avg.

Indiana	13.5%	13.9%	14.0%	14.1%	15.2%	15.5%	16.3%	16.2%	15.9%	16.1%	16.3%	16.2%
	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05
Crawfordsville	0.7%	0.8%	3.9%	3.8%	0.2%	4.8%	3.3%	4.5%	5.8%	6.8%	7.7%	8.6%
Johnson County	5.9%	6.2%	6.8%	6.3%	7.4%	8.7%	8.4%	8.2%	8.2%	8.6%	9.2%	10.0%
Kokomo	17.9%	17.9%	17.7%	17.8%	17.9%	17.4%	17.2%	18.7%	16.9%	18.1%	17.1%	17.4%
Mooresville	6.1%	7.1%	7.0%	7.4%	8.8%	9.6%	9.4%	9.7%	9.3%	9.7%	11.4%	12.5%
Muncie	19.5%	20.8%	20.2%	21.2%	20.3%	20.6%	20.2%	20.5%	19.9%	20.0%	20.3%	19.0%
Newburgh	5.6%	5.3%	4.8%	5.3%	7.0%	7.0%	7.0%	6.1%	5.2%	6.5%	6.5%	5.3%
Noblesville	3.5%	3.6%	4.6%	3.2%	6.5%	0.6%	1.8%	5.4%	4.5%	2.3%	0.1%	5.6%
Northwest Indiana	12.5%	12.6%	13.1%	13.4%	15.4%	15.5%	16.7%	15.7%	16.3%	16.0%	15.8%	15.5%
Richmond	30.3%	30.3%	31.6%	32.3%	33.3%	33.6%	33.9%	34.5%	34.4%	34.8%	35.4%	34.8%
Seymour	8.2%	9.2%	8.1%	8.3%	9.6%	9.4%	9.1%	8.9%	8.2%	8.1%	7.9%	7.8%
Shelbyville	10.6%	10.7%	10.4%	11.3%	12.3%	13.8%	13.4%	13.8%	13.4%	13.6%	16.0%	16.0%
Somerset	-79.4%	-82.2%	-55.7%	-50.1%	-40.2%	-36.3%	-26.8%	-19.6%	-10.3%	-4.1%	2.6%	9.6%
Southern Indiana	12.3%	12.1%	12.4%	12.3%	12.5%	13.8%	14.1%	15.9%	15.1%	15.4%	17.2%	17.6%
Summitville	14.4%	15.2%	8.8%	10.0%	12.7%	13.1%	12.0%	14.0%	15.1%	17.6%	20.3%	21.0%
Wabash	-0.7%	-0.5%	0.2%	-0.1%	2.3%	6.1%	10.1%	13.2%	12.5%	14.0%	15.2%	16.1%
Wabash Valley	22.4%	24.5%	22.6%	21.8%	22.8%	23.2%	26.6%	23.5%	22.9%	23.8%	22.9%	23.3%
Warsaw	3.7%	7.4%	4.0%	4.1%	8.9%	5.5%	10.2%	9.4%	5.0%	8.2%	7.5%	4.2%
West Lafayette	7.2%	6.1%	9.3%	9.7%	9.5%	10.6%	10.2%	9.6%	9.4%	8.8%	9.1%	8.0%
Winchester	11.5%	11.7%	10.2%	10.3%	12.9%	12.7%	13.2%	13.6%	13.2%	13.4%	13.6%	13.4%

Indiana American Water
Non Revenue Water
12 month rolling average

Schereville 05-036

NRW % 12 month rolling Avg.

Indiana	15.9%	16.1%	16.1%	16.1%	15.5%	16.1%	15.4%	15.4%	16.0%	16.2%	17.0%	17.0%
	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06
Crawfordsville	10.6%	11.1%	12.7%	11.1%	9.9%	10.1%	11.2%	12.5%	11.2%	11.5%	12.6%	12.6%
Johnson County	8.8%	9.7%	9.9%	9.3%	9.0%	8.5%	8.5%	8.6%	8.9%	8.5%	9.1%	8.0%
Kokomo	17.7%	17.7%	18.2%	18.5%	20.1%	21.3%	21.5%	20.8%	22.0%	21.3%	23.5%	24.3%
Mooresville	11.6%	13.5%	11.5%	12.1%	11.9%	10.2%	10.0%	10.5%	9.8%	9.8%	9.8%	7.5%
Muncie	19.2%	19.0%	19.5%	18.6%	18.8%	17.6%	18.5%	18.3%	16.7%	18.0%	17.2%	17.9%
Newburgh	5.1%	5.6%	5.3%	5.4%	4.3%	4.9%	4.1%	3.7%	3.3%	3.2%	4.2%	3.8%
Noblesville	1.7%	1.1%	3.5%	3.0%	3.6%	3.8%	5.4%	8.4%	7.1%	8.6%	9.0%	9.6%
Northwest Indiana	14.6%	15.0%	14.8%	14.7%	13.8%	15.5%	13.4%	13.7%	14.4%	14.9%	16.7%	17.4%
Richmond	29.5%	30.0%	29.5%	29.3%	29.6%	29.4%	32.8%	32.9%	32.6%	32.9%	33.6%	32.6%
Seymour	8.2%	8.1%	7.9%	7.7%	8.2%	8.5%	7.9%	9.4%	10.3%	9.9%	10.5%	10.3%
Shelbyville	15.9%	16.7%	15.9%	16.5%	16.7%	16.6%	15.5%	16.1%	16.4%	16.0%	13.8%	11.0%
Somerset	13.8%	20.9%	16.4%	15.8%	18.0%	17.0%	16.3%	16.0%	14.1%	13.3%	14.3%	14.8%
Southern Indiana	18.0%	18.1%	18.2%	18.3%	17.3%	16.6%	16.1%	15.0%	16.4%	16.8%	17.1%	16.9%
Summitville	21.6%	22.7%	28.0%	28.5%	30.0%	31.7%	32.4%	33.6%	34.1%	33.2%	32.7%	22.7%
Wabash	23.2%	24.3%	25.9%	26.7%	27.5%	25.2%	23.2%	20.8%	21.1%	19.9%	18.9%	17.8%
Wabash Valley	24.7%	23.5%	24.3%	25.8%	22.9%	24.0%	20.9%	21.4%	23.7%	23.2%	22.4%	22.2%
Warsaw	7.3%	7.4%	6.8%	6.1%	0.3%	3.8%	6.3%	3.7%	3.7%	0.6%	1.8%	1.4%
West Lafayette	7.2%	7.1%	4.4%	3.7%	4.2%	4.5%	5.0%	6.7%	6.9%	9.8%	11.5%	11.8%
Winchester	13.4%	14.2%	14.9%	14.8%	14.8%	14.9%	13.8%	14.7%	14.4%	13.6%	15.5%	14.8%

Indiana American Water
Non Revenue Water
12 month rolling average

Schereville 05-036

NRW % 12 month rolling Avg.

Indiana	17.0%	17.1%	17.3%	16.9%	18.3%	17.4%	17.6%	17.2%	17.8%	17.7%	17.1%	17.8%
	Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07
Crawfordsville	12.7%	13.4%	14.4%	14.3%	15.6%	15.0%	15.0%	14.7%	15.6%	14.6%	13.5%	13.6%
Johnson County	8.8%	8.7%	8.6%	8.4%	9.7%	9.7%	9.4%	8.7%	9.1%	8.2%	7.2%	7.7%
Kokomo	24.2%	24.9%	25.1%	24.4%	26.6%	23.8%	24.5%	24.1%	23.1%	23.5%	22.6%	22.8%
Mooresville	10.0%	8.4%	9.8%	8.0%	9.9%	10.1%	11.1%	10.6%	10.1%	9.9%	9.2%	9.2%
Muncie	17.8%	19.2%	19.3%	19.7%	19.3%	20.4%	18.5%	17.5%	20.5%	18.4%	20.4%	21.2%
Newburgh	4.5%	4.4%	5.0%	4.5%	6.3%	6.4%	7.2%	9.1%	8.7%	7.2%	7.0%	8.1%
Noblesville	9.5%	10.4%	9.7%	9.5%	10.8%	9.9%	10.6%	7.9%	9.9%	9.6%	8.9%	8.2%
Northwest Indiana	18.4%	18.2%	18.5%	18.3%	19.6%	18.6%	20.3%	20.4%	21.0%	21.9%	21.4%	22.3%
Richmond	32.1%	32.0%	32.4%	32.4%	32.3%	32.3%	29.5%	29.8%	30.2%	30.1%	29.5%	30.4%
Seymour	9.3%	9.1%	8.8%	8.0%	8.2%	6.7%	7.6%	7.1%	5.6%	6.4%	5.5%	6.4%
Shelbyville	13.7%	13.1%	16.0%	15.0%	15.4%	15.1%	13.5%	12.7%	3.1%	3.8%	2.7%	3.6%
Somerset	12.3%	12.2%	10.9%	14.7%	15.7%	17.0%	18.8%	21.2%	19.9%	22.1%	21.6%	24.1%
Southern Indiana	15.3%	16.3%	16.3%	15.3%	16.9%	15.9%	15.4%	15.6%	15.7%	15.5%	13.7%	14.2%
Summitville	16.4%	15.6%	10.7%	10.7%	8.4%	3.6%	3.2%	-0.2%	-4.0%	-2.3%	-4.9%	11.0%
Wabash	10.5%	8.9%	5.4%	3.6%	1.0%	-0.8%	-1.2%	-1.2%	-1.8%	-1.6%	-2.1%	-1.5%
Wabash Valley	19.2%	19.0%	19.5%	17.7%	20.8%	19.0%	19.2%	17.3%	20.2%	20.0%	19.5%	20.1%
Warsaw	1.9%	1.2%	0.7%	1.8%	8.7%	4.8%	5.3%	2.0%	6.5%	6.0%	5.4%	5.6%
West Lafayette	13.5%	15.3%	14.9%	16.7%	17.5%	18.8%	18.3%	18.4%	21.3%	18.9%	18.8%	19.8%
Winchester	14.7%	15.0%	14.3%	14.5%	13.3%	13.7%	16.1%	16.1%	16.3%	17.7%	17.2%	18.5%

Indiana American Water
Non Revenue Water
12 month rolling average

Schereville 05-036

NRW % 12 month rolling Avg.

Indiana	17.2%	17.2%	17.6%	17.5%	17.2%	17.3%	17.4%	17.7%	16.6%	16.1%	16.8%	16.8%
	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08
Crawfordsville	13.5%	13.2%	13.1%	12.6%	13.0%	13.1%	13.1%	12.6%	12.2%	13.9%	16.2%	14.8%
Johnson County	7.6%	7.2%	7.8%	7.8%	6.7%	5.8%	6.1%	8.0%	6.7%	7.6%	8.2%	8.2%
Kokomo	22.8%	22.1%	22.0%	23.0%	22.6%	22.8%	22.6%	23.5%	24.6%	24.6%	24.1%	22.8%
Mooresville	9.3%	8.5%	8.4%	8.3%	8.0%	7.1%	7.2%	8.1%	8.0%	8.0%	8.3%	8.2%
Muncie	21.4%	20.3%	20.7%	20.4%	21.0%	21.2%	21.2%	23.2%	21.7%	23.2%	23.4%	22.6%
Newburgh	8.9%	9.0%	9.7%	9.5%	8.0%	8.9%	9.5%	8.3%	9.3%	10.7%	10.9%	10.7%
Noblesville	7.4%	7.2%	6.9%	6.9%	6.0%	6.5%	7.1%	8.7%	7.1%	5.7%	7.9%	8.4%
Northwest Indiana	19.7%	20.2%	20.6%	20.7%	20.6%	20.3%	20.5%	19.4%	18.0%	16.4%	18.2%	17.7%
Richmond	30.8%	29.9%	29.6%	29.1%	28.6%	28.4%	28.1%	27.8%	23.3%	25.9%	26.4%	26.4%
Seymour	7.5%	7.5%	7.8%	8.9%	7.6%	8.3%	8.7%	8.5%	8.7%	8.6%	9.2%	9.5%
Shelbyville	3.7%	2.8%	2.1%	2.6%	1.6%	1.2%	1.8%	0.6%	9.4%	8.8%	8.3%	8.1%
Somerset	26.0%	25.7%	26.0%	26.8%	26.1%	27.0%	26.7%	26.0%	28.0%	28.6%	27.4%	26.1%
Southern Indiana	14.3%	14.4%	15.3%	14.5%	14.6%	13.7%	15.1%	15.5%	14.8%	14.4%	14.7%	15.6%
Summitville	11.5%	10.4%	11.6%	10.6%	10.5%	12.1%	13.7%	15.9%	17.5%	18.5%	18.5%	18.0%
Wabash	-1.1%	-2.2%	-1.0%	-1.3%	-1.2%	-0.3%	0.6%	1.1%	1.2%	2.0%	4.2%	6.5%
Wabash Valley	22.2%	23.6%	23.6%	23.3%	22.8%	23.9%	23.7%	26.2%	23.5%	20.5%	17.9%	21.7%
Warsaw	5.1%	5.7%	5.4%	6.3%	6.3%	5.5%	5.6%	7.2%	5.8%	5.9%	6.9%	6.9%
West Lafayette	19.8%	19.8%	21.9%	21.1%	20.4%	19.2%	19.6%	19.5%	16.8%	17.7%	18.0%	17.7%
Winchester	18.8%	18.2%	19.2%	18.9%	18.9%	19.5%	20.6%	20.3%	20.3%	19.5%	19.4%	19.0%

Indiana American Water
Non Revenue Water
12 month rolling average

Schereville 05-036

NRW % 12 month rolling Avg.

Indiana	17.6%	17.0%	16.8%	16.7%	16.9%	16.7%	15.8%	15.3%				
	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
Crawfordsville	14.0%	14.2%	13.9%	13.3%	13.4%	13.3%	12.4%	12.4%				
Johnson County	8.3%	8.2%	7.8%	7.6%	8.4%	8.6%	7.6%	7.2%				
Kokomo	22.2%	22.7%	22.8%	22.3%	22.7%	22.9%	23.2%	22.6%				
Mooresville	8.1%	7.9%	8.3%	8.1%	7.7%	8.4%	7.9%	6.9%				
Muncie	22.9%	22.3%	22.9%	22.6%	22.7%	22.9%	22.9%	22.6%				
Newburgh	11.2%	11.0%	10.8%	10.7%	11.3%	11.8%	10.9%	12.1%				
Noblesville	9.2%	8.5%	9.0%	9.3%	9.6%	9.0%	7.0%	5.1%				
Northwest Indiana	19.7%	18.8%	18.0%	17.4%	17.5%	16.7%	14.9%	14.2%				
Richmond	25.7%	25.9%	25.6%	25.8%	26.0%	25.7%	25.1%	24.9%				
Seymour	8.4%	8.4%	8.9%	8.7%	9.7%	9.8%	9.0%	9.3%				
Shelbyville	7.4%	6.8%	7.1%	5.6%	5.6%	5.5%	4.7%	5.4%				
Somerset	22.2%	21.5%	20.9%	20.5%	19.1%	18.1%	17.4%	17.4%				
Southern Indiana	16.1%	15.5%	14.8%	16.4%	16.8%	16.5%	16.4%	16.5%				
Summitville	18.6%	17.7%	16.9%	17.0%	16.4%	14.9%	12.8%	11.7%				
Wabash	7.1%	8.1%	8.5%	9.0%	8.2%	6.9%	18.5%	17.9%				
Wabash Valley	21.7%	20.6%	21.3%	21.5%	21.5%	21.3%	6.2%	7.4%				
Warsaw	7.0%	6.9%	7.6%	6.4%	6.3%	6.4%	20.8%	20.6%				
West Lafayette	18.2%	18.5%	18.3%	19.7%	19.4%	19.5%	6.3%	5.1%				
Winchester	19.2%	19.2%	19.4%	19.6%	19.8%	20.1%	18.9%	18.9%				

Indiana-American Water Company
Customer Count By District
June 30, 2009

	Residential	Commercial	Industrial	Fire Service
Kokomo	18,547	2,234	24	192
Muncie Water	23,654	2,938	52	368
Richmond	12,809	2,352	72	249
Somerset Water	81	12	-	-
Summitville	342	29	1	3
Wabash	3,845	538	47	18
Warsaw	3,375	939	63	153
West Lafayette	9,618	1,156	25	136
Winchester	1,747	221	15	44
Crawfordsville	4,850	881	60	26
Johnson County	23,861	2,100	92	155
Mooresville	3,296	368	3	43
Noblesville	11,828	961	9	127
Shelbyville	5,334	1,057	78	29
Wabash Valley	23,942	2,790	89	359
Southern Indiana	27,632	3,439	71	207
Newburgh	7,543	349	11	7
Seymour	6,214	822	38	123
Northwest Indiana	62,722	5,284	27	848
Totals	251,240	28,470	777	3,087

DATA TAKEN FROM THE RESPONSE TO OUCC DATA REQUEST (OUCC 14-182 R1).

No. OUCC 11-139

DATA INFORMATION REQUEST
Indiana-American Water Company
Cause No. 43680

Date Requested: 9/15/09

Information Requested:

As far as capital investments are concerned, isn't an OEG system more costly to construct than a disinfection system using gaseous chlorine transported from a supplier and which is commonly in use by water utilities?

Requested By: Leja D. Courter, Office of Utility Consumer Counselor (OUCC)
317-233-3236 – lcourter@oucc.in.gov; infomgt@oucc.in.gov

Information Provided:

Yes. An OSG system can be more costly to construct than a gaseous chlorine system. OSG systems were selected to improve safety for employees, residents of the community, and the larger community through which the supply chain for gaseous chlorine passes. The production, transportation, delivery, and ultimate end use of gaseous chlorine presents increased safety risks for people involved in these activities, for communities along the supply chain route, for employees handling gaseous chlorine, and for communities around installations using gaseous chlorine. While there are some ways to reduce risks of using gaseous chlorine those risks cannot be completely eliminated. Because OSG systems do not use gaseous chlorine the risks associated with gaseous chlorine are not present. It is the Company's intent to continuously improve safety. Implementing safer technologies plays a key role in improving safety.

Prepared By: Stacy Hoffman

8/17/09

London Road Water Treatment Facility

Sodium Hypochlorite system description
Chlorine in the form of 0.8% sodium hypochlorite is used as a disinfectant and oxidant. Sodium hypochlorite is produced via on-site generation (OSG) using two skid-mounted generators. Each independent OSG unit is capable of producing up to 500 pounds per day (PPD) of equivalent chlorine. The OSG units installed are manufactured by Siemens.

A fiberglass brine tank provides salt storage. High purity salt is delivered in dry bulk shipments. The brine solution is converted to 0.8% sodium hypochlorite via electrolysis at the generators. In general, on-site generation requires approximately two kilowatt-hours of electricity, three pounds of salt, and 15 gallons of softened water to produce 15 gallons of 0.8% sodium hypochlorite, which translates to one pound of equivalent free available chlorine. The freshly-produced sodium hypochlorite is then transferred to one of two 8,500-gallon storage tanks supplying the pre-filtration and post-filtration metering pump skids.

In the event that both OSG skids are inoperable or salt delivery is interrupted for an extended period of time, operators have the ability to dilute 12.5% sodium hypochlorite delivered in bulk liquid to continue disinfection. The construction cost for the installed OSG system is approximately $400,000.

Motors
All well pump motors, backwash pump motors, high-service pump motors, and the exhaust fan motor in the sodium hypochlorite room are driven by (Adjustable Frequency Drives) AFD's.

Sugar Creek Water Treatment Facility

What is the capacity with the improvements? 4mgd before improvements / 7mgd firm after improvements

Number of HS pumps: 3 before improvements, 4 after

Number of aerators: 1 before improvements, 2 after

Number of filters: 4 before improvements, 5 after (1.75mgd each)

Number of wells: 4 before improvements, 6 after

What is the wellfield name? Sugar Creek Wellfield

AFD's are on what motors? AFD on HSP #3 was installed with the improvements.

Method of chlorine disinfection? gaseous chlorine (2 ton cylinders) w/ dry scrubber. Scrubber was installed with the improvements.

No. OUCC 15-204

DATA INFORMATION REQUEST
Indiana American Water Company
Cause No. 43680

Date Requested: 9/29/09

Information Requested:

For a typical OSG installation (for a treatment plant of about 3 MGD capacity), what are the approximate annual chemical cost savings for an OSG system as compared to a gaseous chlorine disinfection arrangement?

Requested By: Daniel M. Le Vay, OUCC -- 317-233-3236 – dlevay@oucc.in.gov and infomgt@oucc.in.gov

Information Provided:

The London Road Water Treatment Facility was placed in service in 2009 and is a 3 MGD plant expandable to 6 MGD. Current annual operating costs for gaseous chlorine and OSG systems for the London Rd. Facility are estimated at $28,000 and $52,000 respectively, however these cost comparisons do not consider avoidance of other costs resulting from a chlorine gas release in the community and along the supply chain that could result in numerous personal injuries and deaths. It is the Company's intent to continue to evaluate implementation of technologies to improve safety for employees, the community, and people along the supply chain.

Prepared By: Stacy Hoffman

No. OUCC 15-196

DATA INFORMATION REQUEST
Indiana American Water Company
Cause No. 43680

Date Requested: 9/29/09

Information Requested:

How far in advance does Indiana-American schedule its tank paintings?

Requested By: Daniel M. Le Vay, OUCC -- 317-233-3236 – dlevay@oucc.in.gov and infomgt@oucc.in.gov

Information Provided:

Timing of tank painting scheduling is affected by tank condition as discovered through inspections, by the Company's budget process, and by the Company's prioritization of investment needs. These inputs into tank painting scheduling typically result in timing of tank painting scheduling occurring months in advance of the work rather than years in advance of the work.

Prepared By: Stacy Hoffman

No. OUCC 15-197

DATA INFORMATION REQUEST
Indiana American Water Company
Cause No. 43680

Date Requested: 9/29/09

Information Requested:

What is the expected life of Indiana-American's last twenty tank paintings? In Indiana-American's water tank painting program, what is the average time between tank paintings? How does Indiana-American determine when a tank should be repainted?

Requested By: Daniel M. Le Vay, OUCC -- 317-233-3236 – dlevay@oucc.in.gov and infomgt@oucc.in.gov

Information Provided:

Tank paint life varies and is a function of many factors including local environmental conditions including air emissions from industries, seasonal moisture conditions in different regions, paint product technology available and used at the time of the last painting, and quality and type of work performed. Generally tank painting life is expected to last between ten and fifteen years with exceptions to this general expectation for the reasons stated above. To date the Company has not maintained historical statistics on the paint life or time between paintings for the life of each tank. The Company determines the need for tank painting for individual tanks based on physical inspection of the tanks.

Prepared By: Stacy Hoffman

No. OUCC 15-200

DATA INFORMATION REQUEST
Indiana American Water Company
Cause No. 43680

Date Requested: 9/29/09

Information Requested:

Please identify any Indiana American water storage tanks that have cold wax (interior) or lead paint (interior or exterior) coatings. For each such tank, when does Indiana-American intend to replace the coating?

Requested By: Daniel M. Le Vay, OUCC -- 317-233-3236 – dlevay@oucc.in.gov and infomgt@oucc.in.gov

Information Provided:

The Company knows of no Company storage tanks having a wax interior coating. The Company is aware of Company tanks with coating systems either on the exterior or part of the interior of the tanks with a lead concentration greater than 0.06%. While this has presented no concern for delivering finished water that meets all water quality regulations, future removal and processing of these coatings will require special treatment. The Company is also aware of other Company tanks for which testing of the coating indicated presence of lead with either less than 0.06% concentration or with detection but no concentration quantification. This has presented no concern for delivering finished water that meets all water quality regulations. Future removal of these coating systems should not require special processing unless regulation changes or unless concentrations exceeding 0.06% are discovered. Tanks referenced in this reply are listed below. Please refer to the Company's response to OUCC data request 15-196 regarding tank painting scheduling.

Tanks with coatings with lead concentration greater than 0.06%
Franklin Norplex (exterior only)
Franklin West Pump Station (exterior and interior dry surface area)
Richmond Northwest (exterior and interior dry surface area)
Warsaw Jefferson (exterior and interior dry surface area)
New Albany Tree Tops (interior dry surface area)
Northwest Glen Park (exterior only)
Northwest 6th and Dearborn (exterior only)
Northwest South Haven (exterior and interior dry surface area)

No. OUCC 15-200

DATA INFORMATION REQUEST
Indiana American Water Company
Cause No. 43680

Tanks with coatings with lead concentration less than 0.06% or with detection but no concentration quantification
Kokomo North tank
Kokomo Sludge Solids Dewatering Holding Tank
Kokomo South Tank
Richmond Middle Fork Washwater
Richmond National Road West
Richmond Spring Grove
Wabash North Industrial Park
Wabash Walnut St.
Seymour Interstate

Prepared By: Stacy Hoffman

No. OUCC 15-201

DATA INFORMATION REQUEST
Indiana American Water Company
Cause No. 43680

Date Requested: 9/29/09

Information Requested:

Does Indiana-American own the large dark green elevated water storage tank located in the southern part of the City of Gary (on the east side of Broadway near 35th Street or 3500 south – south of Indiana University Northwest)? If so, provide the name or code for this tank.

Requested By: Daniel M. Le Vay, OUCC -- 317-233-3236 – dlevay@oucc.in.gov and infomgt@oucc.in.gov

Information Provided:

The Company believes the OUCC is referring to a tank the Company owns near the intersection of 41st Avenue and Massachusetts St. in Gary. If this assumption is correct the tank is referred to as Glen Park Tank.

Prepared By: Stacy Hoffman

No. OUCC 15-202

DATA INFORMATION REQUEST
Indiana American Water Company
Cause No. 43680

Date Requested: 9/29/09

Information Requested:

Regarding the apparent poor condition of the coatings on this green elevated water tank near Broadway (south side of Gary), when was it last painted? What are the plans (including schedule) for the next painting and/or rehabilitation and a rough estimate of the cost to do so?

Requested By: Daniel M. Le Vay, OUCC -- 317-233-3236 – dlevay@oucc.in.gov and infomgt@oucc.in.gov

Information Provided:

The Company believes the OUCC is referring to a tank the Company owns near the intersection of 41st Avenue and Massachusetts St. in Gary. The tank was last painted in 1986. The tank was scheduled for blasting and painting in 2008 however the work was deferred as part of capital investment prioritizations. In 2008 the rehabilitation cost was estimated at $868,000. The tank is a 750,000 gallon multi-leg steel elevated tank. It's proximity to development requires it to be fully contained with fabric shrouding during blasting and painting activities

Prepared By: Stacy Hoffman

No. OUCC 11-140

DATA INFORMATION REQUEST
Indiana-American Water Company
Cause No. 43680

Date Requested: 9/15/09

Information Requested:

(a.) What is the approximate percentage of all Indiana American water treatment plants in Indiana that by the end of 2009 will be equipped with the OSG system?
(b) For plants of 3 MGD capacity or greater?

Requested By: Leja D. Courter, Office of Utility Consumer Counselor (OUCC)
317-233-3236 – lcourter@oucc.in.gov; infomgt@oucc.in.gov

Information Provided:

(a) 8%

(b) 14%

Prepared By: Stacy Hoffman

No. OUCC 11-140

DATA INFORMATION REQUEST
Indiana-American Water Company
Cause No. 43680

Date Requested: 9/15/09

Information Requested:

(a.) What is the approximate percentage of all Indiana American water treatment plants in Indiana that by the end of 2009 will be equipped with the OSG system?
(b) For plants of 3 MGD capacity or greater?

Requested By: Leja D. Courter, Office of Utility Consumer Counselor (OUCC)
317-233-3236 – lcourter@oucc.in.gov; infomgt@oucc.in.gov

Information Provided:

(a) 8%

(b) 14%

Prepared By: Stacy Hoffman

Tech Brief
PUBLISHED BY THE NATIONAL ENVIRONMENTAL SERVICES CENTER

On-Site Generation of Disinfectants

By **Andrew K. Boal, Ph.D.**

Summary

On-site generators (OSGs) produce chlorine when a solution of sodium chloride is passed through an electrolytic cell and electricity is added. Many communities are turning to OSGs for their water distribution systems because of the benefits inherent in the process, including better safety, high quality disinfection, greener operations, and substantial economic savings.

What is On-site Generation?

On-site generation of chlorine and other disinfectants is a technology that is based on decades-old scientific principles. In essence, OSGs take a solution of sodium chloride (salt) and water and apply electricity, which produces chlorine and other oxidant species. While OSGs have a number of applications in the industrial world, including providing disinfectants for swimming pools and cooling towers, the largest application of OSG technology is for municipal drinking water disinfection. Because of the benefits that OSGs provide, many water municipalities are switching to OSG systems as opposed to more traditional chlorine delivery systems such as chlorine gas, concentrated sodium hypochlorite, and bulk calcium hypochlorite.

How do On-site Generators Work?

While there are many different types of OSG systems available, there are also a number of components that almost every OSG uses (See Figure 1). Water coming into the OSG first goes through a softener, after which it is split into two lines. One line feeds directly into the electrolytic cell while the other is used to fill

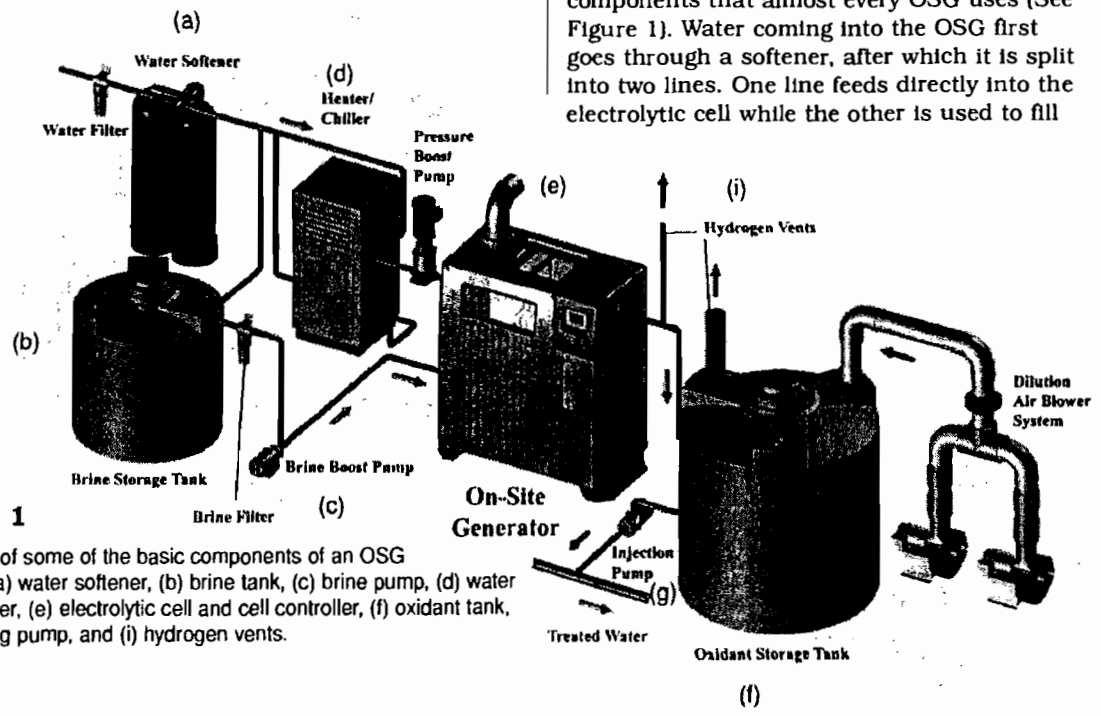


Figure 1

Illustration of some of the basic components of an OSG including (a) water softener, (b) brine tank, (c) brine pump, (d) water heater/chiller, (e) electrolytic cell and cell controller, (f) oxidant tank, (g) metering pump, and (i) hydrogen vents.

the brine tank. The brine tank stores a concentrated salt solution, prepared by having an excess of salt in the tank so that the solution is a near-saturated brine, which is then injected into the softened water stream entering the electrolytic cell.

When the dilute salt solution is inside the electrochemical cell, a current is passed through the cell, producing the oxidant (sodium hypochlorite or other oxidants) solution. After leaving the electrolytic cell, the oxidant solution is stored temporarily in the oxidant tank and is then metered into the water moving through the treatment process. Hydrogen gas is also produced inside the electrolytic cell, and the hydrogen is removed from the cell and oxidant storage tank through vents.

The electrolytic cell, where the oxidants are actually produced, is central to the OSG (See Figure 2). Electrolytic cells consist of two electrodes, the anode and cathode, arranged so that both make contact with the mixed water and brine solution. When the OSG is activated, a voltage is applied to the cell so that current flows through the cell, causing chemical reactions to take place at the surfaces of both electrodes that eventually produce the disinfectants. The overall chemical equation for reaction of salt (NaCl) and water (H_2O) to form sodium hypochlorite (NaOCl) is:

$$NaCl + H_2O \rightarrow NaOCl + H_2$$

Oxidation reactions are carried out at the anode where two chloride ions (Cl^-) are stripped of one electron each to produce chlorine gas:

$$2Cl^- \rightarrow Cl_2 + 2e^-$$

Depending on the physical and working parameters of the cell (e.g., electrode to electrode spacing, cell applied potential, etc.), it is also possible to produce oxidants other than chlorine, which can provide enhanced removal of microbiological contaminants from water and other benefits. After it is produced, the chlorine gas dissolves in water to produce hypochlorous acid (HOCl) in the same way that bulk chlorine gas from cylinders acts:

$$Cl_2 + H_2O \rightarrow HOCl + H^+ + Cl^-$$

Chlorine production is balanced by the reduction reactions that occur at the cathode where water (H_2O) is converted into hydroxide ions (OH^-) and hydrogen gas (H_2):

$$2\,H_2O + 2e^- \rightarrow 2\,OH^- + H_2$$

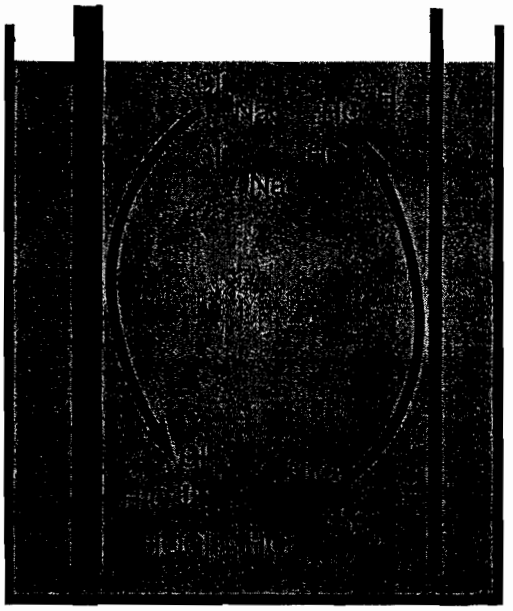
During electrolysis, the hydrogen gas is produced as bubbles that must later be removed from the OSG and oxidant storage tanks to prevent buildup of the gas. The hydroxide ions produced at the cathode then react with the hypochlorous acid produced at the anode, producing the hypochlorite anion (OCl^-), which is charge balanced with sodium cations (Na^+) that originally came from the salt:

$$HOCl + OH^- \rightarrow H_2O + OCl^-$$

Typically, the pH of oxidants that OSGs produce is around nine. The addition of these solutions often does not alter the pH of the water that is to be treated.

Anode: $2Cl^- \rightarrow Cl_2 + 2e^-$

Cathode: $2\,H_2O + 2e^- \rightarrow H_2 + 2\,HO^-$



Overall reaction :$NaCl + H_2O \rightarrow NaOCl + H_2$

Figure 2

Diagram showing the different electrochemical reactions that take place inside of electrolytic cells that OSGs use.

What are the Benefits of Using OSGs?

There are four principal benefits associated with OSGs: (1) improved operator safety, (2) higher quality chemicals, (3) greener applications, and (4) cost savings.

Improved Operator Safety

Chlorine sources traditionally used in water disinfection pose a variety of hazards to the operator. Chlorine gas is probably the most hazardous source of chlorine used by water treatments plants; it is toxic and the use of chlorine gas cylinders also poses a pressure hazard. Industrial strength bleach used for water disinfection is a 12.5 percent-by-weight solution, which is caustic. OSG systems use only water and salt and produce nonhazardous oxidant solutions with a chlorine content that typically contains less than 0.8 percent free available chlorine. Treatment plants that use OSG systems typically have to face less oversight from state health agencies, provide less safety training for operators, and have less of an insurance issue compared to those using traditional forms of chlorine.

Higher Quality Chemicals

Recent research has indicated that hypochlorite storage leads to chlorate (ClO_3^-), and perchlorate (ClO_4^-) production from hypochlorite anions. Additionally, factors such as time in storage, temperature at storage, and exposure to sunlight can cause hypochlorite loss through other chemical degradation pathways. These observations indicate that older hypochlorite will contain less and less free available chlorine and more degradation products. Storage issues mount in areas that are required to have 30-day or higher supplies of disinfectant chemicals on hand. OSG systems, on the other hand, typically produce only a two- to three-day supply of chlorine at a time, thus providing a potent disinfectant. Salt does not decompose, so that long-term requirements can be met by storing enough salt to comply with regulations.

Greener Application

OSGs mean greener operations compared to traditional chlorination methods. In addition to the reduction in use and potential accidental release of toxic chemicals, transportation of chemicals from factories to the water plant is reduced. For example, it takes one delivery of salt to produce the same amount of chlorine as more than three deliveries of 12.5 percent sodium hypochlorite solution. This, therefore, lessens the carbon footprint of the plant because less fossil fuel is needed to supply the plant with disinfectant.

Cost Savings

OSGs typically produce chlorine at a much lower cost than traditional delivery methods, primarily because there is no need to continuously purchase expensive chlorine chemicals. This is especially the case for systems using calcium hypochlorite. Additional savings come from decreased transportation and safety-related costs, and lower insurance premiums. Although OSG systems usually present a large, up-front capital equipment cost, most water plants realize a return on their investment in OSG equipment within two to three years.

What are Some Considerations of Using On-site Generators?

Although OSGs are basically safe, there are a few items to consider.

Hydrogen Safety

Hydrogen gas is colorless, odorless, and is flammable. All electrochemical systems that employ aqueous solutions—disinfectant OSGs included—produce hydrogen at the cathode as a byproduct of the electrochemical process. Hydrogen is more than 13 times lighter than air, so it will rapidly dissipate from an electrolytic cell or OSG system. Because OSGs are typically installed inside a building, the system and tanks need to be properly ventilated. Hydrogen safety concerns are mitigated by careful engineering of the OSG itself, as well as good planning when the OSG is installed. When considering an OSG system for a water treatment plant, it is important to ensure that the system meets standards set by groups such as Hydrogen Safety LLC.

Water Quality and Temperature

Water is the most common component of the salt solution that enters the electrolytic cell of an OSG and, thus, the composition of that

water is important. Potable water supplies can feed most OSG electrolytic cells, but it is very important that the water be softened so as to have the lowest possible hardness. If hard water is used to provide either the water or brine solutions for an electrochemical cell, scales will rapidly form on the surfaces of the electrodes, causing the electrolytic cell to fail. Similarly, the temperature of the water entering the electrolytic cell should be maintained within a range of 40 to 80 degrees Fahrenheit, to avoid damaging the electrolytic cell. If an OSG is installed in an area where water feeding the OSG will be outside of that temperature range a heater/chiller unit is typically added to the overall system.

Salt Quality

Sodium chloride is the only chemical added to the water stream that is employed by OSGs to produce disinfectants so it is vital that the salt be of high purity. Some contaminants in salt can cause damage to the electrolytic cell, typically calcium and magnesium salts found in sea salt. Another concern is that some salts contain other chemical species that are subject to oxidation, the most common being bromide (Br^-). In any electrochemical cell that produces chlorine, bromide will be oxidized to form bromates (BrO_3^-), which are regulated and have a MCL of 0.01 mg/L. Food quality salt is the most common form of salt recommended for OSGs.

Cell Maintenance

The electrolytic cell is the most expensive part of an OSG and appropriate care should be taken. Flushing the cell with soft water after every usage helps to prevent salt-deposit buildup. Most OSG systems perform this action automatically upon system shutdown. Using appropriately softened water and high-quality salt are the two most important factors of cell maintenance. Even under these conditions, though, electrochemical cells will develop scales over time. This scale will impede the ability of the cell to generate chlorine and, if left unchecked, will eventually destroy the electrodes. Wash the cell periodically by flushing it with muriatic acid (hydrochloric acid) to remove the scale and clean the electrode surfaces. How much acid is needed and how often the electrolytic cell needs to be rinsed are factors that rely on variables such as how often the cell is in operation and the quality of water and salt that go into the cell.

References

Casson, L. W. and J.W. Bess, Jr. 2003. *Conversion to On-Site Sodium Hypochlorite Generation*. Boca Raton, FL: CRC Press.

White, C. G. 1993. *Handbook of Chlorination and Alternative Disinfectants, Fourth Edition*. New York: Wiley-Interscience.

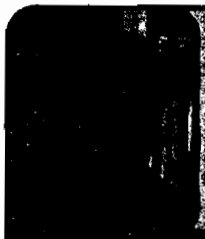
The author would like to thank Wes Bradford, Susan Rivera, and Beth Kennedy for their assistance in preparing and reviewing this manuscript.

For More Information

To learn more about on-site generation of chlorine, visit the MIOX Corporation site at *www.miox.com*.

Environmental Expert has a feasibility study about OSGs at *www.environmental-expert.com/resultEachArticle.aspx?cid=5306&codl=24371&level=0&idproducttype=6*

Hydrogen Safety LLC provides information about hydrogen safety on their Web site at *www.hydrogensafety.com*



Andrew K. Boal obtained his Ph.D. in organic chemistry from the University of Massachusetts, Amherst. He has worked for Sandia National Labs, NASA, and currently is the research scientist at MIOX Corporation, a company specializing in the development, manufacture, and installation of on-site chlorine and mixed-oxidant generators for potable water disinfection. Boal can be reached at (505) 344-1068 or akboal@miox.com.

Published by The National Environmental Services Center at West Virginia University, P.O. Box 6064, Morgantown, WV 26506-6064

No. OUCC 15-198

DATA INFORMATION REQUEST
Indiana American Water Company
Cause No. 43680

Date Requested: 9/29/09

Information Requested:

Provide the total actual expenditures the company has spent for tank painting and repair for each of the last five years (2004, 2005, 2006, 2007, and 2008). Please provide the budget for tank painting for 2009, 2010, and 2011.

Requested By: Daniel M. Le Vay, OUCC -- 317-233-3236 – dlevay@oucc.in.gov and infomgt@oucc.in.gov

Information Provided:

Actual Expenditures	
2004	$295,684
2005	$861,156
2006	$1,951,534
2007	$3,389,027
2008	$2,413,761

The 2009 tank painting budget was $0. Budgets are not yet approved for 2010 and 2011 however Petitioner submitted Exhibit SSH-2 as part of Petitioner's direct testimony identifying the Company's strategic capital expenditure plan. The strategic capital expenditure plan identified in Exhibit SSH-2 includes a line for tank painting.

Prepared By: Stacy Hoffman

TESTIMONY OF EDWARD R. KAUFMAN, CRRA
CAUSE NO. 43680
INDIANA AMERICAN WATER COMPANY

Q: Please state your name and business address.

A: My name is Edward R. Kaufman and my business address is National City Center, 115 W. Washington St., Suite 1500 South, Indianapolis, Indiana 46204.

Q: By whom and in what capacity are you employed?

A: I am a Senior Analyst employed by the Indiana Office of Utility Consumer Counselor (OUCC).

Q: Please describe your credentials.

A: I graduated from Bentley College in Boston, Massachusetts with a Bachelors degree in Economics/Finance and an Associates degree in Accounting. Before attending graduate school, I worked as an escheatable property accountant at State Street Bank and Trust Company in Boston, Massachusetts. I was awarded a graduate fellowship to attend Purdue University where I earned a Masters of Science degree in Management with a finance concentration.

I was hired as a Utility Analyst in the Economics and Finance Division of the OUCC in October 1990. My primary areas of responsibility have been in utility finance, utility cost of capital and regulatory policy. I have worked on a range of utilities including natural gas, electric, water and wastewater. I was promoted to Principal Utility Analyst in August 1993 and to Assistant Chief of Economics and Finance in July 1994. As part of an agency wide reorganization in July 1999, my

position was reclassified as the Lead Financial Analyst within the Rates/Water/Sewer division. In October, 2005 I was promoted to Assistant Director of the Water/Wastewater division. I have participated in numerous conferences regarding utility regulation and financial issues. I have been awarded the professional designation Certified Rate of Return Analyst (CRRA). This designation is awarded based upon experience and the successful completion of a written examination. I have testified before the IURC on several occasions.

INTRODUCTION

Q: What is the purpose of your testimony and how is it organized?

A: The first section presents my estimate of Indiana American's cost of equity. The second section critiques Mr. Moul's cost of equity analysis. The third discusses Petitioner's cost of debt.

Q: What investigations have you performed in preparation of your testimony?

A: I reviewed the Petition, testimony and exhibits filed by Petitioner in this Cause. I have conducted discovery and reviewed Petitioner's responses. I attended the field hearing in Muncie and the evidentiary hearing on Petitioner's case-in-chief. My preparations included a review of numerous financial articles that discuss anticipated returns in the market that are relevant to estimating cost of equity. I reviewed a report prepared by Overland Consulting titled: Regulatory Audit of 2006 and 2007 General Office Expense and Test Year 2009 Revenue

Requirement of California American Water Company. I attended numerous meetings with OUCC staff to discuss and evaluate issues in this Cause.

Q: Please describe your schedules and attachments.

A: My testimony includes 4 schedules and 15 attachments. Schedule 1 is two pages and contains a summary of the results of my cost of equity models. Schedule 2 is two pages and contains my DCF analysis. Schedule 3 is three pages and contains my CAPM analysis. Schedule 4 is three pages and provides updated data and analysis to Mr. Moul's Schedule 10 (Risk Premium Model).

Attachment 1 is a copy of the 1st quarter Survey of Professional Forecasters, Federal Reserve Bank of Philadelphia Release (February 13, 2007).

Attachment 2 is a chart published by Value Line titled "A Long Term Perspective Dow Jones Industrial Average, 1920 – 2005" (Quarterly Price Range).

Attachment 3 is an article that appeared in the Wall Street Journal on January 27, 2003 titled Analysts: Still Coming Up Rosy.

Attachment 4 is an article titled 9% Forever? by Justin Fox published by CNNMoney.com on December 26, 2005.

Attachment 5 contains two articles, the first by Roger Ibbotson titled Building the Future From the Past and the second by John Campbell titled Stock Returns for New Century.

Attachment 6 is an Analyst Report on American Water Works by Macquarie Research dated June 3, 2009.[1]

Attachment 7 is selected pages from a presentation made by Professor Aswath Damodaran at the Society of Utility and Regulatory Financial Analysts (SURFA) 39th Annual Financial Forum held on April 19-20, 2007.

1 The Macquarie Research report was originally provided to OUCC by Petitioner as a confidential response to OUCC DR 7, Q 86. On October 27, 2009, OUCC was notified by Petitioner's counsel that Macquarie Research had granted OUCC permission to treat this report as a public document. OUCC wishes to thank both Petitioner's counsel and Macquarie Research for their assistance in this matter.

Attachment 8 is the 2nd page from the September 25, 2009 Value Line "Ratings and Reports".

Attachment 9 is page 49 from Duke University's Fall 2009 CFO Business Outlook Survey U.S.

Attachment 10 is an article from Schwab Center for Financial Research titled: Long-term Market Return Estimates.

Attachment 11 is an article from California Broker titled How to Get Sued and Lose All Your Clients Using VUL (October 2005).

Attachment 12 is Petitioner's response to OUCC data request question 04-52.

Attachment 13 is the cover page from the September 25, 2009: Value Line Investment Survey - Summary & Index and a page titled Selected Yields from Value Line Investment Survey Selection and Opinion.

Attachment 14 is an article titled The Portfolio Solutions 30-Year Market Forecast. This article was published in 2009 by Portfolio Solutions, LLC.

Attachment 15 is a copy of an article titled What Long-Term return Should We Expect On large-capitalization Stock Market Indexes? This article was published in 2009 by InvestorsFriend.com.

Q: Please summarize your cost of equity testimony.

A: I use both a Discounted Cash Flow (DCF) and Capital Asset Pricing Model (CAPM) analysis to estimate Petitioner's cost of equity. My estimate of Petitioner's cost of equity is 9.25%. My DCF model produces a range of estimates from 8.83% to 9.68% and my CAPM analysis produces a range of estimates of 7.54% to 8.10%. A cost of common equity of 9.25% results in a weighted cost of capital of 7.28% (OUCC Schedule 11, page 1 of 1 sponsored by Margaret Stull).

Q: How does your proposed cost of equity differ from Mr. Moul's proposed cost of equity?

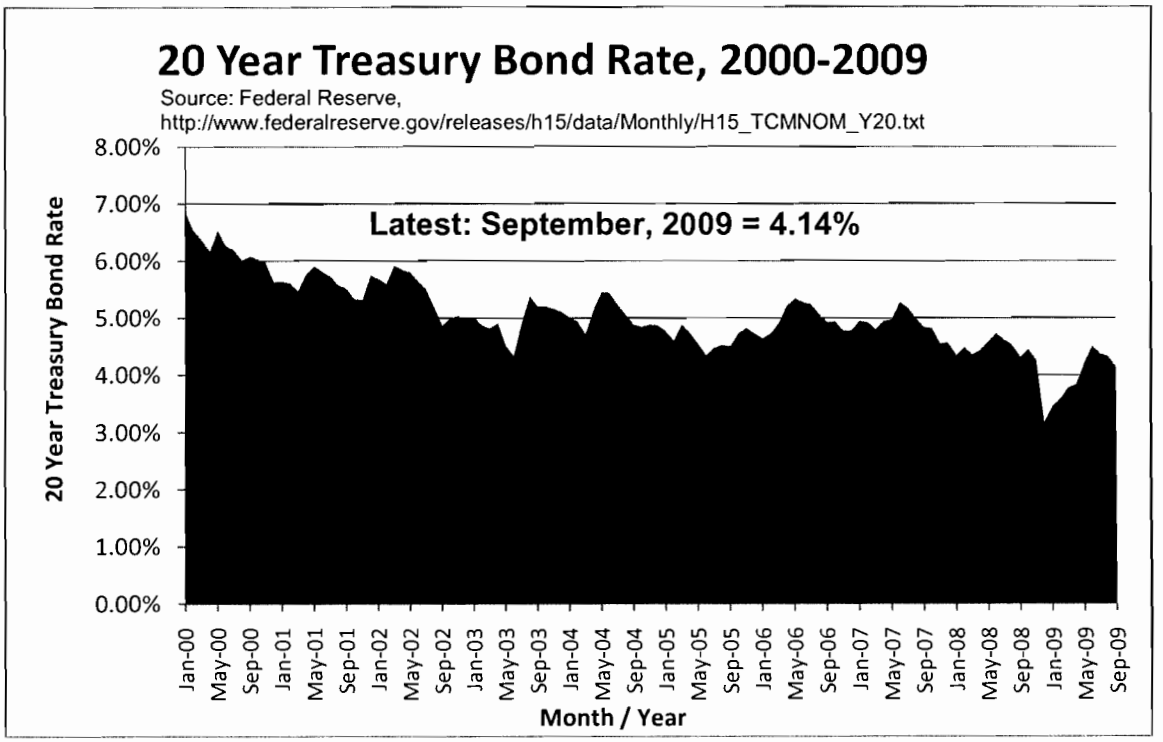
A: My estimate of Indiana American's cost of equity is 275 basis points less than Mr. Moul's recommended cost of equity (This is the same difference we had in Indiana American's last rate case 8.75% vs. 11.50%). The majority of our differences are explained by inputs to the various models, adjustments that Mr. Moul makes to his models and the weight we give to each of the models.

Q: How do current inflation and interest rates influence estimating the cost of equity?

A: Inflation influences interest rates and interest rates influence the cost of equity. Inflation rates are at historically low levels[2] and projected inflation is expected by some experts to average 2.4% over the next 10 years (2009-2018).[3] Low inflation has caused long term interest rates to remain at historically low levels that are still lower today than they have been during most of the last 40 years. Lower interest rates translate directly into a lower cost of equity.

The two charts below show the yields on 20 - Year Constant Maturity US Treasury bonds for January 1980 – September 2009 and January 2000 – September 2009.

2. In 2008 inflation was only 0.1% and over the last 19 years (1991–2009) inflation has not exceeded 4.1%, averaging 2.5% (Ibbotson's 2009 SBBI Yearbook, page 279). The last time the United States had a similar period when inflation was less than 4.1% was from 1952 -1967.
3. Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters (February 13, 2009) Attachment 1)


20 Year Treasury Bond Rate, 2000-2009
Source: Federal Reserve,
http://www.federalreserve.gov/releases/h15/data/Monthly/H15_TCMNOM_Y20.txt
Latest: September, 2009 = 4.14%
20 Year Treasury Bond Rate
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
Jan-00
May-00
Sep-00
Jan-01
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May-09
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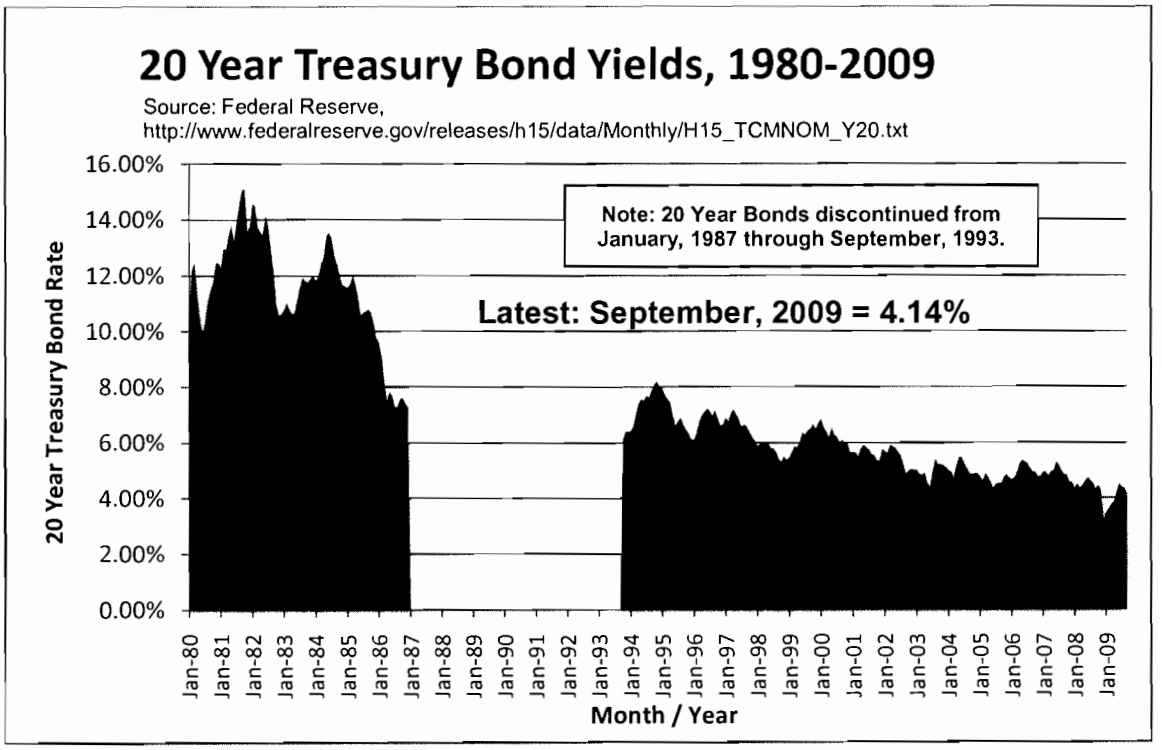
Month / Year


20 Year Treasury Bond Yields, 1980-2009
Source: Federal Reserve,
http://www.federalreserve.gov/releases/h15/data/Monthly/H15_TCMNOM_Y20.txt
Note: 20 Year Bonds discontinued from January, 1987 through September, 1993.
Latest: September, 2009 = 4.14%
20 Year Treasury Bond Rate
16.00%
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
Jan-80
Jan-81
Jan-82
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Month / Year

The lower cost of capital is demonstrated through some of the lowest long term risk free interest rates that we have seen since the late 1960s. My estimated cost of equity recognizes that long term capital costs, like interest rates, are also lower today than they have been during most of the last 40 years.

Q: Have risk free interest rates declined since Petitioner's last rate case?

A: Yes. In Petitioner's last case Mr. Moul used a forecasted long term risk free rate of 5.25% (Page 53) while in this case Mr. Moul uses a forecasted risk free rate of 4.00% (Page 53). As of the close of business on Tuesday October 13, 2009 the current or spot yield on long term U.S. Treasury bonds was 4.20% (At the time I filed testimony in Petitioner's last rate case [May 11, 2007] the spot yield was 4.84%). Long term U.S. Treasury bonds have a lower yield than they did at the time of Petitioner's last rate case.

Q: How has the recession and recent disruptions in the financial markets effected Petitioner's cost of debt?

A: Petitioner issued $22 million of debt in February 2009 at 8.25% and $15.5 million in May 2009. Other than debt issued in March 1990 at 8.98%, the debt issued in 2009 is the most expensive debt in Petitioner's capital structure. Due to these recent debt issuances, Petitioner proposed average cost of long term debt has increased since its last rate case from 6.79% to 7.15%. The 7.15% cost of debt assumes that Petitioner will issue an addition $27.5 million of long term debt at 8.25%. However, bond markets have stabilized over the past few months and Petitioner should be able to issue debt at rates well below 8.25%. If Petitioner is

able to issue its anticipated $27.5 million of long term debt at 6.40% then its average cost of long term debt would decrease from 7.15% to approximately 6.98%. Thus, despite the financial disruptions in the debt markets that occurred earlier this year, Petitioner's average cost of long term debt is not significantly higher than it was at the time of its last rate case and its anticipated cost of debt on new issuances is at or below its average cost at the time of its last rate case.

For example, during Petitioner's last rate case the yield on "A" rated (25/30 year) utility bonds as of February 21, 2007 was 5.74% (Value Line Selection & Opinion). As of September 25, 2009 the yield on "A" rated (25/30 year) utility bonds was 5.59% (Value Line Selection & Opinion).

Q: Is this the same cost of equity you recommended in Indiana American's last rate case.

A: No. Petitioner's risk has increased somewhat since its last rate case. My estimated cost of equity in this cause is 50 basis points higher than it was for Petitioner's last rate case. However, forecasted inflation remains low and the corporate bond market has stabilized. My estimated cost of equity reflects the fact that we are still in a low inflationary environment.

Q: What type of returns have the water industry earned over the last 10 years compared to the major stock indexes?

A: **[SEE OUCC EXHIBIT 9 (CONFIDENTIAL)].** Even if one excludes 2008 (The S&P 500 lost 37% in 2008), and includes 1998 (The S&P 500 gained

28.6%) the compound annual return for the S&P 500 over the 10 year period from 1998 – 2007 was only 5.9% (Ibbotson SBBI 2009 Yearbook, page 243).

PROXY GROUP

Q: Can you apply the DCF model and CAPM directly to Indiana American Water Company?

A: No. The DCF model and the CAPM can be applied only to companies whose stock is publicly traded. Because Petitioner's stock is not publicly traded, Petitioner's cost of equity must be estimated through the use of a proxy group. Once the cost of equity is estimated for an appropriate proxy group the results may need to be adjusted when applied to Indiana American Water to account for any differences in risk between the proxy group and Petitioner.

Ideally, I prefer to use a proxy group of 6 to 10 water companies with similar operating and financial characteristics, comparable size, operating in the Midwest and have available financial information. These companies do not exist. One has to choose between developing a proxy group with a smaller number of members or including companies that are less comparable to Indiana American Water Company. Mr. Moul uses a proxy group of 7 water utilities. In this cause I generally accept and use Mr. Moul's proxy group of 7 water utilities. But, I break the companies into two groups as explained below.

I use two proxy groups for my DCF analysis and one for my CAPM analysis[4]. My first DCF proxy group (the Value Line proxy group) consists of three out of the five water companies covered by Value Line's Standard Universe[5]. My second DCF proxy group (AUS proxy group or Mr. Moul's proxy group) uses the same seven companies in Mr. Moul's analysis. All three companies in my Value Line proxy group are included in my AUS proxy group. Value Line provides a greater level of data (growth rates) for companies in its Standard Universe. I do not have the same level of data for my AUS proxy group and I give it less weight than my Value Line proxy group. I have the same level of detail (beta) for all seven companies for my CAPM analysis and it is not necessary to divide the companies into two proxy groups. My use of two proxy groups is not intended to be a criticism of Mr. Moul's selection of a proxy group and I consider it to be a stylistic difference.

DISCOUNTED CASH FLOW ANALYSIS

Q: Please describe the discounted cash flow model (DCF).

A: The DCF model is used by investors to determine the appropriate price to pay for a particular security. This model assumes that the price of a security is determined by its expected cash flows discounted by the company's cost of equity. On a one year horizon, the price of a stock (P_0) is equal to the anticipated dividends paid during the year (D_1) plus the anticipated price of the stock at the

4. I used the same arrangement in Petitioner's last rate case.
5. Like Mr. Moul, I exclude American Water Works and Southwest Water Company from my proxy group. At this time neither company has reliable data to use in a DCF or CAPM analysis.

end of the year (P_1) divided by one plus the company's cost of equity (k). In turn, this year's year-end price (P_1) is determined by next year's anticipated dividends (D_2) and next year's anticipated year-end price (P_2) divided by one plus the company's cost of equity (k).

$$P_0 = \frac{(D_1 + P_1)}{(1 + k)} \quad \text{and} \quad P_1 = \frac{(D_2 + P_2)}{(1 + k)}$$

Since investors may plan to hold securities for many periods, the DCF equation can be restated for an infinite or unknown number of periods as follows:

$$P_0 = D_1/(k-g)$$

(Where the price of a security (P_0) equals the anticipated dividends paid over the current period (D_1) divided by the company's cost of equity (k) minus the expected growth rate of dividends (g)).

The company's cost of equity must be greater than its expected dividend growth rate for this model to be valid. By rearranging the model, one can obtain the familiar DCF formula used in regulatory proceedings:

$$k = (D_1/P_0) + g$$

(Where the cost of equity (k) equals the forward dividend yield (D_1/P_0) plus the expected growth rate in dividends per share (g). To estimate the cost of equity (k), one must estimate the forward yield (D_1/P_0) and the expected growth rate in dividends (g)).

Q: How did you calculate your forward yields (D_1/P_0)?

A: To calculate a forward yield (D_1/P_0), one must first calculate a current yield (D_0/P_0). AUS Utility Reports calculates current yields for large publicly held utilities each month. A company's current yield equals its current annual dividends (D_0) divided by its current stock price (P_0). The current annual dividend is calculated by multiplying the company's most recent quarterly dividend by four. For purposes of this testimony, I have used three and six month average current yields.

Q: How do you convert your current yields (D_0/P_0) into forward yields (D_1/P_0)?

A: I use the following equation to convert a current yield to a forward yield: $(D_1/P_0) = (D_0/P_0) * (1 + .5g)$. For example, if company X had a current dividend yield of 6.0% and an expected growth rate of 4.0%, I would multiply the 6.0% current dividend yield by 1 plus 2.0% or 1.02, (2.0% is one half of the 4.0% expected growth rate). This would result in a forward dividend yield of 6.12% or an increase of 12 basis points over the current dividend yield.

Q: Has the Commission supported the use of the one half years growth methodology to convert current yields to forward yields?

A: Yes. Although there is no universally accepted methodology, the one half times growth methodology to convert current yields to forward yields has been regularly accepted by this Commission and was affirmed in its order in Indiana American Water Company Cause No. 40103, order dated May 30, 1996. On page 40 of its order, this Commission stated as follows:

We are well aware of the advantages and limitations of the various approaches used by each of the witnesses. For example, the half-year method used by the OUCC for calculating the forward dividend yield is the most frequently used approach in this jurisdiction, and it is rarely a point of contention in DCF analysis. We believe that it fairly represents the dividend payments expected and received by investors, while the full year method employed by Petitioner overstates the dividend yield.

Q: How did you estimate the long run dividend growth component (g) of the DCF model?

A: The DCF model assumes investors expect earnings per share, dividends per share, and book value per share (EPS, DPS, BVPS) to all grow at the constant long run growth rate (g). For my Value Line proxy group I use a single stage DCF model. In order to estimate (g), I use both historical and forecasted growth rates of EPS, DPS, and BVPS. I use Value Line as my primary source of growth rates.

For my AUS proxy group I use a two-stage DCF model. For the first stage I use forecasted growth rates of EPS from Zacks and Reuters, as well as forecasted growth rates in DPS from AUS. For the second stage I use the long term sustainable economic growth rate of the US economy.

Q: What is your estimated (g) long run dividend growth component of the DCF model for the Value Line proxy group of water companies?

A: My estimate of growth is 5.61% for my Value Line proxy group. To estimate growth for the Value Line proxy group, I average the forecasted and historical growth rates of EPS, DPS, and BVPS from Value Line.

Q: What are your estimated (g) growth rates for the DCF Model for your AUS proxy group of water companies?

A: For the first stage to estimate growth for the AUS proxy group I averaged Zacks and Reuters forecasted growth in EPS and AUS forecasted growth in DPS. This results an estimated growth rate of 7.25%. For the second stage I use an estimated long run growth rate of the US economy of 5.5% (E. Kaufman, Schedule 2, page 2 of 2).

Q: Have you included zero and negative numbers to estimate the dividend growth (g) for your DCF analysis?

A: No. I excluded zero and negative growth figures to estimate (g) in my DCF analysis. In Cause No. 40103, Indiana American Water Company, the Commission stated as follows:

> In all cases, however, the Commission expects the parties to exercise sound judgment when deciding which inputs to include as part of their analysis. In this case, the inclusion of negative growth rates for certain earnings and book value per share data by the OUCC biased the derivation of its growth rates downward. On the other hand, the Petitioner's sole reliance on Value Line's 10-year dividend growth rate data had the opposite effect.

(Final Order Cause No. 40103 – May 30, 1996, p. 41 (Emphasis in original)

While I eliminated zero and negative growth rates from my DCF analysis, I do not believe that investors completely ignore these growth rates. While I agree that investors (typically) do not expect earnings growth to be very low or negative, when a company has experienced very low growth or negative growth in EPS, DPS or BVPS that will likely reduce the investor's future growth expectations.

Q: Why haven't you eliminated low (positive) growth rates from your DCF analysis?

A: Low growth rates are not ignored by investors. While investors may not expect low growth rates to occur (especially in perpetuity), if a company has experienced low historical growth rates and/or is forecasted to experience low growth rates, those low growth rates are considered by investors when estimating a company's future growth rate. One has to remember our purpose in estimating a growth rate in the DCF model is to derive or infer the investor's long term (perpetual) forecast in growth of the company. Relevant factors should not be ignored. Moreover, if one considers high positive growth rates, then one should also consider low positive growth rates. While growth rates as high as 9.0% or low as 1.0% by themselves may not reflect investor expectations, neither should these growth rates be ignored.

Q: Do you have any additional data to support the reasonableness of the 5.6% overall growth rate used in your DCF analysis?

A: Yes. Value Line publishes a chart titled "A Long Term Perspective Dow Jones Industrial Average, 1920 – 2005" (Quarterly Price Range) which provides average growth rates in EPS (5.3%), DPS (4.9%), and BVPS (5.2%) (Attachment 2). Thus, the average growth rate of EPS, DPS and BVPS for the Dow Jones Industrial Average was each less than 5.61% (1920 – 2005, 85 years). The Value Line chart helps to support my use of growth rate of 5.61% in my Value Line DCF analysis.

Q: Can short to intermediate term forecasts lead to unreasonably high estimated growth rates (g) in a DCF analysis?

A: Absolutely. First, intermediate term forecasts are not long term forecasts and should not mechanically be incorporated into a DCF analysis. Whatever growth rate is used in a DCF analysis is one that must be sustainable for many years. Thus, even if intermediate term forecasts are accurate, they may not be reliable forecasts of a company's long term sustainable growth. Secondly, there are well documented findings that forecasted growth rates in EPS (by analysts) tend to be optimistic. An article published in the National Regulatory Research Journal (NRRI) of Applied Regulation supports both of my concerns about using unreasonably high growth rates in a DCF analysis.[6] On page 98 the article states as follows:

> Financial research has made it clear that no company, especially a utility, can sustain a growth rate over the long run that exceeds the growth rate of the economy.[15] Since 1959 the long-term sustainable real growth rate in the economy has been about 3.5%.[16] If long-term inflation is expected to be about 2.5%, the maximum long-term sustainable nominal growth for any company today is about 6.0%. Since utilities are amongst the slowest growing firms in the economy, a utility today would be expected to have a long-term sustainable growth rate that is significantly below 6%.

The article also states as follows:

> The other problem with using analyst forecasts as the long-term growth rate in the DCF model is such forecasts are biased to the upside. The evidence on this issue is overwhelming.[17] The forecast bias persists year after year in large part due to the incentive structures in place at many Wall Street firms that tend to reward

6. How improper Risk assessment leads to overstated required returns for utility stocks by Steven G. Kihm NRRI Journal of Applied regulation-Volume 1, June 2003.

> more optimistic projections and to discourage the incorporation of potentially negative views in analysts' forecasts.[18]

Emphasis added, (Citations included at the end of my testimony).

The Wall Street Journal published an article on January 27, 2003 titled Analysts: Still Coming up Rosy. (Attachment 3). The article discusses how despite a $1.5 billion settlement pending with regulators over stock research-conflicts, analysts are unshaken in their optimism that most of the companies they cover will have above average double-digit growth rates during the next several years. The article asserts that such growth is unlikely and states as follows:

> Historically, growth in corporate earnings has slightly lagged nominal growth in gross domestic product. In other words, profits can only grow as fast as the economy. Right now, optimistic Wall Street analysts expect earnings to defy history and grow far faster than that.

And:

> Those overly optimistic growth estimates also show that, even with all regulatory forces on too-bullish analysts allegedly influenced by their firms' investment-banking relationships, a lot of things haven't changed: Research remains rosy and many believe it always will.

The concern regarding bias in analyst forecasts is also mentioned in The real cost of equity by Marc H. Goedhart, Timothy M. Koller and Zane D. Williams (McKinsey Quarterly). The article states as follows:

> Some theorists have attempted to meet this challenge by surveying equity analysts, but since know that analyst projections almost always overstate the long-term growth of earnings or dividends,[2] analyst objectivity is hardly beyond question.

(Citations included at the end of my testimony).

When using analyst forecasts of EPS to estimate growth (g) in a DCF analysis, both the potential for analyst bias and the intermediate term nature of the forecasts may make these estimates potentially unreliable. Zacks' forecasts of EPS for the water industry provide a good example of forecasted growth rates that should be given reduced weight in a DCF analysis. Each company in my AUS proxy group (E. Kaufman Schedule 2, page 2 of 2) has an estimated growth rate at or above 7.0% (and an average of 8.38%). Even assuming no analyst bias, a growth rate of 8.38% is not sustainable over the long term and should be given reduced weight.

Q: Is the recent recession in part responsible for forecasted growth rates that are too high to be sustainable over the long-term?

A: Yes. Mr. Moul, in response to questions from Commissioner Landis during NIPSCO's rate case, Cause No. 43526, testified:

> A: The other thing is now that we've gone through the recession and the financial forecast, we have a lower base to build for the future. So, the growth rates arising from the lower base are going to be higher than what we saw five years ago.
>
> Q: You actually anticipated my next question which is whether this forecast, assuming for the moment that it is accurate, represents more of a regression or a progression maybe to the mean rather than a sustainable growth situation?
>
> A: Oh, sure I'd agree with that. Some of that growth has got to be recovery from where we are today because we've gone through this huge slump, but investors, when they look at these numbers, are also aware of that because they're also building from asset values that are much lower…

Cause No. 43526, Transcript Volume LL, page 82.

A similar phenomenon is occurring for forecasted growth rates for water utilities at this time. The current recovery from a low base is responsible for forecasted growth rates (that may be reasonable forecasts for the next 3-5 years) that are not sustainable long term growth forecasts and should not be used by themselves in a DCF analysis.

Q: If one wants to give weight to short or intermediate term forecasts in EPS, to estimate cost of equity, could one employ a 2-stage DCF model?

A: Yes. A two stage DCF model allows an analyst to give appropriate weight to the current forecasted growth rates in the near term (over the forecasted period), while still using a sustainable growth rate over the long term. As discussed above in the NRRI article long-term sustainable growth for the water industry cannot exceed the long term sustainable growth rate in the US economy. It would be reasonable, if not conservatively high to use a forecasted growth rate of the U.S. economy as a long term sustainable growth.

Q: What long term growth rate did you use?

A: I reviewed several sources (NRRI Article, Blue Chip financial forecasts, Congressional Budget Office, and Survey of Profession Forecasters – Philadelphia Federal Reserve) that provide forecasted real growth and forecasted inflation. These sources forecast growth in real GDP of 2.56% to 3.5% and long term inflation of 1.5% to 2.4%. This produces a range of nominal growth of 4.06% to 5.9%. The CBO directly estimates nominal GDP growth for 2014 –

2019 at 4.1%. Based on the information above I have used a long term growth rate of 5.5%.

Q: Explain the mechanics of how you employed a two-stage DCF model.

A: A two stage DCF model is similar to the more traditional single stage DCF model except that it uses two growth rates (g) instead of a single growth rate. Because two growth rates are used the calculation is more complex than traditional single stage DCF model [$k = (D_1/P_0) + g$.] The 2-stage DCF model does not use a simple equation. Instead I have used an Excel spreadsheet which estimates the quarterly dividend payments out 200 years (representing infinity)[7]. For the first 5 years (20 quarters)[8], I increase dividends by 7.25% [annually], for the next 195 years (780 quarters); I increase dividends by 5.5% [annually]. Then I calculate the (quarterly) internal rate of return for the cash flow provided by the dividends and converted it to an annual rate of return. The annual rate of return is the cost of equity (or required return) used to discount the cash flow of dividends back to the price of the stock.

Because we are estimating cost of equity for the proxy group, my analysis does not have an actual stock price or actual dividend payments. To derive a stream of dividend payments, I have applied the proxy group's dividend yields of 3.58% and 3.61% to a hypothetical stock price of $25.00. As long as you use the proxy

7. It is unrealistic to use an infinite time horizon. The precise time frame used is not important, as long as the time frame is long enough so that adding additional years does not influence the calculation. Note using a time frame that is too short will lead to an understated discount rate and subsequent cost of equity.
8 Zacks, Rueters and AUS all provide 5-year forecasts.

group's dividend yield to determine the flow of dividends the initial share price should not influence on the estimated cost of equity. A higher stock price leads to higher dividends, but the discount rate required (so that the present value of the dividends equals the stock price) does not change. My workpapers include a copy of my 2-stage DCF analysis.

Q: What are the results of your 2-stage DCF analysis?

A: A two stage DCF model with a 5-year growth rate of 7.25% and a long term growth rate of 5.5% with dividend yields of 3.58% and 3.61% produces two cost of equity results: 9.66% and 9.70%.

Q: How much weight did you give to your 2-stage DCF analysis?

A: As discussed above I give significantly more weight to my single stage DCF analysis which uses my Value Line proxy group, and I give less weight to my 2-stage DCF analysis which is uses my AUS proxy group.

Q: Have you been critical of 2-stage DCF models in prior cases?

A: I have not been critical of the theory behind the 2-stage DCF model. I have criticized the misapplication of a 2-stage DCF model.

Q: Why didn't you use a 2-stage DCF model for your Value Line analysis?

A: My Value Line analysis uses a growth rate of 5.61%. Since this growth rate is similar to my second stage growth rate (5.5%), applying a 2 stage model to my Value Line analysis would have a minimal (slightly downward) effect on my Value Line DCF analysis.

Q: What do you conclude from your DCF study?

A: The results of my DCF analysis ranges from 8.83% to 9.70%. However, as mentioned earlier, my DCF analysis gives more weight to my Value Line analysis because it is based on a broader review of growth rates. The growth rate derived from my AUS proxy group relies too heavily on intermediate term forecasted growth rates in EPS. As discussed above analysts' forecasts of intermediate term growth rates in EPS are inflated and should not be used as long term estimates of growth (g) in a DCF analysis.

CAPM ANALYSIS

Q: Please describe your CAPM analysis.

A: The CAPM is a form of risk premium analysis used to estimate the cost of capital. The CAPM is based on the premise that investors require a higher return for assuming additional risk. Total risk is divisible into two categories, systematic risk and unsystematic risk. Unsystematic risk is that risk which is unique to the company and may include strikes, management errors, merger activity, or individual financing policy. Systematic risk is that risk that affects the entire market and includes inflation, monetary policy, fiscal policy, or politics.

Investors can eliminate unsystematic risk through diversification. Because returns of individual securities of a portfolio do not usually move in the same direction at the same time, the total risk of a portfolio is less than the risk of the individual securities that make up the portfolio. Because investors can eliminate

unsystematic risk through diversification, the market does not compensate investors for assuming unsystematic risk. Conversely, systematic risk, sometimes referred to as market risk, cannot be eliminated through diversification. However, since investments will move with different relationships to the market, investors can form a portfolio to assume any amount of market risk they wish. The returns an investor requires depends on the market risk that the investor assumes.

Q: How is systematic (market) risk measured?

A: Beta is the measurement of an investment's relationship to the market. More specifically, beta measures an asset's price volatility compared to the market. By definition, the market has a beta of one. The market refers to the returns on all assets. Since it is very difficult to measure the return on all assets, analysts typically rely on a market index, such as the Standard & Poors' 500 index, as a proxy for the market. Assets more volatile than the market will have a beta greater than one and, thus, they are considered riskier than the market. Similarly, assets that are less volatile will have a beta less than one, and thus, are considered less risky than the market.

The CAPM formula can be stated as follows:

$K = Rf_c + B*(Rm-Rf)$ where,

K	=	Cost of Equity
Rf_c	=	Current Risk Free Rate of Return
B	=	Beta
Rm-Rf	=	Expected Market Equity Risk Premium
Rm	=	Market Equity Return
Rf	=	Risk Free Rate of Return

The return on an asset (K) equals the risk-free rate of return (Rf_c) plus its beta (B) multiplied by the market equity risk premium (Rm - Rf). The market equity risk premium equals the market equity return minus the risk-free rate of return.

Q: What is your opinion of the CAPM?

A: The CAPM is typically more controversial and less reliable than the DCF model. Different applications of CAPM may cause vastly different cost of equity estimates. For example, the source of beta can influence the results of a CAPM analysis. If one uses a market risk premium of 5.0%, a difference in beta of .10 changes the results of a CAPM analysis by 50 basis points. If one uses a market risk premium of 8.95%, as Mr. Moul does (page 53), a difference in beta of .10 changes the results of a CAPM analysis by 89.5 basis points.

Next, estimating the market risk premium can be particularly controversial. An historical risk premium can be calculated, but the use of the arithmetic mean can produce results that are 140 to 150 basis points higher than the geometric mean. I believe the geometric mean calculation is preferable over the arithmetic mean calculation because the geometric mean calculation more accurately measures the

change in wealth over multiple periods. Selecting the appropriate time period to calculate an historical risk premium is not only controversial, but dramatically affects the results. If one relies on an historical risk premium, the longest historical period for which accurate historical data exists should be used to estimate a risk premium.

Moreover, there is growing evidence that historical data overstates the risk premium and one should rely on a forecasted risk premium. As discussed later in my testimony, several forecasted market risk premiums range between 1.5% and 5.25% (most are between 2.4% and 4.0%). This is somewhat below the historical risk premiums of 3.9% (geometric – long term bonds) to 5.6% (arithmetic - long term bonds).

Q: In your CAPM analysis did you use a geometric mean risk premium or an arithmetic mean risk premium?

A: If one relies on historical returns, I believe the geometric mean is a better representation of expected returns than the arithmetic mean. However, both calculations can provide meaningful insight to estimate a market risk premium for a CAPM analysis. My CAPM analysis considers both geometric and arithmetic mean risk premiums. I perform a second CAPM analysis that uses a forecasted market risk premium.

Q: Utility analysts often cite to Roger Ibbotson's SBBI year book(s) to support their view that the arithmetic mean calculation should be used exclusively to estimate cost of equity. In the past has Roger Ibbotson's SBBI year book supported the use of both the geometric and arithmetic mean risk premium to employ a CAPM analysis?

A: Yes. On page 59 of the 1982 Edition of Stocks, Bonds, Bills and Inflation: The Past and the Future Ibbotson stated as follows:

> The arithmetic mean historical return on a component is used in making one-year forecasts, since the arithmetic mean accurately represents the average performance over a one-year period. Over a long forecast period, however, the geometric mean historical return represents average performance over the whole period (stated on an annual basis). Therefore, we input the arithmetic mean for a one year forecast, **the geometric mean for the twenty year** forecast and intermediate values for two, three, four, five and ten year forecasts.

(Emphasis added)

While more current editions of Stocks, Bonds, Bills and Inflation yearbook advocate the use of only the arithmetic mean, I have not been able to find an explanation for the change. Moreover, as explained later in my testimony Dr. Ibbotson has expressed concerns about using historical data to estimate a market risk premium.

Q: Are you aware of any financial texts that advocate the use of a geometric mean calculation in a CAPM analysis?

A: Yes. In VALUATION Measuring and Managing the Value of Companies (Second Edition) by Tom Copeland, Tim Koller and Jack Murrin pages on 260 – 261 the text specifically advocates the use of the geometric mean over the arithmetic mean to estimate cost of equity in a CAPM analysis:

> We recommend using a 5 to 6 percent market risk premium for U.S. companies. This is based on the long-run geometric average risk premium for the return on the S&P 500 versus the return in long term government bonds from 1926-1992.[4] Since this is a contentious area that can have a significant impact on valuations, we elaborate our reasoning in detail here.

> We use a very long time frame to measure the premium rather than a short time frame to eliminate the effects of short-term anomalies in the measurement. The 1926-1992 time frame reflects wars, depressions and booms. Shorter time periods do not reflect as diverse a set of economic circumstances.
>
> We use a **geometric average** of rates of return because **arithmetic averages are biased** by the measurement period. An arithmetic average estimates the rates of return by taking a simple average of the single period rates of return. Suppose you buy a share of nondividend-paying stock for $50.00. After one year the stock is worth $100. After two years the stock falls to $50 once again. The first period return is 100 percent; the second period return is -50 percent. The arithmetic average return is 25 percent [(100 percent – 50 percent) / 2]. The geometric average is zero. (The geometric average is the compound rate of return that equates the beginning and ending value.) (sic) We believe **the geometric average** represents **a better estimate of investors' expected return** over long periods of time.
>
> Finally, we calculate the premium over *long-term* government bond returns to be consistent with the risk free rate we use to calculate the cost of equity.

(Citation included at end of my testimony) Italics emphasis in original. Bolded emphases added.

The text further states on page 263 as follows:

> Note that the arithmetic return is always higher then the geometric return and that the difference between them becomes greater as a function of the variance of returns. Also the arithmetic average depends upon the interval chosen. For example, an average of monthly returns will be higher than an average of annual returns. The geometric average, being a single estimate for the entire time interval, is invariant to the choice of interval. Finally, empirical research by Fama-French (1988), Lo and MacKinlay (1988), and Poterba and Summers (1988) indicates that a significant long-term negative autocorrelation exists in stock returns.[5] Hence, historical observations are not independent draws from a stationary distribution.

(Citation included at end of my testimony)

On pages 259-260 of the text, the authors recommend using the 10-year Treasury bond rate. Finally, in the chart displayed on page 261, the text shows risk premiums based on the arithmetic average and the geometric average. Although not explicitly stated in the text, both calculations are based on total bond returns and not income returns.

Q: Please continue.

A: The text Analysis of Equity Investments: Valuation also supports the use of the geometric mean to estimate the market risk premium. On page 50 the text states as follows:

> Although the debate is inconclusive, this book uses the geometric means, not only for the previously given reasons but also because geometric means produce estimates of the equity risk premium that are more consistent with the predictions of economic theory.[14]

(Citation included at the end of my testimony)

Analysis of Equity Investments: Valuation is written by the Association for Investment Management and Research and is produced as a study guide for the Chartered Financial Analyst (CFA) program.

In an article titled Equity Risk Premiums (ERP): Determinants, Estimations and Implications by Dr. Aswath Damodaran, he supports the use of a geometric mean risk premium. On page 21 Dr. Damodaran states as follows:

> There are, however, strong arguments that can be made for the use of geometric averages. First empirical studies seem to indicate that returns on stocks are negatively correlated[35] over time. Consequently, the arithmetic average return is likely to over state the premium.

(Citation included at end of my testimony)

Also, in a presentation made at SURFA's 39th Financial Forum (April 19-20th, 2007) Professor Aswath Damodaran printed presentation asserted: If you choose to use historical premiums… Use the geometric risk premium. It is closer to how investors think about risk premiums over long periods.

Q: How has this Commission ruled on the issue of arithmetic mean premiums versus geometric mean risk premiums?

A: For more than 17 years this Commission has consistently given weight to both the arithmetic mean risk premium and the geometric mean risk premium. See p.12 of the Peoples Gas and Power Company Order in Cause No. 39315 Order dated October 21, 1992:

> As in the Indiana Cities case, [Cause No. 39166, July 8, 1992] we find there is merit in using both the arithmetic and geometric means and that neither result should be relied upon to the exclusion of the other.

This Commission reaffirmed its position in Indiana American Water Company, Cause No. 40103, Order dated May 30, 1996. On page 41 of that Order this Commission stated as follows:

> The debate over the proposed use of the arithmetic and geometric means is one we consider **resolved**. As we stated in Indianapolis Water Company, Cause No. 39713-39843, each method has its strengths and weaknesses, and neither is so clearly appropriate as to exclude consideration of the other.

(Emphasis added)

Q: In addition to using historical data to estimate a risk premium do you also utilize forecasted information?

A: Yes. In previous cases (Cause Nos. 42520 and 43187) I expressed concerns about relying exclusively on historical data to estimate a risk premium. The volume of articles that forecast a market risk premium less than the historical average is too numerous for me to ignore. Recent articles that cite Roger Ibbotson's opinion on the use of forecasted market risk premiums also persuaded me to include a forecasted risk premium in my CAPM analysis.

Q: Please discuss why you develop a forecasted risk premium in addition to a risk premium based on historical data?

A: As I mentioned above there is growing evidence that risk premiums based on historical data overstate expected returns. When historical equity returns are generated from increasing valuations, it increases the historical earned return, but decreases the prospective return. On page 16 from Global Economics Paper No. 120, Thoughts on Social Security Reform by Goldman Sachs (January 18, 2005) the article states as follows:

> Moreover, even abstracting from the issue of risk, the historical returns on bonds and equities substantially overstate what investors could expect on a forward looking basis. This is because the rise in bond and equity prices in recent decades has boosted historical returns, but it has also resulted in high bond and equity valuations that imply lower prospective returns in the future.

And:

> Why is the expected rate of return for equities so low relative to historical returns? In evaluating the high rate of returns on equities historically, it is important to distinguish between returns generated by rising dividends and earnings versus the returns generated by higher valuations (i.e. a rise in price/earnings

> multiples). A good portion of the high rate of return earned by equities over the past century has been due to a rise in equity market valuation. When equity valuations are rising, equity returns are usually high. However, the increase in equity valuation **reduces**, rather than raises prospective equity return by reducing the dividend return on equities.

Emphases added

Although not a perfect apples-to-apples comparison, it might be easier to explain how increasing historical returns can lead to declining forecasted returns by looking at a hypothetical bond. Assume this hypothetical bond is a risk-free bond issued at a hypothetical current market rate of 7.0% for 20 years. Now assume that the bond is sold after five years, but the required return on a current risk-free bond of 15 years (equal to the remaining life on our original bond) has declined to 5.0%. Due to the decline in interest rates, when the bond is sold the original bond holder will be able to sell his bond at a premium and will earn a return well in excess of his original required return of 7.0%. Yet since the current required return on a 15 year risk free bond is 5.0%, it is improper to use the original investor's actual earned return (which exceeds 7.0%) to estimate future required returns for bondholders. Rather, due to the decline in required return the historical earned return indicates a higher return during a period of decreasing required returns. Because returns are stated for bonds it is easier to visualize how changes in valuations can cause a divergence between historical returns and prospective returns. However, the same concept can apply to stocks as well as bonds. For example CNNMoney.com's article: 9% Forever? (December 26,

2005) by Justin Fox discusses and quotes Eugene Fama as follows (See Attachment 4):

> A harder to dismiss critique came from Mr. Efficient Markets himself, Ibbotson's dissertation advisor Eugene Fama. In a series of papers written with Dartmouth's Kenneth French, Fama has argued that the capital asset pricing model, or at least its 1970's corollary that the risk premium is constant doesn't match the facts. "My own view is that the risk premium has gone down over time basically because we have convinced people that it's there." Fama says. Ibbotson's stock market forecasting model is thus a victim of its own success.
>
> **Ibbotson agrees** that Fama has a point, and that **he can no longer bank on the historical equity premium to predict the future.**

Bold emphases added. This is important. Even Roger Ibbotson has now expressed concerns about using historical data to estimate the risk premium.

Q: Are there other articles or texts that support the view that historical data overstates the market risk premium?

A: Yes. There are several.

Building the Future from the Past by **Roger Ibbotson** (June 2002) forecasts an equity risk premium of **less than 4.0%** (Attachment 5).

The Equity Premium by **Eugene F. Fama and Kenneth R. French** (April 2001) The Abstract to their paper states as follows "We estimate the equity risk premium using dividend and earnings growth rates to measure the expected rate of capital gain. Our estimates for 1951-2000 **2.55% and 4.32%** are much lower than the equity premium produced by the average stock return, 7.43%. Our evidence suggests that the high average return for 1951-2000 is due to a decline in discount rates that produces large unexpected capital gains. Our main conclusion is that the stock market return of the last half-century is a lot higher than expected."

Equity Risk Premium as Low as Three Percent? by James Claus and Jacob Thomas, Journal of Finance (October 2001) Subtracting 10-year risk free rates

from these estimated discount rates suggests that the equity risk premium is only about three percent.[2]

Portfolio Solutions 30-Year Market Forecast (2009) analysis implies a market risk premium for Large Company equities over Long-term US Treasury bonds of **3.0%.** (Attachment 14)

Stock returns for a New Century by John Campbell (Professor of Applied Economics, Harvard University) (June 2002) forecasts an equity risk premium of **1.5% to 2.0%** (Attachment 5).

The Real Cost of Equity by Marc H. Goedhart, Timothy M. Koller and Zane D. Williams of McKinsey Quarterly (October 2002) asserts as follows "The inflation-adjusted cost of equity has been remarkably stable for 40 years, implying a current equity risk premium of **3.5 to 4 percent**."

CEO Confidential The Equity Risk Premium: Its Lower than You Think (November, 2002) published by Goldman Sachs estimates an equity risk premium for the United States of **2.3%**.

Corporate Finance: New evidence puts risk premium in context by Elroy Dimson, Paul Marsh, and Mike Stauton (London Business School) (March 2003) forecasts a geometric equity risk premium of **2.5% to 4.0%** and an arithmetic mean risk premium of around **3.5% to 5.25%**. The article notes that these estimates are lower than historical premia quoted in most text books and surveys of market professionals.

The Equity Risk Premium – Part 2 – Investopedia.com by David Harper (February 4, 2004) estimates an equity risk premium of **1.5% to 2.5%**.

Thoughts on Social Security Reform by Goldman Sachs (January 18, 2005) discusses the assumptions used by the US Government to discuss Social Security reform. Page 22 of the article states as follows: "The Commission assumed that personal accounts would earn real returns of 6.5% on equities, 3.5% on corporate bonds and 3% on Treasury Bonds." This implies a risk premium of **3.5%**. Note the Goldman Sachs article asserts that the "Return Assumptions are Too High".

Investors are in for a Shock published by CNN.Money (November 28, 2005) forecasts an equity risk premium of **2.4%**.

What's ahead for Stocks and Bonds – And How to Earn Your fair Share by John C. Bogle (Founder and former Chairman, The Vanguard Group) (May 15, 2006) estimates the annualized return on stocks for the next 10 years is 8.0% and that the annualized return on US Treasury 10 year bonds for the next 10 years is 5.1%. This implies an equity risk premium of **2.9%**.

Capital Market Outlook – Investment Strategies Group by Banc of America Investment Advisors (October 2, 2006) uses a market risk premium **3.5%** to forecast long term market returns for large company stocks.

Survey of Profession Forecasted by Federal Reserve Bank of Philadelphia (February 13, 2009) estimates the return on stocks, over the next ten years to be 6.5% and the return on 10 year US Treasury bonds to be 4.85%. These estimates imply a risk premium 1.65%. (Attachment 1)

Macquarie Research Equities (USA) – Report on American Water Works. On page 2 of their June 3, 2009 report, one of their valuation models uses a risk premium of 4.5% to estimate a target price for American Water Works (Attachment 6)

The Equity Risk Premium and the Risks of Equity Investing, by Stuart Doole, Lise Renelleau, and Agustin Sevilla of AXA Rosenberg Investment Management, (November 2007), suggested a return premium of equities over long-dated bonds of the order of **2.5% to 3.0%**. Their analysis also noted that the Ibbotson data, which pointed to an historical risk premium of 6.5%, relied on less **suitable arithmetic averages rather than geometric**, leading to their higher estimate (emphases added).

Long-Term Market Return Estimates: by the Schwab Center for Financial Research, (April 2009). Page 8 of the report estimates Long-term risk premiums of 3.2% for Large stocks and 4.5% for Mid/Small stocks. (Attachment 10)

The articles listed above support my opinion that the expected risk premium is below the historical averages. The number and variety of articles demonstrates that this opinion has become mainstream. Even Roger Ibbotson, one of the most respected providers of historical data typically used to estimate a historical risk premium, no longer supports a risk premium that relies exclusively on historical data. Based on the articles above, it is appropriate to consider the results of a CAPM analysis that relies on a forecasted risk premium instead of one that exclusively relies on historical data to estimate cost of equity. My testimony

includes additional discussion about forecasted risk premiums in my analysis of Mr. Moul's testimony.

Q: What forecasted market risk premium have you used in your CAPM analysis?

A: The articles cited above provide a range of forecasted market risk premiums from a low of 1.5% to a high of 5.25%. Based on these sources my CAPM analysis uses a forecasted risk premium of 4.25%.

Q: Did the significant decline in the market in 2008 effect your opinion regarding the use of historical returns?

A: My concerns still exist and will continue to exist. However, the 37.0% decline in the S&P 500 during 2008 has decreased the historical risk premium. The historical risk premium and the forecasted risk premium have (for the time being) converged to the point where either could be reasonably used.

Q: Do you have any additional sources that support your proposed forecasted risk premium of 4.25%?

A: Yes. In a presentation made at the 39th Financial Forum held by the Society of Utility and Regulatory Financial Analysts titled: Equity Risk Premiums: Looking backwards and forwards… by Professor Aswath Damodaran (April 20, 2007) he estimated that the current forecasted risk premium was 4.16% (Attachment 7 includes pages 1, 14, 16 and 17 of his presentation).

At the same seminar in a presentation titled Revisiting the Equity Risk Premium, Associate Professor Felicia C. Marston concluded that the "Ex ante risk premium on utilities (using dividend growth model) was estimated at 4.15%."

Q: Is the risk free rate of return also controversial?

A: Yes. Aside from the market risk premium controversy, financial analysts do not agree on the determination of the risk free rate. Theoretically, the risk-free rate is the rate of return on a completely risk free asset. In practice, analysts typically use yields on United States Treasury Securities as a proxy for the risk-free rate. One could use the yield on 91-day Treasury Bills as a proxy for the theoretical risk free rate of return. However, the volatility of 91-day Treasury Bill rates has led many analysts to use longer term Treasury instruments as an estimate of the risk free rate. Given the degree of controversy surrounding the application of the CAPM, I have more confidence in the results of my DCF analysis.

Q: How did you estimate the risk free rate?

A: Due to the controversy surrounding the selection of the appropriate risk free rate, I reviewed short, intermediate and long term risk free rates. I used one year Treasury securities as an estimate of short term yields, the average of five year and ten year Treasury securities as an estimate of intermediate term yields, and 30-year Treasury securities as an estimate of long term yields. Although I reviewed short term, intermediate term and long term interest rates, I give most of my emphasis to long term interest rates, some emphasis to intermediate term interest rates and no emphasis to the results generated from the use of short term interest rates.

Q: In your CAPM analysis, did you use spot interest rates or average interest rates?

A: In my analysis I used 3 month and 6 month average yields. I believe it is more appropriate to use an average yield calculated over a reasonable period of time, than to rely on spot data. This Commission's determination of Petitioner's cost of equity should not gyrate on every twist and turn in the market but should reflect more of a long term perspective. However, to reflect current market conditions one must also be careful not to use data that is too old or too stale. I believe, at this time, the use of 3 month and 6 month average yields strikes a reasonable balance of using current data while not relying on data that has become stale.

Q: What sources did you review to estimate beta?

Since there is not one definitive calculation used to estimate beta and different calculations can result in dramatically different estimates, I reviewed beta estimates from Value Line, SmartMoney.com, Reuters and NASDAQ.com (Value Line betas are provided on pages 2 of Schedule 3).

Q: Why do different sources of betas provide different results?

A: Different sources of beta use different calculations. Changing the calculation changes the result. For example, some sources use five years worth of data while others use three years. Some sources use monthly data, while others use weekly data. Value Line compares returns to the NYSE, while some other sources compare returns to the S&P 500. Each decision can influence the result. Since there is no one definitive way to calculate beta, at least as a check, it is reasonable to look at more than one source.

Q: What are your conclusions regarding Value Line's betas?

A: Value Line is a well recognized source of beta. But, it is reasonable to review other sources of beta and Value Line betas should not necessarily be relied to the exclusion of all other sources of beta. While it would be reasonable to give some weight to other sources of beta and use an average beta, in this case I have relied exclusively on Value Line betas. This results in an average beta of 0.793.

Q: Please review the results of your CAPM studies.

A: The results of my CAPM analysis are on Schedule 3. The cost of equity based on my CAPM analysis using a historical risk premium ranges from 7.94% to 8.10%. The results of my analysis using a forecasted risk premium range from 7.54% to 7.70%. However, I give more weight to my CAPM analysis that is based on historical data.

To estimate cost of equity, using a historical risk premium, I calculated both a geometric mean risk premium and an arithmetic mean risk premium. I then averaged the risk premiums and combined the risk premiums with the risk free interest rates described above. Since I used one proxy group, this analysis produced four distinct CAPM results. I used both three and six month average interest rates (obtained from Value Line's Selections and Opinion) to estimate risk free rates. To estimate cost of equity with a forecasted risk premium, I combined a risk premium of 4.25% (as described above) with the same risk free rates. Again, since I have used one proxy group, this analysis produces four additional CAPM results.

RECOMMENDATIONS

Q: Please explain your estimation of your proxy groups' cost of equity.

A: My DCF analysis ranges from 8.83% to 9.70% and my CAPM analysis ranges from 7.54% to 8.10%. The midpoint of 7.54% to 9.70% is 8.62%. But I believe this figure is too low. Because these two models appear to be the most consistent with past Commission orders, it is appropriate to give more weight to the Value Line DCF analysis (low end of the DCF range) and my CAPM analysis based on historical risk premiums (high end of my CAPM range). This narrows my overall range to 8.10% to 8.93%. I believe that Petitioner's cost of equity is somewhat above the top of that range and I recommend a cost of equity of 9.25%.

Q: Do you need to adjust the results of your proxy group's cost of equity to make it applicable to Indiana American Water Company?

A: No. The parent company of Indiana American Water Company has the same business risk "excellent" as each member of the proxy group. Moreover, Indiana American Water Company's (Not American Water Company) proposed operating revenues ($209 million) exceeds the operating revenues of Connecticut Water ($66.2 million), Middlesex Water Company ($90.8 million) and York Water Company ($35.5 million) and is similar to SJW Corporation ($217.3 million) [AUS Utility Reports – September 2009]. Indiana American Water has a similar equity ratio to the companies in the proxy group. Indiana American has a similar business and financial risk to the companies in the proxy group.

Q. In today's market is a 9.25% cost of equity reasonable?

A: Yes. As discussed earlier in my testimony, lower inflation rates generally translate into lower capital costs. This holds true for both the cost of debt and the cost of equity. Over the last 18 years, inflation has not been greater than 4.1% and has averaged 2.5% (Ibbotson's 2009 SBBI Yearbook, page 279).

Significantly, this trend is expected to continue for some time. Value Line's Ratings and Reports (September 25, 2009; Attachment 8) forecasts that the CPI will range between 1.8% - 2.5% over the next five years and that the GDP Deflator will range between 1.6% - 2.3%. In its Survey of Professional Forecasters, the Federal Reserve Bank of Philadelphia (February 13, 2009) forecasts an even longer period of low inflation rates, estimating that inflation will average 2.4% over the next 10 years (Attachment 1). The Congressional Budget Office (CBO), The Budget and Economic Outlook: Calendar Years 2009 to 2019 (January 2009) provides economic projections for calendar years 2009 through 2019. The CBO projects an annual increase in the Consumer Price Index of only 1.8% - 2.2% per year for 2011-2014 and 2.2% for 2015–2019 and forecasts an increase of only 1.0% - 1.8% per year and 1.9% in the GDP Price Index over the same periods.[9] An update to the Budget and Economic Outlook published in August 2009 provides similar forecast.

These predictions bear directly on these proceedings. A low inflation rate has a significant influence on current capital costs and such effects must be recognized

9. http://cbo.gov/ftpdocs/99xx/doc9957/01-07-Outlook.pdf

and included in any determination of Petitioner's cost of equity. For any investment the investor's required return includes compensation for anticipated inflation. When anticipated inflation is lower, so is the required cost of equity.

Q: Do you have additional support that your proposed cost of equity is reasonable?

A: Yes. In its Fall 2009 Quarterly Survey, Duke University surveyed the CFO with each company in the S&P 500 for their estimate of returns for the S&P500 over the next ten years. The average result is 7.4%. (Attachment 9)

An article by the Schwab Center for Financial Research titled Long-term Market Return Estimates: forecasts that Large-cap stocks are estimated to return about 7.4 percent per year over the long run, while mid/small-cap and international stocks are estimated to return about 8.7 percent and 7.4 percent, respectively. The article defines the term "long run or long term" as follows: "For this research, we use a 20-year time horizon, although return estimates over 15- and 30-year horizons are expected to be similar to the 20-year estimates." (Attachment 10)

An article by California Broker titled How to Get Sued and Lose Your Clients Using VUL asserts "Illustrating 10% to 12% Equity returns is Dangerous and Wrong." (Attachment 11). The article further states as follows:

> The SEC allows carries to illustrate hypothetical future returns. Variable life illustrations must show a 0% return, a 6% return and a rate "not greater than 12%". Many carriers think it is acceptable to illustrate equity sub-accounts at 10% to 12% simply because the SEC allows them to do so. Many agents using data from a highly unusual period, still believe that domestic equities are expected to grow at better than 10% per year. These agents believe that it is

> prudent to illustrate 10% returns and base premium payments upon equity sub-accounts growing at this rate of return. I disagree and I believe that illustrating these returns is irresponsible and invites legal liability for the following reasons:

Emphasis added

Attachment ERK-15 is an article titled What Long-Term Return Should We Expect On large-capitalization Stock Market Indexes? written by InvestorsFreind.com[10] asserts as follows: "Today, a reasonable estimate of long-term expected large-capitalization stock market returns according to this formula is:

> 3% for real GDP growth + 1.5% for inflation + 3.0% for dividend yield = 7.5% long-term total return on stocks.
>
> Equivalently; 4.5% for nominal GDP growth + 3.0% for dividend yield = 7.5% long-term total return stocks." (Attachment 15)

Emphasis added

An article entitled Son, Don't Count On Double-Digit Stock Returns which appeared in the June 26, 2000 edition of Business Week web page, refers to a study performed by Eugene Fama and Kenneth French. According to the article:

> Fama and French argue that over the long run, stocks are likely to out perform risk free debt by only 3% to 3.5% a year.
>
> Fama and French estimate that in the future, stocks will return to more like their pre 1950 norm. Says French: "We're saying that if you're a pension fund, you ought to pencil in returns of 3% to 3.5% [above the risk free rate] for the next 30 years."
>
> However, if you're a 30-year old who's not saving much because you're relying on making returns just as profitable as those in the

10 This article was originally published in July, 2003 and was updated in early 2009.

> past decades from now until you retire, think again—or you just might end up living on dog food and government cheese.

Emphasis added

While this article is somewhat dated, a risk premium of 3.0% to 3.5% is consistent with many of the articles cited earlier in my testimony. The current long-term risk free rate was 4.20% as of the close of business on October 13, 2009. If the long term risk free rate is combined with the Fama - French risk premium of 3.0% to 3.5%, it results in an expected return of 7.20% to 7.70%.

In his book Stocks for the Long Run, Jeremy J. Siegel discusses the long term stability of real returns for equities. On page 11 he states as follows:

> It is clear that the growth of purchasing power in equities not only dominates all other assets but is remarkable for its long-term stability. Despite extraordinary changes in the economic, social and political environment over the past two centuries, stocks have yielded between 6.6 percent and 7.2 percent per year after inflation in all major subperiods.

Dr. Siegel further states on page 12 as follows:

> Note the extraordinary stability of the real returns on stocks over all major subperiods: 7.0 percent from 1802-1870, 6.6% from 1871-1925 and 7.2% from 1926-1997.

If forecasted inflation ranges from 2.2% to 2.5% and real returns range from 6.6% to 7.2% it produces a range of expected equity returns of 8.95% to 9.88% (1.025[2.5% inflation] * 1.072 [7.2% real return] = 1.0988, translates into a 9.88% return).

Several of the articles cited earlier in my testimony (when I discuss forecasted market risk premiums) forecast a market return for large company stocks below 9.0%. For example:

John Bogle	8.0%
Banc of America	8.5% (multiple methods)
Portfolio Solutions	8.0%
Federal Reserve Bank of Philadelphia	6.5%
Goldman Sachs on Social Security	6.5% plus inflation
Stock Returns for a New Century	5.0% - 5.5% plus inflation
Aswath Damodaran (SURFA presentation)	8.86%

Additional articles support a total market return below 10.0%. For example, an article written by Justin Fox in CNNMoney.com (December 26, 2005) 9% Forever?, the author notes that Roger Ibbotson's long run forecast for stock returns is 9.27%. The article also notes that Rob Arnott, Pasadena money manager and editor of the Financial Analysts Journal disagrees with Dr. Ibbotson and thinks future equity returns could be below 6%. (Attachment 4)

The return figures discussed above are for the overall market. Water utilities are less risky than the overall market and should have a lower expected rate of return than the overall market. The OUCC's proposed cost of equity of 9.25% is consistent (if not high) with the forecasts made by the sources described above.

Q: Are you aware of any Utility/Company specific research that supports the reasonableness of your proposed cost of equity?

A: Yes. Page 2 of the June 3, 2009 report prepared by Macquarie Research contains a valuation model applied to American Water Works Company that assumes a beta of 0.65, a risk free rate of 4.3% and a risk premium of 4.5%. These inputs equate

to a cost of equity for American Water Works of 7.225%. It is interesting to note that Macquarie research has an "Outperform" recommendation on AWK's common stock.

Finally, in response to OUCC data request question 12-146 part e, Petitioner recognized that its proposed annual expense for its OPEBs assumes a "long-term" return on the S&P 500 of 8.85%. Petitioner's proposed revenue requirements rely on an independent long-term estimated return of the S&P 500 of 8.85%. If an 8.85% forecasted return on the market (S&P 500) is appropriate to determine Petitioner's OPEB expense, then it should also be appropriate to help estimate its cost of equity (especially for models that rely on an estimate of market returns).

CRITIQUE OF MR. MOUL'S ANALYSIS

Q: What is the purpose of this section of your testimony?

A: This section discusses my opinions of the cost of equity methodologies presented by Petitioner's witness, Mr. Moul.

Q: Please summarize Mr. Moul's cost of equity models.

A: Mr. Moul uses one water company proxy group and presents a DCF, Risk Premium, CAPM and Comparable Earnings analysis to estimate Petitioner's cost of equity. The results of his model can be seen on page 7 of his testimony and range from 11.99% (Risk Premium) to 15.20% (CAPM). Mr. Moul recommends a cost of equity is 12.0%.

On page 7 of his testimony, Mr. Moul asserts: "My recommended cost of common equity makes no provision for the prospect that the rate of return may not be achieved due to unforeseen events, such as unexpected spikes in expenses, abrupt changes in customer usage and abnormal weather events." I question Mr. Moul's assertion. The provisions listed by Mr. Moul are implicit in his analyses. To the extent they exist, these are risks typically considered by investors and subsequently embedded in the market price of the company's common stock.

BUSINESS RISK OF THE WATER INDUSTRY

Q: On pages 9-11 Mr. Moul discusses the business risk of the water industry. Please respond to Mr. Moul's comments.

A: Despite Mr. Moul's comments, the business risk of the water industry remains low. According to S&P each water company in Mr. Moul's proxy group rated by S&P has an excellent business risk (Attachment No. 12). Excellent is the highest (least risky) rank used by S&P. Moreover, during cross examination Mr. Moul asserted that American Water Works had a business risk of excellent. Despite Mr. Moul's concerns regarding the business risk of the water industry, according to S&P the business risk of the water industry remains low.

MR. MOUL'S DCF MODEL

Q: Please summarize your disagreements with Mr. Moul's DCF analysis.

A: Mr. Moul's DCF analysis produces a result of 12.19%. First, Mr. Moul uses a growth rate (g) (7.5%) that relies heavily on intermediate term forecasts in EPS and is unrealistically high. Next Mr. Moul improperly adjusts the results of his

DCF by 102 basis points for financial leverage. This is not a proper adjustment. Mr. Moul also adds 24 basis points to his DCF analysis for flotation costs. Since this adjustment affects several models I discuss this separately.

Q: How does Mr. Moul derive his 7.5% growth rate for his DCF analysis?

A: Mr. Moul provides historical growth rates of EPS, DPS, BVPS and CFPS on Schedule 6 page 1 of 1 and forecasted growth rates of EPS, DPS, BVPS, and CFPS as well as Value Line B*R on Schedule 7 page 1 of 1. Although Mr. Moul does not use an explicit calculation to derive his 7.5% growth rate it seems apparent from both a review of the growth rates provided (PRM 2 Schedules 6 & 7) and his testimony that Mr. Moul places the vast majority of his emphasis to forecasted growth rates in EPS.

Q: Do you agree with Mr. Moul's reliance on forecasted growth rates for a DCF analysis?

A: No. One must be careful when one develops a DCF analysis based exclusively or primarily on forecasted growth in EPS. Forecasted EPS estimates are not long term (perpetual) estimates. The "long-term" estimates of EPS provided by companies that make such estimates are typically for only three to five years. Three to five year estimates (by themselves) do not necessarily represent a reasonable long term estimate. Moreover, analyst forecasts of EPS tend to be optimistic, overstate long term growth and should not be used in isolation.

Q: Do you agree with Mr. Moul's testimony on page 29 that a five-year investment horizon associated with analysts' forecasts is consistent with the DCF model?

A: No. If one uses a single stage model as Mr. Moul has, the mechanics of the DCF model REQUIRES a growth rate that is sustainable over the long run. While one can certainly use five year forecasts to estimate the long term growth sustainable rate (g), the five year forecast in EPS by itself is not a reliable factor to estimate cost of equity even if one has a short term investment horizon or places a primary emphasis on near term forecasts.

Q: Explain why the DCF model requires a long term growth rate.

A: Even if (when) investors do not intend to hold an investment beyond five years, the model requires a long term estimate and that requirement cannot be assumed away. Mr. Moul's analysis effectively assumes that intermediate term (five year) forecasts are applicable in perpetuity. The **equation** used in the DCF model assumes an infinite time frame. A belief (even if true) that investors have a short term perspective on their investments does not change the mathematics of the DCF model.

Q: Why can't one simply use a five year growth rate and assume that the stock will be sold after five years?

A: One can make that assumption. However, one then needs to estimate the price of the stock at the end of the fifth year. Implicit in any estimate of the price of that stock at the end of the fifth year is growth in EPS, BVPS and DPS that takes place subsequent to the fifth year. So, using a five year time frame in a DCF analysis does not avoid the need to use a growth rate in dividends that recognizes investor

expectations beyond the fifth year. Regardless of the investor's investment horizon the DCF model requires a long term or perpetual growth rate.

Q: Can you cite to any texts that support your opinion that five year growth estimates in EPS (by themselves) may not be appropriate to use as a long term estimate of growth in a DCF analysis.

A: Yes. On page 106 of his book The Equity Risk Premium – The Long Run future of the Stock Market, Bradford Cornell states as follows:

> The practical problem raised by relying on analysts forecasts is that such forecasts typically have short horizons. Services that aggregate such forecasts, including those by IBES and Zack's Investment Research, do not provide forecasts beyond 5 years. From the standpoint of the DCF model, which extends into perpetuity, this horizon is too short.

Emphasis added

Mr. Cornell goes on to discuss the problems with assuming that the forecasted growth rate can be maintained in perpetuity.

> In most cases, the IBES forecasts are greater than the long-run economic growth rates. Such growth rates clearly cannot be maintained forever. Although it is possible that a company's dividends can grow significantly faster than the general economy for 5 years, if such a growth rate were maintained indefinitely, the company would eventually engulf the entire economy.

Also the Cost of Capital – Estimation and Application 2nd edition by Shannon Pratt makes the following assertions about using analyst forecasts to estimate cost of equity:

> It is theoretically impossible for the sustainable perpetual growth rate for a company to significantly exceed the growth rate in the economy. Anything over a 6-7% perpetual growth rate should be questioned carefully.

A common approach to deriving a perpetual growth rate is to obtain stock analysts' estimates of earnings growth rates. The advantage of using these growth estimates is that they are prepared by people who follow these companies on an ongoing basis. These professional stock analysts develop a great deal more insight on these companies than a causal investor or valuation analyst not specializing in the industry is likely to achieve.

There are however, three caveats when using this information:

1. These earnings growth estimates typically are for only the next two to five years; they are not perpetual. Therefore, any use of these forecasts in a single-stage DCF model must be tempered with a longer-term forecast.

2. Most published analysts' estimates come from "sell-side" stock analysts who work for firms that are in the business to sell stocks. Thus, although their earnings forecasts fall within the range of "reasonable" possibilities, they may be on the high end of the range.

3. Usually these estimates are obtained from firms that provide consensus earnings forecasts; that is, they aggregate forecasts from a number of analysts and report certain summary statistics (mean, median, etc.) on these forecasts. For a small publically traded firm, there may be only one or even no analyst following the company. The potential for forecasting errors is greater when the forecasts are obtained from a very small number of analysts. These services typically report the number of analysts who have provided earnings estimates, which should be considered in determining how much reliance to place on forecasts of this type.

   Many of the problems inherent in using a single-stage model to estimate cost of capital are addressed by using a multistage model.

The texts I cited above help to support my concern about relying exclusively on 3-5 year analyst forecasts to estimate cost of equity in a DCF analysis.

Q: Mr. Moul cites to an article by Myron Gordon to support his reliance on five year forecasts in EPS. Are you persuaded by Dr. Gordon's analysis?

A: No. The Gordon article concludes that of the growth rates it looked at, five year forecasts of EPS was the "single" best estimator of growth. While that may be the case, we are not forced to rely on one estimator of growth. Based on the orders cited earlier in my testimony, this IURC has consistently expressed its desire to look at many estimators of growth. I agree. We should use the best available data to derive our best estimate of long term growth in our DCF analysis.

Q: Do you have additional support that intermediate term growth rates may not reflect long term investor expectations in a DCF type model?

A: Yes. Page 2 of the Macquarie Research report (Attachment 6) contains a Dividend Discount Model (DDM) for estimating the value of AWK's stock. Their analysis appears to use a multi-stage DDM and states as follows: "Dividend discount model of US$27. Our key assumptions are a 5-8% dividend growth from 2009 to 2015, **4% long-term dividend** growth and a payout ratio of 40-60%." **(Emphasis added).** Macquarie Research's use of a lower long-term growth rate helps support my opinion that current forecasted growth rates (such as those use by Mr. Moul), for water utilities may not be applicable for the long term.

Q: So what data should one use to estimate growth (g)?

A: Just as this Commission has done in past Indiana American rate cases, they should review and give weight to both historical and forecasted data of growth rates in

EPS, DPS and BVPS. One could also give weight to the long term sustainable economic growth rate of the US economy (if one is using a 2-stage DCF model).

Q: Has the Commission supported the use of dividend per share data and book value per share data in addition to earnings per share data in estimating the growth (g) component of the DCF calculation?

A: Yes. In its Final Order in Peoples Gas & Power Company, Cause No. 39315, Order dated October 12, 1992, p.11 the Commission stated as follows:

> We are also concerned with Petitioner's method of calculating the DCF growth component. Petitioner relies exclusively on dividend growth, while ignoring earnings per share and book value per share data. We have discussed the problems with this approach in Northern Indiana Fuel and Light, Cause Number 39145, January 29, 1992, p.25 which is set forth herein pertinent part:
>
> > The Petitioner claims that book value and earnings data used by Public may distort or bias a growth rate estimate because of accounting differences between firms. Although we agree historical and projected dividend information are important considerations when estimating future rates of growth for the DCF model, we do not believe that book value and earnings data should be ignored. It is clear that dividend growth cannot exceed earnings or book value growth in the long run. To derive growth estimates in the past, this Commission has sanctioned the use of per share data for dividends, earnings, and book value. We continue to view the use of these data as a legitimate method of estimating future growth when judiciously employed. See generally In re Indiana Gas Co., Inc., (Ind. URC September 18, 1987) Cause No. 38080, 86 P.U.R. 4th 241 at 285-286. In re Indiana Michigan Power Co., (Ind. URC August 24, 1990) Cause No. 38728 116 P.U.R. 4th at 1 19-20. We Conclude that Public's use of all available per share data was appropriate for estimating Petitioner's growth rate.

> On the other hand, Mr. Kaufman paid attention to the above expressed concerns and judiciously employed earnings per share, book value per share, as well as dividends per share in his analysis.

In Gary-Hobart Water Corporation (acquired by Indiana American Water Corporation), Cause No. 39585, Order dated December 1, 1993, this Commission again expressed its opinion on page 17 of its Final Order:

> This Commission has stated in many cases that although we agree historical and projected dividend information are important considerations when estimating future rates of growth for the DCF model, we do not believe that book value and earnings data should be ignored.

More recently in Cause No. 42029 Indiana American Water Company, Order dated November 6, 2002 the IURC stated on page 32 as follows:

> In the past this Commission has consistently sanctioned the use of both historical and forecasted per share data. We continue to believe that both historical and forecasted earnings, dividends and book value per share data are useful when employing the DCF model.

Q: Are arguments that analyst forecasts are optimistic outdated?

A: No. I do not believe that is the case. While it predates the, October 31, 2003, final judgment in the Global Research Analyst Settlement (GRAS), the following article: Stock Analysts Still Put Their Clients First", Financial Analysts Journal, Volume 59 Issue 3, May 1, 2003, discusses the separation of research and investment banking services and its influence on analyst estimates. The article concludes that the separation of research and investment banking services has not resolved the concern that analyst forecasts are still upwardly biased. Page 5 of the article states as follows:

> The new requirements *imply* that independent research (brokerage research without investment banking ties) is better for investors. But why independent analysts will be less vulnerable than brokerage firm analysts to the same pressures for optimism is unclear. Analysts themselves have remarked that one source of strong pressure for "optimism biases" in recommendations is the need to keep access to the managers of the companies they cover; in other words, issue positive research or expect to be cut off from management guidance. Unfortunately, the Sarbanes–Oxley bill, which mandated many improvements in corporate managers' financial practices, did nothing to reduce the unethical practice by many managers of communicating only with those analysts who "cooperate" with management's implicit (and usually positive) forecasts of the future.[6] Finding a way to fix this blind spot may be more important than all the other "sticks" regulating analysts combined.
>
> Interestingly, the *Wall Street Journal* reported in April 2003 that after reviewing disclosure reports issued as a result of the new requirements, they concluded that the brokerage firms of the top investment banks are still more likely to give optimistic research recommendations to their own banking clients. Of course, the new disclosure requirements attempt to protect investor clients by making them aware of investment research's potential as an advertising medium, but the attempt works only if investors read and understand the disclosures. Institutional investors are probably more likely than retail investors to read, put into context, and fully appreciate these new disclosures.

Emphases added

While the GRAS may have reduced some of the causes of analyst bias, I do not believe the problem of optimistic analyst forecasts has been eliminated.

Q: Summarize your comments on Mr. Moul's estimates of growth (g).

A: The goal in estimating growth (g) in the DCF model is to derive a reasonable long term or sustainable estimate of growth in dividends. Mr. Moul's analysis relies heavily on intermediate term forecasts in EPS to estimate the growth in his DCF model. Even if one assumes that there is no upward bias in analyst estimates, the

estimates used by Mr. Moul are still intermediate term (not long term) forecasts and therefore may not be sustainable over the long term. More specifically, Mr. Moul's estimated growth is well above both historical norms and the forecasted growth rate in the U.S. economy and does not appear to be sustainable given the high payout ratios being employed by most water utilities. Mr. Moul's optimistic growth rates (g) overstate the results of his DCF analysis.

Q: Please discuss your concerns with Mr. Moul's leverage adjustment.

A: Mr. Moul inflates the result of his DCF analysis by 102 basis points to account for the greater leverage of companies in his water proxy at book versus market value[11]. Mr. Moul argues on page 33 of his testimony that "If regulators rely upon the results of the DCF (which are based on the market price of the stock of the companies analyzed) and apply those results to the book value, the resulting earnings will not produce the level of required return specified by the model when the market prices vary from book value." I do not believe that differences between market and book value create a need to adjust the results of a DCF analysis and therefore, Mr. Moul's leverage adjustment is unnecessary.

Mr. Moul's testimony does not provide any numerical analysis to support his argument that when a utility's market-to-book ratio (M:B) is different from 1.0 that his proposed leverage adjustment is necessary (That utilities will under earn absent his adjustment when M:B ratios exceed 1.0). Most rate jurisdictions do not

11 The equations he uses can be seen in his Appendix D page 12 of 12.

use Mr. Moul's adjustment. The only jurisdiction that Mr. Moul cited who used his adjustment is Pennsylvania.

Mr. Moul's proposed leverage adjustment produces results that seem counterintuitive. As water utility M:B ratios increase, the amount of Mr. Moul's leverage adjustment increases and subsequently, his proposed cost of equity increases. When M:B ratios decrease the amount of his proposed leverage adjustment decreases (and becomes a downward adjustment when M:B ratios fall below 1.0). Mr. Moul's adjustment has the effect of rewarding utilities when M:B ratios are high and penalizing utilities when M:B ratios are low. Utilities do not need to be rewarded for having a high M:B ratio through a higher authorized cost of equity and should not be penalized when their M:B ratio is low.

In most rate jurisdictions rate of returns are set on book value. Investors know that and take that into account when they determine the price they are willing to pay for a utility's stock. Investors do not need additional compensation because they have bid the price of the stock above its book value. Moreover, rating agencies, such as Standard & Poor's, assess financial risk based on the book value capital structure not the market value capital structure. Financial publications, such as Value Line and AUS Utility Reports, use book values (not the market value) when they calculate long term debt and common equity ratios.

Next, on page 37 of his testimony, Mr. Moul refers to the work of Modigliani and Miller (M & M) to support his adjustment. However, in Cause No. 43112

SIGECO Electric Company, in OUCC data request question No. 166 Mr. Moul was asked to "indicate exactly (by page and line numbers) where in these publications these same authors prescribe this market value – book value adjustment for rate of return and rate making purposes." The first line of Mr. Moul's response is "There is no reference to the DCF cost rate in those articles." While Mr. Moul may have incorporated principles from the M & M articles, the leverage adjustment to his DCF analysis is not from the M & M articles.

Finally, as of August 14, Indiana American Water Company's parent, American Water Company, had a M:B ratio of 0.79 (AUS Utility Reports September 2009). If Mr. Moul applied his leverage adjustment directly to American Water Company it would likely lead to a negative leverage adjustment.

Q: On page 24 and in Appendix D of his testimony Mr. Moul attempts to distance himself from his DCF analysis. Do you agree with Mr. Moul's opinion?

A: No. When appropriate inputs are used, the DCF model is a reliable model and provides reasonable results. The Commission should continue to rely on the DCF model (along with other models) to determine Petitioner's cost of equity and should not give the DCF model diminished weight as suggested by Mr. Moul.

Q: Does the CAPM give a better indication of required returns than the DCF model?

A: No. When a reasonable estimation of the expected growth rate of dividends (g) is used, I believe that the DCF model provides an accurate estimate of a utility's cost of equity. The key is to use a reasonable estimate of expected growth rate of

dividends. A blind reliance on historical or forecasted growth rates of earnings per share, book value per share, or dividends per share may provide results that do not reflect current capital costs. Any company that has recently cut its dividends will have a historical growth rate of dividends that does not reflect future expectations. However, that is a problem in the application of the DCF model, not an indictment of the DCF model as a whole. It is a problem that I believe is easily solved when the DCF model is combined with reasonable judgment.

I believe that the CAPM is typically more controversial and less reliable than the DCF model. Eugene Brigham and Louis Gapenski comment on the use of CAPM on page 64 of their text Intermediate Financial Management:

> Although the CAPM appears to provide neat precise answers to important questions about risk and required rates of return, the answers are really quite fuzzy. **The simple truth is that we do not know precisely how to measure any of the inputs required to implement the CAPM.** These inputs should all be ex ante, yet we have available only ex-post data. Further as we shall see in chapter 4, historical data such as k_M and k_{RF} and beta vary greatly depending on the time period studied and the methods used to estimate them. **Thus, although the CAPM may appear precise, its inputs cannot be estimated with any precision at all**, and hence the estimate of k_i found through the use of CAPM are subject to large errors.

Emphasis added

MR. MOUL'S CAPM ANALYSIS

Q: Please summarize your disagreements with Mr. Moul's CAPM analysis.

A: Mr. Moul's CAPM analysis estimates a cost of equity of 15.20%. His CAPM analysis makes an improper leverage adjustment (2.06%) [Also explained in his

DCF analysis], overstates the risk premium (8.95%) and includes unnecessary adjustments for size (0.94%) and for flotation costs (0.24%).

Q: Please discuss how Mr. Moul estimates his market risk premium of 8.95% (Moul - Appendix H, Page H5, line 36)?

A: Mr. Moul's estimates a market risk premium of 8.95% by averaging a forecasted market risk premium of 11.84% with a historical market risk premium of 6.05%. Mr. Moul uses two methods to derive his forecasted market risk premium. The first is based on Value Line's Median Appreciation Potential. The second is a DCF approach based on forecasted growth in EPS of the S&P 500. Mr. Moul also uses two methods to estimate his historical risk premium. Both use an arithmetic mean calculation based on data provided in Ibbotson's SBBI annual yearbook (5.6% and 6.5%). The first is based on historical common stock arithmetic returns of 11.7% less government bond arithmetic mean total returns of 6.1% from 1926 – 2008 (5.6%). The second is based on large company stock total returns minus long-term government bond income returns from 1926 – 2008 (6.5%). I disagree with all four methods used by Mr. Moul to estimate a market risk premium.

Q: Why do you disagree with Mr. Moul's historical risk premium of 6.05%?

A: Mr. Moul's historical risk premiums are based entirely on an arithmetic mean calculation and ignore the geometric mean calculation. A historical risk premium should be based on both a geometric and arithmetic mean calculation. When a shareholder owns an investment over multiple periods, he earns a geometric mean return. He does not earn an arithmetic mean return. Thus, to rely exclusively on

an arithmetic mean return overstates expected returns. Earlier in my testimony I discussed several sources that support the use of a geometric mean calculation to estimate the market risk premium in a CAPM analysis. My testimony quoted from the 1982 version of Ibbotson's Stocks, Bonds, Bills and Inflation, where Dr. Ibbotson supported the use of both the arithmetic and geometric mean risk premium depending on the time frame for the forecast.

Q: How has this Commission ruled on the issue of arithmetic mean premiums versus geometric mean risk premiums?

A: The IURC has consistently given weight to both the arithmetic and geometric mean calculations to estimate a historical risk premium.

Q: When mutual funds advertise historical return data regarding a fund's past performance, are they required by the SEC to use a geometric mean calculation?

A: It is my understanding that the U.S. Securities and Exchange Commission (SEC) requires funds to compute and report total returns based upon a standardized formula—so called "SEC Standardized total return" According to form N-1A "Registration Form Used by Open-End Management Investment Companies" Sample Form and Instructions, the following formula is used:

$P(1+T)^n = ERV$, Where:

P = a hypothetical initial payment of $1,000.

T = average annual total return.

n = number of years.

ERV = ending redeemable value of a hypothetical $1,000 payment made at the beginning of the 1-, 5-, or 10-year periods at the end of the 1-, 5-, or 10-year periods (or fractional portion).

This formula described above is a geometric mean calculation.

Q: Do you have additional concerns with Mr. Moul's historical risk premium?

A: Yes. Mr. Moul's second historical risk premium uses bond income returns instead of bond total returns. Investors who buy long term bonds do not earn just income returns, but total returns. In Indiana American Water Company, Cause No. 42520 this Commission agreed with the testimony of Intervenor witness Michael Gorman, that total returns and not income returns should be used in a historical risk premium. On page 59 the order states as follows:

> Another area of disagreement in the CAPM analysis is whether the model should use total returns or income returns. We find Mr. Gorman's analysis in this area to be the most persuasive. The income return on Treasury bonds, is simply the average of Treasury bond yield quotes over the historical period, and this yield quote does not measure the actual return investors earn by making investments in Treasury bonds. Investors simply cannot invest only in Treasury bond income returns. Rather, investors must take the risk of variations in bond prices before they invest in treasury bonds. Therefore the actual return experienced by investors in Treasury securities is measured by total return, not simply the income return.

Q: Discuss your concerns with Mr. Moul's prospective market risk premiums.

A: Mr. Moul uses two market forecasts to derive a forecasted market risk premium of 8.95%. Mr. Moul relies on Value Line's Median Appreciation Potential to estimate a market return of 17.22% and First Call's forecasted growth in EPS of the S&P 500 to estimate a market return of 14.45%. Mr. Moul then averages the two market returns (15.84%) and subtracts a risk free rate of 4.00% to derive a

forecasted market risk premium of 11.84%. Both estimates are flawed and overstate the forecasted market return.

Q: Please discuss your concerns regarding Mr. Moul's forecast derived from Value Line's Median Appreciation Potential.

Mr. Moul's analysis relies on a 3-5 year Median Price Appreciation Potential of 75% and a 2.2% Estimated Median Dividend Yield (Appendix H, page H4 of H6, footnote 1). Both figures are overstated.

As described earlier, several experts expect future market returns to be lower than past returns. The continuing forecast for low inflation reinforces this expectation. Conversely, Mr. Moul's analysis assumes future returns will dramatically exceed those earned in the past. Mr. Moul's opinion that future returns for the market as whole will exceed historical returns (9.6%)[12] by 485 basis points to 762 basis points is optimistic.

Value Line's 3 - 5 year Median Price Appreciation Potential (MAP) overstates anticipated market returns and its volatility renders it unreliable to forecast either current or long-term market expectations. For example, between the time Mr. Moul completed his analysis and September 25 Value Line's MAP dropped from 75% to 55% (Attachment 13). On an annualized (4 year) basis, that would decrease the "estimated" annual return (before dividends) from 15.02% to 11.58%. Anticipated total market returns are not that volatile and that type of data is not appropriate to use to estimate cost of equity and set rates. Also, Value

12 Ibbotson's 2009 SBBI Yearbook Classic Edition by Morningstar, page 32, average annual earned return.

Line's forecast is an intermediate term forecast and it is not intended to be a long term forecast.

Next, Mr. Moul's use of Value Line's 2.2% Estimated Median Dividend Yield estimate is inappropriate because it includes only yields from dividend paying stocks. Mr. Moul's testimony does not explain why it is appropriate to use a dividend yield for the market that excludes non-dividend paying stocks. By excluding non-dividend paying stocks (all with zero yields), the Value Line Median Estimated Dividend Yield is higher than it would be if all of the stocks in the Value Line Universe were included. The Value Median Price Appreciation Potential and the Median Estimated Dividend Yield come from two different groups of stocks. It is inappropriate to combine them to create an estimated market return.

Q: Please discuss your concerns with Mr. Moul's forecasted market return based on First Call's estimated growth in EPS?

A: Mr. Moul's analysis uses a DCF approach on the S&P 500 and relies on a 5 year forecasted growth rate in EPS 9.71% to estimate a total market return for the S&P 500 of 14.45%. Mr. Moul's forecasted growth rate has several flaws. First, the growth rate used by Mr. Moul is a 5 year estimate of growth. As discussed earlier in my testimony the DCF model requires a growth rate that is a long term growth rate and this requirement cannot be assumed away. A growth rate of 9.71% is unreasonably high and is not sustainable in the long run.

Next, Mr. Moul relies on a single growth forecast from a single source to estimate growth in the S&P 500. His analysis ignores historical growth and it ignores growth in DPS and BVPS. In his DCF analysis Mr. Moul looks at different estimators of growth. Mr. Moul and I disagree on how much weight should be given to each estimator of growth. But at least we both review multiple estimators of growth in our DCF analysis. Yet, to estimate a total market return, Mr. Moul relies on a single estimator of growth. Moreover, the single estimator of growth that Mr. Moul relies on is forecasted growth in EPS. As I discussed earlier in my testimony analyst forecasts tend to be optimistic.

Q: How does Mr. Moul's forecasted return for the S&P 500 compare to the forecasted return for the S&P 500 used by Petitioner's actuary to estimated future (Other than Pension Employee Benefits) OPEB costs?

A: In response to OUCC DR – 12, Q146, Petitioner asserted that the actuarial report for its OPEB's plan portfolio assumes a "long term" return on the S&P 500 of 8.85%. Mr. Moul estimated return for the S&P 500 of 14.45% (560 basis points above the actuarial report). It seems inappropriate to rely on 8.85% forecasted return for the S&P 500 to estimate an operating expense while relying on a 14.45% forecasted return to estimate cost of equity.

Q: Please discuss Mr. Moul's size adjustment.

A: Mr. Moul refers to Ibbotson's SBBI Yearbook and asserts that a CAPM analysis understates required returns for smaller companies. Mr. Moul then inflates the results of his CAPM analysis by 94 basis points to account for the smaller size of the companies that make up his proxy group.

Q: Do you agree with Mr. Moul's size adjustment?

A: No. Ibbotson's equity size premium adjustment is based on the theory that smaller companies have earned returns above what would otherwise be predicted by a CAPM analysis. It is not appropriate to directly apply Ibbotson's equity size premium adjustment to regulated water utilities. Regulation decreases the risks faced by Petitioner and the companies in Mr. Moul's water proxy group. Standard & Poor's recognizes the benefits of regulation and rated the business risk every water utility in Mr. Moul's proxy (except SJW which is unrated) group as excellent (Petitioner's response to OUCC DR – 04, Q052 – ERK Attachment 12). The companies in Mr. Moul's proxy group do not face the same bankruptcy risks that other small companies may face. The Commission supported the view that Ibbotson's small cap adjustment cannot be directly applied to utilities in South Haven Sewer, Cause No. 40398, order dated May 28, 1997, pages 30 - 31:

> We are familiar with the Ibbotson derived 400 basis point small company premium used by Mr. Beatty. The rationale behind this approach is that, all other things being equal the smaller the company, the greater the risk. However, to blindly apply this risk premium to Petitioner is to ignore the fact that Petitioner is a regulated utility. The risks from small size for a regulated utility are not as great as those small companies facing competition in the open market.

Q: Are you aware of any articles that support your opinion that a small company risk premium may not be applied to the water utility industry?

A: Yes. In an article titled: Do Smaller Companies Warrant a Higher Discount Rate for Risk?, by Business Valuation Alert (Volume 1, Issue No. 2, December 1999, on page 3 the article states as follows:

> The careful business appraiser should come away from the Jung case with the lesson that courts want to see a specific analysis of the risks of a company, not just a showing that the company is smaller and therefore demands a size premium as a result. Although, as a general proposition, smaller companies are riskier than larger companies, it is safer to agree with the Jung court that a specific analysis of the particular risk of a company must be examined in each valuation situation. A size premium does not automatically apply in every case. Each privately held company should be analyzed to determine if a size premium is appropriate in its particular case. There can be unusual circumstances where a small company has risk characteristics that make it far less risky than the average company, warranting the use of a very low equity risk premium. One possible example of this is a private water utility (monopoly situation, very low risk, near-guarantee of payments). The use of a size premium without consideration of the risk of the specific company may subject the appraisal to challenge and rejection on down the road.

Emphasis added

In an article titled: Utility Stocks and the Size Effect: An Empirical Analysis by Annie Wong, she concludes as follows:

> The fact that the two samples show different, through weak results indicates that utility and industrial stocks do not share the same characteristics. First given firm size, utility stocks are consistently less risky than industrial stocks. Second, industrial betas tend to decrease with firm size, but utility betas do not. These finds may be attributed to the fact that all public utilities operate in an environment with regional monopolistic power and regulated financial structure. As a result, the business and financial risks are very similar among the utilities regardless of their size. Therefore, utility betas would not necessarily be related to firm size.
>
> The object of this study is to examine if the size effect exists in the utility industry. After controlling for equity values, there is some weak evidence that firm size is a missing factor from the CAPM fir industrial but not utility stocks. This implies that although the size phenomenon has been strongly documented for industrials, the findings suggest that there is no need to adjust for the firm size in utility regulation.

Emphasis added

I agree with both the Commission and articles above. Water utilities are not exposed to the same risks as unregulated companies and do not experience the same increase in risk due to their smaller size.

Q: Do you agree with the leverage adjustment that Mr. Moul made to his CAPM analysis?

A: No. In his CAPM analysis Mr. Moul's leverage adjustment increases his proxy group's beta from .89 to 1.12 (pages 49, 50 and 53). Using Mr. Moul's risk premium of 8.95%, his leverage adjustment increases the results of his CAPM analysis by 206 basis points (0.23 * 8.95 = 2.0585). The arguments that I made in my critique of Mr. Moul's DCF analysis regarding his leverage adjustment apply here. Moreover, Mr. Moul has not cited any jurisdictions that accepted his leverage adjustment for a CAPM analysis.

Q: Do you agree with Mr. Moul's proposal to include an adjustment for flotation costs in his CAPM analysis?

A: No. Criticisms of Mr. Moul's flotation adjustment will be discussed later in my testimony.

MR. MOUL'S RISK PREMIUM MODEL

Q: Please discuss Mr. Moul's Risk Premium model.

A: Mr. Moul's Risk Premium model produces an estimated cost of equity of 11.99%. His Risk Premium model uses an interest rate on "A" rated utility bonds of 6.25% a risk premium of 5.50% and an adjustment for flotation costs of 0.24%. Mr. Moul's analysis overstates the risk premium, uses a forecasted interest rate that

exceeds the current interest rate and includes an unnecessary adjustment for flotation costs. Additionally, Mr. Moul's Risk Premium analysis does not include data from 2008. Since 2008 was a particularly bad year for stocks, but a good year for bonds, the use of 2008 data would significantly reduce Mr. Moul's estimated risk premiums (See E. Kaufman – Schedule 5 page 1-3)[13].

Q: Please discuss how Mr. Moul overstates his risk premium.

A: To derive his estimate of the risk premium Mr. Moul gives 50% of the weight to an arithmetic mean calculation, 25% to the geometric mean calculation and 25% to the median. If one relies on historical data to estimate a risk premium one should give equal weight to both the arithmetic and geometric mean return and should not give any weight to the median.

Q: Why shouldn't one give weight to median returns to derive a risk premium?

A: A median is simply the middle number.[14] While the median is a measure of central tendency, the median historical market return figures used by Mr. Moul are not appropriate measures of investor expectations and in Mr. Moul's analysis median returns exaggerate investors' expectations. For both the S&P Composite Index and the S&P Public Utility Index the median exceeds both the arithmetic and geometric mean return. However, for both Long Term Corporate Bonds and for Public Utility Bonds the median is less than either the arithmetic or geometric mean return. Using median returns inflates the expected return for the S&P

13 . In response to OUCC data request question No. 4-046 Mr. Moul provided 2008 data for the S&P Composite Index, the S&P Public Utility Index and for Long term Corporate Bonds. Mr. Moul did not provide updated data for Public Utility Bonds.
14. If the sample has an even number of data points the median is the average of the two middle numbers.

Utility Index and deflates the expected return for Public Utility Bonds. The combined effect of higher median stock returns and lower median bond returns leads to an artificially high median risk premium that is not indicative of reasonable investor expectations.

E. Kaufman Schedule 5 includes copy of Mr. Moul's Schedule 10. The updated schedule has return figures from 1928 - 2008 (81 data points). I have highlighted the median figure (in yellow) in each column. The median return for the S&P Public Utility Index is 11.74%. This took place in 1981. The median return for Public Utility Bonds is 4.55%. This took place in 1940 & 1961 (Since we do not have 2008 data for the Public Utility Bonds there are an even number of data points and one would average the two middle numbers). I do not believe that the spread between the return on the S&P Public Utility Stock Index in 1981 vs. the average return on the Public Utility Bonds in 1940 & 1961 is a reasonable basis to derive investor expectations.

Mr. Moul's median returns are more volatile than either the arithmetic mean or the geometric mean returns. For the S&P Composite Index the two annual returns closest (one above and one below, highlighted in blue) to the median of 12.45% (1965) are 11.96% (1959) and 14.31% (1971). Thus next year's median return for the S&P Composite index will be either 13.38%, (the average of 12.45% and 14.31%) if the return is greater than 14.31%, 12.21% (the average of 12.45% and 11.96%) if the return is less than 11.96% or the average of 12.461% and next

year's return (if the return is between 11.96% and 14.31%). Moreover, (over multiple periods) investors do not earn median returns and I do not believe that investors think in terms of median returns.

Q: How would Mr. Moul's estimated risk premium change if his analysis included 2008 data?

A: If Mr. Moul's Risk Premium analysis included 2008 data for the S&P Composite Index (-37.00%), the S&P Public Utility Index (-28.96%) and the Long Term Corporate Bonds (8.76%), it reduces Mr. Moul's estimated risk premiums (Average of the Midpoint of Range and Point Estimate (Moul - Schedule 10 page 2 of 2) as follows:

1928 – 2007(8)	5.51%	to	5.04%
1952 - 2007(8)	6.58%	to	5.92%
1974 – 2007(8)	6.08%	to	4.93%
1979 – 2007(8)	6.37%	to	5.05%

To derive his risk premium of 6.23% Mr. Moul averages 6.08% (1974 – 2007 range) with 6.37% (1979 – 2007 range) (page 46 of Mr. Moul's testimony). After taking other factors into consideration, Mr. Moul asserts that a 5.5% risk premium is reasonable and notes that 5.50% is approximately 88% of 6.23%. Mr. Moul also asserts that this adjustment is "reflective of the lower risk of the Water Group compared to the S&P Public Utilities."

If one averages the 1974 – 2008 range (4.93%) with the 1979 – 2008 range (5.05%) it results in an unadjusted risk premium of 4.99%. If the 4.99% risk premium is similarly reduced to reflect the lower risk of the Water Group

compared to the S&P Public Utilities it would result in a risk premium of 4.39% (4.99% * .88 = 4.39%).

Q: Is it appropriate to update Mr. Moul's Risk Premium analysis, when you do not have 2008 data for Public Utility Bonds?

A: I would prefer to have completed my analysis with 2008 data for Public Utility Bonds. While 2008 data dramatically effects the S&P Composite Index and the S&P Public Utility Index, 2008 data had only a minimal effect on the Long Term Corporate Bonds and it seems likely that 2008 data would similarly have only a minimal effect on Public Utility Bonds. Thus, I do not believe that the lack of data for 2008 Public Utility bonds negates the basis to update the other indexes in Mr. Moul's analysis. Moreover, Public Utility Bonds seem to track Long Term Corporate Bonds. There have only been two occasions (1987 & 1981) since 1974 where Long Term Bonds and Public Utility Bonds had opposite positive/negative returns. Since 2008 Long Term Corporate Bonds had positive returns (8.76%), it seems unlikely that 2008 Public Utility Bonds had negative returns.

Q: To estimate his risk premium, Mr. Moul gives 50% weight to the arithmetic mean, 25% to the geometric mean and 25% to the median return. How would Mr. Moul's estimated risk premium change if his analysis included 2008 data, but gave equal weight to a geometric mean and arithmetic mean calculation (ignored medians)?

A: The 1974 – 2008 risk premium would be reduced from 4.93% to 4.08% and the 1979 – 2008 risk premium would be reduced 5.05% to 4.06%. If these two risk premiums are averaged (as above) it results in an unadjusted risk premium of 4.07%. If the 4.07% risk premium is adjusted to reflect the lower risk of the

Water Group compared to the S&P Public Utilities it results in a risk premium of 3.58% (4.07% * .88 = 3.58%). Schedule E. Kaufman 5, page 3 of 3 illustrates how 2008 data influences Mr. Moul's Schedule 10, page 2 of 2). Updating Mr. Moul's risk premium analysis for 2008 data and excluding medians (giving equal weight to both the arithmetic and geometric mean calculation) reduces Mr. Moul's estimated risk premium by almost 200 basis points while the resulting cost of equity estimate drops from 11.99% to 10.07%.

Q: Both Mr. Moul's CAPM and Risk Premium analyses use forecasted interest rates. Do you agree with Mr. Moul's use of forecasted interest rates?

A: Mr. Moul generally relies upon Blue Chip financial Forecasts (BCFF) to derive a forecasted interest rate for his CAPM and Risk Premium analyses. BCFF provides a consensus forecast over the next 6 quarters for many key interest rates. The July 1, 2009 issue shows forecasted interest rates from, 3Q2009 through 4Q 2010. I do not believe that a forecast of what long term interest rates might be over the next 6 quarters is more appropriate to use than current yields. The July 1, 2009 issue of BCFF shows a current interest (June 26, 2009) for 30-year US Treasury Bonds of 4.48% and forecasted interest rates from 4.4% to 5.0%. BCFF shows a similar trend for Corporate Aaa bonds (current rate of 5.51% and forecasted rates of 5.6% to 6.0%).

Q: But don't you need to use forecasted interest rates to make the models forward looking?

A: No. When one purchases long term debt, the purchaser is making a forecast. The purchaser anticipates factors such as inflation over the life of the debt and uses

those factors to determine the appropriate purchase price and subsequent yield of his or her investment. The purchase price produces a yield that the investor is willing to accept over the life of the debt. Thus, a current yield is already a forward looking yield over the investment horizon.

If one forecasts that interest rates are going to increase the forecaster is, in effect, predicting that the price of the bond will decrease. If one strongly believes that the price of the bond will decrease in the near term, the purchaser would decrease his current purchase price and the spread between the forecasted yield and current yield would decrease. I think that there is a tendency amongst some analysts to take a "conservative" approach and assume that when interest rates are low the same interest rates are more likely to increase in the future. However, the best indication of what investors think interest rates will do is how they vote with current dollars. The current purchase price represents a statement with dollars as to what the investor believes will happen over his or her investment horizon.

Q: But, isn't it inconsistent to combine current interest rates with forecasted market risk premiums?

A: No. As I described in my previous answer today's current purchase price is a forecast and is the best forecast depicting investor expectations. I am not convinced that a forecast of what long term bonds might yield in 6 to 18 months is more appropriate than a current yield. It does not provide a better match.

Q: If Mr. Moul's Risk Premium model was revised to include 2008 data, did not include either; median returns, forecasted yields or flotation costs would it be appropriate to use Mr. Moul's Risk Premium model to estimate the cost of equity?

A: No. If one adds a risk premium of 3.58% to the current yield (as of September 25, 2009) on "A" bonds of 5.59% it produces a cost of equity of 9.17%. Despite the reasonable result, the recommendations discussed above do not cure my theoretical concerns regarding the Risk Premium Model. As discussed earlier in my testimony many sources believe that the forecasted risk premium is less than indicated by historical returns. This concept applies to Risk Premium models, just as it did to a CAPM analysis.

These sources forecast a risk premium for US large company stocks and risk-free bonds that range from 1.5% to 5.25%. According to Value Line, the current spread between current yields on risk free 30 Year US treasury bonds and "A" Utility bonds is approximately 133 basis points (4.26% - 5.59%) [Value Line Selections and Opinions, September 25, 2009].

Since utility bonds are riskier than risk-free US treasury bonds, a forecasted risk premium between the market and public utility bonds is smaller than the forecasted risk premium between the market and risk free treasury bonds. If we reduce the forecasted risk premium of 1.5% to 5.25% by the current spread between US treasury bonds and "A" utility bonds, it produces a risk premium of 0.2% to 4.95% (midpoint 2.575%). Thus, if a forecasted risk premium (midpoint) was given any weight in a Risk Premium model, it would result in both a smaller

risk premium and a lower estimated cost of equity then the risk premium and subsequent cost of equity used by Mr. Moul.

Also, the average actual earned return for the S&P Public Utility index from 1928 - 2008 is only 8.35%. Mr. Moul's proposed cost of equity for his Risk Premium model is 364 basis points above the average actual earned return for the S&P Public Utility index from 1928 - 2008.

Q: Discuss your theoretical concerns regarding the Risk Premium model.

A: The Risk Premium model assumes a risk premium that will remain stable over time. As mentioned earlier in my testimony there is growing evidence that the expected risk premium is lower than the historical risk premium. Despite the financial literature that supports the opinion that forecasted market risk premiums are lower than one estimated from historical evidence, Mr. Moul's analysis derives a forecasted market risk premium that is similar or higher than suggested by the historical evidence.

Q: Has Dr. Ibbotson commented on the risk premium?

A: Yes. In an article titled The Supply of Stock Market Returns by Roger Ibbotson and Peng Chen (June 2001), the authors contest assertions that the market risk premium is negative or close to zero. However, the article asserts that historical data does in fact overstate the expected risk premium. On page 15 the article states as follows:

> The equity risk premium is estimated to be about 4% in geometric terms and 6% on an arithmetic basis. This estimate is about 1.25% lower than the straight historical estimate.

Thus, while criticizing the contention that the market risk premium compared to risk free bonds is close to zero or negative, the article supports the notion that historical data overstates a forecasted market risk premium.

Q: Earlier in your testimony you mentioned an article by Portfolio Solutions. Does this analysis forecast a market risk premium between long-term Corporate Bonds and Large Company equities?

A: Yes. The article forecasts a risk premium of 2.0% between long-term corporate bonds and large company equities (Attachment 14). The article also forecasts a risk premium between long term government bonds and long term corporate bonds of 1.0%.

Q: Did Alan Greenspan comment on the market risk premium?

A: Yes. In a speech made on October 14, 1999 Chairman Greenspan stated as follows:

> That equity premiums have generally declined during the past decade is not in dispute. What is at issue is how much of the decline reflects new, irreversible technologies, and what part is a consequence of a prolonged business expansion without a significant period of adjustment. The business expansion is, of course, reversible, whereas the technological advancements presumably are not.

To the extent that a decline in the market risk premium reflects new, irreversible technologies Mr. Greenspan's comments still hold true today.

Q: Would the concerns you discussed above apply to Mr. Moul's estimated risk premium.

A: Yes. Mr. Moul's analysis uses a risk premium of 5.0% over "A" rated utility bonds. The analysis I presented earlier in my testimony derived a forecasted risk

premium of 4.25% over risk free US treasury bonds. Since "A" rated utility bonds are riskier than US Treasury bonds the spread (risk premium) between the S&P utility Index and A rated utility bonds should be less than the spread between US Treasury bonds and the return on large company stocks. Regardless of the source of data, the contentions put forth above support the opinion that the risk premium in the future will be less than what has been earned in the past. I believe that opinion holds true regardless of how one estimates a risk premium. Thus, I believe Mr. Moul's estimated risk premium overstates future expectations.

Q: Please summarize your concerns regarding the Risk Premium model.

A: First, like his CAPM analysis, Mr. Moul's Risk Premium model relies too heavily on an arithmetic mean return to estimate a risk premium. Mr. Moul's Risk Premium analysis also relies on overstated median estimates. Mr. Moul's analysis ignores 2008 data. There seems to be significant controversy surrounding the use of historical data to forecast a market risk premium. As discussed above some analysts believe that a forecasted market risk premium is close to zero. While Dr. Ibbotson contests those assertions, he also agrees that the historical data overstates the future risk premium. If one accepts the premise that risk premium will be lower in the future than it has been in the past, then Mr. Moul's risk premium models overstate the cost of equity.

MR. MOUL'S COMPARABLE EARNINGS METHODOLOGY

Q: Please discuss your concerns with Mr. Moul's Comparable Earnings (CE) analyses?

A: Mr. Moul's CE analysis produces an estimated cost of equity of 13.95%. His CE analysis is based on the average of historical and projected returns of more than 100 companies which he asserts are similar in risk to his proxy group. According to page 7 of his testimony, Mr. Moul appears to focus his estimated cost of equity on his DCF and Risk Premium models and seems to give little weight to the results of his CE analysis. I will limit my criticisms of his CE analysis.

Q: Please discuss your specific concerns regarding Mr. Moul's CE analysis.

A: Mr. Moul's analysis does not exclude outliers. His CE analysis includes companies such as Linear Technologies whose projected return is 91.0% and Yum! Brands whose historical return was 58.7%. It is unreasonable to include companies with such returns. While Mr. Moul's use of median returns mitigates the influence of companies such as Linear Technologies or Yum! Brands on his final result, it does not lessen the need to choose comparable companies.

Next, Mr. Moul did not screen his CE proxy group for dividends or percentage of long term debt. Water utilities tend to have low business risk which allows them to incur a larger degree of financial risk (Remember all of the utilities in Mr. Moul's water company proxy group [except SJW – unrated] are rated by S&P as having an excellent business risk). Water utilities tend to carry a large proportion of long term debt in their capital structure. Despite the screening criteria used by

Mr. Moul a company that has no or little long term debt is not comparable to either Indiana American or his water company proxy group. A similar theory applies to dividends. Water utilities pay a relatively large percentage of their earnings as dividends. Large dividend payments reflect the lower risk of the water industry. Several of the companies in Mr. Moul's CE proxy group do not have long term debt and/or pay little or no dividends. Again, regardless of any other screening criteria employed by Mr. Moul, a Comparable Earnings analysis that includes companies that pay no or little dividends is not comparable to the water company proxy used by Mr. Moul in his analysis.

Q: Please discuss some of the theoretical concerns that apply to all comparable earnings analyses.

A change in market conditions such as interest rates will influence investor expectations, and the results of both a CAPM and/or DCF analysis will, in turn, quickly react to reflect the change in investor expectations. Historical earned returns do not react to changes in market conditions. In past cases I have seen the comparable earnings methodology produce increasing returns during periods of declining capital costs. Finally, Mr. Moul's analysis assumes that operating returns (accounting returns) can be used to estimate market returns. Mr. Moul fails to present a convincing case that it is appropriate to rely on accounting returns to estimate cost of equity.

Q: Please summarize your concerns regarding Mr. Moul's Comparable Earnings Analysis.

A: Mr. Moul's Comparable Earnings analyses include companies that have little or no debt and/or don't pay dividends. These companies are not comparable to either Petitioner or Mr. Moul's water company proxy group. Mr. Moul's Comparable Earnings analysis should be given no weight.

FLOTATION COSTS

Q: Mr. Moul adds 24 basis points to the results of his DCF, CAPM and Risk Premium analyses for flotation costs. Is this adjustment necessary?

A: No. Petitioner has not justified the need to recover flotation costs in this case. When a utility has recently incurred or expects to incur flotation costs in the near future this Commission has typically allowed utilities to recover measurable and reasonable flotation costs. On page 30 of their Final Order in PSI, Cause No. 40003, the IURC expressed their opinion on flotation costs:

> Although this Commission has recognized the need to adjust the cost of equity to reflect the costs associated with equity issuances, it has heretofore authorized such adjustments only when there was a projected near-term need to issue new stock. In this particular proceeding, Dr. Morin has not persuaded us to change this practice
>
> ...We also observe that Dr. Morin's proposal appears to recapture historical costs that may have been incurred decades prior to the test year. For these reasons, we reject Dr. Morin's proposal regarding flotation costs, and find that Mr. Kahal proposed a more appropriate adjustment for purposes of the DCF calculation.

On page E1 of Appendix E Mr. Moul argues that "Even in the situation where a company will not issue common stock during the near term, the flotation cost adjustment factor should be applied to the common equity. Mr. Moul's opinion

that flotation costs should always be included is contrary to, the Commission's position stated in Cause No. 40003. Since Mr. Moul's proposed flotation cost adjustment is generic in nature and is not based on actual costs incurred by Indiana American Water or by American Water on behalf of Indiana American Water a flotation cost adjustment should not be included in Indiana American's authorized cost of equity. Finally, Petitioner has not provided any company specific analysis on the actual costs it anticipates that it will incur.

Q: Do you have any final comments on flotation costs?

A: Yes. To support his proposal to include a flotation cost adjustment for Petitioner, Mr. Moul states as follows on Page E1 of Appendix E:

> The rate of return on common equity must be high enough to avoid dilution when equity is issued.

And:

> A market price of common stock above book value is necessary to attract future capital on reasonable terms in competition with other seekers of equity capital.

As indicated by Mr. Moul when he proposes his leverage adjustment, the market price of companies in his water company proxy group are currently well above book value. A market to book ratio well above 1.00 would seem to diminish the need to always make a flotation cost adjustment.

CONCLUSIONS ON COST OF EQUITY

Q: Do you have any final comments about Mr. Moul's analysis?

A: Yes, I do. To the extent that I have not commented on areas of Mr. Moul's analysis, it should not be viewed as an acceptance of his analysis or position.

Q: Please review the most significant differences between you and Petitioner in your estimation of petitioner's cost of equity.

A: Our cost equity estimates differ by 275 basis points (9.25% vs. 12.0%). Most of our differences can be explained by the following factors:

1. Mr. Moul's estimated cost of equity gives too much weight to the arithmetic mean in both his Risk Premium and CAPM analyses.
2. Mr. Moul's Risk Premium analysis ignores 2008 data.
3. Mr. Moul's forecasted risk premium exceeds historical averages in both his Risk Premium and CAPM analyses.
4. Mr. Moul's use of an unnecessary leverage adjustment in his DCF and CAPM analysis.
5. Mr. Moul's use of an unrealistically high growth rate in his DCF analysis.
6. Mr. Moul's small company adjustment in his CAPM analysis.

Q: Please re-cap key elements illustrating the reasonableness of your proposed 9.25% cost of equity.

A: Petitioner's actuarial study assumes that the S&P 500 will earn a return of 8.85%. The compound average return of the S&P Public Utility Index from 1928 – 2008 is 8.35%. The Fall 2009 Duke Survey of CFO's forecasts a 10-year mean expected return for the S&P 500 is 7.4%. These three diverse sources provide a reasonable range of expected returns for the market. My proposed cost of equity

exceeds all three of these estimates and should be considered reasonable.

Cost of Debt

Q: Do you have any comments regarding Petitioner's proposed cost of debt?

A: Yes. Petitioner's proposed cost of debt includes an anticipated debt issuance for $43,000,000 at an assumed interest rate of 8.25% to take place on/or before November 15, 2009. According to Mr. VerDouw's testimony in Cause No. 43767 Indiana American Water already issued $15.5 million of the $43 million on May 19, 2009 at an interest rate of 8.27% and they plan to issue the remaining $27.5 million by the end of 2009 (Note $27.5M + $15.5M = $43M). Petitioner also issued a small amount of low cost debt and forgivable debt through the SRF. While the 8.25% anticipated interest rate may have been reasonable at the time Petitioner filed its direct testimony, corporate bonds yield have declined and it is no longer reasonable to assume an 8.25% interest rate. As discussed more thoroughly in Ms. Stull's testimony she uses a cost of debt of 6.64% for Petitioner's proposed issuance. This results in an average cost of debt of 6.96%. Note the 6.64% and the 6.96% are only approximations. Since the debt will be issued prior to the final hearing, cost of capital should be updated to reflect the actual cost of debt.

Q: Does this conclude your testimony?

A: Yes.

Table of Citations:

Page 16	Footnote 15: Robert D. Arnott and Peter L. Bernstein "What Risk Premium is Normal? Financial Analysts Journal, 58 (2) March/April 2002): 64-85
	Footnote 16: Source Council of Economic Advisors, Economic Report of the President, 2002.
Page 17	Footnote17: See for example, Vijay Kumar Chopra, "Why So Much Error in analysts' Earnings Forecasts?" Financial Analysts Journal, 54(6) November/December 1998): 35-42.
	Footnote 18: See Masakao N. Darrough and Thomas Russal, "A Positive Model of Earnings Forecasts: Top Down Versus Bottom Up." Journal of Business, 75(1) (January 2002) 127-52.
Page 18	Footnote 2 See Marc H. Goedhart, Brendan Russel and Zane Williams, "Prophets and profits?" McKinsey on Finance, Number 2, Autumn 2001
Page 26	Footnote 4 of the text cites to Ibbotson Associates, Stocks, Bonds, Bills and Inflation 1993 *Yearbook* (Chicago, 1993).
Page 27	Footnote 5 of the text cites A. Lo and C. MacKinlay, "Stock market Prices Do Not Follow Random Walks: Evidence from a Simple Specification Test," *Review of Financial Studies* (Spring 1988): 41-66; E. Fama and K. French, "Dividend Yields and Expected Stock Returns, "*Journal of Financial Economics* (October 1988): 3-25; J. Poterba and L. Summers, "Mean reversions in Stock Prices: Evidence and Implications, "*Journal of Financial Economics* (October 1988): 27-59.
Page 28	Footnote 14 of the text cites Mehra and Presscot (1985). The relatively large size of the historical U.S. equity premium relative to that predicted by theory, given estimates of investors' risk aversion, is known as the "equity premium puzzle" The geometric mean was also the choice of Dimson, Marsh, and Staunton (2000) in their authoritative survey of world equity markets.
	Footnote 35: In other words, good years are more likely to be followed by poor years, and vice versa. The evidence on negative serial correlation in stock market returns over time is extensive, and can be found in Fama and French (1988). While they find that one-year correlations are low, the five-year correlations are strongly negative for all size classes. Fama, E. F. and K.R. French. 1992, the Cross-Section of Expected Returns, Journal of Finance, Vol 47, 427-466.

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.

By: Edward R. Kaufman
Indiana Office of
Utility Consumer Counselor

10-23-09
Date

SUMMARY OF COST OF EQUITY STUDIES

DCF Studies

Value Line Proxy Group

DCF Study using 3 month: Dividend yield:(schedule 2)	8.93%
DCF Study using 6 month: Dividend yield: (schedule 2)	8.83%

AUS Proxy Group

DCF Study using 3 month: Dividend yield: (schedule 2)	9.66%
DCF Study using 6 month: Dividend yield: (schedule 2)	9.70%
Range of DCF Studies:	8.83% - 9.70%

CAPM Studies

Combined (AUS) Proxy Group

Historical Risk Premiums

CAPM Study using Long term interest rates: (Schedule 3, page 4)	7.94% - 8.10%

Forecasted Risk Premiums

CAPM Study using Long term interest rates: (Schedule 3, page 4)	7.54% - 7.70%

SUMMARY OF COST OF EQUITY STUDIES

CAPM Studies (cont)

Range of CAPM Studies:	7.54% - 8.10%
Range of all Studies:	7.54% - 9.70%
Range of most heavily Weighted studies:	8.10% - 8.93%
Recommended Cost of Equity for Petitioner:	**9.25%**

DCF MODEL
VALUE LLINE PROXY
SUMMARY OF GROWTH RATES (g)

	10 YEAR EARNINGS PER SHARE	5 YEAR EARNINGS PER SHARE	FORECASTED EARNINGS PER SHARE	10 YEAR DIVIDENDS PER SHARE	5 YEAR DIVIDENDS PER SHARE	FORECASTED DIVIDENDS PER SHARE	10 YEAR BOOK VALUE PER SHARE	5 YEAR BOOK VALUE PER SHARE	FORECASTED BOOK VALUE PER SHARE	AVERAGE
AMERICAN STATES WATER	3.50%	5.50%	9.50%	1.50%	2.00%	5.00%	4.50%	5.00%	4.00%	4.50%
AQUA AMERICA	7.50%	5.50%	10.00%	7.00%	8.00%	4.50%	9.50%	10.00%	6.50%	7.61%
CALIFORNIA WATER		7.00%	9.00%	1.00%		2.50%	4.00%	6.50%	3.00%	4.71%
AVERAGE	5.50%	6.00%	9.50%	3.17%	5.00%	4.00%	6.00%	7.17%	4.50%	5.61%

Value Line July 24, 2009

	ZACKS* FORECASTED EARNINGS PER SHARE	REUTERS** FORECASTED EARNINGS PER SHARE	A.U.S.*** FORECASTED DIVIDENDS PER SHARE	AVERAGE
AMERICAN STATES WATER	7.00%	7.00%		7.00%
AQUA AMERICA	7.50%	8.29%	7.50%	7.76%
CALIFORNIA WATER	8.17%	7.75%	1.00%	5.64%
AVERAGE	7.56%	7.68%	4.25%	6.80%

*Zack's 9/14/09
**Reuters.com 9/14/09
***AUS Dividend Monitor and Outlook, June, 2009

DIVIDEND YIELDS

	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	3 MONTH AVERAGE	6 MONTH AVERAGE
AMERICAN STATES WATER	2.70%	3.00%	3.20%	3.00%	2.70%	2.90%	2.87%	2.92%
AQUA AMERICA	2.90%	2.90%	3.30%	4.30%	3.10%	3.50%	3.63%	3.33%
CALIFORNIA WATER	2.70%	3.20%	3.40%	3.30%	3.20%	3.10%	3.20%	3.15%
AVERAGE	2.77%	3.03%	3.30%	3.53%	3.00%	3.17%	3.23%	3.13%

COST OF EQUITY = DIVIDEND YIELD * (1+.5 * GROWTH RATE) + GROWTH RATE

USING A THREE MONTH AVERAGE YIELD AND A
5.61% Growth Rate 8.93%

USING A SIX MONTH AVERAGE YIELD AND A
5.61% Growth Rate 8.83%

DCF MODEL
AUS PROXY GROUP

SUMMARY OF GROWTH RATES

Forecasted Growth Rates Extended Proxy	ZACKS* FORECASTED EARNINGS PER SHARE	REUTERS** FORECASTED EARNINGS PER SHARE	AUS*** FORECASTED DIVIDENDS PER SHARE	AVERAGE
AMERICAN STATES WATER	7.00%	7.00%		7.00%
AQUA AMERICA	7.50%	8.29%	7.50%	7.76%
CALIFORNIA WATER	8.17%	7.75%	1.00%	5.64%
CONNECTICUT WATER	9.00%		1.50%	5.25%
MIDDLESEX WATER COMPANY	7.00%			7.00%
SJW CORP	12.50%	15.00%	6.50%	11.33%
YORK WATER COMPANY	7.50%	6.00%		6.75%
STAGE 1 GROWTH RATE: AVERAGE	8.38%	8.81%	4.13%	7.25%
STAGE 2 GROWTH RATE: AVERAGE (Forecasted Inflation + Real growth in GDP)				5.50%

*Zack's 9/14/09
**Reuters.com 9/14/09
***AUS Dividend Monitor and Outlook, June, 2009

DIVIDEND YIELDS

	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	3 MONTH AVERAGE	6 MONTH AVERAGE
AMERICAN STATES WATER	2.70%	3.00%	3.20%	3.00%	2.70%	2.90%	2.87%	2.92%
AQUA AMERICA	2.90%	2.90%	3.30%	4.30%	3.10%	3.50%	3.63%	3.33%
CALIFORNIA WATER	2.70%	3.20%	3.40%	3.30%	3.20%	3.10%	3.20%	3.15%
CONNECTICUT WATER	4.20%	4.40%	4.50%	4.30%	4.20%	4.20%	4.23%	4.30%
MIDDLESEX WATER COMPANY	5.00%	5.00%	5.60%	5.00%	4.80%	4.90%	4.90%	5.05%
SJW CORP	2.80%	2.70%	3.20%	2.90%	2.90%	3.00%	2.93%	2.92%
YORK WATER COMPANY	4.30%	3.80%	3.70%	3.60%	3.10%	3.10%	3.27%	3.60%
AVERAGE	3.51%	3.57%	3.84%	3.77%	3.43%	3.53%	3.58%	3.61%

COST OF EQUITY = DIVIDEND YIELD * (1+.5 * GROWTH RATE) + GROWTH RATE

USING A THREE MONTH AVERAGE DIVIDEND YIELD AND A
7.25% 5 Year Growth Rate
5.50% Long Term Growth Rate 9.66%

USING A SIX MONTH AVERAGE DIVIDEND YIELD AND A
7.25% 5 Year Growth Rate
5.50% Long Term Growth Rate 9.70%

YIELDS ON U.S. TREASURY SECURITIES

	1 Year T-NOTE	5 Year T-NOTE	10 Year T-NOTE	30 Year T-BOND
7-Jan-09	0.41%	1.66%	2.49%	3.04%
4-Feb-09	0.49%	1.94%	2.94%	3.68%
4-Mar-09	0.66%	1.94%	2.97%	3.67%
1-Apr-09	0.54%	1.64%	2.65%	3.50%
6-May-09	0.50%	2.05%	3.16%	4.10%
3-Jun-09	0.44%	2.42%	3.54%	4.45%
30-Jun-09	0.48%	2.56%	3.53%	4.33%
5-Aug-09	0.47%	2.72%	3.75%	4.55%
2-Sep-09	0.38%	2.27%	3.31%	4.12%
3-Month Average	0.44%	2.52%	3.53%	4.33%
6-Month Average	0.47%	2.28%	3.32%	4.18%
Spot yields - Oct 13, 2009		2.29%	3.35%	4.20%

Interest rates obtained from Value Line Selections and Opinions
Spot yields taken from CNN.com

RISK PREMIUM

Historical Risk Prremiums

Total Returns 1926 - 2008

	Stocks	Long Bonds	Int Bonds	Short Bonds
Geometric Mean	9.60%	5.70%	5.40%	3.70%
Arithmetic Mean	11.70%	6.10%	5.60%	3.80%

Market Risk Premiums

Geometric Mean	3.90%	4.20%	5.90%
Arithmetic Mean	5.60%	6.10%	7.90%
Average Premium	4.75%	5.15%	6.90%

Total return data obtained from Ibbotson Associates:
SBBI 2009 Yearbook Classic Edition.

	Value Line Beta*
AMERICAN STATES WATER	0.80
AQUA AMERICA	0.65
CALIFORNIA WATER	0.80
CONNECTICUT WATER	0.85
MIDDLESEX WATER COMPANY	0.80
SJW CORP	1.00
YORK WATER COMPANY	0.65
Average	0.793

*July 24, 2009

CAPM Calculations
Historical Risk Premiums

Risk premiuns		Long	Int	Short
Premiums		4.75%	5.15%	6.90%
Rates	**3 month**	4.33%	3.02%	0.44%
Beta	0.793	**8.10%**	7.11%	5.91%

Risk premiuns		Long	Int	Short
Premiums		4.75%	5.15%	6.90%
Rates	**6 month**	4.18%	2.80%	0.47%
Beta	0.793	**7.94%**	6.88%	5.94%

Forecasted Risk Premiums

Risk premiuns		Long	Int	Short
Premiums		4.25%	4.25%	4.25%
Rates	**3 month**	4.33%	3.02%	0.44%
Beta	0.793	**7.70%**	6.39%	3.81%

Risk premiuns		Long	Int	Short
Premiums		4.25%	4.25%	4.25%
Rates	**6 month**	4.18%	2.80%	0.47%
Beta	0.793	**7.54%**	6.17%	3.84%

S&P Composite Index and S&P Public Utility Index
Long-Term Corporate and Public Utility Bonds
Yearly Total Returns
1928-2008

Year	S & P Composite Index	S & P Public Utility Index	Long Term Corporate Bonds	Public Utility Bonds
1928	43.61%	57.47%	2.84%	3.08%
1929	-8.42%	11.02%	3.27%	2.34%
1930	-24.90%	-21.96%	7.98%	4.74%
1931	-43.34%	-35.90%	-1.85%	-11.11%
1932	-8.19%	-0.54%	10.82%	7.25%
1933	53.99%	-21.87%	10.38%	-3.82%
1934	-1.44%	-20.41%	13.84%	22.61%
1935	47.67%	76.63%	9.61%	16.03%
1936	33.92%	20.69%	6.74%	8.30%
1937	-35.03%	-37.04%	2.75%	-4.05%
1938	31.12%	22.45%	6.13%	8.11%
1939	-0.41%	11.26%	3.97%	6.76%
1940	-9.78%	-17.15%	3.39%	**4.45%**
1941	-11.59%	-31.57%	2.73%	2.15%
1942	20.34%	15.39%	2.60%	3.81%
1943	25.90%	46.07%	2.83%	7.04%
1944	19.75%	18.03%	[redacted]	3.29%
1945	36.44%	53.33%		5.92%
1946	-8.07%	1.26%	1.72%	2.98%
1947	5.71%	-13.16%	-2.34%	-2.19%
1948	5.50%	4.01%	**4.14%**	2.65%
1949	18.79%	31.39%	3.31%	7.16%
1950	31.71%	3.25%	2.12%	2.01%
1951	24.02%	18.63%	-2.69%	-2.77%
1952	18.37%	19.25%	3.52%	2.99%
1953	-0.99%	7.85%	3.41%	2.08%
1954	52.62%	24.72%	5.39%	7.57%
1955	31.56%	[redacted]	0.48%	0.12%
1956	6.56%	5.06%	-6.81%	-6.25%
1957	-10.78%	6.36%	8.71%	3.58%
1958	43.36%	40.70%	-2.22%	0.18%
1959	[redacted]	7.49%	-0.97%	-2.29%
1960	0.47%	20.26%	9.07%	9.01%
1961	26.89%	29.33%	4.82%	**4.65%**
1962	-8.73%	-2.44%	7.95%	6.55%
1963	22.80%	[redacted]	2.19%	3.44%
1964	16.48%	15.91%	4.77%	4.94%
1965	**12.45%**	4.67%	-0.46%	0.50%
1966	-10.06%	-4.48%	0.20%	-3.45%
1967	23.98%	-0.63%	-4.95%	-3.63%
1968	11.06%	10.32%	2.57%	1.87%
1969	-8.50%	-15.42%	-8.09%	-6.66%
1970	4.01%	16.56%	18.37%	15.90%
1971	[redacted]	2.41%	11.01%	11.59%
1972	18.98%	8.15%	7.26%	7.19%
1973	-14.66%	-18.07%	1.14%	2.42%
1974	-26.47%	-21.55%	-3.06%	-5.28%
1975	37.20%	44.49%	14.64%	15.50%
1976	23.84%	31.81%	18.65%	19.04%
1977	-7.18%	8.64%	1.71%	5.22%
1978	6.56%	-3.71%	-0.07%	-0.98%
1979	18.44%	13.58%	-4.18%	-2.75%
1980	32.42%	15.08%	-2.76%	-0.23%
1981	-4.91%	**11.74%**	-1.24%	**4.27%**
1982	21.41%	26.52%	42.56%	33.52%
1983	22.51%	20.01%	6.26%	10.33%
1984	6.27%	26.04%	16.86%	14.82%
1985	32.16%	33.05%	30.09%	26.48%
1986	18.47%	28.53%	19.85%	18.16%
1987	5.23%	-2.92%	-0.27%	3.02%
1988	16.81%	18.27%	10.70%	10.19%
1989	31.49%	47.80%	16.23%	15.61%
1990	-3.17%	-2.57%	6.78%	8.13%
1991	30.55%	14.61%	19.89%	19.25%
1992	7.67%	8.10%	9.39%	8.65%
1993	9.99%	14.41%	13.19%	10.59%
1994	1.31%	-7.94%	-5.76%	-4.72%
1995	37.43%	42.15%	27.20%	22.81%
1996	23.07%	3.14%	1.40%	3.04%
1997	33.36%	24.69%	12.95%	11.39%
1998	28.58%	14.82%	10.76%	9.44%
1999	21.04%	-8.85%	-7.45%	-1.69%
2000	-9.11%	59.70%	12.87%	9.45%
2001	-11.88%	-30.41%	10.65%	5.85%
2002	-22.10%	-30.04%	16.33%	1.63%
2003	28.70%	26.11%	5.27%	10.01%
2004	10.87%	24.22%	8.72%	6.03%
2005	4.91%	16.79%	5.87%	3.02%
2006	15.80%	20.95%	3.24%	3.94%
2007	5.49%	19.39%	2.60%	[redacted]
2008	-37.00%	-28.96%	8.76%	na
Geometric Mean	9.29%	8.35%	5.85%	5.45%
Arithmetic Mean	11.35%	10.75%	6.16%	5.72%
Standard Deviation	20.62%	22.73%	8.47%	7.84%
Median	12.45%	11.74%	4.14%	4.55%

Yellow highlights are median with year

[redacted]

Comparison of 2007 & 2008 Averages

	S & P Composite Index	S & P Public Utility Index	Long Term Corporate Bonds	Public Utility Bonds
1928-2008				
Geometric Mean	9.29%	8.35%	5.85%	5.45%
Arithmetic Mean	11.35%	10.75%	6.16%	5.72%
Standard Deviation	20.62%	22.73%	8.47%	7.84%
Median	12.45%	11.74%	4.14%	4.55%
1928-2007				
Geometric Mean	10.04%	8.92%	5.81%	5.45%
Arithmetic Mean	11.95%	11.24%	6.13%	5.72%
Standard Deviation	20.02%	22.43%	8.52%	7.84%
Median	13.38%	12.05%	4.11%	4.55%
Change from 2007 to 2008				
Geometric Mean	-0.75%	-0.57%	0.04%	0.00%
Arithmetic Mean	-0.60%	-0.49%	0.03%	0.00%
Median	-0.93%	-0.31%	0.03%	0.00%

Updated
Tabulation of Risk Rate Differentials for
S&P Public Utility Index and Public Utility Bonds
For the Years 1928-2008, 1952-2008, 1974-2008, and 1979-2008

Total Returns	Range: Geometric Mean	Range: Median	Midpoint	Point Estimate: Arithmetic Mean	2008 Average of the Midpoint of Range and Point Estimate	2007 Average of the Midpoint of Range and Point Estimate	Average of the Geometric Arithmetic Mean 50/50
1928-2009							
S&P Public Utility Index	8.35%	11.74%		10.75%			
Public Utility Bonds	5.45%	4.55%		5.72%			
Risk Differential	2.90%	7.19%	5.05%	5.03%	5.04%	5.51%	3.97%
1952-2008							
S&P Public Utility Index	10.27%	13.58%		11.92%			
Public Utility Bonds	6.04%	5.07%		6.45%			
Risk Differential	4.23%	8.51%	6.37%	5.47%	5.92%	6.58%	4.85%
1974-2008							
S&P Public Utility Index	11.49%	15.08%		13.65%			
Public Utility Bonds	8.20%	8.39%		8.79%			
Risk Differential	3.29%	6.69%	4.99%	4.86%	4.93%	6.08%	4.08%
1979-2008							
S&P Public Utility Index	11.85%	15.94%		13.93%			
Public Utility Bonds	8.52%	8.65%		9.15%			
Risk Differential	3.33%	7.29%	5.31%	4.78%	5.05%	6.37%	4.06%
Average (all four time periods)					5.24%	6.14%	4.24%
Average (1974 - 2008 & 1979 - 2008)					4.99%	6.23%	4.07%
Average (1974 - 2008 & 1979 - 2008) * 0.88					4.39%	5.48%	3.58%

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First Quarter 2009 Survey of Professional Forecasters

Release Date: February 13, 2009

Listen to an interview with [illegible] for this quarter's survey.

Pessimism About Near-Term Growth Amid Deteriorating Conditions in the Labor Market

The U.S. economy is headed for two quarters of negative growth in the first half of 2009, according to 43 forecasters surveyed by the Federal Reserve Bank of Philadelphia. The forecasters project that real GDP will contract at an annual rate of 5.2 percent in the first quarter and 1.8 percent in the second quarter of 2009. These forecasts represent yet another downward revision from the forecasts of three months ago, when forecasters anticipated contraction at an annual rate of 1.1 percent in the first quarter and growth of 0.8 percent in the second quarter of 2009. The survey participants expect economic recovery to begin in the third quarter of 2009. On a year-over-year basis, growth is expected to be -2.0 percent in 2009 and 2.2 percent in 2010.

The charts below provide some information on the degree of uncertainty the forecasters have about year-over-year growth. Each chart presents the forecasters' estimates of the probability that growth will fall into each of six ranges. For 2009, the forecasters have substantially increased their estimates that growth will be negative, compared with their estimates of three months ago. The forecasters see an 89 percent chance that year-over-year growth in 2009 will fall in the negative range. For 2010, the forecasters predict only an 11 percent chance that year-over-year growth will be negative.

- Mean Probabilities [illegible] (chart)
- Mean Probabilities [illegible] (chart)

An upward revision to the forecast for the unemployment rate accompanies the outlook for economic growth. The forecasters predict that unemployment will rise from 7.8 percent this quarter to 8.9 percent in the fourth quarter of 2009. Previously, unemployment was forecast to rise from 7.0 percent to 7.7 percent over the same period. Unemployment is expected to average 8.4 percent this year and 8.8 percent in 2010. On the jobs front, the forecasters project job losses in the current quarter at a rate of 548,400 per month. They also see a reduction in jobs of 311,200 per month in the second quarter and 202,100 in the third quarter of 2009. They previously projected monthly job losses of 218,800, 108,400, and 7,200 in the first quarter, the second quarter, and the third quarter of 2009, respectively. On an annual average basis, jobs are expected to decline 328,400 per month in 2009. The forecasters expect a recovery in the labor market to begin in the first quarter of 2010 with job gains of 38,700 per month.

The table below summarizes the forecasts for real GDP and the labor market and compares the current projections with those of three months ago.

	Real GDP (%)	Unemployment Rate	Payrolls (000s/month)

(%)

	Previous	New	Previous	New	Previous	New
Quarterly data:						
2009:Q1	-1.1	[illegible]	7.0	7.8	-218.8	-548.4
Q2	0.8	1.8	7.4	8.3	-108.4	-311.2
Q3	0.9	1.0	7.6	8.7	-7.2	-202.1
Q4	2.3	[illegible]	7.7	8.9	19.8	-43.0
2010:Q1	N.A.	2.4	N.A.	9.0	N.A.	38.7
Annual average data:						
2009	-0.2	2.0	7.4	8.4	-130.1	-328.4
2010	N.A.	2.2	N.A.	8.8	N.A.	6.2

Forecasters Revise Views on the New Fiscal Stimulus Package

In a special section in this survey, the Federal Reserve Bank of Philadelphia asked its panelists whether their forecasts reflect the influence of a new fiscal stimulus package, and, if so, they were asked to give the estimated size of the total package and the distribution of the package among the following categories: government consumption and gross investment, transfer payments, tax cuts, and other. We also asked the forecasters to tell us the effect of the package on their projections for annual-average over annual-average growth in real GDP in 2009, 2010, and 2011. And finally, we asked the forecasters to estimate the year and quarter when the package will begin to affect real GDP growth.

Thirty-nine of the 43 of panelists who participated in this survey say that their forecasts reflect the influence of a new fiscal stimulus package. The size of the stimulus package is estimated at $806 billion. The forecasters predict that $266 billion will go toward government consumption and gross investment, $197 billion will go toward transfer payments, and $273 billion will be used for tax cuts. According to the forecasters, the stimulus package will begin to affect real GDP growth in the second quarter of 2009. The panelists think the stimulus package will add 0.9 percentage point to the annual-average over annual-average growth in real GDP in 2009, 1.1 percentage points in 2010, and 0.4 percentage point in 2011. These are the mean estimates. The median estimates are, in general, similar.

In the last survey, the size of the stimulus package was estimated at $211 billion. The forecasters thought the stimulus package would begin to affect real GDP growth in the first quarter of 2009. The panelists also predicted that the stimulus package will add 0.6 percentage point to the growth in real GDP in 2009 and 0.4 percentage point in 2010.

Forecasters Reduce Projections for Inflation in 2009 and 2010

The outlook for core inflation in 2009 and 2010 is at a level below that forecast in the last survey. Core CPI inflation (fourth-quarter over fourth-quarter) is expected to increase from 1.2 percent in 2009 to 1.6 percent in 2010, down from the previous estimates of 2.0 percent over the same periods (not shown in the table below). The forecasters also see lower core PCE inflation for 2009 and 2010 — from about 1.8 percent in both years (not shown) in the last survey to 1.1 percent in

2009 and 1.5 percent in 2010.

Over the next 10 years, 2009 to 2018, the forecasters expect headline CPI inflation to average 2.4 percent at an annual rate, while headline PCE inflation will average 2.2 percent. These estimates are almost identical to those from the last survey, when the forecasters predicted inflation over the 10-year period from 2008 to 2017 would average 2.5 percent in the CPI and 2.2 percent in the PCE price index (not shown).

	CPI (%)		PCE Price Index (%)	
	Headline	Core	Headline	Core
Quarterly data:				
2009:Q1	-2.7	0.6	-1.9	0.7
Q2	0.8	1.2	0.7	1.1
Q3	1.7	1.3	1.5	1.3
Q4	1.8	1.3	1.5	1.2
2010:Q1	2.0	1.5	1.8	1.4
Fourth-quarter over fourth-quarter data:				
2009	0.2	1.2	0.2	1.1
2010	1.9	1.6	1.8	1.5
2011	2.3	2.0	2.0	1.7
Long-run projections:				
2009-2013	2.2	N.A.	2.0	N.A.
2009-2018	2.4	N.A.	2.2	N.A.

The figures below show the probabilities that the forecasters are assigning to the possibility that fourth-quarter over fourth-quarter core PCE inflation in 2009 and 2010 will fall into each of 10 ranges. For 2009, the forecasters have raised the probability that inflation will be below 1.5 percent. For 2010, the forecasters are assigning a 44 percent probability that inflation will fall into the range of 1.0 percent to 1.9 percent.

- Mean Probabilities for Core PCE Inflation in 2009 (chart)
- Mean Probabilities for Core PCE Inflation in 2010 (chart)

Forecasters Reduce Estimates for Long-Term Output and Productivity Growth

In first-quarter surveys, the forecasters provide their long-run projections for an expanded set of variables, including growth in output and productivity, as well as returns on financial assets. As the table below shows, the forecasters have trimmed their long-run estimates for the annual average rate of growth in real GDP and productivity. Currently, the forecasters expect real GDP to grow 2.56 percent per year over the next 10 years, down from 2.75 percent in the survey of 2008 Q1. Similarly, productivity growth is now expected to average 1.9 percent, down from 2.0 percent. Downward revisions to the return on Treasury securities accompany the current outlook. The

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forecasters see 10-year Treasuries returning 4.85 percent per year, down from 5.0 percent, and three-month Treasury bills returning 3.00 percent, down from 4.0 percent. The forecasters continue to expect that the S&P 500 will return 6.5 percent per year over the next 10 years.

[illegible] (%)

	First Quarter 2008	Current Survey
Real GDP Growth	2.75	2.56
Productivity Growth	2.00	1.90
Stock Returns (S&P 500)	6.50	6.50
Bond Returns (10-year)	5.00	4.85
Bill Returns (3-month)	4.00	3.00

Increased Risk of a Negative Quarter

The risk of a contraction continues to rise. As the table below shows, the forecasters have revised upward the likelihood of a quarter of negative growth over the next four quarters. For the current quarter, the forecasters predict a 94 percent chance of negative growth, up from 75 percent in the survey of three months ago. The forecasters see a 74 percent chance of negative growth in the second quarter of 2009, up from 49 percent in the last survey.

[illegible] (%)

	Previous	New
Quarterly data:		
2009:Q1	74.8	94.4
Q2	49.4	74.0
Q3	37.8	44.7
Q4	34.6	29.9
2010:Q1	N.A.	21.6

The Federal Reserve Bank of Philadelphia thanks the following forecasters for their participation in our surveys:

Scott Anderson, Wells Fargo and Company; Robert J. Barbera, ITG Inc.; **Jack L. Bishop Jr., Ph.D.**, Kingsbury International Ltd.; **Jay Brinkmann**, Mortgage Bankers Association; **Joseph Carson**, Alliance Capital Management; **Christine Chmura, Ph.D.** and **Xiaobing Shuai, Ph.D.**, Chmura Economics & Analytics; **Gary Ciminero, CFA**, GLC Financial Economics; **Joan Crary**, and **Stanley Sedo**, RSQE, University of Michigan; **David Crowe**, National Association of Home Builders; **Richard DeKaser**, National City Corporation; **Rajeev Dhawan**, Georgia State University; **Shawn Dubravac**, Consumer Electronics Association; **Michael R. Englund**, Action Economics, LLC; **Fannie Mae**; **Gerard F. Fuda**, Independent Economist; **Stephen Gallagher**, Societe Generale; **James Glassman**, JP Morgan Chase & Co.; **Global Insight**; **Jeoff Hall**, Thomson Financial, IFR; **Ethan Harris** and **Dean Maki**, Barclays Capital; **Keith Hembre**, First American Funds; **Peter Hooper**, Deutsche Bank Securities, Inc.; **William B. Hummer**, Wayne Hummer Investments; **Fred Joutz**, Benchmark Forecasts and Research Program on Forecasting, George Washington University; **Kurt Karl**, Swiss Re;

Nathaniel Karp, Compass Bank; **Walter Kemmsies** and **Daniel Solomon**, Moffatt & Nichol; **Jack Kleinhenz**, Kleinhenz & Associates, Inc.; **Thomas Lam**, UOB Group; **L. Douglas Lee**, Economics from Washington; **Mickey D. Levy**, Bank of America; **Joseph Liro**, Stone & McCarthy Research Associates; **John Lonski**, Moody's Investors Service; **Macroeconomic Advisers, LLC**; **Edward F. McKelvey**, Goldman Sachs; **Jim Meil**, Eaton Corporation; **Anthony Metz**, Pareto Optimal Economics; **Michael Moran**, Daiwa Securities America; **Joel L. Naroff**, Naroff Economic Advisors; **Mark Nielson, Ph.D.**, MacroEcon Global Advisors; **Michael P. Niemira**, International Council of Shopping Centers; **Luca Noto**, Monte Paschi Asset Management; **Martin A. Regalia**, U.S. Chamber of Commerce; **David Resler**, Nomura Securities International, Inc.; **John Silvia**, Wachovia Corporation; **Allen Sinai**, Decision Economics, Inc; **Tara M. Sinclair**, Research Program on Forecasting, George Washington University; **Sean M. Snaith, Ph.D.**, University of Central Florida; **Constantine G. Soras, Ph.D.**, Verizon Communications; **Neal Soss**, Credit Suisse; **Stephen Stanley**, RBS Greenwich Capital; **Susan M. Sterne**, Economic Analysis Associates, Inc.; **Edward Sullivan**, Portland Cement Association; **Thomas Kevin Swift**, American Chemistry Council; **Lea Tyler**, Oxford Economics USA, Inc.; **Albert M. Wojnilower**; **Richard Yamarone**, Argus Research Group; **Mark Zandi**, Economy.com; **Ellen Beeson Zentner**, Bank of Tokyo-Mitsubishi UFJ, Ltd.

This is a partial list of participants. We also thank those who wish to remain anonymous.

The Philadelphia Fed's Survey of Professional Forecasters was formerly conducted by the American Statistical Association (ASA) and the National Bureau of Economic Research (NBER) and was known as the ASA/NBER survey. The survey, which began in 1968, is conducted each quarter. The Federal Reserve Bank of Philadelphia, in cooperation with the NBER, assumed responsibility for the survey in June 1990.

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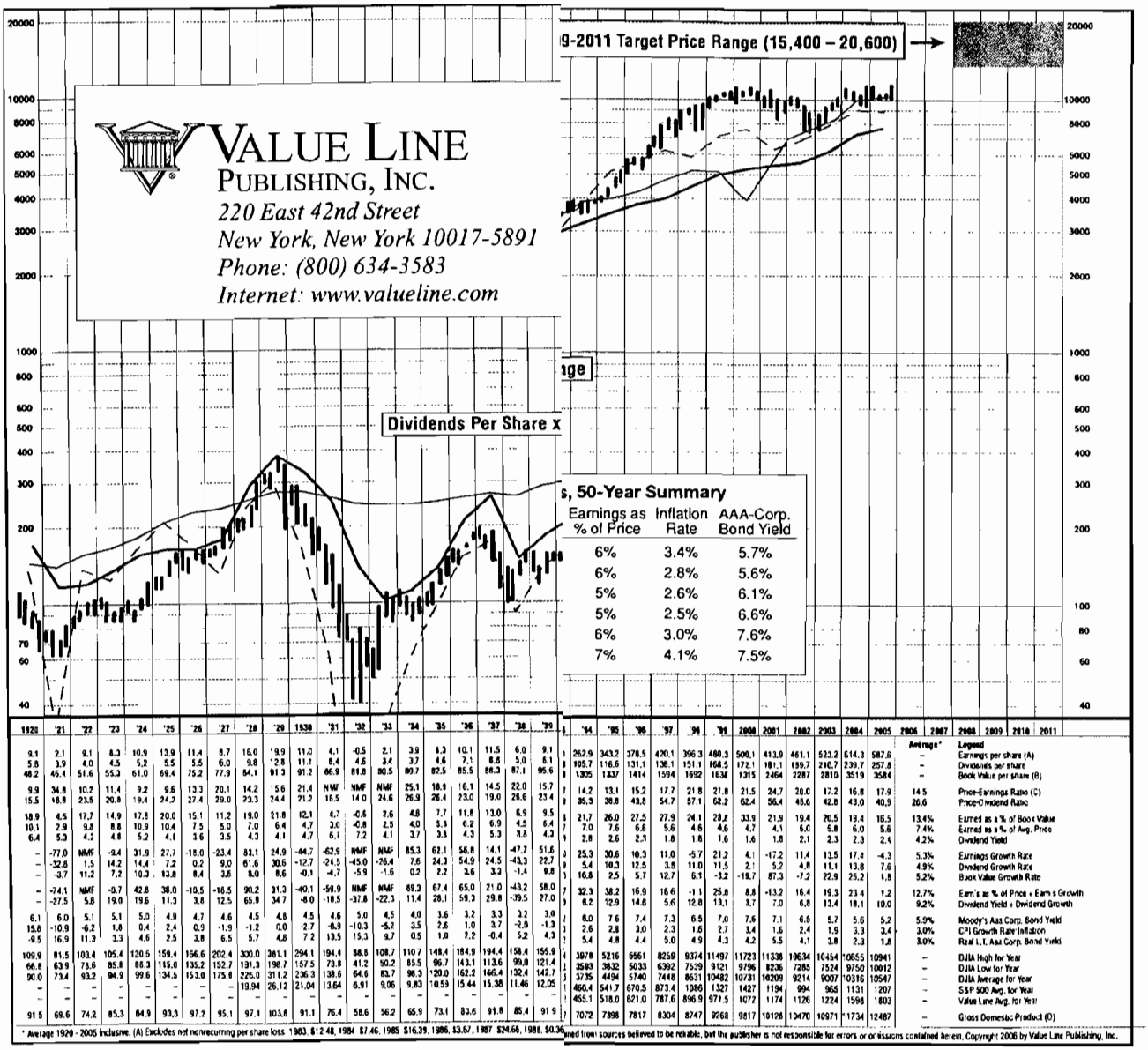

* Average 1920 - 2005 inclusive. (A) Excludes not nonrecurring per share loss: 1983, $12.48; 1984, $7.46; 1985, $16.39; 1986, $3.67; 1987, $24.66; 1988, $0.36.

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Analysts: Still Coming Up Rosy

Over-Optimism on Growth Rates Is Rampant, and the Estimates Help to Buoy Market's Valuation

BY KEN BROWN

WALL STREET IS pretty downcast these days, what with a $1.5 billion settlement pending with regulators over stock-research conflicts, continuing layoffs at big securities firms and a stock market that is teetering yet again—not to mention a cold snap that could freeze the thumbs of Blackberry users.

Yet stock analysts are unshaken in their optimistic, if delusional, belief that most of the companies they cover will have above-average, double-digit growth rates during the next several years. That is, of course, highly unlikely. Historically, corporate earnings have grown at about the same rate as the economy over time, and few expect the economy to grow at a double-digit rate any time soon.

HEARD ON THE STREET

But analysts refuse to bend to reality. Of the companies in the Standard & Poor's 500-stock index, analysts expect 345 of them to boost their earnings more than 10% a year during the next three to five years, and 123 companies to grow more than 15%, according to Multex, a stock-market-data firm.

"Hope springs eternal," says Mark Donovan, who manages Boston Partners Large Cap Value Fund. "You would have thought that, given what happened in the last three years, people would have given up the ghost. But in large measure they have not."

These overly optimistic growth estimates also show that, even with all the regulatory focus on too-bullish analysts allegedly influenced by their firms' investment-banking relationships, a lot of things haven't changed: Research remains rosy and many believe it always will.

In some ways, these high estimated growth rates underpin the market's current valuation, which remains pricey by historical standards. Investors expect to pay a higher price for stocks that are growing strongly. So if people realize these long-term growth-rate numbers are largely fictional, then a pillar of support for the market's valuation—the S&P 500 currently trades at a price-to-earnings ratio of 18.5 based on 2002 earnings—could go out of the stock market, sending prices lower.

The long-term growth figures come from the earnings estimates Wall Street analysts post for the companies they cover. Besides issuing buy and sell recommendations and predicting earnings during the next few quarters, analysts typically estimate how quickly the companies' earnings will grow during the next few years. Such long-term growth-rate numbers, which are imprecise by nature, give a hint of how analysts feel about companies' future prospects.

A long-term growth-rate number is often used by investors to determine whether a stock is cheap or expensive. Online auctioneer eBay Inc., for example, trades at a price-to-earnings ratio of 86 based on the past year's earnings. Some investors take solace in the fact that the company is expected to expand earnings 40% a year, but even with that growth, it would take until 2006 for the company's price-to-earnings ratio to fall to 22, assuming the stock price remained stalled at today's level.

These rosy figures come on top of three years of little or no growth for many companies. For example, Charles Schwab Corp. hasn't grown at all since 2000 as it has struggled with the stock-market collapse. But analysts, on average, still expect the company will expand its earnings 18% a year during the next several years. While that

Please Turn to Page C1, Column 1

Great (Double-Digit) Earnings-Growth Expectations

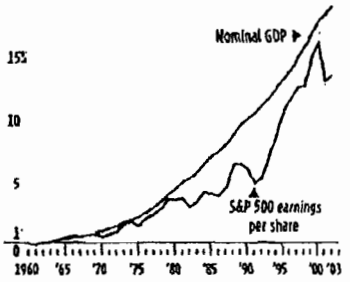
Historically, growth in corporate earnings has slightly lagged nominal growth in gross domestic product. In other words, profits can only grow as fast as the economy. Right now, optimistic Wall Street analysts expect earnings to defy history and grow far faster than that.

Analysts are still expecting earnings to grow an average of 12%...

Consensus forecasts for the long-term (three- to five-year) growth rates of the companies in the S&P 500.

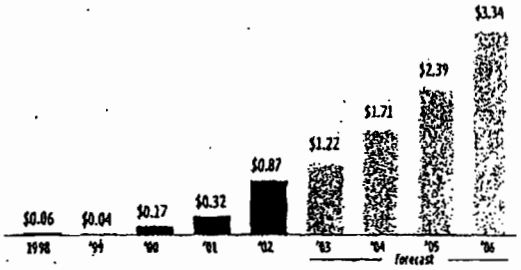
But earnings growth hasn't historically surpassed economic growth

Cumulative growth in GDP and in earnings per share of S&P 500 companies since 1960.*



And the growth rate required to match analysts' forecasts for some companies is ambitious

Chart at right shows eBay's actual earnings per share for the past five years and forecast earnings per share at the 40% annual growth rate analysts are anticipating for the company



*Shown by setting each to 1 in 1960, and indexing their growth; GDP and earnings figures used are nominal, or not adjusted for inflation

Sources: IBES; Bureau of Economic Analysis; Standard & Poor's; Morgan Stanley; WSJ Market Data Group

50.38	372.88	-17.61	-2.72
57.81	170.73	-17.05	-2.84
56.74	171.10	-23.38	-2.17
45.01	4452.49	-20.44	-2.40
61.47	532.91	-21.10	-2.65
22.09	437.72	-15.45	-1.15
22.95	327.84	-23.76	-2.80
53.44	7342.84	-22.70	-2.01
02.26	219.50	-28.63	-2.02
62.69	771.87	- 2.19	-1.04

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January 27, 2000

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. highfliers, or
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	DAY'S $ CHANGE	YTD RETURN	52-WK RETURN
	-2.92	-2.2	-23.6
	-2.93	-2.4	-22.7
	-1.96	-1.9	-14.9
	-2.72	-2.7	-16.8
	-2.13	-0.5	-20.6
	-1.65	-2.6	-10.8
	-2.44	-2.2	-19.0
	-0.92	-2.0	-14.0
	-1.32	-0.8	-15.2
Amer;	-0.97	-0.4	- 4.9
	+0.10	+0.5	+ 9.5
	+0.09	+0.2	+ 9.2
	+0.10	+0.1	+ 7.8
	+0.09	+0.4	+ 9.2
	+0.14	-0.4	+ 5.0

PRELIM CLOSE	PERCENT CHANGE FROM PREVIOUS CLOSE	WEEK AGO	DEC. 31
2310.95	-2.67	-5.11	-1.46
1712.69	-2.68	-5.32	-2.05
7180.29	-2.45	-5.59	-2.18
1868.82	-7.53	-4.88	-0.89
5097.00	-2.49	-4.70	-1.01
2981.44	-2.26	-5.15	-1.34
452.23	-2.35	-4.50	-1.35
448.51	-2.16	-4.62	-1.71
658.32	-2.30	-4.74	-1.65
352.12	-2.39	-4.84	-1.93
259.26	-2.05	-4.62	-2.15
347.12	-1.80	-4.32	-1.78
3138.81	-2.52	-5.58	-2.59
426.23	-3.17	-5.76	+1.60
549.06	-4.59	-4.06	-1.60
4047.07	-3.62	-3.35	-1.12
247.13	+0.08	+0.25	+0.20
285.92	+0.14	+0.54	+0.41
389.97	+0.20	+0.65	-0.01
624.46	+0.15	+0.31	+0.28
1020.52	+0.23	+0.68	+0.34

rgest funds within the same invest-
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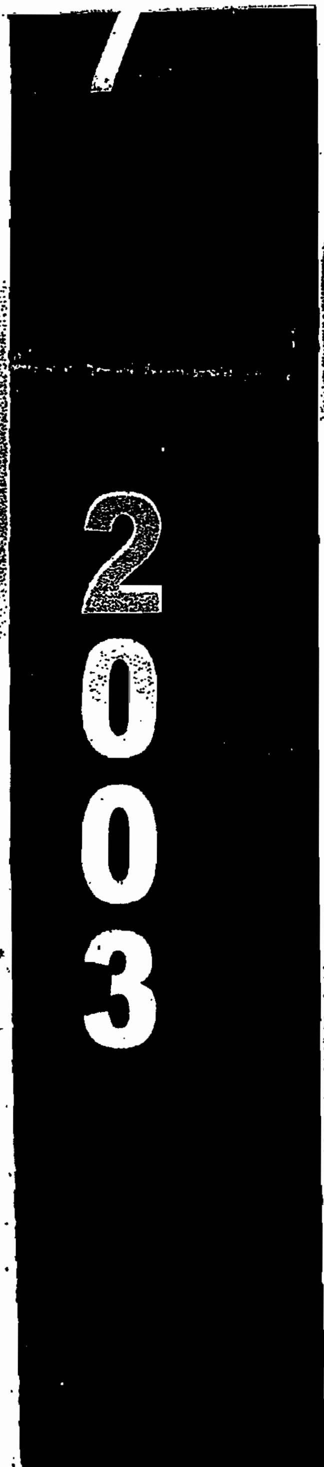
Source: Lipper Inc.



Analysts: Still Coming Up Rosy

Continued From Page C1

doesn't justify the company's price-to-earnings ratio of 33, it does give some hope to shareholders that the company one day indeed could resume its old growth rate.

Not surprisingly, the glow is rosiest in the technology sector. Of the 81 tech companies in the S&P 500, analysts expect 82 to grow faster than 10% a year, and 36 to grow better than 20% a year, meaning tech companies account for more than half of the index's top growers.

HEARD ON THE STREET

To be sure, many of these companies could actually meet those growth expectations, if only because earnings have been in such a slump they are bound to rebound at some point. Analysts expect Schwab, for example, to earn 40 cents a share in 2003, up from the 29 cents it earned last year. If the analysts are right, that would be a healthy 38% jump in earnings.

But some also concede that their growth rates are optimistic. Guy Moszkowski, who covers Schwab for Salomon Smith Barney, and whose long-term growth estimate of 18% matches the consensus, concedes that this figure might be optimistic in the years after the expected short-term earnings pop. "If we can get enough of a recovery in the market that they can achieve that 40 cents in earnings, then they'll be on the way to establishing a kind of mid-teens growth track," he says. "But I think it's really hard to make the case they can do much better than that."

Mark Constant, who covers the company for Lehman Brothers and has a 15%-a-year growth estimate, also says the company probably won't reach his target. "I've always characterized it in print as an optimistic growth rate," he says.

If it were true that analysts were expecting a rebound following the current slump and ratcheting up their expectations accordingly, they might now be able to argue that they aren't being overly optimistic. The truth is, however, they have been growing increasingly pessimistic since the tech-stock bubble burst. Back in mid 2000, when earnings had been soaring for years, analysts were predicting that earnings for the S&P 500 would continue growing 15% a year, according to Morgan Stanley. Now, they are predicting 12% annual earnings growth for these same companies.

You can't blame analysts for everything, though. Companies themselves are guilty of being overly optimistic as well. "I think there's an immense amount of inertia in the system. That's the problem," says Steve Galbraith, Morgan Stanley's chief investment strategist. "One of the things people are struggling with are creative ways of reducing your guidance without reducing your guidance."

The problem, he adds, is that many companies set their growth expectations a decade ago, when interest rates and inflation were higher than today. Growth rates are measured in nominal terms, meaning inflation gives them a boost. With virtually no inflation and interest rates near zero, it is harder for companies to post double-digit growth. "I do think this is something that corporate America broadly is wrestling with: How do we ratchet down expectations that we set 10 years ago when things were different?" he says.

The danger comes from companies that can't face the reality that their growth has slowed. "Where I think clients should get concerned is where a company is claiming they're a 15% grower and they're setting their capital expenditures accordingly," Mr. Galbraith says. If the market is pricing in that level of growth, then the company will likely keep investing in itself in an attempt to keep returns high. The danger of that: Companies could be throwing away capital that could be given back to investors in the form of dividends or share buybacks.

Every chief financial officer who took Corporate Finance 101 knows that the bigger the portion of earnings a company reinvests in its business, the faster it conceivably can grow. Sending cash out to investors reduces the amount the company can invest in itself, ultimately lowering its potential growth rate.

But there are signs—including Microsoft Corp.'s plan to pay a dividend—that executives are starting to realize that reinvesting all their excess cash in their own business might not produce the highest returns. "It hasn't gotten quite that far, but I think it's going to get there," says Jeff van Harte, who manages Transamerica Premier Equity fund. "It just takes a long time to change attitudes. Some companies are forever lost."

Recent Stock-Listing Changes

NEW YORK—Among recent stock-listing changes, Communications Systems Inc., previously trading on the Nasdaq Stock Market, is trading on the American Stock Exchange using the new symbol JCS. On the National Market, Briazz Inc., Matritech Inc. and Reptron Electronics Inc. are trading on the Nasdaq SmallCap Market using same symbols, respectively BRZZ, NMPS and REPT.

Philip Morris Changes Its Name

NEW YORK—Philip Morris Cos. officially changed its name to Altria Group Inc.

The trading symbol for the stock, a member of the 30-stock Dow Jones Industrial Average, will remain MO. The stock's listing will move to the "A" section of the stock tables, from the "P" section.

Philip Morris announced stockholder approval for the name change at last year's annual meeting in April. The company's consumer-product companies will retain their current identities—Philip Morris U.S.A., Philip Morris International and Kraft Foods Inc.

Program Tradi

9% Forever?

That's economist Roger Ibbotson's forecast for stock market returns. HE'S BEEN RIGHT--very right--in the past. So how come some people think we shouldn't believe him anymore?

By JUSTIN FOX
December 26, 2005

(FORTUNE Magazine) – In May 1974, in the depths of the worst bear market since the 1930s, two young men at a University of Chicago conference made a brash prediction: The Dow Jones industrial average, floundering in the 800s at the time, would hit 9,218 at the end of 1998 and get to 10,000 by November 1999.

You probably have a good idea how things turned out: At the end of 1998, the Dow was at 9,181, just 37 points off the forecast. It hit 10,000 in March 1999, seven months early. Those two young men in Chicago in 1974 had made one of the most spectacular market calls in history.

What became of them after that? One, Rex Sinquefield, went on to found a mutual fund company that now manages more than $80 billion. The other, Roger Ibbotson, kept making market forecasts, forecasts of long-run stock and bond returns that have become deeply woven into the fabric of American life. Simply put, if you believe that stocks are fated to return 10% on average over the long haul, Ibbotson is probably the reason why.

It's hard to overestimate the influence of those numbers. The forecasts and historical return data churned out by Ibbotson Associates transformed the pension fund business in the late 1970s and 1980s, leading managers to make an epic shift out of bonds and into stocks. They formed the inescapable backdrop to the 1990s personal investing boom, as brokers, financial planners, and journalists endlessly repeated the Ibbotson mantra of double-digit stock market returns as far as the eye could see. Lately the Ibbotson forecasts have been finding their way into 401(k)s, as Ibbotson and other firms using similar methods build portfolios for those who opt not to build their own. Ibbotson even sells hundreds of thousands of charts each year showing how stocks build wealth over time--and beat the crap out of bonds.

All this means it's of more than academic interest that an academic debate has been raging for years now over the theories upon which Ibbotson and Sinquefield based their forecast in 1974, and which Ibbotson has followed since. Ibbotson, now 62, has taken some of the criticism to heart, and in the process ratcheted down his long-run forecast for stock returns from more than 10% a year to 9.27%. That alone was something of a shock for many of his clients, Ibbotson says. But a few critics think the real number may turn out to be just 5% or 6%. In that case stocks would barely outperform government bonds--an eventuality that would entirely rearrange the investing world yet again.

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The most important thing to understand about the forecast that Roger Ibbotson and Rex Sinquefield churned out in 1974 is that it wasn't an attempt to outsmart or outguess the market as Wall Street seers had traditionally done. Instead, Ibbotson and Sinquefield were simply trying to use the information already embedded in stock prices to, as they put it, "uncover the market's 'consensus' forecast." Their tools were a half-century of historical data

and the bold new philosophy of stock market behavior that they had internalized as students at the University of Chicago's Graduate School of Business.

They did it at a time when theories batted about in Chicago classrooms really were changing the world, or were about to. In the early 1970s, Ibbotson says, "everything was going on at the University of Chicago." The professors on his Ph.D. dissertation committee included two future Nobel Prize winners (Merton Miller and Myron Scholes), another who would have won if he hadn't died before the Nobel committee got to him (Fischer Black), yet another whom many colleagues think should win the Nobel (Eugene Fama), and a father of Reagan-era supply-side economics (Arthur Laffer).

Not counting the Black-Scholes options-pricing formula and the Laffer curve, which don't have major roles in this drama, the biggest ideas at the Chicago Business School in the early 1970s were the efficient-market hypothesis and the capital asset pricing model. The gist of the efficient-market idea, as articulated in the 1960s by Eugene Fama, is that today's price is the best possible measure of a stock's value, and that nobody can reliably predict which way prices will be headed tomorrow. The capital asset model says that you nonetheless can predict long-run stock returns because they are a reward for taking risks, and those risks can be measured. While CAPM, as it is known, was devised elsewhere, Chicago's Fischer Black was among its most fervent adherents.

Ibbotson arrived on campus in 1968. He was a kid from the Chicago suburbs who studied math and physics at Purdue and got an MBA at Indiana University. After struggling in the workforce, he went to Chicago to earn a Ph.D. in finance and hit his stride. While still a student, he got a job managing the university's bond portfolio. Meanwhile his friend Sinquefield, a 1972 MBA working at a Chicago bank, was launching one of the first S&P 500 index funds for institutional investors (this when Vanguard was still but a gleam in Jack Bogle's eye). Chicago really was a heady place for young finance geeks in those days.

Ibbotson and Sinquefield both needed up-to-date historical data on security prices for their work, and both knew that the professors who ran the Chicago business school's Center for Research in Security Prices (CRSP) were in no hurry to repeat the epic number-crunching exercise they had undertaken in the early 1960s to build a database of stock prices going back to 1925. So the two men took on the job of updating the CRSP (pronounced "crisp") stock database and assembling a similar price history for bonds and Treasury bills.

They presented their preliminary findings in May 1974 at one of the twice-yearly seminars that CRSP hosted to share the latest academic research with bankers, mutual fund managers, and the like. "Just getting the data was a coup," Ibbotson says. Then there was the forecast, suggested to them by Fischer Black. Black thought of using the data to calculate the additional return that investors had historically received for investing in risky stocks rather than in relatively safe government bonds. According to CAPM theory, this "risk premium" reflects something real and durable about the rewards investors demand for taking the chance of losing money. Real and durable enough, it seemed in 1974, to build a stock market prediction on.

Once Ibbotson and Sinquefield figured out the historical risk premium, all they had to do was add it to the prevailing risk-free interest rate (Treasury bonds or bills, depending on one's planning horizon) to get the "consensus" forecast of market returns. Actually they made it a little more complicated than that: When they finally published their work in 1976, they presented their forecast as the middle point of a wide range of different possible results. The mean forecast for the 25 years through 2000 was for 13% annual stock market returns, with

95% confidence that the return would be between 5.2% and 21.5%. (The actual return was 15%.)

"In some ways it was the first scientific forecast of the market," Ibbotson says proudly. Not everyone saw it that way at the time; some skeptics complained it was just a gussied-up extrapolation of the past into the future. But there turned out to be a ravenous hunger for such data. Both researchers were swamped with requests for more information and advice. For a while Ibbotson, by this time a very junior professor of finance at Chicago, just let the letters pile up unopened in a drawer in his office. In 1977 he decided to make a business out of his research project and started Ibbotson Associates. He also kept teaching at Chicago--until 1984, when his wife, health economist Jody Sindelar, got a job at Yale and he wangled an appointment there as a finance professor. Since then he's left the day-to-day management of the company, still based in Chicago, in the hands of others, while he remains its public face and chief researcher. Sinquefield, meanwhile, launched small-cap index fund manager Dimensional Fund Advisors with another Chicago finance graduate, David Booth, in 1981.

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While Ibbotson Associates grew and prospered in the 1980s and 1990s, however, the theories upon which its forecasts are based began to crumble in the face of contradictory evidence. The initial onslaught came from skeptics of the efficient-market hypothesis like Ibbotson's Yale colleague Robert Shiller, who argued that investor mood swings drove stock prices too high or too low for years on end. The experience of the late 1990s confirmed to many that there was something to this. But Ibbotson says he can't base his forecasts on such arguments. "It's not that I believe markets are so efficient," Ibbotson says. "It's just that I don't want to use a mispricing to make predictions." He's trying to divine a middle-of-the-road consensus, not trot out a CNBC-style market call. Fair enough.

A harder-to-dismiss critique came from Mr. Efficient Markets himself, Ibbotson's dissertation advisor Eugene Fama. In a series of papers written with Dartmouth's Kenneth French, Fama has argued that the capital asset pricing model, or at least its 1970s corollary that the risk premium is constant, doesn't match the facts. "My own view is that the risk premium has gone down over time basically because we've convinced people that it's there," Fama says. Ibbotson's stock market forecasting model is thus a victim of its own success.

Ibbotson agrees that Fama has a point, and that he can no longer bank on the historical equity premium to predict future returns. The alternative he has come up with is an estimate based on fundamentals. He takes the 10.31% annual return on stocks from 1925 through the present and strips out the tripling of the market's price/earnings ratio that's occurred since then. "We think of that as a windfall that you shouldn't get again," he says. The drivers of stock returns that remain are dividends, earnings growth, and inflation. Make a forecast of future inflation using current bond yields, assume that dividend and earnings growth history will repeat themselves, and you get a long-run equity-return forecast of 9.27%. When Ibbotson and his company's director of research, Peng Chen, first ran the numbers in 2001, the gap between the new forecast and the one using the equity premium method was more than a percentage point. Because P/Es have dropped since then, the gap has shrunk. But Ibbotson's revised forecasting method doesn't insulate him from criticism any more than the old way. In fact, it invites new criticism.

The most persistent challenger has been Rob Arnott, a Pasadena money manager and editor of the Financial Analysts Journal, who thinks future equity returns could be below 6%.

(See "Dueling Market Forecasts" chart.) The big difference between his forecast and Ibbotson's is that Arnott uses the current dividend yield (1.76%) as a starting point, while Ibbotson goes with the much higher long-term average yield (4.23%). Ibbotson believes the historical number provides a better picture of what investors think is ahead. He still relies on the assumption that markets are efficient, so current dividend yields must be low for a reason--his guess is that investors are expecting big growth in earnings (and dividends) in the future. Arnott, whose research has shown that low yields in the past were followed by slow earnings growth, thinks that's balderdash. "One of my biggest beefs with the academic community is the notion that theory is fact," he complains. "When they find evidence that contradicts the theory, instead of saying, 'Wonderful, let's improve the theory,' they throw it out because it conflicts with theory."

But the theoretical assumption that the market knows best is central to Ibbotson's whole forecasting endeavor, something even Arnott acknowledges. "In a sense Ibbotson is trying to infer what the consensus view is," Arnott says. "I'm trying to profit from that consensus." What Ibbotson is telling us is that the market still believes stocks will handily outperform bonds over the long haul. And if the market turns out to be wrong about that, it won't just be Roger Ibbotson who feels the pain.

FEEDBACK jfox@fortunemail.com

Building the Future From the Past*

WENDY BARROWS

BY ROGER G. IBBOTSON

Professor in the Practice of Finance, Yale School of Management

Measuring Equity Risk

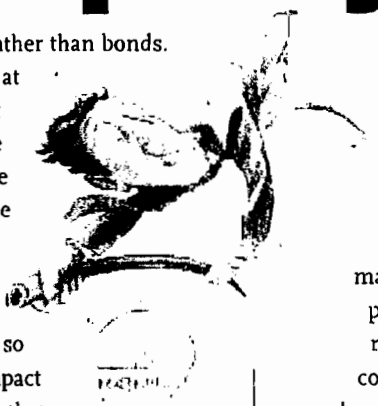
UNTIL THE LAST TWO YEARS, INVESTORS had not seen consecutive negative annual stock market returns since the 1970s. In contrast, during the 1980s and 1990s the market produced its best 20-year performance ever. But neither the last two years nor the last two decades are good predictors of the long run.

A forecast usually begins by comparing the expected return on stocks with that of a low-risk asset, such as U.S. government bonds. This difference is called the equity (stock) risk premium, because it is likely to be positive and represents the extra payoff that an investor demands (but does not always get) for investing in something risky (stocks) compared with something nearly risk-free (government bonds). Thus, the bond yield is our starting point, and adding the equity risk premium gives us the expected return on stocks.

Generally, the best way to get a sense of what the future may bring is to look at the past. After all, the past is our primary source of data. But, as you already know from recent market results, the stock market is quite volatile. The only way to get a good representation is to look back over a long period of time, so that the ups and downs of the market tend to cancel out and we get a reasonable average.

The compound average annual nominal rate of return (including inflation) for common stocks was 10.7 percent over the period 1926– 2001. This return exceeded long-term U.S. Treasury yields by over 5 percent per year. That difference was the historical equity risk premium—the amount of extra return investors got over the last three-quarters of a century for investing in stocks rather than bonds.

But looking at historical stock returns relative to bond income is not the whole picture. The bull market of the 1980s and 1990s had so much of an impact on stock prices that the price of stocks in the S&P 500® Index is almost 30 times the earnings of the same companies. This contrasts with a price/earnings (P/E) ratio closer to 10 back in the 1970s—and only about 14 over the whole 76 years. This growth in the P/E ratio is not expected to repeat in the future. Thus, to a certain extent, the stock market has outrun the underlying real earnings power of corporations.



A long-term forecast should not extrapolate the separation of the P/E ratio indefinitely. But today's high P/E ratios are not necessarily going to soon revert to historical levels, because the prices reflect the future outlook of investors—all those people and institutions that hold, buy, or sell stocks. In fact, if today's P/E ratio is higher than in the past, it has to mean one of three things: The price is now unrealistically high, people are willing to accept a much lower expected return for the risk of stocks, or the market is optimistic that the earnings per share growth of corporations will be higher than it was in the past. In fact, I believe in the market's optimism. Earnings per share will grow at faster rates for two reasons. First, corporations are paying out lower dividends and retaining more earnings. These extra retained earnings are reinvested back into firms. If the money is used productively, extra growth can be achieved.

continued on page 12

Stock Returns for a New Century*

BY JOHN Y. CAMPBELL

Professor of Applied Economics, Harvard University

WHAT RETURNS SHOULD INVESTORS expect the U.S. stock market to deliver on average during this century? Does the experience of the last century provide a reliable guide to the future?

Perhaps the simplest way to try to forecast future returns is to use some average of past realized returns, but there are serious difficulties with this approach. Stock returns are so variable that even an average measured over a century is an unreliable guide to the true long-term average. Also, if the expected future stock return is not constant, but changes over time, it can have a perverse

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effect on the average realized return: Consider what happens if the expected future stock return declines — perhaps because investors have become more comfortable with equity (stock) market risk and require a smaller compensation for bearing it. Investors' willingness to reduce their equity risk premium itself tends to drive up the price of stocks, causing an increase in realized returns. Thus, at precisely the wrong time, when the expected future stock return is declining, the average of past stock returns will actually increase. This may well have happened during the long bull market of the 1980s and 1990s.

An alternative approach is to forecast future returns using valuation ratios — ratios of stock prices to accounting measures of value, such as dividends or earnings. One variant of this approach, known as the Gordon growth model, breaks returns into income (the dividend/price ratio) and capital gains (the long-term average growth rate of dividends). Return is estimated by the dividend/price ratio plus the dividend growth rate. Another variant argues that stock returns come from corporate earnings: Earnings that are paid out generate income, while earnings that are reinvested generate growth. In the long run, both components of earnings are equally valuable and thus return should equal the earnings/price ratio.

Over long periods of time, these formulas have given results that are consistent with average realized returns. For instance, from 1871–2001, the average dividend/price ratio was just under 5 percent, while the average real growth rate was just over 2 percent, adding to about 7 percent, which is the long-term compound average realized stock return in real terms, that is, correcting for inflation. The average earnings/price ratio was also close to 7 percent.

But current valuation ratios are wildly different from historical averages, reflecting the unprecedented 20-year bull market that ended about two years ago. The dividend/price ratio, for example, has fallen dramatically to about 1.5 percent. In part, this may be due to a shift in corporate financial policy away from paying dividends and toward repurchasing shares. One way to correct for this is to add repurchases to conventional dividends, but this still implies a dividend/price ratio of only about 2.5 percent. The earnings/price ratio has also declined. In the short term, this ratio may be affected by temporary cyclical fluctuations in earnings. But even correcting for this, the earnings/price ratio is about half its long-term historical average.

The implications of current valuations for future returns depend on

continued on page 12

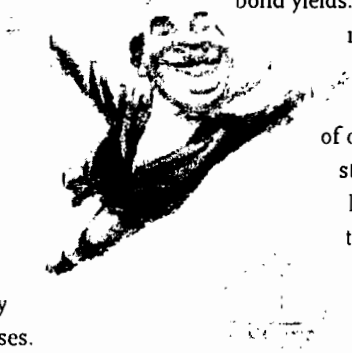
*Ibbotson's and Campbell's columns refer to returns on the S&P 500® Index, in nominal terms and real (inflation-adjusted) terms respectively.

I D E A

exchange

Predicting the Future From the Past continued from page 10

Second, investors are rationally willing to pay high prices for current earnings when they think future earnings will grow. The evidence demonstrates that over time investors who buy when the market's P/E ratios are high do just about as well as those who buy when the market's P/E ratios are low.



Stocks are predicted to outperform bonds in the future, but not by further P/E ratio increases. Instead, stocks will tend to participate with the overall U.S. economy and earnings per share growth. My forecast for stocks is somewhat less than 4 percent in excess of long-term bond yields. Applying this premium to recent bond yields gives a long-term forecast of over 9 percent for the stock market. It is high, but lower than the historical stock market return. But, of course, there is no free lunch. The reason stocks are expected to outperform bonds is that they are riskier than bonds. Although stocks belong in most people's portfolios, the smart investor will still want to diversify across different types of stocks, as well as across bonds and other asset classes.

To learn more about Ibbotson's research, go to **http://mba.yale.edu/faculty/professors/ibbotson.htm.**

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whether the market has reached a new steady state, in which current valuations will persist, or whether these valuations are the result of some transitory phenomenon.

If current valuations represent a new steady state, they imply a substantial decline in the equity returns that can be expected in the future. The future expected stock return might be 3.5 percent to 4.5 percent, rather than the historical average of 7 percent. This would allow for only a very modest equity premium relative to Treasury bills or inflation-indexed Treasury bonds, which currently offer a safe 3.5 percent real yield.

If current valuations are transitory, it matters critically what happens to restore traditional valuation ratios. Rapid earnings and dividend growth could restore traditional valuations without any decline in stock prices. While this is always a possibility, it would be historically unprecedented. The U.S. stock market has an extremely poor record of predicting long-term earnings and dividend growth. Historically, stock prices have increased relative to earnings during decades of rapid earnings growth, such as the 1920s, 1960s, and 1990s, as if the stock market anticipates that rapid earnings growth will continue in the next decade. But there is no systematic tendency for a profitable decade to be followed by a second profitable decade. The 1920s, for example, were followed by the 1930s, and the 1960s by the 1970s. Thus, stock market optimism often fails to be justified by subsequent earnings growth.

A second possibility is that stock prices will decline or stagnate until traditional valuations are restored. This has occurred at various times in the past after periods of unusually high stock prices, notably in the 1900s, 1910s, 1930s, and 1970s. This would imply extremely low and perhaps even negative returns during the adjustment period and then higher returns afterward.

It is too soon to tell which of these views is correct, and I believe it is sensible to put some weight on each. That is, I expect valuation ratios to return part way but not fully to traditional levels, with the adjustment coming primarily from stock prices rather than earnings growth. A rough guess for the long-term stock return, after the adjustment process is complete, might be a compound average real equity return of 5.0 percent to 5.5 percent, corresponding to an equity premium of 1.5 percent to 2.0 percent.

To learn more about Campbell's research, go to **http://post.economics.harvard.edu/faculty/campbell/campbell.html.**

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Macquarie Research Equities (USA)

MACQUARIE

UNITED STATES

American Water Works

3 June 2009

AWK US — **Outperform**

Stock price as of 02 Jun 09	US$	17.06
12-month target	US$	25.00
12-month TSR	%	+51.3
Valuation - PER	US$	22.45
GICS sector		utilities
Market cap	US$m	2,730
30-day avg turnover	US$m	0.0
Number shares on issue	m	160.0

Investment fundamentals

Year end 31 Dec		2008A	2009E	2010E	2011E
Sales revenue	m	2,338.9	2,487.7	2,676.3	2,869.1
EBIT	m	562.7	639.9	706.7	779.3
Reported profit	m	176.1	-227.4	250.6	284.0
Adjusted profit	m	176.1	215.8	250.6	284.0
Gross cashflow	m	442.3	496.9	547.8	596.4
CFPS	US$	2.76	2.96	3.07	3.30
CFPS growth	%	7.1	7.0	3.8	7.7
PCGCFPS	x	6.2	5.8	5.6	5.2
EPS adj	US$	1.10	1.28	1.40	1.57
EPS adj growth	%	10.6	16.6	9.4	12.1
PE adj	x	15.5	13.3	12.2	10.8
Total DPS	US$	0.40	0.80	0.84	0.88
Total div yield	%	2.3	4.7	4.9	5.2
ROA	%	4.3	4.8	5.1	5.4
ROE	%	4.1	5.3	6.0	6.6
EV/EBITDA	x	9.6	8.8	8.3	7.8
Net debt/equity	%	128.9	133.2	135.7	136.0
Price/book	x	0.7	0.7	0.7	0.7

AWK US vs S&P 500 - US, & rec history

Source: FactSet, Macquarie Capital (USA), June 2009
(all figures in USD unless noted)

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Better safe than sorry

Event

- On 1 June, American Water Works announced an equity offering of 26m shares, which includes 14.5m of newly issued shares and 11.5m of existing shares being sold by AWK's largest shareholder, RWE AG. The offering includes an over-allotment option of 3.9m shares owned by RWE.

Impact

- **RWE divestiture – no surprise:** Following the expiration of the 180-day lock-up period after AWK's IPO in October 2008, we expected RWE to continue to shed its stake in AWK. On 1 May 2009, AWK filed a mixed shelf registration, which provided for sales by existing security holders. Following the sale of shares and the additional equity issuance, RWE will hold 85.2m shares (81.3m with the over-allotment), representing 49% (47%) of shares outstanding, and thus RWE would no longer be a majority shareholder of AWK. The divestiture should increase the liquidity of AWK's stock and remove some overhang on the stock associated with the anticipated equity transaction. We await further divestitures.
- **New equity – opportunistic issuance:** While the sale of AWK shares by RWE was long overdue, the new share issuance by AWK was somewhat surprising to us. While AWK's equity-to-capitalization fell to c40% post the 1Q09 goodwill impairment, we believed its equity mix would stabilize and improve organically with rapid earnings growth. We understand, however, that the low equity ratio could have hurt AWK in some of its pending rate cases, which in turn would have triggered attention from credit agencies. Following the offering, we estimate that AWK's 09E equity ratio should improve by 255 bp to 42.8%, which is still below the company's longer-term goal of 45%, but an acceptable level, in our opinion. Net proceeds from the issuance will be used for debt repayments.

Earnings revision

- Our 2009/2010/2011 EPS decline 4%/4%/5% to US$1.28/$1.40/$1.57, reflecting the increase in shares outstanding partially offset by lower interest expense.

Price catalyst

- 12-month price target: US$25.00 based on a combination of PER and DDM methodology.
- Catalyst: Further divestitures by RWE, quarterly earnings and regulatory rate case updates.

Action and recommendation

- We continue to recommend AWK as we see regulatory catch-up translating to accelerated earnings growth through 2012 and capex extending earnings and dividend growth longer term. The sale of shares by RWE is another step towards its goal of fully divesting its ownership of AWK; however, with a sizable stake still remaining, some overhang on stock should remain, we believe.

Valuation and risks

Our 12-month target price of US$25 is an average of our PER and DDM valuations below.

- 16x 2010E PER valuation of US$22.45. Our 16x multiple is based on a historical 18% discount to our regulated water utility base/anchor multiple of 19x.
- Dividend discount model of US$27. Our key assumptions are 5-8% dividend growth from 2009 to 2015, 4% long-term dividend growth and a payout ratio of 40-60%.

Fig 1 Dividend discount model (US$)

	2009E	2010E	2011E	2012E	2013E	2014E	2015E	Terminal
Earnings per share	1.28	1.40	1.57	1.76	1.96	2.21	2.46	
Dividend per share	0.80	0.84	0.88	0.92	0.98	1.06	1.14	37.3
Dividend payout ratio	63%	60%	56%	52%	50%	48%	46%	
Dividend yield	4.6%	4.9%	5.1%	5.3%	5.7%	6.1%	6.6%	
Return on equity	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%
Long term dividend growth rate								4.0%
Number of years to present	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5
Present value of dividends	0.77	0.76	0.74	0.72	0.72	0.72	0.73	22.21
Appraised share price	27.37							

Source: Macquarie Capital (USA), June 2009

Rising 10-year Treasury yields could reduce valuations of regulated utilities

We use the DDM valuation in determining our 12-month target price. Our key assumptions include a beta of 0.65, risk free rate of 4.3% and risk premium of 4.5%. An increase to our long-term risk free rate assumption of 100bps would reduce our DDM valuation by -24% to US$20.75, from US$27.37.

RWE divestiture could have implications on the share price

The pending RWE divestiture carries two potential risks: the near-term overhang of a large-sized offering and potential post-offering valuation dilution. High valuation multiples relative to the broader market and other utility industries could reflect the relatively small market capitalization of the water utility industry (ie, a scarcity premium). Other potential issues include expiration of two regulatory approvals for the divestiture in April 2010 and April 2011, and the Illinois state PUC approval that has been appealed; however, we do not believe that either will impede the RWE sale.

Adequate regulatory recovery is not assured

Public utility commissions and similar state regulatory bodies regulate utility rates and ROEs. The timing and outcome of regulatory proceedings create uncertainty and potential delays (ie, regulatory lag) in cost recovery. In the past, AWK has typically received 50–70% of requested rate increases. Risk of condemnation (ie, acquisition) by governmental entities exists. Lastly, stricter environmental standards could result in significant higher operating costs.

Capital intensity creates execution and financing risk

American Water estimates capital spending of US$4.0–4.5bn for 2009–13. The ability to recover and earn a return on invested capital could materially affect the company's financial position and cash flows. Moreover, completion of capital investment projects is subject to construction and development risks, including availability of capital, complying with permits, meeting budgets and satisfying operating and environmental performance standards.

Goodwill impairment could have negative credit implications and trigger equity needs

As of 31 March 2008, AWK has recorded US$1.3bn of goodwill on its balance sheet, primarily related to the RWE acquisition. The company may be required to impair goodwill in the future if it fails certain valuations tests. Any impairment could have a negative financial (not economic or cashflow) impact and reduce total capitalization. Credit rating agencies could downgrade AWK's credit ratings, which could impede the company's ability to access debt markets for capital. Goodwill impairment charges were US$385m, US$222m, US$509m, US$750m and US$450m in 2005, 2006, 2007, 2008 and 2009, respectively.

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Financials

Fig 2 Income statement (US$m, except per share)

	2006	2007	2008	2009E	2010E	2011E	2012E
Sales	2,093	2,214	2,337	2,488	2,676	2,869	3,067
Operating expenses	1,360	1,430	1,503	1,561	1,667	1,772	1,877
Operational EBITDA	733	784	834	926	1,009	1,097	1,190
Depreciation	259	267	271	286	302	317	337
Operational EBIT	474	517	563	640	707	779	853
Net interest expense	368	285	283	303	312	329	343
Ordinary Profit Before Tax	113	254	299	356	414	470	530
Income tax	45	95	123	141	164	186	209
Net group profit of continuing operations	68	159	176	216	251	284	321
Weighted average number of shares (m)	160	160	160	169	179	181	183
Diluted EPS	0.42	1.00	1.10	1.28	1.40	1.57	1.76
Gross dividend per share	NA	NA	0.40	0.80	0.84	0.88	0.92
Dividend payout ratio	NA	NA	36%	63%	60%	56%	52%

Source: Macquarie Capital (USA), June 2009

Fig 3 Cashflow statement (US$m)

	2006	2007	2008	2009E	2010E	2011E	2012E
Net income	-162	-343	-562	-227	251	284	321
D&A, goodwill amortisation	259	267	271	286	302	317	337
Other non cash elements	323	532	943	545	112	129	148
Funds from operations	420	457	652	604	665	731	805
Decrease (increase) in non-cash working capital	(97)	17	(100)	7	(7)	(7)	(8)
Operating cash flow	324	474	552	610	658	724	798
Net investments in fixed assets	(692)	(750)	(1,009)	(930)	(850)	(850)	(850)
Net investments in financial assets	0	4	(25)	0	0	0	0
Free cash flow before dividends	(368)	(273)	(481)	(320)	(192)	(126)	(52)
Dividends paid (group + minorities)	0	0	(64)	(135)	(150)	(159)	(168)
Free cash flow after dividends	(368)	(273)	(546)	(455)	(342)	(285)	(220)
Increase or (repayment) of capital and subsidies	291	977	297	153	292	235	170
Increase or (repayment) of financial debt	(1)	(1,750)	1	302	50	50	50
Adjustment for minorities / miscellaneous	42	1,030	244	0	0	0	0
Increase in cash	(35)	(16)	(4)	0	0	0	(0)

Source: Macquarie Capital (USA), June 2009

Fig 4 Balance sheet ($USm)

	2006	2007	2008	2009E	2010E	2011E	2012E
Cash and cash equivalents	30	13	10	10	10	10	10
Financial and Operating Receivables	185	193	199	211	227	244	261
Inventory	23	27	29	29	31	33	35
Other short-term assets	175	196	180	194	209	223	238
Goodwill	2,962	2,457	1,700	1,250	1,250	1,250	1,250
Other-long term assets	688	729	991	991	991	991	991
Property, plant, and equipment	8,721	9,318	10,124	10,768	11,315	11,848	12,361
Total assets	12,783	12,934	13,232	13,453	14,033	14,599	15,145
Financial liabilities	1,007	317	655	655	655	655	655
Operating liabilities	141	169	150	169	180	191	202
Other liabilities	216	289	300	300	300	300	300
Deferred credits and other regulatory liabilities	2,727	2,914	3,372	3,481	3,608	3,752	3,914
Long-term debt	3,096	4,675	4,624	4,777	5,075	5,316	5,493
Shareholders' equity	5,596	4,571	4,131	4,071	4,215	4,384	4,581
Total liabilities and equity	12,783	12,934	13,232	13,453	14,033	14,599	15,145

Source: Macquarie Capital (USA), June 2009

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Important disclosures:

Recommendation definitions

Macquarie - Australia/New Zealand
Outperform – return >5% in excess of benchmark return
Neutral – return within 5% of benchmark return
Underperform – return >5% below benchmark return

Macquarie – Asia/Europe
Outperform – expected return >+10%
Neutral – expected return from -10% to +10%
Underperform – expected return <-10%

Macquarie First South - South Africa
Outperform – expected return >+10%
Neutral – expected return from -10% to +10%
Underperform – expected return <-10%

Macquarie - Canada
Outperform – return >5% in excess of benchmark return
Neutral – return within 5% of benchmark return
Underperform – return >5% below benchmark return

Macquarie - USA
Outperform (Buy) – return >5% in excess of benchmark return (Russell 3000)
Neutral (Hold) – return within 5% of benchmark return (Russell 3000)
Underperform (Sell)– return >5% below benchmark return (Russell 3000)

Recommendations – 12 months

Note: Quant recommendations may differ from Fundamental Analyst recommendations

Volatility index definition*

This is calculated from the volatility of historical price movements.

Very high–highest risk – Stock should be expected to move up or down 60–100% in a year – investors should be aware this stock is highly speculative.

High – stock should be expected to move up or down at least 40-60% in a year – investors should be aware this stock could be speculative.

Medium – stock should be expected to move up or down at least 30–40% in a year.

Low–medium – stock should be expected to move up or down at least 25–30% in a year.

Low – stock should be expected to move up or down at least 15–25% in a year.
* Applicable to Australian/NZ/Canada stocks only

Financial definitions

All "Adjusted" data items have had the following adjustments made:
Added back: goodwill amortisation, provision for catastrophe reserves, IFRS derivatives & hedging, IFRS impairments & IFRS interest expense
Excluded: non recurring items, asset revals, property revals, appraisal value uplift, preference dividends & minority interests

EPS = adjusted net profit / ewpowa*
ROA = adjusted ebit / average total assets
ROA Banks/Insurance = adjusted net profit /average total assets
ROE = adjusted net profit / average shareholders funds
Gross cashflow = adjusted net profit + depreciation
*equivalent fully paid ordinary weighted average number of shares

All Reported numbers for Australian/NZ listed stocks are modelled under IFRS (International Financial Reporting Standards).

Recommendation proportions – For quarter ending 31 March 2009

	AU/NZ	Asia	RSA	USA	CA	EUR	
Outperform	40.44%	49.55%	44.83%	38.49%	67.19%	43.84%	(for US coverage by MCUSA, 1.19% of stocks followed are investment banking clients)
Neutral	38.60%	15.57%	39.66%	46.43%	28.12%	39.04%	(for US coverage by MCUSA, 0.25% of stocks followed are investment banking clients)
Underperform	20.96%	34.88%	15.52%	15.08%	4.69%	17.12%	(for US coverage by MCUSA, 0.69% of stocks followed are investment banking clients)

The analyst primarily responsible for the preparation of this research report did not provide the certifications specified in 17 CFR 242.502(a) for the second quarter of 2008.

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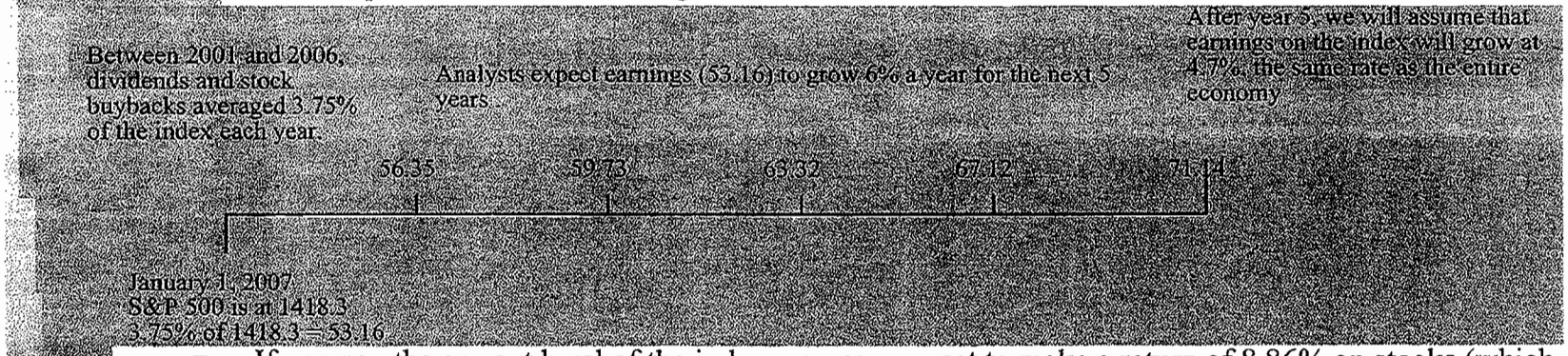
Equity Risk Premiums: Looking backwards and forwards…

Aswath Damodaran

Implied Equity Premiums

- We can use the information in stock prices to back out how risk averse the market is and how much of a risk premium it is demanding.

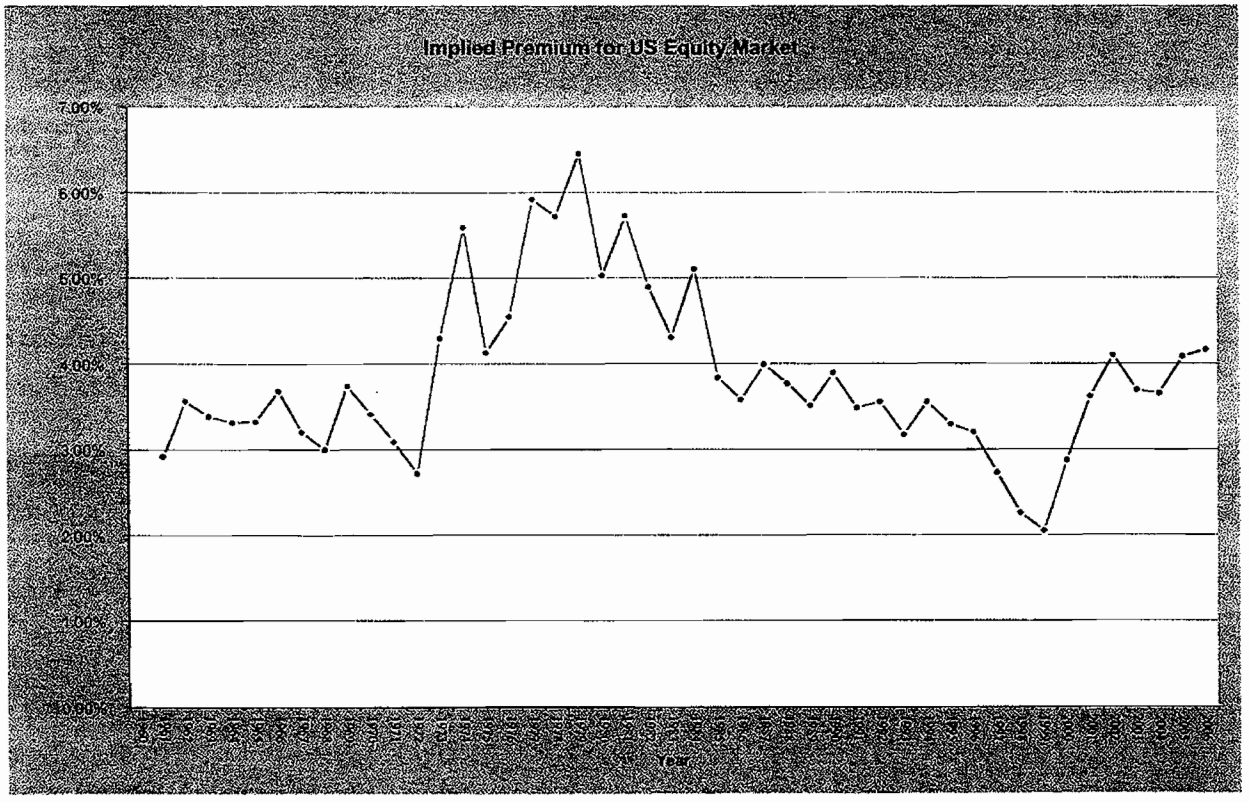


- If you pay the current level of the index, you can expect to make a return of 8.86% on stocks (which is obtained by solving for r in the following equation)

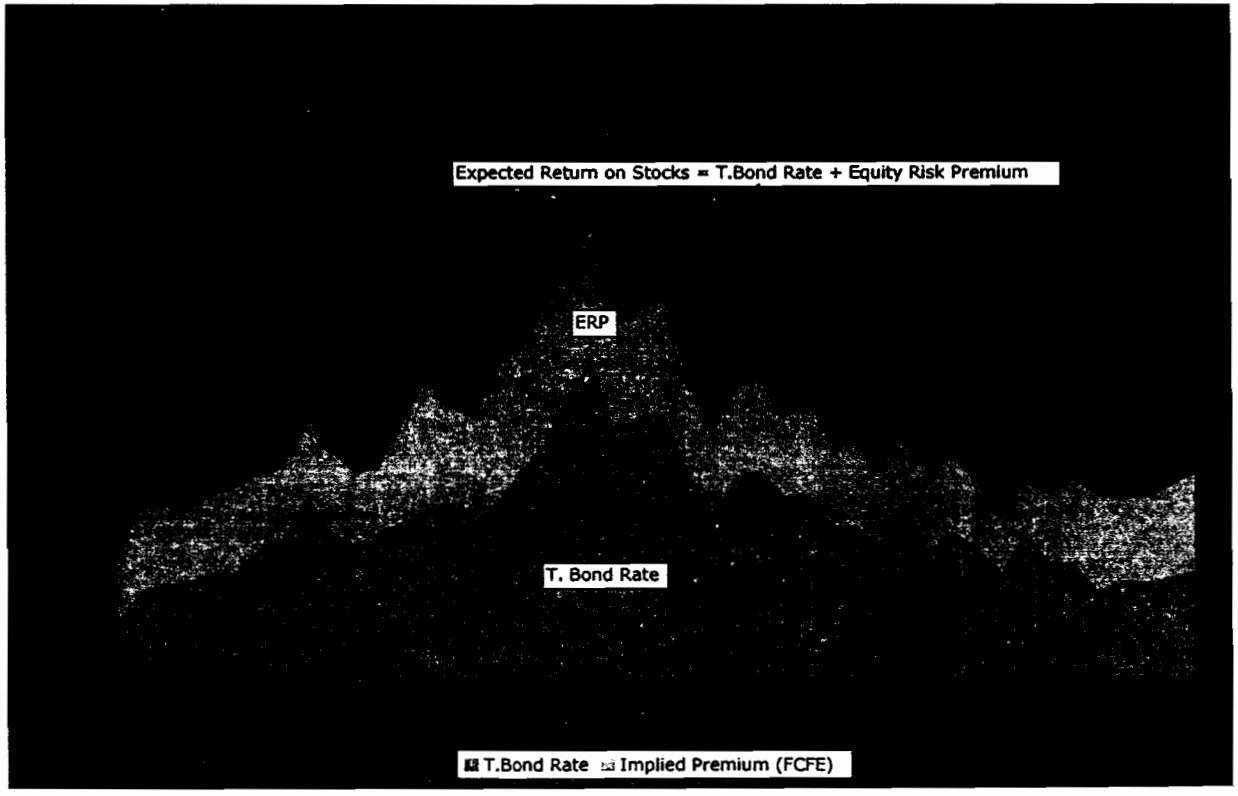
$$1418.3 = \frac{56.35}{(1+r)} + \frac{59.73}{(1+r)^2} + \frac{63.32}{(1+r)^3} + \frac{67.12}{(1+r)^4} + \frac{71.14}{(1+r)^5} + \frac{71.14(1.047)}{(r-.047)(1+r)^5}$$

- Implied Equity risk premium = Expected return on stocks - Treasury bond rate = 8.86% - 4.7% = 4.16%

Implied Premiums in the US



Implied Premium versus RiskFree Rate



Value Line's estimates of sales and earnings growth for individual companies are derived by correlating sales, earnings, and dividends to appropriate components or subcomponents of the Gross Domestic Product, presented below. A more detailed forecast appears periodically in Selection & Opinion.

HYPOTHESIZED ECONOMIC ENVIRONMENT 3 TO 5 YEARS HENCE

The hypothesized 2012-2014 economic environment into which earnings are forecast is as follows: Unemployment will average 7.0% of the national labor force. There will be no major war in progress at that time. Industrial production will be expanding about 4.5% per year. Inflation will continue to be modest. Prices as measured by the broad-based GDP deflator will advance about 2.3% per year on the average. The corporate income tax rate will be around 35%. Long-term interest rates on high-grade corporate bonds are projected to be about 6.7% in the years 2012-2014. We expect the Federal Reserve to pursue neutral-to-fairly accommodative policies except in years in which the economy is overheating. Based on these assumptions, the Gross Domestic Product will average $17,233 billion in the years 2012-2014, a level that is almost 20% above the 2008 total of $14,441 billion.

Things may turn out differently. But in the absence of knowledge of the future, we use the above assumptions, which appear to be most plausible. Thus we are able to apply a common economic environment to all stocks for the purpose of measuring relative growth potential.

THESE ARE THE NATIONAL INCOME SERIES TO WHICH VALUE LINE SALES, EARNINGS, AND DIVIDEND ESTIMATES ARE CORRELATED

ANNUAL STATISTICS	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009*	2010*	2012-14*
Gross Domestic Product ($Bill.)	9952	10286	10642	11142	11958	12638	13399	14078	14441	*14254*	*14731*	*17233*
Real GDP (2005 Chained $Bill.)	11226	11347	11553	11840	12264	12638	12976	13254	13312	*12952*	*13188*	*14481*
Total Consumption ($Bill.)	6830	7149	7439	7804	8533	8819	9074	9314	9291	*9221*	*9365*	*10085*
Nonresidential Fixed Investment ($Bill.)	1269	1228	1125	1136	1263	1347	1454	1544	1570	*1288*	*1305*	*1768*
Industrial Prod. (% Change, Annualized)	4.2	-3.4	-0.1	1.3	2.5	3.3	2.2	1.7	-2.2	*-5.8*	*2.9*	*4.5*
Housing Starts (Mill. Units)	1.57	1.60	1.71	1.85	1.95	2.07	1.81	1.34	0.90	*0.59*	*0.86*	*1.70*
Total Light Vehicle Sales (Mill. Units)	17.4	17.1	16.8	16.6	16.9	17.0	16.5	16.1	13.1	*10.5*	*10.9*	*16.0*
Personal Savings Rate (%)	2.9	2.7	3.5	3.5	2.1	0.4	0.7	0.6	1.8	*4.3*	*3.5*	*2.0*
National Unemployment Rate (%)	4.0	4.7	5.8	6.0	5.5	5.1	4.6	4.6	5.8	*9.2*	*10.0*	*7.0*
AAA Corp Bond Rate (%)	7.6	7.1	6.5	5.7	5.6	5.2	5.6	5.6	5.6	*5.5*	*5.9*	*6.7*
10-Year Treasury Note Rate (%)	6.0	5.0	4.6	4.0	4.3	4.3	4.8	4.6	3.7	*3.3*	*4.0*	*4.8*
3-Month Treasury Bill Rate (%)	5.8	3.4	1.6	1.0	1.4	3.1	4.7	4.4	1.4	*0.2*	*0.8*	*3.7*
ANNUAL RATES OF CHANGE												
Real GDP	4.1	1.1	1.8	2.5	3.6	3.1	2.7	2.1	0.4	*-2.7*	*1.8*	*3.3*
GDP Deflator	2.2	2.3	1.6	2.2	2.9	3.3	3.2	2.7	2.2	*1.3*	*1.6*	*2.3*
Consumer Price Index	3.4	2.8	1.6	2.3	2.7	3.4	3.2	2.9	3.8	*0.6*	*1.8*	*2.5*

QUARTERLY ANNUALIZED RATES	2008				2009				2010			
	1st	2nd	3rd	4th	1st	2nd*	3rd*	4th*	1st*	2nd*	3rd*	4th*
Gross Domestic Product ($Bill.)	14374	14499	14547	14347	14178	*14149*	*14273*	*14415*	*14537*	*14656*	*14780*	*14953*
Real GDP (2005 Chained $Bill.)	13367	13415	13324	13149	12925	*12693*	*12957*	*13034*	*13092*	*13144*	*13206*	*13310*
Total Consumption ($Bill.)	9350	9351	9268	9195	9209	*9181*	*9237*	*9256*	*9283*	*9325*	*9394*	*9459*
Nonresidential Fixed Investment ($Bill.)	1599	1604	1579	1496	1321	*1291*	*1274*	*1268*	*1277*	*1293*	*1312*	*1337*
Industrial Production (% Change, Annualized)	0.2	-4.6	-9.0	-12.7	-19.1	*-11.4*	*3.5*	*4.0*	*3.5*	*3.0*	*2.5*	*2.5*
Housing Starts (Mill. Units)	1.06	1.02	0.87	0.66	0.53	*0.54*	*0.60*	*0.68*	*0.75*	*0.80*	*0.90*	*1.00*
Total Light Vehicle Sales (Mill. Units)	15.3	14.1	12.9	10.3	9.5	*9.6*	*11.8*	*11.0*	*10.5*	*10.8*	*11.0*	*11.3*

*Estimated

Duke / CFO magazine Global Business Outlook survey - U.S. - Third Quarter, 2009

Employee Weighted: 12. On August 28, 2009 the annual yield on 10-yr treasury bonds was 3.4%. Please complete the following:

	Mean	SD	95% CI	Median	Minimum	Maximum
Over the next 10 years, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be less than:	1.6	4.7	1.5 - 1.6	2	-12.6	15.2
Over the next 10 years, I expect the average annual S&P 500 return will be: Expected return:	7.4	4.5	7.3 - 7.4	7	-10	25.2
Over the next 10 years, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be greater than:	11.3	6.3	11.2 - 11.4	10	0	35.9
Over the next year, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be less than:	-1.6	7.8	-1.7 - -1.5	0	-23.4	17.8
Over the next year, I expect the average annual S&P 500 return will be: Expected return:	7.0	4.9	6.9 - 7.0	6	-6.9	19.7
Over the next year, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be greater than:	12.9	7.5	12.8 - 12.9	10	-6.2	32.2

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SCHWAB CENTER FOR FINANCIAL RESEARCH

APRIL 2009

Long-Term Market Return Estimates

Overview

In the late 1990s, many investors got used to seeing double-digit returns on their investments. When the calendar turned, however, the only thing many investors saw in double digits was their losses. Markets that fluctuate to this extent have made it difficult for investors to plan their financial future. A sound financial plan serves as the roadmap to reaching long-term financial destinations, but to get there, you need one key piece of information—reasonable estimates of what long-term returns might be.

If, for example, your return estimates are too optimistic, you run the risk of not being able to retire on time or pay for your children's higher education. Similar to the axiom "garbage in, garbage out," you can't use unrealistic assumptions to determine realistic outcomes, and this is especially true when developing your long-term financial plan.

Having said that, the Schwab Center for Financial Research helps you focus on minimizing the 'garbage in' aspect by providing reasonable long-term return expectations, not just for stocks, but also for bonds and cash investments.

Our Research Commitment

The charter of the Schwab Center for Financial Research is to provide high-quality, objective research to help investors make better decisions.

Key Findings

- Large-cap stocks are estimated to return about 7.4 percent per year over the long run, while mid/small-cap and international stocks are estimated to return about 8.7 percent and 7.4 percent, respectively. Bonds are estimated to return about 3.6 percent, while cash investments are estimated to return around 2.4 percent.
- Investors may want to revise their financial plans based on these new long-term return estimates, which are significantly below their historical average returns as measured from 1970 to 2008.
- Stocks are still the investment that has the greatest potential for growth (and the greatest risk to principal), even though future stock returns may not be as high as they have been historically.
- While it's always a good idea to focus on avoiding unnecessary fees and taxes, it's even more important to do so in an environment of single-digit returns.

Author

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Charles SCHWAB

The Power of Compounding Errors
8 percent vs. 12 percent

		Ending Period Wealth Estimate*	
Scenario	Return Assumption	5-Year Horizon	20-Year Horizon
Realistic	8 Percent	$14,700	$46,600
Overly Optimistic	12 Percent	$17,600	$96,500
	Percentage Error	20%	107%

* Numbers are rounded to the nearest hundred.

The table highlights the end result of using an overly optimistic long-term return estimate over 5- and 20-year time horizons on an initial $10,000 investment. For the 5-year horizon, the ending wealth estimate is 20 percent higher when using the overly optimistic rate, while the ending wealth estimate for the overly optimistic scenario is more than double the realistic scenario (107%) over the 20-year period.

These results underscore the effect that unrealistic return expectations can have on your assessment of future wealth, especially over the long term. Planning your financial roadmap based on too-high estimates may lead you to believe you have adequately planned for your retirement or other critical goals when, in fact, you haven't. Planning on too-low estimates can be problematic too, since doing so may cause you to sacrifice more of your current lifestyle than needed to meet your long-term goals.

Long-Run Asset-Class Return Estimates

Given the results highlighted in the table above, it's easy to see just how important it is to use realistic long-term estimates when working on your financial plan. This study provides return estimates for five asset classes: large- and mid/small-capitalization stocks, international stocks, bonds, and cash investments. The appendix lists the benchmark indexes used to represent each asset class and provides details about how historical return series representing each asset class were created.

Our return estimates contain two parts: a current risk-free rate component that is the same for all asset classes, and an asset-class premium that varies by each asset class because of differences in expected risk.

Return Estimate =

Current Risk-free Rate + Asset Class Premium

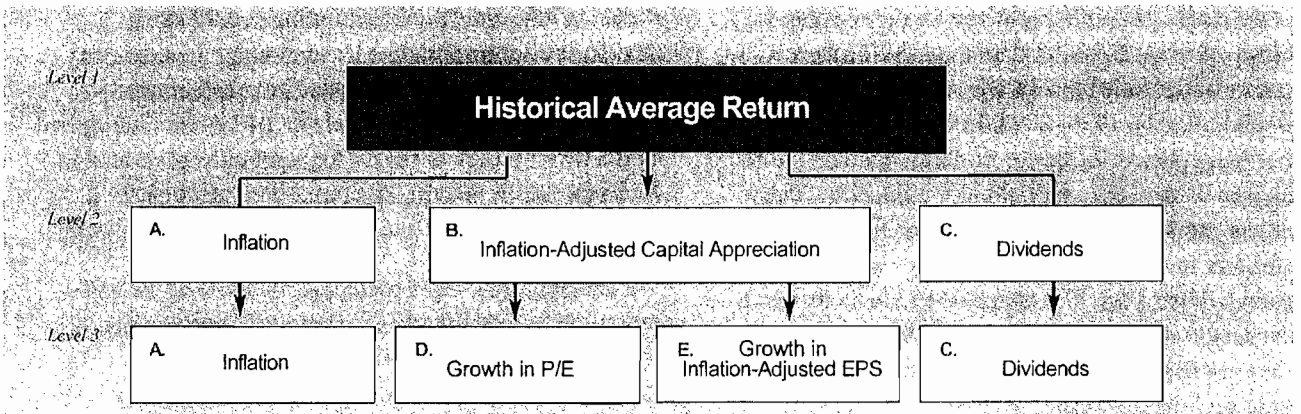
The current risk-free rate is estimated by directly observing Treasury yields in the marketplace during the past 12-month period. As we are estimating returns over a 20-year time horizon, the risk-free rate is measured as the yield of a 20-year U.S. Treasury bond, which averaged 4.2 percent using monthly observations from April 2008 to March 2009.

The asset-class premium is where the action is, as it accounts for differences in return estimates across asset classes. The asset-class premium measures the incremental return (either higher or lower—generally higher for the equity asset classes and lower for the fixed-income asset classes) demanded by investors for investing in that asset class as opposed to a risk-free bond.

The Sources of Stock Market Returns

The approach adopted in this study addresses this criticism.[2] To better understand it, we first break down the sources of average returns for large-cap stocks. In doing so, we gain a better understanding of where the historical returns come from. In other words, we look 'under the hood' to help determine which components of average returns may be expected to repeat in the future and, more importantly, which ones may not.

Decomposition of the Average Returns for Large-Cap Stocks



As you can see, there are three levels in the decomposition.

Level 1: Level 1 starts with the return on large-cap stocks, which was about 9 percent compounded annually over the 1926 to 2008 time period.[3] This return is broken down into three primary components in level 2: inflation (A), returns derived from capital appreciation after inflation (B), and returns derived from dividends (C).

Level 2: Historical Average Return = A + B + C
The inflation-adjusted capital appreciation component (B) can be broken down into two additional pieces — growth in the historical price-to-earnings ratio (D) and growth in inflation-adjusted earnings per share (E). This is shown in *Level 3*

Level 3: Historical Average Return = A + D + E + C
Plugging in the historical averages for large-cap stocks into Level 3 yields the following return decomposition:[4]

Historical Average Return ≈ 3.0% + 0.8% + 1.3% + 4.0%

In other words, the historical average return on large-cap stocks was approximately comprised of a 3% inflation return, 2.1% in inflation-adjusted capital appreciation that can be further broken down to roughly 0.8% from growth in the P/E ratio and 1.3% growth in inflation-adjusted earnings per share, and 4% from return on dividends.

[2] It is consistent with the approach developed in Ibbotson & Chen, 2003, "Long-Run Stock Returns: Participating in the Real Economy," Financial Analysts Journal, Volume 59, Number 1, 88-98

[3] Indexes are unmanaged, do not incur management fees, costs, or expenses and cannot be invested in directly.

[4] The symbol ≈ means approximately equals. The decomposition does not exactly equal the total return due to an approximation used to simplify the illustration.

In the second step, the world ERP is multiplied by the historical sensitivity of international market returns (excludes U.S. Stocks) to world market returns (includes U.S. Stocks) of 1.03. This results in an asset-premium estimate for the international asset class of just under 3.6 percent.

This approach assumes that domestic and international stock markets are integrated. That is, it assumes that there are no barriers to financial flows, and the same risk asset commands the same return, irrespective of country. In addition, the approach relies heavily on sensitivities between domestic and international returns that prove to be relatively unstable over time. As an alternative, the international asset-class premium is estimated by taking the historical difference in returns between international and domestic stocks, which results in an estimate of about 2.8 percent.

The historical asset-class premium is substantially less than the estimate that uses the domestic ERP as an anchor. Which approach is better? Unfortunately, at the present time we have no overwhelming theoretical or empirical basis to choose one or the other method, as both are reasonable. Having said that, our estimate of the international asset-class premium is the equal-weighted average of the two estimates, or about 3.2 percent.

Fixed Income Asset Classes

The asset-class premium for bonds consists of two parts, a horizon premium and a default premium, while the asset-class premium for cash investments consists only of a horizon premium. The horizon premium estimates the return differential derived from holding bonds with a maturity other than a 20-year time horizon. It's negative for bonds with less than a 20-year horizon. The default premium estimates the extra return demanded for investing in corporate and mortgaged-backed securities.

The horizon premium is measured as the historical difference in monthly *income* returns between two government bonds, with the maturity of the first bond matching that of our asset-class benchmark[8] and the maturity of a second bond matching the assumed time horizon of 20 years. The default premium for bonds is measured as the historical difference in monthly *total* returns between the Barclays Capital Aggregate Bond Index and a government bond maturity-matched to the Barclays Capital Aggregate Index.

For cash investments, the asset-class premium equals the cash horizon premium, which is approximately -1.8 percent. For the bonds asset class, the bond horizon and default premiums result in a net asset class premium of -0.6 percent.

[5] When measuring the historical performance of our risk-free proxy, we use income returns instead of total returns. Income returns are derived from the cash coupon received from holding a fixed-income instrument. We use income returns for the risk-free asset because it provides a better estimate of what investors expected to receive for holding these bonds to maturity.

[6] The *rounded* 3.2% can also be calculated by subtracting the 5.2% historical income return and the 0.8% historical return from the growth in P/E from the 9.3% return on large-cap stocks over the 1926-2008 time period.

[7] Another approach is to directly estimate the sensitivity of the asset class to large-cap stocks. We don't do this, however, due to data limitations. Specifically, historical benchmark returns for large-cap stocks prior to 1957 are from Wilson and Jones (2002). (See the appendix for more details.) They provide returns on an annual basis. But we prefer to follow common practice and use monthly data, whenever possible, to estimate betas because doing so increases the accuracy of the estimate.

[8] Approximately seven years for the bond asset class and three months for cash investments.

Some Caveats

It's important to note that these estimates are just that—estimates—and that it is extremely difficult to accurately forecast exact returns over the long-term. Therefore, these estimates should be viewed only as a **general guide** to assist you in your long-term, financial-planning needs.

The second thing to keep in mind is that these estimates are meant to provide a general idea of what the **average** annual return may be over the next 20 years. The actual return can and probably will be significantly different from this average in any given year. For example, our estimated return for large-cap stocks over the next 20 years is 7.4 percent annually, on average. However, in any year the actual return may be, for example, up 25 percent or down 25 percent! Also, stocks come with more risk to principal invested than other asset classes. And certain stock types, such as small cap and international, carry additional risks. As an investor, you need to be aware of this uncertainty when developing your financial plans, especially for shorter-term goals.

What Should You Do?

Thanks to the power of compound returns, what you do or don't do today can have big implications on your ability to meet your long-term goals. Therefore, one of the most important things you can do is to resist the temptation to do nothing in hopes that market returns will be higher than anticipated. If they are, that's a great bonus. But it's better to plan for a more realistic scenario.

Here are a couple of things you can do. First, while it's always wise to focus on avoiding unnecessary fees and taxes, it's even more important to do so in a lower-return environment. Second, if you don't have a long-term financial plan, it's a good time to put one together. If you already have one, you should consider revising it based on the market estimates provided in this study. By incorporating reasonable return assumptions into the financial-planning process, you are better able to more effectively plan for reaching your long-term financial goals – the main reason you developed a financial plan in the first place.

Schwab Center for Financial Research

The Schwab Center for Financial Research, a division of Charles Schwab & Co., Inc., provides individual investors with professional-quality research and decision-making tools. Schwab's experts are widely published in respected business and academic journals, and regularly cited by the media on investing issues.

Asset-Class Benchmark Definitions

The S&P 500® Index is a market-capitalization weighted index that consists of 500 widely traded stocks chosen for market size, liquidity and industry group representation.

Russell Indexes are subsets of the Russell 3000® Index, which contains the largest 3,000 companies incorporated in the United States and represents approximately 98% of the investable U.S. equity markets.

Russell 2000® Index is a market-capitalization weighted index composed of the 2,000 smallest companies in the Russell 3000.

CRSP Cap-Based Portfolios data tracks micro, small, mid and large-cap stocks on monthly and quarterly frequencies. CRSP ranks all NYSE companies by market capitalization and divides them into 10 equally populated portfolios. AMEX and NASDAQ stocks are then placed into the deciles determined by the NYSE breakpoints, based on their market capitalization. CRSP portfolios 1-2 represent large-cap stocks, portfolios 3-5 are mid caps, and portfolios 6-8 represent small caps. Portfolio Assignments are available as a CRSPAccess stock module. The stock and indices types must match (monthly).

MSCI EAFE Index® (Europe, Australasia, Far East) is a free float-adjusted market capitalization index that is designed to measure developed market equity performance, excluding the U.S. and Canada. As of April 2009, the MSCI EAFE Index consisted of the following 21 country indices: Australia, Austria, Belgium, Denmark, France, Finland, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland and the United Kingdom.

The MSCI World Index is a free float-adjusted market capitalization index that is designed to measure global developed-market equity performance. As of April 2009 the MSCI World Index consisted of the following 23 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States.

Barclays Capital Aggregate Bond Index includes fixed-rate debt issues rated investment grade or higher by Moody's Investors Service, Standard & Poor's,® or Fitch Investor's Service, in that order. (It also includes commercial mortgage-backed securities.) Bonds or securities included must be fixed rate, must be dollar denominated and non-convertible, and must be publicly issued. Bonds included span the maturity horizon, although all issues must have at least one year to maturity. All returns are market-value weighted inclusive of accrued interest.

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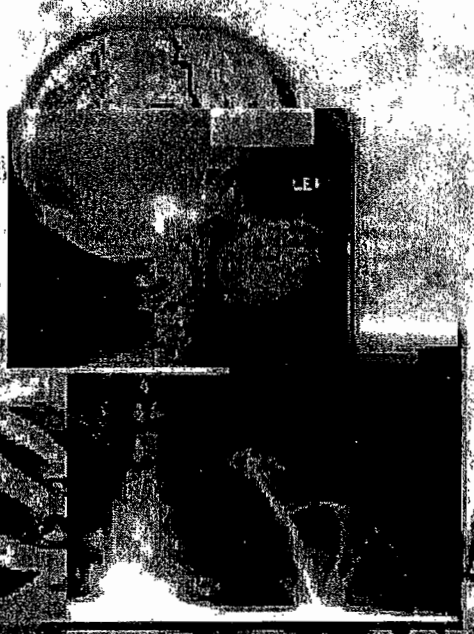
CALIFORNIA BROKER

VOLUME 24, NUMBER 1 SERVING LIFE/HEALTH INSURANCE PROFESSIONALS & FINANCIAL PLANNERS OF CALIFORNIA OCTOBER 2005

X-RAYING HMOs

An Inside Look at the Industry with Our Annual Survey



Also Inside:

Retirement Planning
Life Settlements • VUL
HSAs • Annuities • Vision
Medicare • NASD Licensing

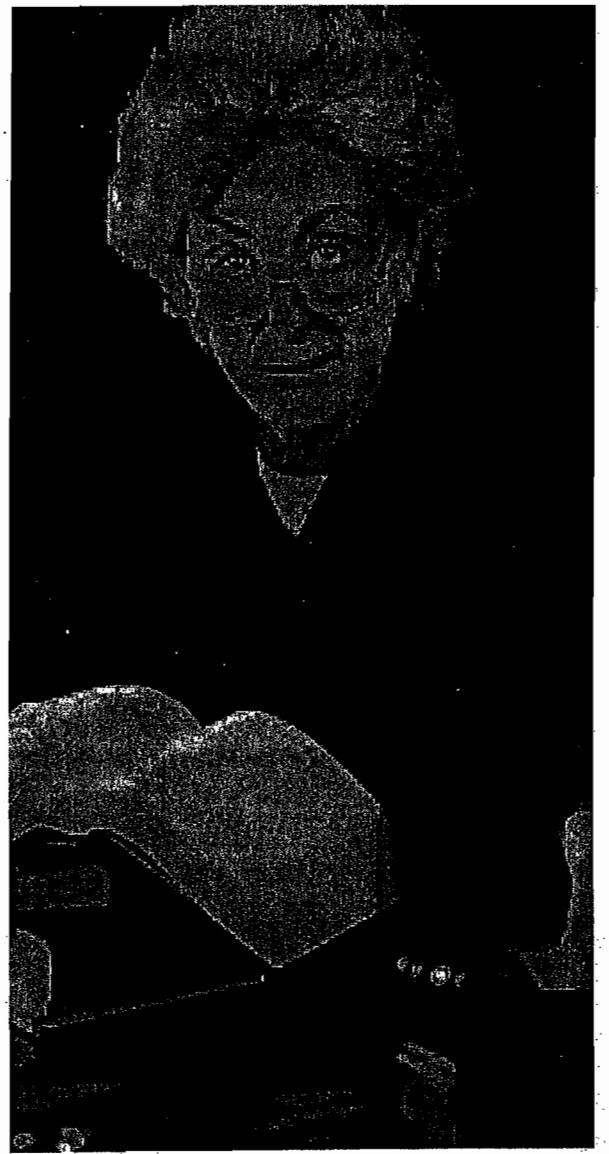
Featuring:

NAIFA Cal Advisor
National Association of Insurance and Financial Advisors – California

Variable Universal Life

How to Get Sued and Lose All Your Clients Using VUL

by Harry M Beck, CLU, CFA, CFP



Universal life insurance (UL) is popular because it offers the maximum flexibility for case design. Universal life insurance is no different from most forms of life insurance; it is designed to sell through illustrations that are merely estimates of an unknown future. Although illustrations display "guaranteed" results, sales are frequently made from future non-guaranteed estimates. The NAIC and the Securities and Exchange Commission (for variable products) regulate life insurance illustrations.

The success of a policy depends on an assumed premium payment, which is derived from a correct estimate of the capital markets (capital market expectations). Unfortunately, estimating future investment returns is difficult for producers or anyone else. Recent capital market surprises of lower than expected interest rates and lower equity returns have resulted in many traditional UL policies failing or being in danger of failing. I believe these failures will pale in comparison to the coming failure of variable universal life (VUL) policies, which often illustrate equity returns of 10% or more.

It may only be a matter of time before the legal profession finds it lucrative to sue agents who do the following:

- Sell VUL policies using unrealistic past performance illustrations.
- Do not use current capital market expectations to drive current illustrations.
- Do not actively monitor the performance of the VUL policies they sell.

Illustrating 10% to 12% Equity Returns is Dangerous and Wrong

The SEC allows carriers to illustrate hypothetical future returns. Variable life illustrations must show a 0% return, a 6% return, and a rate "not greater than 12%." Many carriers think it is acceptable to illustrate equity sub-accounts at 10% to 12% simply because the SEC allows them to do so. Many agents, using data from a highly unusual period, still believe that domestic equities are expected to grow at better than 10% per year. These agents believe that it is prudent to illustrate 10% returns and base premium payments upon the equity sub-accounts growing at this rate of return. I disagree and I believe that illustrating these returns is irresponsible and invites legal liability for the following reasons:

10% Equity Return Over Long Periods is Impossible

There is a pragmatic argument, originally brought forth by two of the most respected names on Wall Street – Peter Bernstein and Robert Arnott, which "proves" a 10% rate of return for equities over the long-term is impossible. Assume an investor put $10,000 in a form of super-dynasty trust in 1792 (I know there was no such thing back then) – the year George Washington became our first president. If that money were compounded at 10% for 213 years (until today), it would equal $6.5 trillion. This amount is more than one-half of the U.S. GDP and greater than the GDP of Japan. It is obvious that no single person or family could ever become that rich! Therefore, stocks must offer long-term returns under 10%. This strongly suggests that illustrating 10%

returns is irresponsible and invites complaints from clients and their legal advisors.

The *Financial Analysts Journal* published two articles within the past five years by Bernstein and Arnott regarding the equity risk premium (ERP). The ERP is the required return necessary for investors to take the added risk of investing in stocks versus a risk-free return (For example, a 10-year Treasury bond). The authors conclude that the premium is now "skinny" – perhaps close to zero, suggesting that future equity return will be far, far lower than what the SEC allows for policy illustrations. Producers should take heed of this and adjust their assumed returns for equity sub-accounts accordingly.

Stocks Cannot Grow Faster Than the Growth Rate of Earnings Plus Inflation

In the aggregate, stocks cannot grow at a faster rate in the long-term than their ability to grow their earnings or dividends. Investment guru, Gary Brinson's recent research determined the real (inflation adjusted) growth trend rate of profits per share in the S&P 500 was only 1.8% from 1947 to 2002. Of course, investor returns were significantly better due to the expansion or the price/earnings multiple during this unusual period! When adjusted for stock buybacks, the growth rate for dividends also approximated this number (Dividends in the aggregate cannot grow faster than earnings growth).

Most asset allocation models used to illustrate VUL seem to suggest that the growth trend rate is significantly higher than Brinson's findings. The typical asset allocation model that carriers use assumes a nominal growth rate of around 7%. If expected inflation is at 2.5%, the real (inflation adjusted) growth rate is approximately 4.5%. This is more than double the historical rate of 1.8% of Brinson's findings! According to Brinson, "People may argue for any future growth rate they desire, but they need to defend their forecast in a rigorous fashion. Demands for this rigor will accelerate in the future as investors seek to explain disappointing results relative to model outputs achieved with careless input assumptions."

Gary Brinson also believes that today's investment market fundamentals and financial variables clearly suggest that future real returns from a mixed portfolio of stocks; bonds; and other assets, such as real estate, are unlikely to be greater than 4.5% to 5%."

Including fees and commissions, the likely future returns for equity and balanced sub-accounts are much less that what is currently illustrated. This suggests that it is highly unlikely that investor expectations will be met.

10% Returns Do Not Include Fees, Commissions, and Survivorship Bias

All load insurance policies have fees and commissions. Yearly fees reduce the performance of the sub-account return within the policy. Total commissions on UL policies are often higher than 120%. These commissions reduce the amount of cash value within the policy. The long-term effect of fees and commissions can affect the annualized portfolio return by 2% or more! Illustrating benchmark or active manager returns without reducing those returns for fees and commissions can lead to unsatisfactory future returns.

Indexes are typically used as proxies when quoting the long-term returns for equities. These indexes, such as the S&P 500 or Dow Jones, routinely drop bankrupt or poorly performing companies and replace them with healthier and faster growing ones. Thus, "managed" indexes, like the S&P 500, are biased toward the surviving companies and display higher returns than an investor is likely to have received. When fees, loads, and survivorship biases are included, likely future investor returns are less than what some carriers are illustrating.

Past Performance Is Unlikely to Equal Future Results if the Base (Value) Starting Point Going Forward Changed

The price earning (P/E) ratio and dividends are two of the most widely used measures of stock market value. Proponents of illustrating a 10% rate of return from equities use a period that usually starts from 1926 when stocks were selling at mid-single digit P/E ratios and at 18x dividends. During 2000, stocks sold at P/E ratios above 22 and at 80 times dividends! As much as one-third of the return from stocks during this period came from investors paying more for their shares and not from earnings growth.

Is the price investors pay for equities likely to keep increasing at the 1926 to 2000 rate? Is the P/E multiple expansion likely to continue for the next 80 years, sending the S&P 500 (or any other domestic equity index) to a P/E multiple above 80? Is the market ever likely to sell at 320x dividends or are valuations likely to contract (mean reversion)? Since 2000, the earnings of the S&P 500 have increased, while the overall market performance is down due to a contraction of P/E ratios. Market history suggests that the contraction will not stop until the average P/E ratio goes below the historical mean of approximately 12%. This suggests that any VUL policy sold today illustrating a 10% equity return is likely to disappoint if the average P/E ratio goes to historical levels.

Positive Future Performance May Still Cause Policies to Fail

Although it seems illogical, sub-account investments in variable policies may be positive over time and still cause the policy to fail. This is because all UL policies, particularly VUL, are highly sensitive to performance in the early years when the cash value is low due to commissions and other expenses. Early loses followed by later investment gains may be disastrous for a policy, even though the long-term return matched the original policy illustration.

One way to illustrate this concept is to review the difference between arithmetic and geometrically linked rates-of-return. Say a sub-account lost 50% in year one and gained 50% in year two. The arithmetic return is zero (-50 +50 divided by 2 = 0). The geometric return, representing what the investor actually received, is a loss of 25% ($100 – 50% is $50. $50 + 50% = $75. $75 is 25% less than the original investment.) Therefore, the investor must earn 33% in year three to break even! Sub-account performance is advertised using arithmetic returns, but a policy lives or dies based on what the investor actually earns (geometrically linked returns).

Early sub-account underperformance may have a devastating effect on the survival potential of a VUL policy. The S&P 500 had a negative five-year return since 2000. This certainly does not bode well for the majority of variable policies sold since then.

The Big Risks to Agents

Producers who illustrate policies using overly optimistic assumptions risk a lot more than simply having unhappy clients:

Potential Legal Problems With Pension Plans

Producers who sold failing universal life policies to pension plans may have unforeseen liabilities. Under ERISA, any person who gives advice for a fee and/or other compensation is a fiduciary. Therefore, producers are subject to fiduciary standards and must be vigilant and monitor life insurance sold to pension and profit sharing plans. I believe producers should recommend changes in premium assumptions and/or offer alternative solutions if the life insurance they sold is likely to fail. (Of course, this is difficult if a home office will not allow an agent to recommend a life settlement). Agents must actively monitor all insurance sold to pension plans. If they do not, it is only a matter of time before the legal profession earns contingency fees suing for breach of fiduciary standards.

Potential Legal Problems With Trusts

Trustees of ILITs and other trusts that hold life insurance have fiduciary obligations to the trust and remaindermen, Since 1996, California has adopted many of the provisions of the Uniform Prudent Investor Act. It is possible that a producer who sold a policy to the trust (and is currently receiving renewal commissions) has a fiduciary responsibility to that trust. That producer has an obligation to monitor the policy actively and make recommendations to the trust regarding changing the premium assumptions and the potential for a life settlement (if necessary). The agent's failure to do so could be construed as a breach of fiduciary duty, putting the agent in legal jeopardy.

Potential Legal Problems With Investors

Individual investors with investment loses based upon inappropriate advice have successfully sought relief through arbitration or the courts. Will the same thing happen with investors who own VUL policies that use a 10% equity assumption? Michael Tate, who oversees $375 million of assets for a New England Financial branch in San Ramon, Calif., says, "At least 75% of every variable universal life policy I review for prospects is destined to fail." If Tate's observation is indicative of the marketplace, the potential producer liability is huge.

VUL Producers Must Protect Themselves

Variable policies will always make sense when used for the right reasons. But, producers must be vigilant about protecting themselves from future liability. Producers can certainly take steps to protect themselves from potential legal action. They must only sell variable product to clients who understand investment risks. Producers must use reasonable investment assumptions when selling any type of variable policy, even if the SEC allows higher returns to be illustrated. Producers must assume that all UL policies need active management, which mandates monitoring the policy regularly. If a policy is in danger of failing, producers must be proactive with solutions to rescue the policy, including informing the policy owner of the potential to life settle.

Producers should also consider using guaranteed UL policies. For example, one company is offering an extended non-lapse rider that "guarantees" on its protection VUL policy as long as the policy owner selects a sub-account consisting of a predetermined asset mix and makes continuous and timely premium payments. Even if the capital market expectations are faulty, the policy will not fail, even if the cash value goes to zero. I believe the benefits of these policies far outweigh their costs.

Conclusion

Producers selling UL, particularly VUL, must use realistic assumptions when designing illustrations for clients. Lower expected equity returns, combined with the fees and commissions embedded within VUL, suggest that it is prudent to illustrate equity sub-accounts returns in the 5% to 7.5% range. Agents should reduce their exposure to liability by monitoring all UL policies regularly, using non-lapse riders, and offering advice for policies in danger of failing. This advice should also include the potential for a life settlement. □

Harry M Beck, CLU, CFA, CFP is the Executive Vice President of Provada Insurance Services Inc. For more information, call 415-369-9990.

No. OUCC 04-052

DATA INFORMATION REQUEST
Indiana-American Water Company
Cause No. 43680

Requested From: Gary VerDouw
Date Requested: 7/7/09

Information Requested:

What is the S&P business risk for each utility in Mr. Moul's water proxy?

Requested By: Jeffrey M. Reed – Office of Utility Consumer Counselor (OUCC)
317-232-2494 – jreed@oucc.in.gov

Information Provided:

As of July 10, 2009, S&P ranks each of the companies (except SJW which is not rated) in the Water Group as "Excellent" under its business risk profile scoring system.

Hyperlink:

Date Response Provided: 7-21-09

Signed By: Gary W DeDouw **Prepared By:** Paul R. Moul

THE VALUE LINE® Investment Survey®

Part 1 Summary & Index

File at the front of the *Ratings & Reports* binder. Last week's *Summary & Index* should be removed.

September 25, 2009

TABLE OF SUMMARY & INDEX CONTENTS

SCREENS

The Median of Estimated
PRICE-EARNINGS RATIOS
of all stocks with earnings

17.2

26 Weeks Ago	Market Low 3-9-09	Market High 7-13-07
11.6	10.3	19.7

The Median of Estimated
DIVIDEND YIELDS
(next 12 months) of all dividend paying stocks under review

2.1%

26 Weeks Ago	Market Low 3-9-09	Market High 7-13-07
3.5%	4.0%	1.6%

The Estimated Median Price
APPRECIATION POTENTIAL
of all 1700 stocks in the hypothesized economic environment 3 to 5 years hence

55%

26 Weeks Ago	Market Low 3-9-09	Market High 7-13-07
150%	185%	35%

ANALYSES OF INDUSTRIES IN ALPHABETICAL ORDER WITH PAGE NUMBER

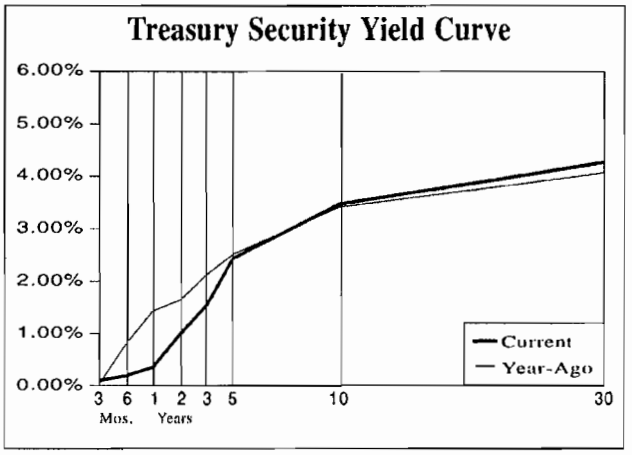
Numeral in parenthesis after the industry is rank for probable performance (next 12 months).

*Reviewed in this week's issue.

In three parts: This is Part 1, the Summary & Index. Part 2 is Selection & Opinion. Part 3 is Ratings & Reports. Volume LXV, No. 5.
Published weekly by VALUE LINE PUBLISHING, INC. 220 East 42nd Street, New York, N.Y. 10017-5891

Selected Yields

	Recent (9/16/09)	3 Months Ago (6/17/09)	Year Ago (9/17/08)
TAXABLE			
Market Rates			
Discount Rate	0.50	0.50	2.25
Federal Funds	0.00-0.25	0.00-0.25	2.00
Prime Rate	3.25	3.25	5.00
30-day CP (A1/P1)	0.21	0.42	2.50
3-month LIBOR	0.29	0.61	3.06
Bank CDs			
6-month	0.40	0.66	1.61
1-year	0.65	0.87	2.26
5-year	2.30	1.92	4.10
U.S. Treasury Securities			
3-month	0.10	0.16	0.04
6-month	0.19	0.31	0.81
1-year	0.35	0.47	1.44
5-year	2.44	2.68	2.52
10-year	3.47	3.69	3.41
10-year (inflation-protected)	1.60	1.92	1.74
30-year	4.26	4.51	4.07
30-year Zero	4.37	4.60	4.11



	Recent (9/16/09)	3 Months Ago (6/17/09)	Year Ago (9/17/08)
Mortgage-Backed Securities			
GNMA 6.5%	3.57	4.00	5.43
FHLMC 6.5% (Gold)	2.71	3.13	5.33
FNMA 6.5%	2.47	2.96	5.24
FNMA ARM	2.62	2.53	3.86
Corporate Bonds			
Financial (10-year) A	5.74	6.70	6.79
Industrial (25/30-year) A	5.55	6.13	6.08
Utility (25/30-year) A	5.59	5.95	5.94
Utility (25/30-year) Baa/BBB	6.21	7.54	6.51
Foreign Bonds (10-Year)			
Canada	3.38	3.44	3.44
Germany	3.34	3.48	4.02
Japan	1.33	1.47	1.50
United Kingdom	3.69	3.79	4.41
Preferred Stocks			
Utility A	6.29	5.47	6.56
Financial A	6.73	8.72	8.77
Financial Adjustable A	5.47	5.47	5.47
TAX-EXEMPT			
Bond Buyer Indexes			
20-Bond Index (GOs)	4.33	4.86	4.54
25-Bond Index (Revs)	5.33	5.76	5.09
General Obligation Bonds (GOs)			
1-year Aaa	0.40	0.40	1.73
1-year A	0.90	1.10	1.83
5-year Aaa	1.71	2.25	2.79
5-year A	2.15	3.65	2.84
10-year Aaa	2.78	3.33	3.59
10-year A	3.15	4.85	3.79
25/30-year Aaa	4.10	4.72	4.94
25/30-year A	4.56	6.24	5.32
Revenue Bonds (Revs) (25/30-Year)			
Education AA	4.85	6.30	5.05
Electric AA	4.90	6.35	5.00
Housing AA	5.30	6.65	5.40
Hospital AA	5.35	6.60	5.45
Toll Road Aaa	4.90	6.30	5.00

Federal Reserve Data

BANK RESERVES
(Two-Week Period; in Millions, Not Seasonally Adjusted)

	Recent Levels			Average Levels Over the Last...		
	9/9/09	8/26/09	Change	12 Wks.	26 Wks.	52 Wks.
Excess Reserves	823201	794546	28655	754077	773683	643434
Borrowed Reserves	320295	327647	-7352	369408	467326	513721
Net Free/Borrowed Reserves	502906	466899	36007	384669	306357	129712

MONEY SUPPLY
(One-Week Period; in Billions, Seasonally Adjusted)

	Recent Levels			Growth Rates Over the Last...		
	8/31/09	8/24/09	Change	3 Mos.	6 Mos.	12 Mos.
M1 (Currency+demand deposits)	1635.7	1639.0	-3.3	9.9%	9.6%	17.6%
M2 (M1+savings+small time deposits)	8293.7	8282.4	11.3	-3.4%	0.1%	7.6%

PORTFOLIO SOLUTIONS
LOW-COST INVESTMENT MANAGEMENT

The Portfolio Solutions 30-Year Market Forecast

Investors expect to be paid for taking financial risks. Consequently, all financial assets are priced based on the perceived risk. The greater the perceived risk, the greater the expected return. When the perceived risk of an asset class is low, the expected return is also low relative to more risky asset classes.

Each year, we analyzed the primary drivers of asset class long-term returns including risk as measured by implied volatility, expected earnings growth based on expected long-term GDP, market implied inflation based on the spread between long-term Treasury Bonds and TIPS, and current cash payouts from interest and dividends on bond and stock indexes. These factors plus others are used in a valuation model to create an estimate for risk premiums over the next 30 years. In a sense, we believe these expected returns reflect what *the market* is estimating will be a fair payment for each asset class over T-bills over the long-term.

Risk Based Methodology

There is a basic premise that is universal among investors. Riskier asset classes are expected to deliver higher long-term rates of return. If you can estimate the risk in an investment, you can also estimate the return require of that investment relative to all other investments.

A three-month Treasury bill has basically no risk expect perhaps the risk that inflation will be higher than the yield. A twenty-year Treasury bond has interest rate risk, meaning interest rates may rise after you bought the bond. Since there is greater risk in T-bonds over T-bills, we know that over the expected return of T-bonds has to be higher than the T-bill over twenty years because the T-bond has interest rate risk. The difference in expected return on the twenty-year bond over the T-bill yield is called "term risk premium".

Instead of buying a twenty-year T-bond, an investor may decide to invest in a twenty-year "A" rated corporate bond. Unlike the T-bond, corporate bonds are not guaranteed by the U.S. government. As such, a "credit risk premium" is expected to be earned on the corporate bond in addition to a term risk premium.

Common stock of a company has more risk than its corporate bond because returns are based on earnings rather than interest, and in the case of bankruptcy, the stock holders get wiped out while the bond holders end up owning the company. Therefore, stockholders have greater risk than bond holders and are expected to earn a higher return. The extra return of stocks over bonds is known in academia as an "equity risk premium".

Results and Limitations

The table below is our expected return for all major equity and fixed income asset classes over the next thirty-years. The table is provided to be a guide when constructing a long-term diversified portfolio. These estimates are not expected to be completely accurate. Actual returns will likely differ in several asset classes.

Thirty-Year Estimates of Bonds, Stocks, REITs, GDP, and Inflation

Index	*Nominal Forecast*	*Inflation Adjusted*	*Risk**
US Treasury Bills (3 month annualized)	3.5	0.5	1.5
US Treasury Notes (5 year maturity)	4.5	1.5	4.8
Long-term US Treasury Bonds	5.5	2.5	8.0
Investment Grade Corp. Bonds (5 yr)	6.0	3.0	5.0
Long-term Corporate Bonds (A rated)	6.5	3.5	8.5
High Yield Corp.Bonds (B to BB)	7.5	4.5	14.0
US Large Stocks	8.0	5.0	17.0
US Small Stocks	9.0	6.0	20.0
US Value Stocks (low price-to-book)	9.0	6.0	20.0
REITs (Real Estate Investment Trusts)	8.0	5.0	17.0
International Developed Country	8.0	5.0	17.0
International Small Value	10.0	7.0	25.0
International Emerging Markets	10.0	7.0	25.0
Gross Domestic Product	6.0	3.0	2.0
Inflation (Consumer Price Index)	3.0	-	1.5

*The estimate of risk is the estimated standard deviation of annual returns.

Laddering Risk Premiums

Another way to look at asset class expected returns is by layering of risks premiums. As you go down the list in the table below, each asset class has the premiums of the asset class or category above it, plus a new risk premium. Adding risk premium layers derives an asset class expected return.

	Inflation	T-Bills	LT Govt.	LT Corp	Large Equity	Value Equity	Small Value Equity
Inflation	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Real Risk Free Rate		0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Term-risk Premium			1.5%	1.5%	1.5%	1.5%	1.5%
Credit Risk Premium				1.0%	1.0%	1.0%	1.0%
Equity Risk Premium					2.0%	2.0%	2.0%
Value Risk Premium						1.0%	1.0%
Size Risk Premium							1.0%
Total Expected Return	**3.0%**	**3.5%**	**5.0%**	**6.0%**	**8.0%**	**9.0%**	**10.0%**

No one knows exactly what the returns of the markets will be over the next thirty years. However, the risk in an asset class are fairly stable over time, and that tends to drive the long-term risk premium.

The acceptance of a market forecast is an important step to creating a proper asset allocation. The forecast should always try to err on the conservative side. It is wise to expect and plan for lower returns and then be pleasantly surprised if the forecast is too low than to rely on a rosy forecast and possibly run out of money later in life. As the saying goes, it is better to be safe than sorry.

Portfolio Solutions, LLC - 5700 Crooks Road, Suite 112 - Troy, MI 48098 - Toll-free: 1-800-448-3550

Disclaimer

What Long-Term Return Should We Expect On large-capitalization Stock Market Indexes?

The answer is, in the long-term Stocks will return a percentage that is roughly equal to (actually slightly lower than) the Rate of Nominal GDP Growth Plus the average Dividend Yield. This is demonstrated with logic and graphs below.

Investors putting their money into stocks need to understand what long-term average return they can reasonably expect.

This article shows that a reasonable estimate for the average long-term compounded stock market return is currently no more than 7% to 8% (before trading and management costs) on large-capitalization stocks. This is based on U.S. data, but would also apply very similarly to Canada.

Many analysts forecast the long-term average return based strictly on historic returns. For example, the Dow Jones Industrial Average Total Return (including reinvested dividends), has returned, as of the end of, 2008, a yearly average of about 10.8% per year since 1930. On a compounded basis this is equivalent to a steady return of 8.6% per year compounded. (Compounded returns were lower than average returns due to the impact of volatility).

8.6% per year as a compounded long-term average sounds reasonably comforting, although perhaps not what investors would hope for.

Some analysts (most notably Warren Buffett in Fortune Magazine November 22, 1999[1]) argue that future long-term stock market returns can be estimated based on GDP growth and the dividend yield.

The math is simple, according to Warren Buffett[1] and others, we can roughly forecast the long-term expected return from major large-capitalization stock market indexes as:

Expected real GDP Growth + Expected Inflation + Expected Dividend Yield

The advantage of this simple method is that long-term forecasts of the three variables are available.

Today, a reasonable estimate of long-term expected large-capitalization stock market returns according to this formula is:

3% for real GDP growth + 1.5% for inflation + 3.0% for dividend yield = 7.5% long-term total return on stocks.

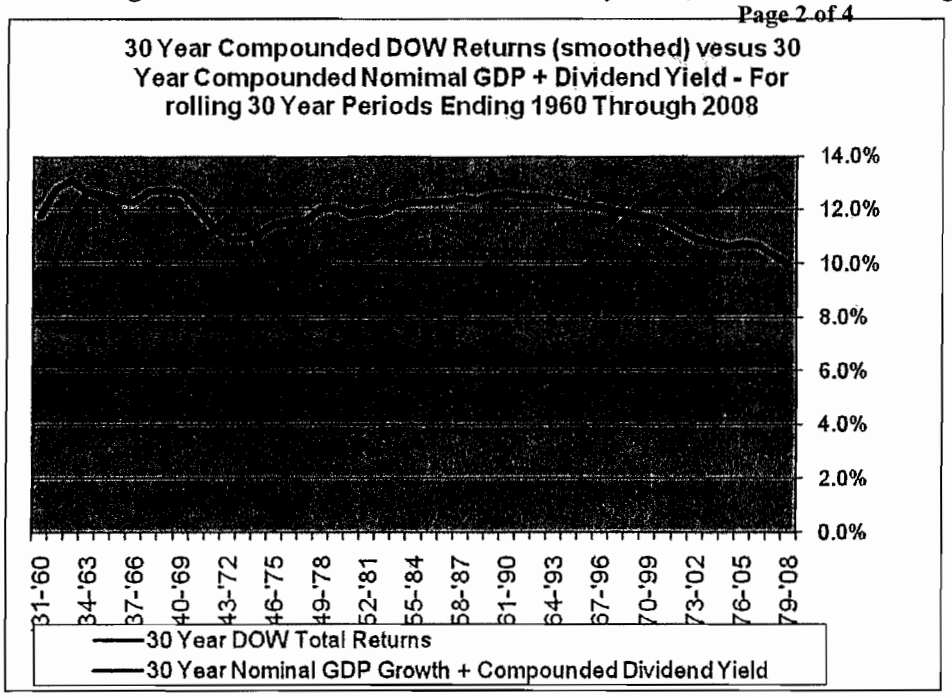
Equivalently; 4.5% for nominal GDP growth + 3.0% for dividend yield = 7.5% long-term total return on stocks.

Many of us might describe a 7.5% long-term average compounded stock market return as being "scary-if-true". And it is particularly scary when we consider that we need to deduct trading and management fees of about 1% to 3%,and we also need to deduct something for income taxes.

You can argue about the numbers to assume in the above formula. This is especially so in the meddle of a deep recession where GDP is sinking and where some fear deflation and others fear hyper-inflation. But most long-term forecasts for these variables would total something close to our 7.5% figure. However, you can plug your own estimates into the simple formula if desired.

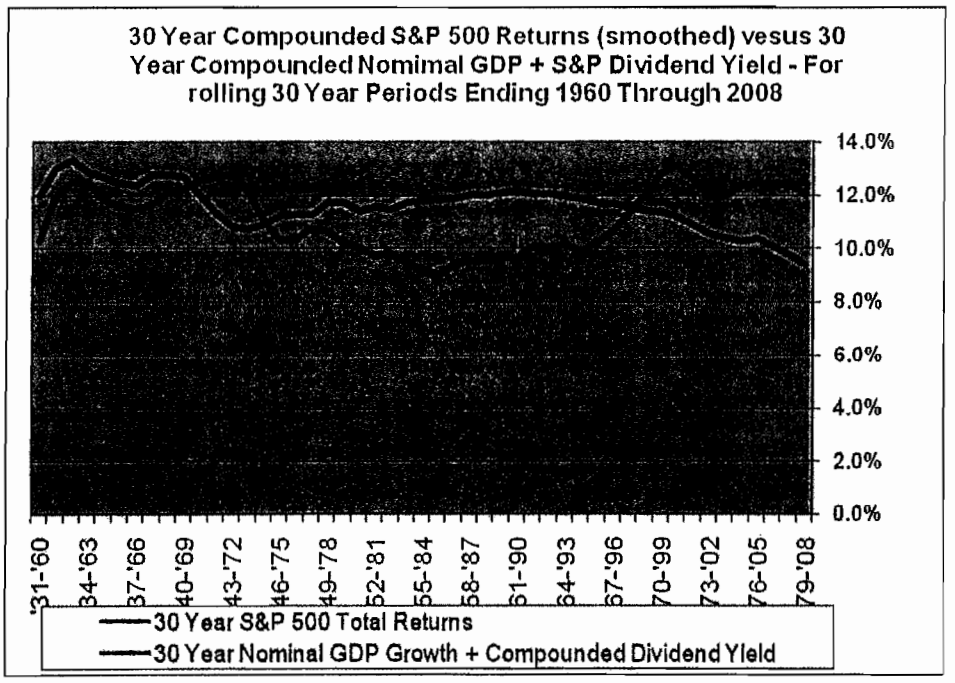
But are stock market returns really related to GDP, inflation and the dividend yield in this way? What does history tell us? The graph below provides the answer based on data for the Dow Jones Industrial Average, which is a large-capitalization stock index. The graph is based on **rolling 30 year** holding periods to simulate actual investor experience over different time periods. Each point on the graph below is the compounded average percentage gain in the Nominal GDP or the compounded average total return on the Dow Jones Industrial Average **over the past 30 years.**

In fact, history tells us that long-term stock market returns on the DOW Jones Industrial Average were actually consistently ***lower*** than the growth in GDP plus inflation plus the dividend yield. The notable exception is that in the 30 year rolling periods ending in 1999 through 2008, the DOW return, at over 12% (the red line here), exceeded the growth in GDP plus the compounded average dividend yield. In 1999 and 2000, the fact that the DOW returns over the previous 30 years exceeded GDP + Inflation + dividend yield was due to the very high stock market valuation. In more recent years the out-performance was more likely due to a very low starting point for the Dow in the 70's

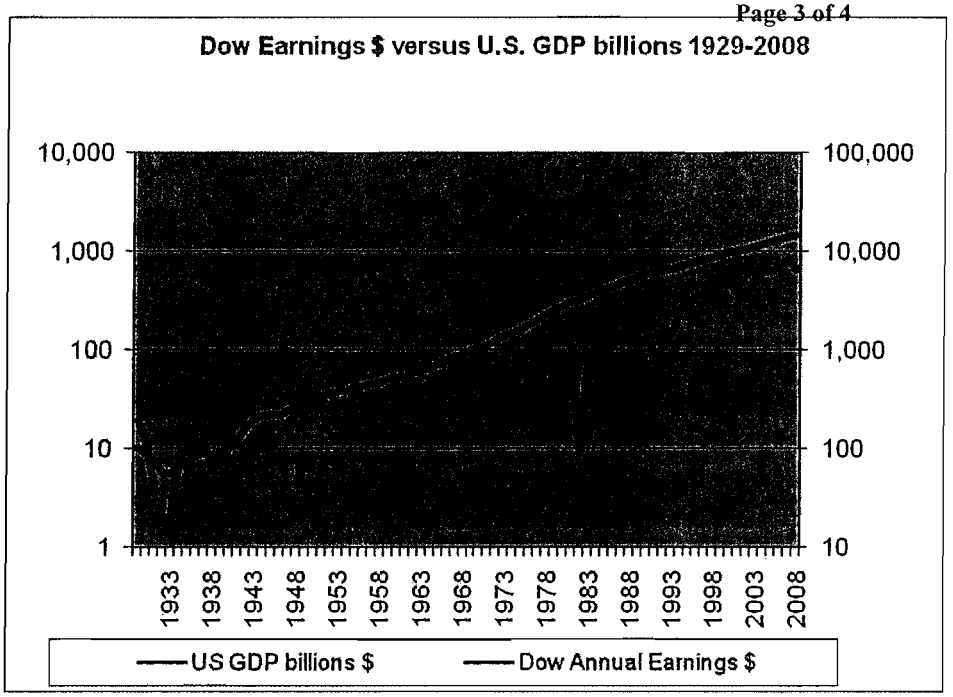


The red DOW total returns line is "smoothed" by taking an average of three years at the beginning and end point. This eliminates some of the volatility due to sharp annual moves in the DOW and allows a better view of the underlying trend. Without the smoothing the dip in the average return in the period ended 2008 would be even larger. This graph is meant to show long term averages rather than the specific situation in 2008.

A 30-year rolling holding period graph is also provided based on data for the S&P 500 as compiled by Ibbotson Associates in their Large Stock Index[2]. The pattern was remarkably similar to the DOW graph although the total returns on the S&P 500 (red line) on average lagged the GDP + Dividends figure by a smaller amount compared to the DOW data.



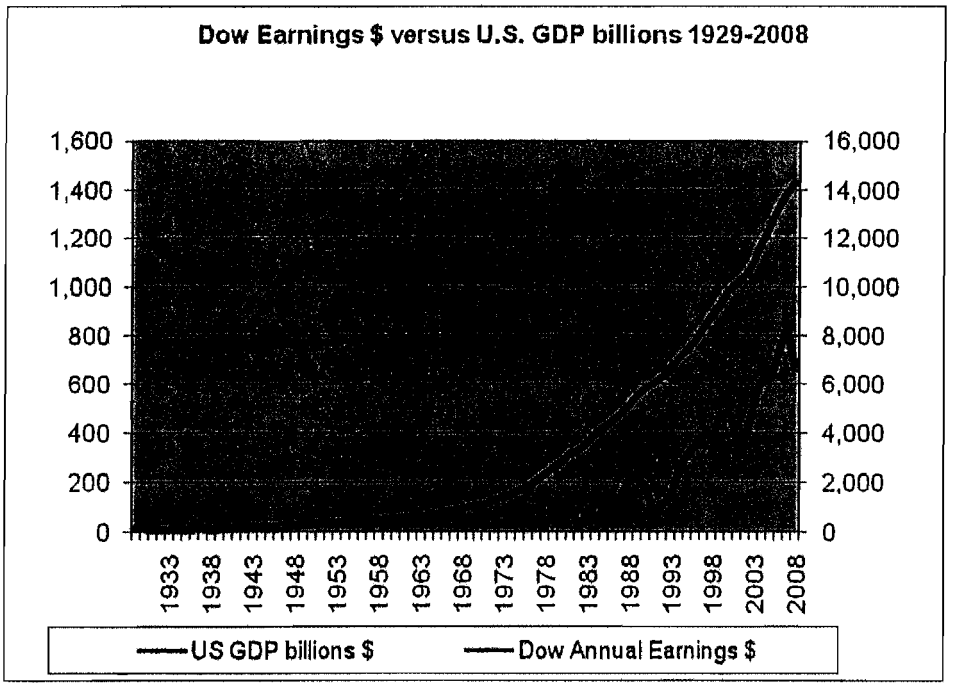
Interpreting the lines based on 30-year rolling data above can be very difficult. A more direct view of the Dow earnings (not return but earnings) versus GDP is shown below.



Note that the above graph has logartmic which is the ONLY proper way to show long-term trends but which can make a large percentage change appear quire small. Also notice that the two lines on the chart use two different scales. The scale for the Dow earnings (red line, left scale is 1/10th of the value of the GDP scale (blue line, right scale). This makes sense because the GDP is (very) roughly ten times as large as the Dow Earnings. MMy two scales are consistent in that in each case the top of the scale is 10,000 times larger than the bottom. Many analysts will use a left scale that has a range of say 1 to 50, while the right scale goes from say 10 to 200, rather than 10 to 500. Such inconsistent scales are very mis-leading. I always use scales that are consistent.

This graph shows the steady growth in U.S. GDP (blue line) versus the growth in the earnings of Dow Jones Industrial index which are more volatile but which also rose steadily in the long-run. The slope of the earnings line is slightly lower than that of the GDP line. Thus, stock market earnings growth is driven by growth in GDP, in the long run, but is slightly lower. Dow Jones Industrial Average total returns are in turn, in the long term, of course, driven by the earnings and dividend yield on the Index.

Below I show the exact same data but this time with a linear scale:



This chart with a linear scale is not the proper way to look at the trend of GDP or Dow earnings since 1930. (Log scales are best). However the linear scale confirms how DOW Jones Industrial Average Earnings have trended up with GDP over the years. The linear scale does a better job of showing the big drop in Dow earnings

in 2008.

What Does This Imply For Future Long-Term Returns In The Market?

For 30 year periods (and for other longer periods of at least 15 years) starting today we should expect the nominal GDP plus dividends figure to be in the range of about 7.5% (although with huge volatility around that average figure in any given year). This somewhat low level is driven by today's very low interest rate outlook, low inflation outlook and relatively modest real GDP growth outlook. Due to the historical and logical relationship of large-capitalization stock returns being no greater than the sum of nominal (after-inflation) GDP plus the dividend yields, we should not expect large-capitalization stock returns to exceed about 7.5%. And this is before trading and management costs and before any income taxes.

We would have to adjust our expected returns figure if we thought that today's stock market values were very high or very low according to historical norms. The market as of February 20, 2009 is low which may lead to somewhat above average long-term returns after the current financial crisis is resolved.

The result is that our "scary-if-true" estimate of 7.5% is not only reasonable but in fact may be biased high since actual large-capitalization total stock earnings and returns historically lags the sum of GDP growth plus the dividend yield over 30 year periods.

The average total return on the DOW and S&P 500 over the past ten years suddenly turned NEGATIVE after a huge market crash in 2008. But that does not mean we should expect negative or tiny returns going forward. Both the approximate 18% ten-year compounded average annual returns that we saw in the ten years ended 1998,1999 and 2000 as well as the recent negative ten-year compounded average return were abnormal. Something closer to our 7.5% is a better guess going forward.

As mentioned, I first heard this theory from Warren Buffett and the data indeed seems to prove his theory (not a surprise). But, this relationship only holds (even approximately) over long periods such as 20 years or more. It is not meant to be a short-term indicator.

July 10, 2003 Shawn Allen, CFA, CMA, MBA, P.Eng.

InvestorsFriend Inc. Updated early, 2009

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1. Warren Buffett in Fortune Magazine, November 22, 1999, said:

Let's say that GDP grows at an average 5% a year - 3% real growth, which is pretty darn good, plus 2% inflation. If GDP grows at 5%, and you don't have some help from (declining) interest rates, the aggregate value of equities is not going to grow a whole lot more. Yes, you can add on a bit of return from dividends. But with stocks selling where they are today (this was 1999), the importance of dividends to total return is way down from what it used to be. Nor can investors expect to score because companies are busy boosting their per share earnings by buying in their stock. The offset here is that the companies are just about as busy issuing new stock, both through primary offerings and those ever present stock options.

At the May 2001 Berkshire Hathaway annual meeting, Buffett again spoke of long-term returns based on 5% for GDP and he estimated the dividend yield at 1.5% at that time. And he noted that this (6.5%) return would be before the investor's trading costs.

Warren Buffett's Fortune article was updated December 10, 2001.

2. The Ibbotson Large Stock return figures are from the Stocks, Bonds, Bills and Inflation Yearbook by Ibbotson Associates. They indicate that the "large company stock total return index is based on the S&P Composite Index". Since 1997, Ibbotson has obtained its data directly from S&P. Prior to 1997 the dividend or income return was calculated by parties other than S&P. Consult the Ibbotson Yearbook for further discussion.

From: Reed, Jeffrey
Sent: Tuesday, October 27, 2009 4:29 PM
To: Daniels, Sandy
Subject: FW: File Uploaded Successfully

-----Original Message-----
From: donotreply@urc.in.gov [mailto:donotreply@urc.in.gov]
Sent: Tuesday, October 27, 2009 4:23 PM
To: Reed, Jeffrey
Subject: File Uploaded Successfully

Your file has been uploaded successfully and is in the process of verification.
Tracking Number:862d1026a2e1
Party Name:OUCC
File Type:Filings in Docketed Cases
Filing Party Name:Jeffrey Reed
Filing Party Email:jreed@oucc.in.gov
Date/Time Filed:10/27/2009 4:22:53 PM
Cause Number:43680
Sub Docket Number:NONE
FileName:jreed_43680 IN-American - OUCC Testimony- Vol 2_102709_10_27_20094-22-53PM.pdf