UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Joseph T. Kelliher, Chairman;
Suedeen G. Kelly, Marc Spitzer,
Philip D. Moeller, and Jon Wellinghoff.

Composition of Proxy Groups for Determining Gas and Oil Pipeline Return on Equity	Docket No. PL07-2-000

PROPOSED POLICY STATEMENT

(Issued July 19, 2007)

1.   In this proposed Policy Statement, the Commission is proposing to update its standards concerning the composition of the proxy groups used to decide the return on equity (ROE) of natural gas and oil pipelines. Firms engaged in the pipeline business are increasingly organized as master limited partnerships (MLPs). Therefore, the Commission proposes to modify its current policy regarding the composition of proxy groups to allow MLPs to be included in the proxy group. This proposed Policy Statement explains the standards that the Commission would require to be met in order for an MLP to be included in the proxy group. The Commission proposes to apply its final Policy Statement to all gas and oil pipeline rate cases that have not completed the hearing phase as of the date the Commission issues its final Policy Statement. The Commission intends to decide on a case-by-case basis whether to apply the final Policy Statement in cases that have completed the hearing phase. Finally, the Commission is requesting comments on this proposed Policy Statement. Initial comments are due 30 days after publication of this order in the *Federal Register*, with reply comments due 50 days after publication in the *Federal Register*.

I.   **Background**

2.   Since the 1980s, the Commission has used a Discounted Cash Flow (DCF) model to develop a range of returns earned on investments in companies with corresponding risks for determining the ROE for natural gas and oil pipelines. The DCF model was originally developed as a method for investors to estimate the value of securities, including common stocks. It is based on "the premise that a stock is worth the present value of its future cash flows, discounted at a market rate commensurate with the stock's risk."[1] Unlike investors, the Commission uses the DCF model to determine the ROE to be included in the pipeline's rates, rather than to estimate a stock's value. Therefore, the Commission solves the DCF formula for the discount rate, which represents the rate of

---

[1] *Ozark Gas Transmission System*, 68 FERC ¶ 61,032 at 61,104, n. 16 (1994).

return that an investor requires in order to invest in a firm. Under the resulting DCF formula, ROE equals current dividend yield (dividends divided by share price) plus the projected future growth rate of dividends.

3.   The Commission uses a two-step procedure for determining the constant growth of dividends: averaging short-term and long-term growth estimates.[2] Security analysts' five-year forecasts for each company in the proxy group, as published by Institutional Brokers Estimate System (IBES), are used for determining growth for the short term; long-term growth is based on forecasts of long-term growth of the economy as a whole, as reflected in the Gross Domestic Product. The short-term forecast receives a 2/3 weighting and the long-term forecast receives a 1/3 weighting in calculating the growth rate in the DCF model.[3]

4.   Most gas pipelines are wholly-owned subsidiaries and their common stock is not publicly traded, and this is also true for some jurisdictional oil pipelines. Therefore, the Commission uses a proxy group of firms with corresponding risks to set a range of reasonable returns for both natural gas and oil pipelines. The Commission then assigns the pipeline a rate within that range or zone, to reflect specific risks of that pipeline as compared to the proxy group companies.[4]

5.   The Commission historically required that each company included in the proxy group satisfy the following three standards.[5] First, the company's stock must be publicly traded. Second, the company must be recognized as a natural gas or oil pipeline company and its stock must be recognized and tracked by an investment information service such as Value Line. Third, pipeline operations must constitute a high proportion of the company's business. Until the Commission's 2003 decision in *Williston Basin*

---

[2] *Northwest Pipeline Co.,* 71 FERC ¶ 61,309 at 61,989-92 (1995) (Opinion No. 396), 76 FERC ¶ 61,068 (1996) (Opinion No. 396-A), 79 FERC ¶ 61,309 (1997) (Opinion No. 396-B), *reh'g denied*, 81 FERC ¶ 61,036 (1997) (Opinion No. 396-C); *Williston Basin Interstate Pipeline Co.*, 79 FERC ¶ 61,311, *order on reh'g*, 81 FERC ¶ 61,033 (1997), *aff'd in relevant part, Williston Basin Interstate Pipeline Co.,* 165 F.3d 54 (D.C. Cir. 1999)(*Williston Basin*).

[3] The Commission presumes that existing pipelines fall within a broad range of average risk, and thus generally sets pipelines' return at the median of the range. *Transcontinental Gas Pipe Line Corp.,* 84 FERC ¶ 61,084 at 61,423-4 (1998) Opinion No. 414-A, *reh'g*, 85 FERC ¶ 61,323 (1998) (Opinion No. 414-B), *aff'd North Carolina Utilities Commission v. FERC*, 340 U.S. App. D.C. 183 (D.C. Cir) (unpublished opinion).

[4] *Williston Basin* at 57 (*citation omitted*).

[5] *Transcontinental Gas Pipe Line Corp.*, 90 FERC ¶ 61,279 at 61,933 (2000).

Interstate Pipeline Co.,[6] the third standard could only be satisfied if a company's pipeline business accounted for, on average, at least 50 percent of a company's assets or operating income over the most recent three-year period.

6.   As a result of mergers, acquisitions, and other changes in the natural gas industry, fewer and fewer interstate natural gas companies have satisfied the third requirement. Thus, in *Williston*, the Commission relaxed this requirement for the natural gas proxy group. Instead, the Commission approved a pipeline's proposal to use a proxy group based on the corporations listed in the Value Line Investment Survey's list of diversified natural gas firms that own Commission-regulated natural gas pipelines, without regard to what portion of the company's business comprises pipeline operations.

7.   In *HIOS*[7] and *Kern River*, the only fully litigated section 4 rate cases decided since *Williston*, the Commission again drew the proxy group companies from the same Value Line list. When those cases were litigated, there were six such companies: Kinder Morgan Inc., the Williams Companies (Williams), El Paso Natural Gas Company (El Paso), Equitable Resources, Inc., Questar Corporation, and National Fuel Gas Corporation. The Commission excluded Williams and El Paso on the ground that their financial difficulties had lowered their ROEs to a level only slightly above the level of public utility debt, and the Commission stated that investors cannot be expected to purchase stock if lower risk debt has essentially the same return. This left a four-company proxy group, three of whose members derived more revenue from the distribution business, rather than the pipeline business. In *Kern River*, the Commission adjusted the pipeline's return on equity 50 basis points above the median in order to account for the generally higher risk profile of natural gas pipeline operations as compared to distribution operations.

8.   In both *Kern River* and *HIOS*, the Commission rejected pipeline proposals to include MLPs in the proxy group. The pipelines contended that MLPs have a much higher percentage of their business devoted to pipeline operations, than most of the corporations that the Commission currently includes in the proxy group.

9.   Unlike corporations, MLPs generally distribute most available cash flow to the general and limited partners in the form of quarterly distributions. Most MLP agreements define "available cash flow" as (1) net income (gross revenues minus operating expenses) plus (2) depreciation and amortization, minus (3) capital investments the partnership must

---

[6] *Williston Basin Interstate Pipeline Company*, 104 FERC ¶ 61,036 at P 35, n. 46 (2003).

[7] *High Island Offshore System, L.L.C.*, 110 FERC ¶ 61,043, *reh'g denied*, 112 FERC ¶ 61,050 (2005), *appeal pending*.

make to maintain its current asset base and cash flow stream.[8] Depreciation and amortization may be considered a part of "available cash flow," because depreciation is an accounting charge against current income, rather than an actual cash expense. As a result, the MLP's cash distributions normally include not only the net income component of "available cash flow," but also the depreciation component. This means that, in contrast to a corporation's dividends, an MLP's cash distributions generally exceed the MLP's reported earnings. Moreover, because of their high cash distributions, MLPs usually finance capital investments required to significantly expand operations or to make acquisitions through debt or by issuing additional units rather than through retained cash, although the general partner has the discretion to do so.

10.   In rejecting the pipelines' proposals in *HIOS* and *Kern River* to include MLPs in the proxy group, the Commission made clear that it was not making a generic finding that MLPs cannot be considered for inclusion in the proxy group if a proper evidentiary showing is made.[9] However, the Commission pointed out that data concerning dividends paid by the proxy group members is a key component in any DCF analysis, and expressed concern that an MLP's cash distributions to its unit holders may not be comparable to the corporate dividends the Commission uses in its DCF analysis. In *Kern River*, the Commission explained its concern as follows:

> Corporations pay dividends in order to distribute a share of their earnings to stockholders. As such, dividends do not include any return *of* invested capital to the stockholders. Rather, dividends represent solely a return *on* invested capital. Put another way, dividends represent profit that the stockholder is making on its investment. Moreover, corporations typically reinvest some earnings to provide for future growth of earnings and thus dividends. Since the return on equity which the Commission awards in a rate case is intended to permit the pipeline's investors to earn a profit on their investment and provides funds to finance future growth, the use of dividends in the DCF analysis is entirely consistent with the purpose for which the Commission uses that analysis. By contrast, as Kern River concedes, the cash distributions of the MLPs it seeks to add to the proxy group in this case include a return *of* invested capital through an allocation of the partnership's net income. While the level of an MLP's cash distributions may be a significant factor in the unit holder's decision to invest in the MLP, the Commission uses the DCF analysis solely to determine the pipeline's return on equity. The Commission provides for the return of invested capital through a separate depreciation allowance.

---

[8] The definition of available cash may also net out short term working capital borrowings, the repayment of capital expenditures, and other internal items.

[9] *Kern River Gas Transmission Company*, 117 FERC ¶ 61,077 (2006) (Opinion No. 486) at P 147, *reh'g pending*.

For this reason, to the extent an MLP's distributions include a significant return of invested capital, a DCF analysis based on those distributions, without any adjustment, will tend to overstate the estimated return on equity, because the 'dividend' would be inflated by cash flow representing return of equity, thereby overstating the earnings the dividend stream purports to reflect.[10]

11.   The Commission stated that it could nevertheless consider including MLPs in the proxy group in a future case, if the pipeline presented evidence addressing these concerns. The order suggested that such evidence might include some method of adjusting the MLPs' distributions to make them comparable to dividends, a showing that the higher "dividend" yield of the MLP was offset by a lower long-term growth projection, or some other explanation why distributions in excess of earnings do not distort the DCF results for the MLP in question. However, the Commission concluded that Kern River had not presented sufficient evidence to address these issues, and that the record in that case did not support including MLPs in the proxy group.

12.   In addition, *Kern River* pointed out that the traditional DCF model only incorporates growth resulting from the reinvestment of earnings, not growth arising from external sources of capital.[11] Therefore, the Commission stated that if growth forecasted for an MLP comes from external capital, it is necessary either (1) to explain why the external sources of capital do not distort the DCF results for that MLP or (2) propose an adjustment to the DCF analysis to eliminate any distortion. The Commission's orders in *HIOS* reached the same conclusions.

13.   In some oil pipeline rate cases decided before *HIOS* and *Kern River*, the Commission included MLPs in the proxy group used to determine oil pipeline return on equity on the ground that there were no corporations available for use in the oil proxy group.[12] In those cases, no party raised any issue concerning the comparability of an MLP's cash distribution to a corporation's dividend. However, that issue did arise in the first oil pipeline case decided after *HIOS* and *Kern River*, involving SFPP's Sepulveda Line.[13] The Commission approved inclusion of MLPs in the proxy group in that case on the grounds that the MLPs in question had not made distributions in excess of earnings. The Sepulveda Line order therefore analyzed the five MLPs that have been used to determine SFPP's ROE: Buckeye Partners, L.P., Enbridge Energy Partners, L.P., Enron

---

[10] *Id.* at P 149-50.

[11] *Id.* at P 152.

[12] *SFPP, L .P.*, 86 FERC ¶ 61,022 at 61,099 (1999).

[13] *SFPP, L.P.*, 117 FERC ¶ 61,285 (2006) (SFPP Sepulveda order), *rehearing pending*.

Gas Liquids (Enron),[14] TEPPCO Partners, L.P., and Kaneb Partners, L.P. (later Valero Partners), now NuStar Energy, L.P**.** The order reviewed each entity for the year 1996 and the previous four years, and held that four of the firms had had income (earnings) in excess of distributions and that their incomes (earnings) were stable over that period with minor exceptions. The order found these facts sufficient to address the concerns expressed in *HIOS* and *Kern River*. The fifth firm, Enron, had distributions in excess of income (earnings) in four of the five years. While the Commission did not preclude use of such MLPs, Enron did not meet the *HIOS* test and was excluded as unrepresentative.

II.   Discussion

14.   As discussed below, the Commission proposes to permit inclusion of MLPs in a proxy group. However, the Commission proposes to cap the "dividend" used in the DCF analysis at the pipeline's reported earnings, thus adjusting the amount of the distribution to be included in the DCF model. The Commission would leave to individual cases the determination of which MLPs and corporations should actually be included in the natural gas or oil proxy group. However, participants in these cases should include as much information as possible regarding the business profile of the firms they propose to include in the proxy group, for example, based on gross income, net income, or assets.

15.   The Supreme Court has stated that "the return to the equity owner should be commensurate with the return on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital."[15] The Commission is concerned that its current approach to determining the composition of the proxy group for determining gas and oil pipeline return on equity is, or will, require the use of firms which are less and less representative of either natural gas or oil pipeline business risk.

16.   As has been discussed, there are fewer and fewer publicly traded diversified natural gas corporations that have interstate gas pipelines as their predominant business line, whether this is measured on a revenue, income, or asset basis. As such, there are fewer diversified natural gas companies available for inclusion in a natural gas pipeline proxy group which may reasonably be considered representative of the risk profile of a natural gas pipeline firm. Moreover, at this point the only publicly traded oil pipeline firms are controlled by MLPs, which makes the issue of a representative proxy group more acute.

---

[14] Enron Gas Liquids was not affiliated with Enron, Inc. at that time, but was a former affiliate that was spun off in the early 1990's.

[15] *FPC v. Hope Natural Gas Co.*, 320 U.S. 591 (1944); *Bluefield Water Works & Improvement Co. v. Public Service Comm'n*, 262 U.S. 679 (1923).

17.   Cost of service ratemaking requires that the firms in the proxy group be of comparable risk to the firm whose equity cost of capital is at issue in a particular rate proceeding. If the proxy group is less than clearly representative, this may require the Commission to adjust for the difference in risk by adjusting the equity cost-of-capital, a difficult undertaking requiring detailed support from the contending parties and detailed case-by-case analysis by the Commission. Expanding a proxy group to include MLPs whose business is more narrowly focused on pipeline activities would help ameliorate this problem. Thus, including MLP natural gas pipelines in the equity proxy group should reduce the need to make adjustments since the proxy group is more likely to contain firms that are representative of the regulated firm whose rates are at issue. Including MLPs will also recognize the trend to greater use of MLPs in the natural gas pipeline industry and address the reality of the oil pipeline industry structure.

18.   The Commission's primary concern about including MLPs in the proxy group has arisen from the interaction between use of the DCF analysis to determine return on capital while relying on a depreciation allowance for return of capital. The Commission permits a pipeline to recover through its rates both a return *on* equity and a return *of* invested capital. The Commission uses the DCF analysis solely to determine the return *on* equity component of the cost-of-service. The Commission provides for the return *of* invested capital through a separate depreciation allowance. Given the purpose for which the Commission uses the DCF analysis, the cash flows included in that analysis must be limited to cash flows which may reasonably be considered to reflect a return *on* equity. Such cash flows include that portion of an MLP's cash distribution derived from net income, or earnings.

19.   To the extent an MLP makes distributions in excess of earnings, it is able to do so because partnership agreements define "cash available for distribution" to include depreciation. This enables the MLP to make cash distributions that include return *of* equity, in addition to return *on* equity. However, because the Commission includes a separate depreciation allowance in the pipeline's cost-of-service, a DCF analysis including cash flows attributable to depreciation would permit the pipeline to double recover its depreciation expense, once through the depreciation allowance and once through an inflated ROE. Adjusting an MLP's cash distribution to exclude that portion of the distribution in excess of earnings addresses this problem.

20.   The Commission recognizes that it raised several concerns in *Kern River* as to whether adjusting the MLP's cash distribution down to the level of its earnings would be sufficient to eliminate the distorting effects of including MLPs in the proxy group. The Commission pointed out that corporations generally do not pay out all of their earnings in dividends, but retain some earnings in order to generate future growth. The Commission also suggested that the DCF model is premised on growth in dividends deriving from reinvestment of current earnings, and does not incorporate growth from external sources, such as issuing debt or additional stock.

21.   The Commission believes that these concerns should not render unreliable a DCF analysis using the adjusted MLP results. The market data for the MLPs used in the DCF analysis should itself correct for any distortions remaining after the adjustment to the cash distribution described above. For example, the IBES growth projections represent an average of the growth projections by professionals whose business is to advise investors.[16] The level of an MLP's cash distributions as compared to its earnings is a matter of public record and thus known to the security analysts making the growth forecasts used by IBES. Therefore, the security analysts must be presumed to take those distributions into account in making their growth forecasts for the MLP. To the extent an MLP's relatively high cash distributions reduce its growth prospects that should be reflected in a lower growth forecast, which would offset the MLP's higher "dividend" yield.

22.   In order to test the validity of this assumption, the Commission reviewed the most recent IBES growth forecasts for five diversified energy companies and six MLPs in the natural gas business. The average IBES forecast for the corporations is 9 percent, while the average IBES forecast for the MLPs is 6.17 percent, or nearly 300 basis points lower.[17] Thus, the security analysts do project lower growth rates for the MLPs than for the corporations.

23.   In addition, the fact MLPs may rely upon external borrowings and/or equity issuances to generate growth is not a reason to exclude them from the proxy group. Most pipelines organized as corporations also use external borrowings and to some extent equity issuances. To the extent that gas or oil pipelines are controlled by diversified energy companies with unregulated assets (either federal or state), the financial practices may be the same, although perhaps not as highly leveraged, and the results are likewise reflected in the IBES projections.   A prudent investor deciding whether to invest in a security will reasonably consider all factors relevant to assessing the value of that security. The potential effect of future borrowings or equity issuances on share values of either MLPs or corporations is one such factor. Since a DCF analysis is a method for investors to estimate the value of securities, it follows that such an analysis may reasonably take into account potential growth from external capital.

---

[16] Opinion No. 414-B, 85 FERC at 62,268-70.

[17] The IBES forecasts were prepared as of May 31, 2007 applying the current DCF model for the corporate sample and using distributions capped at earnings for the MLPs. Thus the short term growth rates for the five diversified gas corporations were: (1) National Fuel Gas Corporation, 5 percent; (2) Questar Corporation, 9 percent; (3) Oneok, Inc., 9 percent; (4) Equitable Resources Inc., 10 percent; and (5) Williams Companies, 12 percent. The short term growth rates for the six gas MLPs were: (1) Oneok Partners, L.P., 5 percent; (2) TEPPCO Partners, L.P., 5 percent; (3) TC Pipelines, L.P., 5 percent; (4) Boardwalk Pipeline Partners, L.P., 7 percent, (5) Kinder Morgan Energy Partners, L.P., 7 percent, and (6) Enterprise Products Partners, L.P., 8 percent.

24.   The Commission does, however, recognize that an MLP's lack of retained earnings may render cash distributions at their current level unsustainable, and thus still unsuitable for inclusion in the DCF analysis. Therefore, the Commission intends to require participants proposing to include MLPs in the proxy group to provide a multi-year analysis of past earnings. An analysis showing that the MLP does have stable earnings would support a finding that the cash to be included in the DCF calculation is likely to be available for distribution, thus replicating the requirement of the corporate model of a stable dividend.

III.   Procedure for Comments

25.   The Commission invites interested persons to submit written comments on its proposed policy to permit the inclusion of MLPs in the proxy group to be used to determine the equity cost of capital of natural gas and oil pipelines. The comments may include alternative proposals for determining a representative proxy group given that (1) few natural gas companies meet the Commission's traditional standards for inclusion in the proxy group, and (2) the only publicly traded oil pipeline firms available for inclusion in the proxy group are controlled by MLPs. Comments may also address the analysis advanced in this proposed policy statement, alternative methods for adjusting the amount of the MLP's distribution to be included the DCF analysis, and the relevance of the stability of MLP earnings.

26.   Comments are due 30 days from the date of publication in the *Federal Register* and reply comments are due 50 days from the date of publication in the *Federal Register*. Comments must refer to Docket No. PL07-2-000, and must include the commentor's name, the organization it represents, if applicable, and its address. To facilitate the Commission's review of the comments, commentors are requested to provide an executive summary of their position. Additional issues the commentors wish to raise should be identified separately. The commentors should double space their comments.

27.   Comments may be filed on paper or electronically via the eFiling link on the Commission's web site at http://www.ferc.gov. The Commission accepts most standard word processing formats and commentors may attach additional files with supporting information in certain other file formats. Commentors filing electronically do not need to make a paper filing. Commentors that are not able to file comments electronically must send an original and 14 copies of their comments to: Federal Energy Regulatory Commission, Office of the Secretary, 888 First Street N.E., Washington, D.C. 20426.

28.   All comments will be placed in the Commission's public files and may be viewed, printed, or downloaded remotely as described in the Document Availability section below. Commentors are not required to serve copies of their comments on other commentors.

IV.   Document Availability

29.   In addition to publishing the full text of this document in the *Federal Register*, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through the Commission's Home Page (http://www.ferc.gov) and in the Commission's Public Reference Room during normal business hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street, N.E., Room 2A, Washington D.C. 20426.

30.   From the Commission's Home Page on the Internet, this information is available in the Commission's document management system, eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number (excluding the last three digits) in the docket number field.

31.   User assistance is available for eLibrary and the Commission's website during normal business hours. For assistance, please contact the Commission's Online Support at 1-866-208-3676 (toll free) or 202-502-6652 (e-mail at FERCOnlineSupport@ferc.gov or the Public Reference Room at 202-502-8371, TTY 202-502-8659 (e-mail at public.referenceroom@ferc.gov)

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.

The Earnings Numbers Game:
Rewards to Walk Down and Penalties to Walk Up
Of Analysts' Forecasts of Earnings

Siew Hong Teoh
The Paul Merage School of Business
University of California, Irvine
steoh@uci.edu

Yong George Yang
School of Accountancy
Chinese University of Hong Kong
yyong@cuhk.edu.hk

Yinglei Zhang
School of Accountancy
Chinese University of Hong Kong
yinglei@baf.msmail.cuhk.edu.hk

First draft, July 29, 2008
This draft, July 30, 2009

The Earnings Numbers Game:
Rewards to Walk Down and Penalties to Walk Up
Of Analysts' Forecasts of Earnings

Abstract

We provide a comprehensive study of the valuation consequences to meeting/beating analysts' forecasts (*MBE*) versus missing expectations conditioned on the forecast revision path prior to the earnings announcement. We find that investors reward firms that walk down forecasts to achieve a positive earnings surprise and penalize firms that walk up forecasts to achieve a negative earnings surprise. The reward and penalty are not justified by subsequent cash flow performance and the post-event return reversal suggests that investors were partially misled by strategic motives belying the forecast revisions. There is higher insider net selling and more new issues for walk down firms, and higher insider net buying and more repurchases for walk up firms. The capital market incentives for selling and *MBE* reward disappear in recent periods, suggesting that investors learn to discount a walk down. However, the walk up penalty and capital market incentives to depress prices for buying by insiders and the firm remain even in recent years.

1. Introduction

Prior studies have documented that the equity market rewards firms that meet or beat analysts' earnings expectations (hereafter *MBE*) and penalize those that do not.[1] The immediate price reaction to an *MBE* event at the earnings announcement date is generally positive whereas firms that miss forecasts generally experience a negative price reaction. The stock returns in the fiscal period (quarterly or annual) of the earnings are also higher for *MBE* firms than miss firms, even when they have the same initial analysts' forecast at the start of the period and the same actual reported earnings at the end of the period. We refer to the higher period returns for *MBE* firms over miss firms after controlling for the size of the forecast revision if any and the surprise as the *MBE* reward.

Two forecast paths lead to an *MBE* event. The first, which has received attention in the literature, is the walk down revision path *OP* where the initial optimistic forecasts are guided down to pessimistic levels prior to the earnings announcement date. The second path *PP* begins and ends with pessimistic earnings forecasts during the quarter. Similarly, two different forecast revision paths lead to a miss event. The initial pessimistic forecast is guided up to become optimistic before the earnings announcement date in the walk up *PO* path whereas the initial and final forecasts remain optimistic in the *OO* path. Figure 1 summarizes the trajectory of these four analysts' forecast revision paths.

When the underlying economic fundamentals fail to deliver earnings that meet or beat analysts' expectations, managers can avoid negative earnings surprises by managing reported earnings upward (Cheng and Warfield, 2005) or guiding analysts' expectations

---

[1] See Bartov, Givoly, and Hayn (2002), Kasznik and McNichols (2002), Richardson, Teoh, and Wysocki (2004), Brown and Caylor (2005), Skinner and Sloan (2002), and Vickers (1999). Jiang (2008) shows that beating benchmarks is also rewarded in the debt market.

downwards (Soffer, Thiagarajan, and Walther, 2000). This phenomenon is often referred to as the "earnings numbers game" and is viewed unfavorably by regulators (Levitt, 1998) and the media (Cohen, 1991). Bartov and Cohen (2008) report that forecast guidance is more widespread than earnings management to achieve *MBE*, and so the former is the focus in this paper that considers analysts' revision paths.

Our first objective is to study the incentives of the firm and managers to play the numbers game by managers guiding analysts' forecasts either downwards to a beatable level or upwards for a deliberate miss outcome. While the walk down phenomenon has been studied in the literature, the incentives to a walk up for a miss event have not. For incentives, we consider new equity issues or repurchases by the firm, and insider net selling by the managers in the months after the earnings' announcement.

Our second objective is to investigate the extent to which investors are cognizant of the strategic incentives that belie the earnings numbers game. We compare the period return to the future operating performance between firms with a walk down (*OP*) of analysts' forecasts to an *MBE* event versus firms that did not walk down and so miss expectations (*OO*) to study whether the *MBE* reward is justified. Similarly, we also compare the period return and future operating performance between firms with a walk up (*PO*) of analysts' forecasts to a deliberate miss event versus those that did not and so achieve an *MBE* (*PP*) to study whether the miss penalty is justified.

If investors only partially discount for strategic motives associated with a walk down, they will reward a walk down to an *MBE* firm (*OP*) when compared with *OO*. Similarly, investors will penalize firms that walk up to a miss (*PO*) compared to *PP*. If the subsequent true underlying performance for either the strategically motivated walk down

or walk up firms, however, is not much different from their corresponding benchmark firms, then the reward and penalty are not justified.

We also examine whether investors' response to the earnings surprise is contingent on the revision path prior to the earnings announcement. If investors are somewhat skeptical of the positive earnings surprise from a walk down *OP* firm relative to a *PP* firm, their stock price reaction will be more muted. Similarly, investors' reaction to a negative earnings surprise from a walk up *PO* firm would also be more muted relative to the *OO* firm. However, the positive reaction for *OP* and negative reaction for *PO* are overreactions relative to full discounting by fully attentive investors. Therefore, walk down *OP* firms and walk up *PO* firms will experience a post-event return reversal. Since an *MBE* event is good news and a miss bad news, we need to adjust the post-event returns for the effects of the well-known post-earnings announcement drift anomaly (PEAD).[2]

The general sample period spans from the first quarter of 1984 to the last quarter of 2006.[3] There were dramatic changes in the regulatory regime governing the communication between analysts and management after 2000. Regulation Fair Disclosure (Reg FD) was instituted October 23, 2000, the Sarbanes-Oxley Act (SOX) was enacted on July 30, 2002, and Regulation Analyst Certification (Reg AC) became effective April 14, 2003. Prior research and anecdotal evidence also suggest a substantial increase in the use of analysts' estimates as a benchmark for firm performance, and increased prevalence of the expectations game in the 1990s (e.g. Richardson et al., 2004).[4] The widespread

---

[2] See Bernard and Thomas (1989).
[3] We choose to study quarterly periods over annual periods to increase the number of observations and so maximize the power of our tests.
[4] Several financial information sources began providing earnings benchmarks based on analysts' forecasts on the Internet in the mid-1990s. One of the best known, First Call, introduced its service to the web in 1994.

publicity and regulatory crack-down on the earnings numbers game in recent years likely have raised investor awareness of the *MBE* phenomenon. (Jain and Rezaee, 2006; Bartov and Cohen, 2008; Koh et al., 2008). Therefore, as a third objective, we examine whether the path-dependant return reactions are also time period specific. Given the likely regime change at the dates noted above, we partition the sample period into three sub-periods, 1984-1994, 1995-2000, and 2001-2006.

For firms with initial optimistic forecasts, we find that the market rewards firms that walk down the forecasts to an *MBE* event (*OP*) compared to the miss firms (*OO*), consistent with Richardson et al. (2004). However, the walk down reward disappears after 1995, consistent with increased investor awareness of the earnings numbers game from the popular press and academics. In contrast, we find that firms that walk up forecasts to a miss event (*PO*) are penalized relative to firms that beat forecasts from the start (*PP*) in all three sub-periods.

For the short-window market reaction to earnings surprises following different forecast revision paths, we find that the market's reaction is significantly smaller for surprises achieved through switching of expectations with walk down *OP* or walk up *PO* revision paths, as compared to their counterparts with consistent optimism (*OO*) or consistent pessimism (*PP*) respectively throughout the quarter. This evidence suggests that investors do discount somewhat for such earnings games. Whether they discount appropriately and sufficiently or not can only be determined by evaluating post-event operating performance and post-event return reversals.

For the walk down *OP* firms relative to the *OO* firms, the subsequent quarter ROA increases only in the two earlier sub-periods. Moreover, the increase is not from an

increase in cash flows from operations. If accruals are more easily managed than cash flows from operations, the results suggest that *OP* firms are in effect no better performers than *OO* firms. The *MBE* reward of *OP* firms over *OO* firms in the early period is therefore not justified, implying that investors are misled by the walk down. The disappearance of the *MBE* reward in later periods, however, suggests that investors learn to discount the walk down.

Similarly, the poorer next quarter earnings performance of walk up *PO* firms relative to *PP* firms occurs only in the early periods, and is not supported by worse cash flows. In other periods, neither the earnings nor cash flow performances are all that different. However, investors continue to punish walk up *PO* firms relative to *PP* firms in later sub-periods, suggesting that investors may not be sufficiently attentive to the strategic incentives of *PO* firms to obtain a miss event.

If investors do not fully discount the information in the *positive* earnings surprises achieved through a walk down path, *OP* firms will be temporarily overvalued and a stock return reversal is likely to follow. However, given the existence of the post-earnings announcement drift, which we consider to be driven by a different source, the reversal will dampen the magnitude of the upward-return drift related to PEAD and may not be strong enough to dominate it. A similar argument about temporary undervaluation can be applied to the *PO* path, in which case we expect that the future return reversal for a walk up will offset part of the downward PEAD drift. Consistent with this conjecture, we find that the PEAD effect is dampened among the switching *OP* and *PO* firms than among the consistent *OO* and *PP* firms, controlling for the magnitude of earnings surprises. We find that over time the magnitude of PEAD for *OP* and *PO* firms converges to that of *OO* and

PP firms, which is again consistent with investors' increased awareness of the numbers game.

Turning to incentives, consistent with Richardson et al. (2004), we find that *OP* firms engage in more stock selling activities (insider net sales and equity issuance) than *OO* firms following earnings announcements, but not in the latest sub-period. The disappearance of these incentives in 2001-2006 is consistent with the earlier returns results that investors no longer reward the numbers game and that the managers are aware of the change in investor reaction.

The new finding is that walk up (*PO)* firms engage in more stock purchase activities (insider net purchases and equity repurchases) than *PP* firms following earnings announcements, which supports the interpretation that the walk up *PO* path is a strategy managers employ to depress the firm's short-term stock price to facilitate buying at a cheap price.

We contribute to the literature in several ways. We provide a comprehensive study of the valuation consequences for the four expectations revision patterns. The four-way comparison of the future stock return and operating performance tests allow us to investigate more fully whether the market reward to *MBE* or penalty to a miss is justified. We also contribute to the earnings surprise literature by documenting that the market's reaction to earnings surprises is dependent on the expectations revision path. We extend Richardson et al.'s (2004) analysis on firm and managerial capital market incentives to the walk up sample and demonstrate that managers also have incentives to deliberately miss benchmarks. Overall, our findings have implications for regulators, capital market participants, and researchers who wish to better understand the causes and consequences

of earnings expectations guidance.

2. Related Literature and Research Questions

2.1. Market Reward to Meeting or Beating Earnings Expectations (MBE)

The capital markets penalize severely those firms whose reported earnings fail to meet market expectations (Skinner and Sloan, 2002). Not surprisingly, therefore, anecdotal and academic evidence suggests that firms seek to avoid reporting negative earnings surprises (Degeorge, Patel, and Zeckhauser, 1999; Dechow, Richardson, and Tuna 2003; Brown and Caylor, 2005) either by upward earnings management (Cheng and Warfield, 2005) and/or downward forecast guidance (Matsumoto, 2002; Bartov, Givoly, and Hayn, 2002) to attain *MBE*, with the latter mechanism being more prevalent (Bartov and Cohen, 2008). In addition to the event stock price reactions, Bartov et al. (2002) also document that firms with non-negative earnings surprises have higher stock returns over the whole fiscal period compared to firms with negative earnings surprises controlling for the magnitude of forecast errors.

In interpreting these findings, the literature implicitly assumes that the walk down expectations management strategy (*OP*) is rewarded by the capital markets. However, there has been no systematic study of how and whether the period returns and the event reactions are related to the analyst forecast revision paths leading up to the earnings surprise. Both walk down *OP* and *PP* paths result in *MBE*. Similarly, firms with negative surprises are either walk up *PO* or *OO* firms. To evaluate whether there is an *MBE* reward to a walk down requires conditioning on an initial optimistic forecast and then comparing period returns between final pessimistic forecast firms to firms where the forecasts are

not walked down but stayed optimistic. In other words, the comparison of the period returns should be between *OP* and *OO* firms. Similarly, to evaluate the penalty to a walk up leading to a miss forecast, the comparison should be between *PO* and *PP* firms. To summarize, we evaluate the following:

1a. *Ceteris paribus, are stock returns over the quarter higher for OP firms than for OO firms?*

1b. *Ceteris paribus, are the stock returns over the quarter higher for PP firms than for PO firms?*

Our next question relates to the fact that there is no consensus in the literature on whether the reward to *MBE* is rational. On the one hand, Malmendier and Shanthikumar (2007) find that small investors do not account for the bias in analyst forecasts, and that their trading behavior induces negative abnormal returns. On the other hand, Bartov et al. (2002) suggest that the premium to *MBE* is a leading indicator of future performance and is not associated with any subsequent stock return reversal, consistent with a rational explanation for the documented reward. To investigate whether the reward to *MBE* is rational, we conduct three analyses that specifically takes into account path-dependency.

First, we compare the future operating performance between *OP* and *OO* firms, and between *PP* and *PO* firms. If the walk down to achieve *MBE* was strategic to game the market, then the future performance of *OP* firms should not differ much from *OO* firms. Similarly, if the walk up to miss expectations was strategic to game the market, there should also be little difference between the future performance between *PO* and *PP* firms.

2a: *Ceteris paribus, does OP have better future operating performance than OO?*

2b: *Ceteris paribus, does PP have better future operating performance than PO?*

Next, we examine whether the earnings surprise event reaction is also path-dependent. Since both *OP* and *PP* firms achieve *MBE*, it would be useful to know if investors adjust for how *MBE* is achieved. Given the more likely strategic nature of *OP* in achieving *MBE*, if the market is at least partially rational, it would discount the positive earnings surprise of *OP* relative to *PP*. Similarly, when comparing walk up *PO* with *OO*, investors may discount for the strategic motive of the miss event through a walk up.

3a: *Ceteris paribus, is the positive market reaction to an earnings surprise from OP smaller than to an earnings surprise from PP?*

3b: *Ceteris paribus, is the negative market reaction to an earnings surprise from PO smaller than to an earnings surprise from OO?*

Even if the reaction to earnings surprise is path-dependant, the differential reaction does not reveal whether investors are able to see through the expectations guidance game fully. To investigate this question, we need to examine whether subsequent price reversals, if any, are path-dependant. The test here is complicated by the presence of PEAD, which may be driven by other causes. To tease out the effects of PEAD, we use the returns conditioned on the size of SUE from the relatively non-strategic groups *OO* and *PP* groups as estimates of PEAD for the strategic revision path groups *OP* and *PO*. Therefore, we test the following:

4. *Is the post-earnings-announcement drift weaker for the OP and PO revision paths than for the PP and OO revision paths?*

2.2 Guidance to Drive Down the Firm's Short-term Price

The extant literature on expectations guidance focuses almost exclusively on managers' incentives to achieve *MBE* targets. Richardson et al. (2004) report increased

new issues and net insider selling associated with a walk down *OP* path as compared with the *OO* path. On the flip side, managers may also have incentives to miss forecasts so as to benefit from the temporarily depressed stock prices, as when they intend to purchase the firm's stock either on their firm's behalf (via stock repurchases or a management buyout) or on their own personal account (via insider purchases or options grants). Similar incentives have been documented using the earnings management mechanism (Gong et al. (2008) for stock repurchases, McAnally et al. (2008) for stock option grants). To the best of our knowledge, no study to date has examined the incentives for a walk up revision path as an expectations guidance mechanism to depress price. We test this hypothesis:

H5. *For a firm with an initial pessimistic forecast, the likelihood of observing a walk up forecast revision path prior to the earnings announcement increases in managers' incentives to purchase its firm's stock after the earnings announcement, either via insider net buying on personal account or via a repurchase of the firm's stock.*

3. Data and Descriptive Statistics

3.1 Data

Individual analysts' forecasts of quarterly earnings are from Thompson Financial I/B/E/S for the period spanning 1984 to 2006. Following the literature (Bartov et al., 2002; Kasznik and McNichols, 2002), we require firm quarter observations to satisfy the following criteria: (1) there are at least two individual earnings forecasts in the quarter (not necessarily by the same analyst) at least 20 trading days apart; (2) the release date of the earliest forecast is on the same day of or after the previous quarter's earnings

announcement;[5] and (3) the release date of the latest forecast precedes the current quarter's earnings release date by at least three days.

Actual earnings numbers are from I/B/E/S for comparability with the earnings forecasts. Other financial accounting data are from COMPUSTAT and stock returns data from CRSP. The total number of firm-quarter observations in the full sample is 122,053, covering the period from January 1984 to December 2006.

Insider-trading data are from the Thompson Financial insider trading database (TFN). We follow Richardson et al. (2004) and examine only open market sales and purchases. In addition, we only include trades by directors or officers to ensure that we capture the trading activities of those individuals who most likely have an impact on the reporting process of the firm. The variable *INSIDERSALE* combines the information of insider sales and purchases and denotes the net percentage of shares sold by officers or directors within one-month after the earnings announcement date. It is positive if insiders taken together are net sellers and negative when insiders are net purchasers.

We study a firm's trading incentives by considering two types of securities transactions: equity issuance and equity repurchases. The equity issuance and repurchase variables are derived from the statement of cash flows (COMPUSTAT data item 84 and item 93, respectively) and are scaled by the market capitalization at the beginning of the quarter.[6] To be consistent with the construction of *INSIDERSALE*, we combine the scaled equity issuances and repurchases to create the variable *FIRMSALE*, with a positive value

---

[5] Bartov et al. (2002) require that all the forecasts be made at least three trading days after the release date of the previous quarter's earnings. However, we find that a significant portion (3% for day 0, 16% for day 1, and 5% for day 2 relative to the preceding earnings announcement day) of all the forecasts for the next quarter is made within three days of the preceding earnings announcement. Following Bartov et al.'s (2002) criteria does not qualitatively change our reported results.

[6] As a robustness check, we combine the COMPUSTAT information with equity issuances or repurchases data extracted from the SDC to ensure data accuracy. The results are similar.

denoting net equity issuance and a negative value denoting net equity repurchases.

3.2   Time-series Patterns of the Four Expectations Revision Paths

Table 1 reports the time-series distribution of the four forecast revision paths. We find that the walk down *OP* path is not the most frequent revision path, accounting for only 17% of the total paths in sub-period 1984-1994, increasing to over 25% in sub-period 1995-2000, and declining back to below 15% in the post-scandal sub-period 2001-2006. This observed pattern is consistent with Richardson et al.'s (2004) finding that walk down is most prevalent in the second half of the 1990s. It is also consistent with Bartov and Cohen (2008) and Koh et al. (2008), who argue that managers' financial disclosure and guidance behaviors change following the Sarbanes- Oxley Act of 2002.

The relative frequency of the *PP* path increases dramatically from around 30% in the mid-1980s to about 55% in the mid-2000s, consistent with prior findings of an increased number of *MBE* firms in more recent years. Our evidence indicates that *MBE* firms are not primarily driven by walk down firms especially in more recent years.

In stark contrast to the *PP* path, the relative frequency of *OO* decreases from more than 40% in the mid-1980s to about 20% in our latest sub-period. This may explain why studies in the 1980s tend to document that analysts are on average optimistic, while studies using more recent data find that analysts are on average pessimistic. The walk up *PO* path accounts for less than 10% of the sample in most years and shows a slight decline from 9% in the earliest sub-period to about 6% in the two later sub-periods.

3.3   Descriptive Statistics

Table 2 provides descriptive statistics for our sample partitioned into the four forecast revision paths. *OP* firms are on average larger and have higher market-to-book than *OO* firms. They also outperform *OO* firms both in the current and next quarters, when measured using both return on assets (ROA) and cash flow from operations (CFO).[7] The quarterly returns (CAR_ERROR) and event day returns (CAR_SURP) are also better for *OP* than those for *OO*, whereas the post-quarter return reversals (CAR_PEAD) are larger for *OO* than *OP*. When comparing *PP* to *PO*, we find very similar results in that *PP* firms outperform *PO* firms. These univariate results are consistent with Bartov et al.'s (2002) proposition that *MBE* is a leading indicator of future performance, even for the walk down *OP* firms.

Comparing the two paths *OP* and *PP* that lead to *MBE*, *PP* firms outperform *OP* firms in all dimensions, both current and future ROA and CFO, and stock returns, which suggests that the positive earnings surprises of *PP* firms convey more reliable good news than those of *OP* firms. For the two revision paths leading to a negative surprise or miss event, we find that *OO* firms perform significantly worse than *PO* firms, suggesting that *OO* firms are more reliably bad news firms than *PO* firms.

In the next section, we perform multivariate analyses to control for the magnitude of the earnings surprise, size of the analyst revisions and other confounding factors in the above comparisons that will allow for more definitive inferences. We test for whether the analyst revision path preceding the earnings announcement has implications for firms' future performance, and whether investors understand these implications.

---

[7] Untabulated t-test results show that all these differences, except for Δ_CFO and CAR_PEAD, are statistically significant.

4. Investor Reactions to the Four Analysts' Revision Paths

4.1 Reward to walk down and penalty to walk up (Q1a and Q1b)

We first examine whether the prior finding of a reward to the *MBE* event itself extends to the more recent periods. As in past studies, the valuation reward is measured as the incremental market-adjusted quarterly return for *MBE* firms (*OP* and *PP*) relative to miss firms (*OO* and *PO*) after controlling for the magnitude of the forecast error and earnings surprise. Specifically, we run the following regression:

$$CAR\_ERROR_{j,q} = \beta_0 + \beta_1 ERROR_{j,q} + \beta_2 SURP_{j,q} + \beta_3 DMBE_{j,q} + \varepsilon_{j,q}, \qquad (1)$$

$CAR\_ERROR_{j,q}$ is firm j's market-adjusted stock return cumulated from three days after the release date of the earliest forecast for quarter q ($FEARLIEST_{j,q}$) to one day after quarter q's earnings announcement.

$ERROR_{j,q} = (EPS_{j,q} - FEARLIEST_{j,q})/PRICE_{j,q-1}$ is the forecast error for quarter q, calculated as quarter q's I/B/E/S actual earnings minus quarter q's earliest forecast, scaled by the beginning-of-quarter stock price.[8]

$SURP_{j,q} = (EPS_{j,q} - FLATEST_{j,q})/PRICE_{j,q-1}$ is firm j's earnings surprise for quarter q, calculated as quarter q's actual earnings minus quarter q's latest forecast ($FLATEST_{j,q}$), scaled by the beginning-of-quarter stock price.

$DMBE_{j,q}$ is the indicator variable set to one if $SURP_{j,q} >= 0$, and zero otherwise. If there are multiple forecasts on the earliest or latest forecast day of the quarter, we take the mean forecast of that day to calculate *ERROR* or *SURP*.

To capture the possible nonlinear relation between earnings surprise and returns we split *SURP* into two variables, $SURP^+$ and $SURP^-$ and include an indicator variable

---

[8] As in Richardson et al. (2004) we also use an alternative specification by identifying *FLATEST* (*FEARLIEST*) as the latest (earliest) consensus analyst forecast using two-week windows. The results are qualitatively similar.

DSMALLSURP in an alternative specification below as:

$$CAR\_ERROR_{j,q} = \beta_0 + \beta_1 ERROR_{j,q} + \beta_2 SURP^+_{j,q} + \beta_3 SURP^-_{j,q} + \beta_4 DMBE_{j,q}$$
$$+ \beta_5 DSMALLSURP_{j,q} + \varepsilon_{j,q} \tag{1a}$$

$SURP^+$ ($SURP^-$) takes the value of *SURP* when *SURP* is greater (smaller) than zero, and

zero otherwise. *DSMALLSURP* equals one if the absolute value of *SURP* is smaller than

0.02% (Koh et al., 2008).[9]

The empirical results for these regressions are in Table 3. Panel A exhibits that, even

after controlling for the forecast error (*ERROR*) and earnings surprise, *MBE* firms still

observe a higher market-adjusted stock return for the entire quarter in both the earlier

Bartov's (2002) sample and more recent sample (1998-2006).[10]

MBE firms include *PP* and *OP* firms. The walk down *MBE* firms (*OP*) are more

likely to have behaved strategically and, if investors discount for the greater likelihood of

MBE gaming, they may not reward *OP* firms with a valuation premium. Therefore, we

estimate regression (1) with only *OP* and *OO* firms to test Q1a for each year in our

sample.[11] Column I of Table 4 reports only the *DMBE* coefficients and associated

t-statistics for brevity. For the sub-period before 1995, *DMBE* is significantly positive in

nine out of eleven years. During the 1995 to 2000 period, when the financial press and

academics focused extensively on the earnings guidance game, the documented reward

exists only in one out of the six years. Between 2001 and 2006 period when high profile

accounting scandals occurred, the reward completely disappears. The premium average a

highly significant 2.5% in the 1984-1994 period but actually reverse sign to an

---

[9] Other cut-off points are also used; however, the main results are similar.
[10] Bartov et al. (2002) require the firms in their sample to have a December fiscal year-end, while we do not impose this restriction. Untabulated results show that this has little impact on the results.
[11] Untabulated results for each sub-period yield very similar conclusions to the yearly regressions.

insignificant -0.34% in this latest period. Overall, results indicate that investors reward *MBE* regardless of how it is achieved in the early periods but learn to question the credibility of reported good earnings news after a walk down of the analysts' forecast.

To investigate whether investors punish a walk up *PO* path, we present the comparison between *PP* and *PO* in Column II of Table 4. The penalty to *PO* firms relative to *PP* firms (equivalently the reward to *PP* firms relative to *PO* firms), remains high throughout the entire sample period, averaging about 2.4%. Investors therefore do not seem to be aware of potential strategic motives for a walk up to a deliberate miss through time.

Recent evidence suggests that the reward to *MBE* diminishes after the Sarbanes-Oxley Act (Koh et al., 2008). Our analysis implies that this result is driven by the disappearance of the reward in the walk down group.

4.2   Rationality in the Market's Reward to Walk Down and Penalty to Walk Up

We demonstrate that investors penalize walk up *PO* throughout our sample period, and a reward to walk down *OP* in the early sample period. The next question is whether these valuation effects are justified by the underlying performance of the firm. In this sub-section, we conduct three tests to examine this issue.

4.2.1   MBE and Future Operating Performance (Q2a and Q2b)

If the reward to walk down (*OP)* and penalty to walk up (*PO)* are justified, we would like to see that *OP* firms perform better in future relative to *OO* firms, and vice versa between *PP* firms and *PO* firms. We run the following regressions to investigate the issue:

$$\Delta\_ROA_{j,q} = \phi_0 + \phi_1 ERROR_{j,q} + \phi_2 SURP^+{}_{j,q} + \phi_3 SURP^-{}_{j,q} + \phi_4 DSMALLSURP_{j,q} \qquad (2)$$
$$+ \phi_5 DMBE_{j,q} + +\phi_6 MV_{j,q} + \phi_7 MTB_{j,q} + \varepsilon_{j,q}$$

$$\Delta\_CFO_{j,q} = \phi_0 + \phi_1 ERROR_{j,q} + \phi_2 SURP^+{}_{j,q} + \phi_3 SURP^-{}_{j,q} + \phi_4 DSMALLSURP_{j,q}, \qquad (3)$$
$$+ \phi_5 DMBE_{j,q} + \phi_6 MV_{j,q} + \phi_7 MTB_{j,q} + \varepsilon_{j,q}$$

Δ_ROA is the change in return on assets (*ROA*) one quarter ahead.

Δ_CFO is the change in cash flow from operations (*CFO*) one quarter ahead.

MV is the logarithm of the market value of equity.

MTB is the market-to-book ratio.

The results are reported in Table 5. We correct for the time-series dependence of the performance measures by clustering at the firm level to obtain White standard errors to compute *t*-statistics (Petersen, 2009). In Panel A, ROA increase is larger for *OP* than *OO* during 1984 to 2000, but the CFO change between these firms is not significantly different in any of the sub-periods. If managers have more discretion in reporting ROA than CFO using accruals management, these findings suggest that, in the earlier years of the sample, investors reward good news surprises even when the firms do not deliver higher future CFO but they catch on to the walk down game over time.

We use one-quarter-ahead performance measures for the above tests because learning is more likely when the underlying economic fundamentals (i.e., future performance) are revealed within a short period of the gaming event. The results are similar when we use one-year-ahead change in ROA and CFO.

Panel B of Table 5 reports the next-quarter performance of *PP* versus *PO*. The *PP* valuation premium over *PO* does not seem to be justified. *PP* does not deliver consistently higher future operating performance in the three sub-periods. The only significant difference in performance measure is the increase in ROA over the next

quarter for the first sub-period. The change in CFO in the next quarter is no different between the two groups of firms in all three sub-periods, and the change in CFO is actually smaller for *PP* than *PO* firms using annual data in the 1995-2000 sub-period. The evidence therefore suggests that valuation penalty for "walk up to miss" firms is not justified.

4.2.2 Short-window Price Reaction to Earnings Surprises (Q3a and Q3b)

If investors understand the underlying gaming nature of walk down or walk up revision paths, they would consider the forecast revision path leading up to the earnings announcement when responding to the earnings surprise. We test whether they do so using the following regressions in equation (4) for the good news firms *PP* and *OP* and in equation (5) for the bad news firms *OO* and *PO*:[12]

$$CAR\_SURP_{j,q} = \delta_0 + \delta_1 SURP_{j,q} + \delta_2 DSMALLSURP_{j,q} + \delta_3 OP_{j,q} + \varepsilon_{j,q} \qquad (4)$$

$$CAR\_SURP_{j,q} = \gamma_0 + \gamma_1 SURP_{j,q} + \gamma_2 DSMALLSURP_{j,q} + \gamma_3 PO_{j,q} + \varepsilon_{j,q}, \qquad (5)$$

where $CAR\_SURP_{j,q}$ is the market-adjusted return for firm j in quarter q cumulated from two days after the latest forecast date for the quarter to one day after the earnings release date.[13] *OP* indicator variable is set to one for *OP* firms, and zero for *PP* firms in regression (4). Similarly, *PO* indicator variable is set to one for *PO* firms, and zero for *OO* firms. If investors discount the information in earnings surprises resulting from a walk down *PO* or a walk up *OP*, we predict that $\delta_3 < 0$ and $\gamma_3 > 0$.

The results are reported in Table 6 for each year. For brevity, we only report the

---

[12] Splitting *SURP* into *SURP*[+] and *SURP*[-] in the regression does not qualitatively change the main results. We use this simplified version for brevity.
[13] The results are similar if we use a three-day window around the earnings announcement date.

coefficients and associated *t*-statistics on *OP* and *PO* indicator variables. Consistent with our prediction for Q3a, δ_3 in Column I is significantly negative in all 23 years, indicating that investors do pay attention to the revision path. They are skeptical about the positive earnings surprises achieved through a walk down and hence apply some discounting of the good news. The coefficient is much more negative in the latest 3 years, consistent with heavier discounting in recent years.

Column II also confirms that negative earnings surprises attained through a walk up are perceived by the capital markets to be less credible (*Q3b*). The estimated coefficient on *PO* indicator variable, γ_3, is significantly positive in all 23 years, consistent with investors discounting bad news that is achieved through a walk up.

In summary, investors do seem to realize the strategic nature of the positive earnings news achieved through a walk down and the negative earnings news achieved through a walk up and adjust their price reaction accordingly.

4.2.3 Stock Return Reversal Analyses (Q4)

The above analysis on the short-window price reaction only reveals that investors realize, at least to some degree, the strategic nature associated with both a walk down and a walk up. However, it does not answer the question of whether investors adjust *fully* in their price response. To address this issue, we check for future stock return reversals for the two strategic revision paths, *OP* and *PO*.

For each calendar quarter, we form five equal-sized portfolios based on the magnitude of SURP across all the sample firms. Then, within each quintile we separate firms into two groups, one containing the strategic firms *OP* and *PO* and the other

containing the non-strategic (or at least less strategic) firms *OO* and *PP*. For each group, we calculate the average return in the subsequent quarter (CAR_PEAD) for each quintile for all three sub-periods. The hedge portfolios for the SUE strategy are constructed by buying the highest SURP quintile and shorting the lowest SUE quintile for the strategic *OP* and *PO* sub-group and for the non-strategic *PP* and *OO* sub-group. By ranking all firms on SURP first, we use the same cut-offs for the SUE quintile, and therefore control for the magnitude of earnings surprises between the strategic and non-strategic subgroups. The average CAR_PEAD and the hedge returns are reported in Table 7 for the two sub-groups for each of the sub-periods.

The hedge returns in the *PP* and *OO sub*-group average 4.87%, 6.20%, and 5.0% respectively for the three sub-periods, which are comparable to the magnitudes reported in the literature (Bernard and Thomas, 1989; Livnat and Mendenhall, 2006). In contrast, the hedge return in the *OP* and *PO* sub-group which comprises the walk down and walk up sample is not significant in 1984-1995 sub-period, increases to 2.22% in the second sub-period and to 4.04% during 2001 to 2006.

We interpret the above results as follows. The post-quarter returns are largely driven by the effect of PEAD in the non-strategic sample. For the strategic sample, however, the post-quarter returns will depend on how the PEAD effect offsets the return reversals from insufficient discounting of preceding quarter earnings surprises from strategic walk down or walk up activities. Note that the return reversals operate in the opposite direction from the PEAD effect. In the earliest period, investors did not discount sufficiently for these strategic motives so the return reversals tend to be large and of sufficient magnitude to completely offset the PEAD effect, resulting in no hedge returns. If one uses the hedge

return from PEAD in the non-strategic sample of -4.87% as an estimate of the PEAD effect for this sub-period, then the return reversal from the correction of the overreaction to the earnings surprise in the strategic sample is actually about 4.61%, which is statistically significant.

In contrast, in the latest sub-period when there is much less overreaction to the earnings surprise for the strategic sample (as reported in the previous sub-section), the small return reversals are insufficient to dampen the PEAD effect. Therefore the hedge returns from the SUE strategy show a net significant 4.04% for the strategic sample, which is almost as large as the PEAD effect for the less strategic sample of 5.03%.

Summarizing the results in this section, we find that before 1994, compared to firms with consistent optimistic forecasts *OO*, initial optimistic forecast firms that walked down their forecasts to a positive earnings surprise enjoy a stock return premium that is not justified by later operating performance. This premium is diminished after the mid-1990s. In contrast, firms with consistent pessimistic forecasts *PP* continue to enjoy a premium over those with initial pessimistic forecasts that walk up their forecasts to miss expectations, and this premium is not justified by later operating performance. So while investors have learned to discount *MBE* from a strategic walk down of forecasts, they remain overly pessimistic about walk up firms. A walk up motive seems less intuitive than a walk down motive and has not been of as much focus of attention from the regulators and the media. We consider explicitly the incentives to both a walk down and a walk up by managers and firm next.

5. Equity Trading Incentives

In this section we examine how net selling behavior of insiders and new issues or repurchases by firms may affect incentives to walk down or walk up forecasts.

5.1 The Walk Down Revision Path and Equity Transaction Incentives (H5)

Richardson et al. (2004) find that firms that issue more equity and whose managers are net sellers of the firm's stock after an earnings announcement are more likely to walk down forecasts. They hypothesize that these incentives are induced by the market reward to *MBE*. Since our previous section results show that the *MBE* reward from a walk down is much diminished in later periods, we test whether these incentives have diminished in the more recent periods. Following Richardson et al., we estimate the following logistic regression for the *OP* and *OO* sample:

$$
\begin{aligned}
OP_{j,q} = \beta_0 &+ \beta_1 INSIDERSALE_{j,q} + \beta_2 FIRMSALENOW_{j,q} + \beta_3 FIRMSALESNEXT_{j,q} \\
&+ \beta_4 MTB_{j,q} + \beta_5 SIZE_{j,q} + \beta_6 ROA_{j,q} + \beta_7 RD_{j,q} + \beta_8 LITG_{j,q} + \beta_9 CHEARN_{j,q} + \varepsilon_{j,q}
\end{aligned}
\tag{6}
$$

INSIDERSALE is the net percentage of shares traded within one month after the earnings announcement; it is positive when insiders are net sellers and negative when insiders are net purchasers.

FIRMSALENOW is the issuance or repurchase of common and preferred equity during the quarter; a positive amount denotes equity issuance (COMPUSTAT data item 8 deflated by beginning-of-quarter market value) and a negative amount denotes stock repurchases (COMPUSTAT data item 93 deflated by beginning-of-quarter market value).

FIRMSALENEXT is the *FIRMSALENOW* value in the subsequent quarter.

RD is the research and development expenditure scaled by average total assets.

LITIG is an indicator variable equal to one for high litigation risk industries as defined in Matsumoto (2002), and zero otherwise.

CHEARN is an indicator variable equal to one for a positive change in earnings from the same quarter in the prior year, and zero otherwise.

The results of regression (6) are in Panel A of Table 8. Consistent with Richardson et al. (2004), we find that *OP* revision path is more frequent in firms with subsequent net insider sales and equity issuance in the early sub-period. Interestingly, net insider sales is statistically insignificant and equity issuance even reverses its sign in the post-scandal period (2001-2006), which suggests that these incentives disappear once investors stop rewarding a walk down to *MBE*.

5.2 Walk Up and Equity Transaction Incentives (H5)

We observe in our sample period a relatively small and somewhat stable proportion (9% in earliest period and 6% in later sub-periods) of walk up *PO* firms. Are these *PO* paths merely a random outcome or are they also driven by capital market-related incentives? To test our hypothesis *H5*, that *PO* is a strategic move by managers to walk up forecasts to elicit a temporarily dampening of the stock price and thereby facilitate equity buying, we re-estimate regression (6) by contrasting *PO* and *PP* firms with the indicator variable set to one for *PO*. We expect that $\beta_1 < 0$ and $\beta_3 < 0$.

Panel B of Table 8 reports our findings. The coefficient estimate on INSIDERSALE, β_1, is significantly negative for each of the three sub-periods, consistent with the prediction that insiders buy more following a walk up of forecasts to a deliberate miss. FIRMSALENEXT is significantly negative, indicating firm repurchase of stock, in the earliest period 1984-1994. In sum, the walk down and walk up paths are related to managerial incentives to sell equity for the former and to buy equity for the latter either

on personal account or on behalf of the firm. The insignificant coefficients on *FIRMSALENEXT* in periods after 1995, in contrast to the persistent significance of *INSIDERSALE* suggest that managers have stronger incentives to trade on their own account than for the firms' benefit when playing the numbers game.

We also consider analysts' incentives to cooperate in this earnings numbers game. We find that analysts of walk down firms and those of walk up firms are rewarded with greater accuracy in the subsequent quarter or year. We do not tabulate these results as they are similar to Ke and Yu (2006) though they did not interpret their results for the walk up case and their period ends in 2000. As Ke and Yu suggests, the results imply that cooperative analysts are rewarded with greater access to management, and so are able to be more accurate (though more biased). Past literature also note that investment banks that employ analysts with favorable forecasts are more likely to be selected to underwrite new equity issuances and tender offer repurchases.

7. Conclusions

In this paper we find evidence of a coherent relation between managers' incentives and investors' response to the *MBE* event via a walk down of analysts' forecasts and a miss event via a walk up of analysts' forecasts, and how the relation evolved over time. The past literature suggests that managers walk down analyst forecasts to report positive earnings surprises so as to boost firms' stock prices and facilitate stock selling.

Consistent with this view, we find that investors do reward a walk down with a valuation premium over the quarter that the phenomenon occurs, and that managers take advantage of the temporary valuation premium to sell equity on personal account or on

behalf of the firm. However, the valuation premium is erased once investors become aware of the strategic motive underlying a walk down of analysts' forecasts to achieve a positive earnings surprise in recent years. Once the valuation premium is erased, managers have less incentive to sell stock.

On the flip-side, we find that managers have incentives to depress stock prices to facilitate their buying shares on personal account or firm repurchases with a walk up of forecasts to deliberately miss analysts' expectations. Our evidence shows that walk up firms are indeed punished by investors relative to those that experience consistent pessimistic forecasts in the quarter and so meet or beat expectations. In response, managers are more likely to buy shares on personal account or the firm to repurchase stocks in walk up firms. Investors do not appear to have learned to discount for these strategic motives even in recent years.

When they exist, the valuation premium for a walk down to *MBE* and the penalty of a walk up to a miss are not warranted by future operating performance. In general, the future cash flows are no different for walk down firms and walk up firms when compared to consistent optimistic forecast firms and consistent pessimistic forecast firms respectively. In more careful tests, we find that the valuation premium or penalty is the result of insufficient discounting for potential strategic motives behind walk down or walk up gaming. Instead, investors overreact to earnings surprises following walk down or walk up, and their subsequent return reversals offset the well-known PEAD effect.

In sum, we find evidence that there are rewards to the earnings numbers game for firms and managers at investors' expense. In more recent years, the rewards to a walk down have largely disappeared when investors have become aware of the phenomenon.

However, the rewards to a walk up, a phenomenon that has been largely ignored in the literature and by regulators and the press, continue to exist. Investors therefore need to be more skeptical of intentional bad news surprises from a walk up revision of analysts' forecasts.

References

Bartov, E., and D. Cohen. 2008. Mechanisms to meet/beat analyst earnings expectations in the pre- and post Sarbanes Oxley eras. Working paper. New York University.

Bartov, E., D. Givoly, and C. Hayn. 2002. The rewards to meeting or beating earnings expectations. *Journal of Accounting and Economics* 33: 173-204.

Bernard,V., and J. Thomas. 1989. Post-earnings-announcement drift: Delayed price response or risk premium? *Journal of Accounting Research* 27: 1–48.

Brown, L., and M. Caylor. 2005. A temporal analysis of quarterly earnings thresholds: Propensities and valuation consequences. *The Accounting Review* 80(2): 423-440.

Cheng, Q., and T. Warfield. 2005. Equity incentives and earnings management, *The Accounting Review*, Vol. 80 No.2, pp.441-77.

Cohen, L.P. 1991. Low balling: How some companies send stocks aloft. *The Wall Street Journal* (May 6, 1991): C1.

Dechow, P., S.Richardson, and A.Tuna. 2003. Why are earnings kinky? An examination of the earnings management explanation. *Review of Accounting Studies* 8: 355-384.

DeGeorge, F., J. Patel, and R. Zeckhauser. 1999. Earnings management to exceed thresholds. *Journal of Business* 72: 1-33.

Gong, G., H. Louis, and A. Sun. 2008. Earnings management and firm performance following open-market repurchases. *The Journal of Finance* 63: 947-986.

Jiang, J. 2008. Beating Earnings Benchmarks and the Cost of Debt. *The Accounting Review* 83: 2. 377-416.

Kasznik, R., and M. McNichols. 2002. Does meeting earnings expectations matter? Evidence from analyst forecast revisions and share prices. *Journal of Accounting Research* 40: 727-759.

Ke, B., and Y. Yu. 2006. The effect of issuing biased earnings forecasts on analysts' access to management and survival. *Journal of Accounting Research* 44: 965-999.

Koh., K., D. Matsumoto, and S. Rajgopal. 2008. Meeting or beating analysts in the post-scandal words: Changes in stock markets rewards and managerial actions. *Contemporary Accounting Research*: forthcoming.

Levitt, A. 1998. The "Numbers Game." http://www.sec.gov/news/speech/speecharchive/1998/spch220.txt

Livnat, J., and R.Mendenhall. 2006. Comparing the post-earnings-announcement drift for surprises calculated from analyst and time series forecasts. *Journal of Accounting Research* 44: 177-205.

Malmendier, U., and D. Shanthikumar. 2007. Are small investors naïve about incentives? *Journal of Financial Economics* 85(2): 457-489.

Matsumoto, D. 2002. Management's incentives to avoid negative earnings surprises. *The Accounting Review* 77(3): 483-514.

McAnally, M., C. Weaver, and A. Srivastava. 2008. Executive stock options, missed earnings targets and earnings management. *The Accounting Review* 83 (1): 185-216.

Petersen, M. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22(1): 435-480.

Richardson, S., S. Teoh, P. Wysocki. 2004. The walkdown to beatable analysts' forecasts: the role of equity issuance and inside trading incentives. *Contemporary Accounting Research* 21: 885-924.

Skinner, D., and R. Sloan. 2002. Earnings surprises, growth expectations, and stock returns or don't let an earnings torpedo sink your portfolio. *Review of Accounting Studies* 7: 289-312.

Soffer, Leonard, S. Ramu Thiagarajan and Beverly Walther. 2000. Earnings Preannouncement Strategies. *Review of Accounting Studies*. 5(1): 5-26.

Vickers, M.1999. Ho-hum, another earnings surprise. *Business Week* (May 24, 1999): 83-84.

TABLE 1: Annual Distribution of the Four Expectations Revision Paths

Year	OP	OP(%)	OO	OO(%)	PP	PP(%)	PO	PO(%)	Total	OP(%)	OO(%)	PP(%)	PO(%)
1984	258	16.0	689	42.8	506	31.4	158	9.8	1,611				
1985	358	15.8	1,024	45.2	654	28.9	228	10.1	2,264				
1986	447	17.2	1,024	39.4	855	32.9	273	10.5	2,599				
1987	400	15.4	927	35.7	998	38.4	273	10.5	2,598				
1988	487	15.6	1,080	34.5	1,270	40.6	292	9.3	3,129				
1989	557	15.2	1,464	40.1	1,284	35.1	349	9.6	3,654				
1990	680	17.7	1,533	39.9	1,285	33.4	344	9.0	3,842				
1991	766	19.0	1,519	37.6	1,436	35.5	321	7.9	4,042				
1992	836	18.1	1,584	34.2	1,834	39.6	376	8.1	4,630				
1993	804	19.5	1,245	30.3	1,740	42.3	325	7.9	4,114				
1994	1,228	18.6	1,769	26.8	3,107	47.1	492	7.5	6,596	0.17	0.35	0.38	0.09
1995	1,416	20.6	1,763	25.7	3,216	46.8	470	6.8	6,865				
1996	1,519	21.1	1,571	21.8	3,582	49.8	527	7.3	7,199				
1997	1,567	20.4	1,588	20.6	4,069	52.9	467	6.1	7,691				
1998	1,848	25.1	1,536	20.9	3,629	49.3	346	4.7	7,359				
1999	1,572	22.8	1,210	17.5	3,811	55.2	315	4.6	6,908				
2000	1,271	21.9	1,015	17.5	3,247	55.9	278	4.8	5,811	0.22	0.21	0.52	0.06
2001	1,892	29.8	1,161	18.3	3,029	47.6	276	4.3	6,358				
2002	1,326	20.6	1,092	16.9	3,689	57.3	336	5.2	6,443				
2003	1,156	17.2	1,318	19.6	3,835	57.0	421	6.3	6,730				
2004	1,178	16.2	1,452	20.0	4,141	57.0	500	6.9	7,271				
2005	1,246	15.9	1,724	21.9	4,330	55.1	555	7.1	7,855				
2006	942	14.5	1,510	23.3	3,583	55.3	449	6.9	6,484	0.19	0.20	0.55	0.06
Total	23,754	0.19	30,798	0.25	59,130	0.48	8,371	0.07	122,053				

In the denotation of each of the paths (*OP*, *OO*, *PP*, and *PO*), the first letter refers to the optimistic(O)/pessimistic(P) status of the first forecast of the quarter, and the second letter refers to the optimistic(O)/pessimistic(P) status of the last forecast of the quarter. A forecast is labeled as O (P) if it is higher than (lower than or equal to) the actual earnings of the quarter. *OP* corresponds to walk down and *PO* corresponds to walk up.

Panel A: Firm-Level Variables

Variable	OP (Walk Down)		OO		PP		PO (Walk Up)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
ERROR	-0.004	-0.002	-0.008	-0.004	0.003	0.001	0.002	0.001
SURP	0.001	0.001	-0.005	-0.002	0.002	0.001	-0.002	-0.001
ROA	0.006	0.009	0.001	0.007	0.015	0.015	0.010	0.012
Δ_ROA	-0.007	-0.002	-0.009	-0.002	0.002	0.001	0.000	0.000
CFO	0.019	0.021	0.015	0.018	0.027	0.027	0.023	0.025
Δ_CFO	-0.002	-0.002	-0.003	-0.002	0.001	0.001	0.000	-0.000
CAR_ERROR	-0.056	-0.047	-0.061	-0.053	0.049	0.034	0.021	0.010
CAR_SURP	0.001	-0.003	-0.030	-0.024	0.025	0.016	-0.001	-0.004
CAR_PEAD	-0.005	-0.008	-0.020	-0.021	0.015	0.010	-0.011	-0.010
MV	4337	812	3346	707	5566	1116	5219	1050
MTB	2.627	2.025	2.438	1.865	3.263	2.454	2.927	2.205
INSIDERSALE	0.001	0.000	0.004	0.000	0.002	0.000	0.001	0.000
FIRMSALENOW	0.005	0.000	0.005	0.000	0.006	0.000	0.005	0.000
FIRMSALENEXT	0.004	0.000	0.003	0.000	0.005	0.000	0.005	0.000
RD	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000
CHEARN	-0.034	-0.002	-0.033	-0.003	-0.028	0.001	-0.023	0.000
LITIG	0.230	0.000	0.191	0.000	0.236	0.000	0.183	0.000

OP, PP, OO and PP refer to patterns of forecast revision paths for each firm-quarter. The first letter refers to the optimistic(O)/pessimistic(P) status of the first forecast of the quarter, and the second letter refers to the optimistic(O)/pessimistic(P) status of the last forecast of the quarter. A forecast is labeled as O (P) if it is higher than (lower than or equal to) the actual earnings of the quarter. *ERROR* is the difference between the actual EPS from I/B/E/S and the earliest EPS forecast made for the quarter, deflated by the beginning-of-quarter stock price. *SURP* is the difference between the actual EPS from I/B/E/S and the latest EPS forecast made for the quarter, deflated by the beginning-of-quarter stock price. *ROA* is return on assets. *CFO* is cash flow from operations deflated by assets. The quarterly change of ROA or CFO is measured relative to the same quarter in the previous year, namely, $\Delta\_ROA_q = ROA_{q+1} - ROA_{q-3}$; $\Delta\_CFO_q = CFO_{q+1} - CFO_{q-3}$.

CAR_ERROR is cumulative market-adjusted returns over the period from three trading days after the first forecast to one trading day after the current-quarter earnings announcement. *CAR_SURP* is cumulative market-adjusted returns for the period from the last forecast for the quarter to one day after the current-quarter earnings announcement. *CAR_PEAD* is cumulative market-adjusted returns over the period from one day after the current-quarter earnings announcement to the next earnings announcement. *MV* is the logarithm of the market value of equity. *MTB* is the market-to-book ratio.

INSIDERSALE is the net percentage shares sold/purchased by the top management or directors of the firm within the one-month period after the earnings announcement. It is positive for net insider sales, and negative for net insider purchases. *FIRMSALENOW* is the issuance/repurchase of common and preferred equity during the quarter. It represents equity issuance (COMPUSTAT#8 deflated by beginning-of-quarter market value) when positive; and stock repurchase (COMPUSTAT#93 deflated by beginning-of-quarter market value) when negative. *FIRMSALENEXT* is the issuance/repurchase of common and preferred equity in the quarter subsequent to the quarter concerned. *RD* denotes R&D expenditures scaled by average total assets. *LITIG i*s an indicator variable equal to one for high litigation risk industries as defined in Matsumoto (2002), and zero otherwise. *CHEARN* is an indicator variable equal to one for a positive change in earnings from the same quarter in the prior year, zero otherwise.

TABLE 3: The Existence of MBE Reward

	ERROR	SURP	DMBE	SURP$^+$	SURP$^-$	DSMALLSURP	Adjusted R^2	Nobs
Panel A: 1984-1997 sample period								
MODEL1	5.292	-0.464					6.8%	60834
	51.39	*-3.32*						
MODEL2	5.220	-2.135	0.042				7.8%	60834
	50.94	*-13.91*	*25.48*					
MODEL3	5.559			3.125	-2.157	-0.008	7.5%	60834
	53.68			*12.90*	*-12.83*	*-4.21*		
MODEL4	5.437		0.047	0.396	-3.583	-0.026	8.5%	60834
	52.77		*26.86*	*1.51*	*-20.43*	*-12.54*		
Panel B: 1998-2006 sample period								
MODEL1	7.609	-0.826					6.7%	61219
	55.78	*-3.93*						
MODEL2	7.519	-2.304	0.033				7.0%	61219
	55.17	*-9.94*	*15.04*					
MODEL3	7.828			2.376	-3.389	-0.021	7.2%	61219
	57.21			*7.38*	*-12.30*	*-9.29*		
MODEL4	7.710		0.045	0.306	-5.434	-0.033	7.8%	61219
	56.48		*19.69*	*0.91*	*-18.50*	*-14.22*		

The dependent variable CAR_ERROR is defined as the cumulative market-adjusted returns over the period from three trading days after the first forecast to one trading day after the current-quarter earnings announcement.

ERROR is defined as actual EPS from I/B/E/S minus the earliest EPS forecast made for the quarter, deflated by the beginning-of-quarter stock price. SURP is actual EPS from I/B/E/S minus the latest EPS forecast made for the quarter, deflated by the beginning-of-quarter stock price. DMBE equals one if SURP>=0, and zero if SURP<0. SURP$^+$ equals SURP when SURP>=0, and zero otherwise. SURP$^-$ is set to SURP when SURP<0, and zero otherwise. DSMALLSURP equals one if the absolute value of SURP is smaller than 0.02%, and zero otherwise.

Bold numbers indicate significance at the 5% level (two-tailed *t*-test).

TABLE 4: Time Series Pattern of the Rewards to MBE

Dependant Variable: CAR_ERROR

Year	I		II	
	OP vs. OO	*t-stat*	PP vs. PO	*t-stat*
1984	0.0391	*3.08*	0.0105	*0.77*
1985	0.0364	*3.39*	0.0122	*1.08*
1986	0.022	*1.96*	0.0379	*3.36*
1987	0.0346	*3.16*	0.0249	*2.28*
1988	0.0294	*2.90*	0.0277	*2.99*
1989	0.0128	*1.40*	0.0268	*2.98*
1990	0.0229	*2.15*	0.0053	*0.42*
1991	0.0316	*3.36*	0.0265	*2.29*
1992	0.0201	*2.14*	0.0321	*3.00*
1993	0.0052	*0.50*	0.0318	*2.88*
1994	0.0209	*2.59*	0.0105	*1.16*
1984-1994	0.0250	*7.98*	0.0224	*6.85*
1995	0.0096	*1.11*	0.0407	*4.18*
1996	-0.0059	*-0.63*	0.0185	*1.97*
1997	0.0204	*2.27*	0.0351	*3.29*
1998	-0.0073	*-0.80*	0.0141	*1.07*
1999	0.0117	*0.94*	0.0514	*3.31*
2000	0.0019	*0.13*	0.0278	*1.42*
1995-2000	0.0051	*1.15*	0.0313	*5.47*
2001	0.0132	*1.30*	0.0152	*0.93*
2002	-0.0236	*-2.06*	0.027	*2.15*
2003	-0.0093	*-0.93*	0.0144	*1.37*
2004	-0.0034	*-0.38*	0.0243	*3.01*
2005	0.0072	*0.92*	0.0192	*2.35*
2006	-0.0042	*-0.48*	0.0277	*3.02*
2001-2006	-0.0034	*-0.64*	0.0213	*8.90*
1984-2006	0.0124	*3.59*	0.0244	*10.55*

For Column I and II, we report β_4 and its *t*-statistics for the regression:

$$CAR\_ERROR_{j,q} = \beta_0 + \beta_1 ERROR_{j,q} + \beta_2 SURP^+_{j,q} + \beta_3 SURP^-_{j,q} + \beta_4 DMBE_{j,q} + \beta_5 DSMALLSURP_{j,q} + \varepsilon_{j,q} \quad (1a)$$

CAR_ERROR is cumulative market-adjusted returns over the period from three trading days after the first forecast to one trading day after the current quarter earnings announcement. CAR_SURP is cumulative market-adjusted returns for the period from the last forecast for the quarter to one day after the current-quarter earnings announcement.

ERROR is defined as actual EPS from I/B/E/S minus the earliest EPS forecast made for the quarter, deflated by the beginning-of-quarter stock price. SURP is actual EPS from IBES minus the latest EPS forecast made for the quarter, deflated by the beginning-of-quarter stock price. DMBE equals one if SURP>=0, and zero if SURP<0. SURP$^+$ equals SURP when SURP>=0, and zero otherwise. SURP$^-$ is set to SURP when SURP<0, and zero otherwise. DSMALLSURP equals one if the absolute value of SURP is smaller than 0.02%, and zero otherwise.

Bold numbers indicate significance at the 5% level (two-tailed *t*-test).

Panel A OP (Walk Down) vs. OO

		INTERCEPT	ERROR	SURP+	SURP-	DSMALL SURP	DMBE (OP)	SIZE	MTB	Adjusted R^2
Δ_ROA	Sub 1: 1984-1994	-0.012	0.403	0.049	-0.134	-0.002	0.003	0.002	-0.001	
		-4.28	***7.81***	*0.20*	***-1.83***	***-1.88***	***4.03***	***7.99***	***-2.09***	*2.2%*
	Sub 2: 1995-2000	-0.013	0.823	-0.077	0.020	-0.003	0.003	0.002	0.000	
		-5.12	***6.83***	*-0.14*	*0.11*	***-2.04***	***2.06***	***6.63***	*-0.76*	*3.2%*
	Sub 3: 2001-2006	-0.046	0.540	0.336	0.077	-0.001	0.000	0.002	0.001	
		-7.61	***4.05***	*0.74*	*0.30*	*-0.40*	*-0.20*	***5.77***	***4.00***	*2.7%*

		INTERCEPT	ERROR	SURP+	SURP-	DSMALLSURP	DMBE (OP)	SIZE	MTB	Adjusted R^2
Δ_CFO	Sub 1: 1984-1994	0.004	0.160	0.164	-0.141	-0.001	0.001	0.000	-0.001	
		1.16	***1.77***	*0.42*	*-0.90*	*-0.60*	*0.85*	*-1.20*	***-2.78***	*0.4%*
	Sub 2: 1995-2000	-0.004	0.294	0.249	-0.268	-0.001	0.000	0.000	-0.001	
		-1.22	***3.08***	*0.60*	***-1.93***	*-0.81*	*-0.13*	*0.36*	*-1.29*	*0.5%*
	Sub 3: 2001-2006	-0.006	0.105	-0.153	-0.184	0.000	0.001	0.000	0.000	
		-1.64	*0.78*	*-0.49*	*-1.05*	*0.04*	*1.19*	*1.41*	*0.61*	*0.3%*

TABLE 5: Comparison of Future Performance between MBE vs. non-MBE firms (Cont')

Panel B: PP vs PO (Walk Up)

		INTERCEPT	ERROR	SURP+	SURP-	DSMALLSURP	DMBE (PP)	SIZE	MTB	Adjusted R²
Δ_ROA	Sub 1: 1984-1994	-0.004	0.347	-0.115	-0.334	-0.001	0.002	0.000	0.000	
		-1.68	***3.09***	*-0.95*	*-1.07*	*-1.77*	***2.49***	***3.24***	***2.78***	*0.9%*
	Sub 2: 1995-2000	-0.002	0.700	-0.130	0.270	-0.003	0.001	0.000	0.001	
		-0.96	***4.36***	*-0.52*	*0.46*	***-4.18***	*0.90*	*-0.10*	***5.61***	*1.2%*
	Sub 3: 2001-2006	-0.014	1.020	-0.628	0.639	-0.001	0.001	0.000	0.001	
		-4.11	***6.51***	***-2.28***	*1.31*	*-1.34*	*1.04*	*0.84*	***5.31***	*1.3%*

		INTERCEPT	ERROR	SURP+	SURP-	DSMALLSURP	DMBE (PP)	SIZE	MTB	Adjusted R²
Δ_CFO	Sub 1: 1984-1994	0.001	0.207	-0.041	0.545	-0.002	0.001	0.000	0.000	
		0.36	*1.21*	*-0.19*	*1.06*	***-1.84***	*0.79*	*-0.08*	*-1.76*	*0.4%*
	Sub 2: 1995-2000	-0.003	0.467	0.093	-0.742	0.000	-0.001	0.000	0.000	
		-1.14	***2.24***	*0.39*	***-1.93***	*0.35*	*-0.61*	*-0.84*	*1.59*	*0.4%*
	Sub 3: 2001-2006	0.005	0.521	0.159	0.189	0.000	0.001	-0.001	0.001	
		1.54	***3.64***	*0.72*	*0.64*	*0.49*	*0.69*	***-2.79***	***3.75***	*0.6%*

ROA is return on assets. CFO is cash flow from operations deflated by total assets. The quarterly change of ROA or CFO is measured relative to the same quarter in the previous year, namely, $\Delta\_ROA_q = ROA_{q+1} - ROA_{q-3}$; $\Delta\_CFO_q = CFO_{q+1} - CFO_{q-3}$. SIZE is the logarithm of the market value of equity. MTB is the market-to-book ratio. All ROA- and CFO-related variables are restricted to be within 100% of total assets.

ERROR is defined as actual EPS from I/B/E/S minus the earliest EPS forecast made for the quarter, deflated by the beginning-of-quarter stock price. SURP is actual EPS from I/B/E/S minus the latest EPS forecast made for the quarter, deflated by the beginning-of-quarter stock price. DMBE equals one if SURP>=0, and zero if SURP<0. SURP⁺ equals SURP when SURP>=0, and zero otherwise. SURP⁻ is set to SURP when SURP<0, and zero otherwise. DSMALLSURP equals one if the absolute value of SURP is smaller than 0.002%, and zero otherwise.

All regressions include quarter dummies and the errors are clustered by firm. Bold numbers indicate significance at the 5% level (two-tailed *t*-test).

**TABLE 6: Short Window Price Reaction to Earnings Surprises
of Different Paths Leading to MBE vs. non-MBE**

| Year | Dependant Variable: CAR_SURP | | | |
| | I (MBE) | | II (non-MBE) | |
	OP. vs. PP	t-stat	PO. vs. OO	t-stat
1984	-0.0103	*-1.35*	0.0213	**2.30**
1985	-0.0130	**-2.05**	0.0282	**4.23**
1986	-0.0203	**-3.14**	0.0131	**2.05**
1987	-0.0209	**-3.08**	0.0243	**3.07**
1988	-0.0134	**-2.83**	0.0084	*1.34*
1989	-0.0157	**-3.08**	0.0158	**3.00**
1990	-0.0197	**-3.45**	0.0239	**3.22**
1991	-0.0167	**-3.04**	0.0220	**3.1**
1992	-0.0121	**-2.44**	0.0185	**2.61**
1993	-0.0082	*-1.72*	0.0159	**2.42**
1994	-0.0095	**-2.66**	0.0204	**3.86**
1984-1994	-0.0145	**-10.79**	0.0193	**11.30**
1995	-0.0139	**-3.70**	0.0231	**3.98**
1996	-0.0105	**-2.70**	0.0274	**4.37**
1997	-0.0160	**-4.23**	0.0268	**4.12**
1998	-0.0106	**-2.27**	0.0321	**3.56**
1999	-0.0076	*-1.53*	0.0125	*1.21*
2000	-0.0138	**-2.00**	0.0215	*1.48*
1995-2000	-0.0121	**-9.70**	0.0239	**8.74**
2001	-0.0058	*-1.05*	0.0370	**3.21**
2002	-0.0158	**-3.17**	0.0149	*1.45*
2003	-0.0131	**-3.18**	0.0250	**3.99**
2004	-0.0163	**-4.28**	0.0248	**4.17**
2005	-0.0237	**-6.67**	0.0317	**6.23**
2006	-0.0248	**-6.01**	0.0252	**4.29**
2001-2006	-0.0166	**-5.78**	0.0264	**8.67**
1984-2006	-0.0144	**-13.78**	0.0223	**15.56**

For Column I , we report δ_3 and its *t*-statistics for the regression:

$$CAR\_SURP_{j,q} = \delta_0 + \delta_1 SURP_{j,q} + \delta_2 DSMALLSURP_{j,q} + \delta_3 OP_{j,q} + \varepsilon_{j,q} \qquad (4)$$

For Column II, we report γ_3 and its *t*-statistics for the regression:

$$CAR\_SURP_{j,q} = \gamma_0 + \gamma_1 SURP_{j,q} + \gamma_2 DSMALLSURP_{j,q} + \gamma_3 PO_{j,q} + \varepsilon_{j,q} \qquad (5)$$

CAR_ERROR is cumulative market-adjusted returns over the period from three trading days after the first forecast to one trading day after the current-quarter earnings announcement. CAR_SURP is cumulative market-adjusted returns for the period from the last forecast for the quarter to one day after the current-quarter earnings announcement.

SURP is actual EPS from I/B/E/S minus the latest EPS forecast made for the quarter, deflated by the beginning-of-quarter stock price. DSMALLSURP equals one if the absolute value of SURP is smaller than 0.02%, and zero otherwise.

Bold numbers indicate significance at the 5% level (two-tailed *t*-test).

Table 7 Comparison of Trading Profits of the PEAD Strategy

Panel A: 1984-1994 period

SURP	OP and PO		PP and OO		Difference	
Rank	CAR_PEAD	t-stat	CAR_PEAD	t-stat	CAR_PEAD	t-stat
1	0.0029	*0.33*	-0.0225	*-5.18*	-0.0258	*-2.72*
2	-0.0094	*-2.47*	-0.0200	*-6.74*	-0.0098	*-2.49*
3	-0.0092	*-2.15*	0.0021	*0.6*	0.0113	*1.99*
4	-0.0024	*-0.61*	0.0213	*8.02*	0.0237	*5.54*
5	0.0055	*1.09*	0.0262	*7.71*	0.0207	*3.77*
Hedge	0.0026	*0.32*	0.0487	*11.47*	-0.0471	*-4.59*

Panel B: 1995-2000 period

SURP	OP and PO		PP and OO		Difference	
Rank	CAR_PEAD	t-stat	CAR_PEAD	t-stat	CAR_PEAD	t-stat
1	-0.0287	*-2.07*	-0.0404	*-3.95*	-0.0232	*-1.42*
2	-0.0349	*-2.98*	-0.0192	*-1.77*	0.0034	*0.25*
3	-0.0196	*-1.56*	-0.0094	*-1.83*	0.0010	*0.08*
4	-0.0024	*-0.16*	0.0086	*1.25*	-0.0087	*-0.52*
5	-0.0065	*-0.35*	0.0216	*2.47*	0.0119	*0.61*
Hedge	0.0222	*2.07*	0.06200	*8.68*	-0.0399	*-2.62*

Panel C: 2001-2006 period

SURP	OP and PO		PP and OO		Difference	
Rank	CAR_PEAD	t-stat	CAR_PEAD	t-stat	CAR_PEAD	t-stat
1	-0.0080	*-1.02*	-0.0060	*-0.63*	0.0020	*0.24*
2	-0.0003	*-0.04*	-0.0032	*-0.45*	-0.0030	*-0.51*
3	0.0047	*0.66*	0.0037	*0.86*	-0.0010	*-0.15*
4	0.0118	*1.14*	0.0232	*3.15*	0.0114	*2.02*
5	0.0324	*2.50*	0.0443	*5.20*	0.0119	*1.36*
Hedge	0.0404	*3.37*	0.0503	*10.41*	-0.0100	*-0.75*

For each calendar quarter, we form five equal-sized portfolios based on the magnitude of SURP. Then we construct two hedge portfolios by buying the highest SURP quintile and shorting the lowest SURP quintile within the OP-PO group and PP-OO group, respectively. The average hedging returns over the subsequent quarter (CAR_PEAD) and its associated t-statistics are reported for each group and sub-period.

Bold numbers indicate significance at the 5% level (two-tailed *t*-test).

TABLE 8: Incentives and Alternative Analysts' Forecast Revision Paths

Panel A: Insider Sales/ Stock Issuance and Walk Down
OP vs. OO   (PATH=1 for OP, 0 for OO)

	1984-1994		1995-2000		2001-2006	
Variable	Estimate	P-value	Estimate	P-value	Estimate	P-value
INTERCEPT	-0.945	**0.000**	-0.071	**0.005**	-0.130	**0.000**
INSIDERSALE	42.582	**0.000**	27.299	**0.001**	10.982	0.155
FIRMSALENOW	1.372	0.070	1.153	0.118	-2.900	**0.000**
FIRMSALENEXT	3.226	**0.000**	2.276	**0.018**	-1.328	0.160
MTB	0.008	0.445	0.013	0.097	-0.018	**0.037**
SIZE	0.000	**0.009**	0.000	**0.015**	0.000	**0.018**
ROA	13.486	**0.000**	7.484	**0.000**	4.866	**0.000**
RD	4.107	**0.040**	2.438	0.112	5.185	**0.006**
CHEARN	-0.170	0.069	-0.245	**0.005**	0.159	0.213
LITIG	0.047	0.234	0.112	**0.004**	0.432	**0.000**
-2 Log L	25133.27		23165.07		21019.60	
Likelihood	354.34	0.00	251.34	0.00	227.88	0.00
1	6637		8724		7459	
0	13448		8180		7876	

Panel B: Insider Purchase/ Stock Repurchase and Walk Up
PO vs. PP (PATH=1 for PO, 0 for PP)

	1984-1994		1995-2000		2001-2006	
Variable	Estimate	P-value	Estimate	P-value	Estimate	P-value
INTERCEPT	-1.287	**0.000**	-1.892	**0.000**	-2.057	**0.000**
INSIDERSALE	-46.641	**0.000**	-39.977	**0.000**	-47.513	**0.000**
FIRMSALE	-0.398	0.664	-1.447	0.122	2.017	**0.026**
FIRMSALENEXT	-2.383	**0.046**	-0.579	0.616	0.211	0.855
MTB	-0.002	0.845	-0.045	**0.000**	0.010	0.324
SIZE	0.000	0.705	0.000	**0.009**	0.000	0.163
ROA	-7.855	**0.000**	-6.717	**0.000**	-4.730	**0.000**
RD	-1.756	0.442	0.505	0.782	-4.545	0.090
CHEARN	0.370	**0.004**	0.195	0.100	-0.023	0.888
LITIG	-0.012	0.815	-0.201	**0.001**	-0.362	**0.000**
-2 Log L	17154.185		14512.371		15586.838	
Likelihood	110.532	0.000	185.562	0.000	139.164	0.000
1	3345		2261		2420	
0	14607		20338		21742	

INSIDERSALE is the net percentage of shares traded in the one-month period after the earnings announcement, and it is positive when insiders are net sellers and negative when insiders are net purchasers. FIRMSALENOW is issuance/repurchase of common and preferred equity during the current quarter. It represents net equity issuance (COMPUSTAT data item 8 deflated by beginning-of-quarter market value) when positive; and net stock repurchase (COMPUSTAT data item 93 deflated by beginning-of-quarter market value) when negative. FIRMSALENEXT is the issuance/repurchase of common and preferred equity in the quarter subsequent to the quarter concerned. RD denotes research and development expenditures scaled by average total assets. LITIG is an indicator variable equal to one for high litigation risk industries as defined in Matsumoto (2002), and zero otherwise. CHEARN is an indicator variable equal to one for a positive change in earnings from the same quarter in the prior year, zero otherwise. SIZE is the logarithm of market value of equity. MTB is the market-to-book ratio. ROA is return on assets.

Bold numbers indicate significance at less than the 5% level (chi-square test).

Figure 1: Four-way comparison

OP vs. OO

ERROR

REVISION   SURP

First FC   Last FC

O   O

Actual EPS

EA$_t$ EA$_{t+1}$

P

OP vs. PP

O

Actual EPS

EA$_t$ EA$_{t+1}$

P

P

First FC   Last FC

OO   vs. PO

First FC   Last FC

O

O

Actual EPS

EA$_t$ EA$_{t+1}$

P

PO   vs. PP

O

Actual EPS

EA$_t$ EA$_{t+1}$

P

P

First FC   Last FC
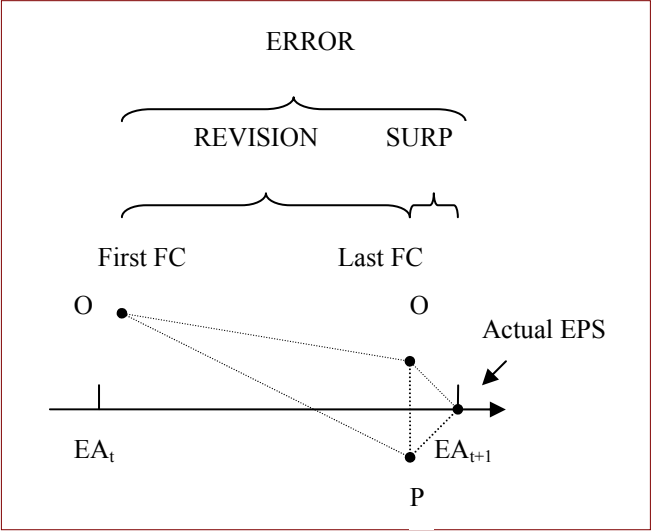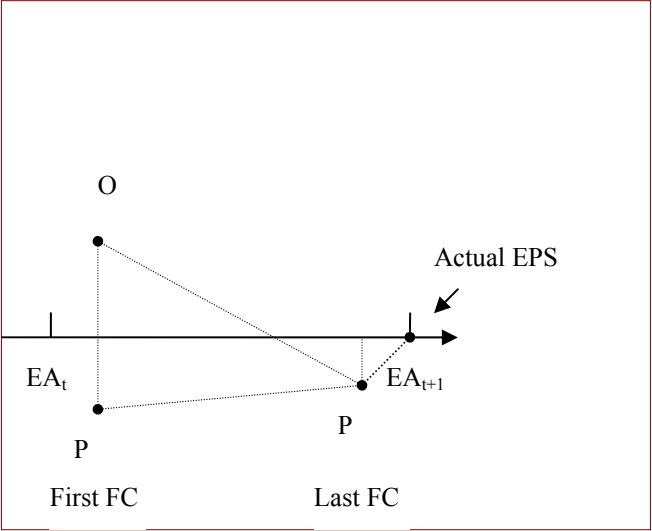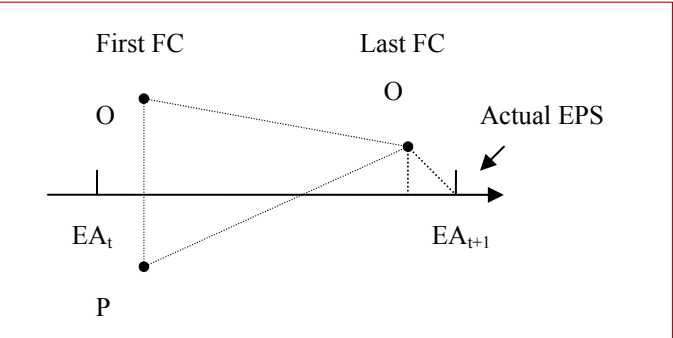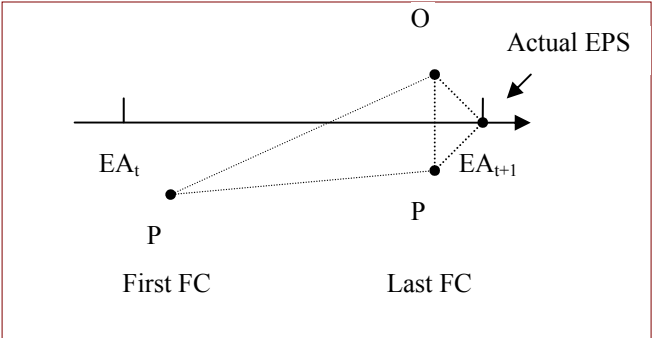
US Electric Utilities & IPPs

Authorized ROEs: Don't Expect an Inflection Yet

Please Click Here for the Full Note

Where are ROEs heading? Likely still heading lower

With growing expectations for an uptick in rising treasuries to drive higher authorized ROEs in pending rate cases, we emphasize the historic spread between ROEs and treasuries remains notably elevated, which could well suggest a lag before authorized ROEs bottom. As such, we emphasize that pending rate cases are not immune from continued compression in ROEs and could well continue to see this trend into 2017 in many key pending cases. We emphasize the below charts as well as our additional datapoints from Commission surveys, our FERC transmission ROE analysis and recent rate cases all confirm this risk in our view, with current spreads still 70-90bps above that of the 15 year average, suggesting ROEs could well head to the low-to-mid 9% range still off the trailing average in 2016 of 9.77% authorized for electric utilities per SNL. See the tables below.

US-treasury spreads vs ROEs still historically high but trending lower

The spread between US electric/gas ROEs relative to treasuries is beginning to regress from recent highs as treasuries continue their climb post the election. However, the question now is to what extent the spread will continue to tighten - from either the authorized ROE side or from US treasuries.

FERC ROEs could see some pressure as well given peer group methodology

We highlight that our latest MtM analysis of authorized FERC transmission ROEs shows an inflection off the lows, but we note risk for a return to previous lows without the inclusion of AGR, which includes a higher growth rate in the ROE calculation. We see a base ROE outcome of 9.8% w/AGR and 8.9% without. Inclusive of a 50bp adder for RTO participant this would appear to result in an outcome largely similar with the average 9.77% authorized ROE in 2016 for Electric Utilities

Utility Commissioners affirm sentiments in latest survey too

Previously, in our 5th "What Do Regulators Really Think" survey from September (pre-election) 32 respondents from Commissioners and Commission staff responded once again that ROEs are more likely to decline than not, though we note there was no strong analysis among tying returns to treasuries directly, we see a modest inclination towards the belief that some existing approaches to capital spending are too formulaic.

Next datapoints to watch – rate case outcomes for AEE, GXP, EXC, PNW & CA

We highlight the above names under our coverage where ongoing rate cases should provide further datapoints of affirmation. Principally in Missouri, we see further risk of ROE degradation should legislative prospects not prove fruitful, noting negative Staff recommendations for both AEE Missouri and KCPL. At KCPL MO, Staff recommended no rate increase, with a lower authorized ROE (8.65% vs 9.90% ask). We believe developments in other states could be more constructive specifically at PNW among others. We continue to expect a modest reduction in the ROE in pending cost of capital settlements and/or litigation in California as well (will the CPUC and/or parties continue to acquiesce to the argument that California warrants a premium for its higher-risk operational environment—or to what extent?). Other cases to watch include EXC's recent PEPCO case where interveners recommended an 8.6% (vs 10.6% ask), albeit a settlement at the midpoint would be near PEPCOs current authorized return. While the ability to earn ROEs has seemingly improved in recent years across much of our coverage universe, we continue to assume a compressing authorized ROE trend in many of our projections.

Figure 1: Historical Gas/Electric ROEs & Treasury Spreads : Spread Remains High for both Gas & Electric

Date	US 10 YR	US 30 YR	ROE - Gas	ROE - Electric	Gas ROE - Spread over 10 YR Treasury	Gas ROE - Spread over 30 YR Treasury	Electric ROE - Spread over 10 YR Treasury	Electric ROE - Spread over 30 YR Treasury
12/30/2016	2.44%	3.07%	9.50%	9.77%	7.06%	6.43%	7.32%	6.70%
12/31/2015	2.27%	3.02%	9.60%	9.85%	7.33%	6.58%	7.58%	6.84%
12/31/2014	2.17%	2.75%	9.78%	9.91%	7.61%	7.03%	7.74%	7.16%
12/31/2013	3.04%	3.98%	9.68%	10.03%	6.64%	5.70%	6.99%	6.05%
12/31/2012	1.76%	2.95%	9.94%	10.17%	8.18%	6.99%	8.41%	7.22%
12/30/2011	1.88%	2.90%	9.92%	10.29%	8.04%	7.02%	8.41%	7.39%
12/31/2010	3.29%	4.34%	10.15%	10.37%	6.86%	5.81%	7.08%	6.03%
12/31/2009	3.83%	4.63%	10.22%	10.52%	6.38%	5.59%	6.69%	5.89%
12/31/2008	2.06%	2.56%	10.39%	10.41%	8.33%	7.83%	8.35%	7.85%
12/31/2007	4.08%	4.50%	10.22%	10.30%	6.15%	5.72%	6.23%	5.80%
12/29/2006	4.69%	4.81%	10.40%	10.32%	5.72%	5.59%	5.64%	5.51%
12/30/2005	4.40%	4.55%	10.41%	10.51%	6.01%	5.87%	6.11%	5.97%
12/31/2004	4.22%	4.82%	10.63%	10.81%	6.41%	5.81%	6.59%	5.99%
12/31/2003	4.26%	5.08%	10.99%	10.96%	6.73%	5.91%	6.70%	5.88%
12/31/2002	3.83%	4.79%	11.17%	11.21%	7.34%	6.38%	7.38%	6.43%
12/31/2001	5.03%	5.47%	10.96%	11.07%	5.93%	5.49%	6.04%	5.60%
12/29/2000	5.11%	5.45%	11.34%	11.58%	6.23%	5.89%	6.47%	6.13%
12/31/1999	6.44%	6.48%	10.74%	10.72%	4.30%	4.26%	4.28%	4.24%
12/31/1998	4.65%	5.09%	11.51%	11.77%	6.86%	6.42%	7.12%	6.68%
12/31/1997	5.74%	5.93%	11.30%	11.33%	5.56%	5.37%	5.59%	5.40%
12/31/1996	6.42%	6.64%	11.12%	11.40%	4.70%	4.47%	4.98%	4.76%
12/29/1995	5.58%	5.96%	11.44%	11.58%	5.86%	5.48%	6.00%	5.62%
12/30/1994	7.84%	7.89%	11.24%	11.21%	3.40%	3.36%	3.37%	3.33%
12/31/1993	5.80%	6.35%	11.37%	11.46%	5.57%	5.02%	5.66%	5.11%
12/31/1992	6.68%	7.40%	12.02%	12.09%	5.34%	4.62%	5.41%	4.69%
12/31/1991	6.73%	7.41%	12.45%	12.54%	5.72%	5.04%	5.81%	5.14%
12/31/1990	8.06%	8.26%	12.68%	12.70%	4.62%	4.43%	4.64%	4.44%
Average			10.78%	10.92%	6.25%	5.71%	6.39%	5.85%

Source: SNL and FactSet

Figure 2:US Electric ROEs vs Average
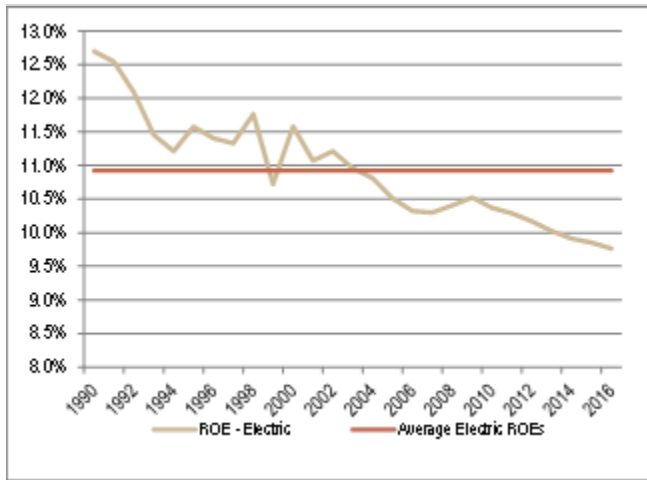
Source: SNL

Figure 3: US Gas ROEs vs Average
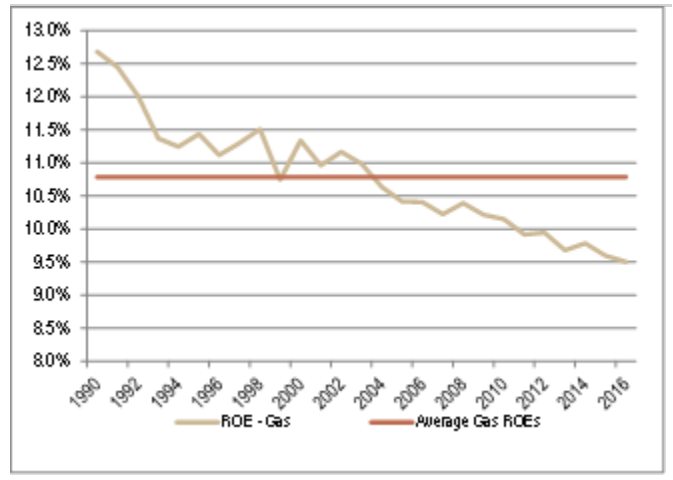
Source: SNL

Figure 4: US Gas ROE vs Treasuries
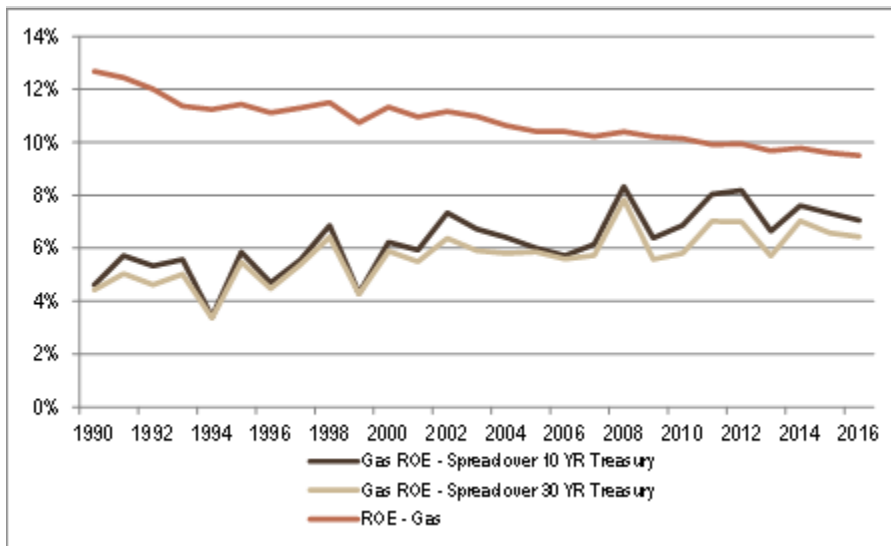
Source: SNL

Figure 5: US Electric ROEs vs Treasuries
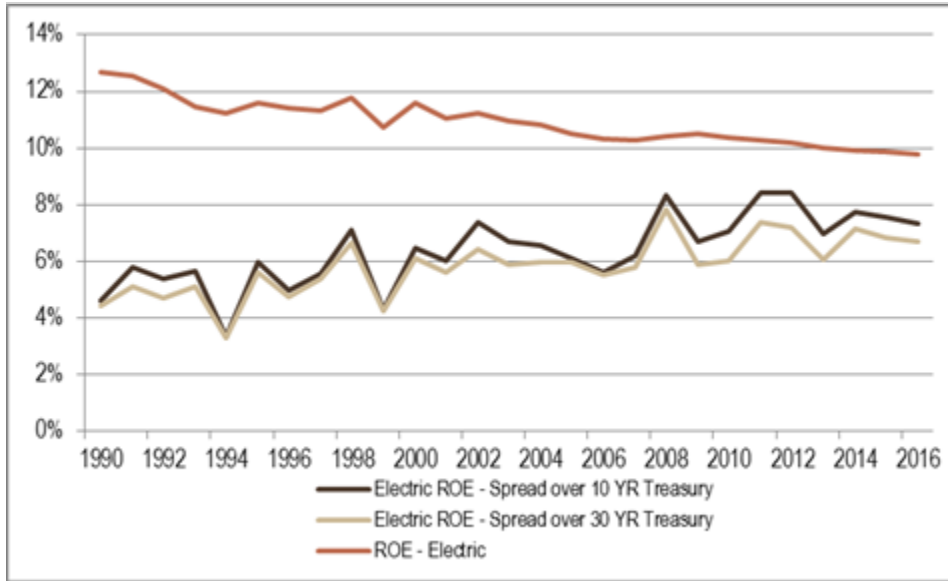
Source: SNL

US Electric Utilities & IPPs
Tide Going Out For Transmission ROEs Still

Julien Dumoulin-Smith
Analyst
julien.dumoulin-smith@ubs.com
+1-212-713 9848

Jerimiah Booream
Associate Analyst
jerimiah.booream@ubs.com
+1-212-713 4105

Paul Zimbardo
Associate Analyst
paul.zimbardo@ubs.com
+1-212-713 1033

Latest MISO Return on Equity Case for Transmission confirms lower ROE trends

Last night, the ALJ in the latest MISO ROE petition released their initial decision at a 9.7% ROE, comparable with recent authorized ROEs at the state level. The ROE reflects a historic period for July '15 through Dec '15. This is consistent with our estimated 'MtM' of the FERC ROE methodology for the comparable period (9.7%, see table below). Broadly, we see the lower ROE trend as amongst the principal risk factors for transmission built within the MISO and ISO-NE footprints; we continue to prefer distribution utilities. Find the latest ROE case developments here .

Still expecting another wave of ROE complaints; low rates exacerbate concern

The latest New England case (Complaint IV) filed on April 29th, covering the proposed period of six-months ending March 31, is requesting an ROE of 8.9%. Our calculation using FERC's approach would result in a 9.5% ROE, slightly lower than the latest MISO ALJ at 9.7%. We wouldn't doubt a further MISO complaint to continue to reflect the lower trend. Broadly, amidst the low interest rate environment, we would expect continued downward pressure on rates. See EL16-64 here.

States vs. Feds: Will FERC allow ROE to drop below states?

The wider question for FERC (which continues to reflect an upward revision to 'midpoint of upper top midpoint' range for 'anomalous' market conditions) remains whether it will accept a lower ROE than the trailing 12-month authorized ROE average across the US of 9.6-9.7%. Particularly with the risk of further consolidation and slowing of growth trajectory (typically smid-cap, faster growth companies have dominated the top end of the ROE range, albeit with WEC and SRE now approaching the top end). We see a risk SRE is excluded b/c of pending gas utes sale in subsequent review periods.

AEE: The most exposed company to lower ROE trend via both T & D rates

We emphasize AEE is now the most exposed company in our view to the evolving negative rate environment, both given its exposure to MISO ROEs (via FERC ratebase, for which an explicit ROE assumption is not provided) as well as via its formulaic ROEs in Illinois (tracked to 30-year treasuries: 2.9% 2016 assumption in guidance vs. 2.65% YTD average and 2.3% at present). Further, we perceive an above-average risk profile with the company poised to file its latest Missouri rate case today. Despite an above-average growth rate of 5-8%, we see pressures through the medium-term.

Who else is impacted? WEC & ITC-FTS in MISO, but also ES & AGR

The latest decision directly impacts other MISO transmission companies, namely WEC and ITC/FTS, but also ES and AGR in New England. Specific to ITC, we note the Zone of Reasonableness is 6.76 to 10.68% suggesting exactly a full ~100bp of adders can be applied (top end is capped by this ROE).

PJM: Sitting tenuously? ROE risks remain quite clear

As ROEs continue to decline, we emphasize there remains clear risk to the downside around authorized rates for PJM players (whose rates are set discretely rather than all at once for the other regions, ISO-NE and MISO via a 'generic' tariff). This appears principally due to the lack of any concerted efforts from consumer groups and costs associated with such a complaint rather than any specifics supporting PJM. This would impact EXC, PEG, AEP, and PPL; we note FE has had its ATSI-specific transmission ROE reduced already through a 205 tariff filing on its own volition. With many at ~11%, the MtM impact on ROE would be ~80bp or more.

Putting the ROE discussion upside down: we like lower ROE distribution utes

We increasingly appreciate the lower authorized ROEs of distribution utilities given their lower risk profile amidst the low ongoing rate environment.
www.ubs.com/investmentresearch

Figure 1: Summary of Recent ROE Decisions and Results of our MtM ROE Model for FERC Methodology

ROE Analysis Summary		Low	Midpoint	High	FERC "Upper Midpt" 75th %	Ranked 75th %
Zone of Reasonableness (Original)		7.03	9.39	11.74	10.57	9.77
Zone of Reasonableness (1/4 GDP Weight)		6.97	9.51	12.05	10.79	9.84
Zone of Reasonableness (UBSe MTM 8/19/14)		7.14	10.25	13.35	11.80	9.65
Zone of Reasonableness (UBSe MTM 10/22/14)		6.77	9.28	11.80	10.54	10.25
Zone of Reasonableness (UBSe MTM 1/26/15)		5.96	8.81	11.65	10.23	10.11
Zone of Reasonableness (UBSe MTM 3/10/15)		6.30	8.68	11.07	9.87	9.32
Zone of Reasonableness (UBSe MTM 4/22/15)		6.22	8.64	11.05	9.84	9.36
Zone of Reasonableness (UBSe MTM 11/12/15)		6.31	8.60	10.89	9.74	9.41
Zone of Reasonableness (UBSe MTM 3/23/16)		**6.87**	**8.63**	**10.39**	**9.51**	**9.45**
Westar Settlement	July 2015				9.80	
FirstEnergy 2016 Settlement (Pre-Adder)	July 2015				9.88	
Transco NY Settlement	Nov 2015				9.0-9.5	
EL13-33-002 ALJ Initial Decision	Jan 2013-Mar 2014			10.42	9.59	
EL14-86-000 ALJ Initial Decision	Aug 2014-Sept 2015			12.19	10.90	
EL15-45-000 ALJ Initial Decision	Jul '15-Dec '15	6.76	8.81	10.68	9.70	9.40
Increase/(Decrease) latest MTM from Orig		*(0.16)*	*(0.75)*	*(1.35)*	*(1.05)*	*(0.32)*

Source: ISO-NE, MISO, and UBS estimates

Figure 2: 30-year treasury: relevant for AEE

Source: FactSet

Valuation Method and Risk Statement

Risks for Utilities and Independent Power Producers (IPPs) primarily relate to volatile commodity prices for power, natural gas, and coal. Risks to IPPs also stem from load variability, and operational risk in running these facilities. Rising coal and, to a certain extent, uranium prices could pressure margins as the fuel hedges roll off Competitive Integrateds. Further, IPPs face declining revenues as in the money power and gas hedges roll off. Other non-regulated risks include weather and for some, foreign currency risk, which again must be diligently accounted in the company's risk management operations. Major external factors, which affect our valuation, are environmental risks. Environmental capex could escalate if stricter emission standards are implemented. We believe a nuclear accident or a change in the Nuclear Regulatory Commission/Environment Protection Agency regulations could have a negative impact on our estimates.

Risks for regulated utilities include the uncertainty around the composition of state regulatory Commissions, adverse regulatory changes, unfavorable weather conditions, variance from normal population growth, and changes in customer mix. Changes in macroeconomic factors will affect customer additions/subtractions and usage patterns.

Solar sector risks include : 1)Solar panel and other input pricing is subject to ongoing price deflation, which affects economics of downstream projects and margins of upstream producers. 2) Government incentives being added or removed have had a disproportionate effect on demand in the past, and may continue to 3) reliance on power purchase agreements in electricity markets could make future contracts more difficult to sign 4) solar power is directly competing with other traditional generators as well as other renewables like wind, which creates uncertainty as wholesale power markets shift 5)Headline risk and policy risk continue to shift economics in countries as trade policies and changes to other key policies affect solar economics.

Required Disclosures

This report has been prepared by UBS Securities LLC, an affiliate of UBS AG. UBS AG, its subsidiaries, branches and affiliates are referred to herein as UBS.

For information on the ways in which UBS manages conflicts and maintains independence of its research product; historical performance information; and certain additional disclosures concerning UBS research recommendations, please visit www.ubs.com/disclosures. The figures contained in performance charts refer to the past; past performance is not a reliable indicator of future results. Additional information will be made available upon request. UBS Securities Co. Limited is licensed to conduct securities investment consultancy businesses by the China Securities Regulatory Commission. UBS acts or may act as principal in the debt securities (or in related derivatives) that may be the subject of this report.

Analyst Certification: Each research analyst primarily responsible for the content of this research report, in whole or in part, certifies that with respect to each security or issuer that the analyst covered in this report: (1) all of the views expressed accurately reflect his or her personal views about those securities or issuers and were prepared in an independent manner, including with respect to UBS, and (2) no part of his or her compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that research analyst in the research report.

UBS Investment Research: Global Equity Rating Definitions

12-Month Rating	Definition	Coverage[1]	IB Services[2]
Buy	FSR is > 6% above the MRA.	49%	32%
Neutral	FSR is between -6% and 6% of the MRA.	38%	26%
Sell	FSR is > 6% below the MRA.	14%	19%
Short-Term Rating	Definition	Coverage[3]	IB Services[4]
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 31 March 2016.
1:Percentage of companies under coverage globally within the 12-month rating category.
2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.
3:Percentage of companies under coverage globally within the Short-Term rating category.
4:Percentage of companies within the Short-Term rating category for which investment banking (IB) services were provided within the past 12 months.

KEY DEFINITIONS: Forecast Stock Return (FSR) is defined as expected percentage price appreciation plus gross dividend yield over the next 12 months. **Market Return Assumption (MRA)** is defined as the one-year local market interest rate plus 5% (a proxy for, and not a forecast of, the equity risk premium). **Under Review (UR)** Stocks may be flagged as UR by the analyst, indicating that the stock's price target and/or rating are subject to possible change in the near term, usually in response to an event that may affect the investment case or valuation. **Short-Term Ratings** reflect the expected near-term (up to three months) performance of the stock and do not reflect any change in the fundamental view or investment case. **Equity Price Targets** have an investment horizon of 12 months.

EXCEPTIONS AND SPECIAL CASES: UK and European Investment Fund ratings and definitions are: Buy: Positive on factors such as structure, management, performance record, discount; **Neutral:** Neutral on factors such as structure, management, performance record, discount; **Sell:** Negative on factors such as structure, management, performance record, discount. **Core Banding Exceptions (CBE):** Exceptions to the standard +/-6% bands may be granted by the Investment Review Committee (IRC). Factors considered by the IRC include the stock's volatility and the credit spread of the respective company's debt. As a result, stocks deemed to be very high or low risk may be subject to higher or lower bands as they relate to the rating. When such exceptions apply, they will be identified in the Company Disclosures table in the relevant research piece.

Research analysts contributing to this report who are employed by any non-US affiliate of UBS Securities LLC are not registered/qualified as research analysts with FINRA. Such analysts may not be associated persons of UBS Securities LLC and therefore are not subject to the FINRA restrictions on communications with a subject company, public appearances, and trading securities held by a research analyst account. The name of each affiliate and analyst employed by that affiliate contributing to this report, if any, follows.

UBS Securities LLC: Julien Dumoulin-Smith; Jerimiah Booream; Paul Zimbardo.

Company Disclosures

Company Name	Reuters	12-month rating	Short-term rating	Price	Price date
Ameren Corp.[16]	AEE.N	Neutral	N/A	US$53.58	30 Jun 2016
Sempra Energy[2, 4, 5, 6a, 6b, 7, 16, 18]	SRE.N	Buy	N/A	US$114.02	30 Jun 2016

Source: UBS. All prices as of local market close.
Ratings in this table are the most current published ratings prior to this report. They may be more recent than the stock pricing date

2. UBS AG, its affiliates or subsidiaries has acted as manager/co-manager in the underwriting or placement of securities of this company/entity or one of its affiliates within the past 12 months.
4. Within the past 12 months, UBS AG, its affiliates or subsidiaries has received compensation for investment banking services from this company/entity or one of its affiliates.
5. UBS AG, its affiliates or subsidiaries expect to receive or intend to seek compensation for investment banking services from this company/entity within the next three months.
6a. This company/entity is, or within the past 12 months has been, a client of UBS Securities LLC, and investment banking services are being, or have been, provided.
6b. This company/entity is, or within the past 12 months has been, a client of UBS Securities LLC, and non-securities services are being, or have been, provided.
7. Within the past 12 months, UBS Securities LLC and/or its affiliates have received compensation for products and services other than investment banking services from this company/entity.
16. UBS Securities LLC makes a market in the securities and/or ADRs of this company.
18. A U.S.-based global equity strategist, a member of his team, or one of their household members has a long common stock position in Sempra Energy.

Unless otherwise indicated, please refer to the Valuation and Risk sections within the body of this report. For a complete set of disclosure statements associated with the companies discussed in this report, including information on valuation and risk, please contact UBS Securities LLC, 1285 Avenue of Americas, New York, NY 10019, USA, Attention: Investment Research.

Ameren Corp. (US$)
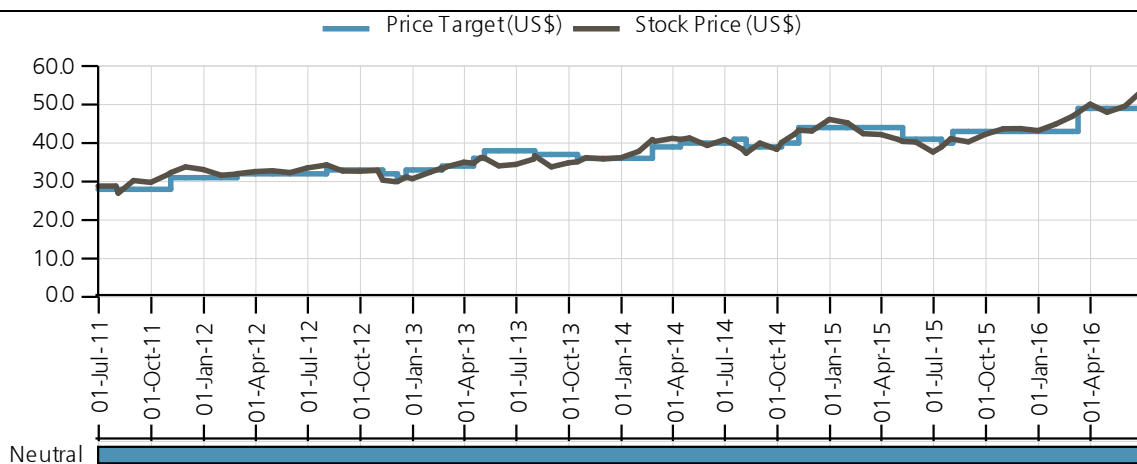
Source: UBS; as of 30 Jun 2016

Sempra Energy (US$)
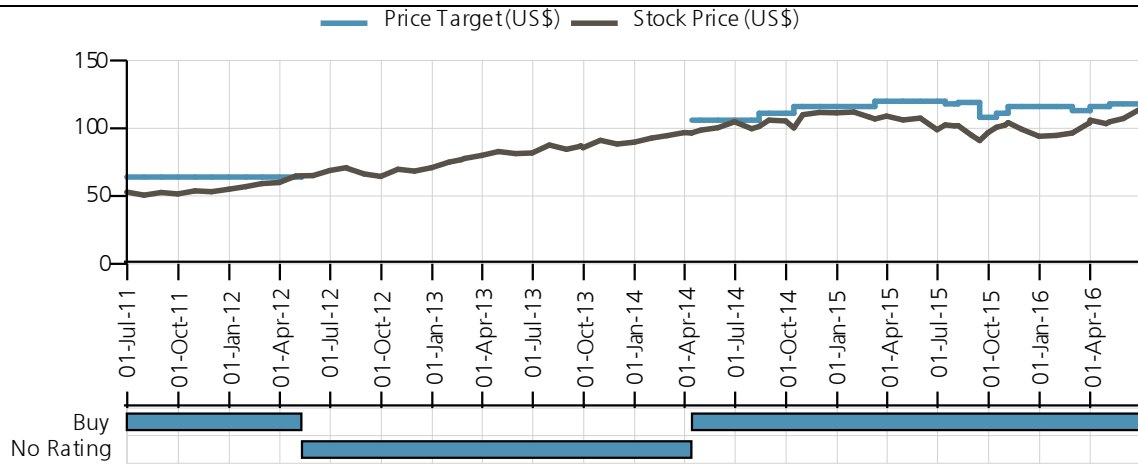
Source: UBS; as of 30 Jun 2016

Global Disclaimer

This document has been prepared by UBS Securities LLC, an affiliate of UBS AG. UBS AG, its subsidiaries, branches and affiliates are referred to herein as UBS.

Global Research is provided to our clients through UBS Neo and, in certain instances, UBS.com (each a "System"). It may also be made available through third party vendors and distributed by UBS and/or third parties via e-mail or alternative electronic means. The level and types of services provided by Global Research to a client may vary depending upon various factors such as a client's individual preferences as to the frequency and manner of receiving communications, a client's risk profile and investment focus and perspective (e.g., market wide, sector specific, long-term, short-term, etc.), the size and scope of the overall client relationship with UBS and legal and regulatory constraints.

All Global Research is available on UBS Neo. Please contact your UBS sales representative if you wish to discuss your access to UBS Neo.

When you receive Global Research through a System, your access and/or use of such Global Research is subject to this Global Research Disclaimer and to the terms of use governing the applicable System.

When you receive Global Research via a third party vendor, e-mail or other electronic means, your use shall be subject to this Global Research Disclaimer and to UBS's Terms of Use/Disclaimer (http://www.ubs.com/global/en/legalinfo2/disclaimer.html). By accessing and/or using Global Research in this manner, you are indicating that you have read and agree to be bound by our Terms of Use/Disclaimer. In addition, you consent to UBS processing your personal data and using cookies in accordance with our Privacy Statement (http://www.ubs.com/global/en/legalinfo2/privacy.html) and cookie notice (http://www.ubs.com/global/en/homepage/cookies/cookie-management.html).

If you receive Global Research, whether through a System or by any other means, you agree that you shall not copy, revise, amend, create a derivative work, transfer to any third party, or in any way commercially exploit any UBS research provided via Global Research or otherwise, and that you shall not extract data from any research or estimates provided to you via Global Research or otherwise, without the prior written consent of UBS.

This document is for distribution only as may be permitted by law. It is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or would subject UBS to any registration or licensing requirement within such jurisdiction. It is published solely for information purposes; it is not an advertisement nor is it a solicitation or an offer to buy or sell any financial instruments or to participate in any particular trading strategy. No representation or warranty, either expressed or implied, is provided in relation to the accuracy, completeness or reliability of the information contained in this document ("the Information"), except with respect to Information concerning UBS. The Information is not intended to be a complete statement or summary of the securities, markets or developments referred to in the document. UBS does not undertake to update or keep current the Information. Any opinions expressed in this document may change without notice and may differ or be contrary to opinions expressed by other business areas or groups of UBS. Any statements contained in this report attributed to a third party represent UBS's interpretation of the data, information and/or opinions provided by that third party either publicly or through a subscription service, and such use and interpretation have not been reviewed by the third party.

Nothing in this document constitutes a representation that any investment strategy or recommendation is suitable or appropriate to an investor's individual circumstances or otherwise constitutes a personal recommendation. Investments involve risks, and investors should exercise prudence and their own judgement in making their investment decisions. The financial instruments described in the document may not be eligible for sale in all jurisdictions or to certain categories of investors. Options, derivative products and futures are not suitable for all investors, and trading in these instruments is considered risky. Mortgage and asset-backed securities may involve a high degree of risk and may be highly volatile in response to fluctuations in interest rates or other market conditions. Foreign currency rates of exchange may adversely affect the value, price or income of any security or related instrument referred to in the document. For investment advice, trade execution or other enquiries, clients should contact their local sales representative.

The value of any investment or income may go down as well as up, and investors may not get back the full (or any) amount invested. Past performance is not necessarily a guide to future performance. Neither UBS nor any of its directors, employees or agents accepts any liability for any loss (including investment loss) or damage arising out of the use of all or any of the Information.

Any prices stated in this document are for information purposes only and do not represent valuations for individual securities or other financial instruments. There is no representation that any transaction can or could have been effected at those prices, and any prices do not necessarily reflect UBS's internal books and records or theoretical model-based valuations and may be based on certain assumptions. Different assumptions by UBS or any other source may yield substantially different results.

This document and the Information are produced by UBS as part of its research function and are provided to you solely for general background information. UBS has no regard to the specific investment objectives, financial situation or particular needs of any specific recipient. In no circumstances may this document or any of the Information be used for any of the following purposes:

(i) valuation or accounting purposes;

(ii) to determine the amounts due or payable, the price or the value of any financial instrument or financial contract; or

(iii) to measure the performance of any financial instrument.

By receiving this document and the Information you will be deemed to represent and warrant to UBS that you will not use this document or any of the Information for any of the above purposes or otherwise rely upon this document or any of the Information.

UBS has policies and procedures, which include, without limitation, independence policies and permanent information barriers, that are intended, and upon which UBS relies, to manage potential conflicts of interest and control the flow of information within divisions of UBS and among its subsidiaries, branches and affiliates. For further information on the ways in which UBS manages conflicts and maintains independence of its research products, historical performance information and certain additional disclosures concerning UBS research recommendations, please visit www.ubs.com/disclosures.

Research will initiate, update and cease coverage solely at the discretion of UBS Investment Bank Research Management, which will also have sole discretion on the timing and frequency of any published research product. The analysis contained in this document is based on numerous assumptions. All material information in relation to published research reports, such as valuation methodology, risk statements, underlying assumptions (including sensitivity analysis of those assumptions), ratings history etc. as required by the Market Abuse Regulation, can be found on NEO. Different assumptions could result in materially different results.

The analyst(s) responsible for the preparation of this document may interact with trading desk personnel, sales personnel and other parties for the purpose of gathering, applying and interpreting market information. UBS relies on information barriers to control the flow of information contained in one or more areas within UBS into other areas, units, groups or affiliates of UBS. The compensation of the analyst who prepared this document is determined exclusively by research management and senior management (not including investment banking). Analyst compensation is not based on investment banking revenues; however, compensation may relate to the revenues of UBS Investment Bank as a whole, of which investment banking, sales and trading are a part, and UBS's subsidiaries, branches and affiliates as a whole.

For financial instruments admitted to trading on an EU regulated market: UBS AG, its affiliates or subsidiaries (excluding UBS Securities LLC) acts as a market maker or liquidity provider (in accordance with the interpretation of these terms in the UK) in the financial instruments of the issuer save that where the activity of liquidity provider is carried out in accordance with the definition given to it by the laws and regulations of any other EU jurisdictions, such information is separately disclosed in this document. For financial instruments admitted to trading on a non-EU regulated market: UBS may act as a market maker save that where this activity is carried out in the US in accordance with the definition given to it by the relevant laws and regulations, such activity will be specifically disclosed in this document. UBS may have issued a warrant the value of which is based on one or more of the financial instruments referred to in the document. UBS and its affiliates and employees may have long or short positions, trade as principal and buy and sell in instruments or derivatives identified herein; such transactions or positions may be inconsistent with the opinions expressed in this document.

United Kingdom and the rest of Europe: Except as otherwise specified herein, this material is distributed by UBS Limited to persons who are eligible counterparties or professional clients. UBS Limited is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. **France:** Prepared by UBS Limited and distributed by UBS Limited and UBS Securities France S.A. UBS Securities France S.A. is regulated by the ACPR (Autorité de Contrôle Prudentiel et de Résolution) and the Autorité des Marchés Financiers (AMF). Where an analyst of UBS Securities France S.A. has contributed to this document, the document is also deemed to have been prepared by UBS Securities France S.A. **Germany:** Prepared by UBS Limited and distributed by UBS Limited and UBS Deutschland AG. UBS Deutschland AG is regulated by the Bundesanstalt fur Finanzdienstleistungsaufsicht (BaFin). **Spain:** Prepared by UBS Limited and distributed by UBS Limited and UBS Securities España SV, SA. UBS Securities España SV, SA is regulated by the Comisión Nacional del Mercado de Valores (CNMV). **Turkey:**

✠ **UBS**

Equity Risk Premiums And Stocks Today

Marek Mscichowski | March 11, 2014

Stocks may appear to be at expensive levels. Looking at Price to Earnings (P/E) multiples of equities and comparing them to their historical averages, however, some commentators (namely, former Federal Reserve Chairman Alan Greenspan and NYU professor Aswath Damodaran) have recently pointed to equity risk premiums as another useful metric for valuing stocks. Unlike P/E multiples, equity premiums take interest rates, some currently at historically low levels historically, into account.

The equity premium is the total expected return (including capital growth and dividends) minus the risk-free rate. The total expected return is currently around 8.5%. The ten-year Treasury yield, an estimate of the risk-free rate, is about 3%. Hence, by our rough arithmetic, the equity premium that compensates investors for the added risk of holding corporate equity over theoretically risk-free U.S. government interest payments is currently about 5.5%.

Historically, the equity premium required by investors has averaged in the range of 3% to 7%. So this premium is about average, while interest rates, in some cases, are at historic lows.

The main reason that interest rates are so low is the Federal Reserve's massive asset-buyback program and abnormally low inflation. Through this lens, the elevated high P/E ratios make more sense, as investors search for returns in a low interest-rate environment. However, the Fed lowered the amount of monthly buybacks by $10 billion, from $85 billion to $75 billion, as 2013 came to a close. It then pared another $10 billion assets in January of this year. The Fed's efforts should eventually increase interest rates, though the timeframe appears to depend on the depth and breadth of an economic recovery. This has lent more urgency to speculation on Fed moves.

If interest rates go up and the required premium stays the same, this will decrease equity prices, all else being equal, as future cash flows are discounted by greater expected total returns. However, Professor Damodaran, who periodically posts his own equity risk premium estimate, argues that over the past decade, estimated returns have circled around the same mean, with equity risk premiums have largely compensated for falling interest rates, which have been in the hands of the Federal Reserve. Still, there are historical precedents for shifts in the total expected return because of either changes in the risk-free rate or equity premiums.

Besides interest rates and required equity premiums, another variable that can affect returns is earnings growth, which ultimately supplies money for returns in the form of dividends and buybacks. In recent years, corporations have been doing well, and the global economy seems to be firming up. Future earnings figures will also affect valuations. Damodaran provides a model (similar to a dividend discount model for a stock) for one to determine the intrinsic value of the S&P 500 Index by providing estimates for the risk-free rate, equity premium, as well as cash returns in the form of buybacks and their assumed growth rates.

What are some possible scenarios and how would they affect investors? Our previous discussion should shed some light. In the worst case scenario, interest rates will grow sharply, while the pace of earnings slow (compared to expectations, at least). This may mean equities are relatively overvalued now. For investors, the best case would be if earnings continue to grow nicely, while interest rates remain subdued. This may mean that the intrinsic value of equities is above the current price. With markets recently reaching all-time highs in some indexes and many stocks trading at premium P/E multiples compared to recent years, looking at the equity risk premium may provide investors with new insights into equity valuation and where stocks can go from here.

Value Line subscribers can compare our total return estimates with current bond yields for an idea of equity risk premium as they differ for each individual stock (In general, riskier stocks require higher premiums). Investors should also focus on our earnings and dividend estimates and projections, when considering if an investment is right for them on a fundamental basis.

Investor growth expectations: Analysts vs. history

Analysts' growth forecasts dominate past trends in predicting stock prices.

James H. Vander Weide and Willard T. Carleton

For the purposes of implementing the Discounted Cash Flow (DCF) cost of equity model, the analyst must know which growth estimate is embodied in the firm's stock price. A study by Cragg and Malkiel (1982) suggests that the stock valuation process embodies analysts' forecasts rather than historically based growth figures such as the ten-year historical growth in dividends per share or the five-year growth in book value per share. The Cragg and Malkiel study is based on data for the 1960s, however, a decade that was considerably more stable than the recent past.

As the issue of which growth rate to use in implementing the DCF model is so important to applications of the model, we decided to investigate whether the Cragg and Malkiel conclusions continue to hold in more recent periods. This paper describes the results of our study.

STATISTICAL MODEL

The DCF model suggests that the firm's stock price is equal to the present value of the stream of dividends that investors expect to receive from owning the firm's shares. Under the assumption that investors expect dividends to grow at a constant rate, g, in perpetuity, the stock price is given by the following simple expression:

$$P_s = \frac{D (1 + g)}{k - g} \qquad (1)$$

where:

P_s = current price per share of the firm's stock;

D = current annual dividend per share;

g = expected constant dividend growth rate; and

k = required return on the firm's stock.

Dividing both sides of Equation (1) by the firm's current earnings, E, we obtain:

$$\frac{P_s}{E} = \frac{D}{E} \cdot \frac{(1 + g)}{k - g} \qquad (2)$$

Thus, the firm's price/earnings (P/E) ratio is a non-linear function of the firm's dividend payout ratio (D/E), the expected growth in dividends (g), and the required rate of return.

To investigate what growth expectation is embodied in the firm's current stock price, it is more convenient to work with a linear approximation to Equation (2). Thus, we will assume that:

$$P/E = a_0(D/E) + a_1g + a_2k. \qquad (3)$$

(Cragg and Malkiel found this assumption to be reasonable throughout their investigation.)

Furthermore, we will assume that the required

rate of return, k, in Equation (3) depends on the values of the risk variables B, Cov, Rsq, and Sa, where B is the firm's Value Line beta; Cov is the firm's pretax interest coverage ratio; Rsq is a measure of the stability of the firm's five-year historical EPS; and Sa is the standard deviation of the consensus analysts' five-year EPS growth forecast for the firm. Finally, as the linear form of the P/E equation is only an approximation to the true P/E equation, and B, Cov, Rsq, and Sa are only proxies for k, we will add an error term, e, that represents the degree of approximation to the true relationship.

With these assumptions, the final form of our P/E equation is as follows:

$$P/E = a_0(D/E) + a_1g + a_2B + a_3Cov + a_4Rsq + a_5Sa + e. \tag{4}$$

The purpose of our study is to use more recent data to determine which of the popular approaches for estimating future growth in the Discounted Cash Flow model is embodied in the market price of the firm's shares.

We estimated Equation (4) to determine which estimate of future growth, g, when combined with the payout ratio, D/E, and risk variables B, Cov, Rsq, and Sa, provides the best predictor of the firm's P/E ratio. To paraphrase Cragg and Malkiel, we would expect that growth estimates found in the best-fitting equation more closely approximate the expectation used by investors than those found in poorer-fitting equations.

DESCRIPTION OF DATA

Our data sets include both historically based measures of future growth and the consensus analysts' forecasts of five-year earnings growth supplied by the Institutional Brokers Estimate System of Lynch, Jones & Ryan (IBES). The data also include the firm's dividend payout ratio and various measures of the firm's risk. We include the latter items in the regression, along with earnings growth, to account for other variables that may affect the firm's stock price.

The data include:

Earnings Per Share. Because our goal is to determine which earnings variable is embodied in the firm's market price, we need to define this variable with care. Financial analysts who study a firm's financial results in detail generally prefer to "normalize" the firm's reported earnings for the effect of extraordinary items, such as write-offs of discontinued operations, or mergers and acquisitions. They also attempt, to the extent possible, to state earnings for different firms using a common set of accounting conventions.

We have defined "earnings" as the consensus analyst estimate (as reported by IBES) of the firm's earnings for the forthcoming year.[1] This definition approximates the normalized earnings that investors most likely have in mind when they make stock purchase and sell decisions. It implicitly incorporates the analysts' adjustments for differences in accounting treatment among firms and the effects of the business cycle on each firm's results of operations. Although we thought at first that this earnings estimate might be highly correlated with the analysts' five-year earnings growth forecasts, that was not the case. Thus, we avoided a potential spurious correlation problem.

Price/Earnings Ratio. Corresponding to our definition of "earnings," the price/earnings ratio (P/E) is calculated as the closing stock price for the year divided by the consensus analyst earnings forecast for the forthcoming fiscal year.

Dividends. Dividends per share represent the common dividends declared per share during the calendar year, after adjustment for all stock splits and stock dividends). The firm's dividend payout ratio is then defined as common dividends per share divided by the consensus analyst estimate of the earnings per share for the forthcoming calendar year (D/E). Although this definition has the deficiency that it is obviously biased downward — it divides this year's dividend by next year's earnings — it has the advantage that it implicitly uses a "normalized" figure for earnings. We believe that this advantage outweighs the deficiency, especially when one considers the flaws of the apparent alternatives. Furthermore, we have verified that the results are insensitive to reasonable alternative definitions (see footnote 1).

Growth. In comparing historically based and consensus analysts' forecasts, we calculated forty-one different historical growth measures. These included the following: 1) the past growth rate in EPS as determined by a log-linear least squares regression for the latest year,[2] two years, three years, . . ., and ten years; 2) the past growth rate in DPS for the latest year, two years, three years, . . ., and ten years; 3) the past growth rate in book value per share (computed as the ratio of common equity to the outstanding common equity shares) for the latest year, two years, three years, . . ., and ten years; 4) the past growth rate in cash flow per share (computed as the ratio of pretax income, depreciation, and deferred taxes to the outstanding common equity shares) for the latest year, two years, three years, . . ., and ten years; and 5) plowback growth (computed as the firm's retention ratio for the current year times the firm's latest annual return on common equity).

We also used the five-year forecast of earnings

per share growth compiled by IBES and reported in mid-January of each year. This number represents the consensus (i.e., mean) forecast produced by analysts from the research departments of leading Wall Street and regional brokerage firms over the preceding three months. IBES selects the contributing brokers "because of the superior quality of their research, professional reputation, and client demand" (IBES *Monthly Summary Book*).

Risk Variables. Although many risk factors could potentially affect the firm's stock price, most of these factors are highly correlated with one another. As shown above in Equation (4), we decided to restrict our attention to four risk measures that have intuitive appeal and are followed by many financial analysts: 1) B, the firm's beta as published by Value Line; 2) Cov, the firm's pretax interest coverage ratio (obtained from Standard & Poor's Compustat); 3) Rsq, the stability of the firm's five-year historical EPS (measured by the R^2 from a log-linear least squares regression); and 4) Sa, the standard deviation of the consensus analysts' five-year EPS growth forecast (mean forecast) as computed by IBES.

After careful analysis of the data used in our study, we felt that we could obtain more meaningful results by imposing six restrictions on the companies included in our study:

1. Because of the need to calculate ten-year historical growth rates, and because we studied three different time periods, 1981, 1982, and 1983, our study requires data for the thirteen-year period 1971-1983. We included only companies with at least a thirteen-year operating history in our study.
2. As our historical growth rate calculations were based on log-linear regressions, and the logarithm of a negative number is not defined, we excluded all companies that experienced negative EPS during any of the years 1971-1983.
3. For similar reasons, we also eliminated companies that did not pay a dividend during any one of the years 1971-1983.
4. To insure comparability of time periods covered by each consensus earnings figure in the P/E ratios, we eliminated all companies that did not have a December 31 fiscal year-end.
5. To eliminate distortions caused by highly unusual events that distort current earnings but not expected future earnings, and thus the firm's price/earnings ratio, we eliminated any firm with a price/earnings ratio greater than 50.
6. As the evaluation of analysts' forecasts is a major part of this study, we eliminated all firms that IBES did not follow.

Our final sample consisted of approximately sixty-five utility firms.[3]

RESULTS

To keep the number of calculations in our study to a reasonable level, we performed the study in two stages. In Stage 1, all forty-one historically oriented approaches for estimating future growth were correlated with each firm's P/E ratio. In Stage 2, the historical growth rate with the highest correlation to the P/E ratio was compared to the consensus analyst growth rate in the multiple regression model described by Equation (4) above. We performed our regressions for each of three recent time periods, because we felt the results of our study might vary over time.

First-Stage Correlation Study

Table 1 gives the results of our first-stage correlation study for each group of companies in each of the years 1981, 1982, and 1983. The values in this table measure the correlation between the historically oriented growth rates for the various time periods and the firm's end-of-year P/E ratio.

The four variables for which historical growth rates were calculated are shown in the left-hand column: EPS indicates historical earnings per share growth, DPS indicates historical dividend per share growth, BVPS indicates historical book value per share growth, and CFPS indicates historical cash flow per share growth. The term "plowback" refers to the product of the firm's retention ratio in the currennt year and its return on book equity for that year. In all, we calculated forty-one historically oriented growth rates for each group of firms in each study period.

The goal of the first-stage correlation analysis was to determine which historically oriented growth rate is most highly correlated with each group's year-end P/E ratio. Eight-year growth in CFPS has the highest correlation with P/E in 1981 and 1982, and ten-year growth in CFPS has the highest correlation with year-end P/E in 1983. In all cases, the plowback estimate of future growth performed poorly, indicating that — contrary to generally held views — plowback is not a factor in investor expectations of future growth.

Second-Stage Regression Study

In the second stage of our regression study, we ran the regression in Equation (4) using two different measures of future growth, g: 1) the best historically oriented growth rate (g_h) from the first-stage correlation study, and 2) the consensus analysts' forecast (g_a) of five-year EPS growth. The regression results, which are shown in Table 2, support at least

TABLE 1

Correlation Coefficients of All Historically Based Growth Estimates by Group and by Year with P/E

Historical Growth Rate Period in Years

Current Year	1	2	3	4	5	6	7	8	9	10
1981										
EPS	−0.02	0.07	0.03	0.01	0.03	0.12	0.08	0.09	0.09	0.09
DPS	0.05	0.18	0.14	0.15	0.14	0.15	0.19	0.23	0.23	0.23
BVPS	0.01	0.11	0.13	0.13	0.16	0.18	0.15	0.15	0.15	0.15
CFPS	−0.05	0.04	0.13	0.22	0.28	0.31	0.30	0.31	−0.57	−0.54
Plowback	0.19									
1982										
EPS	−0.10	−0.13	−0.06	−0.02	−0.02	−0.01	−0.03	−0.03	0.00	0.00
DPS	−0.19	−0.10	0.03	0.05	0.07	0.08	0.09	0.11	0.13	0.13
BVPS	0.07	0.08	0.11	0.11	0.09	0.10	0.11	0.11	0.09	0.09
CFPS	−0.02	−0.08	0.00	0.10	0.16	0.19	0.23	0.25	0.24	0.07
Plowback	0.04									
1983										
EPS	−0.06	−0.25	−0.25	−0.24	−0.16	−0.11	−0.05	0.00	0.02	0.02
DPS	0.03	−0.10	−0.03	0.08	0.15	0.21	0.21	0.21	0.22	0.24
BVPS	0.03	0.10	0.04	0.09	0.15	0.16	0.19	0.21	0.22	0.21
CFPS	−0.08	0.01	0.02	0.08	0.20	0.29	0.35	0.38	0.40	0.42
Plowback	−0.08									

two general conclusions regarding the pricing of equity securities.

First, we found overwhelming evidence that the consensus analysts' forecast of future growth is superior to historically oriented growth measures in predicting the firm's stock price. In every case, the R^2 in the regression containing the consensus analysts' forecast is higher than the R^2 in the regression containing the historical growth measure. The regression coefficients in the equation containing the consensus analysts' forecast also are considerably more significant than they are in the alternative regression. These results are consistent with those found by Cragg and Malkiel for data covering the period 1961-1968. Our results also are consistent with the hypothesis that investors use analysts' forecasts, rather than historically oriented growth calculations, in making stock buy–and–sell decisions.

TABLE 2

Regression Results
Model I

Part A: *Historical*

$P/E = a_0 + a_1 D/E + a_2 g_h + a_3 B + a_4 Cov + a_5 Rsq + a_6 Sa$

Year	$\hat{a}_0$	$\hat{a}_1$	$\hat{a}_2$	$\hat{a}_3$	$\hat{a}_4$	$\hat{a}_5$	$\hat{a}_6$	R^2	F Ratio
1981	−6.42*	10.31*	7.67*	3.24	0.54*	1.42*	57.43	0.83	46.49
	(5.50)	(14.79)	(2.20)	(2.86)	(2.50)	(2.85)	(4.07)		
1982	−2.90*	9.32*	8.49*	2.85	0.45*	−0.42	3.63	0.86	65.53
	(2.75)	(18.52)	(4.18)	(2.83)	(2.60)	(0.05)	(0.26)		
1983	−5.96*	10.20*	19.78*	4.85	0.44*	0.33	32.49	0.82	45.26
	(3.70)	(12.20)	(4.83)	(2.95)	(1.89)	(0.50)	(1.29)		

Part B: *Analysis*

$P/E = a_0 + a_1 D/E + a_2 g_a + a_3 B + a_4 Cov + a_5 Rsq + a_6 Sa$

Year	$\hat{a}_0$	$\hat{a}_1$	$\hat{a}_2$	$\hat{a}_3$	$\hat{a}_4$	$\hat{a}_5$	$\hat{a}_6$	R^2	F Ratio
1981	−4.97*	10.62*	54.85*	−0.61	0.33*	0.63*	4.34	0.91	103.10
	(6.23)	(21.57)	(8.56)	(0.68)	(2.28)	(1.74)	(0.37)		
1982	−2.16*	9.47*	50.71*	−1.07	0.36*	−0.31	119.05*	0.90	97.62
	(2.59)	(22.46)	(9.31)	(1.14)	(2.53)	(1.09)	(1.60)		
1983	−8.47*	11.96*	79.05*	2.16	0.56*	0.20	−34.43	0.87	69.81
	(7.07)	(16.48)	(7.84)	(1.55)	(3.08)	(0.38)	(1.44)		

Notes:

* Coefficient is significant at the 5% level (using a one-tailed test) and has the correct sign. T-statistic in parentheses.

81

Second, there is some evidence that investors tend to view risk in traditional terms. The interest coverage variable is statistically significant in all but one of our samples, and the stability of the operating income variable is statistically significant in six of the twelve samples we studied. On the other hand, the beta is never statistically significant, and the standard deviation of the analysts' five-year growth forecasts is statistically significant in only two of our twelve samples. This evidence is far from conclusive, however, because, as we demonstrate later, a significant degree of cross-correlation among our four risk variables makes any general inference about risk extremely hazardous.

Possible Misspecification of Risk

The stock valuation theory says nothing about which risk variables are most important to investors. Therefore, we need to consider the possibility that the risk variables of our study are only proxies for the "true" risk variables used by investors. The inclusion of proxy variables may increase the variance of the parameters of most concern, which in this case are the coefficients of the growth variables.[4]

To allow for the possibility that the use of risk proxies has caused us to draw incorrect conclusions concerning the relative importance of analysts' growth forecasts and historical growth extrapolations, we have also estimated Equation (4) with the risk variables excluded. The results of these regressions are shown in Table 3.

Again, there is overwhelming evidence that the consensus analysts' growth forecast is superior to the historically oriented growth measures in predicting the firm's stock price. The R^2 and t-statistics are higher in every case.

CONCLUSION

The relationship between growth expectations and share prices is important in several major areas of finance. The data base of analysts' growth forecasts collected by Lynch, Jones & Ryan provides a unique opportunity to test the hypothesis that investors rely more heavily on analysts' growth forecasts than on historical growth extrapolations in making security buy–and–sell decisions. With the help of this data base, our studies affirm the superiority of analysts' forecasts over simple historical growth extrapolations in the stock price formation process. Indirectly, this finding lends support to the use of valuation models whose input includes expected growth rates.

[1] We also tried several other definitions of "earnings," including the firm's most recent primary earnings per share prior to any extraordinary items or discontinued operations. As our results were insensitive to reasonable alternative

TABLE 3

Regression Results
Model II

Part A: *Historical*

$P/E = a_0 + a_1 D/E + a_2 g_h$

Year	$\hat{a}_0$	$\hat{a}_1$	$\hat{a}_2$	R^2	F Ratio
1981	−1.05	9.59	21.20	0.73	82.95
	(1.61)	(12.13)	(7.05)		
1982	0.54	8.92	12.18	0.83	167.97
	(1.38)	(17.73)	(6.95)		
1983	−0.75	8.92	12.18	0.77	107.82
	(1.13)	(12.38)	(7.94)		

Part B: *Analysis*

$P/E + a_0 + a_1 D/E + a_2 g_a$

Year	$\hat{a}_0$	$\hat{a}_1$	$\hat{a}_2$	R^2	F Ratio
1981	3.96	10.07	60.53	0.90	274.16
	(8.31)	(8.31)	(20.91)	(15.79)	
1982	−1.75	9.19	44.92	0.88	246.36
	(4.00)	(4.00)	(21.35)	(11.06)	
1983	−4.97	10.95	82.02	0.83	168.28
	(6.93)	(6.93)	(15.93)	(11.02)	

Notes:
* Coefficient is significant at the 5% level (using a one-tailed test) and has the correct sign. T-statistic in parentheses.

definitions of "earnings " we report only the results for the IBES consensus.

[2] For the latest year, we actually employed a point-to-point growth calculation because there were only two available observations.

[3] We use the word "approximately," because the set of available firms varied each year. In any case, the number varied only from zero to three firms on either side of the figures cited here.

[4] See Maddala (1977).

REFERENCES

Bower, R. S., and D. H. Bower. "Risk and the Valuation of Common Stock." *Journal of Political Economy*, May-June 1969, pp. 349-362.

Cragg, J. G., and Malkiel, B. G. "The Consensus and Accuracy of Some Predictions of the Growth of Corporate Earnings." *Journal of Finance*, March 1968, pp. 67-84.

Cragg, J. G., and Malkiel, B. G. *Expectations and the Structure of Share Prices*. Chicago: University of Chicago Press, 1982.

Elton, E. J., M. J. Gruber, and Mustava N. Gultekin. "Expectations and Share Prices." *Management Science*, September 1981, pp. 975-987.

Federal Communications Commission. *Notice of Proposed Rulemaking*. CC Docket No. 84-800, August 13, 1984.

IBES *Monthly Summary Book*. New York: Lynch, Jones & Ryan, various issues.

Maddala, G. E. *Econometrics*. New York: McGraw-Hill Book Company, 1977.

Malkiel, B. G. "The Valuation of Public Utility Equities." *Bell Journal of Economics and Management Science*, Spring 1970, pp. 143-160.

Peterson, D., and P. Peterson. "The Effect of Changing Expectations upon Stock Returns." *Journal of Financial and Quantitative Analysis*, September 1982, pp. 799-813.

Theil, H. *Principles of Econometrics*. New York: John Wiley & Sons, 1971.