

The Illinois Commerce Commission's Pro Forma Adjustment Rule: An Event Study of Regulatory Decision-Making

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Public utilities' earnings are inherently linked to decisions of the regulatory body. When regulators make decisions that are unexpected or that cause additional risk to shareholders one expects that such decisions will have an effect on the price of the utility's stock. In 2010 the Illinois Commerce Commission, the regulatory body that sets electric utility rates in Illinois, made a dramatic change in the manner in which it applied an accounting rule, the pro forma adjustment rule, causing the rates for Ameren Illinois Utilities to be substantially less than otherwise would be the case. If this decision provided information to investors, we expect the Ameren stock price to react to the decision. Using a single-firm, single-event methodology we find limited evidence that this one event had an effect on daily abnormal returns to the Ameren Corporation's stock. We also discuss possible reasons for these results.

Public utilities are a unique creature in the commercial environment of modern economies. While US law protects private property from confiscation by government, public utilities submit to a regulatory compact that generally provides shelter from competitive entry in return for truncating property rights by submitting to the regulation of its prices. (Sidak and Spulber, 1997). The utility also acquires an obligation to serve all customers within its jurisdiction and the investment obligation that is concomitant with the need to meet all demand forthcoming at the regulated price. The process of regulating rates, generally referred to as ratemaking, has multiple objectives with the main objective to balance customer and investor interests. (Hope, p. 602). As part of that balancing act the regulatory process must provide an opportunity for utilities to earn a competitive return on invested capital and assure that customers pay only those costs that are reasonable and prudent.

Ratemaking exercises, implemented through a rate case, are complex administrative procedures in which a regulatory body attempts to ascertain the correct level of operating expenses and invested capital. Regulators utilize the revenue requirement to calculate the total reasonable expenses, including taxes and depreciation expense, and the total return on invested capital for an annual test period, called a test year, meant to represent the utility's expected costs when rates go into effect. The capital allowed in the revenue requirement is called the rate base which, in most cases, is measured as the original cost less accumulated depreciation up to the end of the test year. The rate base, therefore, is one critical factor in the utility's financial health and its ability to return a competitive profit level.

Regulators have developed a set of rules to guide the ratemaking process. For example it is well-known that the test year data represent a snap shot of a utility's costs at a particular point in time, yet the administrative procedure can take up to a year to complete. To recognize this administrative lag generally a pro forma adjustment is allowed to the revenue requirement to update cost categories for so-called known and measurable changes. This updating process is designed to recognize that the utility will continue to invest in its system during the pendency of the administrative procedure.

The purpose of this paper is to examine the effect of a change in the interpretation of the pro forma adjustment rule (PFAR) in Illinois on the stock price of an electric utility operating in Illinois. In particular, there was a natural experiment in Illinois that occurred over short period between late 2008 and fall 2010. In 2008 the Illinois Commerce Commission (ICC or Commission) interpreted the PFAR to the favor of the utility's investors. Nineteen months later, the ICC reversed course and interpreted the same rule to the detriment of investors. The implementation and interpretation of accounting rules can influence expected profitability of the utility and, as one would expect, market players closely monitor changes that regulators make that might influence earnings. We test the hypothesis that a change in the interpretation of the pro forma adjustment rule by the ICC affected the stock price of the utility utilizing a single-firm, single event methodology. We find mixed evidence that the regulatory decision did influence the utility's holding company stock price.

The paper is organized as follows: Section II outlines the process by which regulators set utility prices. Section III examines the controversy surrounding the implementation of the PFAR in Illinois and the expected impact on utility stock prices. Section IV presents our hypothesis and the data employed to test the hypothesis with results, and the last section is reserved for conclusions and a scope for further research.

Review of Ratemaking Process in Illinois

The focus of ratemaking is the determination of the total prudent cost of serving customers. The regulator is concerned with determining both a fair total cost and a fair price. In discharging their duties to meet the objectives for ratemaking, regulatory bodies generally utilize some version of the basic regulatory equation that often takes the form:

$$RR = OE + RoR \times RB \quad (1)$$

Where:

RR = revenue requirement

OE = Operating expenses (including annual depreciation expense and taxes)

RoR = competitive rate of return for debt and equity holders

RB = rate base or the prudently incurred capital investment less accumulated depreciation

In implementing Equation (1) a significant level of detailed accounting data must be obtained from the utility and audited by an outside accounting firm as well as the regulator. To set the proper level of allowed revenues, a time period, or test year, is chosen. A test year may be based on an historic year, the current year, or an estimate of a future year's costs and the rules for test years vary by jurisdiction. In Illinois utilities may choose the test year, although only a historic or future test year may be chosen. (83 Ill. Ad. Code Part 287.20). For historic test years, the focus of this paper, the utility may choose "[A]ny consecutive 12 month period, beginning no more than 24 months prior to the date of the utility's filing..." (Id). Although in most cases the utility will wish to choose a date closest to the filing date for which the appropriate data is available, typically the twelve months ending the December prior to filing the case.

The operating expenses for the test year are based on a normalization process used to smooth out any unusual costs. The normalization process avoids potential gaming by the parties wishing to choose a test year where the costs are most favorable to their position. For example, weather events often affect operating costs. A utility could propose basing its operating costs on a year in which weather caused the costs to be unusually high. Alternatively, a regulator could investigate a utility's rates in a year when the costs are unusually low. The normalization process removes these perverse incentives.

The rate base represents the utility's investment in capital. For an electric delivery utility, the majority of costs are associated with plant and equipment (e.g., poles, wires, transformers, substations) and, indeed, capital outlays tend to represent a large portion of the costs of any utility. (Kahn 1988, pp. 35-36). The rate base also includes financial capital such as working capital needed to operate the utility on a day-to-day basis and may also include reductions for capital contributed by customers (e.g., deferred income taxes, customer advances, etc.). The RoR or rate of return is a weighted average cost of capital that represents the costs of obtaining debt financing as well as equity financing. While calculating the RoR, and in particular the cost of equity, is often one of the most controversial topics in litigation, this paper is confined to a discussion of the method of setting the rate base for a historic test year. (McDermott et al., (2006) provide a more detailed review of the ratemaking process).

While Equation (1) may look mechanical, its implementation is far from mechanical. The US Supreme Court noted this in *Hope*: It is not the theory but the impact of the rate order which counts. If the total effect of the rate order cannot be said to be unjust and unreasonable, judicial inquiry under the Act is at an end. The fact that the method employed to reach that result may contain infirmities is not then important. Moreover, [the regulator's decision] does not become suspect by reason of the fact that it is challenged. It is the product of expert judgment which carries a presumption of validity (*Hope*, p. 602).

Somewhat ironically, the *Hope* End Result Doctrine led to a general consensus that Equation (1) is a reasonable method of balancing the interests of customers and investors as long as only the prudent and reasonable costs are included in the calculation of the allowed level of rates. The *Hope* Court also made it clear that the regulator's decision is presumed to be appropriate, that is, the Court gives a great deal of deference to the expert body in these matters. This expert judgment is generally guided by both written rules and regulatory practice. In Illinois, the determination of the rate base begins with an analysis of the capital costs in the test year. The Rate Base is determined on the basis of original depreciated costs. All accumulated depreciation as of the end of the test year is included as an offset to the original capital costs and the utility obtains a return on the net plant in service. Figure 1 illustrates the time line for the historic test year. The test year consists of twelve consecutive months of operating data and the rate case takes eleven months to complete. (83 Illinois Administrative Code Part 287.20 and 220 ILCS 5/9-201(b)) During the pendency of the rate case, however, the utility will continue to invest in its system. In Illinois, the Commission's rules allow utilities to propose pro forma adjustment to the selected historical test year. In

particular, 83 Illinois Administrative Code Part 287.40 contains the Pro Forma Adjustment Rule that states, in relevant part:

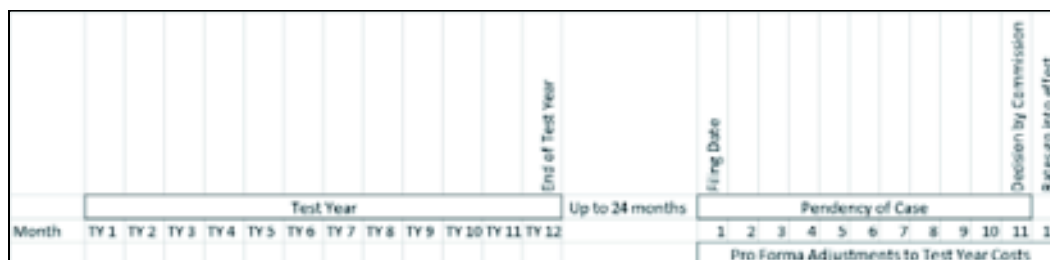
A utility may propose pro forma adjustments...to the selected historical test year for all known and measurable changes in the operating results of the test year. These adjustments shall reflect changes affecting the ratepayers in plant investment, operating revenues, expenses, and cost of capital where such changes occurred during the selected historical test year or are reasonably certain to occur subsequent to the historical test year within 12 months after the filing date of the tariffs and where the amounts of the changes are determinable. Attrition or inflation factors shall not be substituted for a specific study of individual capital, revenue, and expense components. Any proposed known and measurable adjustment to the test year shall be individually identified and supported in the direct testimony of the utility.

Several items are important for the analysis. First, the rule allows, but does not require any particular pro forma adjustment (“[A] utility may...”). Second, the pro forma adjustments may be made up to and including the twelfth month after the filing date, but must be known and measurable. This is a legal standard the ICC applies to proposed pro forma adjustments which can only be met through sufficient sworn evidence provided by the utility and vetted through the normal litigation process. Other parties have the right to challenge proposed pro forma adjustments or propose other pro forma adjustments and the Commission determines which adjustments and in what time period should such adjustments be included in determining the revenue requirement in Equation (1). Third, the PFAR addresses the problem of administrative lag. That is, some costs are incurred during the pendency of the case that would otherwise not be allowed in rates.

As utilities are continually investing in their networks, absent this rule, capital invested during the pendency of the case would not be placed into rates until the next rate case. In Illinois, at a minimum, that would take another eleven months to complete. In practical terms, it likely implies more than eleven months due to the data requirements for filing a rate case. (83 Illinois Administrative Code Part 285). Yet unlike increased expenses that could be captured in the next rate case, at least on a going-forward basis, the depreciation that occurs for plant put into service, but not yet placed in rates (i.e., entered in Equation (1)), can never be recovered in a future rate case. In a sense, the entire reason for the PFAR is as an exception to the test year rule that only capital incurred in the test year may be included in the RB factor.

Finally, it is worth noting the terms the PFAR uses. The rule states that adjustments are necessary for changes in “plant investment” among other items. The Commission had interpreted that term to mean gross plant investment not net plant investment. (ComEd 2007 Rate Case, p.18). Additionally, the PFAR specifically rules out any pro forma adjustments that are based on “[A]ttrition or inflation.” That is, the rule is supposed to be applied only after careful review of the actual costs of an actual project and is not supposed to be applied mechanically. This avoids endless arguments over hypothetical projects and costs and, as the ICC had previously interpreted, rules out accounting for depreciation on the non pro forma capital (i.e., the test year capital) noting that depreciation is an attrition factor (Id.). All of these factors led the Commission to conclude that the PFAR does not require an adjustment to accumulated depreciation reserve not directly associated with the pro forma adjustments. That is not to say that such adjustments were not made as discussed below. This general interpretation and application of the rule, however, was challenged in 2008 and we turn to that challenge next.

Figure 1: Timeline for Historic Test Year and Pro Forma Adjustments



Controversy Over the Illinois Pro Forma Adjustment Rule

The PFAR has been a part of the accounting practice in Illinois for many years. (Commonwealth Edison Company Brief on Exceptions to the Administrative Law Judge’s Proposed Second Notice Order, in ICC Docket No. 02-0509, p. 6). In 2003, the ICC revised its rules on the test year for public utilities as a result of structural, technological, and regulatory changes in the Illinois utility environment. (ICC Staff Report filed in ICC Docket No.

02-0509). For example, in 1997 nearly all the electric utilities in Illinois were vertically integrated with production and delivery functions regulated by the ICC. As a result of restructuring legislation passed in 1997 the major utilities in Illinois separated the production function from the delivery function creating a public utility in delivery of power and energy regulated by the ICC and a generation company (or companies) not regulated by the ICC. New issues such as customer switching to third party suppliers of energy, and new costs such as administration of procurement of energy for customers that did not switch as well as the costs of interacting with third party suppliers arose as a result of the 1997 changes. This, in part, caused the ICC to recognize the need to revise and update its rate case rules of which the PFAR was a major part.

In the 2003 revisions to the PFAR, the major concern of the parties was the word “may” in the first sentence. An earlier draft version of the PFAR used the word “shall” suggesting that all changes to the test year costs that might have an influence on rates should be proposed by the utility via the PFAR. (Proposed Second Notice Order in ICC Docket No. 02-0509, p. 31). The ICC rejected this proposal in favor of the more permissive standard found in the PFAR cited above finding that adjustments of all factors through a pro forma adjustment could be burdensome on utilities, and, if other parties found that a utility’s test year costs had materially changed, those parties could always propose their own pro forma adjustments to the utility’s test year. (Second Notice Order in ICC Docket No. 02-0509, pp. 31-32).

From 2002 to 2008, the PFAR was largely uncontested, at least by the Commission, although some parties claim that the Commission applied the rule somewhat differently in different cases based on different facts. For example, some argued that the Commission approved an adjustment to the accumulated depreciation reserve in the test year up to the date of the last pro forma addition and in other cases the Commission did not approve such an adjustment. (Ebrey, p. 9-11) Other parties argued that the PFAR was either not expressly litigated or, if contested by a utility, the ICC rejected the adjustment to accumulated depreciation. (Initial Brief on Rehearing of Ameren Illinois Utilities in AIU 2009 Rate Case, p. 7-8).

No matter how the ICC had addressed the PFAR in the past, a controversy over the PFAR practice arose when the state’s largest electric utility, Commonwealth Edison (ComEd), filed a rate petition for a proposed increase in rates of nearly \$360 million in 2007. In the ComEd 2007 Rate Case the Commission approved \$561 million in pro forma adjustments to ComEd’s rate base via the PFAR without adjusting the historical test year accumulated depreciation reserve. (ComEd 2007 Rate Case, Appendix A). This adjustment in capital costs resulted in an additional \$78 million annual revenue collected by ComEd. (That is, the pro forma adjustments added \$78 million in additional revenue through the $ROR \times RB$ factor in Equation (1)) Two of the five Commissioners, however, dissented from this approach and argued that the PFAR must be interpreted to adjust the utility’s capital not only for the known and measurable changes and associated depreciation, but also for the accumulated depreciation on the capital costs included in the historic test year up to the time that the known and measurable changes occurred. (An associated adjustment for deferred income taxes would also have to be made). Under this alternative approach, for example, if the Commission determined that known and measureable changes supported by the evidence occurred through the sixth month after the filing date, the accumulated depreciation reserve for all capital included in the rate base would be adjusted to this new date. Due to the lag between the historic test year and the date of the last pro forma adjustments, this approach reduces the rate base by a year, or more, of accumulated depreciation. That additional accumulated depreciation can never be placed into rates and is lost to the investors of the utility. Although the Commission did not accept the minority’s interpretation of the PFAR in the ComEd 2007 Rate Case, the case was appealed to the Illinois Appellate Court for review of this issue in November 2008.

In June 2009, and prior to the time the Illinois Appellate Court ruled on Appeal of ComEd 2007 Rate Case, the Ameren Illinois Utilities (AIU), the state’s second largest electric utility system, filed a rate case proposing the same interpretation of the PFAR as in the ComEd 2007 Rate Case. The Commission, however, determined, in opposite to its decision in the ComEd 2007 Rate Case, that AIU was required to adjust its historic test year capital for all accumulated depreciation up to the point where the pro forma additions were included. For the AIU this amounted to a \$26 million reduction in its allowed annual revenues or about 15 percent of its allowed net income from electric operations. As utility earnings are inherently linked to the decisions of regulatory bodies, this reversal of the Commission’s position between the ComEd 2007 Rate Case and the AIU 2009 Rate Case should affect Ameren’s projected earnings and, in turn, its stock price. We next address the effect of this change in PFAR implementation on Ameren’s stock price.

Methodology and Results

According to the efficient market hypothesis, information concerning the value of a firm should be incorporated into the price of the firm’s stock. (Muth, 1961; Fama, 1970). This theory is consistent with the theory of competitive

markets in which buyers and sellers of a security are price takers and have no opportunity to create economic profits by trading stocks that are mispriced. (Schwert 1981, p. 124). In principle, stock prices should provide some evidence of the effect of new information, at least as it becomes widely known.

Event studies have been developed in an attempt to address this issue. A wealth of event studies have been used to evaluate the incorporation of information into stock prices, the effects of contract interference during a merger on the value of the firm, and even whether firms are violating international arms embargos. (Fama et al., 1969; Cutler and Summers, 1988; Dell Vigna and La Ferrara, 2010). Event studies have also been used in securities and antitrust litigation and to study events such as stock splits, takeovers and mergers, switching state corporate charters, regulatory effects, and many other events that have informational value to investors. (See e.g., Bhagat and Romano, 2002b, Schwert, 1981; MacKinlay, 1997) The event studies in securities litigation have a direct connection to the outcome of the litigation due to recent court decisions requiring plaintiffs suing for fraud to determine that, among other items, there was an economic loss caused by the alleged fraud. (*Dura Pharmaceuticals v. Brovado*, 544 U.S. 336, 341-342.) In public utility regulation, shareholder losses as a result of unfavorable regulatory decisions are not directly taken into account in the litigation concerning Equation (1). Yet the End Results Doctrine requires a balancing of the interests of both investors and customers. Studying the effect of economic regulatory decisions on investors can help provide regulators with a more general understanding of the effects of direct regulation on the ability of utilities to raise capital. Further, studying the direct regulation of public utilities would seem to be a natural extension of the current literature.

The process requires three steps. First, a discrete event must be defined. Second, a selection criterion must be developed for including firms. In this case we are focused on one firm, Ameren. Third, an analysis of abnormal returns can provide insight into the effect of the event. (MacKinlay, 1997, pp. 14-15; Bhagat and Romano, 2002a).

Defining the Event

To define the event, Table 1 provides the basic timeline for the decision on the PFAR. There are six possible decision dates that might be considered events. The most critical is the April 29, 2010 ICC order in the AIU case reversing its ComEd 2007 Rate Case decision on the PFAR and lowering AIU's electric rate increase by \$30 million relative to the Administrative Law Judge's February 25, 2010 proposed order and over \$85 million relative to AIU's original request. (Table 2). We provide an analysis of this single event below.

It is also possible, however, that other events in the time line could be important. For example, on February 25, 2010 the Administrative Law Judge (ALJ) issued a proposed order in AIU. While a proposed order is not a final decision by the Commission, it does indicate the view of the presiding judge after all of the evidence and argument has been presented and would seem to provide some guidance to the market on the direction the Commission may take. Even though the ALJ's proposed order on February 25, 2010 allowed only 54 percent of AIU's request that result could potentially be consider this a positive result. (Table 2). It is not uncommon for utilities to receive much less than requested. In its previous two cases AIU received an average of 62 percent of its request with one case less than 50 percent. ComEd, the other major electric utility in Illinois, received an average of 47 percent of its request in three cases between 2005 and 2010 with two cases below 40 percent in one of those cases the ICC allowed only three percent of ComEd's initial request, although on rehearing that was increased to 26 percent. (Illinois Commerce Commission, 2011). In addition, several parties in the AIU 2009 Rate Case proposed even lower allowed increases. Moreover, at this time Illinois' regulatory environment was considered one of the least credit-supportive in the US. (Standard & Poor's, 2008). Under these circumstances a decision allowing 54 percent of a utility's request might be viewed positively by investors, although it seems more likely that the market viewed this as neutral and, given that the ALJ's proposed order is not legally binding, we choose to focus on the Commission's legally binding decision.

Later events, such as the June 2010 ICC decision to rehear portions of its April 29, 2010 order, including the PFAR might also conceivably affect the stock price. Again, this decision alone does nothing to change the revenue level. Finally, the Illinois Appellate Court's decision in the appeal of the ComEd 2007 Rate Case overturned the ICC's ruling on the PFAR in that case making it consistent with the AIU 2009 Rate Case order thus ending the debate over the interpretation of the PFAR and AIU's hope for restoring some of the lost revenue from the April 29th decision. It is conceivable that all of these decisions could be interpreted by investors as having some predictive value, yet, the Commission's final order in the AIU 2009 Rate Case on April 29, 2010, which allowed only 27 percent of AIU's proposed increase with the majority of the discrepancy between the two orders relating to the interpretation of the PFAR, is the only event to actually change the revenue level of the utility. We interpret this as "Bad News" for the value of AIU and in turn the stock price of Ameren Corporation.

Table 1: Time Line for PFAR Decision

Date	Event	Comments
10-Sep-2008	ICC Issues Order in ComEd 2007 Rate Case	ICC interpreted PFAR in expected manner
3-Nov-2008	ComEd 2007 Rate Case Order appealed to Court	ICC orders in major cases are normally appealed by one or more parties
7-Nov-2008	Dissent on PFAR in ComEd 2007 Rate Case published	Dissenting opinions have no force of law
5-Jun-2009	AIU files rate case	Expected result similar to ComEd 2009 Rate Case on PFAR interpretation
4-Jan-2010	Illinois Governor appoints new Chair of ICC	New potential swing vote on PFAR decision
25-Feb-2010	ALJ Proposed Order in AIU 2009 Rate Case	Proposed Order allowed 54% of AIU ask
29-Apr-2010*	ICC Issues Order in AIU 2009 Rate Case	Order reverses decision on PFAR from ComEd 2007 Rate Case allowing only 27% of AIU ask– expected negative effect on Ameren Corporation (AEE) earnings
15-Jun-2010	ICC agrees to rehear AIU 2009 Rate Case	AIU gets second chance to litigate PFAR
30-Sep-2010	Illinois Court overturns ICC decision in ComEd 2007 Rate Case on PFAR	Illinois Court determines that ICC erred in ComEd 2007 Rate Case, re-hearing of PFAR in AIU effectively over.
4-Nov-2010	ICC issues order on Re-hearing in AIU 2009 Rate Case (PFAR interpretation consistent with 29-Apr-2010 decision)	Court decision of 30-Sep-2010 controls PFAR interpretation

The April 29, 2010 order: (1) was passed late in the day on the 29th and almost certainly did not provide any information to the market until April 30; and (2) contained several calculation errors that were corrected on May 6, 2010. We use April 30, 2010 as the event day as we believe the order would not have been widely circulated until then and the corrections to the order that appeared on May 6, 2010 are not material to this study.

Table 2: Ameren Proposed and Allowed Revenue Increases

	AIU Proposal*	ALJ Proposed Order**	Commission Decision*
		25-Feb-10	29-Apr-10
AmerenCILCO	\$17,088,000	\$2,239,000	\$1,416,000
AmerenCIPS	\$38,034,000	\$25,888,000	\$16,611,000
AmerenIP	\$59,854,000	\$34,316,000	\$13,535,000
Total AIU	\$114,976,000	\$62,443,000	\$31,562,000
Percent of Request		54%	27%

* ICC Order in Docket Nos. 09-0306-09-0311 (Cons.) dated April 29, 2010

** ALJ Proposed ICC Order in Docket Nos. 09-0306-09-0311 (Cons.) dated February 25, 2010

Analyzing Abnormal Returns

To investigate the effect of the event on returns to the firm's stock, the traditional approach first calculates the security's daily return defined as: $r_t = \ln(P_t) - \ln(P_{t-1})$ (2)

Where:

r_t = return on day t

P_t = closing price on day t

P_{t-1} = closing price on day t-1

The abnormal return is typically measured as follows: $r_t^i = X_t^i \beta^i + AR_t^i$ (3)

Where:

r_t^i = return on day t for firm i (as we are interesting in one firm i=1)

X_t^i = vector of market return for day i and potentially other control variables

AR_t^i = (abnormal) return that cannot be explained by the vector of control variables

Of interest in an event study is the abnormal return, and dropping the firm index, we can write the abnormal return as: $AR_i = \gamma D_i + ar_i$ (4)

Where:

D_t = dummy variable taking the value 1 during the event and 0 otherwise

γ = the true effect during the event window

ar_i = the remaining part of the abnormal return that cannot be explained by the event

AR_i is considered a date-specific location shift of ar_i with γ as the shift parameter. (Gelbach et al., 2011, p. 10)
We are interested in estimating γ . By substitution of (4) into (3) we find that: $r_t = X_t\beta + D_t\gamma + ar_t$ (5)

If $t = 1, 2 \dots, e_t$, where e_t is the event day, when $t \neq e_t$ $D_t = 0$; for $t = e_t$ $D_t = 1$. That is, the abnormal return to the event occurs only in the event day; otherwise $AR_i = ar_i$. To estimate (5) we used data from one hundred trading days prior to the event day.

One problem with event studies is the definition of e_t . One might expect the event window to be one day, or even one hour, yet often it is not clear exactly when the information alleged to influence the market becomes public. For example, the main negative event from Table 1 is the April 29, 2010 ICC order reversing course on the PFAR. While the order is debated and passed at an open public meeting, the text of the order, and perhaps more importantly the effect of any changes at the public meeting on allowed net income, is typically not available until hours after the meeting. In this case the open meeting of the ICC began at 12:30 PM US Central time (1:30PM US Eastern) and it is likely that the text of the order was not known to the public until late in the trading day or even after the market closed. We assume April 30, 2010 was the first trading day in the event window. Yet discussion of potential positions of the Commissioners would have occurred prior to this date. To address these issues we use three different event windows: a single day, one day on either side of the event (3 day event window) and five days on each side of the event window (11 day event window).

We next need to define the variables in the vector X_t . The return to the market is often measured with respect to the S&P 500, the Center for Research in Security Prices (CRSP) Value Weighted Index or the CRSP Equal Weighted Index. (MacKinlay 1997, p. 18) In this case, however, we consider the market effects to be less important than the effects related to other utility stocks. For the purposes of estimating abnormal returns it makes more sense to utilize a measure of the returns to utility stocks overall rather than the market. This approach captures the sector-specific market effects which are likely to affect returns to utility stocks, at least over a short period of time, although we report results using both the daily returns to the Dow Jones Utility Average (DJUA) and the daily returns to the S&P 500 as the independent variable. **In Error! Reference source not found.** the dependent variable is the nominal daily return on Ameren Corporation's (AEE) common stock. The DJUA, the S&P 500, and the Ameren stock prices were adjusted to remove the effects of dividends and splits.

Results

Table 3: OLS Results for Equation (5)

	DJUA as Market Proxy			S&P 500 as Market Proxy		
	1-Day	3-Day	11-Day	1-Day	3-Day	11-Day
	Event	Event	Event	Event	Event	Event
	Window	Window	Window	Window	Window	Window
R^2	0.6735	0.6588	0.6255	0.4460	0.4541	0.4722
Adjusted R^2	0.6668	0.6519	0.6182	0.4347	0.4431	0.4620
Standard Error	0.0060	0.0062	0.0065	0.0078	0.0077	0.0080
Observations*	101	102	106	101	102	106
F-stat	101.05	95.56	86.00	39.44	41.17	46.08
Coefficients						
Market Proxy	1.0067 [#]	0.9929 [#]	0.9169 [#]	0.7923 [#]	0.7782 [#]	0.7462 [#]
Standard Error	0.0720	0.0731	0.0738	0.0916	0.0879	0.0836
Event Dummy (γ)	(0.0244) [#]	(0.0164) [#]	(0.0060) [#]	(0.0015)	(0.0108) [#]	(0.0024)
Standard Error	0.0060	0.0036	0.0021	0.0080	0.0045	0.0026
5 th Least Residual** $\alpha = 0.05$	(0.0107) ⁺	(0.0106) ⁺	(0.0100)	(0.0130)	(0.0125)	(0.0121)
10 th Least Residual** $\alpha = 0.10$	(0.0079) ⁺	(0.0081) ⁺	(0.0089)	(0.0104)	(0.0102) ⁺	(0.0109)

* Data begins 100 trading days prior to April 30, 2010 and runs through the end of the event window.

** See Discussion below. Number of observations for these tests = 100.

Reject $H_0: \beta_e = 0$ versus $H_1: \beta_e < 0$ using the standard t-test ($\alpha = 0.05$)

+ Reject $H_0: \beta_e = 0$ versus $H_1: \beta_e < 0$ using the SQ test

In Error! Reference source not found. the coefficient on the event dummy is negative which is consistent with the event providing “Bad News” to the market concerning future potential earnings for Ameren. The magnitude of

the effect, however, differs greatly ranging from roughly 0.2 percent to 2.4 percent. Further, using the standard t-ratios the 1-Day event window is significant and large when using the utility average as the market proxy, but small and insignificant when using the broader market proxy. The 3-Day event, however, is significant for both proxy measures and over one percent in both cases. The 11-Day window appears to have a small magnitude in both cases but is not significant when using the broader S&P 500 as a proxy for the market. It appears from this evidence that the event probably occurred over a number of days including the day of the order, but was not sustained.

Unfortunately, these conclusions may be somewhat suspect as there is evidence that the t-ratios calculated by the OLS regressions in **Error! Reference source not found.** may provide biased results because the abnormal returns may not be normally distributed, especially when studying only one firm. (Brown and Warner, 1985; Gelbach et al. 2011, Appendix A). The problem for the t-test occurs in testing the extreme values. If the abnormal returns are not from a normal distribution, one has trouble making sense of cut-off values from an unknown distribution.

Gelbach et al. (2011) suggest a surprisingly simple method to address this problem using a sample quantile (SQ) approach. In concept, the SQ approach is similar to the Chow test for testing differences in the regression coefficients from one observation to the next. (Id. p. 6) The intuition is straightforward. Consider a single event study of one firm using one-hundred trading days of data and further assume that the Type I error rate is set by the investigator at 5 percent. If one sorted the fitted residuals, the fifth smallest residual is the sample 0.05-quantile which is a consistent estimator of the population quantile. (Id., p. 2 citing Walker, 1968).

To run the SQ test we found the fitted excess returns (residuals) from the non-event days, sorted by smallest to largest. Next Gelbach et al. (2011) suggest finding the fitted excess return and the sample α -quantile of these realized values. For example, if we wish to limit the Type I error, rejecting the Null hypothesis when it is true, a typical α might be 0.05. The α -quantile then is $n * \alpha$. In this case $n=100$, each equation has 100 trading days prior to the event day, and the α -quantile = 5. Gelbach et al. (2011, p. 19) claim that finding the 5th least value of the fitted values and comparing that to the estimated event parameter will provide a simple test of $H_0: \beta_e = 0$ versus $H_1: \beta_e < 0$ where β_e is the estimated event parameter from **Error! Reference source not found.** The 5th least value of the fitted abnormal returns are reported in **Error! Reference source not found.** (We also report values for $\alpha = 0.10$).

The results are somewhat different compared to the standard approach. We can no longer reject the null hypothesis for any of the S&P 500 proxy equations, at least when $\alpha = 0.05$, nor can we reject the null for the 11-Day window for the equations run with the DJUA as the proxy. We are left with some evidence that the 1- and 3-Day event windows using the DJUA as the proxy show some abnormal reaction to the ICC's change in PFAR interpretation. It may not be surprising that we found such weak evidence for this particular event. First, as noted elsewhere, the regulatory environment was notably hostile for utilities during this time. Investors were likely pessimistic of the outcome at the start of the case, though the PFAR interpretation was probably not the object of that pessimism given that the ICC had interpreted the PFAR in the past to the benefit of investors. Second, Ameren is a holding company consisting of three distinct businesses: public utilities (natural gas and electric) in Missouri and Illinois and competitive electric generation in Illinois. Ameren's public utilities are regulated by Illinois and Missouri as well as the Federal government. As a result, the ICC's April 29, 2010 order affected less than 37 percent of Ameren's total revenue. (Ameren 10K, 2011, Note 18). This figure includes all Ameren's Illinois regulated revenue, though a portion of Ameren's electric utility revenue is regulated by the Federal government in Illinois and its natural gas utility revenue was largely unaffected by the PFAR decision. As the PFAR does not affect the utilities in Missouri or the generation company in Illinois, the overall effect of the change in the PFAR on net income of the holding company is likely muted somewhat, nevertheless the Illinois electric utility properties contribute significantly to the overall Ameren holding company earnings, and given the likelihood that over this short period of time other factors affecting Ameren's overall earnings are likely unchanged, to the extent that there is evidence of an effect on the daily earnings of Ameren, it seems likely that this is due to the regulatory decision in Illinois.

Conclusions

Regulatory bodies with ratemaking authority have a great deal of influence on the earnings of utilities. In this case the Illinois Commerce Commission applied an accounting rule in a manner that may not have been expected by the market. We expected to find evidence that the Commission's decision was associated with a negative abnormal return for Ameren Corporation and utilizing a traditional approach we did find such evidence. However, a concern that the statistical properties of a single firm, single event analysis do not provide for valid inference from the traditional t-test caused us to utilize a relatively new SQ approach to adjust for this bias. Using this adjustment we found less evidence of an effect from the ICC's change in the PFAR ruling, although we cannot reject that there was an effect around the time of the decision as we might expect. We think this muted response from the market may be,

at least in part, a result of Ameren's well diversified portfolio of business operations that does not leave the company over exposed to one particular regulatory body.

We caution, however, that this analysis should be interpreted to mean that regulatory decisions do not affect a utility's finances or its cost of capital. In this paper we tested only one event as it was likely the most important event. As noted in Table 1, it is possible that this case may have had multiple events, both positive and negative. Further, it is also conceivable that other utilities in Illinois may have been influenced by this decision. Moreover, we cannot observe stock price data directly for the Ameren Illinois electric utilities as they are part of a larger holding company and it seems that some diversification benefits may exist for Ameren Corporation's shareholders that might otherwise not exist for a less diversified utility. Further research is necessary to address both the multiple events possibility as well as the effect of regulatory decisions on utility operating companies.

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