ANALYST RECOMMENDATIONDS AND REGULAION FAIR DISCLOSURE, THE

IMPACT ON ANNOUNCEMENT DAY EFFECTS

by

RYAN JACKSON CLIETT

(Under the Direction of Marc Lipson)

ABSTRACT

The goals of this paper are three fold. First, we present a simple analyst recommendation theory and point out the comparative advantages analysts have over the investing public. Next, we evaluate the information content of analyst recommendations following Wommack (1996) by examining the announcement day effects associated with analyst recommendations. Lastly, we test the impact of Regulation Fair Disclosure on the announcement day effects of analyst recommendations by running a difference in means test on the cumulative abnormal returns generated before the law was implemented vs. after the law was implemented.

We find positive announcement effects associated with analyst upgrades and negative effects associated with downgrades – consistent with previous results. We find no evidence consistent with the hypothesis that Regulation Fair Disclosure has decreased the amount of information contained in analyst recommendations.

INDEX WORDS: Analyst Recommendation, Regulation Fair Disclosure

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RYAN JACKSON CLIETT

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RYAN JACKSON CLIETT

Major Professor:	Marc Lipson
Committee:	Jim Linck
	Kathleen Fuller

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
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TABLE OF CONTENTS

LIST OF TABLES

Section 1. Introduction

An equity analyst is a professional whose goal is to value common stock. To help make their decisions, analysts utilize publicly available information such as earnings reports and market forecasts from other analysts, as well as potentially nonpublic information elicited from management during interviews. After an analyst gathers all the pertinent information regarding a firm's business, the analyst makes a recommendation (e.g. to buy, hold, or sell the security) and typically writes a report supporting their judgment[1].

The goals of this paper are three fold. First, we present a simple theory of analyst recommendations and point out the comparative advantages analysts have over the general investing public. Next, we examine the information content of analyst recommendations by calculating announcement effects. Our event study results are consistent with analyst recommendations containing information. Lastly, we evaluate the impact of a potential change in the information set of the analyst due to the passage of Regulation Fair Disclosure (henceforth Reg–FD) by the Securities and Exchange Commission (effective October 23, 2000). Our test is a difference in means test that compares the announcement effects of analyst recommendations made before the passage of Reg-FD to the effects of analyst recommendations made after Reg-FD. We find no evidence supporting a reduction in the information content of analyst recommendations. In fact, the market reaction to recommendations is larger after the implementation of Regulation Fair Disclosure.

Our paper develops as follows: in Section 2 we present the background literature on analyst recommendations. In section 3 we discuss Reg-FD. In section 4 we present

our analyst recommendation theory; in section 5 we discuss our data source and sample selection process; in section 6 we explain our empirical test and present our results; in section 7 we conclude.

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[1] For more information on sell side analysts se Schipper 1991.

Section 2: Analyst Recommendation Background Literature

Recommendations of equity analysts have long been a source of interest of financial economists. Dating back to Cowles (1933) financial economists have explored various hypotheses involving analyst recommendations. These hypotheses predominately include: evaluating the predictive abilities of equity analysts, evaluating the information content of analyst recommendations, and lastly, determining the efficiency of the market's response to an analyst's recommendation. The primary hypothesis of interest in our paper is the information content of analyst recommendations; Table 1 below presents the empirical evidence.

Table 1: Previous Analyst Recommendation Studies

Date	Author	Sample Source	Event Window	Result
1986	Elton et. al	IBOS – 34 Unidentified Brokerage Houses	Month of announcement to 1 month after announcement	Upgrades to strong buy compared to hold 3.25%
1987	Peterson	Value Line	AD–1 to AD+2	Securities ranked 1 (the best) 3.64%
1990	Liu et.al	WSJ HOTS column	AD-2 to AD	3.09%
1993	Barber & Loeffler	WSJ Dartboard column	AD-25 to AD+25	2.56%
1995	Stickell	Zack's	AD-5 to AD+5	Buys 1.16%, Sells −1.28%
1996	Wommack	First Call	AD-1 to AD+1	Buys 3.27%, Sells −1.62%

Notes: AD stands for announcement day. WSJ HOTS stands for *Wall Street Journal Heard on the Street*. Results reported are abnormal returns computed either using the market model or by comparing sample returns to index returns.

The positive abnormal returns documented in these studies do not totally dissipate as time passes – alleviating fears that these recommendations provide a temporary shock.

On balance, we feel confident concluding that the analyst recommendations evaluated in these studies do contain information.

Section 3: Regulation Fair Disclosure

Reg-FD became effective October 23, 2000. The rule was designed to "promote the full and fair disclosure of information by issuers." Specifically, the law requires that "when an issuer, or person acting on its behalf, discloses material nonpublic information to certain enumerated persons (in general, securities market professionals and holders of the issuer's securities who may well trade on the basis of the information), it must make public disclosure of that information." Securities analysts are certainly affected by these new rules and in fact, are specifically mentioned in the following excerpt from Securities and Exchange Commissions Reg-FD news release:

> … many issuers are disclosing important nonpublic information, such as advance warnings of earnings results, to securities analysts or selected institutional investors or both, before making full disclosure of the same information to the general public. Where this has happened, those who were privy to the information beforehand were able to make a profit or avoid a loss at the expense of those kept in the dark.[2]

We shall explore the impact of this new rule on the announcement effects of analyst recommendations.

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[2] Quoted material in this paragraph comes from the Securities and Exchange Commission's Regulation Fair Disclosure Release. Nos. 33-7881, 34-43154, IC-24599, File No. S7-31-99.

Section 4: Analyst Recommendation Theory

Our analyst recommendation theory contains three components – the analyst's information set, the valuation model, and the decision. Our goal is to develop a framework to explain the positive abnormal returns documented in prior empirical work. Inherently, this goal boils down to determining comparative advantages analyst's have over the investing public. We discuss each of the components of the model and potential comparative advantages in turn below.

Section 4.1: Information Set

The breadth and quality of the information set available to an analyst contains many pieces of information available to the general investing public: information such as historical financial data (Edgar.com) and historical economic data. Given this data, analysts and investors alike can estimate future economic conditions and subsequently, firm specific cash flows. However, we believe that analysts are likely to produce estimates with better precision than the general investing public. This is due to opportunity costs. Specifically, analysts have experience and expertise developing complex models to filter and process data, which the average investor does not. Obviously, the investing public could acquire these same skills, but only at a cost.

Secondly, during the pre-Reg-FD environment, analysts had potential to elicit material, nonpublic information during private meetings with management. Although we aren't suggesting that management would give away the proverbial golden goose, upper management often would help analysts by confirming key components of analysts complex models. In fact, Matthew Berler, an analyst at Morgan Stanley Dean Witter & Co., opined in the *Wall Street Journal,* that "roughly 25% of the accuracy [in earnings

models] has always come from the companies, and now it's gone."[3]   It's certainly evident that the post Reg-FD environment is a lot different than before the new rule.

On balance, we see two comparative advantages available to analysts in the pre-Reg-FD marketplace: 1) the ability to estimate with better precision, data to be used in valuation models and 2) the ability to potentially solicit nonpublic, material information – or depending on your definition of material, at the very least, reassurances about assumptions governing input data into models.

Section 4.2: Valuation Model

Several different techniques exist to value securities: discounted cash flow, multiples, etc. We don't suggest that one particular model is better than another, rather, that the market is competitive and ensures that analysts, like general investors, use the best methods available. We see no comparative advantage in this area.

Section 4.3: Decision

Presumably, after an analyst evaluates a security, the analyst provides a recommendation that reflects how the current price of the security (P_0) relates to the calculated price of the security (P_c). The table below provides a plausible summary view.

Table 2: Analyst Decision Table

Calculated Price	Relation	Current Price	Recommendation
P_c	$\gg$	P_0	Strong Buy
P_c	$>$	P_0	Buy
P_c	$\cong$	P_0	Hold
P_c	$<$	P_0	Sell
P_c	$\ll$	P_0	Strong Sell

Note: The degree of relation should determine the degree of recommendation, with cut off degree levels being broker specific.

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[3] Opdyke (2000)

Of course, as the recent press has noted, the presence of or desire for, investment banking relationships and the wonderful fees that accompany these relationships are liable to impact an analysts' decision. We acknowledge the potential conflict, but do not believe it will materially affect our analysis. We leave this exploration to future research.

Section 4.4: Testable Hypotheses

H_o: Analyst recommendations contain no information.

H_1: Analyst recommendations contain information.

We will test this pair of null and alternative hypotheses by examining the 2-day (announcement day and proceeding day) cumulative announcement day return.

Conditional on analyst recommendations containing information (having a positive announcement effect), our additional pair of testable null and alternative hypotheses is:

H_o: Reg-FD has positive or zero affect on the announcement day effect of an analyst's recommendation.

H_1: Reg-FD reduces the announcement day effect of an analyst's recommendation.

We will test this pair of hypotheses by examining the change in announcement day effects of analyst recommendations. We will discuss our empirical tests in more detail in Section 6.

Section 5: Data Source and Sample Selection

Our analyst recommendations come from the *First Call* database. Thompson Financial now owns this database via merger, but it is the same data set that has been used in numerous studies, most notably, by Wommack (1996). The *First Call* data set is a real time database of analyst recommendations. Typically, analysts disseminate their recommendations to clients and then notify *First Call* of the recommendation. *First Call* enters the recommendation into the database noting both the time and the date of the recommendation. The *First Call* database also includes the brokerage house issuing the recommendation as well as the ticker symbol, CUSIP identification code of the security of interest, and the previous (lagged) recommendation.

We create two samples. The first sample is called the pre-Reg-FD sample. It contains all recommendations meeting our criteria (disclosed below) in the First Call database between June 20, 1999 and December 20, 1999. We chose this particular 6-month calendar window because December 20, 1999 is the date the Securities and Exchange Commission proposed the rule and solicited feedback (per the SEC's website). Our post-Reg-FD sample contains all recommendations meeting our criteria in the First Call database between the 6 - month calendar window beginning October 23, 2000 (the day the rule became effective) and April 23, 2001.

Following Wommack (1996) we reduce the plethora of recommendations in the database by requiring the recommendation come from a brokerage firm on the *1999 Institutional Investor All-America Research Team*. Of the 20-brokerage houses selected

to the team, only 14 brokerage houses are available in the database.[4] Also, like Wommack (1996), we only include changes in recommendations, not reiterations. After filtering out errors (both recommendations erroneously recorded and denoted by *First Call* as well as blatant recording errors – such as 2 different recommendations on the same security by the same brokerage company) we have 7,270 recommendations in the pre-Reg-FD sample and 8,620 in the post Reg-FD sample. We then remove all recommendations that occur within 4 days of each other. Lastly, we require that all sample firms have both Cusip identification codes and Center for Research in Security Prices (CRSP) data. This restriction reduces our pre-Reg-FD sample to 1,472 observations and our post Reg-FD sample to 1,906 observations.

Now, we break our two samples down into sub-samples based upon the value of the new recommendation and the value of the previous recommendation, with both recommendations coming from the same brokerage firm. For example, Strong Buy (5), Hold (3) would be an upgrade from Hold to Strong Buy by say Merrill Lynch. Table 3 below reports the mean (median price), mean (median) market value and the number of observations for each sub-sample of each time period. Panel A reports pre-Reg-FD sub-samples and Panel B reports post Reg-FD sub-samples. We omit all sub-samples with less than 60 observations.

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[4] This list includes Merryl Lynch, Saloman Smith Barney, Morgan Stanley, Goldman Sachs, Credit Suisse First Boston, Bear Stearns, Lehman Brothers, J.P. Morgan, Prudential, Deutsche Bank, Banc of America, CIBC World Markets, SG Cowen, and Robertson Stephens.

Table 3: Sample Statistics.

Panel A: Pre-Reg-FD

	Upgrades			Downgrades		
Recommendation	Strong Buy	Strong Buy	Buy	Buy	Hold	Hold
Previous Rec.	Hold	Buy	Hold	Strong Buy	Strong Buy	Buy
Sample Size	81	348	307	331	132	273
Mean Price (Median)	$36.05 ($29.56)	$45.11 ($36.71)	$34.31 ($26.56)	$35.87 ($27.25)	$25.67 ($18.31)	$25.67 ($18.31)
Mean Market Value (Median)	$12,841,828 ($2,166,192)	$13,585,160 ($2,281,259)	$9,800,713 ($1,581,638)	$7,592,253 ($1,330,863)	$3,945,397 ($696,914)	$3,945,397 ($696,914)

Panel B: Post Reg-FD

	Upgrades			Downgrades		
Recommendation	Strong Buy	Strong Buy	Buy	Buy	Hold	Hold
Previous Rec.	Hold	Buy	Hold	Strong Buy	Strong Buy	Buy
Sample Size	64	307	287	502	151	595
Mean Price (Median Price)	$29.41 ($27.68)	$35.95 ($34.00)	$32.92 ($29.60)	$31.32 ($26.29)	$22.95 ($21.00)	$22.95 ($21.00)
Mean Market Value (Median)	$8,747,140 ($3,173,991)	$11,037,600 ($2,432,067)	$13,575,307 ($2,050,173)	$11,430,080 ($2,163,223)	$3,276,611 ($955,031)	$6,365,154 ($1,031,998)

In general, the mean and median price and market value is smaller for the downgrade sub-samples than the upgrade sub-samples. The percentage of firms downgraded in the pre-Reg-FD time period is 50% (736/1472) while the percentage downgraded in the post Reg-FD time period is 65% (1248/1906). A plausible explanation for this increase in downgrades is that after the passage of Reg-FD, analysts were no longer concerned about displeasing management by issuing negative recommendations, since management was prohibited from privately guiding analysts. Although alternative explanations – such as securities were simply overvalued- are also possible.

Section 6. Empirical Test and Results

Our first empirical test is to calculate the two-day cumulative abnormal returns for our recommendations. We compute abnormal returns by comparing the actual returns for each observation to the estimated returns calculated using the market model - see Brown and Warner (1980). Specifically, we estimate α and β in the following regression

$$R_{j,t} = \alpha + \beta(R_{m,t}).$$

$R_{j,t}$ is the return of security j on day t and $R_{m,t}$ is the return of the CRSP equal weighted index on day t. Our estimation period is the 110 trading days between announcement day (-120) and announcement day (-10).

Given our estimates of α and β (α_{hat} and β_{hat}) for each observation we then calculate abnormal returns (AR_t) by subtracting the actual return from the expected return (equation 2).

$$AR_{j,t} = R_{j,t} - \alpha_{hat} + \beta_{hat}(R_{m,t}).$$

Cumulative abnormal returns are computed by summing the abnormal returns over the two - day event window composed of the day of and the day after the announcement.

$$CAR = \sum_{j,t=0,1} AR_{j,t} .$$

We present our event study results in Table 4 below. Due to lack of observations in some of the sub-samples, we only present announcement day effects for sub-samples with sample sizes greater than 60.

Table 4: Analyst Recommendation Announcement Day Effects.
t statistics in parentheses. p values for non-standard critical values are in brackets**.**

Panel A: Pre-Reg-FD

	Upgrades			Downgrades		
Recommendation	Strong Buy	Strong Buy	Buy	Buy	Hold	Hold
Previous Recommendation	Hold	Buy	Hold	Strong Buy	Strong Buy	Buy
Sample Size	81	348	307	331	132	273
$AR_{t=0}$	3.85%	3.71%	2.2%	-2.3%	-4.6%	-5.2%
	(6.55)	(9.12)	(6.42)	(-5.58)	(-4.88)	(-9.28)
$AR_{t=+1}$	-.15%	.25%	.80%	-.15%	-.16	-.97%
	(-.4)	(1.23)	(3.29)	(-.7)	(-.39)	(-3.15)
$CAR_{t=0,1}$	4.0%	3.96%	2.97%	-2.4%	-4.8%	-6.2%
	(49.8)	(30.48)	(6.48)	(-29.89)	(-59.15)	(-11.81)
	[.01]	[.02]	[.097]	[.02]	[.01]	[.05]
Max $AR_{t=0,1}$	21.06%	60.56%	24.9%	32.0%	16.463	24.4%
Min $AR_{t=0,1}$	-8.2%	-20.81%	-28.9%	-44.5%	-62.2%	-46.4%
$CAR_{t=0,10}$	5.55%	4.16%	3.13%	-2.95%	-3.5%	-5.42%

Panel B: Post Reg-FD

Recommendation	Upgrades			Downgrades		
	Strong Buy	Strong Buy	Buy	Buy	Hold	Hold
Previous Recommendation	Hold	Buy	Hold	Strong Buy	Strong Buy	Buy
Sample Size	64	307	287	502	151	595
$AR_{t=0}$	3.09%	2.7%	2.9%	-4.4%	-5.9%	-5%
	(4.1)	(7.59)	(7.58)	(-10.58)	(-6.01)	(-10.58)
$AR_{t=+1}$	.64%	.21%	1.1%	-1.1%	-1.4%	-.75%
	(1.06)	(.86)	(4.92)	(-4.4)	(-2.6)	(-2.6)
$CAR_{t=0,1}$	3.7%	3.0%	4.0%	-5.6%	-7.3%	-5.7%
	(10.6)	(26.13)	(6.36)	(-8.61)	(-9.44)	(-16.02)
	[.06]	[.02]	[.099]	[.073]	[.067]	[.04]
Max $AR_{t=0,1}$	19.66%	48.36%	36.7%	34.6%	34.6%	39.7%
Min $AR_{t=0,1}$	-23.3%	-19.2%	-20.1%	-54.9%	-54.6%	-69.0%
$CAR_{t=0,10}$	6.3%	2.39%	4.9%	-7.4%	-10.7%	-6.49%

As we can see from the data presented in Table 4, the changes in analyst recommendations examined in this study produce announcement effects consistent with prior empirical studies. Specifically, upgrades in both time periods produce positive effects and downgrades produce negative effects. To examine whether the effects dissipate over time, we calculate the cumulative abnormal return ten trading days after the announcement. In general, the announcement effect attenuates as time passes. These results are consistent with analyst recommendations containing information.

Our final test is designed to examine the impact of Reg-FD on the information content of analyst recommendations. We perform a difference in means test on the two - day cumulative abnormal returns between our pre-Reg-FD sub-samples and their corresponding post Reg-FD sub-samples. Table 5 below presents the results.

Table 5: Difference in Means Test Results.

To	From	Difference in Means (Pre –Post)
Strong Buy	Hold	-.085 (-.8)
Strong Buy	Buy	.95 (1.65)
Strong Buy	New	-.3 [a] (-.44)
Buy	Hold	-1.03 [a] (-1.73)
Buy	Strong Buy	3.18 [a] (4.58)
Buy	New	.35 [a] (.79)
Hold	Strong Buy	2.55 (1.73)
Hold	Buy	-.5 [a] (-.6)
Hold	New	-.17 [a] (-.24)

[a] indicates we reported the Satterthwaite t statistic that accounts for unequal variances between the two sub-samples involved.

If Reg-FD decreases the announcement effects of analyst recommendations, then the difference in means should be positive for upgrades and negative for downgrades. In general, the results are opposite the sign predicted under the Reg-FD causing an impact hypothesis. In fact, the results show that the two-day cumulative abnormal announcement effects are stronger after the implementation of Reg-FD than before. These results are consistent with analysts' recommendations containing value because of their modeling and information processing abilities rather than their pre-Reg-FD cozy relationship with management.

Section 7. Conclusions

In this paper, we present an analyst recommendation theory and point out comparative advantages analysts have over the general investing public. Next, we examine the information content of analyst recommendations by calculating announcement effects. Our event study results are consistent with analyst recommendations containing information. Lastly, we examine the impact of Regulation Fair Disclosure on the information content of analyst recommendations. We find no evidence supporting a reduction in the information content of analyst recommendations. In fact, the market reaction to recommendations is larger after the implementation of Regulation Fair Disclosure.

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