Are social media analysts disrupting the relevance of sell-side analyst research?

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1. Introduction-- Background

- Social media analysts :firm-specific research posted by individuals on social media

- The number of social media analysts is likely to continue to rise

- The number of sell-side analysts has been steadily falling

1. Introduction-- Motivation

- We predict that social media analysts are reducing the relevance of sell-side research to investors for several reasons.
  - Social media analysts have clear incentives to produce useful information
  - Social media analyst reports are widely available online at little to no cost
  - Social media analysts are not subject to some of the incentives that sell-side analysts face to issue biased reports
  - Social media analysts often have “skin in the game” and the disclosure of their position increases the informativeness
- Several factors also suggest that social media equity research may have little to no bearing on the relevance of sell-side analyst reports.
  - The financial sophistication of social media analysts is more difficult to evaluate than that of sell-side analysts.
  - Social media analysts are also not subject to the same level of compliance and oversight from employers and regulators .
  - labor market concerns and reputational costs are likely less significant for social media analysts
- An open question.

1. Introduction-- Research question

- Are social media analysts disrupting the relevance of sell-side analyst research?

Yes

1. Introduction-- Framework

1.Examining whether social media analyst reports prior to sell-side analyst earnings forecasts **reduces the market reaction** to the sell-side analyst forecast.

2.Further examine that the reduced market reactions are driven by **the research activity** of social media analysts.

- Analyst Expertise 、Report Detail、Investor Base

3.Explore **the mechanism**(s) through which social media analysts reduce the value-relevance of sell-side research.

4.Examine **other outputs** included in sell-side analyst reports

- stock recommendations and price targets

1. Introduction-- Contribution

- 1. We contribute to the literature on the role of **sell-side analysts** in capital markets, and how that role is evolving over time.

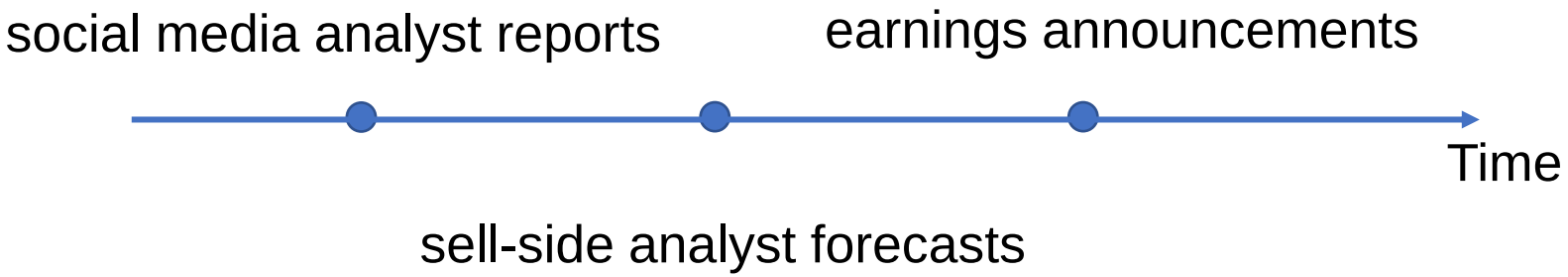
- 2. We also contribute to the emerging literature on the role of **social media** in capital markets,and investment platforms such as Seeking Alpha in particular.

2. Data

- Social media analyst reports：Seeking Alpha
  - 471,089 social media analyst reports published by 12,971 unique social media analysts.
  - limit our sample to articles focusing on a single ticker which reduces our sample of social media analyst reports to 280,995
- Sample period :2006-2017
- Sell-side analyst research: one-quarter-ahead earnings forecast revisions obtained from IBES
- Stock return data from CRSP, financial statement data from Compustat, institutional ownership data from Thomson, management forecast data from IBES Guidance, and business press data from RavenPack

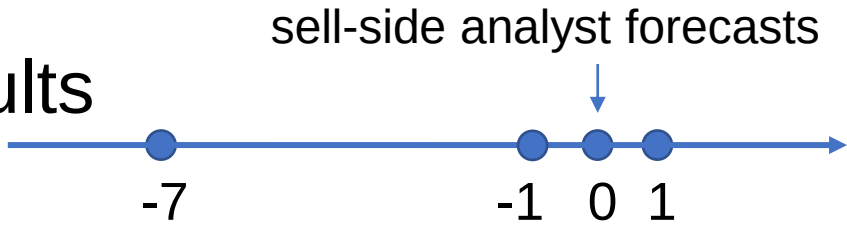
2. Data

- We construct two samples:
- (1) our restricted sample consists of 368,714 sell-side analyst forecasts that are issued outside of earnings news windows
- (2) our unrestricted sample consists of 533,844 sell-side forecasts issued at any time during the fiscal year.



3. Empirical Design and Results

3.1 Primary Hypothesis Test



- Whether the reports of social media analysts reduce the relevance of sell-side analyst research:

$$
\begin{aligned}
AbRet_{[0,1]} = \alpha_0 + AF(\beta_0 + \boldsymbol{\beta_1 SMA_{[-7,-1]}} + \beta_2 Size + \beta_3 MB + \beta_4 SMA_{[0,1]} + \beta_5 InstOwn + \\
\beta_6 Turnover + \beta_7 Following + \beta_8 Horizon + \beta_9 AbRet_{[-5,-1]} + \\
\beta_{10} BizPress_{[-14,-8]} + \beta_{11} BizPress_{[-7,-1]} + \beta_{12} BizPress_{[0,1]} + \\
\beta_{13} ProfAnalyst_{[-14,-8]} + \beta_{14} ProfAnalyst_{[-7,-1]}) + \alpha_1 SMA_{[-7,-1]} + \alpha_2 Size + \\
\alpha_3 MB + \alpha_4 SMA_{[0,1]} + \alpha_5 InstOwn + \alpha_6 Turnover + \alpha_7 Following + \\
\alpha_8 Horizon + \alpha_9 AbRet_{[-5,-1]} + \alpha_{10} BizPress_{[-14,-8]} + \alpha_{11} BizPress_{[-7,-1]} + \\
\alpha_{12} BizPress_{[0,1]} + \alpha_{13} ProfAnalyst_{[-14,-8]} + \alpha_{14} ProfAnalyst_{[-7,-1]} + e \qquad [1]
\end{aligned}
$$

AF represents the news conveyed in the sell-side analyst revision:
(1) the difference between the analyst's EPS forecast and the prior consensus(News)
(2) the revision in the EPS forecast for the analyst from his or her own prior forecast (Rev).

$SMA_{[-7,-1]}$ is an indicator set equal to one when the forecast is preceded by at least one social media analyst report in the prior seven days (zero otherwise).

3.1 Primary Hypothesis Test

$$\frac{-0.079}{0.226} = -0.35$$

$$\frac{-0.111}{0.276} = -0.40$$

TABLE 3

The Impact of Social Media Analyst Reports on the Price Reaction to Sell-side Analyst Forecasts

Dependent Variable: *AbRet* $_{[0,1]}$

	AF = News		*AF = Rev*	
	[1]	[2]	[3]	[4]
AF	0.160***	0.276***	0.226***	0.374***
	(9.82)	(14.61)	(13.53)	(18.41)
AF × SMA $_{[-7,-1]}$	**-0.060****	**-0.111*****	**-0.079*****	**-0.141*****
	(-2.05)	**(-3.99)**	**(-2.72)**	**(-4.78)**
AF × Size	-0.003	0.013*	0.005	0.029***
	(-0.40)	(1.82)	(0.67)	(3.66)
AF × MB	0.005**	0.003	0.006***	0.004*
	(2.52)	(1.58)	(2.65)	(1.74)
AF × SMA $_{[0,1]}$	0.008	0.059	0.048	0.125***
	(0.20)	(1.60)	(1.15)	(3.12)
AF × InstOwn	0.136***	0.208***	0.209***	0.284***

The market reaction to analyst forecast revisions is significantly lower and reduced by between 35 and 40 percent when it is preceded by a social media analyst report.

3.2 the research activities of social media analysts

- 3.2.1 Social Media Analyst Expertise
  - **investor following**
  - **the length of time they have contributed to Seeking Alpha**
  - **industry specialization**

$$AbRet_{[0,1]} = \alpha_0 + AF(\beta_0 + \boldsymbol{\beta_1 SMAhigh_{[-7,-1]}} + \boldsymbol{\beta_2 SMAlow_{[-7,-1]}} + \beta_3 Size + \beta_4 MB + \beta_5 SMA_{[0,1]} + \beta_6 InstOwn + \beta_7 Turnover + \beta_8 Following + \beta_9 Horizon + \beta_{10} AbRet_{[-5,-1]} + \beta_{11} BizPress_{[-14,-8]} + \beta_{12} BizPress_{[-7,-1]} + \beta_{13} BizPress_{[0,1]} + \beta_{14} ProfAnalyst_{[-14,-8]} + \beta_{15} ProfAnalyst_{[-7,-1]}) + \alpha_1 SMAhigh_{[-7,-1]} + \alpha_2 SMAlow_{[-7,-1]} + \alpha_3 Size + \alpha_4 MB + \alpha_5 SMA_{[0,1]} + \alpha_6 InstOwn + \alpha_7 Turnover + \alpha_8 Following + \alpha_9 Horizon + \alpha_{10} AbRet_{[-5,-1]} + \alpha_{11} BizPress_{[-14,-8]} + \alpha_{12} BizPress_{[-7,-1]} + \alpha_{13} BizPress_{[0,1]} + \alpha_{14} ProfAnalyst_{[-14,-8]} + \alpha_{15} ProfAnalyst_{[-7,-1]} + e \quad [2]$$

$SMAhigh_{[-7,-1]}$ is an indicator variable set equal to one if the sell-side analyst forecast is preceded by a social media analyst report posted on Seeking Alpha by an analyst with “high expertise,”

3.2.1 Social Media Analyst Expertise

TABLE 4

The Impact of Social Media Analyst Reports on the Price Reaction to Sell-side Analyst Forecasts Conditional on Social Media Analyst Expertise

Dependent Variable: *AbRet* $_{[0,1]}$

Panel A: SMA Following as proxy for Expertise

	AF= News		*AF= Rev*	
	[1]	[2]	[3]	[4]
AF	0.159***	0.276***	0.226***	0.375***
	(9.79)	(14.62)	(13.54)	(18.41)
AF* × *SMAhigh $_{[-7,-1]}$	**-0.062****	**-0.123*****	**-0.082*****	**-0.151*****
	(-2.04)	**(-4.16)**	**(-2.68)**	**(-4.86)**
AF* × *SMAlow $_{[-7,-1]}$	**-0.006**	**0.029**	**-0.058**	**-0.077**
	(-0.10)	**(0.54)**	**(-1.10)**	**(-1.19)**
SMAhigh $_{[-7,-1]}$	-0.023	-0.016	-0.019	-0.013
	(-1.15)	(-0.72)	(-0.95)	(-0.58)
SMAlow $_{[-7,-1]}$	-0.047	-0.123*	-0.047	-0.136*
	(-0.73)	(-1.75)	(-0.73)	(-1.92)
Test of difference:				
AF* × *SMAhigh $_{[-7,-1]}$ vs. ***AF* × *SMAlow*** $_{[-7,-1]}$	-0.056	-0.152***	-0.024	-0.074
(p-value)	(0.14)	(0.00)	(0.33)	(0.13)

3.2.1 Social Media Analyst Expertise

Panel B: SMA Tenure as proxy for Expertise

	AF= News		*AF= Rev*	
	[1]	[2]	[3]	[4]
AF	0.159***	0.277***	0.226***	0.376***
	(9.79)	(14.63)	(13.54)	(18.46)
***AF* × *SMAhigh*$_{[-7,-1]}$**	**-0.048***	**-0.125*****	**-0.082*****	**-0.177*****
	(-1.70)	**(-4.07)**	**(-2.62)**	**(-5.49)**
***AF* × *SMAlow*$_{[-7,-1]}$**	**-0.085****	**-0.073***	**-0.073***	**-0.060**
	(-1.97)	**(-1.86)**	**(-1.76)**	**(-1.32)**
SMAhigh$_{[-7,-1]}$	-0.016	0.002	-0.015	0.002
	(-0.76)	(0.08)	(-0.69)	(0.10)
SMAlow$_{[-7,-1]}$	-0.040	-0.081**	-0.031	-0.073**
	(-1.32)	(-2.32)	(-1.01)	(-2.14)
Test of difference:				
***AF* × *SMAhigh*$_{[-7,-1]}$** vs. ***AF* × *SMAlow*$_{[-7,-1]}$**	0.037	-0.052*	-0.009	-0.117***
(p-value)	(0.34)	(0.10)	(0.41)	(0.00)

Panel C: SMA Industry Specialization as proxy for Expertise

	AF= News		*AF= Rev*	
	[1]	[2]	[3]	[4]
AF	0.160***	0.276***	0.227***	0.376***
	(9.89)	(14.68)	(13.62)	(18.53)
***AF* × *SMAhigh*$_{[-7,-1]}$**	**-0.068****	**-0.126*****	**-0.101*****	**-0.186*****
	(-2.31)	**(-4.47)**	**(-3.42)**	**(-6.14)**
***AF* × *SMAlow*$_{[-7,-1]}$**	**-0.049**	**-0.090****	**-0.047**	**-0.077***
	(-1.15)	**(-2.07)**	**(-1.09)**	**(-1.70)**
SMAhigh$_{[-7,-1]}$	-0.054**	-0.066**	-0.050**	-0.067**
	(-2.08)	(-2.33)	(-1.98)	(-2.41)
SMAlow$_{[-7,-1]}$	0.002	0.005	0.007	0.012
	(0.08)	(0.20)	(0.35)	(0.51)
Test of difference:				
***AF* × *SMAhigh*$_{[-7,-1]}$** vs. ***AF* × *SMAlow*$_{[-7,-1]}$**	-0.019	-0.036	-0.054*	-0.109***
(p-value)	(0.31)	(0.20)	(0.10)	(0.01)

The preemption effect of social media analysts is focused primarily in those with **greater expertise**

3.2.2 Social Media Analyst Report Detail

- The number of words and the number of numbers

TABLE 5

The Impact of Social Media Analyst Reports on the Price Reaction to Sell-side Analyst Forecasts Conditional on Social Media Article Detail

Dependent Variable: *AbRet* $_{[0,1]}$

Panel A: SMA Article Word Count as proxy for Article Detail

	AF= News		*AF= Rev*	
	[1]	[2]	[3]	[4]
AF	0.161***	0.279***	0.229***	0.381***
	(9.75)	(14.66)	(13.65)	(18.86)
***AF* × *SMAhigh*$_{[-7,-1]}$**	**-0.070****	**-0.147*****	**-0.107*****	**-0.218*****
	(-1.98)	**(-4.35)**	**(-3.09)**	**(-6.16)**
***AF* × *SMAlow*$_{[-7,-1]}$**	**-0.044**	**-0.060**	**-0.030**	**-0.025**
	(-1.19)	**(-1.53)**	**(-0.79)**	**(-0.60)**
SMAhigh$_{[-7,-1]}$	-0.037	-0.020	-0.034	-0.021
	(-1.47)	(-0.73)	(-1.33)	(-0.76)
SMAlow$_{[-7,-1]}$	-0.018	-0.038	-0.010	-0.027
	(-0.80)	(-1.48)	(-0.47)	(-1.10)
Test of difference:				
***AF* × *SMAhigh*$_{[-7,-1]}$** vs. ***AF* × *SMAlow*$_{[-7,-1]}$**	-0.026	-0.087**	-0.077**	-0.193***
(p-value)	(0.27)	(0.03)	(0.04)	(0.00)

The reduction in the value-relevance of sell-side analysts' forecasts occurs primarily for reports providing greater detail to readers

3.2.2 Social Media Analyst Report Detail

Panel B: SMA Article Number Count as proxy for Article Detail

	AF= News		*AF= Rev*	
	[1]	[2]	[3]	[4]
AF	0.160***	0.277***	0.227***	0.376***
	(9.80)	(14.65)	(13.54)	(18.50)
***AF* × *SMAhigh*$_{[-7,-1]}$**	**-0.064***	**-0.128*****	**-0.102*****	**-0.191*****
	(-1.88)	**(-4.00)**	**(-2.92)**	**(-5.39)**
***AF* × *SMAlow*$_{[-7,-1]}$**	**-0.054**	**-0.091****	**-0.051**	**-0.082****
	(-1.62)	**(-2.53)**	**(-1.46)**	**(-2.22)**
SMAhigh$_{[-7,-1]}$	-0.003	0.002	-0.001	0.000
	(-0.12)	(0.06)	(-0.06)	(0.01)
SMAlow$_{[-7,-1]}$	-0.046**	-0.055**	-0.039*	-0.047*
	(-2.14)	(-2.23)	(-1.84)	(-1.94)
Test of difference:				
***AF* × *SMAhigh*$_{[-7,-1]}$** vs. ***AF* × *SMAlow*$_{[-7,-1]}$**	-0.010	-0.037	-0.051*	-0.109***
(p-value)	(0.38)	(0.16)	(0.09)	(0.00)

3.2.3 Investor Base

- Proportions of institutional holdings.

TABLE 6

The Impact of Social Media Analyst Reports on the Price Reaction to Sell-side Analyst Forecasts Conditional on Institutional Ownership

Dependent Variable: *AbRet* $_{[0,1]}$

	AF = News				*AF = Rev*			
	[1a] *Low IO*	[1b] *High IO*	[2a] *Low IO*	[2b] *High IO*	[3a] *Low IO*	[3b] *High IO*	[4a] *Low IO*	[4b] *High IO*
AF	0.147***	0.211***	0.236***	0.393***	0.211***	0.280***	0.347***	0.481***
	(6.26)	(4.93)	(10.18)	(9.84)	(8.99)	(6.95)	(14.01)	(12.63)
***AF* × *SMA*$_{[-7,-1]}$**	**-0.110*** **	**0.028**	**-0.155*** **	**-0.022**	**-0.127*** **	**-0.005**	**-0.186*** **	**-0.052**
	(-3.16)	**(0.65)**	**(-4.89)**	**(-0.50)**	**(-3.80)**	**(-0.10)**	**(-5.76)**	**(-1.06)**
SMA$_{[-7,-1]}$	-0.019	-0.033	-0.051*	-0.015	-0.015	-0.033	-0.049*	-0.015
	(-0.78)	(-1.08)	(-1.91)	(-0.45)	(-0.62)	(-1.07)	(-1.83)	(-0.46)
Test of difference (Low IO vs High IO):								
***AF* × *SMA*$_{[-7,-1]}$**	-0.138***		-0.133**		-0.122**		-0.134**	
(p-value)	(0.00)		(0.01)		(0.03)		(0.02)	

The disruptive role of social media analysts is concentrated in firms with a relatively less sophisticated investor base.

3.3 Additional Analyses

Examine the relation between the reports of social media analysts and the pricing of sell-side analyst forecasts.

$$AF = \alpha_0 + \alpha_1 SMATone_{[-7,-1]} + \alpha_2 Size + \alpha_3 MB + \alpha_4 InstOwn + \alpha_5 Following + \alpha_6 Horizon + \alpha_7 BizPressSentiment_{[-14,-8]} + \alpha_8 AF_{[-14,-8]} + e \quad [3]$$

AF, is the news contained in the analyst forecast, defined as either *News* or *Rev*, as in earlier tests.

To measure the tenor of social media analyst reports, we define **SMATone:**

$$\frac{\text{positive words} - \text{negative words}}{\text{positive words} + \text{negative words}}$$

3.3.1 Social Media Analyst Report Tone and Sell-Side Analyst Forecast News

TABLE 7

The Association between the Tone of Social Media Analyst Reports and Sell-side Analyst Forecasts

Dependent Variable: *AF*

Dependent Variable =	*News*		*Rev*	
	[1]	[2]	[3]	[4]
***SMATone*$_{[-7,-1]}$**	**0.140*** **	**0.118*** **	**0.117*** **	**0.105*** **
	(5.60)	**(5.55)**	**(4.80)**	**(5.50)**
Size	0.023	0.031*	0.051***	0.056***
	(1.20)	(1.81)	(3.16)	(4.24)
MB	0.001	0.001	0.002***	0.002***
	(1.47)	(1.04)	(2.69)	(2.68)
InstOwn	0.061	0.105	0.216*	0.246**
	(0.50)	(0.92)	(1.82)	(2.30)
Following	0.051	0.012	0.050	0.011
	(1.19)	(0.38)	(1.38)	(0.42)

The sign of the news contained in the reports of social media analysts and those of sell-side analysts generally track one another.

3.3.2 Social Media Analysts and the Pre-Emption of Sell-Side Analyst Forecast News

Examine whether stock prices move in the direction of *future* analyst forecasts to a greater degree when social media analysts publish analysis that agrees (in tenor) with the upcoming forecast than when they do not.

$$AbRet_{[-5,-1]} = \alpha_0 + AF(\beta_0 + \boldsymbol{\beta_1 Agree} + \beta_2 Size + \beta_3 MB + \beta_4 SMA_{[0,1]} + \beta_5 InstOwn + \beta_6 Turnover + \beta_7 Following + \beta_8 Horizon + \beta_9 BizPress_{[-14,-8]} + \beta_{10} BizPress_{[-7,-1]} + \beta_{11} BizPress_{[0,1]} + \beta_{12} ProfAnalyst_{[-14,-8]} + \beta_{13} ProfAnalyst_{[-7,-1]}) + \alpha_1 Agree + \alpha_2 Size + \alpha_3 MB + \alpha_4 SMA_{[0,1]} + \alpha_5 InstOwn + \alpha_6 Turnover + \alpha_7 Following + \alpha_8 Horizon + \alpha_9 BizPress_{[-14,-8]} + \alpha_{10} BizPress_{[-7,-1]} + \alpha_{11} BizPress_{[0,1]} + \alpha_{12} ProfAnalyst_{[-14,-8]} + \alpha_{13} ProfAnalyst_{[-7,-1]} + e \quad [4]$$

Agree, an indicator variable equal to one if the sign of $SMATone_{[-7,-1]}$ agrees with the sign of the forecast news (and zero otherwise).

3.3.2 Social Media Analysts and the Pre-Emption of Sell-Side Analyst Forecast News

TABLE 8

The Effect of Social Media Analyst Reports on the Extent to Which Stock Prices Reflect Upcoming Sell-side Analyst Forecasts

Dependent Variable: *AbRet* $_{[-5,-1]}$

	AF = News		*AF = Rev*	
	[1]	[2]	[3]	[4]
AF	0.105	0.165***	0.281***	0.345***
	(1.58)	(2.60)	(3.95)	(5.18)
AF × Agree	**0.194****	**0.191****	**0.258*****	**0.275*****
	(2.30)	**(2.54)**	**(2.87)**	**(3.24)**
AF × Size	-0.023	-0.041**	-0.028	-0.040*
	(-1.02)	(-1.99)	(-1.20)	(-1.79)
AF × MB	0.011	0.004	0.015	0.014
	(1.47)	(0.48)	(1.53)	(1.25)
AF × SMA $_{[0,1]}$	0.104	0.081	0.086	0.026
	(1.44)	(1.24)	(1.07)	(0.37)
AF × InstOwn	0.168	0.215	0.090	0.182
	(1.13)	(1.59)	(0.54)	(1.11)

When social media analysts agree with sell-side analysts, more of the analyst forecast news *(AF)* is impounded into price in the week prior to the forecast.

3.3.3 Post-forecast Price Formation

- Whether information posted online by nonprofessional information intermediaries may result in systematic under-reaction to subsequently released sell-side analyst forecasts in our setting.

$$AbRet_{[+2,+k]} \text{ or } IPT_{[0,+k]} = \alpha_0 + \alpha_1 PosAF + \alpha_2 PosSMA + \alpha_3 PosAF \times PosSMA + \alpha_4 Size + \alpha_5 MB + \alpha_6 SMA_{[0,1]} + \alpha_7 InstOwn + \alpha_8 Turnover + \alpha_9 Following + \alpha_{10} Horizon + \alpha_{11} AbRet_{[-5,-1]} + \alpha_{12} BizPress_{[-14,-8]} + \alpha_{13} BizPress_{[-7,-1]} + \alpha_{14} BizPress_{[0,1]} + \alpha_{15} ProfAnalyst_{[-14,-8]} + \alpha_{16} ProfAnalyst_{[-7,-1]} + e \quad [5]$$

- Post-forecast drift (***AbRet***): 2-6 days following the forecast and 2-12 days following the forecast.
- Intraperiod timeliness (***IPT***):0-6 days and 0-12 days relative to the forecast.
- ***PosAF* and *PosSMA***, set equal to one when the sell-side analyst forecast news and social media analyst tone are positive, respectively, and to zero otherwise.
- Intraperiod timeliness measure (from day 0 to day y) of the speed with which the sell-side analyst forecast is impounded into stock price.

3.3.3 Post-forecast Price Formation

TABLE 9

The Impact of Social Media Analyst Reports on Price Formation Following Sell-Side Analyst Forecasts

Dependent Variable =	$AbRet_{[+2, +6]}$	$AbRet_{[+2, +12]}$	$IPT_{[0,+6]}$	$IPT_{[0,+12]}$
	[1]	[2]	[3]	[4]
posAF	**-0.033**	**0.090**	**-0.091**	**0.047**
	(-0.50)	**(0.88)**	**(-0.97)**	**(0.30)**
posSMA	**-0.037**	**0.032**	**-0.082**	**0.023**
	(-0.66)	**(0.38)**	**(-0.99)**	**(0.17)**
posAF*posSMA	**0.068**	**0.017**	**0.188**	**0.150**
	(0.87)	**(0.14)**	**(1.61)**	**(0.74)**
Size	0.025	0.031	-0.031	-0.074
	(0.95)	(0.68)	(-1.12)	(-1.46)
MB	-0.002	-0.004	-0.004	-0.009
	(-0.40)	(-0.54)	(-0.73)	(-1.23)
$SMA_{[0,1]}$	0.006	0.040	0.138*	0.043
	(0.11)	(0.53)	(1.72)	(0.32)
InstOwn	0.464***	0.683**	0.192	0.050
	(2.86)	(2.41)	(1.14)	(0.15)

We find no evidence that social media analysis has adverse effects on post-forecast price formation.

3.4 Other Sell-Side Analyst Outputs

- We examine whether the disruption effect of social media analyst reports extend to stock recommendations and price targets:

- **Price target revisions** are defined as the new target minus the old scaled by the old, and can thus be interpreted as a percentage change.

- **Recommendation revisions** are set equal to +1 for upgrades and -1 for downgrades.

3.4 Other Sell-Side Analyst Outputs

TABLE 10

The Impact of Social Media Analyst Reports on the Price Reaction to Other Sell-side Analyst Outputs

Dependent Variable: *AbRet* $_{[0,1]}$

	AF = News		*AF = Rev*	
	[1]	[2]	[3]	[4]
AF	0.201***	0.292***	0.311***	0.412***
	(10.97)	(20.13)	(17.58)	(24.07)
Recc	0.734***	0.933***	0.738***	0.936***
	(32.35)	(47.83)	(32.59)	(48.41)
PrcTarget	3.073***	4.113***	3.038***	4.076***
	(43.28)	(51.76)	(42.30)	(50.40)
***AF* × *SMA*$_{[-7,-1]}$**	**-0.058****	**-0.084*****	**-0.066****	**-0.113*****
	(-2.66)	**(-3.93)**	**(-2.09)**	**(-3.86)**
***Recc* × *SMA*$_{[-7,-1]}$**	**-0.103****	**-0.064**	**-0.100****	**-0.061**
	(-2.50)	**(-1.61)**	**(-2.45)**	**(-1.54)**
***PrcTarget* × *SMA*$_{[-7,-1]}$**	**-0.236***	**-0.396*****	**-0.234***	**-0.377*****
	(-1.73)	**(-3.44)**	**(-1.78)**	**(-3.33)**
SMA$_{[-7,-1]}$	0.003	0.011*	0.008	0.020**
	(0.57)	(1.96)	(0.98)	(2.52)

The reports of social media analysts disrupt the research of sell-side financial analysts generalizes beyond quarterly earnings forecasts to the other primary outputs of sell-side analyst reports.

4. Conclusion

- Firstly, equity research posted online by social media analysts pre-empts and substantially reduces the relevance of the research of professional sell-side analysts.
- This result is more pronounced for social media analysts with greater expertise, more detailed analyses, and for firms a lower percentage of institutional investor ownership.
- The market reaction to sell-side analyst forecasts is partially preempted when the forecast is preceded by a social media analyst report that agrees, in tenor, with the forecast news.