Earnings Virality

Authored by:
Brett Campbell
Michael Drake
Jacob Thornock
Brady Twedt

Motivation

A piece of news is said to go viral when it spreads through the
social media landscape rapidly from one individual to another until
it is ultimately viewed by a large group of people
the concept of virality has received relatively little attention in the
context of corporate financial news.

Research Question

the determinants of earnings virality

- ▶ the magnitude and sign of the earnings and revenue surprises
- ▶ Revenue surprises, or earnings surprises
- ▶ higher retail investor ownership

investor activity

- ▶ liquidity and speed of price formation.
- ▶ abnormal trading volume

Hypothesis

the determinants of earnings virality

- ▶ **H1a**. Earnings virality is not associated with the magnitude or sign of the earnings or revenue surprise.
- ▶ **H1b**. Earnings virality is positively associated with investor recognition
- ▶ **H1c**. Earnings virality is positively associated with retail investor ownership.

earnings virality, liquidity, and price formation

- ▶ **H2a**. Earnings virality is not associated with liquidity.
- ▶ **H2b**. Earnings virality is not associated with the speed of price formation.

H1

Model for H1:

$$\text{VIRAL EARNINGS}_{it} = \beta_{FE} + \beta_K \text{CONTENT}_{it}$$

$$+ \beta_L \text{RECOGNITION}_{it} + \beta_M \text{RETAIL}_{it} + \beta_N \text{CONTROLS}_{it} + e_{it} (1)$$

Model:

$$\text{INVESTOR ACTIVITY}_{it} = \beta_{FE} + \beta_1 \text{VIRAL EARNINGS}_{it}$$

$$+ \beta_K \text{CONTENT}_{it} + \beta_L \text{RECOGNITION}_{it} + \beta_M \text{RETAIL}_{it} +$$
$$\beta_N \text{CONTROLS}_{it} + e_{it} (2)$$

Model for H2a:

$$\text{LIQUIDITY[0,1]}_{it} = \beta_{FE} + \beta_1 \text{VIRAL EARNINGS}_{it} + \beta_K \text{CONTENT}_{it}$$

$$+ \beta_L \text{RECOGNITION}_{it} + \beta_M \text{RETAIL}_{it} + \beta_N \text{CONTROLS}_{it} + e_{it}(3)$$

Model for H2b:

$$\text{SPEED OF PRICE FORMATION}_{it} = \beta_{FE} + \beta_1 \text{VIRAL EARNINGS}_{it}$$

$$+ \beta_K \text{CONTENT}_{it} + \beta_L \text{RECOGNITION}_{it} + \beta_M \text{RETAIL}_{it} +$$
$$\beta_N \text{CONTROLS}_{it} + e_{it}(4)$$

Model1

Table 2
Determinants of earnings virality.

DV=	(1) Viral Earnings	(2) Viral Earnings (raw)	(3) Viral Earnings (<3 h)
Abs Earn Surp	0.070	−0.037	−0.153
	(0.36)	(−0.28)	(−1.28)
Abs Rev Surp	0.799***	0.650***	0.750***
	(4.94)	(4.43)	(4.52)
Neg Earn Surp	−0.001	0.002	0.004**
	(−0.48)	(1.12)	(2.33)
Neg Rev Surp	−0.006***	−0.004***	−0.000
	(−3.02)	(−2.65)	(−0.20)
Abs Earn Surp x Neg Earn Surp	−0.095	−0.060	−0.050
	(−0.58)	(−0.55)	(−0.55)
Abs Rev Surp x Neg Rev Surp	−0.233*	−0.132	−0.070
	(−1.77)	(−1.09)	(−0.57)
BtoC	0.039***	0.024**	0.014
	(2.69)	(2.29)	(1.32)
Tech	−0.003	−0.012	−0.002
	(−0.17)	(−1.00)	(−0.22)
High Rev Growth	0.007*	0.006*	0.005
	(1.95)	(1.79)	(1.57)
Low BTM	0.001	0.000	−0.006
	(0.08)	(0.06)	(−1.13)
Retail Own	0.203***	0.144***	0.106***
	(14.49)	(12.08)	(8.90)
Press Cov[0,1]	0.022***	0.012***	0.012***
	(4.68)	(3.58)	(3.57)
Press Cov[-7,-1]	0.011***	0.013***	0.015***
	(3.94)	(4.82)	(5.57)
Press Cov[-30,-8]	0.001	0.005***	0.007***
	(0.37)	(2.60)	(3.93)
Tweets[-7,-1]	0.070***	0.064***	0.035***
	(20.32)	(16.91)	(11.08)
Tweets[-30,-8]	0.027***	0.021***	0.017***
	(11.82)	(10.76)	(8.59)
Feeds[-7,-1]	−0.008***	−0.014***	−0.004***
	(−12.73)	(−16.68)	(−6.83)
Feeds[-30,-8]	0.000	−0.005***	−0.000
	(0.23)	(−11.14)	(−0.11)
Abn Volume[0,1]	1.790***	1.136***	0.310***
	(19.64)	(12.43)	(4.15)
Abn Volatility[0,1]	0.006***	0.005***	0.004***
	(7.31)	(7.74)	(7.32)
Abn Ret[-30,-1]	−0.009	−0.007	−0.024***
	(−1.13)	(−1.00)	(−4.65)
After Hours	0.031***	0.026***	0.022***
	(5.88)	(6.19)	(5.18)
# Firms Announce	−0.027***	−0.016***	−0.008***
	(−6.78)	(−4.81)	(−2.76)
#Analysts	−0.021***	−0.016***	−0.019***
	(−5.76)	(−5.75)	(−7.50)
Inst Count	0.039***	0.026***	0.020***
	(10.92)	(8.59)	(7.04)
Firm Size	0.035***	0.022***	0.016***
	(12.66)	(10.35)	(8.49)
Firm Age	−0.020***	−0.013***	−0.014***
	(−5.46)	(−4.48)	(−5.03)
Time Trend	0.005***	0.002***	0.001*
	(5.75)	(2.78)	(1.80)
N	82,232	82,232	82,232

Model2

Table 3
Earnings virality and investor activity.

DV=	Abn Volume[0,1]	Abn Volatility[0,1]	Abn Retail Volume[0,1]	Abn Robinhood Holdings[0,1]	Abn Bloomberg Activity[0,1]
Viral Earnings	**0.032*****	**0.068*****	**0.005*****	**206.947*****	**−0.102*****
	(15.83)	**(7.79)**	**(17.69)**	**(9.61)**	**(−6.67)**
Abs Earn Surp	0.218***	0.375	0.030***	−300.470	4.200***
	(8.20)	(0.65)	(8.37)	(−1.00)	(5.76)
Abs Rev Surp	−0.012	0.335**	−0.000	1045.396***	0.886***
	(−0.93)	(2.52)	(−0.06)	(3.92)	(3.81)
Neg Earn Surp	0.004***	0.010	0.000***	−5.343	0.001
	(12.60)	(1.52)	(7.87)	(−1.27)	(0.12)
Neg Rev Surp	0.001***	0.025***	0.000	−1.253	−0.004
	(3.96)	(4.13)	(0.79)	(−0.33)	(−0.62)
Abs Earn Surp x Neg Earn Surp	−0.143***	2.233***	−0.016***	388.659	−0.902
	(−5.39)	(3.16)	(−4.17)	(1.01)	(−1.31)
Abs Rev Surp x Neg Rev Surp	0.013	−0.162	0.003	428.420	0.395
	(1.01)	(−0.82)	(1.43)	(1.17)	(1.50)
BtoC	0.000	−0.031**	0.000	35.043**	−0.061**
	(0.22)	(−2.55)	(0.64)	(1.98)	(−2.21)
Tech	0.007***	−0.050***	0.001***	−24.941	0.053*
	(3.50)	(−3.11)	(2.98)	(−1.04)	(1.69)
High Rev Growth	0.005***	−0.004	0.001***	2.560	0.018*
	(11.10)	(−0.49)	(10.26)	(0.38)	(1.79)
Low BTM	0.004***	0.003	0.000***	3.088	0.023*
	(4.51)	(0.50)	(4.24)	(0.36)	(1.95)
Retail Own	−0.028***	0.075***	−0.002***	163.179***	−0.193***
	(−17.87)	(3.95)	(−7.87)	(7.61)	(−6.22)
Press Cov[0,1]	0.004***	0.003	0.000***	−4.313	0.024***
	(8.73)	(0.77)	(7.23)	(−1.06)	(3.41)
Press Cov[-7,-1]	−0.001***	−0.004	−0.000***	14.452***	−0.029***
	(−3.08)	(−0.98)	(−3.32)	(2.72)	(−4.86)
Press Cov[-30,-8]	−0.002***	−0.001	−0.000***	14.344***	−0.037***
	(−8.25)	(−0.23)	(−6.92)	(3.76)	(−7.62)
Tweets[-7,-1]	0.003***	0.008	0.000***	21.867***	−0.004
	(9.25)	(1.27)	(10.80)	(4.34)	(−0.54)
Tweets[-30,-8]	−0.000	−0.005	0.000	0.799	−0.012*
	(−1.15)	(−0.86)	(0.76)	(0.14)	(−1.67)
Feeds[-7,-1]	0.000**	0.000	−0.000	6.551***	0.002
	(2.54)	(0.06)	(−0.90)	(2.94)	(1.03)
Feeds[-30,-8]	0.001***	−0.005**	0.000***	27.831***	0.011***
	(8.67)	(−2.48)	(6.62)	(7.55)	(4.52)
Abn Volume[0,1]		−0.719***		671.770***	3.889***
		(−9.71)		(4.55)	(28.17)
Abn Volatility[0,1]	−0.001***		−0.000***	0.375	−0.005
	(−8.98)		(−8.40)	(0.24)	(−0.51)
Abn Ret[-30,-1]	−0.009***	−0.352***	−0.001***	−67.160***	0.152***
	(−6.15)	(−9.68)	(−3.71)	(−2.83)	(4.49)
After Hours	−0.000	−0.007	0.000	4.979	0.448***
	(−0.29)	(−1.08)	(0.31)	(0.78)	(40.03)
# Firms Announce	−0.002***	0.017***	−0.000***	−4.756	0.021***
	(−4.78)	(5.05)	(−6.09)	(−1.13)	(3.58)
#Analysts	0.009***	−0.022***	0.001***	−12.579***	0.188***
	(17.62)	(−3.62)	(12.77)	(−2.61)	(16.41)
Inst Count	−0.005***	0.018***	−0.000***	44.358***	−0.021***
	(−10.82)	(3.89)	(−5.06)	(6.73)	(−2.83)
Firm Size	−0.005***	−0.059***	−0.001***	−9.663**	0.167***
	(−13.42)	(−14.00)	(−17.22)	(−2.21)	(25.62)
Firm Age	−0.001***	−0.014***	−0.000***	−23.297***	0.001
	(−3.47)	(−2.79)	(−3.06)	(−5.37)	(0.15)
Time Trend	−0.000***	0.019***	−0.000	−11.731***	−0.032***
	(−3.24)	(8.49)	(−0.04)	(−6.16)	(−12.87)

Model3

Table 4
Earnings virality and liquidity.

DV=	(1) Abn Spread[0,1]	(2) Abn Depth[0,1]
Viral Earnings	**0.019*****	**-0.030*****
	(10.74)	**(-5.02)**
Abs Earn Surp	-0.116*	-0.451**
	(-1.95)	(-2.31)
Abs Rev Surp	-0.066***	-0.973***
	(-3.40)	(-12.27)
Neg Earn Surp	-0.001	0.012***
	(-0.90)	(4.39)
Neg Rev Surp	0.000	-0.008***
	(0.61)	(-3.22)
Abs Earn Surp x Neg Earn Surp	-0.075	0.036
	(-1.00)	(0.15)
Abs Rev Surp x Neg Rev Surp	-0.005	0.174
	(-0.20)	(1.57)
BtoC	-0.004**	-0.032***
	(-2.29)	(-4.78)
Tech	0.004	0.004
	(1.59)	(0.53)
High Rev Growth	0.002**	0.009***
	(2.04)	(3.04)
Low BTM	0.001	0.005
	(0.72)	(1.44)
Retail Own	-0.003	-0.066***
	(-1.28)	(-7.15)
Press Cov[0,1]	0.001*	0.012***
	(1.94)	(5.03)
Press Cov[-7,-1]	-0.000	-0.001
	(-0.34)	(-0.65)
Press Cov[-30,-8]	0.000	-0.006***
	(0.43)	(-3.83)
Tweets[-7,-1]	-0.003***	0.007***
	(-3.83)	(2.87)
Tweets[-30,-8]	0.001	-0.009***
	(1.64)	(-4.15)
Feeds[-7,-1]	0.001***	0.000
	(4.01)	(0.14)
Feeds[-30,-8]	-0.001***	-0.003***
	(-2.98)	(-3.97)
Abn Volume[0,1]	-0.090***	2.070***
	(-6.81)	(40.85)
Abn Volatility[0,1]	0.038***	-0.013***
	(26.78)	(-5.93)
Abn Ret[-30,-1]	-0.046***	0.261***
	(-12.01)	(21.63)
After Hours	0.009***	-0.008**
	(9.82)	(-2.43)
# Firms Announce	0.005***	-0.013***
	(9.10)	(-7.02)
#Analysts	-0.005***	-0.011***
	(-6.52)	(-3.67)
Inst Count	-0.000	-0.012***
	(-0.51)	(-5.20)
Firm Size	-0.003***	0.006***
	(-6.39)	(3.36)
Firm Age	-0.001	-0.002
	(-0.93)	(-0.82)
Time Trend	0.003***	-0.006***
	(11.33)	(-7.11)
N	82,146	82,232

Model4

Table 5
Earnings virality and speed of price formation.

DV=	(1) IPE	(2) Jump Ratio
Viral Earnings	−0.062***	−0.052***
	(-3.12)	**(-5.25)**
Abs Earn Surp	0.263	−0.198
	(0.45)	(-0.69)
Abs Rev Surp	−0.376	−0.187
	(-1.40)	(-1.40)
Neg Earn Surp	0.032***	0.011**
	(2.97)	(2.04)
Neg Rev Surp	−0.010	−0.009*
	(-1.04)	(-1.72)
Abs Earn Surp x Neg Earn Surp	0.169	0.132
	(0.24)	(0.38)
Abs Rev Surp x Neg Rev Surp	−0.208	0.008
	(-0.53)	(0.04)
BtoC	−0.046**	−0.024**
	(-2.21)	(-2.32)
Tech	0.005	0.003
	(0.20)	(0.27)
High Rev Growth	−0.033***	−0.005
	(-2.94)	(-0.98)
Low BTM	−0.049***	−0.018***
	(-4.30)	(-3.22)
Retail Own	−0.010	−0.029**
	(-0.40)	(-2.39)
Press Cov[0,1]	0.049***	0.020***
	(6.89)	(5.67)
Press Cov[-7,-1]	−0.001	−0.004
	(-0.14)	(-0.90)
Press Cov[-30,-8]	−0.034***	−0.019***
	(-5.40)	(-6.00)
Tweets[-7,-1]	−0.061***	−0.017***
	(-6.33)	(-3.52)
Tweets[-30,-8]	−0.022**	−0.013***
	(-2.40)	(-3.02)
Feeds[-7,-1]	0.007***	0.002
	(2.79)	(1.53)
Feeds[-30,-8]	−0.004	0.001
	(-1.50)	(0.76)
Abn Volume[0,1]	6.319***	2.924***
	(45.96)	(42.62)
Abn Volatility[0,1]	0.021***	0.009***
	(3.46)	(3.00)
Abn Ret[-30,-1]	0.121***	−0.050**
	(2.72)	(-2.28)
After Hours	−0.478***	−0.017***
	(-51.13)	(-3.68)
# Firms Announce	−0.012**	0.004
	(-2.14)	(1.38)
#Analysts	−0.021***	0.002
	(-2.62)	(0.58)
Inst Count	0.018***	0.001
	(2.79)	(0.24)
Firm Size	0.085***	0.027***
	(16.48)	(10.45)
Firm Age	0.062***	0.020***
	(9.25)	(5.98)
Time Trend	0.010**	0.005**
	(2.45)	(2.48)
N	60,288	60,288
Adj. R²	0.130	0.071

Conclusion

Regarding the determinants of earnings virality, we find that earnings virality is associated with proxies for revenue surprises (but not earnings surprises), firm recognition, and retail investor ownership.

With respect to investor activity, we find that earnings virality is associated with increased trading volume and volatility, and this increased trading activity appears to be driven in part by retail investors. We further find that earnings virality is associated with negative market outcomes as reflected in lower trading liquidity and slower price formation. Finally, we find that these detrimental market effects of earnings virality are stronger when the social media chatter is more extreme in tone and less substantive.