

YORK
U
UNIVERSITÉ
UNIVERSITY

CSR, Big Data, and Accounting: Firms' Use of Social Media for CSR- Focused Reporting, Accountability, and Reputation Gain

-Gregory D. Saxton



CHAPTER 1:

Introduction





Cisco CSR
@CiscoCSR



Follow

We're proud to have supported [@100khomes](#) campaign to house 100k [#homeless](#) Americans. Congrats!



We Can End Homelessness

In 2014, Community Solutions and 186 US communities announced that they had found housing for 100,000 homeless Americans in four years. Today, many of those ...

youtube.com

LIKE

1



3:25 PM - 8 Aug 2014



1

...



Bank of America @BankofAmerica · 30 Nov 2014

It's **#WorldAIDSDay**. RT this video & we'll donate to **@RED**. Help us get one step closer to ending AIDS. **#onestep4RED**



Bank of America



31K



8K

•••



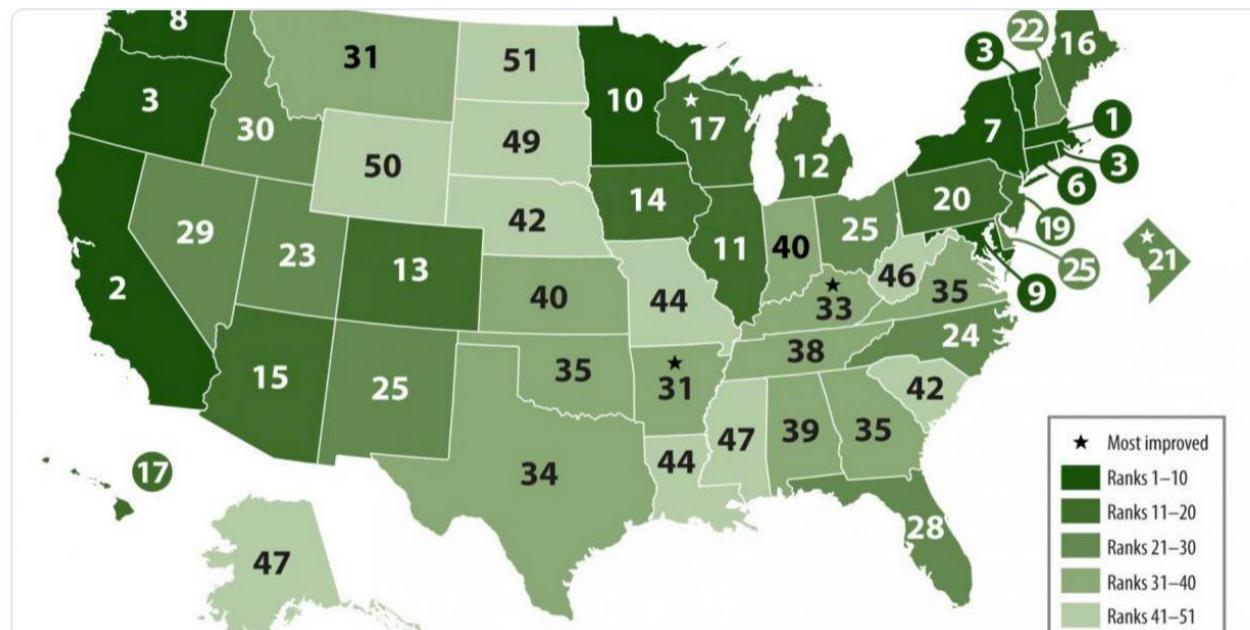
Microsoft_Green

@Microsoft_Green



Follow

See where your state ranks on #EEScorecard & steps to achieve #energy efficiency success
bit.ly/1woMRPB via @cleantechica @ACEEEdc



US Energy Efficiency Ranks Released: How'd Your State Do?

Massachusetts and California top ACEEE's energy efficiency ranks for the fourth straight year while clear winners and losers stand out across America.

cleantechica.com

4:43 PM - 23 Oct 2014



...

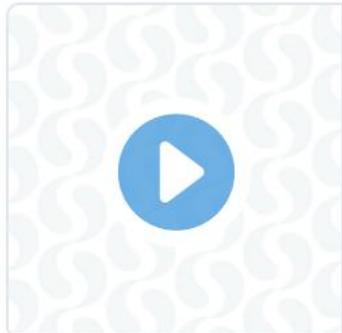


IBM Smarter Cities
@IBMSmartCities



Follow

Pls join the #P4SPchat on citizen engagement.
Starts in 45 minutes, Noon ET bit.ly/1ik2eks



#P4SPchat: Citizen Engagement (with tweets) · smarterplanet

Twitter Chat, May 29, 12:00 Noon - 1:00 PM Eastern Time
storify.com

RETWEETS LIKE

2

1



11:15 AM - 29 May 2014



...



Comcast Impact

@ComcastImpact



Follow

Retweet if you're taking a stand for LGBT youth
by celebrating [#SpiritDay](#) [#ComcastGoesPurple](#)



RETWEETS

63

LIKES

37



*PRIDE
NBCU

9:15 AM - 16 Oct 2014

• OUT@NBCUniversal and OUT@Comcast



...



Walmart Action 
@WalmartAction



 Follow

A new Walmart distribution center in Union City,
#GA, will create ~400 jobs over three years:
trib.al/uyNfixL @repdavidscott

RETWEETS

2

LIKES

2



4:29 PM - 17 Oct 2014



 2

 2

...



GabrielArthur Petrie @gabrielapetrie · 17 Oct 2014

>@WalmartAction @repdavidscott

Has anybody got back to you, yet, on how many jobs it will destroy?



...



Tina Cornely
@tinacornely



Follow

@plus_socialgood @CiscoCSR @Cisco Luv
#CSR's philanthropic endeavors! Has #Cisco
considered teaching impoverished women how
2 make Cat5cable?

11:43 AM - 21 Feb 2014



...



Cisco CSR @CiscoCSR · 21 Feb 2014

@tinacornely Good idea. We teach impoverished women how to have careers in IT through @CiscoNetAcad and help them through nonprofit partners



1

...

[Home](#)[Moments](#)[Notifications](#)[Messages](#)

Search Twitter



Tweet

Launching a New Generation of Global Problem Solvers



Corporate Social Responsibility



Corporate Social Responsibility

TWEETS
9,912FOLLOWING
653FOLLOWERS
9,218LIKES
744LISTS
10

Follow

Cisco CSR

@CiscoCSR

In a connected world, we're empowering a new generation of global problem solvers to speed the pace of social change. #CiscoCSR #socialgood

San Jose, California

csr.cisco.com

Joined February 2010

Tweets

Tweets & replies

Photos & videos



Cisco CSR @CiscoCSR · 3h

In FY16, we focus on the environment as part of our #CiscoCSR efforts. Check out our goals: cs.co/6016Be0ba

[View summary](#)

Cisco CSR @CiscoCSR · 21h

Thx @PatrickMoorhead for a great @Forbes article on #CiscoCSR Read more about our

Who to follow

[Refresh](#) · [View all](#)

Bill Carmody @BillCarmody

[Follow](#)

EDF @EnvDefenseFund

[Follow](#)

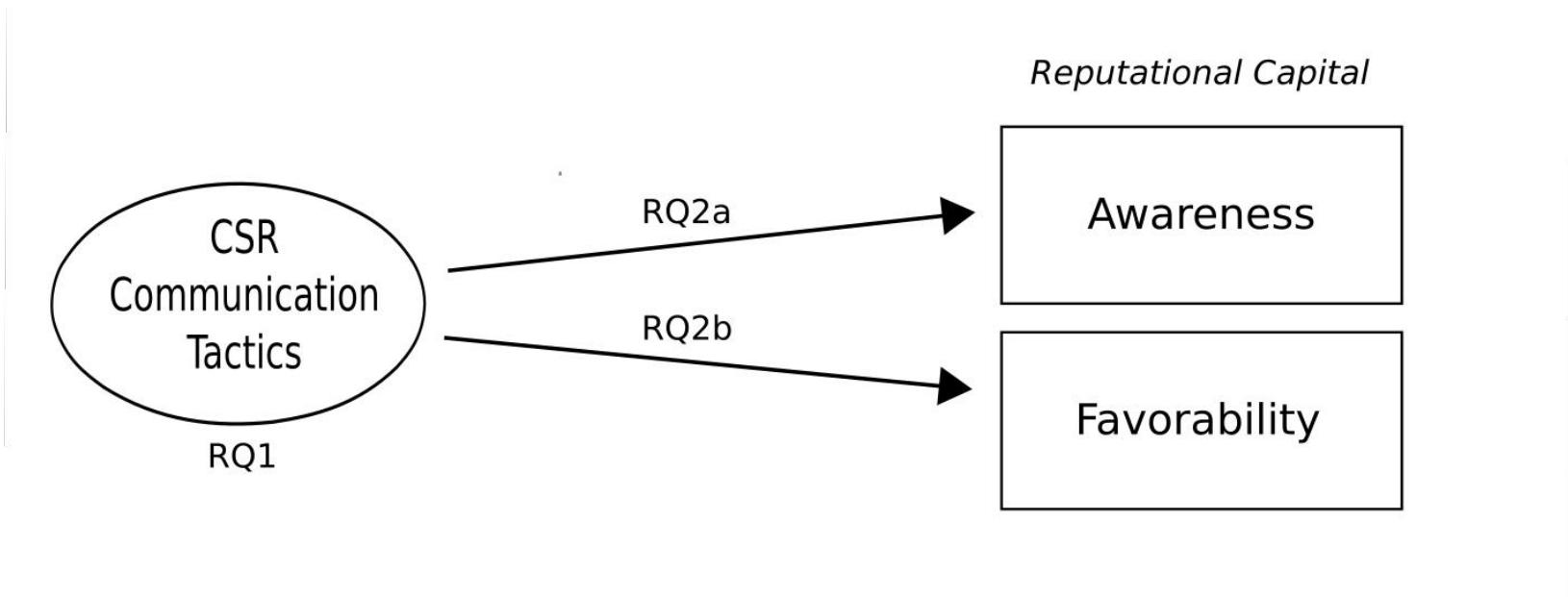
2degrees @2degreesnetwork

[Follow](#)



CHAPTER 2:

CSR Communication and the Micro-Accumulation of Reputational Capital

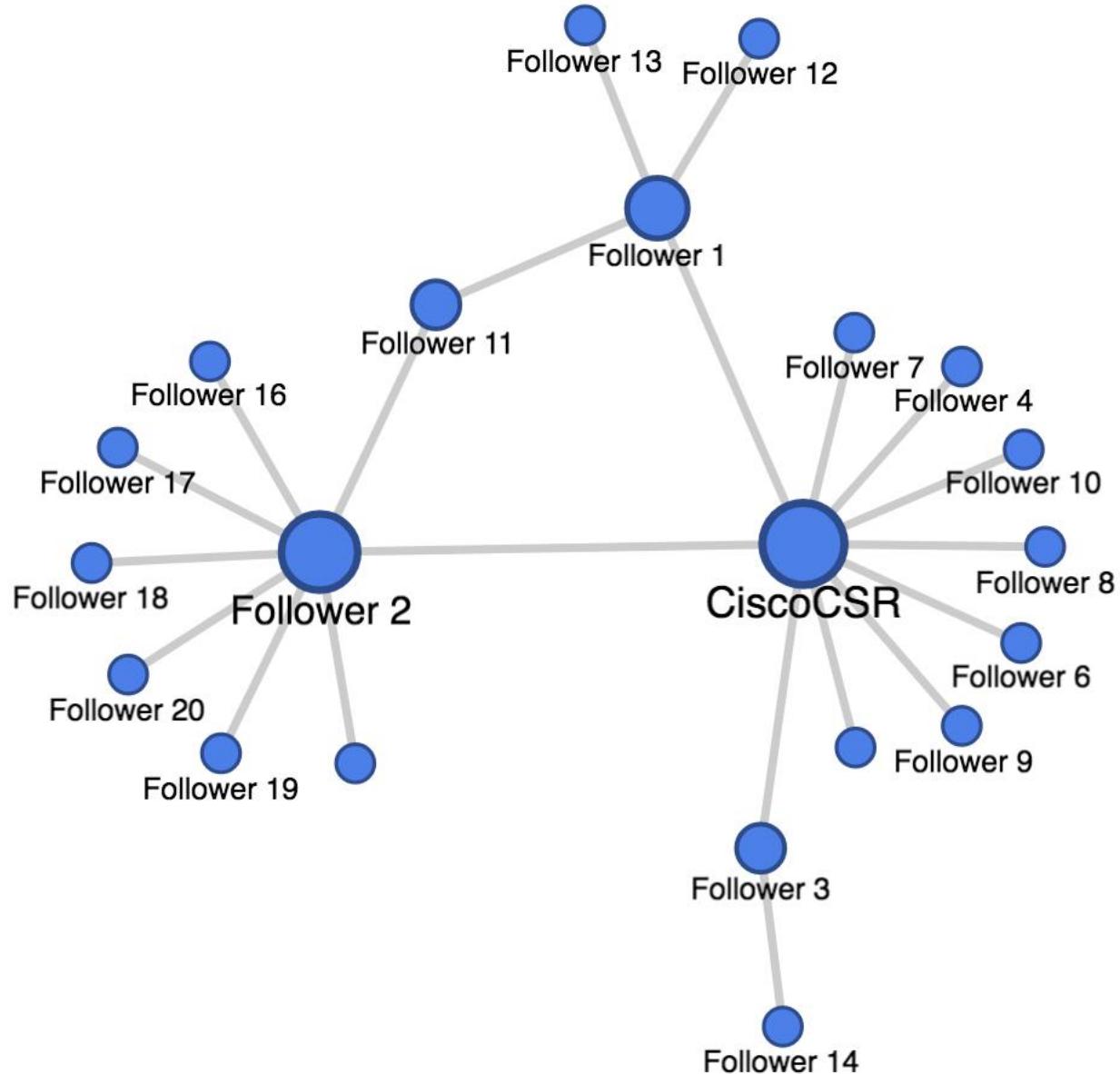


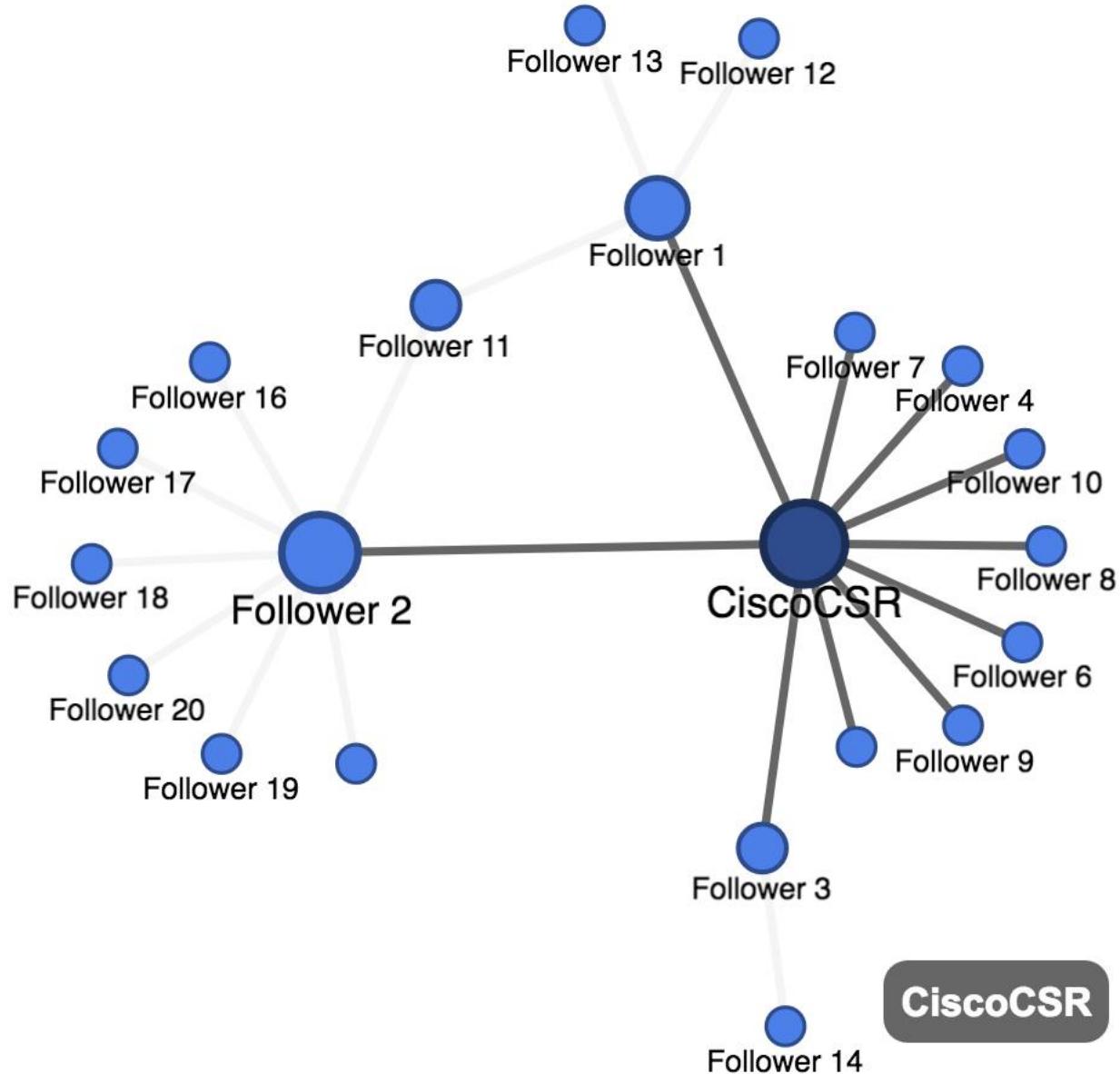
Dimensions developed based on review articles on corporate reputation literature:
Rindova et al. (*AMJ*, 2005), Lange et al. (*JoM*, 2011), Barnett et al. (*Corp. Rep. Review*, 2006)

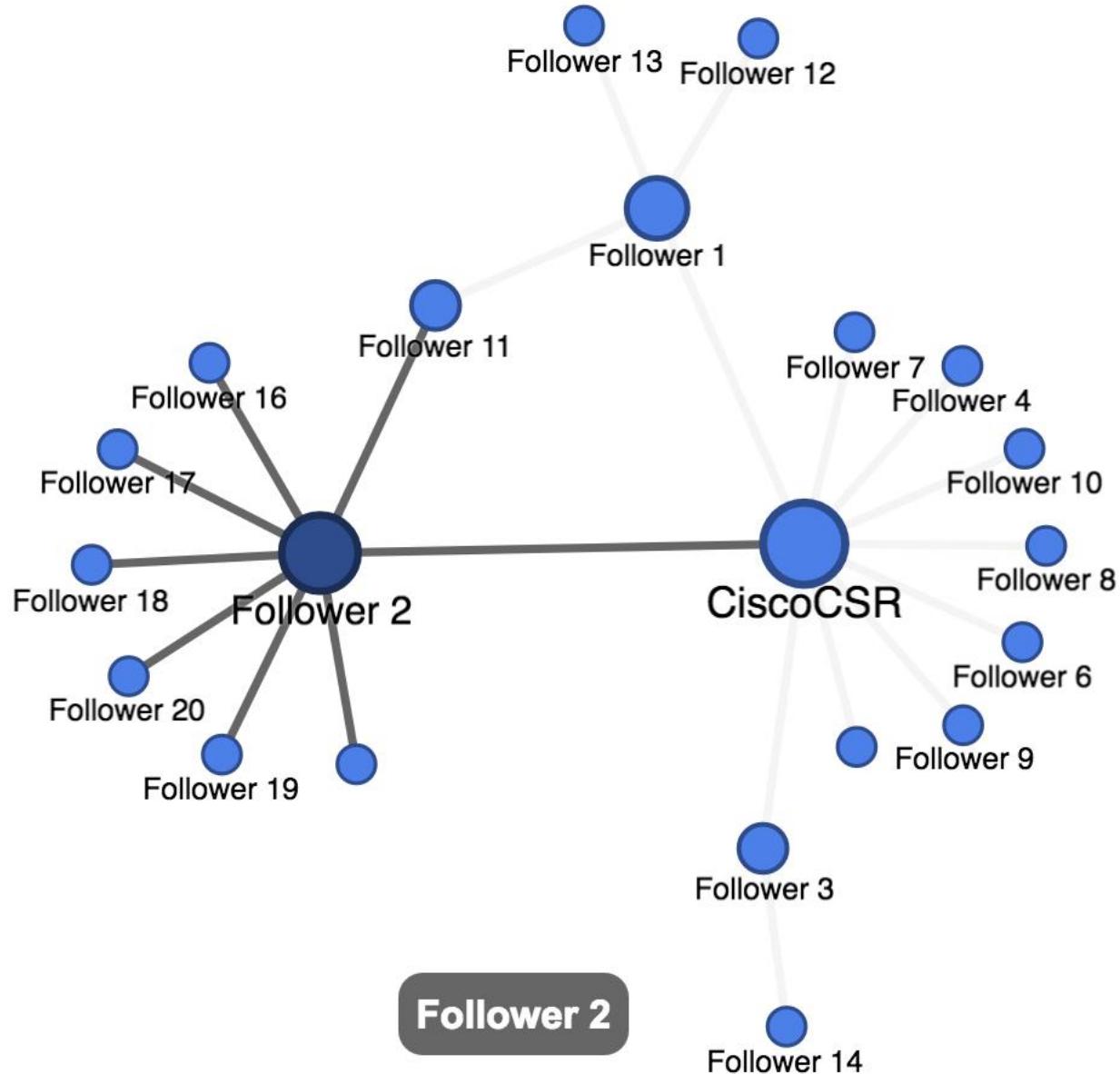
Dependent Variable #1:

Awareness

(Retweets)







Dependent Variable #1:

Favorability

(Sentiment in Public Replies)

Positive Reply



Bank of America @BankofAmerica · 17 Mar 2014

We're working w/ **@CAFoodBanks** **@FeedingAmerica** **@UnitedWaysCA** to provide critical services around the **#CA** drought go.bofa.com/rtc8



14

10

...



CAFB

@CAFoodBanks



Follow

@BofA_Community **@FeedingAmerica**
@UnitedWaysCA So proud to partner with you
and bring some much-needed relief!

RETWEET

1

LIKE

1



4:54 PM - 17 Mar 2014



...

Negative Reply



Bank of America @BankofAmerica · 17 Mar 2014

We're working w/ @CAFoodBanks @FeedingAmerica @UnitedWaysCA
to provide critical services around the #CA drought go.bofa.com/rtc8



14



10

•••



Hit the road Jack

@JackAnderson75



Follow

@BofA_Community @CAFoodBanks
@FeedingAmerica @UnitedWaysCA Trying to
improve your crappy image?

9:14 AM - 17 Mar 2014



•••

Independent Variable: **Communication Tactics**

Disclosure Tactic

 **HPE Living Progress** 
@HPE_LivingProg



 Follow

We are so proud of HP employees who
#volunteered over 1.7 million hours in 2013! How
will u share your time in 2014? **#hpvolunteers**

RETWEETS

4

LIKE

1



9:38 AM - 13 Jan 2014



...

Public Education Tactic



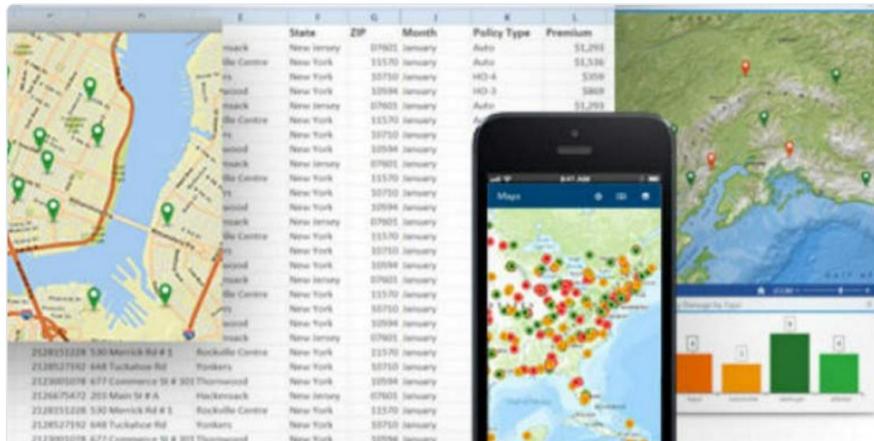
Microsoft_Green

@Microsoft_Green



Follow

How can you green your business in 2014?
@GreenBiz has 10 apps to help you do this
tiny.cc/d2l28w #sustainability



10 apps to green your business in 2014

From crowdfunding to geomapping resources, here are five ways the Internet and mobile apps will shape decision-making in the year to come.

greenbiz.com

RETWEETS

2

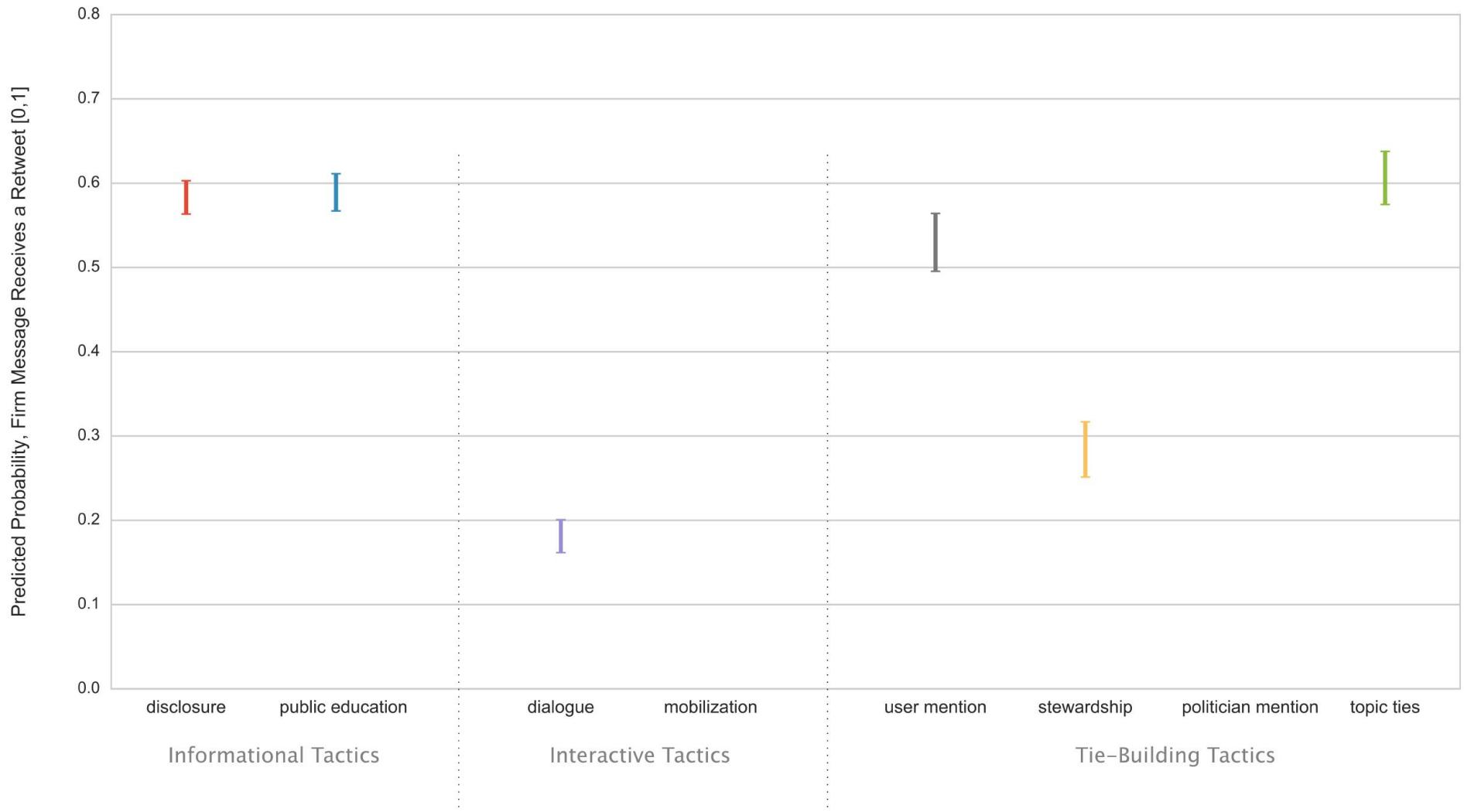


3:32 PM - 2 Jan 2014

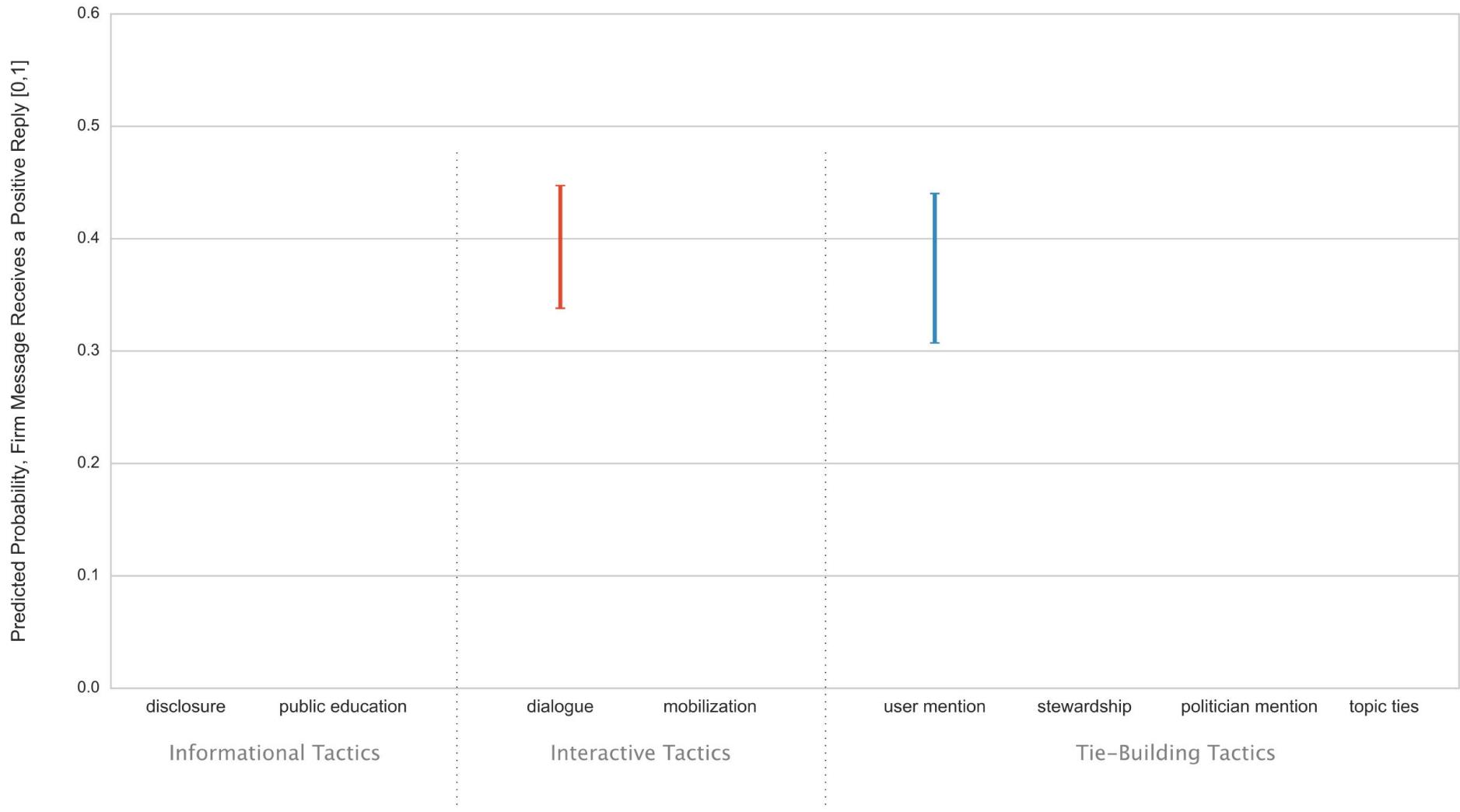


...

Predicted Probability of a Retweet (*Awareness*)



Predicted Probability of a Positive Reply (*Favorability*)





CHAPTER 3:

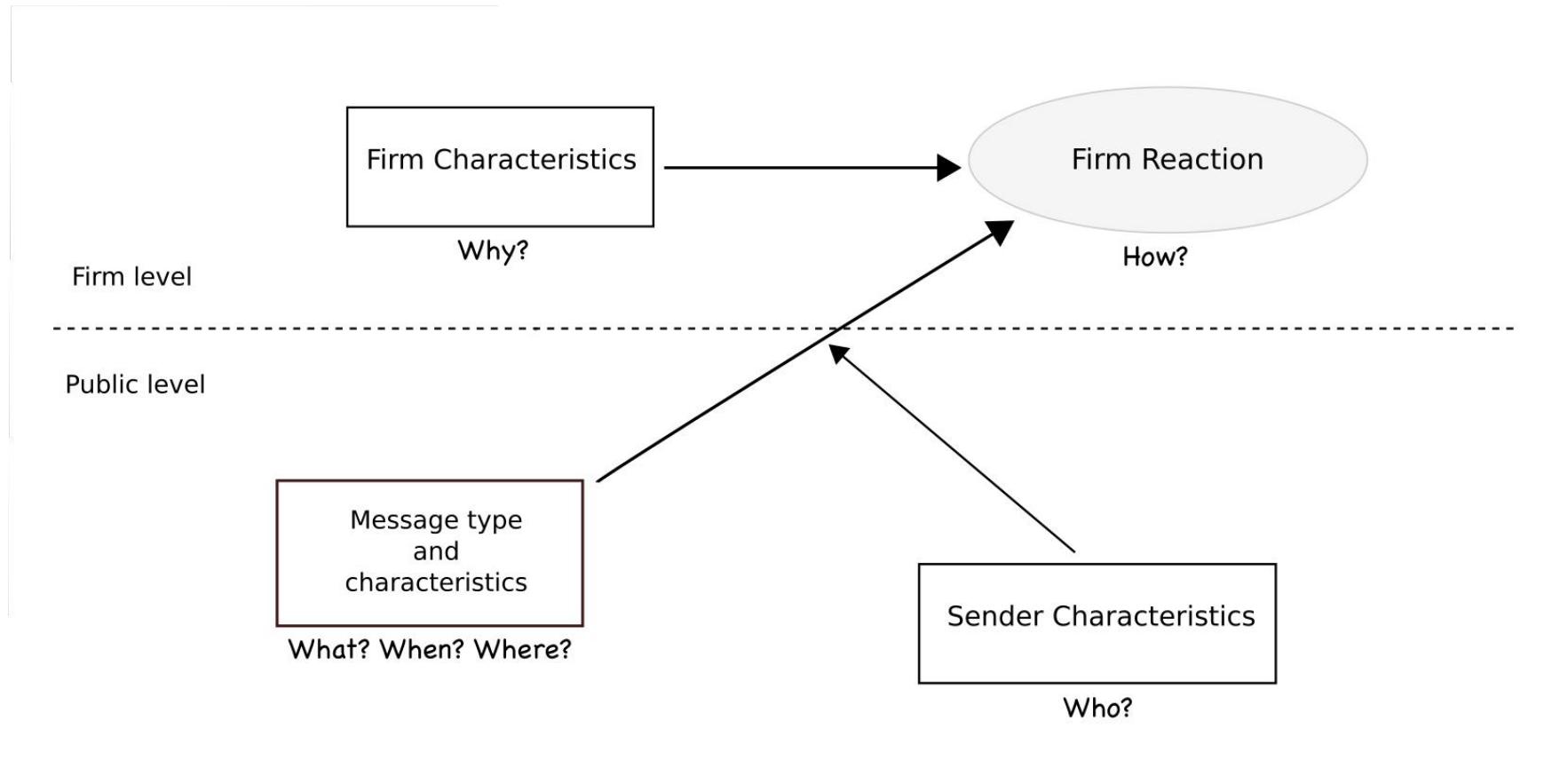
Calling Firms Out: Exploring the Nature and Determinants of Dynamic, Interactive Micro- Reporting in Fortune 200 Firms' CSR-related Twitter Accounts

Analytical Method

1st stage: Qualitative inductive analyses

- Supported by Machine Learning (ML) coding algorithms
- 2nd stage: Primarily quantitative, ML-based *feature selection* algorithms
 - Univariate techniques
 - Multivariate techniques
 - Comprehensive model selection method technique:
stability selection
- Goal: Develop a (relatively parsimonious) theoretical model

Determinants of Firm Reactions to Public Messages



HOW:

How Firms React

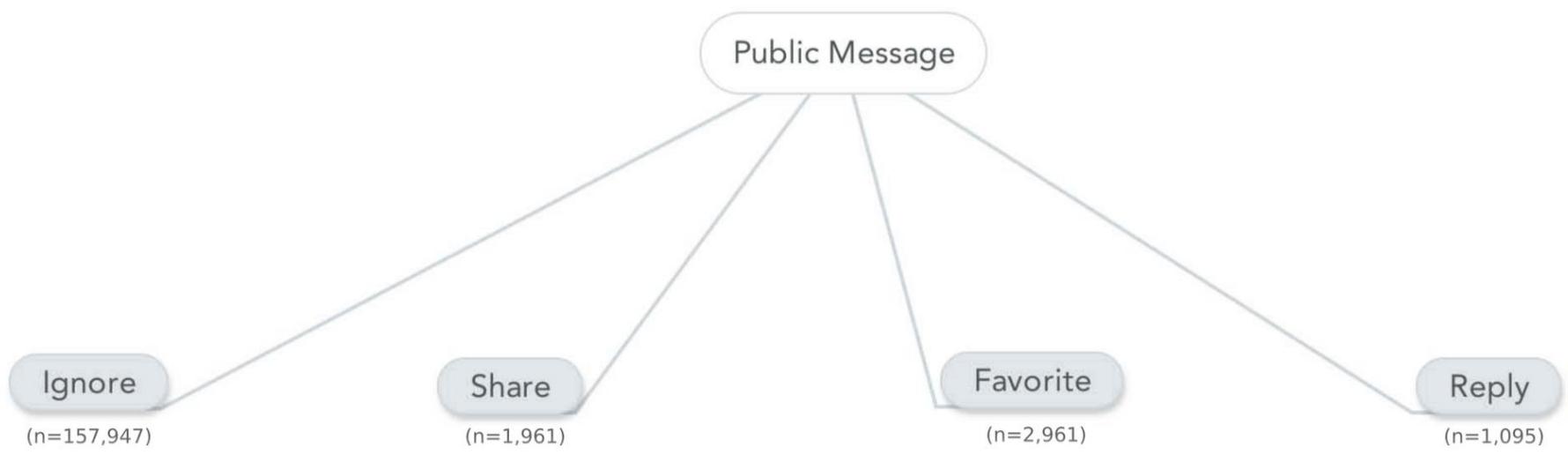


Figure 3.8: Decision Tree: Firm Reactions upon Reading Tweet from Member of the Public

WHO, WHAT, WHEN,

WHERE & WHY:

Determinants of Firm Reactions

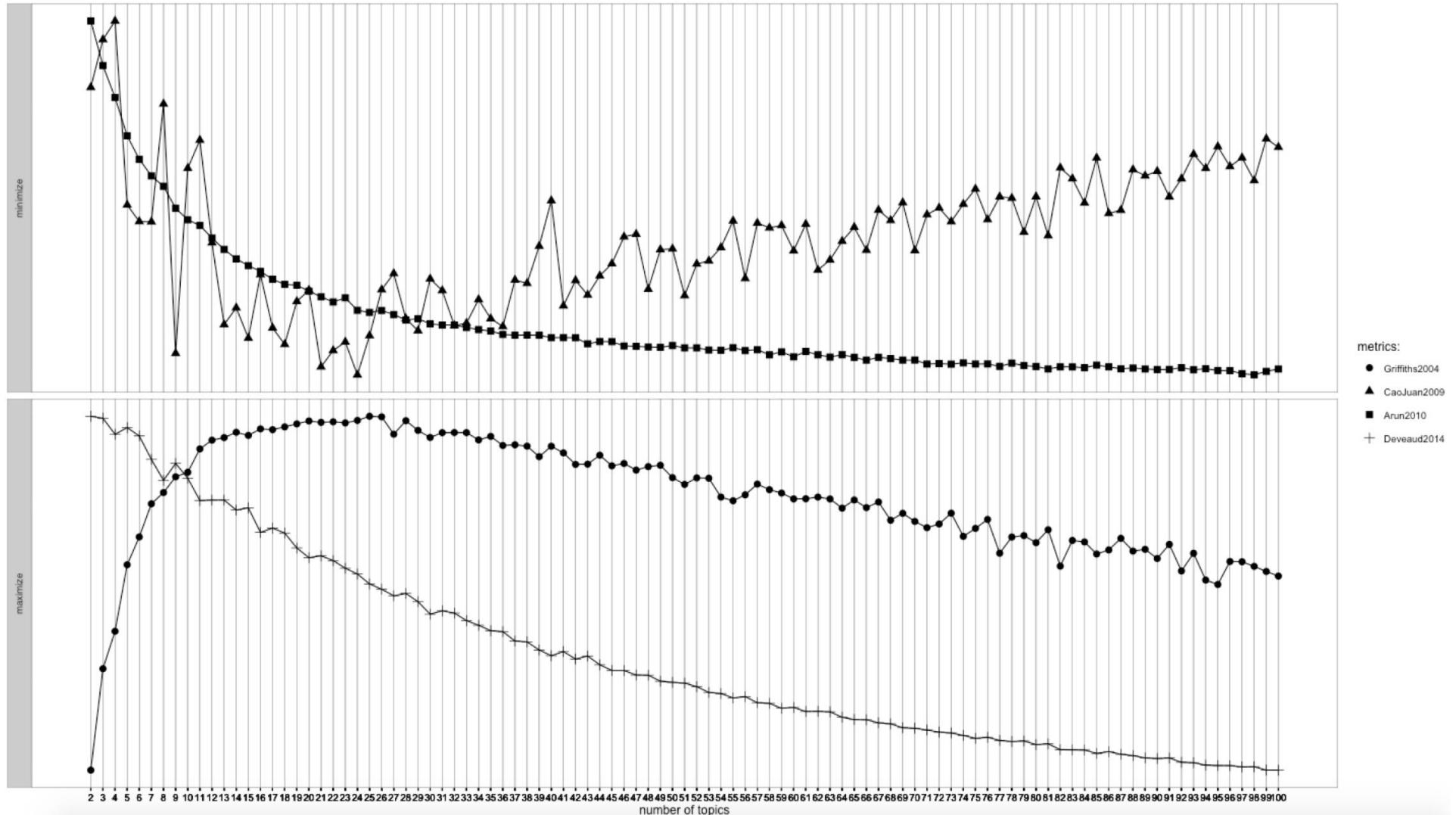


Figure 3.17: LDA metrics

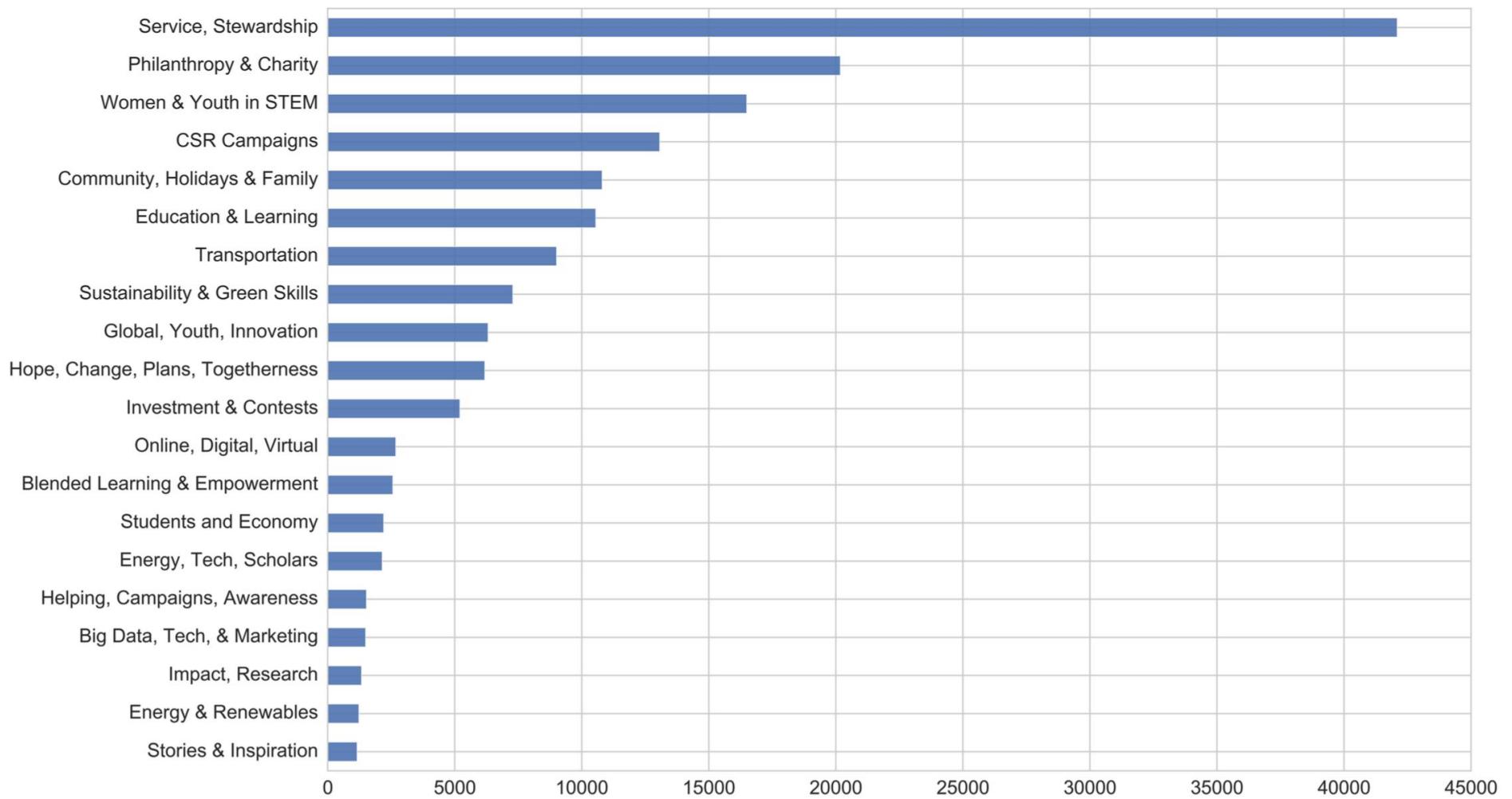
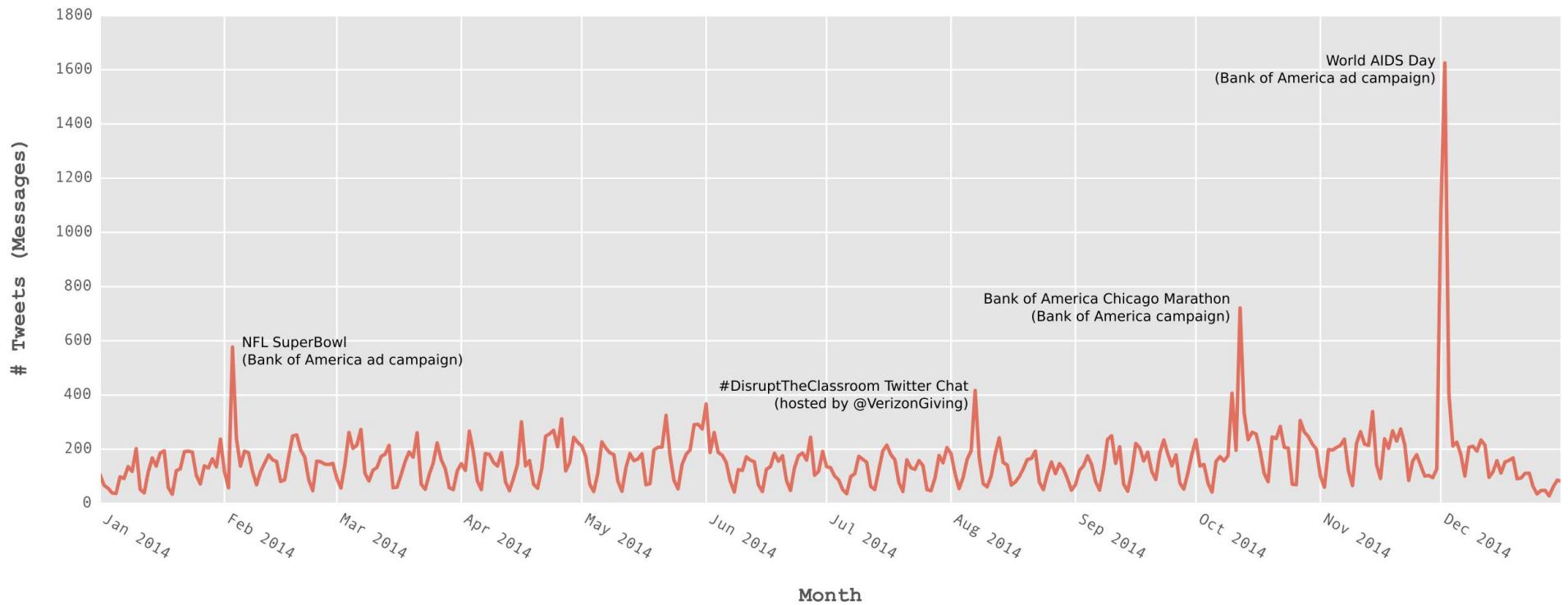
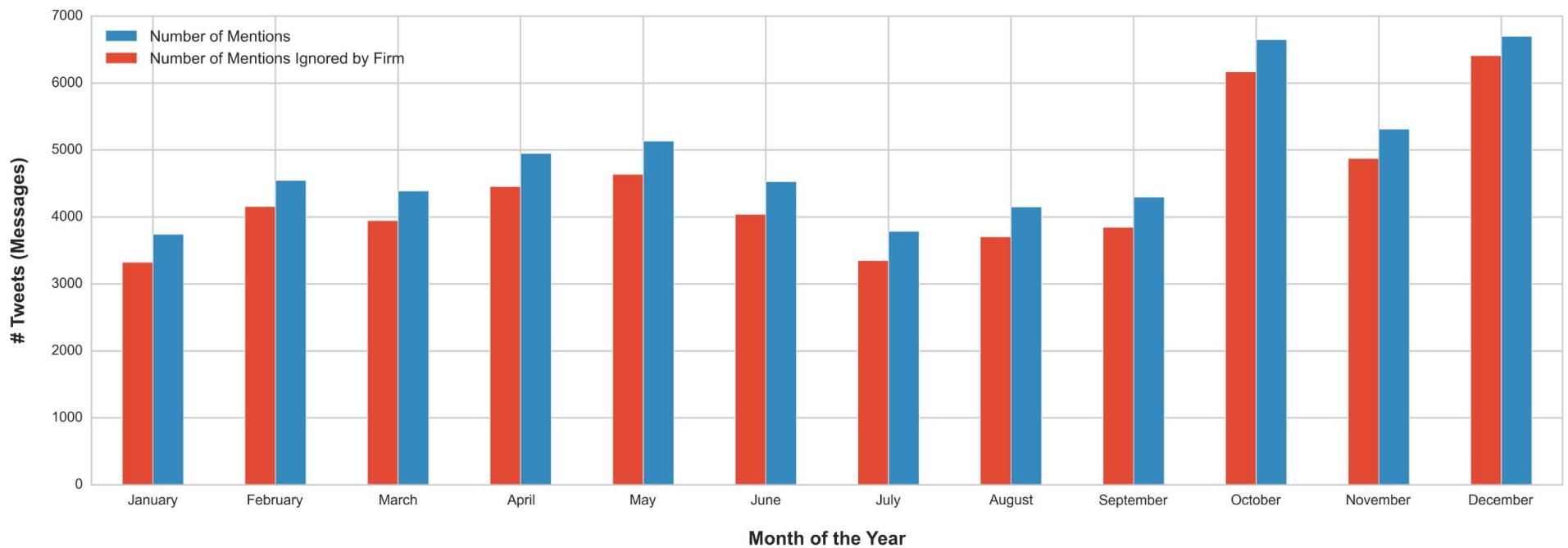


Figure 3.18: Frequency of Topics

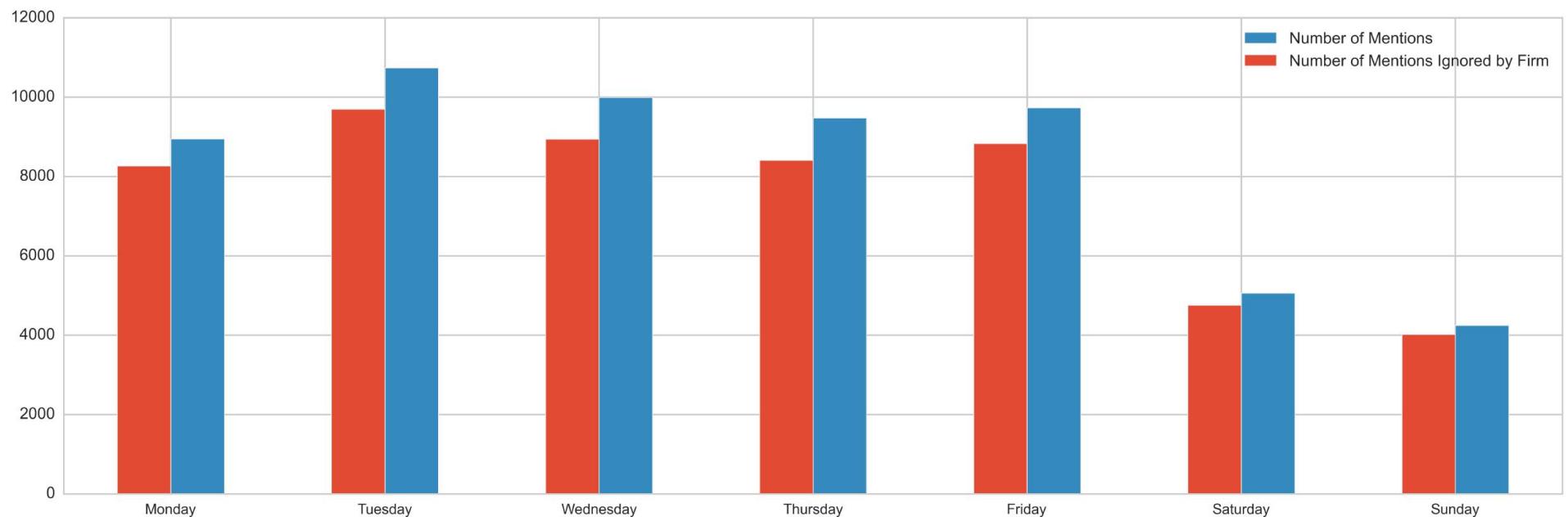
Daily Mentions of 42 Firm CSR Twitter Accounts, 2014



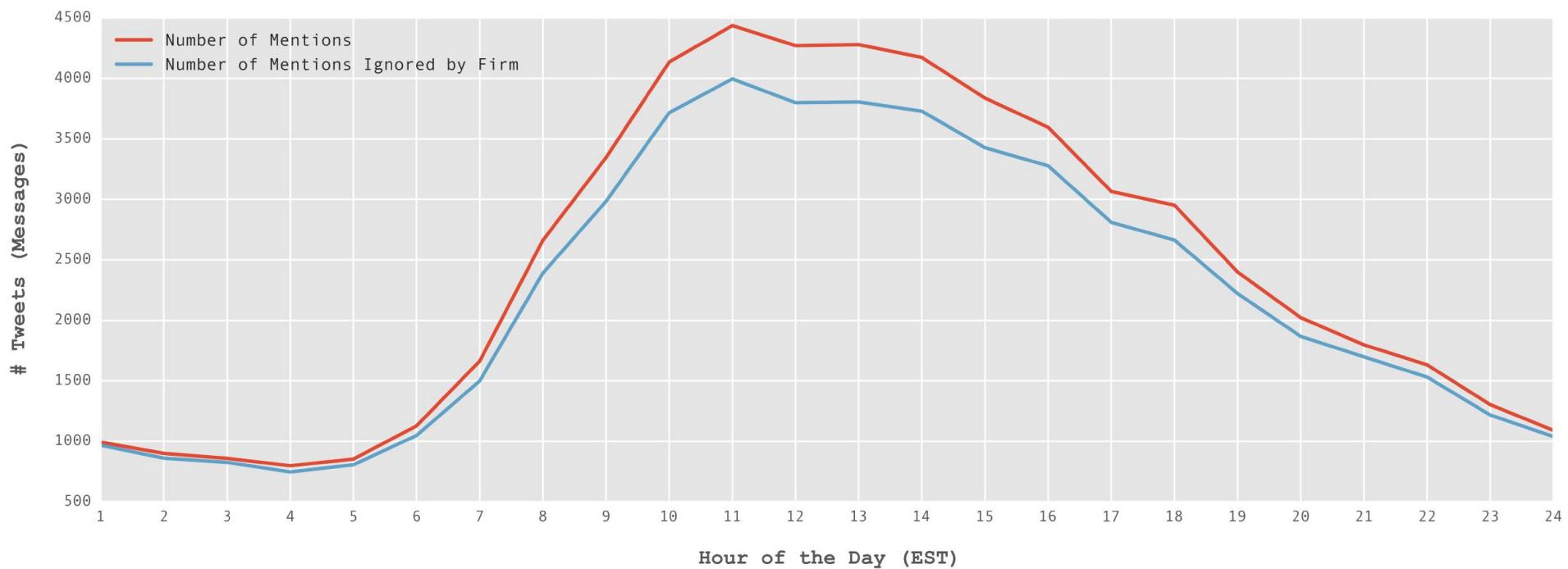
Public Mentions and Firm Replies by Month



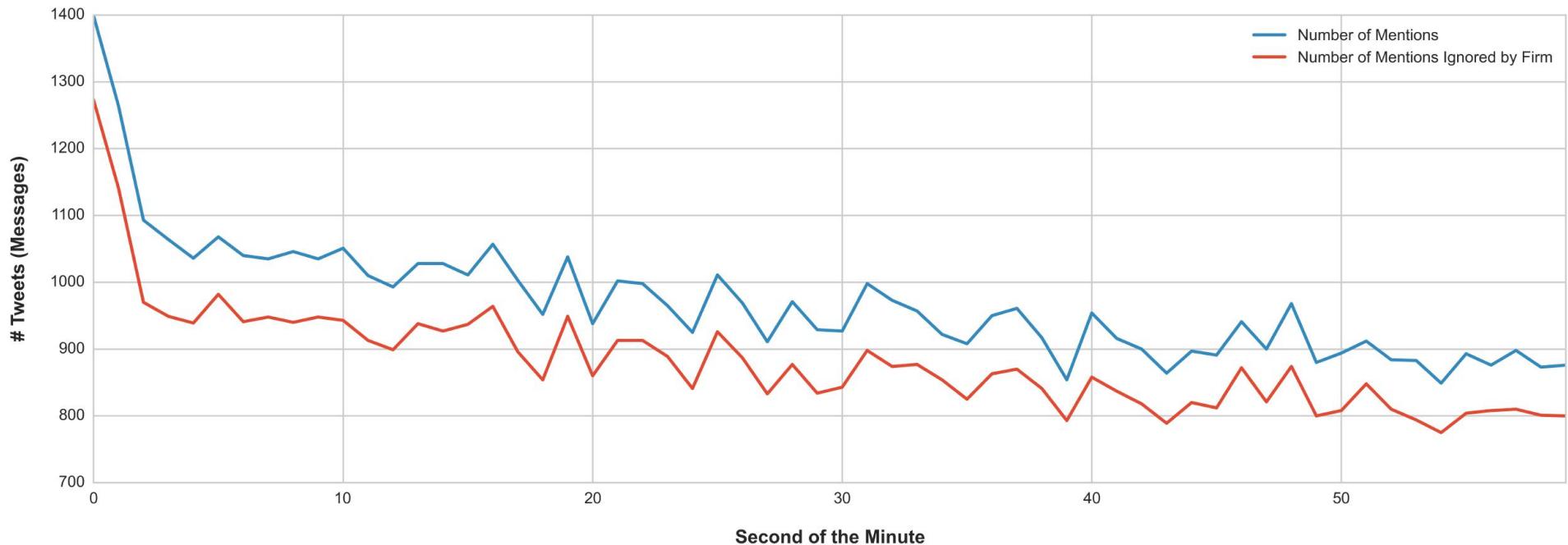
Public Mentions and Firm Replies by Day of the Week

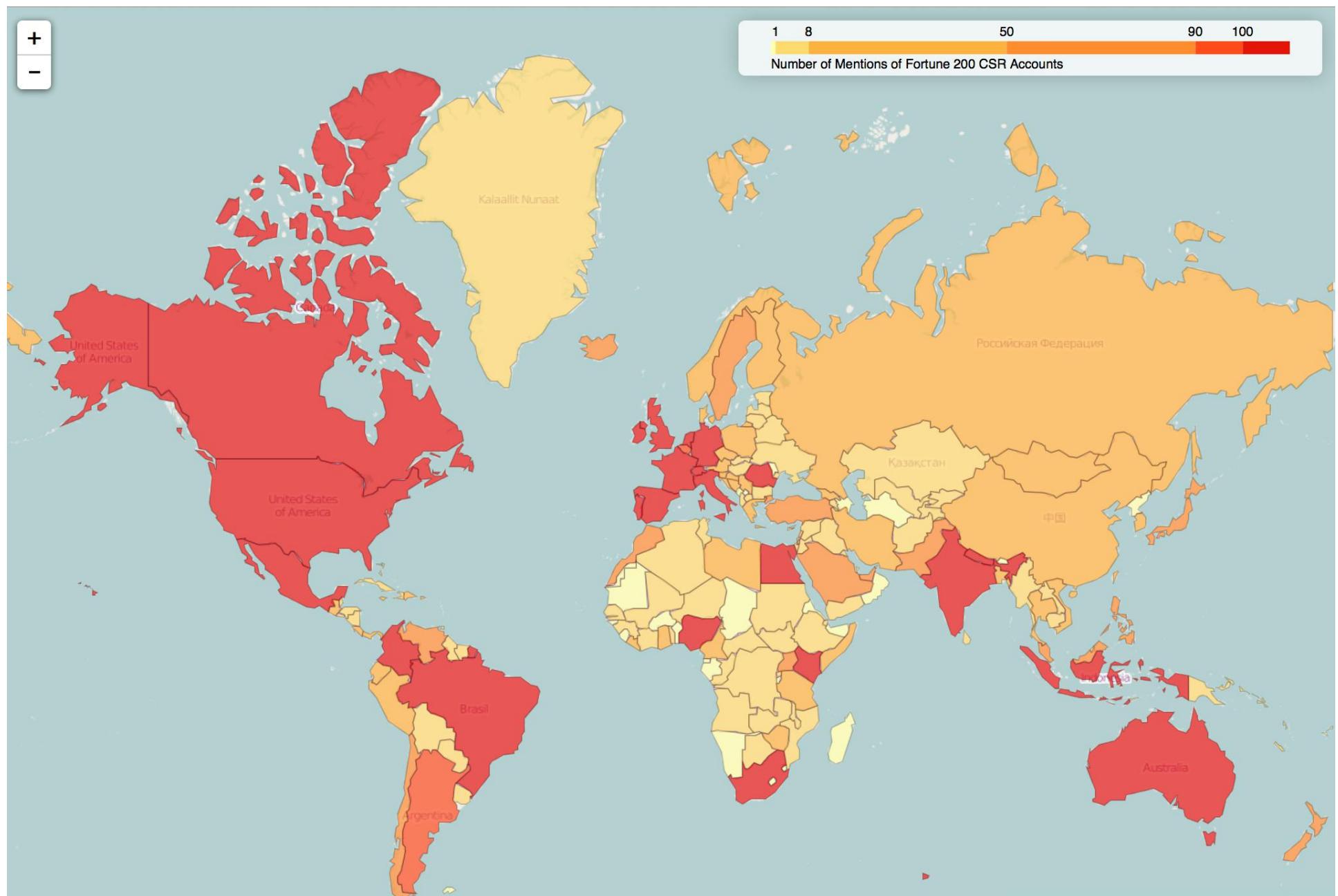


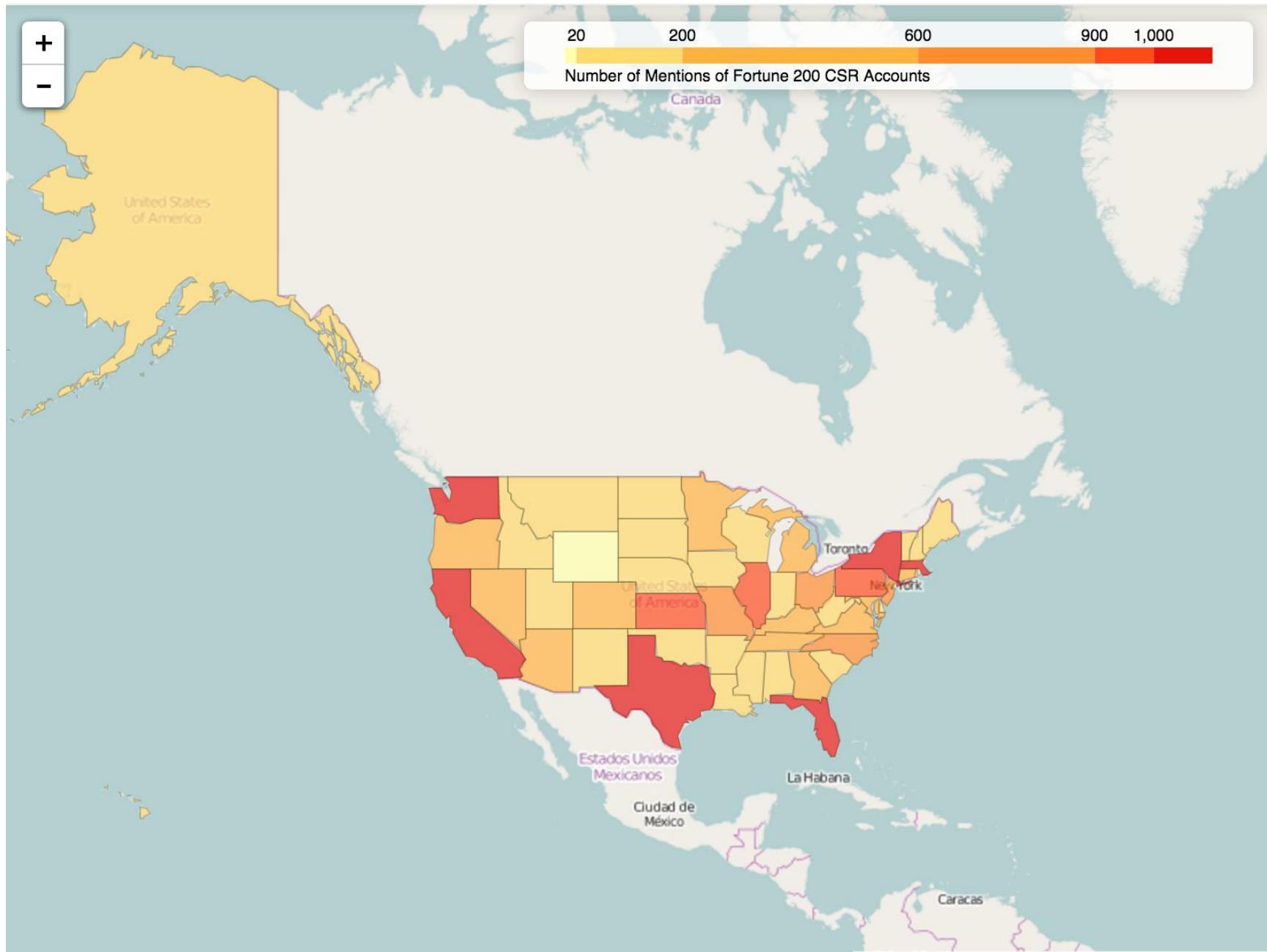
Public Mentions and Firm Replies by Hour of the Day

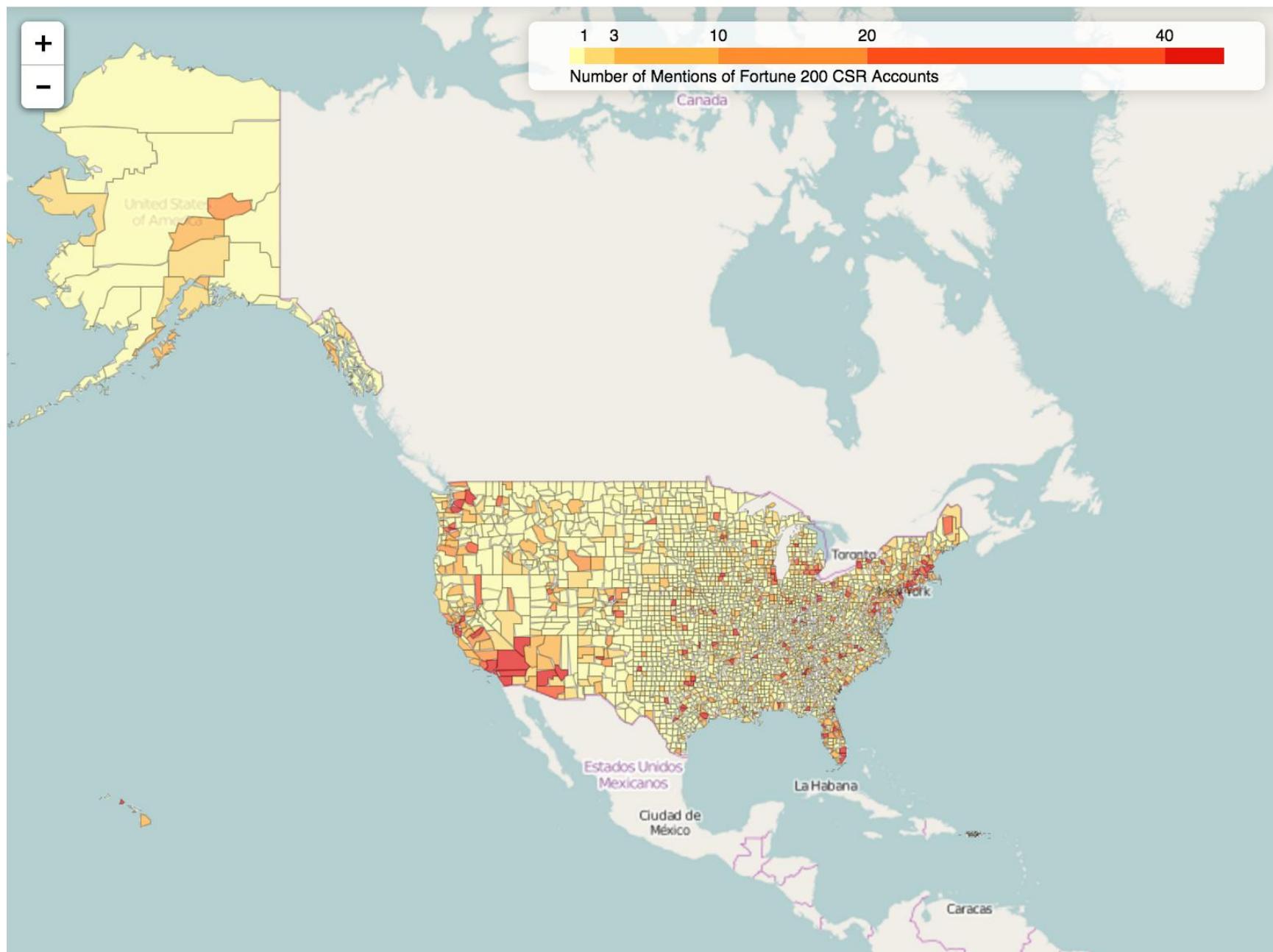


Public Mentions and Firm Replies by Second of the Minute









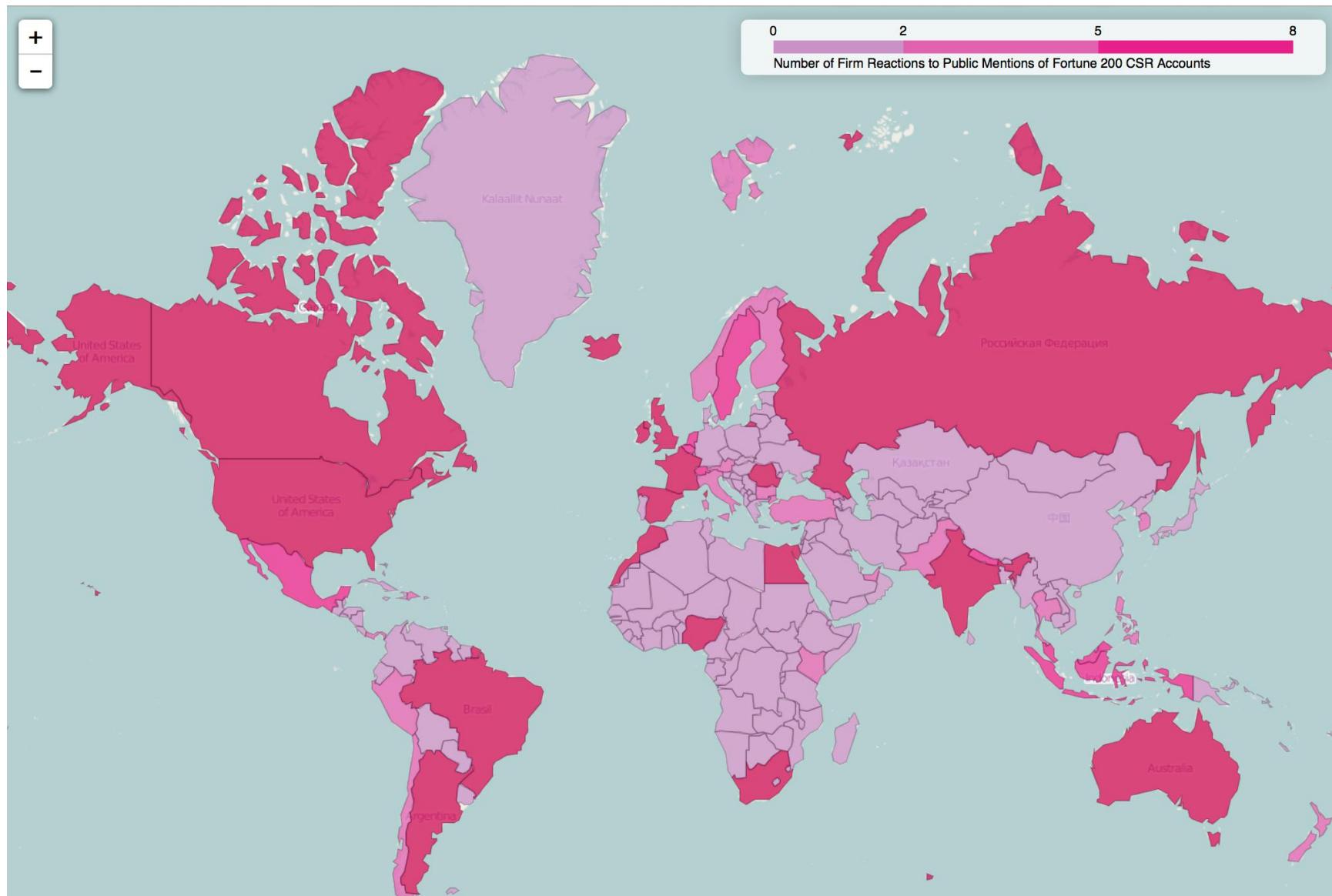


Table 3.4: Zero-Order Correlations Matrix: *Who*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11	12.	13.	14.	15.	16.
1. # of Followers	1.00	0.10	0.03	0.78	0.00	0.07	0.01	0.01	0.01	-0.00	0.00	-0.00	0.01	-0.01	0.24	0.03
2. # of users followed	0.10	1.00	0.18	0.19	0.07	0.12	0.01	0.04	0.00	-0.01	-0.01	0.01	0.01	-0.01	0.09	0.07
3. # of tweets	0.03	0.18	1.00	0.07	0.37	0.12	0.02	-0.04	-0.03	-0.01	-0.01	-0.08	0.02	0.08	0.02	0.09
4. # of lists	0.78	0.19	0.07	1.00	0.01	0.15	0.01	0.04	0.01	-0.00	0.01	0.02	0.02	-0.02	0.29	0.06
5. # of favourites	0.00	0.07	0.37	0.01	1.00	0.01	-0.03	-0.03	-0.00	-0.01	-0.01	-0.02	0.00	0.08	-0.01	0.02
6. Time on Twitter	0.07	0.12	0.12	0.15	0.01	1.00	0.01	0.10	-0.03	-0.01	-0.01	0.05	0.03	0.02	0.13	0.32
7. Male	0.01	0.01	0.02	0.01	-0.03	0.01	1.00	0.02	0.04	0.01	0.01	-0.03	-0.02	0.02	0.04	-0.03
8. SVM_org	0.01	0.04	-0.04	0.04	-0.03	0.10	0.02	1.00	0.64	0.11	0.07	0.51	0.04	-0.11	0.06	0.11
9. .com_org	0.01	0.00	-0.03	0.01	-0.00	-0.03	0.04	0.64	1.00	-0.03	-0.02	-0.15	0.03	-0.06	0.03	0.01
10. .edu_org	-0.00	-0.01	-0.01	-0.00	-0.01	-0.01	0.01	0.11	-0.03	1.00	-0.00	-0.03	0.01	-0.02	-0.02	-0.01
11. .gov_org	0.00	-0.01	-0.01	0.01	-0.01	-0.01	0.01	0.07	-0.02	-0.00	1.00	-0.02	0.00	-0.01	0.07	0.01
12. .org_org	-0.00	0.01	-0.08	0.02	-0.02	0.05	-0.03	0.51	-0.15	-0.03	-0.02	1.00	0.04	-0.10	0.01	0.04
13. English	0.01	0.01	0.02	0.02	0.00	0.03	-0.02	0.04	0.03	0.01	0.00	0.04	1.00	-0.00	0.01	0.03
14. ‘Extended’ profile	-0.01	-0.01	0.08	-0.02	0.08	0.02	0.02	-0.11	-0.06	-0.02	-0.01	-0.10	-0.00	1.00	-0.04	0.07
15. ‘verified’ account	0.24	0.09	0.02	0.29	-0.01	0.13	0.04	0.06	0.03	-0.02	0.07	0.01	0.01	-0.04	1.00	0.10
16. custom profile	0.03	0.07	0.09	0.06	0.02	0.32	-0.03	0.11	0.01	-0.01	0.01	0.04	0.03	0.07	0.10	1.00

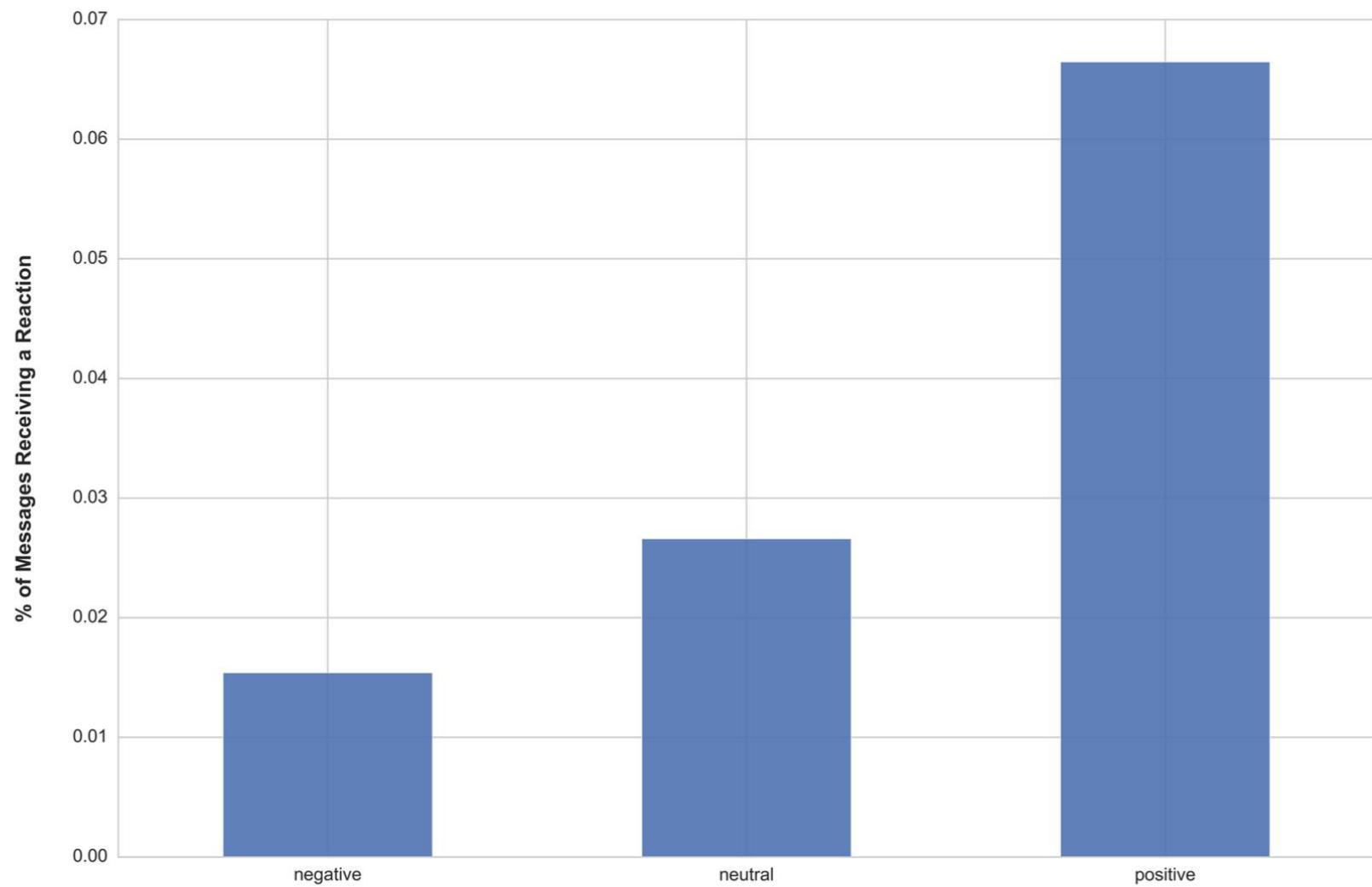


Figure 3.14: Average % of Messages Receiving a Firm Reaction based on Sentiment

Table 3.2: Chi-square Tests for Binary Variables - D.V. is *Fortune Reaction (0,1)*

variable	mean score, I.V. value=0	mean score, I.V. value=1	no. of obs., I.V. value=1	χ^2	sign	n
Male	0.034	0.032	29305	2.06		54761
Organization	0.028	0.053	34391	498.60**	+	163,374
.com organization	0.050	0.044	9217	6.23*	-	58,605
.edu organization	0.048	0.091	308	11.01**	+	58,605
.gov organization	0.049	0.048	124	0.04		58605
.org organization	0.044	0.090	6256	252.83**	+	58,605
English	0.020	0.034	157265	33.06**	+	163,402
Extended profile	0.038	0.020	12148	99.60**	-	104,616
'Verified' profile	0.035	0.078	2863	144.39**	+	104,616
Custom profile	0.025	0.042	71381	185.67**	+	104,616

* p<.05, ** p<.01

Table 3.13: Logit Tests of *Fortune reaction* on Interval-level I.V.s

variable	coeff.	sign	n
Assets	-0.000009**	—	163,402
Employees	-0.000005**	—	163,402
Profits	-0.000489**	—	163,402
Market Value	-0.000039**	—	154457
# of Followers	-0.000046**	—	163,402
# of Users Followed	0.000136**	+	163,402
# of Tweets Sent	0.000278**	+	163,402
# of Times “Listed”	-0.008816**	—	163,402
# of Tweets Favorited	0.010558**	+	163,402
Time on Twitter in Days	0.000223		163,402

* p<.05, ** p<.01

STABILITY

SELECTION

ALGORITHM

Table 3.14: Variables Selected by Stability Selection Test

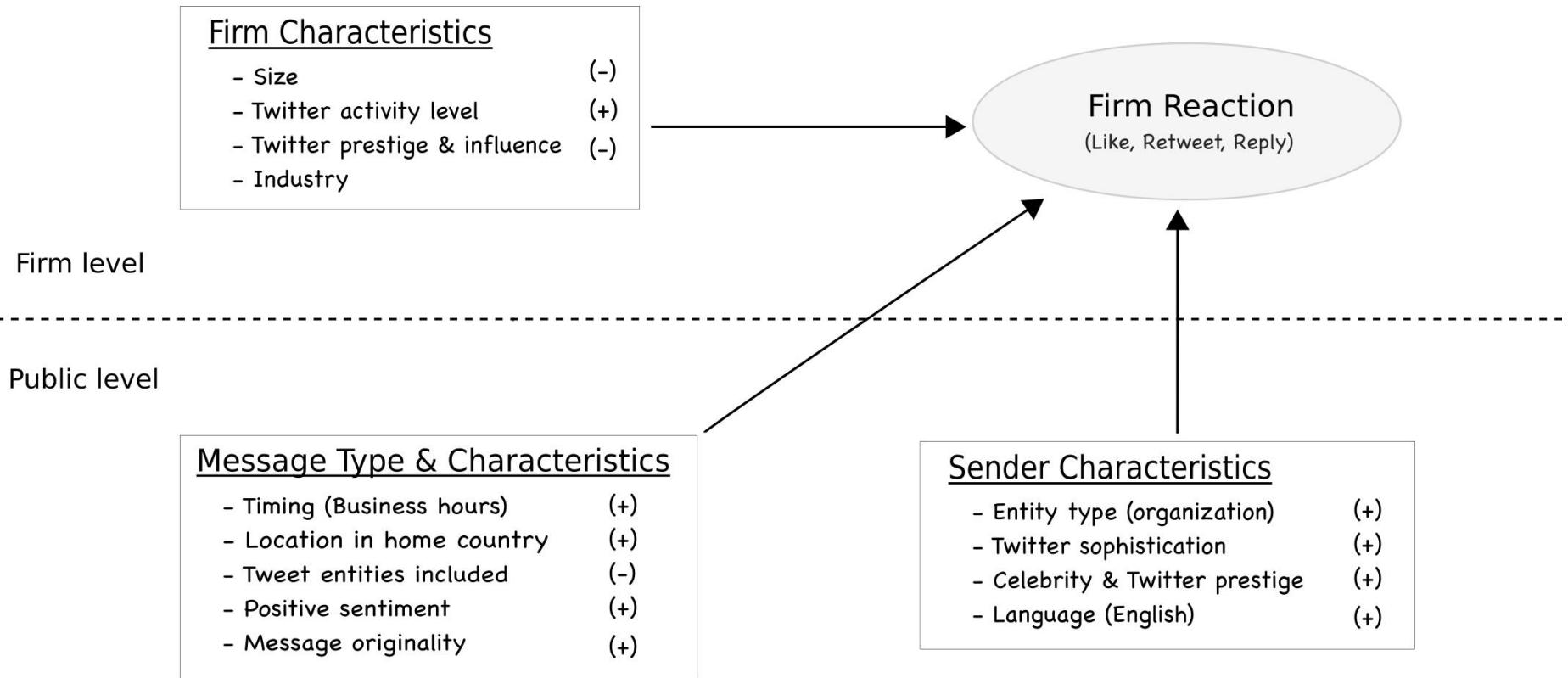
Variable	Variable Category & Dimension	Stability Score
Positive message	<i>what</i> (sentiment)	1.000
“Mention only”	<i>what</i> (originality/thread location)	1.000
Industry: Telecommunications	<i>why</i> (industry)	1.000
Industry: Metals	<i>why</i> (industry)	1.000
Industry: Computer Hardware	<i>why</i> (industry)	1.000
Public Direct Reply	<i>what</i> (originality/thread location)	1.000
Public Direct Message	<i>what</i> (originality/thread location)	1.000
Non-Fortune User Mention	<i>what</i> (tweet entities)	0.980
# of Followers (Firm Account)	<i>why</i> (Twitter prestige)	0.695
URL included	<i>what</i> (tweet entities)	0.640
Assets	<i>why</i> (size)	0.580
Time on Twitter in days	<i>who</i> (Twitter sophistication)	0.565
USA	<i>where</i> (location)	0.535
“Verified” Twitter Account	<i>who</i> (celebrity)	0.510
# of Lists Firm Account Appears on	<i>why</i> (Twitter prestige)	0.490
Industry: IT Services	<i>why</i> (industry)	0.480
Industry: Commercial Banks	<i>why</i> (industry)	0.460
Business Hours	<i>when</i> (timing)	0.445
Organization	<i>who</i> (entity)	0.435
English	<i>who</i> (language)	0.350
Profits	<i>why</i> (size)	0.250
Industry: Health Care – Insurance	<i>why</i> (industry)	0.240
# of Employees	<i>why</i> (size)	0.135
Industry: Internet Services & Retailing	<i>why</i> (industry)	0.060
# of Tweets Sent (Firm Account)	<i>why</i> (Twitter activity)	0.055
Industry: Entertainment	<i>why</i> (industry)	0.040
Custom Twitter Profile	<i>who</i> (Twitter sophistication)	0.025
Topic 17	<i>what</i> (topic)	0.015
Topic 9	<i>what</i> (topic)	0.010
Industry: General Merchandisers	<i>why</i> (industry)	0.005

Scores derived from stability selection procedure using randomized logistic regression.



CHAPTER 4:

Why Micro-Reporting Happens: The Determinants of Fortune 500 Firms' Reactions to CSR-related Public Comments on Social Media





CHAPTER 5:

Conclusions

Contributions

- New, non-reporting-based forms of CSR communication
- Explanations of the reputational outcomes of engaging in CSR communication
- Micro-foundations of CSR
- Dynamic *flows* of CSR and reputational capital
- First studies of firms' *reaction* to public CSR messages
 - Firm replies as *managerial attention*
 - Firm replies as *micro-reporting*
 - Firm replies as *micro-accountability*
 - Attention given to specific individual stakeholders
- Contributes to literature on *to whom* and *for what* firms are accountable
- Multi-disciplinary insights
- Empirical, conceptual, and methodological insights for the study of Big Data
- Insights into new, more public and *dynamic* forms of reporting and accountability

Thank you