empirical setting is noteworthy because the argument I propose runs counter to the prevailing wisdom of prominent leaders at the Fed, who tend to believe that reaffirming the assumptions underlying their monetary policy framework provides more transparency about the inner workings of this historically secretive institution (Yellen, 2013; Bernanke, 2015) and that this should reinforce the strength of the institution and reduce market uncertainty (Plosser, 2012). Given the practical importance of the market outcome I predict, I also explore factors that might mitigate or amplify this presumably unintended effect, leveraging research that has argued emotions shape how audiences make sense of important or uncertain events in financial markets (Abolafia and Kilduff, 1988; Pfarrer, Pollock, and Rindova, 2010). I focus on how two such factors—the positive tone of Fed speeches and the level of fear in the business media—shape the way the market interprets the Fed chair's discussion of these taken-for-granted assumptions.

Arguments, Emotions, and Institutions

Language and Institutions

Institutional and organization theorists have long recognized that there is a close connection between language and institutions (e.g., Berger and Luckmann, 1967). The idea is that institutions somehow get codified in the way people talk (Garfinkel, 1967; Schutz, 1967), with some meanings naturally becoming more legitimate than others. As people tend to gravitate toward things that are more legitimate (DiMaggio and Powell, 1991; Suchman, 1995), they more readily use these legitimate meanings, thereby perpetuating the institution in which they reside (Zucker, 1977). But this is a fairly general idea, and subsequent theorists have tried to find more concrete ways to understand how specific characteristics of our social institutions relate to the language we use in everyday life.

The most common approach has been to conceptualize institutions as systems of statements or words that cohere together—often referred to as vocabularies or discourses. Meyer and Rowan (1977) argued that vocabularies form rationalized accounts that generate isomorphic pressures to conform, and Kunda (1992) conceptualized a strong culture of normative control as being based partly on the continued use of certain words that reflect and reinforce the prevailing culture. Scholars have also demonstrated that people can use vocabularies and discourses to influence institutions (Suddaby and Greenwood, 2005; Vaara, 2014) and that changes in these systems of words are often associated with known changes in prevailing institutions (Fiss and Hirsch, 2005; Ocasio and Joseph, 2005; Colyvas and Powell, 2006). Recent reviews have focused on the vocabularies (Loewenstein, Ocasio, and Jones, 2012) and discourse perspectives (Phillips and Oswick, 2012), and these ideas are featured prominently in the institutional logics perspective (Thornton, Ocasio, and Lounsbury, 2012) and research on the communicative foundations of institutions (Cornelissen et al., 2015).

One of the most important characteristics of an institution, however, is that some meanings are more taken for granted than others (Zucker, 1977; Jepperson, 1991). Scholars have defined institutions as "taken-for-granted repetitive social behavior that is underpinned by normative systems and cognitive understandings that give meaning to social exchange and thus enable self-reproducing social order" (Greenwood et al., 2008: 4), and some have highlighted this taken-for-granted element as the very essence of an institution (Phillips and Malhotra, 2017: 400). But the research perspectives on vocabularies and discourses, which excel at explaining how language hangs together in a coherent system, do not connect our everyday language usage to this underlying taken-for-granted structure of institutions. I propose that one way to do this is to examine the underlying structural components of arguments.

Arguments and Institutions

Arguments are a way of reasoning with others. Stephen Toulmin (1958; Toulmin, Rieke, and Janik, 1984), a British philosopher, established one of the most authoritative ways to analyze how people use arguments. His approach—known as the Toulmin Model, as depicted in figure 1—suggests that all arguments contain at least four components: data, warrants, claims, and backing. At the most basic level, people reason with others by asserting a claim (conclusion) and then justifying it with data (evidence) and warrants (explanations for why the data support the claim). But Toulmin also recognized a critical fourth component, pointing out that this basic level of reasoning is always grounded on collectively understood assumptions—or backing—that provide the "rules of the game" for how people interact. This observation leads to an important insight. Although people often leave the backing implicit and talk *within* the rules of the game, they can also make the backing explicit and talk *about* the rules of the game themselves (Goodnight, 1993; Harmon, Green, and Goodnight, 2015).

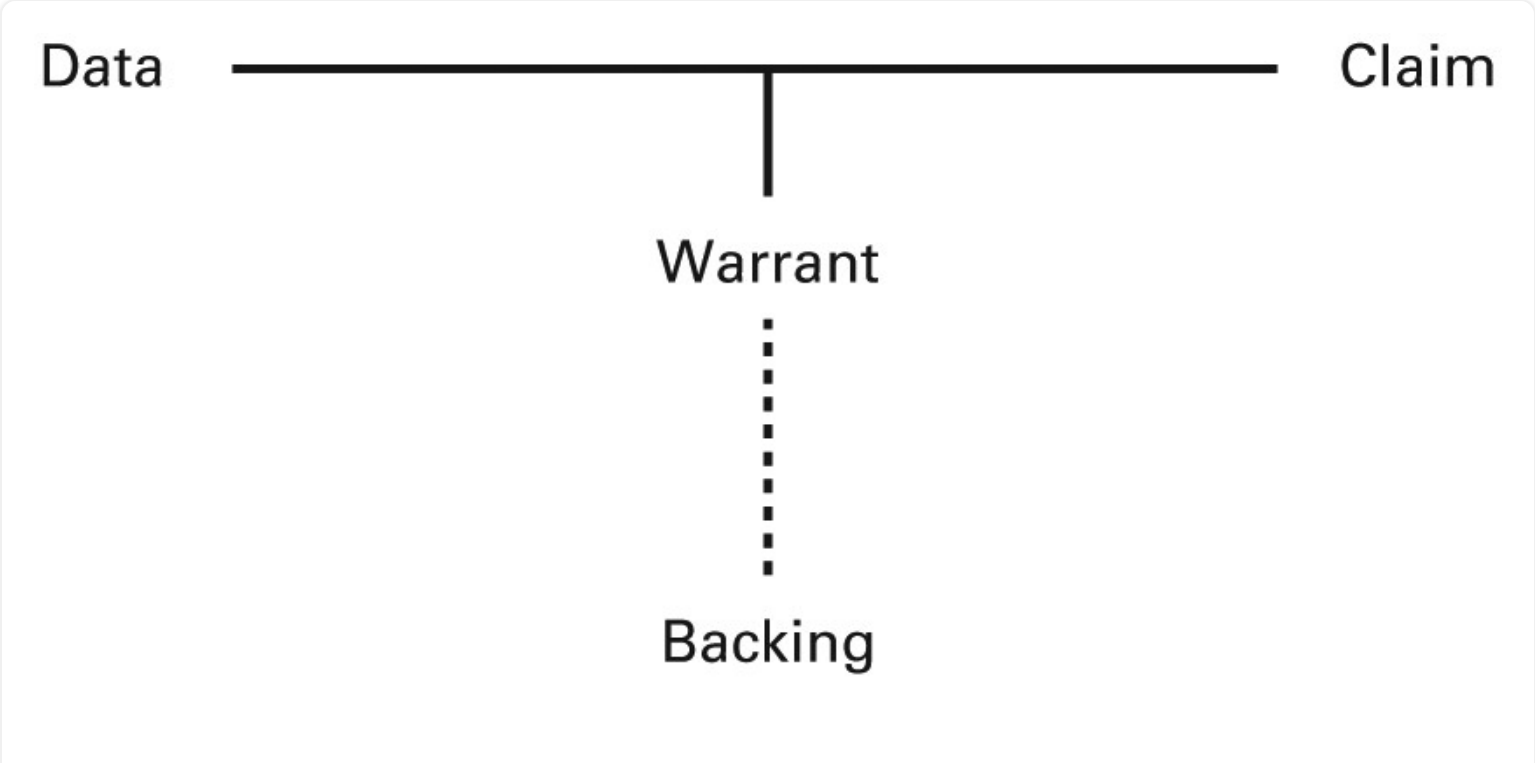

Figure 1. The Toulmin Model of argument.

Consider the game of American football, specifically in the context of the National Football League (NFL). The NFL has many rules, such as when to use instant replay, which penalties can be called, and even the etiquette its players should observe. Now consider the public commentary of the league commissioner, the person tasked with safeguarding the integrity of the NFL. Often, the commissioner will not discuss these rules explicitly and instead focuses on discussing the activities occurring within the game itself. For instance, he may talk about why a penalty called last week was correct or how a player is being fined for flagrant behavior, often elaborating on these claims with more data to explain what happened. But sometimes the commissioner will step back and explicitly discuss the rules themselves as a way to reassert their influence; he may rearticulate the wording of the rule, clarify its intended purpose, or discuss its origins. In fact, leaders in such positions often shift in their everyday talk between leaving the backing implicit (i.e., talking within the rules of the game) and discussing the backing explicitly (i.e., talking about the rules of the game).

Now consider the context of the Fed, where the game is not football but United States monetary policymaking, and the commentator is not the NFL commissioner but the Fed chair. The underlying rules or backing are the assumptions related to the Fed's monetary policy framework, which concern the objectives and conventional tools used to conduct central banking activities in the United States. The Fed's objectives, also known as its dual congressional mandate, are to maximize employment and maintain price stability. To achieve those objectives, the Fed has long used a variety of conventional tools, like engaging in open market operations, setting the discount rate, and changing member banks' reserve requirements. This framework is largely taken as a given (Abolafia, 2010), having remained reasonably stable in its current form since the Federal Reserve Reform Act of 1977. These rules of the game make up the taken-for-granted assumptions underlying a bounded, specialized discourse on U.S. monetary policymaking, the express purpose of which is to stabilize the broader financial system (Board of Governors of the Federal Reserve System, 2017).

As with the NFL commissioner, the Fed chair's public speeches can vary in how explicit they make these assumptions. Some speeches reason within the rules of the game, making claims about the state of the U.S. economy and providing economic data as support. For example, in a speech to the Economic Club of Washington, DC, on December 7, 2009, Chair Bernanke (2009) asserted a claim about the economic recovery and then provided three pieces of data to justify it:

> A number of factors support the view that the recovery will continue next year [*claim*]. Importantly, corporations are having relatively little difficulty raising funds in the bond and stock markets [*data*], stock prices and other asset values have recovered significantly from

> their lows [*data*], and a variety of indicators suggest that fears of systemic collapse have receded substantially [*data*].

In contrast, when the chair talks about the rules of the game, he or she explicitly reaffirms the backing, further clarifying the nature or boundaries of monetary policy. For example, in a speech given at the Federal Reserve Bank of St. Louis on October 11, 2001, Chair Greenspan (2001) made explicit the assumptions underlying the Federal Reserve System:

> We at the Federal Reserve are given two mandates that are not often spelled out explicitly. First, to implement an effective monetary policy to meet our legislated objectives. Second, to do so in a most open and transparent manner in recognition that we, as unelected officials, are accountable both to the Congress from which we derive our monetary policy mission and to the American people [*backing*].

What I am proposing is that Toulmin's linguistic concept of backing is literally the linguistic articulation of an institution's taken-for-granted assumptions. Though the backing may not be entirely taken for granted, the key is that it is at least more taken for granted than the other argument components and, because of this, may have important implications when made explicit. These implications are particularly relevant for leaders who regularly reaffirm these assumptions as one way to reinforce the prevailing institution.

Arguments and Market Uncertainty

If the Fed chair explicitly reaffirming these taken-for-granted assumptions does in fact reinforce the prevailing institution, such efforts should reduce uncertainty in the broader financial markets. This expectation seems to be consistent with the beliefs of Fed officials (Yellen, 2013; Bernanke, 2015; Board of Governors of the Federal Reserve System, 2017), who presume that such efforts will help bolster confidence in their institution and clarify the implications of their actions for the markets. But I propose the opposite may be true: explicitly reaffirming these taken-for-granted assumptions may not reassert their influence but instead may disrupt the natural course of things, destabilizing the institution and increasing overall market uncertainty.

To understand why, first consider what happens when the Fed chair does not discuss the assumptions or backing underlying the monetary policy framework. Leaving the backing implicit should reinforce the market's taken-for-grantedness of these assumptions. As the backing is already collectively understood by the market, the Fed chair not discussing it strengthens the cognitive legitimacy of these ideas and the notion that they "go without saying." By reinforcing their objective and fact-like status, the chair further obscures the contingent and social origins of these assumptions (Schutz, 1967; Douglas, 1986) and makes alternative ways of conducting monetary policy and influencing the market

more unthinkable (Zucker, 1983). The result of these assumptions remaining intact as taken-for-granted facts is that individual market participants are encouraged to continue deferring as they normally would to "the way one always does things," leading to continued "conformity and isomorphism" in judgments and decisions made in the market (Bitektine and Haack, 2015: 53–54; Suchman, 1995; Harmon, Green, and Goodnight, 2015). Speeches containing less backing thus should reinforce the prevailing monetary policy framework and constrict the overall range of expected directions the market could go in the future, thereby reducing market uncertainty.

If the Fed chair explicitly reaffirms the backing, however, this will diminish how much the market takes these assumptions for granted. Bringing these assumptions to mind should prompt market participants to think about the foundations of this framework (Bitektine and Haack, 2015; Harmon, Green, and Goodnight, 2015), endangering their status as taken-for-granted facts (Suchman, 1995) and revealing to people "that there are other possible, attractive alternatives" (Zucker, 1977: 728) to the current way of conducting monetary policy. As Garfinkel (1967: 54) explained, once someone modifies "the objective structure of the familiar, known-in-common environment by rendering the background expectancies inoperative," this forces individuals to try to "manage the reconstruction of the natural facts by [themselves] and without consensual validation." Diminishing the market's ability to take these assumptions for granted will reduce market participants' ability to rely on "the way one always does things" to make forecasts about the future, producing greater heterogeneity in the judgments and decisions made in the market. Thus the more a speech explicitly reaffirms the backing, the more it will destabilize the prevailing monetary policy framework and expand the overall range of expected directions the market could go in the future, thereby increasing market uncertainty.

Hypothesis 1 (H1): The more a Fed chair's speech explicitly reaffirms the backing underlying the monetary policy framework, the more market uncertainty will increase.

Emotions and Market Uncertainty

When important or uncertain events occur in financial markets, emotions can influence how market participants interpret their meaning (Abolafia and Kilduff, 1988). Two sources of emotion meaningfully affect this process: the emotion used by the speaker (Green, 2004; Suddaby and Greenwood, 2005) and the emotion expressed in the broader media (Pollock and Rindova, 2003; Pfarrer, Pollock, and Rindova, 2010). I consider both in the context of the Fed, paying careful attention to the emotions the Fed itself has focused on historically when communicating with the market. I expect that emotions—specifically, the positive tone of the Fed chair's speech and the fear expressed in the business media—create the interpretative context that shapes how market participants collectively make sense of the Fed chair's discussion of these taken-for-granted assumptions.

Positive tone of a speech

Across a variety of contexts, research has demonstrated the benefits of communicating in a positive tone. Conveying information in a positive light leads audiences to rate people's performances as better (Levin, 1987), perceive management control systems as stronger (Schneider, Holstrum, and Marden, 1993), and view organizational practices as more favorable (Davis and Bobko, 1986). These benefits also appear to hold when organizations share important information with the financial market. Davis, Piger, and Sedor (2012) showed that using a positive tone in earnings press releases produces a better short-term stock market reaction and that this result holds even after controlling for firms' characteristics related to fundamentals (Huang, Teoh, and Zhang, 2013). These studies have suggested that conveying important information in an overall positive tone focuses market participants' attention on more optimistic interpretations of the announcement, thereby creating greater confidence and certainty about the future.

Market participants also pay attention to the level of positivity in the Fed chair's communications (Cruikshank and Sicilia, 1999; Holmes, 2013), and while the overall positive tone of a speech may influence market evaluations directly, it may also function as an interpretive context that shapes how market participants collectively make sense of specific ideas the chair is discussing (Pfarrer, Pollock, and Rindova, 2010). Hypothesis 1 contends that when the Fed chair reaffirms the monetary policy framework's backing explicitly, market participants are prompted to think of alternatives to the current way of doing things and will make decisions in increasingly diverging directions. When this reaffirmation occurs in a speech with a more positive tone, the positivity should constrict market participants' attention to more optimistic alternatives. The range of expected directions the market could go in the future, which expanded as the Fed chair talked more about the backing, should be narrowed again due to the higher levels of positive emotion. Thus the more positive tone a Fed chair's speech contains, the more the uncertainty created from discussing the backing should be suppressed:

> **Hypothesis 2 (H2):** The positive tone of a speech will suppress the market uncertainty created by the Fed chair explicitly reaffirming the backing underlying the monetary policy framework.

Fear in the business media

The emotion expressed in the broader business media can also shape how market participants interpret important and uncertain events. The ongoing media narrative contributes to what some emotions scholars have called an emotional climate (Menges and Kilduff, 2015), which can be understood as the prevailing zeitgeist of the market that influences the attention of market participants. Pfarrer, Pollock, and Rindova (2010) showed how the emotion expressed about a firm in the media can shape how investors interpret and react to earnings announcements. In the context of the Fed, the primary emotion it has historically been most concerned about is fear (Krugman, 2001; Holmes, 2013), which can create a more pessimistic emotional climate that influences how market participants interpret events (Lerner and Keltner, 2001; Lerner, Small, and Loewenstein, 2004). Fear is

widely acknowledged as the primary driver of financial panics (Shiller, 1988, 2000; Holmes, 2013; Bernanke, 2015), the market phenomenon the Fed was established to avert.

Existing high levels of fear in the business media may create an especially problematic context within which to discuss taken-for-granted assumptions about the Fed. The mechanism at play here is identical to the mechanism for positive tone, but it works in the opposite direction: while high levels of positive tone create a more optimistic interpretative context, high levels of fear create a more pessimistic interpretive context within which market participants make sense of market events. If H1 is true—if the Fed chair explicitly reaffirming the framework's backing prompts market participants to think of alternatives to the current way of doing things and to make decisions in increasingly diverging directions—a pessimistic emotional climate should exacerbate this divergence. The range of expected directions the market could go in the future should expand even more in an emotional climate of fear, amplifying the uncertainty created from discussing the backing:

> **Hypothesis 3 (H3):** The fear expressed in the business media at the time of a speech will amplify the market uncertainty created by the Fed chair explicitly reaffirming the backing underlying the monetary policy framework.

Methods

The Fed is the central banking institution of the United States, established in 1913 to protect investors during financial panics by guaranteeing liquidity and acting as the lender of last resort. Based in Washington, DC, the presidentially appointed seven-member Board of Governors (with one member as the chair) oversees the 12 regional Federal Reserve Banks and the broader Federal Reserve System. The Fed's aim is to maintain confidence and stability in the financial system through conducting monetary policy, which traditionally has meant using conventional tools (e.g., deciding to change the quantity of money in circulation) to manage interest rates. These policy decisions are made eight times a year by the Federal Open Market Committee (FOMC), a committee within the Fed consisting of the seven members of the Board of Governors, the president of the New York Fed, and four of the other 11 regional Federal Reserve Bank presidents. In the mid-1990s, the Fed chair started to use public speeches to complement existing monetary policy methods and more actively manage market expectations (Yellen, 2013; Bernanke, 2015).

Sample

My initial sample consisted of all the Fed chairs' speeches given between January 1, 1998 and December 31, 2014, totaling 344. I removed five speeches because, based on an outlier analysis, their studentized residuals exceeded plus or minus three. The final sample thus consisted of 339 speeches: 159 by Alan Greenspan, 166 by Ben Bernanke, and 14 by Janet Yellen.

Dependent Variable

I measured *market uncertainty* using the change in the Chicago Board Options Exchange VIX volatility index. The VIX is a daily index calculated "by averaging the weighted prices of S&P 500 puts and calls over a wide range of strike prices" (Chicago Board Options Exchange, 2003: 2). It represents options traders' estimates of the direction of the S&P 500 over the next month by providing an aggregate measure of the variance of option prices on any given day. The higher the variance, the more uncertainty there is in the market. The VIX is the standard approach finance scholars use to measure market uncertainty (Connolly, Stivers, and Sun, 2005; Ang et al., 2006; Andersson, Krylova, and Vähämaa, 2008; Bia'lkowski, Gottschalk, and Wisniewski, 2008). Consistent with research that has examined the effect of Fed chairs' communication on the VIX (e.g., Nikkinen and Sahlström, 2004; Chen and Clements, 2007), I used a two-day event window (t_{-1} to t_0) to measure the change in market uncertainty on the day of the speech. I identified each speech date from the Federal Reserve website and validated it with data received from my Freedom of Information Act Request No. G-2015-00191.

Independent Variables

Backing ratio (BR)

The backing ratio measures the relative amount of backing made explicit by the Fed chair in each speech. Together with three business school undergraduate students familiar with economics and monetary policy, I coded each paragraph of each speech as one that either discusses the backing or does not discuss the backing. I calculated interrater reliability at the paragraph level (Neuendorf, 2001; Krippendorff, 2003) for the first 60 speeches (Krippendorff's alpha = .88) and for the last 10 speeches (Krippendorff's alpha = .84) to demonstrate consistency. I then used this paragraph-level coding scheme to calculate the backing ratio (BR) for each speech:

$$\mathrm{BR} = (\text{number of paragraphs that make the backing explicit} \;/\; \text{total number of paragra}$$

For a paragraph to be coded as not making the backing explicit, the chair must have engaged only the structural components of data or warrants to make claims. He or she need not have engaged all three components. Most frequently, the chair provided some sort of evidence about actions the Fed had taken or economic-related metrics it had collected in order to make a claim about the state of the economy. For instance, in a speech on September 26, 2005 to the American Bankers Association, Chair Greenspan (2005) made an initial claim, supported this claim with data, and then reasserted the claim:

> This enormous increase in housing values and mortgage debt has been spurred by the decline in mortgage interest rates, which remain historically low [*claim*]. Indeed, the thirty-year fixed-rate mortgage, currently around 5 3/4 percent, is about 1/2 percentage point below its level of late spring 2004, just before the Federal Open Market Committee (FOMC) embarked on the current cycle of policy tightening [*data*]. This decline in mortgage rates and other long-term interest rates in the context of a concurrent rise in the federal funds rate is without precedent in recent U.S. experience [*claim*].

Similarly, in a speech on January 3, 2014 to the American Economic Association, Chair Bernanke (2014) made an initial claim and then supported it with a variety of data:

> The economy has made considerable progress since the recovery officially began some four and a half years ago [*claim*]. Payroll employment has risen by 7 1/2 million jobs [*data*]. The unemployment rate has fallen from 10 percent in the fall of 2009 to 7 percent recently [*data*]. Industrial production and equipment investment have matched or exceeded pre-recession peaks [*data*].

For a paragraph to be coded as making the backing explicit, the chair at some point must have explicitly talked about the backing, which typically occurred by reaffirming or reiterating the nature and boundaries of monetary policy objectives and conventional tools. For instance, in a speech on October 18, 2011 at the Federal Reserve Bank of Boston's 56th Economic Conference, Chair Bernanke (2011) reaffirmed the Fed's dual congressional mandate, followed by a clarification of how inflation targeting fits into its monetary policy framework:

> The Federal Reserve is accountable to the Congress for two objectives—maximum employment and price stability [*backing*], on an equal footing—and it does not have a formal, numerical inflation target. But, as a practical matter, the Federal Reserve's policy framework has many of the elements of flexible inflation targeting. In particular, like flexible inflation targeters, the FOMC is committed to stabilizing inflation over the medium run while retaining the flexibility to help offset cyclical fluctuations in economic activity and employment.

Similarly, in her speech on March 5, 2014 after being sworn in as 15th chair of the Federal Reserve, Chair Yellen (2014) reaffirmed the core objectives of the Fed and stated her commitment to achieving them:

> The goals set by Congress for the Federal Reserve are clear: maximum employment and stable prices [*backing*]. It is equally clear that the economy continues to operate considerably short of these objectives. I promise to do all that I can, working with my fellow policymakers, to achieve the very important goals Congress has assigned to the Federal Reserve [*backing*].

Speech positive tone

Following existing work (Pfarrer, Pollock, and Rindova, 2010; Rhee and Fiss, 2014), I used the text analysis software Linguistic Inquiry and Word Count (LIWC) to create an index that captures the relative amount of positive emotional content in the speech. I used a dictionary approach, whereby the percentage of words psychometrically related to positive emotion (e.g., happy, good, nice, positive, great, favorable, etc.) is reported in relation to all words in a speech. This positive emotion word dictionary was compiled and validated by Pennebaker and his colleagues (Pennebaker, Booth, and Francis, 2007; Pennebaker et al., 2007).

Business media fear

I was granted full access to the Thomson Reuters Market Psych Indices proprietary database, which calculates a daily measure of the relative level of fear expressed in the U.S. business media. Every five minutes, their algorithms scrape business news media sources (e.g., *Reuters, Wall Street Journal, Financial Times*) using a dictionary approach, reporting a daily measure of the amount of words appearing in these sources psychometrically related to fear (e.g., worrisome, concerning, anxious, fearful, panicky, etc.) in relation to all words in the business media discourse. To capture the context of fear within which market participants interpret the Fed chair's speech, I constructed a business media fear variable by taking the average of this fear index over a four-day window (t_{-3} to t_0) leading up to and including the day of the speech.

Control Variables

Market-related factors

I controlled for market conditions that could simultaneously influence the backing ratio of speeches as well as changes in market uncertainty. I controlled for *existing market uncertainty* prior to the speech by calculating the 30-day average VIX before the day of the speech. I controlled for the prior month's *unemployment rate* and *inflation rate* because they are market indicators of the Fed's performance. I controlled for *expansionary* and *contractionary* monetary policy conditions by creating two dummy variables that were coded 1 if the most recent Federal Open Market Committee (FOMC) meeting resulted in lowering the federal funds rate (i.e., expansionary monetary policy) or raising the federal funds rate (i.e., contractionary monetary policy). Because the level of dissent in FOMC meetings might reflect underlying issues with the monetary policy framework (Plosser, 2015; Hilsenrath, 2016), I

controlled for *dissent governor* and *dissent president* by counting the number of dissenting votes from governors and regional presidents at the FOMC meeting prior to each speech.

I also controlled for new information that was released into the market on the same day as the Fed speech. Based on prior work (Ederington and Lee, 1993; Nikkinen and Sahlström, 2004), I created dummy variables that were coded 1 if the *Consumer Price Index report*, the *Producer Price Index report*, and the *unemployment report* were released on the same day as the speech. I also controlled for additional information the Fed introduced to the market. I created a dummy variable for *governor speeches* if a governor gave a speech on the same day as the chair, *testimony* if a member of the Fed testified to Congress on that day, and *press releases* if the Fed's public relations department issued any type of press release on that day.

Speech-related factors

I controlled for characteristics of the Fed speech itself that may correlate with my backing ratio construct and influence market uncertainty. Consistent with research in financial economics (Spence, 1973; Van Buskirk, 2012), I controlled for the *speech word count*. To control for the level of *speech uncertainty*, I used the Financial Sentiments Dictionary created by Loughran and McDonaold (2011). Consistent with the idea that negative tone can offset positive tone (Pfarrer, Pollock, and Rindova, 2010), I controlled for *speech negative tone* using the LIWC software. Based on work that shows leaders exude a drive for power that influences markets (Winter, 1987; Emrich et al., 2001), I also used the LIWC software to control for *speech power*.

I controlled for "Fedspeak," which former Fed Vice Chair Alan Blinder (2001) referred to as complex, abstract, or vague language used by Fed chairs to obfuscate sensitive subjects so as to avoid creating market uncertainty. I controlled for *speech complexity* by using the Flesch–Kincaid reading grade level (Kincaid et al., 1975); *speech abstractness* by using a word dictionary compiled and validated by Mergenthaler (1996); and *speech vagueness* by using a partial dictionary compiled and validated by Hiller and colleagues (1969).

Finally, I controlled for several general aspects of the Fed speech. I created a dummy variable for the *speech location* by assigning a 1 to speeches given in Washington, DC, which is the Fed's headquarters and the meeting location of the FOMC. Consistent with work in finance showing that market volatility is correlated with the day of the week (Chang, Pinegar, and Ravichandran, 1993; Dubois and Louvet, 1996; Choudhry, 2000; Connolly, Stivers, and Sun, 2005), I controlled for the day on which the speech took place by creating dummy variables for each weekday. Based on interviews conducted with former Fed Chair Ben Bernanke and former Fed Governors Donald Kohn and Mark Olson, I also controlled for the topic of the speech and the local audience to whom the speech was delivered. Through an inductive analysis, I identified nine *speech topics*—state of the economy, financial crisis, financial literacy, central banking, banking system, globalization, economic history, commencement addresses, and remarks on special occasions—and five *local audiences*—central bankers, banking industry,

government, academics, and laypersons. A research assistant and I coded all speeches with these nine topics and five local audiences, with interrater agreement of 99 percent and 100 percent, respectively. I controlled for these two factors using dummy variables. To summarize, I employed the following regression model:

$$\ln\left(\mathrm{VIX}_t / \mathrm{VIX}_{t-1}\right) = \alpha + \beta\,\mathrm{Backing\ \ Rati}\,o_t + \eta\,\mathrm{Control}\,s_t + \varepsilon_t$$

Results

To conduct this event study analysis, I used OLS regression with year fixed effects to estimate the effect of Fed speeches' backing ratio on market uncertainty. Descriptive statistics and correlations for all major variables are shown in table A1 in the Online Appendix (Supplementary Material).

Table 1 reports the results of the OLS regression models. Model 1 is the baseline model. Model 2 adds the backing ratio as the primary independent variable of interest. Consistent with H1, I find that the more the Fed chair explicitly reaffirms the backing underlying the monetary policy framework, the more this creates market uncertainty, as graphed in figure 2. To interpret the practical significance of this effect, recall that the VIX is the expected range that the S&P 500 will move over the next month. A one-standard-deviation increase in the backing ratio of a speech (i.e., .22)—which is equivalent to adding six backing-related paragraphs in a 25-paragraph speech—will increase this expected range by 1.0 percent. This effect is sizable in two respects. First, although the VIX is not directly tradeable, one can trade the VXX, which is an exchange-traded fund highly correlated with the VIX. A $10,000 investment would hypothetically gross a one-day return of $100 (1 percent). Second, portfolio managers and investors use the VIX to hedge their risk against market crashes (Rhoads, 2011). An increase in the VIX of even 1.0 percent makes this hedging strategy more expensive to execute, thereby influencing how market participants manage their long-term investment risk.

Table 1. Regression Models Predicting Market Uncertainty (t_{-1} to t_0), N = 339*

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Backing ratio (BR)		.036••	.034••	.045•••	.041••
		(.018)	(.018)	(.019)	(.019)
Speech positive tone	−.006•	−.005	−.007••	−.005	−.007••

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
	(.004)	(.004)	(.004)	(.004)	(.004)
Business media fear	−1.616	−1.176	−1.604	.005	−.537
	(2.972)	(2.925)	(2.821)	(2.924)	(2.863)
BR × Speech positive tone			−.056***		−.049***
			(.020)		(.020)
BR × Business media fear				30.590***	26.293**
				(12.626)	(12.482)
Existing market uncertainty	.000	.000	.000	.000	.000
	(.001)	(.001)	(.001)	(.001)	(.001)
Unemployment rate	.018	.020*	.021*	.022**	.022**
	(.011)	(.011)	(.011)	(.011)	(.011)
Inflation rate	.004	.003	.004	.003	.003
	(.006)	(.006)	(.005)	(.006)	(.005)
Expansionary monetary policy	.003	.005	.006	.003	.004
	(.021)	(.021)	(.021)	(.021)	(.021)
Contractionary monetary policy	.020	.023*	.025*	.022*	.025*
	(.013)	(.013)	(.013)	(.013)	(.013)
Dissent governor	.009	.011	.007	.017	.013
	(.019)	(.019)	(.018)	(.019)	(.018)
Dissent president	−.020***	−.020***	−.018**	−.017**	−.015**

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
	(.007)	(.007)	(.007)	(.007)	(.007)
Consumer Price Index report	.019	.017	.020	.019	.021
	(.015)	(.015)	(.014)	(.014)	(.013)
Producer Price Index report	.028	.026	.028	.026	.028
	(.018)	(.018)	(.018)	(.017)	(.017)
Unemployment report	−.013	−.015	−.012	−.012	−.009
	(.014)	(.014)	(.014)	(.014)	(.014)
Governor speeches	−.001	−.002	−.002	−.001	−.002
	(.007)	(.007)	(.007)	(.007)	(.007)
Testimony	.019	.018	.024••	.022••	.027••
	(.011)	(.012)	(.011)	(.011)	(.011)
Press releases	−.006	−.006	−.006	−.005	−.005
	(.007)	(.007)	(.007)	(.007)	(.007)
Speech location	−.002	−.001	−.001	−.001	−.001
	(.008)	(.008)	(.008)	(.008)	(.008)
Speech word count	−.000•••	−.000•••	−.000•••	−.000•••	−.000•••
	(.000)	(.000)	(.000)	(.000)	(.000)
Speech uncertainty	.002	.001	.000	−.000	−.001
	(.004)	(.004)	(.004)	(.004)	(.004)
Speech negative tone	.009•	.007	.007	.006	.006

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
	(.005)	(.005)	(.005)	(.005)	(.005)
Speech power	−.002	−.004	−.005	−.004	−.005
	(.003)	(.003)	(.003)	(.003)	(.003)
Speech complexity	.001	.000	.000	.001	.001
	(.002)	(.002)	(.002)	(.002)	(.002)
Speech abstraction	−.006•••	−.006•••	−.007•••	−.006•••	−.007•••
	(.002)	(.002)	(.002)	(.002)	(.002)
Speech vagueness	−.005	−.003	−.004	−.002	−.003
	(.009)	(.009)	(.008)	(.008)	(.008)
Constant	−.019	−.023	−.026	−.044	−.057
	(.094)	(.095)	(.088)	(.090)	(.084)
R-squared	.310	.318	.340	.339	.355
Adjusted R-squared	.170	.177	.201	.199	.216
D.f.	57	58	59	59	60
Average model VIF	4.10	4.11	4.09	4.09	4.07

• $p < .10$; •• $p < .05$; ••• $p < .01$.

* Results show robust regressions with robust standard errors in parentheses. Significance tests are one-tailed for directional hypotheses, two-tailed for control variables. All models include year, topic, and local audience fixed effects.

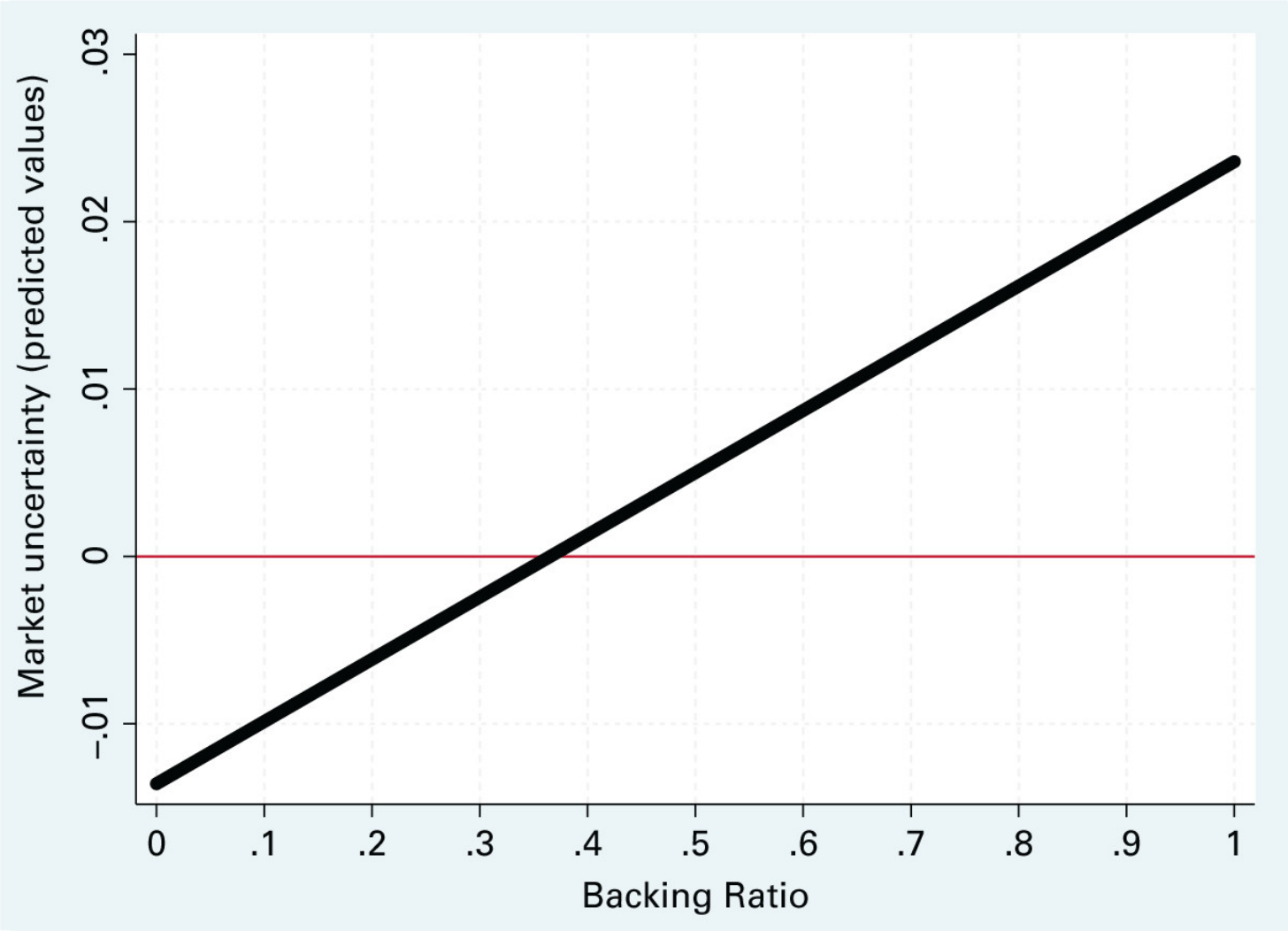

Figure 2. Main effect of the backing ratio on market uncertainty.

Model 3 adds the first interaction term between the backing ratio and speech positive tone. Consistent with H2, I find that the positive tone of the speech suppresses the market uncertainty created by the Fed chair explicitly reaffirming the backing, as graphed in figure 3. This means that when a speech's positive tone is one standard deviation above its mean, the aforementioned 1.0-percent increase in the expected range of the S&P 500 over the next month goes away; in fact, it reduces the expected range by .5 percent. Interestingly, when a speech's positive tone is one standard deviation below its mean, this actually amplifies market uncertainty, increasing the expected range by 3.5 percent.

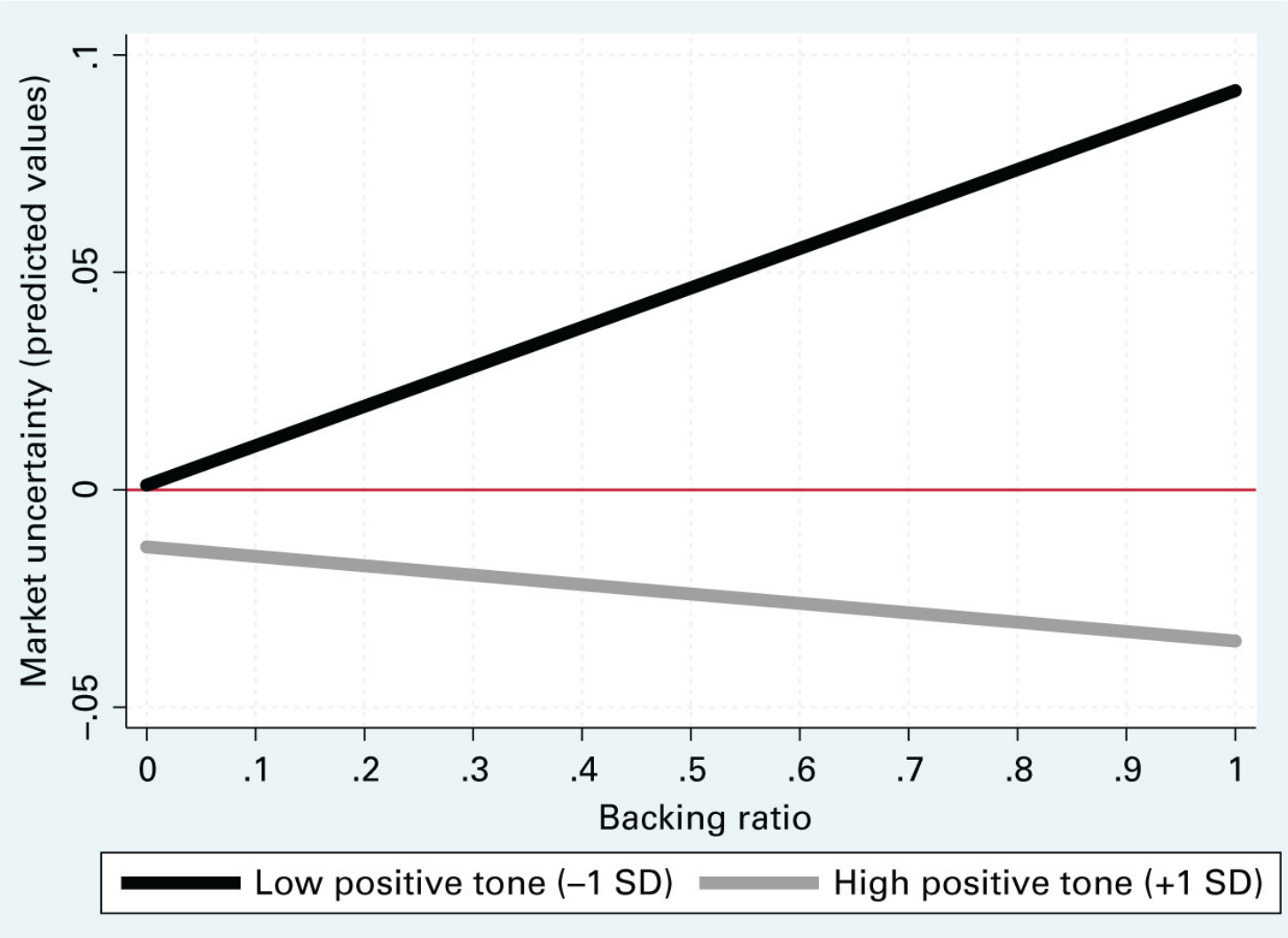

Figure 3. Interaction between the backing ratio and speech positive tone.

Model 4 adds the second interaction term between the backing ratio and business media fear, and model 5 reports the fully specified model. Consistent with H3, I find that business media fear present at the time of the speech amplifies the market uncertainty created by the Fed chair explicitly reaffirming the backing, as graphed in figure 4. This means that the aforementioned 1.0-percent increase in the expected range of the S&P 500 over the next month is amplified by 2.5 percent when business media fear is one standard deviation above its mean. And when business media fear is one standard deviation below its mean, the aforementioned 1.0-percent increase in market uncertainty goes away entirely.

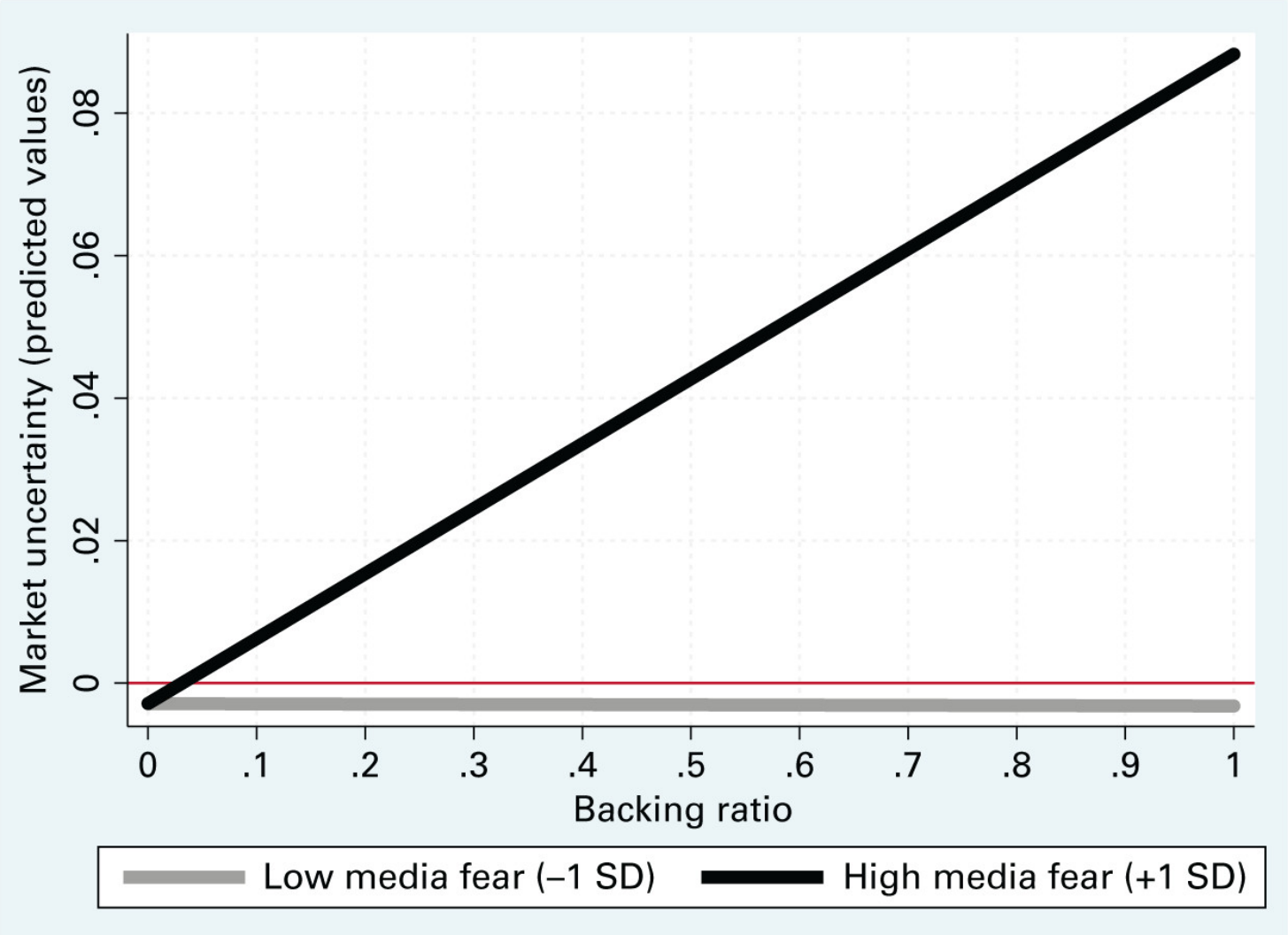

Figure 4. Interaction between the backing ratio and business media fear.

Supplemental Analysis on the Financial Crisis Period

The theory developed in this paper seeks to explain the market consequences of a leader explicitly reaffirming the backing in a context in which the underlying institutional assumptions are reasonably stable and taken for granted. This was generally true across the time period examined, as the U.S. monetary policy framework had not been fundamentally changed since 1977, but it was at least slightly less true during the financial crisis. This period created a substantial jolt that temporarily dislodged these assumptions from their taken-for-granted status. This supplemental analysis seeks to exploit this system jolt as a way to tentatively extend this story one step further by exploring what happens when the "high taken-for-grantedness" assumption of my theorizing is relaxed. When the taken-for-grantedness of institutional assumptions has already been weakened, which means that their objective and fact-like status has already been removed, explicitly reaffirming them should not destabilize the institution and generate uncertainty to the same extent.

To determine the appropriate financial crisis period, I leveraged the narrative timeline found in former Chair Bernanke's (2015) memoir that pointed to a period from 2008 to 2012. In January 2008, the FOMC met for an unscheduled emergency meeting to reduce the federal funds rate by an enormous 75 basis points. This unprecedented action marked a key moment when the market recognized something was truly wrong. I concluded the period at the end of 2012 because the FOMC at this time uncharacteristically made clear how the Fed would be implementing its framework into the future: it would leave the federal funds rate exceptionally low at least through mid-2015.

I re-ran model 2 with an additional interaction term between the backing ratio and a period dummy variable for the financial crisis period, and the interaction term reaches marginal significance ($\beta = -.051$, $\sigma^2 = .038$, $p = .088$, adjusted R-squared = .191). This model includes both the financial crisis period dummy variable and year fixed effects, but removing year fixed effects produces a significant interaction ($\beta = -.071$, $\sigma^2 = .036$, $p = .026$, adjusted R-squared = .122). If I split the sample and run model 2 only on speeches given during the financial crisis period, the main effect results for H1 drop below significance ($\beta = .035$, $\sigma^2 = .036$, $p = .335$, adjusted R-squared = .244). This provides preliminary evidence of an important extension of my earlier theorizing: when the prevailing taken-for-grantedness of the institution has already been weakened, explicitly reaffirming these assumptions will have less impact on market uncertainty.

I also considered how this weakened main effect might interact with the emotions present at the time of the speech. If this main effect is already diminished during the financial crisis period, then explicitly reaffirming the backing in the context of an especially optimistic configuration of emotions could potentially lead to an overall decrease (rather than increase) in market uncertainty. This might be true for speeches given during the financial crisis period that also contain high amounts of positive emotion and occur when there is a low level of fear in the business media. To explore this, I further split the sample of speeches given during the financial crisis to consider only those that contained high positive tone (i.e., above the mean) and low business media fear (i.e., below the mean). I ran model 2 again on this sample of 48 speeches and found that the main effect was entirely reversed ($\beta = –.155$, $\sigma^2 = .063$, $p = .022$, adjusted R-squared = .363), as graphed in figure 5. This suggests that when the taken-for-grantedness of the prevailing assumptions has been weakened and the emotional context is highly optimistic, explicitly reaffirming these assumptions decreases uncertainty.

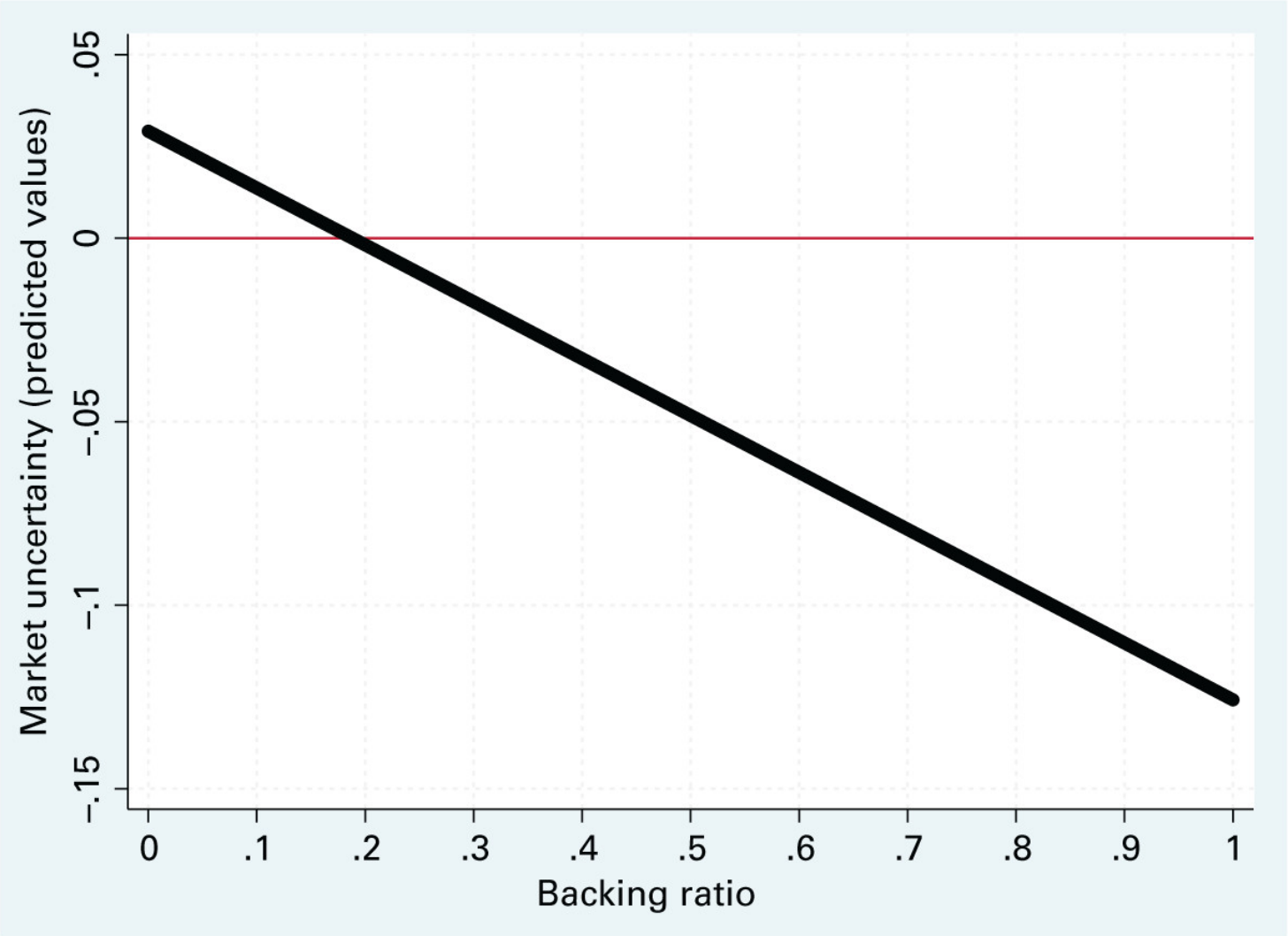

Figure 5. Main effect of the backing ratio on market uncertainty during the financial crisis, 2008–2012.*

* Includes only speeches with high positive tone given during times of low business media fear.

Endogeneity Considerations

The primary endogeneity concern is that there is an omitted market variable that simultaneously explains why the Fed discussed the backing and why market uncertainty increased on the day of the speech. I attempted to address this concern in the most direct way possible by controlling for existing market uncertainty in the 30 days prior to the speech. I also controlled for other factors related to prevailing market conditions and included year fixed effects. Most major market considerations should be reflected in at least one of these variables. Nevertheless, I sought to address endogeneity concerns in three additional ways to provide further assurance about the robustness of my results.

First, I conducted interviews with Fed officials to gain more insight into the factors influencing the timing of the speechwriting process and content of the speeches in my sample. Most notably, I interviewed Ben Bernanke (Fed chair from 2005 to 2014), Donald Kohn (Fed governor from 2002 to

2010), and Mark Olson (Fed governor from 2001 to 2006).[1] The Fed schedules speeches roughly six months in advance and selects speeches to fulfill commitments to local audiences and build relationships, not in response to market conditions. Speeches are written between one and six months in advance, depending on the type of speech. For speeches that discuss the current outlook of the economy (i.e., low backing ratio speeches), writing starts a month before so that the most current economic indicators are used. For speeches that reflect more on the nature of monetary policy (i.e., high backing ratio speeches), the writing process begins one to six months before. This means that the types of speeches that typically contain the most backing are written the earliest. Equally important is the fact that speeches rarely, if ever, are changed within one week of the speech date. When changes do occur, they are done primarily to update specific economic data (i.e., inflation rates, GDP, etc.). Thus the types of speeches most likely to be changed closer to the speech date are those least likely to contain high amounts of backing. This information is useful, because the more time between when my independent variable changes (i.e., when the speech is written) and when my dependent variable changes (i.e., on the day the speech is delivered), the less likely it is that an omitted market variable can explain them both.

So what makes Fed chairs talk about the backing? One key factor suggested to me by Bernanke during our interview is the local audience who invited the chair to speak. While the Fed knows that the broader market pays attention to every speech, the specific message is often written for the local audience, and there are substantial differences among audiences' levels of sophistication about monetary policy (e.g., the Bank of England, an academic institution, or an awards dinner). To examine this possibility, I correlated the backing ratio with the five local audience dummy variables included in my analyses. From the most sophisticated local audience with regard to monetary policy to the least, the results were central bankers (r = .25), banking industry (r = .11), government (r = .00), academics (r = .01), and laypersons (r = –.34). A linear version of this variable correlates with the backing ratio at .35, meaning that the more sophisticated the local audience, the more likely it is that the speech discusses the backing. This relationship is likely because higher levels of sophistication may be required to understand the complexities and implications of the assumptions underlying the Fed's monetary policy framework. This correlation is higher than the correlation between the backing ratio and any other market variable in table A1, suggesting that the local audience is a significant driver of whether or not the Fed discusses these assumptions. Equally important, this also provides strong support for the construct and measurement validity of the backing ratio, as it confirms the expectation of Bernanke, the author of many speeches in my sample. Nevertheless, controlling for the local audience does not change my results.

Second, I assessed the likelihood that the two different types of market factors—acute and systemic—could operate as correlated omitted variables in my research design. Acute market factors are instantaneous injections of information or emotion into the market, such as press releases and earnings reports, and are the largest known drivers of my dependent variable. Daily movements in the

VIX are extremely reactive to current events (Bennett, 2016), newly released information (Jamali, 2009), or emotional signals (Tetlock, 2007). But because speeches are written between one to six months in advance, and high backing ratio speeches are unlikely to be changed anytime near the speech date, these acute market factors arising on or near the speech date are extremely unlikely to influence the speechwriting process. Thus although acute market factors are the most likely drivers of the change in my dependent variable, they are unlikely to affect my independent variable, thereby diminishing the likelihood that an acute market factor could be a correlated omitted variable.

Systemic market factors, in contrast, are prevailing market conditions that can influence daily market activities indirectly. I controlled for a number of systemic market variables, but certain factors may not be reflected in these variables and may be driving my results. I conducted two tests to explore this possibility. The first test examined the expectation that if omitted systemic market factors were driving my results and thus driving the Fed to talk about the backing, the backing ratio of speeches given around the same time should be similar. Examining speeches given within three days of each another (N = 40 pairs) revealed an average difference in backing ratio of .21, or roughly one standard deviation, which is not what one would expect if systemic market factors were driving the Fed to talk about the backing. The second test examined the possibility that a systemic market factor driving the backing ratio of speeches simultaneously affected the daily fluctuations in the VIX. Controlling for the previous average daily changes in the VIX (i.e., using 1, 10, or 30 days prior to the speech) did not change my results. Taken together, these observations diminish the likelihood that a systemic market factor could be a correlated omitted variable.

Third, I conducted an empirical test to assess how strong a correlated omitted variable would have to be to overturn my results (Frank, 2000; Hubbard, Christensen, and Graffin, 2017). I first calculated the impact threshold for a confounding variable (ITCV), which is the effect size the omitted variable would need to have in model 2 to diminish my H1 results below significance. An omitted variable in my context would have to correlate positively with both the backing ratio and market uncertainty at .18, which when multiplied together makes my ITCV equal to .032. To put this in perspective, the size of the omitted variable needed to invalidate my results is substantially larger than every other control variable used in existing literature. Assuming that I have included a reasonable set of control variables, this suggests that my primary results are not likely driven by a correlated omitted variable. See the Online Appendix for figure A1, which plots the ITCV along with the effect sizes of all other covariates in my model, as well as additional robustness checks that report results consistent with the results reported here.

Discussion

This study set out to investigate what happens when a prominent leader explicitly reaffirms the taken-for-granted assumptions underlying an institution. Using speeches made by the chair of the U.S.

Federal Reserve from 1998 to 2014, I demonstrated that reaffirming the assumptions underlying the monetary policy framework creates uncertainty in the broader financial market. Despite the robustness of this simple finding, it feels at odds with the lingering intuition that reaffirming these assumptions should somehow strengthen their influence and reinforce the existing social order. This is likely what leaders try to accomplish when making such statements. Why then do I find the opposite?

The reason is that the institutional assumptions being reaffirmed in my context had achieved a level of taken-for-grantedness that fundamentally altered their status and influenced the market's reaction to them being made explicit. When institutional assumptions are not highly taken for granted, they do not appear objective or fact-like, and their contingent origins remain visible. Under such conditions, explicitly reaffirming these assumptions should reinforce and further institutionalize them. But once these assumptions become taken for granted, explicitly reaffirming them produces the opposite effect. Such efforts rip open the fact-like appearance of people's social world, exposing its underlying contingencies and creating uncertainty. Thus my findings are not contrary to this intuition but rather complementary to it in that together they portray a more holistic story about the relationship between language and institutionalization.

Consider the Fed over the last 40 years or so. In 1977, the Federal Reserve Reform Act created the monetary policy framework that we have today. During the years immediately following this institutional upheaval, market actors did not take this framework for granted. Though I cannot empirically validate it here, I expect that explicit efforts to reaffirm these assumptions during this earlier period would have reinforced this framework. By the 1990s, however, the assumptions that grounded this framework were largely taken for granted. Under these conditions, the Fed chair explicitly reaffirming these assumptions does not reinforce but rather disrupts the institution and creates uncertainty. I also illustrated that during the financial crisis, when the taken-for-grantedness of these assumptions had weakened, reaffirming them no longer created uncertainty to the same extent. My findings therefore depict a consistent theory that demonstrates the close connection between reaffirming one's assumptions and the taken-for-grantedness underlying our social institutions.

This study thus demonstrates a simple yet potentially more general principle: explicitly reaffirming assumptions that are true but taken for granted disrupts the natural course of things and creates uncertainty. We all hold assumptions that we take for granted and view as objectively true in a variety of circumstances. For this reason, having a teacher announce that "today, I will not beat any of my students with a cane if they don't know an answer" does not reinforce what we believe to obviously be true but instead disrupts the natural course of things and suggests they could be otherwise. Similarly, an airline pilot who reassures us when we board that "the safety checks that we just performed confirm that this plane is safe to fly" does not strengthen our confidence in the plane's safety but rather generates uncertainty by bringing to mind all the things that could go wrong but normally are not considered. The power of an institution's taken-for-grantedness resides in the fact that these

assumptions silently guide the way we think and act, enabling us to move on and consider other things. Explicitly reaffirming them at this point only disrupts the natural course of things, revealing the contingencies of our social world.

Beyond Market Signals

My primary finding also appears to be somewhat at odds with signaling theory (Akerlof, 1970; Spence, 1973), arguably the dominant theory for understanding how communication influences financial markets (Tetlock, 2007; Graffin, Carpenter, and Boivie, 2011). According to this approach, information asymmetries exist between parties, which creates uncertainty. Prominent leaders, like the Fed chair, can reduce this uncertainty either by sharing new information that market participants did not already know or by providing additional clarity to reduce noise so that market participants can interpret communications more easily (Connelly et al., 2011). In this context, reaffirming the assumptions that underlie the monetary policy framework likely does not provide new information but presumably would clarify the Fed's communications, increasing the "signal to noise ratio" (Walsh, 2001; Blinder, 2009; Plosser, 2012) and reducing uncertainty in the market. This line of reasoning is perhaps why the Fed has taken drastic steps over the last several decades to be more open and transparent in its communications (Yellen, 2013; Bernanke, 2015) and why my findings are potentially counterintuitive for central bankers.

I actually demonstrate strong support for the signaling perspective but in a different way, as table 1 indicates that longer speeches significantly reduce market uncertainty. Why do I find support for the signaling perspective in one sense but not another? Longer speeches generally contain information that market participants did not have beforehand, which should decrease information asymmetries between the Fed chair and market participants and reduce uncertainty. But not every word of a speech contains new information. Financial economists have generally assumed that such non-informational communication will produce no market effect (Tetlock, 2007), while others have suggested that reaffirming existing knowledge can clarify people's interpretations and still reduce uncertainty (Blinder, 2009). But the theory developed in this paper suggests that some efforts to add clarity can backfire if the ideas being reaffirmed have achieved a taken-for-granted status. My theory thus complements the signaling perspective by explaining how more complex and socially embedded forms of communication operate in financial markets.

My findings also complement the signaling perspective with respect to the role of emotions in market contexts. Emotions are commonly viewed as signals (Tetlock, 2007) that contain a positive or negative valence that directly influences the market's reaction. In contrast, this study portrays emotions as an interpretative context within which collective-level meaning making occurs. This portrayal is consistent with recent work by Pfarrer, Pollock, and Rindova (2010), who argued that celebrity firms have a positive emotional aura around them created by the media that influences how investors react when the firm announces earnings surprises. My findings extend their work in at least two important ways.

First, I theorize and demonstrate that emotional contexts can be either positive or negative in valence yet shape market participants' interpretation in similar ways: a context created by high (or low) levels of positivity shapes people's interpretations in a similar way as a context created by low (or high) levels of fear. Second, I show that emotional contexts can be created not only by the media but also by the speakers, who can deliberatively establish a safer context within which to make potentially disruptive comments. Thus this study proposes a single theoretical mechanism to explain how two different types and sources of emotion influence people's interpretations, providing insight into how collective-level emotions function in market contexts (Menges and Kilduff, 2015).

Transparency, Stability, and Hegemony

This study also raises important questions about the trade-offs between the growing trend toward public transparency and the stability of our markets, social institutions, and broader financial system. My findings demonstrate that one powerful way leaders try to create transparency in their communication—by openly discussing the assumptions that ground their decisions and actions—can disrupt the very institution they intend to safeguard. Some have called this "the transparency paradox," when a well-intentioned push for greater transparency produces unintended consequences, prompting us to revisit the potential benefits of privacy (Bernstein, 2012). The Fed has struggled with this trade-off for decades. Historically, it preferred secrecy for fear that the markets would overreact to information people did not understand. In recent decades, the Fed has become decidedly more transparent (Yellen, 2013; Bernanke, 2015), but the challenge of balancing the ever-increasing market demands for transparency against its goals for maintaining market stability is only growing. My findings highlight one specific way in which this trade-off manifests in everyday central banking communication.

This trade-off is not limited to central bankers. The same issues confront most of our civic leaders, from Supreme Court justices to presidents, who regularly need to balance transparency with secrecy when communicating with their stakeholders. These considerations extend to corporate executives too, who regularly communicate with investors (Lounsbury and Glynn, 2001; Martens, Jennings, and Jennings, 2007), securities analysts (Lee, 2015), other firms (Harmon, Kim, and Mayer, 2015), and employees (Rousseau and Tijoriwala, 1999) and presumably want to enhance clarity without inadvertently creating uncertainty. How and when should these leaders be transparent? My findings suggest at least a few preliminary guidelines. First, how they are transparent matters. Executives might consider sharing more information or stories that stay "within the rules of the game," thereby increasing transparency while still silently reinforcing people's taken-for-granted assumptions. Second, leaders should also pay attention to the emotional context within which they communicate. If they need to be more transparent about taken-for-granted assumptions, they can ensure that discussing them does not create uncertainty by either encasing these statements within more positive language or postponing the discussion until a prevailing pessimistic climate passes.

These considerations raise several questions about the relationship between public transparency and the stability of the broader financial system. Because markets are culturally contingent (Fligstein and Calder, 2015), one can imagine that the optimal balance between transparency and secrecy might depend on what audiences take for granted (Lamin and Zaheer, 2012). More work needs to be done to understand the effects of audience heterogeneity embedded within increasingly complex financial systems (Greenwood et al., 2011). In addition, scholars have recently shown that firms can strategically use the taken-for-grantedness of categories as cover to take actions that avoid scrutiny (Hsu and Grodal, 2015). Do leaders use similar strategies when interacting with the market? This question raises important concerns about the subtle means by which powerful individuals exert control over our society (Gramsci, 1971). If the existing institutional arrangement is not optimal but people take it for granted, are leaders deliberately not discussing these assumptions so as to reinforce the status quo? As Comaroff and Comaroff (1991: 24) observed, "Hegemony, at its most effective, is mute."

But research on the recent financial crisis (Lounsbury and Hirsch, 2010) has suggested that such hegemonic concerns might actually be more complicated, proposing that the prominent leaders who oversee our financial system might have become conditioned by their own assumptions (Rubtsova et al., 2010; Marti and Gond, 2017). Fligstein, Brundage, and Schultz (2017: 904), after examining the Fed's FOMC transcripts, concluded that it "failed to anticipate the risks involved in the 2007 to 2008 financial crisis principally because of their overreliance on the frame provided by academic macroeconomics."Abolafia (2012: 112) echoed this idea, suggesting that the Fed might get lost in the very game it had created: "The danger is that proficient masters of spin become so confident in their technical discourse that the restraints of uncertainty and legitimacy are no longer sufficient to encourage prudent questioning of the current operating models." But my findings cast doubt on the idea that the Fed was unaware of the framework within which it operated. If its members were blinded by their own assumptions, they would not discuss the backing at all. The fact that the Fed seems to regularly discuss the backing, even during the financial crisis, may stem from the fact that I examine the chair's speeches instead of the FOMC meeting transcripts. FOMC meetings are held primarily to discuss the operations of monetary policy, and they tend to contain mostly conversations that occur within the rules of the game. In contrast, speeches are occasions for the chair to reflect more broadly about his or her beliefs about monetary policy framework itself. Importantly, even though the Fed was more aware of its own framework than prior work has assumed, Fed leaders have since acknowledged that the challenge was actually knowing which changes to this framework would help avert a financial system collapse (*PBS News Hour*, 2008; Tarullo, 2017).

My findings point to an interesting suggestion: perhaps our institutional leaders should discuss these taken-for-granted assumptions more regularly. The sustained discussion of the underpinnings of our complex financial system may keep both leaders and market participants more aware of the assumptions we all are making. So long as the discussion of these assumptions does not itself become normalized and taken for granted, such efforts should sporadically create market uncertainty, which is

important in a healthy financial system to deter people from taking extreme risks. This line of reasoning suggests that both researchers and practitioners might benefit from a better understanding of how we might reduce certainty (rather than uncertainty) in our markets and institutions (Zajac, 2013). Such efforts could provide some insight into how our awareness of institutional assumptions affects our decision making (Beunza and Stark, 2012; Anthony, 2017), perhaps helping us develop alternative preventive measures to avoid future system-wide crises.

Microfoundations of Institutions

Institutional theorists have conceptualized the micro-level plumbing of institutions in a variety of ways (Powell and Rerup, 2017; Harmon, Haack, and Roulet, 2018), using frameworks based on social psychological evaluations or schemas (Bitektine, 2011; Tost, 2011; Glaser et al., 2016), emotions (Voronov and Vince, 2012; Creed et al., 2014), rituals (Dacin, Munir, and Tracey, 2010; Gray, Purdy, and Ansari, 2015), practices or performances (Zilber, 2002; Smets, Morris, and Greenwood, 2012; Glaser, 2017), and work (Lawrence and Suddaby, 2006; Lawrence, Suddaby, and Leca, 2009). Latent in most of these frameworks is the idea that language is somehow crucial to the way institutions are constructed, maintained, and changed over time, and a handful of scholars have prioritized studying how language influences these processes. Phillips, Lawrence, and Hardy (2004) suggested that discourses are one way to understand how meaning coalesces in institutions, and Loewenstein, Ocasio, and Jones (2012) suggested that vocabularies help us link micro-situational language usage with macro-collective meanings.

I build on these perspectives to propose that arguments are a critical component of this micro-level linguistic plumbing that maintains and changes our institutions. While discourses and vocabularies reflect the systems of words or statements actors typically use in different institutionalized contexts, arguments uniquely map onto the structural depth and taken-for-granted nature of our social institutions (Friedland and Alford, 1991; Jepperson, 1991; Thornton, Ocasio, and Lounsbury, 2012). This observation enabled me to identify the backing as a conceptual and empirically observable aspect of our language that has a direct relationship with people's taken-for-granted assumptions and, by extension, the stability of our institutions. Leaving the backing implicit strengthens this taken-for-grantedness, further stabilizing the foundations of the institution. Discussing the backing disrupts this taken-for-grantedness, triggering mental alarms (Tost, 2011) or existential crises (Voronov and Vince, 2012), thereby jeopardizing the stability of the institution (Harmon, Green, and Goodnight, 2015). Thus the discussion of the backing represents a fulcrum between what we might think of as centripetal and centrifugal forms of public discourse, undergirding the stability and change of our institutions.

These observations also shed light on our understanding of cognitive legitimacy. While substantive forms of legitimacy (e.g., pragmatic and moral) are more easily observable because they reflect the presence of people's evaluation (Deephouse et al., 2017), cognitive legitimacy concerns how much actors take certain ideas for granted and thus reflects the increasing absence of evaluation (Suchman,

1995). Directly studying cognitive legitimacy and, more generally, the cognitive foundations of our institutions has therefore been challenging when simply asking about such considerations draws unwanted attention to them. Green, Li, and Nohria (2009) have proposed that one option is to look for when justifications are no longer needed to convince others. When we no longer need to justify a claim, the justification has become implied in the overall line of reasoning, thereby representing a higher degree of cognitive legitimacy. The theory I have developed here complements this perspective by proposing the backing ratio as a potential direct measure of cognitive legitimacy in a collective discourse. In the absence of overt pressures that silence people, a low backing ratio indicates that people do not feel the need to discuss, or call on others to discuss, the assumptions that ground the institution, thus reflecting high levels of cognitive legitimacy. A high backing ratio reflects low levels of cognitive legitimacy because it indicates that people feel the need to discuss, or request others to discuss, these assumptions directly. Arguments therefore uniquely reflect the underlying cognitive meaning structure of our institutions.

This perspective also provides a deeper understanding of some of the micro-level strategies actors engage in to maintain our institutions. My findings suggest that certain maintenance efforts, like rituals (Dacin, Munir, and Tracey, 2010) or storytelling (Zilber, 2009), successfully reproduce institutions in part because they do not make explicit these taken-for-granted assumptions. Such efforts powerfully reproduce the institution because they indirectly reaffirm its taken-for-grantedness while leaving its fact-like and objective status intact. My findings thus highlight the potential unintentional consequences of maintenance work that is performed too explicitly, which resonates with an ethnomethodological lens for exploring the micro-level interactions of institutions (Garfinkel, 1967; Zucker, 1977; Heaphy, 2013).

Finally, while the primary thesis of this study concerns arguments and their influence on institutional processes, we should not overlook the secondary thesis concerning the role of emotions. A growing number of researchers are beginning to demonstrate the important microfoundational role of emotions in shaping institutions (Voronov and Vince, 2012; Creed et al., 2014; Toubiana and Zietsma, 2017), and I have argued that emotions are not just an individual-level construct but also a collective-level force that can influence the institutional contexts in which people produce, maintain, and disrupt institutions. But how do these emotions change and from where do they originate? Emotions may already reside within institutions and people, but this study suggests that language can also imbue a collectivity with emotion, keying them to new ways of thinking and interpreting (Goffman, 1967). Whether this keying originates from a prominent speaker or the media, language can introduce a change in the emotional climate that can alter how we make sense of important and uncertain market events.

By connecting arguments and emotions with the taken-for-grantedness of our collective understandings, this study thus generates new insights into the relationship between language and the

microfoundations of institutions. It also encourages us to be more cautious in assuming that we can take these collective understandings for granted.

Acknowledgments

I thank Martin Kilduff and three anonymous reviewers for their insightful feedback. I owe a huge debt of gratitude to Peer Fiss, Sandy Green, and Tom Goodnight for their encouragement during the development of this work and to Kyle Mayer, Scott Wiltermuth, Jerry Hoberg, Vern Glaser, Kari Olsen, Nan Jia, and Sarah Bonner for their continual support. I also thank Clare Chang, Sandhya Nadadur, Heather Rietzfeld, and Richard Peterson for their helpful research assistance.

Footnote

1 I conducted the interview with Ben Bernanke in person on Feb. 22, 2017 in Washington, DC, and with Donald Kohn and Mark Olson via telephone on Jan. 27, 2017. Contact the author for additional information regarding these interviews.

Go To Footnote

References

Abolafia M. Y. 2010 “Narrative construction as sensemaking: How a central bank thinks.” *Organization Studies*, 31: 349–367.

Go To Reference

Crossref

Web of Science

Google Scholar

Abolafia M. Y. 2012 “Central banking and the triumph of technical rationality.” In Knorr Cetina K., Preda A. (eds.), Oxford Handbook of the Sociology of Finance: 94–114. Oxford: Oxford University Press.

Go To Reference

Crossref

Google Scholar

Abolafia M. Y., Kilduff M. 1988 “Enacting market crisis: The social construction of a speculative bubble.” *Administrative Science Quarterly*, 33: 177–193.

+ Show References

Crossref

Web of Science

Google Scholar

Akerlof G. A. 1970 “The market for ‘lemons’: Quality uncertainty and the market mechanism.” *Quarterly Journal of Economics*, 84: 488–500.

Go To Reference

Crossref

Web of Science

Google Scholar

Andersson M., Krylova E., Vähämaa S. 2008 “Why does the correlation between stock and bond returns vary over time?” *Applied Financial Economics*, 18: 139–151.

Go To Reference

Crossref

Google Scholar

Ang A., Hodrick R. J., Xing Y., Zhang X. 2006 “The cross-section of volatility and expected returns.” *Journal of Finance*, 61: 259–299.

Go To Reference

Crossref

Web of Science

Google Scholar

Anthony C. 2017 “Analytical tools and the practices of validation in the production of strategic knowledge.” Working paper, Carroll School of Management, Boston College.

Go To Reference

Google Scholar

Bennett J. 2016 “Who’s afraid of Donald Trump! VIX drops 16%.” Barrons, Nov. 7. Retrieved March 20, 2017, from http://blogs.barrons.com/focusonfunds/2016/11/07/whose-afraid-of-donald-trump-vix-drops-16/.

Go To Reference

Google Scholar

Berger P. L., Luckmann T. 1967 The Social Construction of Reality: A Treatise on the Sociology of Knowledge. New York: Anchor.

+ Show References

Google Scholar

Bernanke B. S. 2009 “Frequently asked questions.” Dec. 7 speech at the Economic Club of Washington, DC.

Go To Reference

Google Scholar

Bernanke B. S. 2011 “The effects of the Great Recession on central bank doctrine and practice.” Oct. 18 speech at the Federal Reserve Bank of Boston 56th Economic Conference, Boston.

Go To Reference

Google Scholar

Bernanke B. S. 2014 “The Federal Reserve: Looking back, looking forward.” Jan. 3 speech at the Annual Meeting of the American Economic Association, Philadelphia.

Go To Reference

Google Scholar

Bernanke B. S. 2015 The Courage to Act: A Memoir of a Crisis and Its Aftermath. New York: W. W. Norton.

+ Show References

Google Scholar

Bernstein E. S. 2012 “The transparency paradox: A role for privacy in organizational learning and operational control.” *Administrative Science Quarterly*, 57: 181–216.

Go To Reference

Crossref

Web of Science

Google Scholar

Beunza D., Stark D. 2012 “From dissonance to resonance: Cognitive interdependence in quantitative finance.” *Economy and Society*, 41: 383–417.

Go To Reference

Crossref

Web of Science

Google Scholar

Bia’lkowski J., Gottschalk K., Wisniewski T. P. 2008 “Stock market volatility around national elections.” *Journal of Banking and Finance*, 32: 1941–1953.

Go To Reference

Crossref

Google Scholar

Bitektine A. 2011 “Toward a theory of social judgments of organizations: The case of legitimacy, reputation, and status.” *Academy of Management Review*, 36: 151–179.

Go To Reference

Crossref

Web of Science

Google Scholar

Bitektine A., Haack P. 2015 “The ‘macro’ and the ‘micro’ of legitimacy: Toward a multilevel theory of the legitimacy process.” *Academy of Management Review*, 40: 49–75.

+ Show References

Crossref

Web of Science

Google Scholar

Blinder A. S. 2001 “How do central banks talk?” *Centre for Economic Policy Research*.

Go To Reference

Google Scholar

Blinder A. S. 2009 “Talking about monetary policy: The virtues (and vice?) of central bank communication.” Working paper, Department of Economics, Princeton University.

+ Show References

Google Scholar

Board of Governors of the Federal Reserve System 2017 “The Fed—FAQs.” Retrieved December 16, 2017, from https://www.federalreserve.gov/faqs/money_12848.htm.

Chang E. C., Pinegar J. M., Ravichandran R. 1993 “International evidence on the robustness of the day-of-the-week effect.” *Journal of Financial and Quantitative Analysis*, 28: 497–513.

Chen E.-T. J., Clements A. 2007 “S&P 500 implied volatility and monetary policy announcements.” *Finance Research Letters*, 4: 227–232.

Chicago Board Options Exchange 2003 “VIX CBOE volatility index.” White paper, www.cboe.com.

Choudhry T. 2000 “Day of the week effect in emerging Asian stock markets: Evidence from the GARCH model.” *Applied Financial Economics*, 10: 235–242.

Google Scholar

Colyvas J. A., Powell W. W. 2006 “Roads to institutionalization: The remaking of boundaries between public and private science.” In Staw B. M. (ed.), Research in Organizational Behavior, 27: 305–353. New York: Elsevier.

Go To Reference

Google Scholar

Comaroff J., Comaroff J. L. 1991 Of Revelation and Revolution: Christianity, Colonialism, and Consciousness in South Africa. Chicago: University of Chicago Press.

Go To Reference

Crossref

Google Scholar

Connelly B. L., Certo S. T., Ireland R. D., Reutzel C. R. 2011 “Signaling theory: A review and assessment.” *Journal of Management*, 37: 39–67.

Go To Reference

Crossref

Web of Science

Google Scholar

Connolly R., Stivers C., Sun L. 2005 “Stock market uncertainty and the stock–bond return relation.” *Journal of Financial and Quantitative Analysis*, 40: 161–194.

+ Show References

Crossref

Web of Science

Google Scholar

Cornelissen J. P., Durand R., Fiss P. C., Lammers J. C., Vaara E. 2015 “Putting communication front and center in institutional theory and analysis.” *Academy of Management Review*, 40: 10–27.

Go To Reference

Crossref

Web of Science

Google Scholar

Creed W. D., Hudson B. A., Okhuysen G. A., Smith-Crowe K. 2014 “Swimming in a sea of shame: Incorporating emotion into explanations of institutional reproduction and change.” *Academy of Management Review*, 39: 275–301.

+ Show References

Crossref

Web of Science

Google Scholar

Cruikshank J. L., Sicilia D. B. 1999 The Greenspan Effect: Words That Move the World’s Markets. New York: McGraw-Hill.

Go To Reference

Google Scholar

Dacin M. T., Munir K., Tracey P. 2010 “Formal dining at Cambridge colleges: Linking ritual performance and institutional maintenance.” *Academy of Management Journal*, 53: 1393–1418.

+ Show References

Crossref

Web of Science

Google Scholar

Davis A. K., Piger J. M., Sedor L. M. 2012 “Beyond the numbers: Measuring the information content of earnings press release language.” *Contemporary Accounting Research*, 29: 845–868.

Go To Reference

Crossref

Web of Science

Google Scholar

Davis M. A., Bobko P. 1986 “Contextual effects on escalation processes in public sector decision making.” *Organizational Behavior and Human Decision Processes*, 37: 121–138.

Go To Reference

Crossref

Google Scholar

Deephouse D. L., Bundy J., Tost L. P., Suchman M. C. 2017 “Organizational legitimacy: Six key questions.” In Greenwood R., Oliver C., Sahlin K., Suddaby R. (eds.), The SAGE Handbook of Organizational Institutionalism: 27–54. London: Sage.

Go To Reference

Google Scholar

DiMaggio P. J., Powell W. W. 1991 “Introduction.” In Powell W. W., DiMaggio P. J. (eds.), The New Institutionalism in Organizational Analysis: 1–40. Chicago: University of Chicago Press.

+ Show References

Google Scholar

Douglas M. 1986 How Institutions Think. Syracuse, NY: Syracuse University Press.

+ Show References

Google Scholar

Drucker P. F. 1994 “The theory of the business.” *Harvard Business Review*, 72: 95–104.

Go To Reference

Web of Science

Google Scholar

Dubois M., Louvet P. 1996 “The day-of-the-week effect: The international evidence.” *Journal of Banking and Finance*, 20: 1463–1484.

Go To Reference

Crossref

Web of Science

Google Scholar

Ederington L. H., Lee J. H. 1993 “How markets process information: News releases and volatility.” *Journal of Finance*, 48: 1161–1191.

Go To Reference

Crossref

Web of Science

Google Scholar

Emrich C. G., Brower H. H., Feldman J. M., Garland H. 2001 “Images in words: Presidential rhetoric, charisma, and greatness.” *Administrative Science Quarterly*, 46: 527–557.

Go To Reference

Crossref

Web of Science

Google Scholar

Fiss P. C., Hirsch P. M. 2005 “The discourse of globalization: Framing and sensemaking of an emerging concept.” *American Sociological Review*, 70: 29–52.

Go To Reference

Crossref

Web of Science

Google Scholar

Fligstein N., Brundage J. S., Schultz M. 2017 “Seeing like the Fed: Culture, cognition, and framing in the failure to anticipate the financial crisis of 2008.” *American Sociological Review*, 82: 879–909.

Go To Reference

Crossref

Web of Science

Google Scholar

Fligstein N., Calder R. 2015 “Architecture of markets.” In Scott R. A., Kosslyn S. (eds.). Emerging Trends in the Social and Behavioral Sciences: 1–14. Oxford: Wiley.

Go To Reference

Crossref

Google Scholar

Frank K. 2000 “The impact of a confounding variable on a regression coefficient.” *Sociological Methods and Research*, 29: 147–194.

Go To Reference

Crossref

Web of Science

Google Scholar

Friedland R., Alford R. R. 1991 “Bringing society back in: Symbols, practices and institutional contradictions.” In Powell W. W., DiMaggio P. J. (eds.), The New Institutionalism in Organizational Analysis: 232–263. Chicago: University of Chicago Press.

Go To Reference

Google Scholar

Garfinkel H. 1967 Studies in Ethnomethodology. Englewood Cliffs, NJ: Prentice-Hall.

+ Show References

Google Scholar

Glaser V. 2017 “Design performances: How organizations inscribe artifacts to change routines.” *Academy of Management Journal*, 60: 2126–2154.

Go To Reference

Crossref

Google Scholar

Glaser V., Fast N., Harmon D., Green S. Jr. 2016 “Institutional frame switching: How institutional logics shape individual action.” In Gehman J., Lounsbury M., Greenwood R. (eds.), How Institutions Matter!: 35–69. Bingley, UK: Emerald Group.

Go To Reference

Google Scholar

Goffman E. 1967 Interaction Ritual: Essays in Face-to-face Behavior. New York: Anchor.

Go To Reference

Google Scholar

Goodnight G. 1993 “Legitimation inferences: An additional component for the Toulmin Model.” *Informal Logic*, 15: 41–52.

Go To Reference

Crossref

Google Scholar

Graffin S. D., Carpenter M. A., Boivie S. 2011 “What’s all that (strategic) noise? Anticipatory impression management in CEO succession.” *Strategic Management Journal*, 32: 748–770.

Go To Reference

Crossref

Web of Science

Google Scholar

Gramsci A. 1971 Selections from the Prison Notebooks. London: Lawrence.

Go To Reference

Google Scholar

Gray B., Purdy J. M., Ansari S. 2015 “From interactions to institutions: Microprocesses of framing and mechanisms for the structuring of institutional fields.” *Academy of Management Review*, 40: 115–143.

Go To Reference

Crossref

Web of Science

Google Scholar

Green S. 2004 “A rhetorical theory of diffusion.” *Academy of Management Review*, 29: 653–669.

Go To Reference

Crossref

Web of Science

Google Scholar

Green S., Li Y., Nohria N. 2009 “Suspended in self-spun webs of significance: A rhetorical model of institutionalization and institutionally embedded agency.” *Academy of Management Journal*, 52: 11–36.

Go To Reference

Crossref

Web of Science

Google Scholar

Greenspan A. 2001 “Transparency in monetary policy.” Oct. 11 speech at the Federal Reserve Bank of St. Louis, Economic Policy Conference.

Go To Reference

Google Scholar

Greenspan A. 2005 “Mortgage banking.” Sept. 26 speech at the American Bankers Association Annual Convention, Palm Desert, CA.

Go To Reference

Google Scholar

Greenwood R., Oliver C., Suddaby R., Sahlin-Andersson K. 2008 “Introduction.” In Greenwood R., Oliver C., Lawrence T., Meyer R. (eds.), The SAGE Handbook of Organizational Institutionalism: 1–24. London: Sage.

Go To Reference

Crossref

Google Scholar

Greenwood R., Raynard M., Kodeih F., Micelotta E. R., Lounsbury M. 2011 “Institutional complexity and organizational responses.” *Academy of Management Annals*, 5: 317–371.

Go To Reference

Crossref

Web of Science

Google Scholar

Harmon D., Green S., Goodnight G. 2015 “A model of rhetorical legitimation: The structure of communication and cognition underlying institutional maintenance and change.” *Academy of Management Review*, 40: 76–95.

+ Show References

Crossref

Web of Science

Google Scholar

Harmon D., Haack P., Roulet T. 2018 “Microfoundations of institutions: A matter of structure vs. agency or level of analysis?” *Academy of Management Review, forthcoming*

Go To Reference

Crossref

Google Scholar

Harmon D., Kim P., Mayer K. 2015 “Breaking the letter vs. spirit of the law: How the interpretation of contract violations affects trust and the management of relationships.” *Strategic Management Journal*, 36: 497–517.

Go To Reference

Crossref

Google Scholar

Heaphy E. D. 2013 “Repairing breaches with rules: Maintaining institutions in the face of everyday disruptions.” *Organization Science*, 24: 1291–1315.

+ Show References

Crossref

Web of Science

Google Scholar

Hiller J. H., Fisher G. A., Kaess W. 1969 “A computer investigation of verbal characteristics of effective classroom lecturing.” *American Educational Research Journal*, 6: 661–675.

Go To Reference

Crossref

Web of Science

Google Scholar

Hilsenrath J. 2016 “The decline of dissent at the Fed.” *Wall Street Journal, Mar*. 24.

Go To Reference

Google Scholar

Holmes D. R. 2013 Economy of Words: Communicative Imperatives in Central Banks. Chicago: University of Chicago Press.

+ Show References

Crossref

Google Scholar

Hsu G., Grodal S. 2015 “Category taken-for-grantedness as a strategic opportunity: The case of light cigarettes, 1964 to 1993.” *American Sociological Review*, 80: 28–62.

Go To Reference

Crossref

Web of Science

Google Scholar

Huang X., Teoh S. H., Zhang Y. 2013 “Tone management.” *Accounting Review*, 89: 1083–1113.

Go To Reference

Crossref

Google Scholar

Hubbard T. D., Christensen D. M., Graffin S. D. 2017 “Higher highs and lower lows: The role of corporate social responsibility in CEO dismissal.” *Strategic Management Journal*, 38: 2255–2265.

Go To Reference

Crossref

Google Scholar

Jamali I. 2009 Stock Market Volatility and Monetary Policy. Published dissertation, Concordia University.

Go To Reference

Google Scholar

Jepperson R. L. 1991 “Institutions, institutional effects, and institutionalism.” In Powell W. W., DiMaggio P. J. (eds.), The New Institutionalism in Organizational Analysis: 143–163. Chicago: University of Chicago Press.

+ Show References

Google Scholar

Kincaid J. P., Fishburne R. P. Jr., Rogers R. L., Chissom B. S. 1975 “Derivation of new readability formulas (Automated Readability Index, Fog Count and Flesch Reading Ease Formula) for Navy enlisted personnel.” No. RBR-8-75, Naval Technical Training Command, Millington, TN Research Branch.

Go To Reference

Google Scholar

Kraatz M. S. 2009 “Leadership as institutional work: A bridge to the other side.” In Lawrence T., Suddaby R., Leca B. (eds.), *Institutional Work: Actors and Agency in Institutional Studies of Organizations: 59–91*. Cambridge: Cambridge University Press.

Go To Reference

Crossref

Google Scholar

Krippendorff K. H. 2003 Content Analysis: An Introduction to Its Methodology, 2d ed. Thousand Oaks, CA: Sage.

Go To Reference

Google Scholar

Krugman P. 2001 “Fear itself.” *New York Times, Sept*. 30.

Go To Reference

Google Scholar

Kunda G. 1992 Engineering Culture: Control and Commitment in a High-tech Organization. Philadelphia: Temple University Press.

Go To Reference

Google Scholar

Lamin A., Zaheer S. 2012 “Wall Street vs. Main Street: Firm strategies for defending legitimacy and their impact on different stakeholders.” *Organization Science*, 23: 47–66.

Go To Reference

Crossref

Google Scholar

Lawrence T. B., Suddaby R. 2006 “Institutions and institutional work.” In Clegg S., Hardy C., Lawrence T., Nord W. (eds.), The Sage Handbook of Organization Studies: 213–254. London: Sage.

+ Show References

Crossref

Google Scholar

Lawrence T. B., Suddaby R., Leca B. 2009 Institutional Work: Actors and Agency in Institutional Studies of Organizations. Cambridge: Cambridge University Press.

Go To Reference

Crossref

Google Scholar

Lee J. 2015 “Can investors detect managers’ lack of spontaneity? Adherence to predetermined scripts during earnings conference calls.” *Accounting Review*, 91: 229–250.

Go To Reference

Crossref

Google Scholar

Lerner J. S., Keltner D. 2001 “Fear, anger, and risk.” *Journal of Personality and Social Psychology*, 81: 146–159.

Go To Reference

Crossref

PubMed

Web of Science

Google Scholar

Lerner J. S., Small D. A., Loewenstein G. 2004 “Heart strings and purse strings: Carryover effects of emotions on economic decisions.” *Psychological Science*, 15: 337–341.

Go To Reference

Crossref

PubMed

Web of Science

Google Scholar

Levin I. P. 1987 “Associative effects of information framing on human judgments.” Paper presented at the Annual Meeting of the Midwestern Psychological Association, May, Chicago.

Go To Reference

Google Scholar

Loewenstein J., Ocasio W., Jones C. 2012 “Vocabularies and vocabulary structure: A new approach linking categories, practices, and institutions.” *Academy of Management Annals*, 6: 41–86.

+ Show References

Crossref

Web of Science

Google Scholar

Loughran T., McDonaold B. 2011 “When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks.” *Journal of Finance*, 66: 35–65.

Go To Reference

Crossref

Web of Science

Google Scholar

Lounsbury M., Glynn M. A. 2001 “Cultural entrepreneurship: Stories, legitimacy, and the acquisition of resources.” *Strategic Management Journal*, 22: 545–564.

Go To Reference

Crossref

Web of Science

Google Scholar

Lounsbury M., Hirsch P. M., (eds.) 2010 Markets on Trial: The Economic Sociology of the U.S. *Financial Crisis*. Bingley, UK: Emerald Group.

Go To Reference

Google Scholar

Martens M. L., Jennings J. E., Jennings P. D. 2007 “Do the stories they tell get them the money they need? The role of entrepreneurial narratives in resource acquisition.” *Academy of Management Journal*, 50: 1107–1132.

Go To Reference

Crossref

Web of Science

Google Scholar

Marti E., Gond J.-P. 2017 “When do theories become self-fulfilling? Exploring the boundary conditions of performativity.” *Academy of Management Review*. Published online ahead of print.

Go To Reference

Crossref

Google Scholar

Menges J. I., Kilduff M. 2015 “Group emotions: Cutting the Gordian knots concerning terms, levels of analysis, and processes.” *Academy of Management Annals*, 9: 845–928.

+ Show References

Crossref

Web of Science

Google Scholar

Mergenthaler E. 1996 “Emotion–abstraction patterns in verbatim protocols: A new way of describing psychotherapeutic processes.” *Journal of Consulting and Clinical Psychology*, 64: 1306–1315.

Go To Reference

Crossref

PubMed

Web of Science

Google Scholar

Meyer J. W., Rowan B. 1977 “Institutionalized organizations: Formal structure as myth and ceremony.” *American Journal of Sociology*, 83: 340–363.

Go To Reference

Crossref

Web of Science

Google Scholar

Munir K. A., Phillips N. 2005 “The birth of the ‘Kodak moment’: Institutional entrepreneurship and the adoption of new technologies.” *Organization Studies*, 26: 1665–1687.

Go To Reference

Crossref

Web of Science

Google Scholar

Neuendorf K. A. 2001 The Content Analysis Guidebook. Thousand Oaks, CA: Sage.

Go To Reference

Google Scholar

Nikkinen J., Sahlström P. 2004 “Impact of the Federal Open Market Committee’s meetings and scheduled macroeconomic news on stock market uncertainty.” *International Review of Financial Analysis*, 13: 1–12.

+ Show References

Crossref

Google Scholar

Ocasio W., Joseph J. 2005 “Cultural adaptation and institutional change: The evolution of vocabularies of corporate governance, 1972–2003.” *Poetics*, 33: 163–178.

Go To Reference

Crossref

Web of Science

Google Scholar

PBS News Hour 2008 “Greenspan admits ‘flaw’ to Congress, predicts more economic problems.” Oct. 23.

Go To Reference

Google Scholar

Pennebaker J. W., Booth R. J., Francis M. E. 2007 Linguistic Inquiry and Word Count. www.liwc.net.

Go To Reference

Google Scholar

Pennebaker J. W., Chung C. K., Ireland M., Gonzales A., Booth R. J. 2007 The Development and Psychometric Properties of LIWC2007. Austin, TX: University of Texas at Austin.

Go To Reference

Google Scholar

Pfarrer M. D., Pollock T. G., Rindova V. P. 2010 “A tale of two assets: The effects of firm reputation and celebrity on earnings surprises and investors’ reactions.” *Academy of Management Journal*, 53: 1131–

1152.

+ Show References

Crossref

Web of Science

Google Scholar

Phillips N., Lawrence T. B., Hardy C. 2004 “Discourse and institutions.” *Academy of Management Review*, 29: 635–652.

Go To Reference

Crossref

Web of Science

Google Scholar

Phillips N., Malhotra N. 2017 “Language, cognition and institutions: Studying institutionalization using linguistic methods.” In Greenwood R., Oliver C., Sahlin K., Suddaby R. (eds.), The SAGE Handbook of Organizational Institutionalism: 392–417. London: Sage.

Go To Reference

Google Scholar

Phillips N., Oswick C. 2012 “Organizational discourse: Domains, debates, and directions.” *Academy of Management Annals*, 6: 435–481.

Go To Reference

Crossref

Web of Science

Google Scholar

Plosser C. I. 2012 “Transparent communications: The journey continues.” April 12 speech at the National Economists Club, Washington, DC.

+ Show References

Google Scholar

Plosser C. I. 2015 “The veneer of consensus at the Fed.” *Wall Street Journal, Dec*. 9.

Go To Reference

Google Scholar

Pollock T. G., Rindova V. P. 2003 “Media legitimation effects in the market for initial public offerings.” *Academy of Management Journal*, 46: 631–642.

Go To Reference

Crossref

Web of Science

Google Scholar

Powell W. W., Rerup C. 2017 “Opening the black box: The microfoundations of institutions.” In Greenwood R., Oliver C., Sahlin K., Suddaby R. (eds.), The SAGE Handbook of Organizational Institutionalism: 311–337. London: Sage.

+ Show References

Google Scholar

Rhee E., Fiss P. 2014 “Framing controversial actions: Regulatory focus, source credibility, and stock market reaction to poison pill adoption.” *Academy of Management Journal*, 57: 1734–1758.

Go To Reference

Crossref

Web of Science

Google Scholar

Rhoads R. 2011 Trading VIX Derivatives: Trading and Hedging Strategies using VIX Futures, Options, and Exchange Traded Notes. Hoboken, NJ: Wiley.

Go To Reference

Google Scholar

Rousseau D. M., Tijoriwala S. A. 1999 “What’s a good reason to change? Motivated reasoning and social accounts in promoting organizational change.” *Journal of Applied Psychology*, 84: 514–528.

Go To Reference

Crossref

Web of Science

Google Scholar

Rubtsova A., DeJordy R., Glynn M. A., Zald M. 2010 “The social construction of causality: The effects of institutional myths on financial regulation.” In Lounsbury M., Hirsh P. (eds.), *Markets on Trial: The Economic Sociology of the U.S. Financial Crisis: 201–244*. Bingley, UK: Emerald Group.

Go To Reference

Crossref

Google Scholar

Schneider S. L., Holstrum G. L., Marden R. E. 1993 “Framing effects and audit decision making: Control environment evaluation.” Poster presented at the Annual Meeting of the Society for Judgment and Decision Making, Washington, DC.

Go To Reference

Crossref

Google Scholar

Schutz A. 1967 The Phenomenology of the Social World. Evanston, IL: Northwestern University Press.

+ Show References

Google Scholar

Seo M. G., Creed W. D. 2002 “Institutional contradictions, praxis, and institutional change: A dialectical perspective.” *Academy of Management Review*, 27: 222–247.

Go To Reference

Crossref

Web of Science

Google Scholar

Shiller R. J. 1988 “Causes of changing financial market volatility.” Proceedings, Federal Reserve Bank of Kansas City, 1–32.

Go To Reference

Google Scholar

Shiller R. J. 2000 Irrational Exuberance, 2d ed. Princeton, NJ: Princeton University Press.

Go To Reference

Google Scholar

Smets M., Morris T. I. M., Greenwood R. 2012 “From practice to field: A multilevel model of practice-driven institutional change.” *Academy of Management Journal*, 55: 877–904.

Go To Reference

Crossref

Web of Science

Google Scholar

Spence M. 1973 “Job market signaling.” *Quarterly Journal of Economics*, 87: 355–374.

+ Show References

Crossref

Web of Science

Google Scholar

Suchman M. C. 1995 “Managing legitimacy: Strategic and institutional approaches.” *Academy of Management Review*, 20: 571–610.

+ Show References

Crossref

Web of Science

Google Scholar

Suddaby R., Greenwood R. 2005 “Rhetorical strategies of legitimacy.” *Administrative Science Quarterly*, 50: 35–67.

+ Show References

Crossref

Web of Science

Google Scholar

Tarullo D. K. 2017 “Monetary policy without a working theory of inflation.” Oct. *4 speech at the Brookings Institute*. Retrieved from https://www.brookings.edu/research/monetary-policy-without-a-working-theory-of-inflation/.

Go To Reference

Google Scholar

Tetlock P. C. 2007 “Giving content to investor sentiment: The role of media in the stock market.” *Journal of Finance*, 62: 1139–1168.

+ Show References

Crossref

Web of Science

Google Scholar

Thornton P. H., Ocasio W., Lounsbury M. 2012 The Institutional Logics Perspective: A New Approach to Culture, Structure, and Process. Oxford: Oxford University Press.

+ Show References

Crossref

Google Scholar

Tost L. P. 2011 “An integrative model of legitimacy judgments.” *Academy of Management Review*, 36: 686–710.

+ Show References

Crossref

Web of Science

Google Scholar

Toubiana M., Zietsma C. 2017 “The message is on the wall? Emotions, social media and the dynamics of institutional complexity.” *Academy of Management Journal*, 60: 922–953.

Go To Reference

Crossref

Google Scholar

Toulmin S. 1958 The Uses of Argument. Cambridge: Cambridge University Press.

+ Show References

Google Scholar

Toulmin S., Rieke R. D., Janik A. 1984 An Introduction to Reasoning. New York: Macmillan.

Go To Reference

Google Scholar

Vaara E. 2014 “Struggles over legitimacy in the Eurozone crisis: Discursive legitimation strategies and their ideological underpinnings.” *Discourse and Society*, 25: 500–518.

Go To Reference

Crossref

Web of Science

Google Scholar

Van Buskirk A. 2012 “Disclosure frequency and information asymmetry.” *Review of Quantitative Finance and Accounting*, 38: 411–440.

Go To Reference

Crossref

Google Scholar

Voronov M., Vince R. 2012 “Integrating emotions into the analysis of institutional work.” *Academy of Management Review*, 37: 58–81.

+ Show References

Crossref

Web of Science

Google Scholar

Walsh C. 2001 “Transparency in monetary policy (economic letters).” *Federal Reserve Bank of San Francisco*. Retrieved from https://www.frbsf.org/economic-research/publications/economic-letter/2001/september/transparency-in-monetary-policy/.

Go To Reference

Google Scholar

Winter D. G. 1987 “Leader appeal, leader performance, and the motive profiles of leaders and followers: A study of American presidents and elections.” *Journal of Personality and Social Psychology*, 52: 196–202.

Go To Reference

Crossref

Web of Science

Google Scholar

Yellen J. L. 2013 “Communication in monetary policy.” April 4 speech at the Society of American Business Editors and Writers 50th Anniversary Conference, Washington, DC.

+ Show References

Google Scholar

Yellen J. L. 2014 “Ceremonial swearing-in.” March 5 at the Federal Reserve Board, Washington, DC.

Go To Reference

Google Scholar

Zajac E. 2013 “Reducing certainty: Increasing open-mindedness in research, teaching, law, and life.” Aug. 12 presentation at the Academy of Management Annual Meeting, Orlando, FL. Retrieved from http

s://www.slideshare.net/OrganizationTheory/ed-zajac-2013-omt-division-distinguished-scholar-talk.

Go To Reference

Google Scholar

Zilber T. B. 2002 “Institutionalization as an interplay between actions, meanings, and actors: The case of a rape crisis center in Israel.” *Academy of Management Journal*, 45: 234–254.

Go To Reference

Crossref

Web of Science

Google Scholar

Zilber T. B. 2009 “Institutional maintenance as narrative acts.” In Lawrence T., Suddaby R., Leca B. (eds.), *Institutional Work: Actors and Agency in Institutional Studies of Organizations: 205–235*. Cambridge: Cambridge University Press.

+ Show References

Crossref

Google Scholar

Zucker L. G. 1977 “The role of institutionalization in cultural persistence.” *American Sociological Review*, 42: 726–743.

+ Show References

Crossref

Web of Science

Google Scholar

Zucker L. G. 1983 “Organizations as institutions.” In Bacharach S. B. (ed.), Research in the Sociology of Organizations, 2: 1–47. Greenwich, CT: JAI Press.

+ Show References

Google Scholar

Biographies

Derek J. Harmon is an assistant professor of strategy at the Ross School of Business, University of Michigan, 701 Tappan Avenue, Ann Arbor, MI 48109-1316 (e-mail: djharmon@umich.edu). His research leverages language as a theoretical and empirical lens to explore social evaluations, collective meaning making in markets, and the microfoundations of institutions. He received his Ph.D. in management from the Marshall School of Business, University of Southern California.

Supplementary Material

Please find the following supplemental material available below.

For Open Access articles published under a Creative Commons License, all supplemental material carries the same license as the article it is associated with.

For non-Open Access articles published, all supplemental material carries a non-exclusive license, and permission requests for re-use of supplemental material or any part of supplemental material shall be sent directly to the copyright owner as specified in the copyright notice associated with the article.

ds_10.1177_0001839218777475.pdf | 84.46 KB

Articles In the Same Collection(s):

Collection: ASQ Dissertation Award

Open Access

Cultural Breadth and Embeddedness: The Individual Adoption of Organiza...

Show Details

Open Access

Escaping the Survival Trap: Network Transition among Early-Career Free...

Show Details

Restricted access

Escaping the Ellipsis of Diversity: Insider Activists' Use of Implemen...

Show Details

Similar articles:

Restricted access

Appointing the Fed Chair: The Political Influence of Presidential Appointment on the Federal Reserve Board in the United States

Show Details

Restricted access

The Nexus Of Foreign Reserves, Exchange Rate And Inflation: Recent Empirical Evidence From Sri Lanka

Show Details

Restricted access

The Fed Chairman as a Political Executive

Show Details

View More

Sage recommends:

SAGE Knowledge
Entry

Monetary Policy

Show Details

SAGE Knowledge
Book chapter

The Role of the Federal Reserve System in Today's Economy (1970sâ€Present)

Show Details

SAGE Knowledge
Book chapter

Federal Reserve Cuts Interest Rate

Show Details

View More

View More

Also from Sage

CQ Library

Elevating debate

Sage Data

Uncovering insight

Sage Business Cases

Shaping futures

Sage Campus

Unleashing potential

Sage Knowledge

Multimedia learning resources

Sage Research Methods

Supercharging research

Sage Video

Streaming knowledge

Technology from Sage

Library digital services