# THE FEDERAL RESERVE AS A SOCIAL ACTOR: ON THE INTERSECTION OF COMMUNICATION AND INVESTOR EXPECTATIONS

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*To my parents, Keith and Diana.*

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# ABSTRACT

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As the U.S. central bank, the Federal Reserve sets U.S. monetary policy (i.e., control of the money supply and management of the inflation rate, economic growth, and price stability) through the Federal Open Market Committee (FOMC) and serves as a lender of last resort. A major actor in the U.S. economic system, it is dispersed geographically across the United States and contains many branches. The chairman of the Federal Reserve communicates on behalf of the entire system before Congress, makes a statement after FOMC meetings, and gives speeches and lectures on economic status and related economic topics.

Yet there is little research on what the Federal Reserve actually says. Popular and scholarly literature (e.g., Blinder, Ehrmann, Fratzscher, DeHaan, & Jansen, 2008) assumes or explicitly states that a major goal of the Federal Reserve is to manage economic uncertainty nationally and globally. Uncertainty management has been studied and developed within interpersonal, health, and organizational contexts. Although uncertainty management is associated with information seeking and predictive of interpersonal interactions, it has not been applied to organizations and institutions as speakers or actors (i.e., the Fed as speaker; for notable exceptions to this general claim of application, see Michael Kramer's body of work, such as Kramer, 1999, 2004). Following the rhetorical tradition of framing organizations as social actors (Cheney, 1992; Coleman, 1974; Hearit, 2006; Heath, 1997; Millon, 2001), in this study, what the Federal Reserve says, and how it says it, has implications for the performance of the economy, much as organizational actors' talk has implications. As a first step toward understanding how the Federal Reserve manages uncertainty, this study examines what the Federal Reserve says.

Conceptualizing the external communication of the Federal Reserve as economic policy communication (EPC), the sentiment (positive, negative, or neutral) of EPC is measured using content analysis of Congressional testimony from the Federal Reserve chairman (specifically

Chairmen Volcker, Greenspan, and Bernanke) to explore what the Federal Reserve says when speaking publicly about the performance of the United States economy during times of economic instability and uncertainty. To do so, a content coding scheme was developed with high inter-coder reliability. This study examined 114 transcripts of Federal Reserve chairman testimony before Congress to examine a series of five research questions grouped around the following relationships: mentions of the economic future, economy, unemployment, the deficit, and inflation and the association with a) sentiment; b) economic indicators at the time of the Congressional testimony (GDP, the unemployment rate, and the Consumer Sentiment Index); and c) the chair's level of actual certainty as measured by DICTION, software used to conduct computerized coding. Five logistic hierarchal linear models were tested to measure the association between these micro, sentence-level topics and these macro-level variables (sentiment, economic indicators, and the chairman's actual certainty).

Findings indicate that the chairman of the Federal Reserve does, at times, respond to the performance of the economy during times of high-pressure economic situations. For example, this dissertation identifies associations between the Consumer Sentiment Index (an indicator of household confidence in the future of the economy) and the content of what the Federal Reserve says during testimony before Congress. And while the association between sentence-level content changes and the sentiment and certainty levels are low, this dissertation argues the Federal Reserve chair does, in fact, engage in uncertainty management when speaking about the performance of the economy. While the Federal Reserve does not always seem to respond as strongly to the performance of the U.S. economy as the President might, other extraneous factors (trying to avoid a negative market response or increased economic volatility) may shape the Federal Reserve's discursive response.

Overall, this dissertation integrates prior scholarship in interpersonal, organizational, and presidential communication to indicate how the Federal Reserve as a social actor speaks about the economy. For example, when the chairman is more positive, he/she is more likely to speak about unemployment, inflation, or the economic future. When he/she is less certain, he/she is more likely to speak about the economic future, which may be an example of the Federal Reserve chairman tempering public responses to a volatile or uncertain economy. Variations in the three Chairmen indicate that during crises, chairmen respond in unique ways to the economy, but often speak about the economic future, inflation, and the economy. Finally, this project

corroborates popular and media perceptions that the main role of the Federal Reserve is to reduce uncertainty, thus extending uncertainty reduction theory to the domain of economic communication and providing pragmatic implications about message content for the Federal Reserve and other governmental and policy-making entities.

# CHAPTER ONE: INTRODUCTION

> . . . [T]he Fed communicates more than ever before. Once strong and silent, the central bank is now positively gushy. The change is not one of style, but of substance: For the Fed to be effective, it needs the public (and the markets) to listen clearly to what it says, and to act accordingly. (Holmes, 2014a, p. SR4)

The Federal Reserve has enormous influence over the financial lives of United States citizens as well as members of a global society. Individuals and institutions look to the Federal Reserve to provide a reasonable and justifiable accounting of current economic trends and events, especially when the Federal Reserve initiates an interest rate change, or when the economy experiences periods of increased market volatility. In the later case, volatility can be conceptualized as the up-and-down movement of the market; measured by the standard deviation from the expectation (Ibbotson, 2011, para. 1). Often, volatility corresponds with economic extremes--either significant economic growth or national/global recessions. When the Federal Reserve talks about interest rates and market volatility, the institution seeks to serve as a source of stability that injects confidence in the financial system.

The Federal Reserve, as a major economic actor, sets U.S. monetary policy (i.e., control of the money supply and management of the inflation rate, economic growth, and price stability) through the Federal Open Market Committee (FOMC). The FOMC, comprised of representatives from regional Federal Reserve banks, and chaired by the current chairman[1] of the Federal Reserve, comes together to set and enact monetary policy quarterly. Specifically, the FOMC is tasked with managing its twin Congressionally-mandated goals of keeping inflation low and the

[1]The use of "Chairman" is intentional and rooted in the fact that despite her role as the first woman chair of the Federal Reserve system, Janet Yellen referred to her title and role as Chairman of the Federal Reserve throughout her term of office.

economy growing (Corder, 2012). After each meeting of the FOMC, the Fed Chairman communicates the outcome of its meeting as he or she releases statements that summarize what transpired.

These Federal Reserve statements are followed closely by policy makers, traders, and journalists, so much so that both academics and central bankers have begun to argue that communication improves monetary policy effectiveness (for a systematic review of central bank communication of monetary policy, see Blinder, Ehrmann, Fratzscher, DeHaan, & Jansen, 2008). Studies have found that the Federal Reserve's unanticipated target rate decisions influence U.S. asset prices (Bernanke & Kuttner, 2005; Kuttner, 2001; Rigobon & Sack, 2004), and that asset prices also respond to FOMC statements (Gurkaynak, Sack, & Swanson, 2005; Rosa, 2011a, 2011b). Moreover, when the FOMC releases its minutes (usually these are released three weeks after the FOMC meets), "higher than normal" volatility emerges across various asset classes (Rosa, 2013, p. 68). Said another way, there is significant evidence available to support the position that what the Federal Reserve chairman says has been found to result in observable reactions in stock market fluctuations.

Based on the findings of these studies, this chapter first discusses the evolving nature of Federal Reserve communication, not only covering the impact of Federal Reserve communication on the economy, but also the events over the last decade that have significantly altered the way in which the Federal Reserve communicates. To discuss Federal Reserve communication in context and with attention to the market volatility and equivocality surrounding monetary policy, the theoretical frame of uncertainty management is briefly introduced. Ultimately, this dissertation argues that a key tenet of Federal Reserve communication is managing economic uncertainty. Thus, this project extends uncertainty

management in organizational communication scholarship by examining how the CEO/chairman manages uncertainty for organizational members and key publics. Finally, to begin to create a bridge between the Federal Reserve and uncertainty management, this chapter concludes with a conceptualization of "economic policy communication" (EPC) as a way to describe the content of the Federal Reserve's communication.

Much of the existing literature on the effect of Federal Reserve communication comes from the discipline of economics, from which this dissertation draws. While scholars and economists recognize communication has an impact on the economy, the content of *what* the Federal Reserve says is not yet well understood. Yet as communication establishes the basis from which human beings construct, interpret, and act in their worlds, the lack of development of a communicative perspective limits the degree to which scholars, policy makers and economists, and the general public understand how the Federal Reserve communicates to enact monetary policy or shape economic expectations.

Therefore, this project takes a communication perspective to understand both how communication operates as a tool to affect particular processes, such as uncertainty management, as well as how communication constitutes realities upon which people and organizations or institutions act. Some uncertainty management theories have regarded communication as a variable or tool in reducing uncertainty (e.g., Brashers, Neidig, Haas, Dobbs, Cardillo, & Russell,

2000).[2] But a broader view of how communication functions in life is to say that communication is constitutive—that is, it is reality creating (Burleson, 1991; Kuhn, 2008).[3]

Although there are many ways in which communication is conceptualized (Craig, 1999; Putnam & Boys, 2006), at its core, communication constitutes realities through the linguistic choices that are made in social interactions and the overarching cultural formations such as "economy" or "neoliberalism" in which they make sense. As such, this study couples a constitutive approach with an instrumental one that acknowledges that people use communication to accomplish goals, such as managing uncertainty. This combination of communication as constitutive and as a tool to achieve goals provides a perspective through which it is possible to examine how the Federal Reserve communicates in challenging contexts, such as during periods of perceived or objectively documented economic difficulties. To understand how the Federal Reserve constitutes economic policy, this dissertation offers an examination of the communicative style and language choices by Federal Reserve chairmen to offer insight into the ways that they, as leaders and spokespersons of the Federal Reserve, frame economic realities.

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[2]For example, Brashers and colleagues (2000) refer to communication as "a means of managing uncertainty" (p. 64). Berger (1987) does not explicitly refer to communication as a tool for managing uncertainty, but does argue: "What could be more basic for the study of human communication than the propositions that (1) adaptation is essential for survival, (2) adaption is only possible through the reduction of uncertainty, and (3) uncertainty can only be reduced and produced through communication" (p. 59). In other words, communication is produced and reduced only through the use of communication; it is a *tool* to manage, or conduit through which people manage, uncertainty.

[3]There are differences between Burleson's (1992) and Kuhn's (2008) conceptualizations of communication. Burleson (1992) advocates for studying the philosophy of communication, problematizing the scholarly focus on the "content and uses to which humans put communication rather than on communication *per se*" (p. 81). Kuhn (2008), on the other hand, problematized theories of the firm as seeing communication as "merely a carrier of information, not as something possessing constitutive force of its own" (p. 1227). Rather, his communicative theory of the firm highlights "the functions of, and relations between, 'concrete' and 'figurative' texts, paying particular attention to their participation in the construction of an authoritative (yet never monolithic) system for cooriented and distributed action" (p. 1227). There are additional ways in which communication is conceptualized and underlies scholarship in the communication discipline. In this project, I examine *what* is said and how communication functions in uncertainty management. However, *what* is said has implications for the *how*.

## Evolving Federal Reserve Communication

Historically, the Federal Reserve has been veiled and guarded in its external communication, and as such, little scholarship has studied what the Federal Reserve actually says (for notable exceptions, see Holmes, 2014a, 2014b). The historical lack of clear communication from the Federal Reserve has led public policy experts and economists to find unusual ways to discern Federal Reserve actions. Traditionally, Federal Reserve communication would not preview future monetary policy actions likely to taken by the FOMC. Rather, analysts and academics have been forced to look for other ways to divine what actions the Federal Reserve would take. For example, one such method to ascertain Chairman Alan Greenspan's intentions was the "briefcase" theory: if Greenspan's briefcase appeared to be thicker than usual, he was arguing for a policy change, as evidenced by more briefing papers in his briefcase. A briefcase that appeared lighter than usual, by contrast, meant a policy change was unlikely (Karl, 2013).[4]

The current ritual in which the Chairman of the Federal Reserve gives public statements is after the meeting of Federal Open Market Committee (FOMC), the primary forum in which the Federal Reserve makes decisions about the direction of the economy. This template began under Alan Greenspan and continues to the present. The term "Fedspeak" rose to popularity under Greenspan, a characterization of the Federal Reserve's obtuse communication style under his leadership (Blinder, 2001); indeed, Greenspan himself wrote in his memoir that his style of communication was intentional, designed to prevent jolts to the market (Greenspan, 2007). In other words, his communication style was a deliberate choice. Additionally, the content of his communication was difficult to understand, and Greenspan "once prided himself on 'mumbling

[4]The briefcase theory was never empirically validated and subsequent analysis (e.g., Gavin & Mandal, 2000) has found Greenspan's briefcase thickness to be a poor indicator of FOMC monetary policy changes. Gavin and Mandal (2000) write the media often fixate on an image of Greenspan carrying his briefcase into the Federal Reserve Board building, and CNN even had an "Eyes on the Fed" section with commentary and pictures of Greenspan's briefcase.

with great incoherence'" (Blinder et al., 2008, p. 911). Greenspan may have had other goals in addition to preventing jolts to the market--goals that could have included the preservation of the FOMC's autonomy and its ability to quickly react to market indicators, as well as to not commit the FOMC to specific future actions (Yellen, 2013).

More recently Chairmen Ben Bernanke and Janet Yellen have shifted to a more transparent communication style with the public, a departure from past Federal Reserve communication (Blinder et al., 2008). In general, transparent communication is a "purified notion of communication devoid of mystery, inaccuracy, and (mis)representation" (Christensen & Cheney, 2016, p. 70). More specifically, central bank transparency is "a decision to communicate more openly about [the bank's] monetary policy" (Horvath & Vasko, 2016, p. 46). In the context of the Federal Reserve, Yellen identified transparency as an alert to the public that the "[FOMC] had changed its policy stance" (Yellen, 2013, para.15). Faust and Svensson (2001) defined central bank transparency as how easily the public can "deduce central-bank goals and intentions from observable data" (p. 373). Historically, the Federal Reserve's approach to external communication was to "never explain, but behave predictably" (Yellen, 2013, para. 21). This approach was based on the idea that:

> less disclosure would reduce the risk and tamp down suspicions that some could take advantage of disclosures more readily than others. Some believed that markets would overact to details about monetary policy decisions. And there was a widespread belief that communicating about how the FOMC might act in the future could limit the Committee's discretion to change policy in response to future developments. (Yellen, para. 14)

The movement to greater transparency and the increased amount and frequency of communication was, at one time, highly controversial. Blinder and colleagues (2008) wrote back in 1981 that "conventional wisdom in central banking circles held that monetary policymakers should say as little as possible, and say it cryptically" (p. 910). Yet a shift occurred as scholars and economists claimed "the essence of monetary policy is the art of managing expectations . . . [this thinking] is now standard fare both in academia and in central banking circles. It is no exaggeration to call this a revolution in thinking" (Blinder et al., 2001, p. 911).

Transparency, then, for the Federal Reserve is manifested in communicative acts like the voluntary disclosure of information after every FOMC meeting about the Federal Reserve's economic outlook (Yellen, 2013). Bernanke (2014) argues that transparent communication helps the market anticipate and respond to future monetary policy actions with more precision. In fact, both Bernanke (2014) and Yellen (2013) have called communication by the Federal Reserve "a tool" through which the Federal Reserve enacts monetary policies.

A metaphor that views "communication as a tool" is rooted in a mechanistic paradigm (see Reddy, 1979). This approach emphasizes the difficulty and technicality of communication in creating shared understanding and accomplishing goals. In this paradigm, communication is conceptualized as "the transfer of messages [the ability to make nonrandom selections from some set of alternatives] from one place to another" (Reddy, 1979, p. 303). Treating communication in this way can lead to serious linguistic limitations; if receivers of messages forget they bear a share of responsibility for how they interpret a message from the sender, it is "easy to ridicule the sender for any defects" (p. 307).

The concern with this type of approach is that it treats meaning as fixed and "objectifies meaning in a misleading and dehumanizing fashion. It influences us to talk and think about

thoughts as if they had the same kind of external, intersubjective reality as lamps and tables" (Reddy, 1979, p. 307). In this way, those who construct the messages are the only ones with the "real repositories of ideas"--and their objective is to effectively construct or reconstruct the meaning of language relative to their goals (Reddy, 1979, p. 307). I argue that this mechanistic approach to communication is what Federal Reserve officials mean when they say that "communication" is being used as a tool for monetary policy enactment. In this conceptualization, the Federal Reserve, based on the broad range of data it must synthesize and interpret, constructs a corresponding message that it believes will meet its objective and then "sends" a message/set of instructions to economists, academics, and market watchers who then work to decipher it. The limit of this approach is it neglects to take into account the two-way nature of communication and how the Federal Reserve undoubtedly responds to economists, academics, and market watchers. It also assumes the purpose of communication is control, yet the Federal Reserve cannot control the economy with mere words. Finally, these messages must be disseminated, otherwise the message cannot be received. If many Americans do not pay attention to the communication of the Federal Reserve, its communication to shape public expectations cannot be received.

The purposes of using communication as a monetary policy tool may vary (e.g., to help the market anticipate changes, or to test the market's response to an anticipated change). However, it should be noted that the Federal Reserve as an institution communicates but does so irregularly--sometimes daily, often weekly, and most every month--be it in the form of news releases, the release of economic data, or research findings. In its more formal and traditional manner, the Federal Reserve chairman as the figurehead of the entire Federal Reserve System, speaks quarterly after the FOMC meeting, and also testifies before Congress. Congress requests

testimony semi-annually on the monetary policy actions of the Federal Reserve, but Congress may also request that the Federal Reserve chairman comment on the fiscal policy actions of Congress and the President as well. Other times in which the Federal Reserve chairman communicates publicly include when he or she serves as a keynote speaker for an academic conference or an invited lecture. Of late, an increasing number of high-ranking members of the Federal Reserve have begun to speak publicly as well, including before Congress and as invited lecturers.

Previous studies have examined the effect of the Federal Reserve chairman's communication on marketplace volatility. One example of these studies is Rosa's (2013) investigation of the effect of FOMC meeting minutes releases on the S&P 500, Treasury yields, United States asset prices, and exchange rates. Yet an understanding of the content, style, and impact of the Federal Reserve chairman's communication is not well known when compared with that of other major economic actors. Scholars of the presidency, for instance, have examined how the president speaks about economic issues and the subsequent impact of his or her[5] communication style, tone, and content on his or her approval rates (e.g., Arthur, 2014; Wood, 2007). McCloskey identified a lack of scholarly inquiry into financial and economic communication 20 years ago; this call corresponded with increased attention on the rhetoric of economics (e.g., see McCloskey, 1998). Yet studies comparable to Wood's (2007) content analysis of what the president says with regard to the economy have not been done with the Federal Reserve as the subject. Wood's (2007) study examined how the president shaped news coverage and public perceptions about the economy as measured by using opinion polls and

[5] As there has not yet been a female POTUS, all future references to the President are referred to as he, him, or his.

presidential approval ratings. A comparable study of the Federal Reserve would be advantageous given the Federal Reserve's status as a major actor in the U.S. economy.

The Federal Reserve holds the unique status of being the lender of last resort (Hubbard & O'Brien, 2013). This foundational role of the Federal Reserve, created after the United States went through several economic crises in the 1800s, means that during times of economic uncertainty or turmoil, the role of the Federal Reserve is paramount in maintaining trust and liquidity in the markets. Therefore, while the Federal Reserve chairman may have multiple and even conflicting goals in communicating with external audiences, the current project focuses on what the Federal Reserve chairman says precisely during those times of high economic uncertainty when public attention is focused on the Federal Reserve and when its chairman is called to testify before Congress. In other words, the situation or context--in this case times of high economic uncertainty in the U.S.--make certain goals or purposes relevant for the Federal Reserve chair to pursue when speaking (O'Keefe, 1988).

The purpose of the Federal Reserve testifying before Congress is to provide a detailed account of FOMC monetary policy decisions--which is done at least biannually to account for the previous 6 months' monetary policy decisions. As head of the Federal Reserve system and the FOMC, it is the current chairman who testifies. In addition to these regularly scheduled opportunities, the Federal Reserve chairman also can be asked or required to testify before Congress, such as during a time of economic crisis or upheaval.

In his or her testimony before Congress, the Federal Reserve chairman typically has multiple goals. In relatively stable economic times these goals might include to respond to recent disclosures of data with regard to economic performance or conditions (as measured by economic indicators like the unemployment rate and the inflation rate). Or, a second goal might

be to preview future monetary policy to gauge the market reaction. A potential third communicative goal might be to try to shape expectations about the future of the economy and its performance. One of these goals might be more prominent than the others, or all goals might be equally important during Federal Reserve testimony. The relative importance of these goals is likely to vary based on the current economic context.

During difficult economic times, such testimony may have several aims. Kohn and Sack (2004) found that Chairman Alan Greenspan's testimony affected Federal funds futures, Treasury yields (both 2- and 10-year yields), and Treasury forward rates. Blinder et al. (2008) were able to replicate Kohn and Sack's findings. Because of these documented effects, testimony during economic crises or periods of economic uncertainty, for example, might be aimed at quelling fears about the future performance of the economy. Federal Reserve testimony may also respond to economic uncertainty in an attempt to calm a volatile market. Finally, as evidenced by the 2008 financial crisis, the Federal Reserve chairman may communicate in a reassuring manner as the lender of last resort in an effort to convey legitimacy upon major institutions and organizations (e.g., Fannie Mae or Freddie Mac)--or about the stability of the economic system as a whole. These aims are not mutually exclusive, and they may vary in importance based on the economic crisis or period of economic uncertainty.

In this way, the Federal Reserve is a social actor who, along with other social actors such as governmental agencies, the President, and large Wall Street banks, utilize economic discourse. Economic discourse is communication that shapes expectations regarding the future performance of the economy, as these economic actors like the Federal Reserve shape the realities and expectations of today's volatile and unpredictable global economy (e.g., Herzfeld, 1992). As a result, economic markets become artifacts of language, where communication shapes economic

expectations and functions to increase or decrease uncertainty and volatility in the market (Holmes, 2014a, 2014b; McCloskey, 1998). This process is not unidirectional. Communication shapes and is shaped by economic expectations.

Recognizing the importance of communication in shaping economic expectations also has implications in shaping policy and the practice of financial communication. Economic policy communication (EPC), or communication that shapes economic and monetary policy and expectations, is an important aspect of financial communication. Just as Westbrook (2014) has argued that "the basis for a company's stock price is seen to be more of a story than a number," (p. xi) so, too, is the foundation of the economy more of a narrative than just statistics. EPC seeks to explain how the Federal Reserve, government officials, economic actors, financial analysts, and journalists socially construct and enact economic expectations about the performance of the United States and by extension the global economy.

Scholars of the presidency (e.g., Arthur, 2014; Wood, 2007), economics (e.g., McCloskey, 1998), and communication (e.g., Houck, 2001) have begun to explore the role of communication in constituting, impacting, and changing future expectations of economic performance. As such, this dissertation draws from these three literatures to examine the communication of the U.S. central bank, namely the Federal Reserve, during congressional testimony. Congressional testimony can occur during times of high economic uncertainty. Looking specifically at periods of high economic uncertainty and crisis, this study examines *what* the Federal Reserve says. Drawing from Wood's (2007) typology, this study measures the frequency and sentiment with which the Federal Reserve mentions the economy, unemployment, inflation, and the deficit during testimony before Congress.

This study has practical implications for how scholars and practitioners alike examine and understand Federal Reserve communication before Congress. However, it also contributes theoretically by extending scholarship on uncertainty management in organizations. The following section first identifies the ways in which this project theoretically extends scholarship on uncertainty management within the study of organizational communication, and then examines the role of message sentiment in organizational uncertainty management practices.

**Uncertainty Management in Organizations**

Whereas many studies of uncertainty management focus on interpersonal relationships, such as romantic relationships or times when one first meets another person, as originally conceptualized by Berger and Calabrese (1975), organizational communication scholars have extended uncertainty management to organizational and institutional settings (e.g., Kramer, 1999, 2004; McPhee & Zaug, 2001). Originally, Berger and Calabrese (1975) conceptualized uncertainty as containing two parts: a proactive process of creating prediction about the other's behavior, and retroactively explaining the other's behavior. Organizational scholars such as Kramer (1999, 2004) conceptualized uncertainty as both a cognitive response and an affective or emotional response of anxiety and stress (drawing from Gudykunst, 1995) during transitions in employees' careers during which membership, roles, and/or status have shifted. Scholars have found that during these times, employees engage in sense-making through information seeking and other communicative practices. These studies focus on uncertainty related to organizational socialization, changing organizational roles, organizational change (e.g., mergers and acquisitions), and organizational exit.

This study, conversely, looks at the ways in which *organizations* seek to manage uncertainty for organizational members, key publics, and stakeholders. Specifically, this

dissertation examines what the Federal Reserve communicates during periods of economic crisis or volatility (as defined by high fluctuations in the up-and-down movement of the economic market; Ibbotson, 2011). These time periods have been designated as crises internally in the U.S. government and externally by key stakeholders domestically and globally. Specifically, a content analysis of Congressional opening statements by three Federal Reserve chairmen enables comparison of what the Federal Reserve says during these periods using Wood's (2007) typology. The three chairmen and the four significant economic conditions about which they testified are: the "Stagflation" of the late 1970s and early 1980s, the 1987 500 point drop which came to be known as "Black Monday," the 1999 "Dot-com Bubble," and the 2008 financial crisis—the "Great Recession." Details about these economic periods and other contextual information is provided in subsequent chapters.

**The Role of Sentiment in Organizational Uncertainty Management**

This study is also interested in the sentiment, or emotional tone behind a series of words, in which mentions of the economy are made. Wood's (2007) study examined the tone with which the President mentioned the economy and particular aspects.[6] He defined tone as "the relative optimism of presidential remarks about the economy and its specific dimensions" (Wood, 2007, p. 19). In explaining the importance of measuring tone, Wood (2007) argued:

> Through their relative optimism presidents help establish a climate for the national economy. . . . Presidential remarks, however, do help economic actors interpret those processes and in so doing affect economic confidence. The president is an important

[6]By constructing a tone measure, Wood was able to compare the optimism level of Presidents across time. He included variables that measured economic growth, unemployment, inflation, the deficit, whether or not the president was pushing economic legislation, the approval rating, the lagged percentages from Gallup's Most Important Problem series, and if it was an election year as predictors of what causes variability within presidencies.

> economic actor in this role, since he has responsibility for the economy and receives intense scrutiny from the media. (p. 19)

Furthermore, optimistic presidential rhetoric was found to impact consumer confidence, perceptions of economic news, interest rates, personal consumption, and business investment (Wood, 2007). If the president's economic discourse impacts these variables, I argue so, too, must the Federal Reserve's discourse have an economic impact. Therefore, a computerized sentiment analysis is used to analyze each opening statement before Congress. This text-level measure, while different from Wood's (2007) tone measure, has the ability to measure positive, negative, and neutral sentiment. The purpose of this analysis is to reveal how the economy is framed by each Federal Reserve chairman.[7]

These sentiment findings enable examination of differences by chairman and over time. Positivity and negativity is a way the Federal Reserve chairman frames wins or losses. Drawing from negotiation literature (e.g., Neale & Bazerman, 1992; Schurr, 1987), this study also seeks to understand how sentiment and the content of Federal Reserve testimony are related. Negotiation scholars have found framing wins or losses positively or negatively impacts the choices individuals make.[8] Similarly, Wood (2007) found presidential remarks that inspired confidence resulted in stronger economic confidence, or in the perception that "the economic news is good." (p. 159). Conversely, pessimistic economic rhetoric from the President "produced greater

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[7]To operationalize positivity, Wood (2007) use computer analysis to extract each sentence in his dataset that mentioned the economy. He then wrote a PERL program to list every unique word in the sentence file. Next, he sorted that file by frequency. Then, human coders intuitively assessed each word as positive or negative. The human coding led to a dictionary of positive and negative words pertaining to the economy.

[8]For example, Neal and Bazerman (1992) found how an option is framed by negotiators has a significant impact on the other's willingness to reach an agreement. It also impacts the perceived value of that agreement. They write: "Probably one of the most common referent points is what we perceive to be in our current inventory (our status quo)--what is ours already. We then evaluate offers or options in terms of whether they make us better off (a gain) or worse off (a loss) from what (we perceive to be) our current resource state" (pp. 45-46). This echoes Wood's (2007) findings about how the public perceives economic rhetoric.

uncertainty and perceptions that the economic news is bad" (Wood, 2007, p. 159). I expect that the Federal Reserve chairman's sentiment would produce similar effects to those that negotiation and presidential scholars have identified.

This chapter, then, introduces both uncertainty management and economic policy communication as frameworks for this study of Federal Reserve communication during particular chairmen's terms of office. Contributions of this study are theoretical insofar as no researcher to my knowledge has studied what these chairmen have said and how the content and tone of talk corresponds with macroeconomic and socio-political conditions during times of great economic uncertainty nationally and globally. This chapter concludes with an overview of the study as well as the organizational structure of the dissertation.

## Uncertainty Management

Uncertainty management is a group of theories that attempt to account for how people seek to manage the uncertainty in their lives--most often, though not always, seeking to reduce uncertainty (e.g., after a negative health diagnosis an individual might seek a second opinion--thus increasing uncertainty as to the outcome). Uncertainty management grew out of Berger and Calabrese's (1975) uncertainty reduction theory (URT), in which uncertainty reduction was defined as increasing predictability about the behavior of oneself and the other within an interpersonal interaction. Berger and Calabrese (1975) drew from Heider's notion that "man [sic] seeks to 'make sense' out of events he perceives in his environment" (p. 100). They argued uncertainty reduction contained two parts: proactively creating prediction about the other's behavior, and retroactively explaining the other's behavior. The reduction or lessening of uncertainty was pivotal because it revealed a powerful motivation that undergirds a number of contexts of instrumental communication.

More recently, uncertainty, defined by Kuang (2015) as a "cognitive state that occurs in situations where the decision maker is unable to assign definitive values to objects and events and/or is unable to accurately predict outcomes because sufficient cues are lacking" (pp. 4-5), has been used to explain human behavior and has since come to shape the program of research of uncertainty management that crosses disciplines. As originally conceptualized, URT argues that during two strangers' first interaction, their primary concern is uncertainty reduction to bring about an increased predictability within the relationship (Berger & Calabrese, 1975). As such, a base assumption of URT is that individuals are fundamentally motivated to reduce uncertainty in any interaction. People who are faced with uncertainty reduce it through information seeking strategies in order to discover what they believe to be relevant information. In organizational contexts, individuals seek information from both formal (e.g., official organizational messages, unions, or supervisors) and informal sources (e.g., customers; Kramer, 2004) and use internal cognitive processes to manage uncertainty (as an alternative to information seeking; Kramer, 2004). Relatedly, in health-oriented contexts, investigations into questions that surround health, illness, and prognosis, along with other risk-oriented constructs, shapes the understanding of why individuals decide to seek information as well as the ways in which care providers can be most effective in reducing uncertainty to desired levels with patients.

Uncertainty, in and of itself, is not all bad. Indeed, there is most likely a point at which some uncertainty is positive or even desirable in that uncertainty management theory argues individuals may be motivated to maintain, manage, or even cultivate uncertainty as opposed to always seeking to reduce it (Kramer, 2004). For example, during a merger and acquisition at an airline, pilots close to retirement were found not to seek information about the merger. Kramer (2004) states, "uncertainty was below their minimum threshold" (p. 96). Conversely, pilots who

felt that no one had "accurate or useful information ceased seeking information because the uncertainty was above their maximum threshold" (p. 96). Uncertainty management perspectives have pushed back against URT's assumption that individuals always want to reduce uncertainty. Rather, information may actually increase uncertainty and decrease liking, particularly when the information is unexpected or negative (e.g., Afifi & Burgoon, 2000). Instead**,** uncertainty management perspectives argue that in some cases uncertainty may result in less information seeking from an individual. For example, there are cases in which information overload can cause uncertainty, and as a consequence, individuals may not seek information even when they experience uncertainty (contrary to what URT claims).

Uncertainty reduction theory and uncertainty management theory are not applied solely to interpersonal contexts, but instead have been employed in organizational contexts such as rational-legal structure[9], organizing process theory, and structuration theory, as well as organizational life uncertainty, role ambiguity, and organizational entry (see Brashers, 2001;[10] McPhee & Zaug, 2001;[11] Kramer, 1999, 2004[12]).

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[9]In classical approaches to organizational communication, rational-legal is prevalent in bureaucracies. Individuals have authority because of their position within the organization (Miller, 2015).

[10]Whereas Berger and Calabrese (1975) originally conceptualized URT as an interpersonal theory predicting that individuals seek to reduce uncertainty in interactions with strangers, Brashers (2001) and Brashers, Goldsmith, and Hsieh (2002) extended URT by identifying situations in which individuals not only work to manage uncertainty but may choose to increase or maintain their current level of uncertainty. Individuals also experience different types of uncertainty, including uncertainty about oneself, others, one's relationship to others, or about the environment (Brashers, 2001).

[11]McPhee and Zaug (2001) extended uncertainty reduction theory (URT) to organizational contexts, providing insight into how organizational structure and communication patterns may be designed to reduce uncertainty. However, they did not test axioms proposed by Berger and Calabrese (1975) for URT, but simply applied them to an organizational context.

Relatedly, applying uncertainty management to the economic policy communication of the Federal Reserve is a further extension into organizational contexts, and one that makes considerable intuitive sense in the following ways. First and foremost, if scholars understand market-driven volatility in an economic sense as a standard deviation from expectations (Ibbotson, 2011), minimizing volatility and shaping predictability becomes important in managing uncertainty. Second, uncertainty and volatility in an economic context can lead to financial panics and potential economic downturns such as the Great Depression of the 1930s, the high inflation in the 1970s, and the 2008 financial crisis. As such, the ways in which the Federal Reserve manages uncertainty that occurs during and immediately after negative market events become important in the practice of economic policy communication. Third, as a key economic and social actor, the roles of the Federal Reserve and the Federal Reserve Chairman in shaping expectations about future economic performance also have important practical implications for everyday Americans invested in the financial markets through their 401Ks, 403Bs and pensions accounts. Forecasting is used to shape expectations about the future performance of the economy--an imprecise but valuable vehicle by which individuals are able to manage their investment risk in a predictable way.

[12]Kramer (1999) proposed that uncertainty reduction theory (URT) be reconceptualized and reframed as a motivation to reduce uncertainty (MRU) model. Influenced by the Elaboration Likelihood Model, MRU proposed that "different levels of motivation to reduce uncertainty can lead to certain communication behaviors depending on competing goals" (Kramer, 1999, p. 306). Additionally, Kramer (1999) identified four reasons for low motivation to seek information to reduce uncertainty, including: people do not experience uncertainty in every event or encounter; individuals have varying tolerance levels for uncertainty; uncertainty may be intolerable to some but of be no concern (or even positive) for other individuals; and since communication has "social and effort costs, minimizing those costs may be preferable to information seeking" (p. 308). Not only does Kramer's (1999) piece address limitations of Berger and Calabrese's (1975) conceptualization of uncertainty reduction, but it further extends uncertainty management to organizational settings, taking into account the various interactions and communication channels through which uncertainty can be managed, and at what cost. Subsequent work has further refined and extended Kramer's (1999) contributions (e.g., Kramer, 2004; Kramer, Dougherty, & Pierce, 2004). Competing motives, such as impression management or social costs/appropriateness of seeking information, can impact organizational member motivation to seek out information for uncertainty reduction (Kramer, 2004).

Subsequently, this study examines the content of the Federal Reserve's communication during periods of high economic uncertainty. Given that as the head of the Federal Reserve system, the chairman speaks as a representative of the institution during times of economic turmoil (e.g., the 2008 financial crisis), one of the purposes of Federal Reserve communication is to manage uncertainty about the current and future performance of the domestic economy. While the Federal Reserve may have other goals or purposes in speaking before Congress about its monetary policy decisions based on the different economic exigencies that arise, uncertainty is especially present during times of economic upheaval. What is unique about the perspective of uncertainty management is that while information tends to function to reduce uncertainty, it is plausible that during a crisis policy makers may come to a point at which providing additional information increases, rather than decreases, uncertainty. Therefore, this study examines Federal Reserve communication during economic crises, specifically what information the institution provides that might help the Federal Reserve manage uncertainty, and how the chairman of the Federal Reserve expresses his or her uncertainty through language choices. Therefore, not only do periods of high economic uncertainty matter in very real material consequences, but also the language choices the Federal Reserve chairman uses to convey his or her level of uncertainty is significant symbolically. This uncertainty might be tied to language using words and phrasing like certainty, stability, uncertainty, volatility, prediction, or expectation.

## Economic Policy Communication

One of the major ways in which the Federal Reserve communicates about economic and monetary policy is during Congressional hearings. When testifying before Congress, the Federal Reserve chairman comments on fiscal policy such as tax rates, the size of the deficit, and the economic impact of international trade agreements (which are set by Congress) and on the Fed's

past (and potentially future) monetary policy actions, as set by the Federal Open Market Committee. In this context, the Federal Reserve's communication shapes both economic and monetary policy as well as the public's expectations about the economy (Blinder et al., 2008). Economic Policy Communication builds on work from political science, economics, and communication that studies the intersection of economics, public policy, and communication by institutional actors such as the president and financial institutions (e.g., Chaput & Hanan, 2015; Goodwin, 1988; McCloskey, 1998; Wood, 2007). It is within this context that the Federal Reserve engages in external organizational communication with its stakeholders, shareholders, and key publics—communication that has as one of its major goals the reduction of uncertainty.

The current body of literature examines major economic actors, such as the president, and articulates his role in leading the economy and the effect that his policies have on economic conditions and job growth (e.g., Dolan, Frendreis, & Tatalovich, 2009; Wood, 2007; Wood, Owens, & Durham, 2005). Other work from a more rhetorical tradition argues that communication actually shapes the economy (e.g., Holmes, 2014a, 2014b; McCloskey, 1998). In particular, such efforts have examined how communication is used by key economic actors (e.g., the president and the Federal Reserve), and under what principles the Federal Reserve has historically operated (e.g., inflation is the principal threat to economic stability, therefore causing the Federal Reserve to enact policies to control the rate of inflation; Bernanke, 2014; Corder, 2012). Economists such as McCloskey, in particular, have called for more studies on economics as a rhetorical artifact--with the expressed purpose of creating a deeper, richer understanding of the field that moves beyond conceptualizing economics through mathematical formulas to one that accounts for its role in shaping the economic expectations of individuals and institutions. Although the current study is not rhetorical in nature, it does recognize the importance of the

contextual and rhetorical exigencies to which the Federal Reserve responds. As a result, this project utilizes a content analysis to measure the frequency and sentiment with which the Federal Reserve chairman mentions specific topics in his or her communication with Congress, and also seeks to identify the contextual factors and linguistic indicators of uncertainty itself by using computerized analysis to measure the chairman's actual certainty.

## Summary and Preview of Dissertation Chapters

This study contributes to the literature on economic policy communication and further extends the application of uncertainty management in an effort to explore what is said by the head of the Federal Reserve during times of economic uncertainty. In this introductory chapter, I identified how the Federal Reserve's communication has evolved over time, and previewed the reasons for this shift. While conventional wisdom advocated for guarded Federal Reserve communication, today academics and economists have begun to push for central banks to communicate more frequently and clearly about future monetary policy actions. Then, I introduced uncertainty management, identifying the central tenets of uncertainty reduction theory (URT) and explained its evolution to uncertainty management theories. This study extends uncertainty management by considering the organization's role in managing uncertainty. Finally, the context in which the Federal Reserve speaks, theorized as economic policy communication, provides further rationale and setting for this dissertation project. Scholars have not examined what the Chairmen of the Federal Reserve say before Congress during times of economic crisis. Therefore, this study makes important contributions not just to our understanding of uncertainty management, but also to our understanding of central bank communication and economic discourse.

Chapter Two describes how uncertainty management provides insight into why and how the Federal Reserve speaks at particular times. Then, this chapter transitions to provide a fuller and more nuanced review of uncertainty management and economic policy communication. Specifically, this study extends uncertainty management beyond basic concerns such as organizational assimilation and exit, and does so in such a way that it examines the manner in which an institution manages uncertainty about occurrences which by definition are unknowable (i.e., the direction of the U.S. economy) on behalf of multiple and conflicting constituents. By doing so it provides an understanding of how senior management itself communicates during times of uncertainty and in so doing, lays the groundwork for future studies and extensions of uncertainty management. This chapter then proposes a list of assumptions for how the Federal Reserve *should* talk to broadly identify and describe the ways in which the Federal Reserve engages in the communicative practice of uncertainty management. I take as guidance previous theory-building work on uncertainty reduction theory, including the seven axioms and 21 theorems Berger and Calabrese (1975) proposed, and later organizational communication scholarship extended by McPhee and Zaug (2001) to enable me to think through what might be appropriate communication in this particular context since this theory has not yet been utilized in the context of economic communication. I take these assumptions as guidance for some of my discussion in chapters two, three, and four, and I return to the discussion of the generative capacity of these assumptions in terms of the contributions and research implications of my study. Chapter Two then reviews scholarly inquiry into economic policy communication by reviewing and extending the existing work in public policy, economics, and communication in order to identify the social-political context in which the Federal Reserve, governmental agencies, the president, and media organizations create expectations of future economic

outcomes, with some connections outlined to the eight assumptions proposing how the Federal Reserve should communicate. This chapter then concludes with a series of five research questions.

Chapter Three outlines the methodology used to accomplish the research goals of this study. Specifically, a content analysis is conducted to examine Federal Reserve Chairmen Paul Volcker, Alan Greenspan, and Ben Bernanke's congressional testimony during periods of high inflation (1979-1982; Paul Volcker), the Flash Crash (1987-1988; Alan Greenspan), the Dot Com Bubble (1999-2002; Alan Greenspan), and the 2008 financial crisis (2008-2011; Ben Bernanke). Chapter Three also explains the analyses and rationale for multi-level data analysis, a statistical technique that has been widely used in the social sciences (Snijders & Bosker, 2012). Hayes (2006) points to special issues in the *Journal of Communication* and *Communication Research* where scholars have "lamented researchers' tendency to focus on one level of analysis" (p. 385). This dissertation utilizes logistic hierarchical linear models as Congressional testimony is "nested" under a larger set of variables (macro-level) that influence the sentence (micro-level) content. Specifically, a series of five logistic HLM examines the association between several macro-level variables (sentiment, larger economic performance variables like GDP, and the chairman's overall certainty level) and the content (at the sentence level) of what the Federal Reserve chairman says (a micro-level variable). Ultimately, I seek to predict the likelihood that the chairman uses terms like "economy," "unemployment," "inflation," "the deficit," or reference the "economic future" based on the performance of the economy, the chairman's overall sentiment, and the chairman's overall certainty.

Chapter Four identifies the results of this content analysis using logistic hierarchical linear modeling, and Chapter Five, Discussion, lays out the theoretical and pragmatic

contributions of this study. Specifically, this final chapter interweaves interpretations of the findings from the content analysis and draws conclusions as to the relationship between economic policy communication and market outcomes. This chapter concludes with limitations and future directions for this line of research in economic policy communication. An Epilogue reflects the changing leadership of the Federal Reserve as Chairman Janet Yellen, the first woman Federal Reserve chair, steps out after only one four-year term (2014-2018) and Chairman Jerome Powell begins his first term.

In sum, the Federal Reserve's economic communication is important to the performance of the economy, investors' expectations of future economic performance, along with the actual future performance of the U.S. economy. Whereas scholars in public policy, economics, and communication all have begun to explore the multiple aspects of economic communication as it relates to their individual disciplines, this dissertation seeks an integrative understanding of how the Federal Reserve communicatively constructs expectations for future economic performance by measuring the content of the Federal Reserve's testimony before Congress during periods of economic uncertainty and turmoil.

# CHAPTER TWO: LITERATURE REVIEW AND OVERVIEW OF THE FEDERAL RESERVE SYSTEM

The circumstances and environment in which the Federal Reserve operates has led to an evolutionary change in its communication goals. The Federal Reserve experiences tension in its day-to-day management of monetary policy. The dual mandates to manage inflation and economic growth are mutually exclusive goals: to increase or slow down economic growth, the Federal Reserve triggers an increase or decrease in the rate of inflation. Essentially, facilitating economic growth (considered positive by many economists) can lead to an increase in inflation rates (considered negative by many economists when that increase in inflation continues unchecked).

While managing inflation and economic growth are considered the primary functions of the Federal Reserve (Hubbard & O'Brien, 2013), the Federal Reserve has begun communicating much more frequently and has begun to argue for increased transparency and communication in its external communication. For example, in a postmortem of the 2008 financial crisis, Bernanke stated:

> [T]he Federal Reserve's transparency and accountability proved critical in a quite different sphere--namely in supporting the institution's democratic legitimacy. The Federal Reserve, like other central banks, wields powerful tools; democratic accountability requires that the public be able to see how and for what purposes those tools are being used. Transparency is particularly important in a period like the recent one in which the Federal Reserve has been compelled to take unusual and dramatic actions. . . to help stabilize the financial system and the economy. (Bernanke, 2014, para. 6)

External communication describes how organizations and institutions communicate with multiple and competing publics (which includes stakeholders and shareholders). Such communication is important for organizations that operate in public spheres in that it is primarily through communication with these external audiences that organizational legitimacy is maintained. Legitimation theory essentially argues stakeholders perceive an organization as legitimate (thereby allowing it to continue to exist and operate without social sanction) when societal values and organizational actions appear to be congruent (Francesconi, 1982). Organizations, therefore, are dependent on relationships with these outside publics.

Given that it is the stated purpose of the Federal Reserve to manage expectations about the nature of the economy by reducing the uncertainty about its future actions (i.e., by forecasting its planned actions well in advance of their execution) the Federal Reserve's external communication is examined through the theoretical lens of uncertainty management, specifically within the context of Federal Reserve testimony before Congress during economic crises or turmoil.

Therefore, Chapter 2 first reviews literature from the fields of political science, economics, and communication to provide a framework to understand the Federal Reserve and how it uses communication to manage economic policy. In so doing, this section reviews the literature surrounding uncertainty management, and identifies the ways in which uncertainty management has been extended to organizational contexts.

In sum, this provides a rationale for looking at the frequency with which the chairman of the Federal Reserve talks about particular economic topics, then the sentiment that s/he expresses, and finally the level of linguistic uncertainty present in his/her talk. Specifically, I review (a) literature from the fields of political science, economics, and communication to

examine economic and financial discourse. This overview provides a framework to understand the Federal Reserve and how it uses communication to manage economic and monetary policy. This chapter further (b) explicates uncertainty management. In so doing, I identify how this project theoretically extends uncertainty management. In this chapter, I lay out a rationale for looking at how frequently the chairman of the Federal Reserve talks about a variety of topics during Congressional testimony; what sentiment (positive, neutral, negative) the chairman of the Federal Reserve expresses when talking about those topics (and how frequency and sentiment of talk are associated); and what level of (linguistic) certainty the chairman of the Federal Reserve expresses during testimony, and how that is associated with frequency and sentiment of talk. This chapter concludes with the (c) chapter summary and statement of the research questions that this dissertation addresses.

## Economic Policy Communication (EPC)

Scholars in political science, economics and communication have begun to explore the intersection of economics and communication (e.g., Chaput & Hanan, 2015; Goodwin, 1988; McCloskey, 1998; Wood, 2007). It is within this context that the Federal Reserve engages in external communication with its stakeholders, shareholders, and key publics. To fully understand what constitutes economic policy communication and better understand the context in which the Federal Reserve communicates, it is necessary to draw from the related threads within these fields to define and develop a research agenda that addresses the variegated nature of EPC. The following section identifies relevant literature from (a) scholars of the presidency; (b) economics; and (c) communication. Then, I (d) identify potential areas of intersection related to the study of economic policy communication. This forms the basis on which the rationale for the first of a

series of five research questions focused on the content of the Federal Reserve chairman's testimony.

Then, this chapter shifts to examine the theoretical framework of this dissertation, uncertainty management. Specifically, the central constructs of uncertainty management, uncertainty management theory, and extension of uncertainty reduction theory and uncertainty management in organizational communication are discussed to form the rationale for the final four research questions focused on the content of the Federal Reserve chairman's testimony and its associations with (a) the chairman's sentiment; (b) the current economic performance indicators at the time of testimony; and (c) the chairman's level of actual certainty, as measured by DICTION (see Ch. 3 for an overview of the software).

**Scholars of the Presidency**

Political science researchers have approached the Federal Reserve through a public policy perspective. For example, scholars have explored the regulatory backlash the Federal Reserve and the broader financial system faced in the aftermath of the 2008 financial crisis (e.g., Khademian, 2011; Liou, 2013; Subramanian, 2011). The Federal Reserve acts as a regulatory agent, but in the past, it has operated under the principle that the financial regulation of banking institutions should be subjected to unobtrusive regulation (Corder, 2012). This position was critiqued in the aftermath of the financial crisis by Congress as policymakers signaled the need and desire to reign in control of the Federal Reserve (Corder, 2012).

Of course, as mentioned earlier in Chapter Two, the financial crisis of 2008 changed the Federal Reserve's role in the U.S. economy as it was the only institution empowered to make the immediate decisions the crisis demanded. Understanding these policy and operational changes are important in that they impact trust, legitimacy, and confidence in the U.S. financial system.

For example, the financial sector has a moral hazard challenge. As risk, defined as the potential for an uncertain, negative outcome (Aven & Renn, 2009), becomes increasingly normalized in the current socio-cultural milieu, coupled with the government's bailout funds following the 2008 financial crisis, financial institutions have been left with the message that if their risks go awry in the future, they will not necessarily directly suffer the consequences for taking risks with other peoples' money. As a result, the level of acceptable risk continues to increase as financial instruments develop and evolve, confidence continues to increase the prices of assets, and credit ratings give AAA ratings despite high levels of risk. This domestication of risk remains true until investor confidence waivers.

Presidential leadership of the economy also has been studied by political scientists (e.g., Dolan, Frendreis, & Tatalovich, 2009; Wood, 2007; Wood, Owens, & Durham, 2005), which increases understanding of economic rhetoric and how it is used by key economic actors (e.g., the president and the Federal Reserve). Wood's (2007) study is foundational to this dissertation and is the basis for this study's first set of research questions in that he found regular presidential attention to the economy increases a president's approval ratings, and produces healthier conditions for economic growth, employment, prices, and fiscal outcome. His typology of coding for the frequency with which a variety of presidents spoke about the economy is applicable to the Federal Reserve's communication. Specifically, he coded for the frequency with which the President mentioned the economy, unemployment, the deficit, and inflation—all terminology and content that is used by the chairmen of the Federal Reserve. While it may seem based on the Federal Reserve Chair's role that he would always talk about "the economy," the chairman also testifies about monetary policy, the budget, and even health care. For example, Chairman Paul Volcker often testified before Congress about the budget before the House and Senate, often

advocating for fiscal conservatism. Volcker especially argued that Congress should reduce spending to help keep inflation in check as he was fighting against the soaring inflation rates in the 1970s and 1980s. The budget itself was *not* a reference to the economy. While Volcker might make some remarks about the economic implications of a particular budget proposal, the code "economy" is not all-encompassing as the chairman testifies on a wide range of topics before Congress. Yet no empirical research has examined what the Federal Reserve chairman says before Congress, nor within the context of economic uncertainty and turmoil.

Therefore, conducting a content analysis on the Federal Reserve chair's opening testimonial statements before Congress for the 6 months before, during, and after the "stagflation" of the 1970s, the Flash Crash, the Dot Com Bubble, and the 2008 financial crisis, the first series of research questions asks with what frequency the chairman mentions the following terms:

**RQ1a:** How frequently does the Federal Reserve chairman talk about the economy?

**RQ1b:** How frequently does the Federal Reserve chairman talk about unemployment?

**RQ1c:** How frequently does the Federal Reserve chairman talk about the deficit?

**RQ1d:** How frequently does the Federal Reserve chairman talk about inflation?

## Economics

There is an increasing realization that economics is not just numbers, but also possesses a significant communicative aspect, especially in a post-Keynesian economic context, where economists have begun to recognize faulty assumptions exist with regard to traditional methods of predicting future economic performance. As such, some economists have begun to argue for the incorporation of communication in the conceptualization of economics (e.g., Goodwin, 1988; Houck, 2001; McCloskey, 1998). The following section identifies relevant literature from the

field of economics in conceptualizing the Federal Reserve chairman's economic policy communication.

A seminal work on economic communication came from economist McCloskey. In her book, *Rhetoric of Economics,* she urges economists to develop more fully how rhetoric and persuasion play a role in economics. Arguing that public economists are not content experts, but rather persuaders, McCloskey (1998) asserts that modern-day economics is too entrenched in its modernist traditions as a social scientific field, and as a result, ignores the influence and impact of language in economic thought and performance. She writes:

> I think the first edition and my later writings made a space in economics for thinking about the conversation. But it's still a very small space. Economists are still unaware of how they talk. I failed. Oh well, keep trying. The results of the rhetorical unawareness of economists, I have realized more and more, are unspeakably sad. A lot of good work gets done in economics, new facts and new ideas. Economists are not stupid or lazy, not at all. I love the field. I belong to the mainstream and would float happily in it if it made a bit of sense. But the mainstream of normal science in economics, I'm afraid, has become a boys' game in the sandbox. It has become silly. (p. 189)

The crux of her argument is that economists need to "do both [think like both a traditional economist and a rhetorician]; to know what the passage [from an article] says but also how it achieves its end, persuasion" (e.g., McCloskey, 1998, p. 4). She calls on economists to study rhetoric and create a deeper, richer understanding of the field that moves beyond conceptualizing economics as a mathematical formula to one that accounts for its role in shaping the economic expectations of individuals and institutions.

One such area in which economics can go deeper in an exploration of the discourse of economics is in the use of metaphor (Lakoff & Johnson, 1980). Metaphors are pervasive in economic communication, but seldom recognized for their suasory effect (McCloskey, 1988). Metaphors shape language and the ways in which concepts are viewed (Lakoff & Johnson, 1980). The most famous economic metaphor is, of course, Adam Smith's "invisible hand," but terms such as the "velocity of money," "elasticity," and "equilibrium" are contemporary metaphors that have become embedded in the discourse of economics but in a non-reflective manner. As such, economists are unaware of the "rhetorical riches buried in their style of talk" (McCloskey, 1988, p. 66).

For example, if investors become concerned and asset price begins to stagnate or fall, regulatory agencies can compensate by adjusting credit ratings, but as in the case of the 2008 financial crisis, this tool sometimes arrives too late. Said another way, a meta-narrative of growth has a significant interpretive effect on how individuals and markets process information and communicate. A growth narrative, that is, a series of journalistic stories, Congressional testimony, corporate forecasts, and rising investor expectations that feed off of each other and result in an accepted convention wisdom that the economy will continue to grow for the foreseeable future, leads to acceptance of increasing amounts of risk and the simultaneous ignoring of negative economic anomalies. Conversely, a narrative of recession has the opposite effect--of ignoring or discounting encouraging economic signals.

In that spirit, the oeuvres of Keynes, Heilbroner, and Galbraith, all economic heavyweights, have articulated broad, overarching theories of economics that take into account the critical role of communication in economic thought (e.g., Galbraith, 2009; Heilbroner, 1991; Houck, 2001). In such theories, rhetoric is viewed as a way to create economic reality; markets

are constituted through discourse (Houck, 2001). For example, future economic activity is a cause of uncertainty that scholars and practitioners work to interpret and predict (Houck, 2001). The ability of an organization like the Federal Reserve to respond to this uncertainty and shape expectations through communication enables the Federal Reserve to play a leading role in discursively constituting the market. Relatedly, persuasive rhetoric has been called the "great multiplier" (Houck, 2001). In times of economic turmoil, Smith (2014) suggests rhetoric plays an important role in domesticating the anxieties associated with social upheaval. Communication, then, is seen to be vital in alleviating concerns about the future.

Not only have economists begun exploring narratives, metaphors, and some theories through the lens of rhetoric, but Goodwin (1988) has argued that economists have been required to adapt their economic language to an unknowledgeable and uninformed public. Policymakers, for example, may have only a rudimentary understanding of the ways in which economics works, so economists must interpret the economics for policymakers, persuading a lay audience of the merits of their economic interpretation or proposal (Goodwin, 1988). As a result, economists are compelled to use varied rhetorical styles and forms of argument depending on the audience (Goodwin, 1988). Second, economists, when outside their discipline, do think in ways that a lay audience can understand. The highly technical language and calculus of economics is stripped away when economists practice and consult, making them more effective economists (Goodwin, 1988). In other words, as economists enter the public sphere and are forced to translate their ideas to mainstream audiences, they become increasingly sensitized to the critical role of language in enacting EPC. Yet economic rhetoric is understandably limited because academicians continue to speak in a specialized language and have little compelling reason to break out of this style of conversation and academic writing (Goodwin, 1988).

An understanding of this division and that economic rhetoric has failed to gain traction within the *academic* practice of economics underscores the need to bring EPC into the conversation. Economics has laid a foundation, and by explicating the role of persuasive communication in the performance of the economy, this provides an initial point from which communication scholars should work to expand, develop, and refine. Without more understanding of the language of economics, applying economic thought and theory to identify desirable policies in complicated political situations is risky because scholars may not understand the political system, its constraints, and how persuasion plays a role (Keohane, 1988). As such, communication provides *the* link between economics and public policy.

A longstanding critique of economic rhetoric is it is interested merely in "style" (McCloskey, 1998). However, the substance of economic scholarship depends on how well economists argue with and persuade one another (McCloskey, 1988). Paying attention to the rhetoric of economics would differ from the existing work done in economics in that it would be forced to "face its own arguments" (McCloskey, 1988, p. 286) and illuminate the human element of economics while limiting the mathematical formulas; changing the nature of scholarly inquiry in economics to focus on language and discourse could show economists that communication and language matters to the conclusions drawn by economists, and, in turn, the conversations that economists have that impact policy (McCloskey, 1988). Klamer (1988) writes,

> I reaffirm the desire to expand the possibilities for inquiry through new questions and new concepts. We do not want to be restricted to the dissection and minute analysis of logical propositions; we want to engage in a discourse that ventures to interpret the economic discipline as a discursive activity and explores its rules of formation and its premises. . . . Accordingly, we want to open the border of economic discourse. (p. 278)

An understanding of economic rhetoric impacts how regulatory bodies like the Federal Reserve formulate public statements or Congressional testimony, or how financial institutions like Wall Street banks disclose financial performance to shareholders each quarter. Communication scholarship can help economists address how EPC should be formulated to impact the market and to shape policy and to recognize the critical role that discourse plays in constituting EPC. Therefore, this dissertation seeks to examine what is said, and how it is said (i.e., the sentiment) by the chairman of the Federal Reserve. The following section incorporates communication literature to further build the rationale for this study's research questions.

**Communication**

Some communication scholars have begun to respond to the call for more work that studies the discourse surrounding economics, yet difficulty exists in that economics is a complicated technical field to understand, requiring knowledge of calculus, markets, and macro/microeconomics (e.g., Allsopp, 1997; Chaput & Hanan, 2015; Wildman, 2008). Whereas economics is critiqued for "subject-related jargon" which presents a high barrier of entry for communication scholars, cross-disciplinary collaboration between communication and economics can lead to more progress than if communication scholars do not strive to enter the conversation on EPC (Allsopp, 1997). The following section strives to draw a link between the fields of economics and communication and propose two additional research questions.

The field of economics ultimately studies social behavior--how individuals and organizations react and interact. As such, economics is uniquely positioned for communication scholars to study as it has an intense focus on "behavioral equilibria," or how behavioral choices maximize one's well-being based on beliefs about another's actions and how one's expectations

concerning the actions of others are confirmed (Wildman, 2008). Based on this premise, communication should find a significant place in the study of economics.

In terms of areas of mutual interest, areas like media economics, communications policy, and the economics of communication industries are ripe for initial interdisciplinary collaboration (Wildman, 2008). However, underexplored areas include organizational communication, issue management, and political communication. Organizational communication should especially be an area of joint interest to economics and communication, where organizational communication scholars have incorporated economic theories (e.g., transaction cost theory; Monge & Contractor, 2001) into their work; yet economics oftentimes is ignorant of relevant work that exists within organizational communication (e.g., intra- and inter-organizational communication channels; Wildman, 2008). This dissertation seeks to draw connections between the fields of economic communication and organizational communication.

Economics is reflective of social reality (Chaput & Hanan, 2015). Chaput and Hanan (2015), for instance, focus on popular news stories, examining behavioral economics pieces like the popular book *Freakonomics* (2009) to explore how economics plays a role in constituting individuals' social reality, showing how communication creates and shapes individuals' expectations of economic performance as well as their generalized understanding of how markets and the economy "work."

While the constitutive nature of social reality that economics provides is present in normal economic times, it is even more pronounced during times of crisis. During crises, the Federal Reserve is a social actor to whom the public and media look when framing current economic performance. Whereas Wood (2007) states the public looks to the President to frame economic realities, I argue the Federal Reserve chairman's sentiment (positive, negative, or

neutral) also affects how the public responds to economic crises. For when economic indicators like the GDP, unemployment rate, inflation rate, and the Consumer Sentiment Index turn downward, the communication of the Federal Reserve frames the current economic conditions. A positive or negative signal--as communicated by the chairman--in turn impacts how the media, the general public, and even economic elites interpret the performance of the economy.

Scholars of the presidency have found that the sentiment of presidential communication is important. Remaining optimistic encourages robust economic growth and development. Remaining positive when the economy is performing poorly encourages the public to participate in the economy (Wood, 2007). Moreover, presidency scholars like Wood (2007) argue for guarding the use of economic rhetoric wisely to protect the public's belief in the president's credibility. If the public looks to the president to discursively signal or interpret future domestic economic performance, a lack or loss of presidential economic credibility could lead to the loss of the ability to discursively shape economic expectations (Wood, 2007). For example, when running against Barack Obama in the 2008 presidential election, then-presidential candidate John McCain said, "I think, still, the fundamentals of our economy are strong," the same day Lehman Brothers filed for bankruptcy, leading to the freezing of money-market funds and a "global credit seizure" (Gross, 2008). As exit polls found 62% of the electorate viewed the economy as the most important issue, analysts pointed to McCain's comments as a turning point where he lost credibility on the economy (e.g., Mason, 2008; Gross, 2008). Indeed, this illustrates optimism, while important to EPC, is not always warranted as too much optimism at the wrong moment can raise uncertainty about a presidential candidate's competence. Economic language is any discourse that can allow a president to achieve these goals.

If the president is considered an important economic actor that can affect economic confidence, I argue that so, too, can the Federal Reserve chairman affect economic confidence. While the president has a much broader reach than a Federal Reserve chairman (indeed, the chairman's communication is directed towards economic elites), one way that the president can affect economic confidence is through the message sentiment he uses in talking about the economy (Wood, 2007). An optimistic sentiment signals to the public that they, too, should be positive about the future of the economy. A pessimistic sentiment signals to the public that they, too, should be cautious about the future of the economy. Despite the Federal Reserve chairman's more narrow reach, the same should hold for the Federal Reserve's communication.

Extending this construct to this study, a positive or negative sentiment indicates some level of certainty; indeed, a positive sentiment may be a tool by which a Federal Reserve chairman attempts to encourage economic participation, household spending, or infrastructure investment by those who audit his or her messages. Conversely, a negative sentiment may, for example, be an attempt to temper or shape expectations about future growth. Negative message sentiment also indicates certainty, just like positive message sentiment. Indeed, negative message sentiment may be as certain as positive message sentiment as the Federal Reserve chairman seeks to frame expectations about the economic future. It is also highly contextual, especially when considering too much optimism (or positive message sentiment) at the wrong moment can raise uncertainty about a chairman's (or presidential candidate's) competence. Therefore, measuring the positivity or negativity of the chairman's sentiment is an important variable in this study.

This study uses computerized coding for each instance of positive or negative sentiment to create a net score for each instance of Congressional testimony under Volcker, Greenspan, and

Bernanke during the 3 months prior to, during, and 3 months after an economic crisis. While Chapter Three details the exact coding schema, it is worth noting that uncertainty can be referenced as a mix of positive and negative sentiment from a Federal Reserve chairman. In other words, he or she might make brief positive or negative statements but overall connote no positivity or negativity with regard to economic performance. For example, saying, "The current economic forecasts indicate continued growth" may indicate continued positive growth in the future, but the chairman's value judgement (i.e., is the pace of this continued growth good or bad?) is not reflected. Sentiment in and of itself may be a way to indicate uncertainty. If studies of organizational members have indicated the possibility that organizational leadership influences member uncertainty levels through communication, understanding *what* organizational leadership says is important. Yet, as scholars of the presidency have found, Presidents and their tone about the economy can shape public opinion about the performance of the economy. While this study does *not* intend to measure public opinion, I argue that the rationale is the same: the Federal Reserve also shapes how economists, market-watchers, and the public interpret the performance of the economy. During times of economic crisis and high volatility, especially, uncertainty is high. A key goal of Federal Reserve communication during that time is to manage economic uncertainty. Therefore, a positive, neutral, or negative valence informs how the economy's ups and downs are interpreted.

That value judgement (positive, neutral, or negative--or, sentiment) is one indicator of what the Chairman expects the economy to do in the future. Yet, a second variable is the chairman's level of uncertainty. During a time of economic uncertainty, the chairman him- or herself may be unsure what the economy will do. Or, in an attempt to manage economic uncertainty, the chairman may work to appear more certain and confident about what the

economy will do in the future in an attempt to shape the future performance of the economy. Therefore, this study asks, during times of economic crisis:

**RQ2a:** What is the association between the chairman mentioning the economy and the chairman's overall sentiment during his opening statement before Congress?

**RQ2b:** What is the association between the chairman mentioning unemployment and the chairman's overall sentiment during his opening statement before Congress?

**RQ2c:** What is the association between the chairman mentioning the deficit and the chairman's overall sentiment during his opening statement before Congress?

**RQ2d:** What is the association between the chairman mentioning inflation and the chairman's overall sentiment during his opening statement before Congress?

As has been noted, the Federal Reserve chairman may be responding to economic indicators like the gross domestic product (GDP), the current unemployment rate, or the University of Michigan's Consumer Sentiment Index (a measure of confidence households have in the U.S. economy), among others. Kohn and Sack (2003), for example, found Greenspan's congressional testimony had a significant effect on federal funds and Eurodollar futures rates, the two-year Treasury yield, and the Treasury forward rates (even the ten-year Treasury yield). Therefore, the question emerges as to if the Chairman responds to the latest economic indicators when testifying before Congress, especially if one goal or purpose of his or her communication during that testimony is to shape expectations about the future performance of the economy. Using the most recent measures of the GDP, unemployment rate, and the Consumer Confidence Index, this study asks during times of crisis:

**RQ3a:** What is the association between mentions of the economy and the GDP, unemployment rate, and the Consumer Confidence Index at the time of the testimony?

**RQ3b:** What is the association between mentions of unemployment and the GDP, unemployment rate, and the Consumer Confidence Index at the time of the testimony?

**RQ3c:** What is the association between mentions of the deficit and the GDP, unemployment rate, and the Consumer Confidence Index at the time of the testimony?

**RQ3d:** What is the association between mentions of inflation and the GDP, unemployment rate, and the Consumer Confidence Index at the time of the testimony?

## EPC and Uncertainty Management in the Context of the Federal Reserve's Communication

In their original conceptualization of uncertainty reduction theory (URT), Berger and Calabrese (1975) proposed a series of axioms and theorems[13], like "high levels of uncertainty cause increases in information seeking behavior. As uncertainty levels decline, information seeking behavior decreases" (p. 103). Their purpose in presenting these axioms was to bring together a broad set of literature and generate propositions for future research (i.e., to set a research agenda to test URT), with the ultimate goal of "a more general theory of developmental aspects of interpersonal communication" (p. 110; for a full list of these axioms, see Appendix A).

McPhee and Zaug (2001) subsequently adapted and tested these axioms in an organizational communication context. While these axioms were originally used for theory-building in the sociopsychological tradition (Craig, 1999), and organizational communication scholars often do not use axioms today, I take the nature of axioms into consideration for this

[13]At the time, axioms were used as theory-building (e.g., Hawes, 1975), and they often guided scholars committed to a post-positivist meta-theoretical perspective in their scholarly pursuits. McPhee and Zaug (2001) adapted and applied Berger and Calabrese's (1975) original axioms within an organizational context. Examples of studies that tested these axioms and presented notable extensions of URT are outlined in Knobloch (2015). Other studies that tested these axioms or extended them to different contexts are Berger and Bradac (1982); Bradac, Hosman, and Tardy (1978); and Solomon and Knobloch (2001; for a list of Berger and Calabrese's original seven axioms, see Appendix A).

project, specifically how these axioms guide thinking about uncertainty. While my aim is *not* to set up a project that tests axioms, my aim is to more clearly and precisely apply uncertainty management to the new context of economic policy communication. In other words, since uncertainty management has not been applied to an organization like the Federal Reserve, the assumptions developed in this section helped to shape my thinking about the Federal Reserve's communicative uncertainty management practices, and to understand, for example, what variables may be of relevance to the Federal Reserve's uncertainty management. Hereafter, unless identified as Berger and Calabrese's (1975) or McPhee and Zaug's (2001) axioms, all references to Axioms--or what Philipsen (1975) referred to as propositions--are ones I have developed.

In exploring uncertainty management in an economic policy context, I have developed 8 assumptions, or things I take to be true as a basis for this study's argument, regarding how the Federal Reserve manages its role. These assumptions also highlight what the Federal Reserve "should" do--they have a normative component, unlike Berger and Calabrese's (1975) axioms.[14] These assumptions are: (1) The Federal Reserve interprets many divergent stimuli/messages; (2) the Federal Reserve itself, as an institution, seeks to interpret these stimuli in its environment, though it faces an enormous level of uncertainty in doing so; (3) communication functions to reduce uncertainty (though it is probably better to conceptualize that the Federal Reserve seeks to manage as opposed to reduce uncertainty); (4) the Federal Reserve communicates to reduce uncertainty about the direction of the economy; it often telegraphs what it expects to happen; (5) the purpose for doing so is to increase predictability for investors, politicians, and policy makers

[14]As these assumptions also highlight what the Fed "should" do, they have a normative component that is missing from URT axioms like Berger and Calabrese's (1975) axioms. This study does not seek to test these axioms, and notes that criteria for evaluating normative theory are different than those for evaluating traditional post-positivist theory.

(i.e., narrow the range of alternatives); (6) conflicting economic indicators in economic policy communication increase uncertainty; (7) in a crisis situation, bad news often has the potential to paralyze institutions or individual investors (e.g., a market meltdown or credit freeze) and they turn to emotion-focused coping (e.g., avoidance, denial, or blaming others; Lazarus & Folkman, 1991); and, (8) too much information results in a difficulty in processing the information--which results in volatility.

Applying these assumptions to an organizational context such as the Federal Reserve (e.g., conceptualizing an organization and its discourse as one individual, and members of that organization's key publics as another individual) shapes our understanding of uncertainty management. For example, when an economic crisis or a period of economic volatility is ongoing, uncertainty is high. Key publics (e.g., economists, policy analysts, and other Wall Street social actors) are highly motivated to reduce uncertainty about actions that Federal Reserve chairman will take--and thus audit his or her messages closely. Testimony before Congress is an opportunity for the Federal Reserve chairman to speak publicly. His or her testimony is televised on Cable-Satellite Public Affairs Network (C-SPAN), which since 1979 has provided coverage of speeches, debates, forums, and events (e.g., House and Senate sessions, committee proceedings) without editing or commentary (Browning & Buzzanell, 2014). This coverage, while once known as "the network that dares to be boring" (Rosenthal, 1987, para. 2) has, for decades, been recognized as an invaluable source of unedited governmental proceedings. While the chair's testimony is broadcast on C-SPAN, his testimony, in turn, may or may not be covered by the news media (e.g., mainstream news talk shows, major national newspapers). Therefore, while uncertainty management has classically been applied to interpersonal relationships, it may prove a useful lens in exploring the content of Federal Reserve testimony as

its chairmen seek to reduce or maintain economic uncertainty about the current performance of the economy, or even the future performance of the economy. In reflecting on these assumptions, variables like economic performance (introduced in the last section; RQ3) may be of importance for the Federal Reserve's response; the Federal Reserve may want to avoid conflicting economic indicators which increase uncertainty (assumption 6), so they communicate to reduce uncertainty (assumption 3). The following section summaries the relevant literature on organizational uncertainty management, recognizing the Federal Reserve is an organization with a chairman who speaks on behalf of the organization. The chairman's testimony and his level of actual certainty may aid in the Federal Reserve's communication about the direction of the economy (assumption 4) to increase predictability for investors, politicians, and policy makers (assumption 5) and proposes two additional sets of research questions that take these assumptions into account.

## Uncertainty Management

Any complex human or institutional interaction, whether it be online or offline, has multiple potential goals, some of which are primary, others secondary. Traditionally, these goals have been conceptualized as either task, relational, and identity goals (Clark & Delia, 1979; Dillard, 1989). Task goals concern those situations in which an individual or institution seeks to accomplish a purpose, whereas relational goals facilitate the preservation and maintenance of said relationship. Uncertainty management involves elements of both relational goals (maintaining working relationships and trust during times of crisis) and identity goals (projecting an image of competence and calm during the crisis).

Congressional testimony is unique in that the Federal Reserve can be compelled to speak before Congress. The Federal Reserve chairman has to say something, and clearly has purposes

he or she is trying to accomplish. Those purposes may change based on how the economic indicators (e.g., GDP, current unemployment rate, Consumer Confidence Index) look because the Federal Reserve may need to reflect that it understands the current economic environment, work to keep the economy under control, seek to maintain confidence in the economy, and at the same time, try to avoid appearing overtly political. These indicators may influence some of what the Federal Reserve says. Uncertainty management is relevant to the extent to which the Federal Reserve acknowledges these indicators.

This dissertation focuses on what the Federal Reserve communicates during periods of difficult economic conditions, such as the period of extended high inflation Paul Volcker faced from 1979-1983 during his tenure as Federal Reserve chairman—or events like the 2008 financial crisis. The Federal Reserve has multiple goals in its communication before Congress. During normal times the Federal Reserve is a task-oriented form of testimony (e.g., such as the assessment of current economic conditions, previewing potential future monetary policy actions, forecasting the prospects for future economic growth or contraction). However, in especially turbulent times when fears of a market meltdown or credit freeze are paramount, uncertainty management becomes a more salient goal (i.e., the goal that, for the moment, defines what is going on and what motivates the Federal Reserve chairman to speak; Dillard, 1997).

This notion about uncertainty management being the primary goal is the case because during a crisis as much is unknown as is known. As such, the communicative goal of uncertainty management is tantamount, and undergirds all such communicative purposes. During an economic crisis, for instance, it is imperative for the Federal Reserve to manage uncertainty for investors, Wall Street, hedge fund managers, pension funds, regulatory agencies, and policy makers, as to the current economic climate (e.g., will another bank fail today?; assumption 5, 7)

and also about the future of the U.S. economy (e.g., when will the economy recover?; assumption 4, 6). Such testimony during times of crisis are relational in nature—and often emphasize messages of reassurance, be they attempts to calm a volatile market, to quell fears about the extent of economic contraction, or to guarantee the availability of necessary and appropriate levels of liquidity of credit—all of which are uncertainty management strategies.

Yet the Federal Reserve is far from perfect and as a result, it can also create the very uncertainty it is trying to reduce. During Bernanke's tenure, as the 2008 financial crisis wound down, he suggested the Federal Reserve would raise rates. The market reacted negatively, so the Federal Reserve announced it would not raise rates after all. This shift back to the original position created much uncertainty with regard to investor expectations, which violated assumption 5.

Therefore, this study examines the content of the Federal Reserve's statements before Congress and provides inquiry into the question as to what are the Federal Reserve's communication goals during an economic crisis as evidenced by the content of the chairman's communication and his sentiment. The Federal Reserve's primary job is to control inflation and aspire to full employment. Yet most individuals and institutions look to the Federal Reserve to set the tone (assumption 1); and seek to gauge the degree to which the Federal Reserve chairman's confidence, positivity, or even negativity indicates the Federal Reserve understands and has formulated the appropriate response to the situation. Uncertain language, on the other hand, may indicate that the members and directors of the Federal Reserve are in disagreement and have yet to come to consensus as to how to respond. Therefore, I also examine the sentiment of the Federal Reserve chairman during Congressional testimony to see if the Federal Reserve changes the way it communicates during periods of high pressure and economic turmoil.

As a result, this next section first identifies the central constructs and assumptions of uncertainty reduction theory (URT). Then, the development and theoretical extensions of URT in different communication contexts are identified. This overview of URT allows for a focus on how uncertainty and similar constructs operate in human interaction, whether it be in an interpersonal (e.g., Berger & Calabrese, 1975) or organizational context (e.g., Kramer, 2004).

## Central Constructs of Uncertainty Management

Uncertainty management as it is currently understood originated in 1975 with uncertainty reduction theory (URT). Originally developed from an interpersonal context, URT argues that during two strangers' first interaction, their primary concern is to reduce uncertainty in order to bring about an increased predictability within the relationship (Berger & Calabrese, 1975). As such, a base assumption of URT is that individuals are fundamentally motivated to reduce uncertainty in any interaction. People who are faced with uncertainty reduce that uncertainty through using information seeking strategies to discover what they believe to be relevant information.

In defining uncertainty, Berger and Calabrese (1975) identify two relevant components: prediction and explanation. First, prediction is required for each individual involved, where an individual:

> [tries to] predict the most likely alternative actions the other person might take. Moreover, the individual interactant must then select from his own available response alternatives those which might be most appropriate to the predicted action of the other. However, before such response selection can occur, the individual must reduce his uncertainty about the other; that is, narrow the range of alternatives about the other's probable future behavior. He must attempt to develop predictions about the other *before*

the other acts. In the first sense of uncertainty reduction, the individual is engaged in a *proactive* process of creating predictions." (Berger & Calabrese, 1975, pp. 100-101)

In the second component, retroactive explanation of behavior, the problem is "for the individual to reduce the number of plausible alternative explanations for the other person's behavior" (Berger & Calabrese, 1975, p. 101). In other words, when an individual fails to explain past behavior, uncertainty is high, which Kuang (2015) calls *retroactive* uncertainty, and when an individual fails to predict what may happen next, uncertainty is high, which results in *proactive* uncertainty (Kuang, 2015).

Three points can be made about URT. First, increased communication (e.g., asking questions) can reduce levels of uncertainty (Berger & Calabrese, 1975). Second, Berger and Calabrese (1975) point out that certainty may be rewarding to a point, but if an individual can completely predict another's behavior, there can be a cost, such as boredom within a close personal relationship, such as romantic relationship. Finally, at the beginning of a relationship, uncertainty is high and is reduced as a function of time, effort and commitment to the relationship (Berger & Calabrese, 1975). Subsequent studies found that uncertainty is also reduced as a function of information (e.g., Berger & Calabrese, 1979).

**Uncertainty Management Theory**

Uncertainty management theory (UMT), a contemporary update and development of URT, draws from the work of Babrow, Hines, and Kasch (2000) and Babrow, Kasch, and Ford (1998). Babrow and colleagues are critical of uncertainty reduction and what they perceive to be an overly simplistic conceptualization of uncertainty. As a result, Babrow developed Problematic

Integration (PI) theory[15], which focuses on frequently arising problems as individuals "attempt to understand, act, and interact" (Babrow, 2016, p. 1389). The theory refers to social actor attempts to manage this uncertainty as problematic integration.

While historically applied in health and interpersonal contexts (e.g., identity and relationship management, social exclusion, sibling relationships, social support, and information-seeking contexts), PI theory has most often been used to study uncertainty (Babrow, 2016)[16]. In his critiques of uncertainty management, Babrow (2017) argues uncertainty management merely reduces communicative response to uncertainty as either increasing, reducing, or maintaining uncertainty. Rather, PI theory identifies several different "meanings" or "forms"[17] of uncertainty, and suggests that communication will be "most edifying when it is sensitive to variations in the forms of uncertainty and other forms of PI as they arise in specific situations" (Babrow, 2016, p. 1391). Responding to the specific *form* of uncertainty is "likely to foster better communication" (Babrow, 2016, pp. 1391-1392). While PI theory is rooted in a critique of uncertainty management, it ultimately is an approach that functions to account for more than uncertainty. As a result, this dissertation, while acknowledging the value of PI theory, chooses to utilize UMT as the theoretical frame.

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[15]Problematic Integration theory holds that:

> Mind, meaning, and knowledge are associational. Communication fabricates understandings of things, people, events, abstract ideas, or any other object of perception, thought, or knowledge by associating these mental objects with characteristics, categories, causes, effects, and so on. In other words, webs of association are formed to answer questions such as: What sort of entity is this? What are its characteristics? . . . How will it behave? Answers to these questions are held with varying levels of subjective probability (commonly, varying levels of 'certainty' or 'belief'). (Babrow, 2016, p. 1388)

[16]Uncertainty is only one "form" in PI theory. Other forms include: divergence (when desire conflicts with belief about the past or present), ambivalence (a single focal object of thought, such as a person, activity, or event, which is associated with strong and negative attributes), and impossibility.

[17]Babrow defines forms of uncertainty as "differences in the meaning of uncertainty itself, or, in other words, the nature of the indefiniteness of the association (irrespective of its topics or foci)" (Babrow, 2016, p. 1390).

UMT defines uncertainty as existing when "details of situations are ambiguous, complex, unpredictable, or probabilistic; when information is unavailable or inconsistent; and when people feel insecure in their own state of knowledge or the state of knowledge in general" (Brashers, 2001, p. 478). As opposed to uncertainty reduction theory, uncertainty management theory argues that rather than working to reduce uncertainty, individuals may be motivated to manage, maintain, or cultivate uncertainty, and uncertainty may result in *less* rather than more information seeking, a more sophisticated position.

Other important work conceptualizes uncertainty to include relational uncertainty and uncertainty discrepancy. In relational uncertainty, Knobloch and Solomon (1999, 2002) argue that uncertainty reduction is managed differently based on the type of interpersonal relationship. The theory of motivated information management (Afifi & Weiner, 2004) extends uncertainty management to conceptualize under what conditions uncertainty leads to "motivated action," and uncertainty in illness theory (Mishel, 1988, 1990) explains how patients process illness events and consistent uncertainty in chronic or acute illness.

## Extensions of Uncertainty Reduction Theory and Uncertainty Management in Organizations

Although Brashers (2001) conceptualized uncertainty within health communication contexts, he points to macro-organizational levels of uncertainty, where "decision making typically reflects environmental risks and ambiguities. The stability of the economy or market, availability of resources, or probability of competing innovation can determine growth and sustainability of the organization" (p. 480). His work advocated abandoning the assumption that uncertainty always produces anxiety. He called on scholars to address questions about variability in uncertainty experiences, the role of emotion in uncertainty management, and the diversity of

behavioral and psychological responses to uncertainty. He rejected the assumption that uncertainty produces anxiety, arguing scholars could better theorize about uncertainty without being limited by the idea individuals fundamentally want to reduce uncertainty. He wrote:

> Because we typically orient to reducing uncertainty rather than managing it, we fail to examine the volition of social actors in determining uncertainty management processes. When we theorize about communication processes, we must attend to the broader conceptions of uncertainty that we now know exist. We have to remind ourselves that "uncertainty" and "anxiety" are not synonyms; correspondingly, "reducing uncertainty" is not the same as "managing the effects of uncertainty." (Brashers, 2001, p. 489)

In other words, Brashers argues for moving beyond the assumption that uncertainty must *reduced*—to the framework that uncertainty can be *managed*—which has important implications for both theory *and* practice. Reducing uncertainty, for example, in healthcare settings can threaten the feeling of hope and optimism that is important for individuals suffering from chronic or acute illness to maintain (Brashers, Neidig, Haas, et al., 2000).

Further extending uncertainty to organizational communication, however, McPhee and Zaug (2001) identify ways in which organizational communication theory accounts for and should account for uncertainty. For example, they argue that "rationality" is central to organizational theory and is listed as a central problematic in organizational communication. Rationality is present in uncertainty management in that it precisely sets the terms for the reduction of the uncertainty and does so in a way that privileges one set of interests over another. Mumby and Stohl (1996), for instance define technical rationality as "an orientation toward knowledge that privileges a concern with prediction, control, and teleological forms of behavior," whereas practical rationality is "a form of knowledge grounded in the human interest

in interpreting and experiencing the world as meaningful and intersubjectively constructed" (p. 59). Rationality is often aligned with what is logical, instrumental, and in the best interests of managerialism (e.g., see Deetz & Mumby, 1990). Economists and central bankers, with their difficult to understand terminologies typically engage in technical rationality and, as a result, privilege economic interests in their policy decisions. There are also new conceptualizations and movement toward tension-based approaches (e.g., Trethewey & Ashcraft, 2004) within the field of organizational communication. Founded on the value of contradiction, irony, dialectic and dialogic processes that further question the utility of gearing everything toward "rational" processes and responses, especially because the world and organizational processes are complex, and are only predictable through alternative approaches. In other words, this movement views the world as tensional and inherently contradictory, moving away from rationality.

Yet this differs from classical organizational communication, beginning with Taylor's scientific management, where the tendency in organizations is "to displace knowledge from worker to organization, thereby decreasing organizational uncertainty, and to emphasize the issue of organizational means to the end of production, rather than the choice of end itself" (McPhee & Zaug, 2001, p. 576). In other words, organizations have worked to decrease worker uncertainty through small, repetitive, efficiency-enhancing tasks and to increase organizational knowledge. McPhee and Zaug (2001) also argue that "not only do different organizations, in different industries, face different uncertainty problems, but different departments in those organizations deal with varying segments of the environment, each with its own uncertainties" (McPhee & Zaug, 2001, p. 582). Ultimately, McPhee and Zaug (2001) conclude that uncertainty management theories (in this case, specifically problematic integration) look different in organizational contexts, especially when taking into account the complex ways in which

organizational members internally communicate, and the complex environment in which organizations operate.

Relatedly, Kramer (1993, 1994, 1999) and his colleagues (e.g., Kramer, Dougherty, & Pierce, 2004; Kramer, Meisenbach, & Hansen, 2013) have done significant work applying uncertainty reduction theory (URT) to organizational contexts such as community theatre (a form of alternative organizing) and aviation industry mergers and acquisitions. Kramer (1999) went so far as to re-conceptualize uncertainty reduction theory as motivation to reduce uncertainty (MRU). His work is important to consider with regards to the present study, and therefore merits a somewhat detailed discussion as to the ways in which he has extended URT within organizational communication.

While uncertainty reduction theory and uncertainty management have been extended to an organizational context, it is with regard to how organizational actors and employees respond to uncertainty within the organization. For example, Kramer et al. (2004) examined the uncertainty of airline pilots during a merger and the ways in which the pilots gathered information about the merger that increased or decreased their uncertainty. They found that while interpersonal settings have somewhat limited sources of information, organizational members often chose between various sources of information (e.g., company leadership, peers, the media, and the union). The value of such sources of information changed over time. For example, the value of official sources increased over time, whereas the value of union officials and the media decreased over time. There was no change over time in the value of information from outside source or peers for airline pilots during the merger and acquisition. Moreover, Kramer and his colleagues found that while some pilots engaged in information seeking, consistent with Berger and Calabrese's (1975) URT, other pilots avoided or delayed seeking information, or "sought

[information] for the comfort of interacting with peers not expecting it to reduce their uncertainty" (p. 96). Ultimately, these results were consistent with Gudykunst's (1995) work on information seeking, where information seeking occurs only when uncertainty is above a minimum threshold yet below a maximum threshold. This also is a central premise of TMIM--people will only experience anxiety and hence be motivated to consider information seeking when they experience an uncertainty discrepancy.

Kramer et al. (2013) examined how volunteers navigate uncertainty as voluntary members of an organization, and the impact uncertainty has on various organizational outcomes. Kramer and colleagues' (2013) factor analysis found volunteers only experienced task (specific organizational volunteer tasks, in this case relating to music) and social (how to relate to others) uncertainty, but not organizational uncertainty. Their findings emphasized the importance of different information sources for managing uncertainty. They wrote:

> Whereas leadership communication has an important influence on volunteers' certainty, peers have a separate but significant influence as well by addressing volunteers' need to develop relationships as part of managing uncertainty. This finding suggests leaders can help volunteers reduce their uncertainty by promoting volunteers' social interaction; the resulting reduction in uncertainty has positive effects for them as individuals and for the organization as a whole. (Kramer et al., 2013, p. 32)

These are two examples of studies that supported and extended Kramer's (1999) theoretical modification of URT. Their conclusions are consistent with his 1999 study that "argues that people may reduce uncertainty through cognitive processes rather than by seeking information or act based on motives that supersede uncertainty reduction" (p. 96).

Moreover, his finding that communication with leaders and peers is critical to managing uncertainty (even more so than organization tenure for volunteers) indicates that *what* and *how* organizational leadership communicates may impact organizational members' (and volunteers') uncertainty levels. Extending Kramer's oeuvre to further understand what the leadership of an organization (e.g., like the Chairman of the Federal Reserve) says in order to manage organizational uncertainty is important conceptual underpinning to this study.

Yet these studies are from the perspective of organizations communicating to organizational members (e.g., human service agencies communicating to volunteers, corporations communicating to employees) during times of explicit change, such as mergers and acquisitions, transfers and position transitions. The purpose of organizational members communicating to direct reports and volunteers is to reduce uncertainty, stress, and anxiety and enhance productivity and morale. Going through a merger, for example, means that "employees lose their previous corporate identity, must learn a new culture and language, and wonder how the merger will impact their job security" (Kramer et al., 2004, p. 72). Past literature suggests that uncertainty, a cognitive response, leads to stress and anxiety, an emotional response (e.g., Gudykunst, 1995). Communication and the increase of information following that communication can help decrease those levels of stress and anxiety.

This study, conversely, examines the Federal Reserve as an organization and asks in what ways does the content of its communication about the current and future performance of the economy contain uncertain language. In this way, this study is an important extension of uncertainty management as its examination of organizational messages moves from merely exploring organizational member responses, by questioning what the organization itself says during periods of economic uncertainty.

Information can actually increase uncertainty and decrease liking, particularly when the information is negative (e.g., Afifi & Burgoon, 2000) or unexpected (e.g., Planalp & Honeycut, 1985). This point, brought up repeatedly by Kramer (1999; Kramer et al., 2004), suggests that while the Federal Reserve's increased communication may increase transparency—a noble legitimation goal, especially in consideration of the economic crisis that necessitated more information from the U.S.'s lender of last resort--there may be a point at which the Federal Reserve communicates too much (assumption 8). Of note, there is a normative element here, or a judgement about what the Federal Reserve should do (or what a competent Federal Reserve would do, where competent means effective and appropriate). And, with complex financial information, just as was found in health contexts, individuals may not be motivated to reduce that uncertainty.

In other words, while the Federal Reserve's self-professed goal of increased transparency has benefits (e.g., more information can decrease uncertainty; it can help maintain trust in the U.S. financial system), too much information can also increase uncertainty, and can even have an unintended effect of causing an *immediate* market reaction as the market accounts for and "bakes in" that new information into the financial markets (assumption 8). This highlights a tension between too much and too little information.

Because the Federal Reserve chairman is one of a handful of drivers of the U.S. and global economy, certainty in the face of an economic crisis can allay fears from the markets, the public, stockbrokers, and other financial and economic elites, who likely are exhibiting information-seeking behaviors themselves. This study, then, examines the relationship between the topics a chairman speaks about (from Wood's (2007) typology) and his or her level of certainty. DICTION™, software designed by Roderick Hart to conduct computerized language

analysis, measures certainty within texts. DICTION defines certainty as "language indicating resoluteness, inflexibility, and completeness and a tendency to speak ex cathedra" ("Diction Overview," n.d., para. 2). Using a DICTION score in order to arrive at a certainty measure provides what Kuang (2015) would call the Federal Reserve chair's *actual uncertainty*, as it accounts for items or factors that are hard for the Federal Reserve chair to control (i.e., which are outside of the Federal Reserve chair's awareness). Therefore, this study assessed the DICTION measure of actual spoken certainty and how it is associated with the topics the chairman discusses, the sentiment used when testifying about those topics, and the larger performance of the economy. This leads to the following series of research questions[18]:

**RQ4a:** What is the association between mentions of the economy and the chairman's level of certainty?

**RQ4b:** What is the association between mentions of unemployment and the chairman's level of certainty?

**RQ4c:** What is the association between mentions of the deficit and the chairman's level of certainty?

**RQ4d:** What is the association between mentions of inflation and the chairman's level of certainty?

Finally, the studies referenced thus far, especially Wood's (2007) which forms the basis of the coding typology about the current performance of the economy (coding for frequency of mentions of the economy, unemployment, the deficit, and inflation), do not examine the future

[18]Although it is provocative to consider the potential for directionality within these four research questions and it would have important theoretical implications, in its current form uncertainty management does not take into account the volume of organizational messages. As this study seeks to extend uncertainty management to the symbolic figurehead of an organization (and thereby examine how organizations themselves create, reduce, or manage uncertainty), there is no theoretical basis for directionality.

performance of the economy. Yet during an economic crisis or times, uncertainty exists not just about the current performance of the economy, but also the future—will the economy recover? Therefore, building on Wood's (2007) work as well as Kuang's (2015) use of proactive uncertainty management leads to the final set of research questions:

**RQ5a:** How often does the chairman talk about the economic future?

**RQ5b:** What is the association between mentions of the economic future and the chairman's sentiment?

**RQ5c:** What is the association between mentions of the economic future and the chairman's levels of certainty?

**RQ5e:** What is the association between mentions of the economic future and current economic indicators (e.g., GDP, unemployment, and the Consumer Confidence Index)?

In short, uncertainty management is highly complex. It is multilayered, interconnected, and temporal (Brashers, 2001). As a result, appropriate and effective responses vary across contexts and situations and across *organizational* contexts as well (Babrow et al., 2000; McPhee & Zaug, 2001).

In sum, this dissertation applies uncertainty management to an economic policy communication context. Although this context has never been studied before with regard to uncertainty management, economic policy communication has several characteristics that make it appropriate. First, just as when receiving a health illness diagnosis (e.g., cancer, long-term illness) a person consciously decides to decrease or increase certainty (i.e., or not seek additional information about the illness—or seek a second opinion), an individual may make a decision as to whether or not a financial risk is likely/unlikely to occur or is helpful/harmful to the individual's financial situation. Second, efforts by the Federal Reserve chairman to reduce

uncertainty about the economy are rooted in lessening proactive uncertainty, namely, when individuals fail to predict what will happen next (Kuang, 2015). While this goal is laudable, it can result in a behavioral straight-jacket for the Federal Reserve. If market conditions change, the Fed is faced with a difficult dilemma: change course—and violate the idea of uncertainty reduction and be seen like the "boy who cried wolf"—or act in spite of the economic evidence to maintain credibility.

By conceptualizing the external communication of the Federal Reserve as economic policy communication (EPC), the sentiment (positive, negative, or neutral) and volume (quantity) of EPC is measured using content analysis of Congressional testimony from the Federal Reserve chairman. This content analysis is done to explicate what the Federal Reserve says when speaking publicly about the performance of the U.S. economy in order to examine the relationship between the chairman's level of uncertainty, his or her sentiment, and the topics he or she covers when speaking before the U.S. Congress during economic crises.

# CHAPTER THREE: METHODOLOGY

The Federal Reserve's increased communication over the past several decades has led to changes in interpretation and expectations on the part of investors, policy makers, and consumers as it concerns the economic future. Within the scope of this dissertation, however, I look at the content of the Federal Reserve's communication as a vehicle by which scholars may account for how and on what bases these changes in interpretation and expectations occur. More specifically, the content of the Federal Reserve chair's Congressional testimony is a channel through which the Federal Reserve must communicate, and while it may have multiple goals in its communication to Congress, one of the underlying goals of the Federal Reserve, based on the assumptions I proposed in Chapter Two, is to manage uncertainty about the direction of the economy, especially in times of economic duress.

To accomplish this task, I first provide an overview on my data collection plan with regard to the public statements of Federal Reserve Chairmen Volcker, Greenspan, and Bernanke and as well as the relevant economic data that I use as variables, informed by the assumptions developed in Chapter Two. Second, I detail how I intend to operationalize their statements using testimony- (macro) and sentence-level (micro) variables. In doing so, I provide details about the coding process, as well as the subsequent plan to use logistical hierarchical linear models (HLM) to perform data analysis.

## Overview

### Data Collection and Sample

To obtain a cross section of data across a wide array of Federal Reserve chairs to take into account varying crises and economic pressures, this dissertation focuses on Paul Volcker,

Alan Greenspan, and Ben Bernanke and the four economic crises that occurred during their tenure, which includes the "Stagflation" of the late 1970s and early 1980s, the 1987 500-point drop which came to be known as "Black Monday," the 1999 "Dot-com Bubble," and the 2008 financial crisis—the "Great Recession." Specifically, data are pulled from Congressional testimony for the three months preceding the crisis, the duration of the crisis, and three months after the economic crisis.[19] To determine the length of the crisis, I consulted *The New York Times, The Wall Street Journal,* and scholars within economics and political science to identify a start and end date to each crisis. I then added three months before and after that date. For example, when identifying the duration of the 2008 financial crisis, there was a clear starting point (when Bear Stearns and Lehmann Brothers were reportedly in financial trouble). Enough time has passed, too, that economists can point to a period of time when "the Great Recession" ended and the economy was on the road to recovery. I added three months to this date, too.

While context is important to recognize during the interpretation of the results of this content analysis, this sample covers diverse economic events that have shaped and have necessitated Federal Reserve communication before Congress.

Although the amount of communication by a Federal Reserve chair has varied over the past several decades, the Federal Reserve chairman has always been compelled to testify before Congress (e.g., the Senate Banking, Housing, and Urban Affairs Committee), and one of its underlying goals of communicating during these sessions is uncertainty management. Therefore, Congressional testimony transcripts were collected from the Federal Reserve's archives. These

[19]Three months before was recommended during a personal conversation with Dr. Charlene Sullivan (1 May 2017), Professor of Finance at Purdue University and member of the Chicago Board of Governors from 1991-1996. The duration of these crises were determined using news reports from *The New York Times* and *The Wall Street Journal*. As these four economic crises are all over 10 years old, some of the coverage is even sorted (e.g., "Times Topics" proved helpful in narrowing date ranges). Additionally, peer-reviewed articles in the political science and economics disciplines were used to confirm my range of dates met historical norms.

are the statements the Federal Reserve chair has prepared, but does not include the question-and-answer portion of the testimony. Written transcripts are used rather than video transcripts to avoid potential confounding factors such as nonverbal and visual indicators.

**Other Data Sources**

To operationalize the relationship between the content of Federal Reserve communication (through Congressional testimony) and the varying economic exigencies, economic indicators are included. Therefore, this study includes variables from other data sources including the GDP, the unemployment rate, and the Consumer Sentiment Index. Economic information is pulled from the previous quarter/most recent month. For the GDP, unemployment rate, and Consumer Sentiment Index, I used the St. Louis Federal Reserve's historical data.[20] The historical data can be requested based on time frames, so I first determined if the data was recorded quarterly or monthly. For example, the Consumer Sentiment Index is available quarterly. So I added three months before the first testimonial date I was interested in when I was gathering the Consumer Sentiment Index data. Then, I was able to download the data into an Excel spreadsheet. If I wanted to know what the Consumer Sentiment Index was for a February Congressional testimony, I would use that January's data (the most recent data point) when collating the text-level data for Consumer Sentiment Index.

Rosa (2013) recommends using market data that "balance[s] between sampling too frequently (and confounding price reactions with market microstructure noise, such as the bid-ask bounce, staleness, price discreteness, and the clustering of quotes) and sampling too infrequently (and blurring price reactions to news)" (p. 68). As the text-level data used in this

[20]E.g., see https://fred.stlouisfed.org/series/UMCSENT/

study were all monthly or quarterly measures of economic performance, there is a balance between sampling economic data too frequently and too infrequently.

## Operationalization

### Development of Codebook

To create the codebook for this study, Wood's (2007) *The Politics of Economic Leadership* was reviewed, and Wood's codebook and directions to coders were requested. His typology was used (i.e., his definition and directions to coders for identifying the following terms: economy, unemployment, inflation, and deficit), and he counseled using computerized coding when replicating or modifying his "tone" variable. The modified process of measuring what this project calls message sentiment is outlined in the following sections, but of note, this project uses computer coding to measure message sentiment and certainty at the text level.

Then I met with a graduate student coder. Together, we randomly selected a Congressional hearing from within the last 35 years. Alan Greenspan's confirmation hearing was selected, and we watched the first 30 minutes, middle 10 minutes, and last 10 minutes of the testimony. During this viewing, we wrote down themes and potential words to help define and conceptualize how the future of the economy is discussed by the Federal Reserve chairman.

After this viewing, a draft of the codebook using Wood's (2007) framework and themes and wording referencing the economic future was completed. Specific words that were mentioned and alternate conceptualizations of themes were identified from the viewing.

To further refine the codebook, one Congressional statement from 2016 was chosen randomly. It was chosen because it was outside the dataset for the dissertation project. From this, a set of 98 sentences were randomly selected to analyze. The author and a second graduate student coder met to code the 98 sentences and ran initial reliability on the codes to determine

where discrepancies fell. This procedure helped to further refine the economic future coding categories and collapse redundant categories together. Refining and collapsing coding categories resulted in a refined set of codes for way the Federal Reserve chair speaks about the economic future that was not chairman or time specific. The following sections first describe the coding process we followed once we had a codebook developed, and how reliability was calculated and disagreements resolved amongst the coders. Then, the testimony-level and sentence-level variables are identified. Finally, this section concludes with a description of the five logistic hierarchical linear models run to test this study's research questions.

Once the full dataset was compiled, we coded approximately 10% of the sample for reliability.[21] We coded approximately 50 sentences at a time, met to discuss disagreements, and then would code an additional 50 sentences, and repeat the process until there was a low number of discrepancies between the coders. Normally, disagreements were discussed and we reached consensus in our coding. However, in some instances where we could not reach consensus, we used the codebook to interpret the code more literally. After reliability was met (see the following two sections), I coded the remaining 90% of the datasets. To see the codebook and directions to coders, refer to Appendix B.

**Coding Process**

To conduct the content analysis, a second graduate student coder and I coded 10% of the sample for reliability. The graduate student coder was trained over the course of four months, both in-person and via Skype.[22] Specifically, we coded for the following items: economic future; economic de/regulation; positive economic change; negative economic change; economic

[21]For all the data except for the 1987 dataset, we coded 10% during reliability. For the 1987 data, we coded 15% during the reliability phase.

[22]Payment for the graduate student coder was made possible by a grant from the C-SPAN Archives.

competitiveness; economic uncertainty; economic stability; economy; unemployment; inflation; and deficit. Once reliability, as set forth by the standards of Krippendorff's alpha, was met the second coder and I coded the full dataset (for the Krippendorff's alphas, see Table 1).

Message sentiment and the chairman's level of certainty were conducted using methods of computerized coding, detailed below.

**Reliability**

To calculate code reliability, Krippendorff's alpha was used (Krippendorff, 2012). Krippendorff's alpha is a conservative estimate of reliability as it accounts for chance agreement among coders whereas other reliability coefficients (e.g., Scott's pi, percent agreement) artificially inflate the reliability measure.

As recommended by Krippendorff (2012), a minimum of 10% of the population was sampled for reliability. To avoid systematic bias of KALPAS, a minimum 10% sample of Congressional testimony for each chair was coded for every code except the computerized certainty code. Dividing reliability coding by chairman avoided potential variations by chair from artificially inflating or deflating Krippendorff's alpha. A minimum score of .68 (as recommended by Krippendorff, 2012) was obtained for all codes in order for coding to move from the reliability stage to full coding.

**Testimony-Level Variables**

There are a number of steps I take to operationalize the variables in this study. For Congressional testimony, I code for variables at the text-level. At the text-level, two variables are measured using computerized coding. First, the message sentiment score is measured via a sentiment analysis using a "tidytext" package. Second, the chairman's certainty score is

measured using DICTION. The remaining data (economic data at the time of the testimony) for the testimony-level variables comes from the Federal Reserve's historical economic data, publically available online.

**Chairman.** This variable represents the chairman for each Congressional committee appearance, whether it be Volcker, Greenspan, or Bernanke. This variable was dummy coded with Paul Volcker as the referent. Across the 114 Congressional testimony transcripts, 37.1% percent were from Paul Volcker, 39.4% percent were from Alan Greenspan; and 23.4% percent from Ben Bernanke.

**Sentiment.**[23] A sentiment analysis is conducted to generate a frequency count of positive and negative sentiment at the sentence level. Then, a net sentiment score can be collated for the overall sentiment of the testimony, similar to Wood's (2007) net sentiment score for each president. To generate a net sentiment score, a sentiment analysis is conducted on each Congressional testimony transcript. The number of positive sentiment and negative sentiment was totaled using a "tidytext" package, and the frequency of positive sentences was subtracted from the frequency of negative sentences. For the directions to replicate this procedure, see Appendix C.

Such a method enabled Wood (2007) to identify, for example, that President Reagan and President Clinton were positive about the U.S. economy, whereas President George W. Bush was pessimistic about the U.S. economy. This scoring allows for comparison of sentiment of Federal Reserve chairs across economic crises, specifically with regard to the economy, unemployment, inflation, the deficit, and the economic future. Across chairmen, the average sentiment score was

[23]In personal communication with B. Dan Wood (2 February 2017), author of *The Politics of Economic Leadership* and professor of political science at Texas A&M University, he highly recommended using computerized software, as software has increasingly improved in these areas since his original study.

3.86 (*SD* = 32.41, *Range* = -220 to 80). A higher sentiment score indicates more positive words were used during testimony before Congress, whereas a negative sentiment score indicates more negative words were used during the Congressional testimony.

**Certainty/Uncertainty.** Hart's DICTION™[24] software is used to conduct computerized coding. Clarity and ambiguity are difficult to define, especially in the context of chairman like Alan Greenspan and Paul Volcker who were known for their opaque communication. DICTION's certainty dictionary defines certainty as "statements indicating resoluteness, inflexibility, and completeness" (Hart, 1984, p. 113). Hart (1976) operationalized certainty in two ways. First, "Leveling terms (all, everyone), collective nouns (bureau, department), and rigid verbs (will, shall) make for assured statements" (p. 16). Second, "qualifying terms (almost, might), specificity (e.g., numerical citations), and first-person pronouns signaled an individual's refusal to speak ex cathedra" (Hart, 1976, p. 16).

Across chairmen, the average certainty score was 46.82 (*SD* = 2.44, *Range* = 32.71 to 52.91). A higher score indicates more language that is *rigid* (all forms of the verb "to be,"), *level* (e.g., terms like "all," "everyone," or "none"), *collective* (e.g., terms like "bureau," "department," or "industry"), and *high in power* ("a repeated use of a finite number of terms"). A lower certainty score, in contrast, has increased *numerical frequency* ("any sum, date, or product which serves to specify the facts in a given case"), *qualification* (e.g., terms like "could," "almost," or "might"), *self-reference* ("signals…a willingness to acknowledge the limitations of one's opinions"), and *variety* (total different words divided by total words) (Hart, 1984, p. 113).

[24]Hart's DICTION software conducts computerized language analysis. The program looks for certain features in the text through the use of dictionaries. Dictionaries have been created by Hart, and a researcher can also create his/her own dictionary. Hart has created 28 different word lists (or dictionaries). For this analysis, I use Hart's "certainty" dictionary. Of note, Hart's certainty variable is highly correlated with variety. Other scholarly work has used Hart's (1976) certainty dictionary.

**Economic Indicators.** At the testimony-level, an additional source of data to understand the condition of the economy at the time of the testimony are the GDP rate, the unemployment rate, and the Consumer Sentiment Index. Several of the assumptions proposed in Chapter Two that identify ways in which the Federal Reserve might engage in uncertainty management argue the Federal Reserve needs to respond to the performance of the economy to, for example, reduce uncertainty about the direction of the economy (assumption 4) and to explain potentially conflicting economic indicators (assumption 6). The GDP rate, the unemployment rate, and the Consumer Sentiment Index are three measures come out once a month or even less frequently (i.e., once a quarter).

The unemployment rate represents the number of unemployed as a percentage of the labor force ("U.S. Bureau of Labor Statistics," n.d.). Across the 114 testimonies, the average unemployment rate was 7.08 (*SD* = 1.92, Range: 3.80 to 10.80). A higher unemployment rate indicates a higher percentage of the labor force reports they are out of work. A lower unemployment rate indicates a lower percentage of the labor force reports they are out of work.

The GDP is a quarterly measure of the market value of the goods and services produced by labor and property located in the United States ("U.S. Bureau of Economic Analysis," n.d.). Across the 114 testimonies, the average GDP (in billions) was 8581.49 (*SD* = 4972.17, *Range:* 2670.39 to 15587.13). Higher GDP indicates a healthy economy (Koba, 2011). However, a slowing or negative GDP (i.e., a lower GDP score) can cause concerns about a recession (which, in turn, leads to layoffs, unemployment, and declining consumer spending; Koba, 2011).

The Consumer Sentiment Index (CSI), also measured monthly, is a measure of confidence in the future of the economy ("University of Michigan," n.d.). The University of Michigan conducts a telephone survey of 20,000 households monthly to gather information on

household expectations of the economy ("University of Michigan," n.d.). As it measures household spending plans, so higher scores indicate more confidence or positivity from these households in the future of the economy. Lower scores, conversely, indicate a more pessimistic outlook for the future performance of the economy. In other words, one standard deviation above the mean ($M$ = 76.86, $SD$ = 15.45, Range: 51.70 – 112) means households are more willing to spend money in the future. For all three of these economic measures, the most recent data from *before* the date of the Congressional testimony was used as a Testimony-level variable.

**Sentence-Level Variables**

To build and extend work in political science, economics, and communication in the area of economic policy communication, I extend Wood's (2007) work in an attempt to fully capture the range and content of the Federal Reserve's communication under the guidance of three Federal Reserve chairmen during times of economic crisis. Krippendorff's alpha (2012) was used to code 20% of sentences for reliability.

**Economy.** The next four sentence-level codes are from Wood's (2007) study of the economic leadership of the President. He coded for mentions of the word "economy," and marked the presence/no presence of the term. 5.9% of sentences ($n$ = 652 sentences of the total dataset) mentioned the term "economy."

**Unemployment.** Wood suggested coding for direct mentions of "unemployment," "jobless," or "jobs." At the sentence level, I code for presence and no presence of these terms. 1.2% of sentences ($n$ = 137 of the total dataset) mentioned "unemployment," "jobless," or "jobs."

**Inflation.** Wood's (2007) study coded the terms "inflation," "price increase," and "price decrease." This study used the same terminology and marked for presence and no presence of

these terms. 7.9% of sentences (*n* = 879 of the total dataset) mentioned "inflation," "price increase," or "price decrease."

**Deficit.** Finally, Wood (2007) coded the terms "deficit," "debt," and "spending." This study uses terms to identify sentence-level mentions of the deficit; they are: the economy, unemployment, inflation, and deficit terms. 2.7% of sentences (*n* = 301 of the total dataset) mentioned "deficit," "debt," or "spending."

**Future Orientation.** Each sentence is coded for a future tense verb followed by a reference to the economy. Scacco (2014) coded for a future orientation with regard to presidential expectations in signing statements, state of the unions, and tweets. His keywords of "will, "would," "shall," "should," "can," "could," "expect," "anticipate," "forecast," "foresee," and "predict" are used. Every sentence was coded presence or no presence. Of 11,084 sentences, 1,140 (or 10.3%) referenced the economic future.

Then, of those 1,140 sentences that referenced the economic future, the following terms were coded for the presence or no presence: "deregulation/regulation/control/freedom/maintain" (*n* = 73 of 1,140 sentences referencing the economic future); "change" (*n* = 727 sentences of 1,140 sentences referencing the economic future); "positive" or "negative" change (*n* = 451 sentences of 727 sentences referencing change); "competitiveness (in reference to foreign economy/comparison to U.S. economy)" (*n* = 26 of 1,140 sentences referencing the economic future); "uncertainty/weakness/fragility" (*n* = 301 of 1,140 sentences referencing the economic future); and "stability" (*n* = 251 of 1,140 sentences referencing the economic future) were also coded.

**Data Analysis**

After achieving reliability and coding the full dataset, a series of logistic hierarchical linear models (HLM)[25] were run to answer the research questions.

To answer RQ1 (a-d), how frequently does the Federal Reserve chairman talk about the economy, unemployment, the deficit, inflation, and the economic future (RQ5a), frequency counts were generated to better understand how often the Federal Reserve chairman mentioned these terms and if any trends emerged across chairmen, or even among individual chairmen.

Then a series of five logistical hierarchical linear models (HLM) were conducted where the dependent variable was either mentions of the economy, inflation, the deficit, the unemployment rate, or the economic future (outcome variable), and the level two data included the chairman (dummy coding was used with Chairman Volcker as the referent), unemployment rate, the deficit, the Consumer Sentiment Index, the GDP, the testimony net sentiment score, and the chairman's overall sentiment score. To answer RQ2-5 about associations between the content of what is said by the chairman (i.e., does the chairman mention the economy, unemployment, the deficit, inflation, or the economic future) and the chairman's sentiment, level of certainty, and larger economic indicators, these models are used to predict the probability a term is used at

[25]Multi-level modeling is a statistical technique that has been widely applied in the social sciences, including in the fields of sociology, education, psychology, economics, and criminology, but has also been used in disciplines like biomedical sciences (Snijders & Bosker, 2012). Logistic hierarchical linear models are much like logistic regression; my dependent variable is dichotomous (presence of a term like "economy" is marked as either "0" (no presence) or "1" (presence)), but there are two levels--i.e., a sentence-level and a text-level. For a list of landmark papers that utilize multi-level modeling, see Snijders and Bosker (2012). This dissertation utilizes logistic hierarchical linear models because Congressional testimony is inherently "nested" under a larger set of variables (macro-level) that influence the sentence (micro-level) content. Snijders and Bosker (2012) write: "the basic idea of multilevel analysis is that data sets with a nesting structure that includes unexplained variability at each level of nesting, such as pupils in classes or employees in firms, are usually not adequately represented by the probability model of multiple linear regression analysis, but are often adequately represented by the hierarchical linear model" (p. 3). Multilevel models are appropriate if we are "interested in propositions that connect variables defined at different levels, the micro and the macro" (Snijders & Bosker, 2012, p. 10).

the sentence-level (dichotomous; 0 or 1)[26], considering the larger, testimony-level data. Multi-level modeling allows for variation not only within the micro-level (in this case, at the sentence level), but also across the macro-level (in this case, across 3 chairmen at 4 distinct time points), as my sentence-level data is nested within larger testimony-level contexts (Snijders & Bosker, 2012).

When composing these five models, I chose to collapse Greenspan's two economic crises into one larger chairman code. See Table 1 below:

Table 1: Testimonies and Dates

| | 1979 (High Inflation) | 1987 (500 point drop) | 1999 (Dot-Com Bubble) | 2008 (financial crisis) |
|---|---|---|---|---|
| Chairman | Volcker | Greenspan | Greenspan | Bernanke |
| Dates | 5 September 1979 – 24 November 1982 | 5 October 1987 – 16 November 1988 | 14 June 1999 – 13 November 2002 | 10 July 2008 – 21 July 2011 |
| Total number of testimonies | 38 | 15 | 27 | 34 |
| **Grand Total** | | | | **114** |

By combining Greenspan's two economic crises into one larger dataset, each chairman had approximately an equal number of testimonies, and as power is determined at the testimony-level (rule of thumb is to have 10 testimony-level documents per variable), this procedure allowed for adequate statistical power to identify effects both within and across chairmen.

[26]Although this dissertation uses dichotomous variables at the sentence-level (0 or 1; presence or no presence), the software Hierarchical Linear Modeling allows for a Bayesian procedure to account for this.

## Conclusion

This chapter has detailed the methodological steps for answering my research questions. In so doing, I proposed using a content analysis to code the content of Congressional testimony of three chairs of the Federal Reserve who possess markedly different communication styles. In doing so, I am able to provide a better understanding of what the Federal Reserve says during periods of economic uncertainty. In the next chapter, I will detail the results of the series of five logistic HLM outlined in this chapter to examine the association between macro-level variables (sentiment, economic performance variables, and the chairman's certainty) and the micro-level content (at the sentence level) of what the Federal Reserve chairman says. Chapter Five, then, lays out the theoretical implications of this study, and identifies pragmatic contributions, as well. Finally, an Epilogue reflects on the changing leadership of the Federal Reserve at the time this dissertation was completed.

# CHAPTER FOUR: THE CONTENT OF CONGRESSIONAL TESTIMONY DURING PERIODS OF ECONOMIC UNCERTAINTY

This research design extends work in political science on presidential economic leadership (e.g., Arthur, 2014; Eshbaugh-Soha & Peake, 2011; Wood, 2007), work in economics on the rhetoric of economics (e.g., McCloskey, 1998; Rosa, 2013), and work in communication on economic discourse (Chaput & Hanan, 2015; Wildman, 2008). To date, the economic leadership of the president has been thoroughly examined, yet a second major social actor in Economic Policy Communication (EPC), the Federal Reserve, has not been examined sufficiently (for exceptions, see Holmes, 2014a, 2014b; Rosa, 2011a, 2011b, 2013). In other words, there are unanswered questions and/or whole programs of study that have not been initiated. These handful of studies have not been sufficient in examining the Federal Reserve's role in shaping the economic leadership of the Federal Reserve. Holmes (2014a, 2014b), for example, argues from a sociological perspective that the economy is communicatively constructed. Yet he takes a rhetorical approach, leaving questions of association and causality unanswered. Rosa (2011a, 2011b, 2013) has found the Federal Reserve's *act* of communication itself has economic impact, but goes no further. Although studies have explored an increase in transparency and communication across central banks (e.g., Bligh & Hess, 2007; Fleming & Remolona, 1999; Kohn & Sack, 2004; Woodford, 2005), this study contributes to an understanding of *what* the Federal Reserve communicates about the economy and the economic future during high-pressure economic situations. This is a meaningful extension of prior work done, and allows for additional understanding of *what* a major social actor in our economy actually says. I also refer to some findings that might be consistent with some of the assumptions proposed in Chapter Two. I am not seeking to prove or support these assumptions; rather, these

assumptions were designed as a guide to move uncertainty management forward in this context. Therefore, I do identify several instances in this chapter where findings might be consistent with one or more of the assumptions from Chapter Two regarding how the Federal Reserve communicates, and its role in managing economic uncertainty for its external publics.

## What does the Federal Reserve say?

Research Question one asked how frequently during times of crisis the Federal Reserve chairman talks about the economy (RQ1a), unemployment (RQ1b), the deficit (RQ1c), and inflation (RQ1d). Of the 11,084 sentences, 5.9% of sentences (652 sentences) reference the economy (RQ1a), 1.2% of sentences (137 sentences) reference unemployment (RQ1b), 2.7% of sentences (301 sentences) reference the deficit (RQ1c), and 7.9% of sentences (879 sentences) reference inflation (RQ1d). Research question five asked how frequently chairman referenced expected future economic conditions. Of 11,084 sentences, 10.3% of sentences (1,140 sentences) reference the economic future (RQ5a). Table 2 divides the frequency by chairman.

Table 2: Frequency of Communication Topic by Chairman

| | Economy | Unemployment | Deficit | Inflation | Economic Future |
|---|---|---|---|---|---|
| Volcker (4112 sentences) | 234 (5.7%) | 46 (1.1%) | 141 (3.4%) | 621 (15.1%) | 496 (12.1%) |
| Greenspan (4374 sentences) | 265 (6.1%) | 34 (0.8%) | 119 (2.7%) | 129 (2.9%) | 465 (10.7%) |
| Bernanke (2,598 sentences) | 153 (5.9%) | 57 (2.2%) | 41 (1.6%) | 129 (5.0%) | 179 (6.9%) |
| Total | 652 (5.9%) | 137 (1.2%) | 301 (2.7%) | 879 (7.9%) | 1,140 (10.3%) |

### Sentiment, Economic Indicators, Certainty, and Chairmen

Research question two asked about the association between sentiment and mentions of the economy (RQ2a), unemployment (RQ2b), inflation (RQ2c), and the deficit (RQ2d).

Research question three asked about the association between mentions of the economy (RQ3a), unemployment (RQ3b), the deficit (RQ3c), and inflation (RQ3d) in the chairman's testimony and economic indicators (GDP, the unemployment rate, and the Consumer Sentiment Index). Research question four asked the association between chairman's level of certainty and mentions of the economy (RQ4a), unemployment (RQ4b), the deficit (RQ4c), and inflation (RQ4d). Finally, research question five asked how frequently the chairman mentions the economic future (RQ5a), but also the association between mentions of the economic future and the chairman's sentiment (RQ5b), level of certainty (RQ5c), and economic indicators (GDP, the unemployment rate, and the Consumer Sentiment Index; RQ5d).

I used logistic hierarchical linear modeling (HLM) to predict the probability of a sentence containing the words economy, unemployment, the deficit, inflation, and the economic future during congressional testimony based on varying economic indicators.[27] Five separate models containing a different dependent variable (i.e., economy, unemployment, deficit, inflation, and economic future) were run to predict the probability of a sentence containing these terms during Congressional testimony in the six months before, during, and after an economic crisis. Table 3 details the results of these logistic HLM models, and Table 4 provides a correlation matrix for the predictor variables.

[27]There was some discussion as to whether or not my sentence-level future-orientation subject codes (specifically: change, positive or negative change, stability, and uncertainty) should be aggregated to the macro-level. I decided against this aggregation for two reasons. First, while aggregating these variables allowed me to better predict the probability that Greenspan was the chairman of the Federal Reserve testifying, it was not one of the goals of this dissertation to predict chairman identity. Second, Snijders and Bosker (2012) caution against aggregation as it can cause a "shift of meaning" (p. 15). They provide an organizational example: "the average of an employee rating of working conditions may be used as an index for 'organizational climate'. This variable refers to the firm, not directly to the employees" (Snijders & Bosker, 2012, p. 15). Aitkin and Longford (1986) similarly caution against it. They claim working with aggregate data is "dangerous at best, and disastrous at worst" (p. 42). For these two reasons, I chose to run some descriptive statistics on these topics (see Chapter Five for further discussion) but not to aggregate to the macro-level.

Table 3: Predicting the Presence of Economy, Unemployment, Deficit, Inflation, Future Logistic HLM Model, Congressional Testimony[28]

| | "Economy" Coefficient (SE) | "Unemployment" Coefficient (SE) | "Deficit" Coefficient (SE) | "Inflation" Coefficient (SE) | "Economic Future" Coefficient (SE) |
|---|---|---|---|---|---|
| Intercept | -4.30* | -4.14 | -6.37 | -2.08 | -1.70 |
| | (2.53) | (2.89) | (4.30) | (3.85) | (1.62) |
| *Testimony Level Factors* | | | | | |
| Sentiment[29] | 0.002 | 0.01* | 0.006 | 0.01** | 0.003* |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| GDP (billions) | 0.00 | 0.0002 | -0.00 | -0.00 | -0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Unemployment Rate | 0.06 | 0.15 | 0.52*** | -0.05 | 0.12+ |
| | (0.07) | (0.10) | (0.15) | (0.11) | (0.07) |
| Consumer Sentiment Index | 0.03* | 0.02 | 0.05+ | 0.05** | 0.04** |
| | (0.01) | (0.02) | (0.03) | (0.02) | (0.01) |
| Chairman's Level of Certainty | -0.02 | -0.07 | -0.10 | -0.05 | -0.08** |
| | (0.05) | (0.06) | (0.08) | (0.08) | (0.03) |
| Alan[30] Greenspan | -0.85 | -1.47 | -0.18 | -3.23*** | -0.78 |
| | (0.50) | (0.90) | (1.10) | (0.87) | (0.47) |
| Ben Bernanke | -0.71 | -1.32 | -0.48 | -0.42 | -0.47 |
| | (0.68) | (1.32) | (1.75) | (1.23) | (0.61) |

*$p < .05$. **$p < .01$. ***$p < .001$. +p < .10.

[28]Table 2 details the unstandardized coefficients for the series of logistic HLMs. The number below the unstandardized coefficient is the standard error.
[29]Higher numbers for the sentiment code refer to more positive net message sentiment.
[30]The logistic hierarchical linear modeling was dummy coded with Paul Volcker as the referent.

Table 4: Correlations Among Predictor Variables ($N$ = 114)

| | Sentiment | GDP (billions) | Unemployment Rate | Consumer Sentiment Index | Certainty |
|---|---|---|---|---|---|
| Sentiment | 1 | -0.06 | -0.12 | 0.13 | 0.70 |
| GDP (billions) | -0.06 | 1 | 0.17 | 0.10 | 0.16 |
| Unemployment Rate | -0.12 | 0.17 | 1 | -0.68*** | 0.15 |
| Consumer Sentiment Index | 0.13 | 0.10 | -0.68*** | 1 | 0.00 |
| Chairman's Level of Certainty | 0.07 | 0.16 | 0.15 | 0.00 | 1 |

*$p$ < .05. **$p$ < .01. ***$p$ < .001.

**Predicting the Presence of the Economy**

During periods of economic uncertainty, the chairman mentions the economy 5.9% of the time during Congressional testimony. Specifically, though, this dissertation also asked if the chairman's sentiment (is he positive or optimistic during testimony?), the state of the economy at the time of the testimony, and if the chairman's actual uncertainty play a role in the likelihood the chairman mentions the economy.

There are a number of nonsignificant findings. The chairman's overall sentiment during congressional testimony (RQ2a) is not associated with the presence of the word "economy" at the sentence level, nor with two of the three economic indicators this dissertation was interested in: GDP and the unemployment rate. However, the Consumer Sentiment Index (RQ3a) is positively associated with mentions of economy ($B$ = 0.03, $SE$ = 0.01, $p$ < .05), increasing the probability of a mention of the economy by 0.02, or by 2%.[31] What this means is that higher

[31]In this case, by 2%. To calculate probability, I held all other predictors constant at their mean value. Then I multiplied each coefficient by its associated value (mean or modal value) and summed these components. I exponentiated the summed value and divided it by (1+the exponentiated value). This provided me with the probability of my dependent variable (in this case, the economy) holding all other independent variables at their mean or modal value.

Consumer Sentiment Index scores increases the probability that during Congressional testimony, the chairman of the Federal Reserve will use the word "economy" by 2%. That using the term "economy" at the sentence-level content is not associated with the GDP or unemployment rate, but it is associated with the Consumer Sentiment Index may be a reflection of the many divergent stimuli the Federal Reserve must interpret in preparing to testify before Congress (assumption 1). Finally, the chairman's actual level of certainty during testimony (RQ4a) does not predict mentions of the economy at the sentence-level.

**Predicting the Presence of Unemployment**

During periods of economic uncertainty, the chairman mentioned unemployment only 1.2% of the time during Congressional testimony. In looking for associations between sentiment (RQ2b), the economy (RQ3b), and the chairman's level of actual certainty (RQ4b), there is a positive association between the chairman's sentiment ($B = 0.008$, $SE = 0.004$, $p < 0.05$) and the presence of unemployment at the sentence level. Sentiment increases the likelihood of a mention of unemployment by 0.07. What this means is that positive sentiment increases the likelihood theterm "unemployment" is used at the sentence level during Congressional testimony by 7%. This may be a way the Federal Reserve achieves assumption 7 (in a crisis situation, bad news often has the potential to paralyze institutions or individual investors and the Federal Reserve turns to emotion-focused coping). While this is not a traditional example of emotion-focused coping (avoidance, denial, or blaming others; Folkman & Lazarus, 1991), perhaps the sentiment of the Chairman is a way the Federal Reserve communicates emotion. As sentiment is increasingly positive, unemployment may also be increasing--which is not reflective of the difficulties individuals are facing as unemployment increases. Perhaps this is an organizational form of avoidance; the Federal Reserve is trying to put a good face on somber news.

There are not, however, any associations between unemployment and economic indicators (RQ3b: GDP, the unemployment rate, and the Consumer Sentiment Index); they are not statistically associated with mentions of unemployment. This is especially interesting as one of the Federal Reserve's roles in managing the U.S. economy is to keep unemployment rates low. The fact that GDP, unemployment rates, and the Consumer Sentiment Index do not predict mentions of the word "unemployment" may indicate assumptions 7 and 8 have some validity--namely, in a crisis situation, bad news has the potential to paralyze institutions or investors (assumption 7), and too much information results in difficulty processing the information--which results in volatility (assumption 8). Perhaps when these measures are worse than usual (i.e., during a crisis), the chairman does not spend much time discussing or mentioning unemployment as to reduce uncertainty and/or economic volatility. Or, perhaps speaking too much about unemployment could negatively impact the Consumer Sentiment Index as households become nervous about maintaining a steady income during an economic crisis. Finally, the chairman's level of certainty is not associated with unemployment (RQ4b).

**Predicting the Presence of the Deficit**

The deficit is only mentioned 2.7% of the time in Congressional testimony during periods of economic uncertainty by the chairman of the Federal Reserve. While sentiment is not significantly associated with mentions of the deficit (RQ2c), GDP (RQ3c), or the chairman's level of actual certainty (RQ4c), there is a significant, positive association with the unemployment rate (RQ3c) ($B = 0.52$, $SE = 0.15$, $p < .001$). Sentiment increases the probability the deficit is mentioned by 0.01, or 1%. This may be the Federal Reserve chairman wants to speak positively about the deficit, or speaks about maintaining or reducing the deficit during times of economic duress. The Consumer Sentiment Index (RQ3c) ($B = 0.05$, $SE = 0.03$, $p =$

0.10) is trending toward significance. This would perhaps be a way that the Federal Reserve enacts or practices assumption 5: the Federal Reserve's communication seeks to telegraph what it expects to happen in order to increase predictability for investors, politicians, and policy makers. Perhaps, though, in light of these findings with regard to the Consumer Sentiment Index, this assumption should be expanded to include households as well.

**Predicting the Presence of Inflation**

The final word that Wood's (2007) study sought to predict was "inflation." During periods of economic uncertainty, especially the periods of high inflation in the 1970s and 1980s, it makes sense for the chairman to address concerns about the likelihood of inflation continuing to increase. Especially for Volcker (he spoke about inflation 15.1% of the time during his economic crisis, the highest for any chairman on any topic), predicting the presence of the term "inflation" may be associated with positive sentiment, negative economic indicators, or even chairman uncertainty.

In fact, sentiment (RQ2d) is positively associated with mentions of inflation ($B = 0.009$, $SE = 0.003$, $p < .01$). It can increase the probability that inflation is mentioned by 0.02, or 2%. Perhaps the Federal Reserve's positivity and the association with the frequency with which it mentions inflation is either increasing predictability about the economy (assumption 5) or it is trying to reduce uncertainty about inflation in the future (assumption 4).

In examining economic variables like GDP, the unemployment rate, and the Consumer Sentiment Index (RQ3d), there are mixed results. There is no association between mentioning inflation at the sentence level and the GDP, nor between mentioning inflation at the sentence level and the unemployment rate. However, inflation is positively associated with the Consumer

Sentiment Index ($B = 0.05$, $SE = 0.02$, $p < .001$). The increase in probability inflation is mentioned is 0.11, or 11%.

Finally, the chairman's level of certainty (RQ4d) is not associated with the presence of inflation in sentences during the Congressional testimony.

**Predicting the Presence of Future-Oriented Language**

One question this dissertation posed was what the chairman said about the future of the economy. During a time of economic crisis, what a chairman says about the economic future and how he says it may impact how the public perceives the severity of an economic crisis or downturn (assumption 4, assumption 5). Indeed, a positive association exists between the sentiment with which the chairman talks (RQ5b) and instances of the economic future ($B = 0.003$, $SE = 0.002$, $p = 0.09$). More positive sentiment increases the likelihood of a future-oriented mention of the economy by 0.01, or 1%. In other words, the more positive a chairman's overall Congressional testimony is, the more likely he is to mention the economic future at the sentence level. This would be in line with the proposed assumption (4) that argues the Federal Reserve communicates what it expects to happen; while I am not arguing this supports this assumption--indeed, this dissertation does not seek to test or prove these assumptions--I argue this is an example of the Federal Reserve chair shaping expectations about the future of the economy, and speaking positively about the future is a way the Federal Reserve chair manages uncertainty about the direction of the economy. These assumptions provide a way to shape and contextualize the relationships between the Federal Reserve's Congressional testimony and other economic variables.

Once again, economic indicators (RQ5c) are a mixed bag. GDP is not significantly associated with future-oriented language. However, future-oriented language is trending towards

significance with regard to the unemployment rate ($B = 0.12$, $SE = 0.07$, $p = .10$) and there is a positive association between the Consumer Sentiment Index and mentions of the economic future ($B = 0.04$, $SE = 0.01$, $p < .001$). The Consumer Sentiment Index increases the likelihood the economic future is mentioned by 0.07, or 7%.

Finally, mentions of the economic future are negatively associated with the chairman's level of certainty (RQ5d) ($B = -0.08$, $SE = 0.03$, $p < 0.01$). What this means is as the chairman's certainty decreases, the chairman is less likely to mention the future of the economy by 0.14, or 14%. The negative association between mentions of the economic future and the chairman's certainty may be indicative of assumption 2: the Federal Reserve itself, as an organization, seeks to interpret economic stimuli in its environment, although the Federal Reserve faces an enormous level of uncertainty in doing so. As the Federal Reserve chair decreases in his certainty, he may be less willing to go publicly on record as he seeks to manage uncertainty (assumption 3).

**Chairmen**

In terms of individual factors, when comparing Chairmen Volcker, Greenspan, and Bernanke, these differences do not seem as important as economic variables. While each chairman is recognized for having a different linguistic style (e.g., Greenspan has a reputation for being opaque, and Bernanke has a reputation as a technocrat who advocates for more transparency from the Federal Reserve), these individual differences between chairmen are statistically significant in only a few instances. For example, when predicting mentions of inflation based on chairmen, Greenspan is negatively associated ($B = -3.23$, $SE = 0.87$, $p < 0.001$) with mentions of inflation, and actually decreases the probability of inflation mentioned in a sentence by 0.12, or 12%.

When predicting a future orientation based on chairman, Greenspan is trending toward significance ($B$ = -0.78, $SE$ = 0.47, $p$ = 0.10) with mentioning the economic future compared to Chairman Volcker, and testimony from Chairman Bernanke is not significant ($B$ = -0.47, $SE$ = 0.61, $p$ = 0.44) with mentioning the economic future as compared to Chairman Volcker.

Finally, when predicting mentions of the economy based on chairmen, Greenspan yet again is trending toward significance ($B$ = -0.85, $SE$ = 0.50, $p$ = 0.10), indicating that there is a potentially negative association.

This chapter asked what the substance of the Federal Reserve Chairman's testimony contained, and used a series of logistic hierarchical linear models (HLM) to examine if the chairman's sentiment, the performance of the economy at the time of the Congressional testimony, or the chairman's level of actual certainty influenced the probability that the economy, unemployment, the deficit, inflation, or the economic future were mentioned in a sentence. While results were mixed, some interesting patterns emerged.

While scholars in public policy, economics, and communication all have begun to explore the multiple aspects of economic communication as it relates to their individual disciplines, this chapter sought to examine what the chairman of the Federal Reserve said about the economy during Congressional testimony, and if any outside factors (sentiment, the performance of the economy, or even the chairman's level of certainty) influenced the probability of what the chairman said.

In the next section, Chapter Five or Discussion provides nuance as to how the chairmen of the Federal Reserve talk about the performance of the economy during periods of high economic uncertainty and how they seek to communicatively construct and frame the economy's

performance for the public at large. Additionally, I discuss the theoretical and pragmatic contributions of this study.

# CHAPTER FIVE: DISCUSSION

During the 2000 presidential election, then-candidate John McCain said he would pull a *Weekend at Bernie's* if Chairman Alan Greenspan died while McCain was president ("Presidential Debates," n.d.). A comedy film from 1989, "Bernie" had invited his employees to his Hamptons beach house for his annual Labor Day party. Two low-level employees, Richard and Larry, discover Bernie has been murdered, but the rest of the office—including Bernie's girlfriend, remain oblivious to the fact that he is dead, too engrossed in their partying to notice. Fearing they could be implicated in his death, Richard and Larry work throughout the weekend to sustain the illusion that Bernie is, in fact, alive. McCain's comment that he would pull a *Weekend at Bernie's* if Greenspan died, meant that he would work hard at attempting to maintain an illusion for the public that Greenspan was still alive and in control of the Federal Reserve, underscoring the perceived importance of the role of the Federal Reserve chairman to the economy in general, and of Greenspan specifically. Greenspan, as time has shown, was a unique creature, widely perceived to be an oracle in his ability to facilitate economic growth through his actions at the Fed, despite his "mumbling with great incoherence" about the state of the economy (Blinder et al., 2001, p. 911). While not all Federal Reserve chairmen have enjoyed the lofty level of prominence afforded to Greenspan, within the national discourse, the position is, nonetheless, one that carries with it considerable political and economic weight, and is roundly seen to be one of the most powerful economic and political actors in all of Washington—and the world.

This dissertation has positioned the Federal Reserve in its socio-historical context and has attempted to discuss the changing nature of Federal Reserve communication since the 2008 financial crisis. It has done so by using the theoretical frame of uncertainty management--with

the expressed purpose of asking: What is the substance of communication by the Chairmen of the Federal Reserve during times of economic crisis? It also proposed eight assumptions designed to guide understanding of the specific ways in which the Federal Reserve--an organization that has not traditionally been an open, frequent communicator--has begun using communication to manage uncertainty during times of high economic uncertainty (i.e., during crises like the 2008 financial crisis). The assumptions in parentheses throughout this chapter are the ones I have developed from Berger and Calabrese (1975) and McPhee & Zaug (2001).

Extending uncertainty management beyond its traditional applications in interpersonal and organizational communication (e.g., studies on organizational assimilation and exit), the central questions this dissertation sought to answer are: (a) What does the Federal Reserve say during times of economic crisis? (b) Does Federal Reserve communication respond to the performance of the economy? And, (c) is the Federal Reserve's actual level of uncertainty associated with the topics the chairman talks about and the sentiment used when talking about these topics? This chapter now summarizes and extends key findings as outlined in Chapter Four, and identifies the theoretical (and axiomatic) and pragmatic contributions of this dissertation. The limitations of this study are then discussed, with the chapter concluding with directions for future research.

## Key Findings

While history has traditionally viewed Greenspan as an oracle of the economy, uniquely positioned to understand and make sense of the economic data (e.g., Bligh & Hess, 2007), the results of this study do not support this somewhat mystic status Greenspan seems to enjoy. Rather, factors like the sentiment with which the Federal Reserve chairman speaks and the current Consumer Sentiment Index are more strongly associated than the chairman of the Federal

Reserve to what the Federal Reserve chairman actually says during Congressional testimony. The following sections examines four key findings and patterns that emerged from the results outlined in Chapter Four. Then, I discuss the three overarching questions this dissertation proposed in the larger context of the U.S. economy in crisis.

**Finding #1: Consumer Sentiment Index**

The Consumer Sentiment Index (CSI), a monthly indicator of the confidence households have in the future of the economy ("University of Michigan," n.d.), was unique in that higher CSI scores increased the probability that four of the five dependent variables (specifically: economy, the deficit, inflation, and the economic future) are mentioned during Congressional testimony. A higher Consumer Sentiment Index score increases the probability the economy is mentioned by 2%, inflation by 11%, and the economic future by 7% (the deficit is trending toward significance, therefore no probabilities were calculated for this dependent variable). No other economic indicators included in this study increased the probability of a mention at the sentence-level of nearly all the dependent variables, even though the GDP and the unemployment rate are measures of the Federal Reserve's role in the economic system--namely, keeping inflation in check and promoting full employment.

This raises the possibility of a unique relationship between Federal Reserve communication and households. The Consumer Sentiment Index is different from GDP and the unemployment rate in these five models. The question becomes why, and I tentatively propose two reasons. First, GDP itself is measured in the billions of dollars, and future studies may consider using the change in GDP or the change in the unemployment rate when setting up these models. That may be a way to better put together how the Federal Reserve chairman responds--if at all--to these measures of the economy. Second, GDP and unemployment, while measures of

individual actions, are different in that the Consumer Sentiment Index surveys 20,000 households to ask questions about, for example, their future spending habits. Perhaps Consumer Sentiment Index is a better measure of how the Federal Reserve views the performance of the economy. Or, is it a cyclical relationship, where, as the economy improves, consumers become more likely to spend or predict a positive economic future? This is a very interesting relationship, and one that economists and communication scholars alike should dig into further.

**Finding #2: Message Sentiment**

Message sentiment, like Consumer Sentiment Index, increased the likelihood of several dependent variables appearing at the sentence level (specifically: unemployment, inflation, and economic future). It was the second strongest predictor variable. Sentiment, measured at the testimony level, was defined as the overall positivity or negativity of the testimony. Indeed, the sentiment score was calculated by determining the positive language, subtracting the negative language, and arriving at an overall net sentiment score for the full Congressional testimony transcript.

Text-level net message sentiment increasing the likelihood of predicting the presence of these words at the sentence-level underscores a key finding of this study--namely, that positive sentiment, or more positive emotionality behind the Federal Reserve chairman's words, increase the likelihood that the Federal Reserve will talk about unemployment, inflation, or the future. This may be a way the Federal Reserve chairman frames or manages uncertainty as he is doing this during an economic crisis (assumption 4).

**Finding #3: Economic Future**

While specific predictor variables loaded onto multiple models (i.e., Consumer Sentiment Index and message sentiment), what was unique about the five individual models is that the logistic hierarchical linear model (HLM) predicting the presence of "economic future" at the sentence-level was well-modeled. Sentiment, the unemployment rate, the Consumer Sentiment Index, and the chairman's level of certainty all increased the likelihood the economic future would be mentioned at the sentence-level during Congressional testimony.

Of note, though, is that as the chairman's certainty decreases, the chairman is less likely to mention the future of the economy by 14%. The negative association between mentions of the economic future and the chairman's certainty may be indicative of assumption 2: the Federal Reserve itself, as an organization, seeks to interpret economic stimuli in its environment, although the Federal Reserve faces an enormous level of uncertainty in doing so. As the Federal Reserve chair decreases in his certainty, he may be less willing to go publicly on record as he seeks to manage uncertainty (assumption 3).

**Finding #4: Unemployment and Inflation**

The Federal Reserve has a dual mandate of managing unemployment and inflation. Yet neither unemployment nor inflation were predicted well in either logistic hierarchical linear model. In fact, only one economic indicator variables at the testimony-level (the Consumer Sentiment Index) predicted the mention of inflation at the sentence level, and *none* of the economic indicator variables predicted the mention of unemployment at the sentence level. Even during an economic crisis, it remains true that the Federal Reserve's measures of success are unemployment and inflation, but changes to the GDP (indeed, a negative or stagnating GDP growth rate could trigger fears about higher unemployment rates or higher inflation) or

unemployment rate did not reveal the Federal Reserve chairman would be *more* likely to mention unemployment or inflation during testimony before Congress.

Higher Consumer Sentiment Index scores, however, meant a Federal Reserve chairman was 11% more likely to mention inflation during Congressional testimony (the same did not hold true for predicting the presence of the term "unemployment" at the sentence-level). This is noteworthy because it may be an indicator that the Federal Reserve is closely in tune with household spending and expectations.

**What does the Federal Reserve say during times of economic crisis?**

During times of economic crisis, the Federal Reserve communicates to reduce uncertainty about the direction of the economy, telegraphing what it expects to happen (assumption 4) and increase predictability for investors, politicians, and policy makers (assumption 5). Therefore, the coding schema used in this project was designed to build off prior literature from the fields of economics, political science, and communication to ask what the Federal Reserve said during these times of economic duress. Specifically, this study found the economic future ($n$ = 1,140), inflation ($n$ = 879), and the economy ($n$ = 652) were the three most frequently discussed topics during Congressional testimony. While the codebook is not exhaustive of every topic on which the Federal Reserve chairman speaks, it draws from Wood's (2007) study on Presidential economic leadership to argue the Federal Reserve is a key economic actor in shaping public expectations about the economy, and the economic future.

One of the additions to the original coding schema developed by Wood (2007) was the inclusion of an economic future code. The rationale for its inclusion was the assumption that talking about the economic future in a positive, negative, or neutral way would likely shape how the public perceives that the economy will perform (in line with assumption 4). While this

addition of sub-topics about which the chairman speaks when referencing the future of the economy (e.g., change and stability) were not useful with regard to the predictive validity of the five logistic HLMs calculated during this study, the Federal Reserve chairman does frequently discuss change, and it is often positive change he references when discussing the economic future. Originally, this codebook had codes for de/regulation and competition as well. These codes ended up being negligent; in other words, sentences referencing regulation/deregulation in the future *or* sentences referencing the competitiveness of the U.S. economy on a global stage were nonexistent (for the frequency of these topics when Volcker, Greenspan, and Bernanke testified before Congress, see Table 5).

Table 5: Frequency of Communication Topic ($n$ = 11,084)

| | Economic Future | Change[32] | Positive Change | Negative Change | Uncertainty | Stability |
|---|---|---|---|---|---|---|
| Number of Sentences | 1,140 (10.3% of all 11,084 sentences) | 727 (63.6%) | 451 (62.1%) | 275 (37.9%) | 301 (26.4%) | 251 (22.0%) |

**Does Federal Reserve communication respond to the performance of the economy?**

Wood's (2007) study on Presidential economic leadership argued the President of the United States uses his economic leadership "to affect consumer and business perceptions of current and future economic conditions" (p. 159). More specifically, Wood (2007) appears to have identified a somewhat cyclical relationship, one in which presidential rhetoric that is positive in nature inspires consumer and business confidence. In other words, a presidential

[32]As economic future was a clearinghouse code of sorts (i.e., a sentence had to make reference to the economic future in some way with language like "will" or "could"), change, positive change, negative change, uncertainty, and stability were only coded *if* that sentence was coded for the economic future. Therefore, for change, uncertainty, and stability, the percentage is of economic future sentences (i.e., 727 is 63.6% of the 1,140 economic future statements). For positive change and negative change, if a sentence made reference to an economic change, then it was coded as either positive or negative. Thus 451 is 62.1% of all change statements; 275 is 37.9% of all change statements.

response to the current economic climate serves to shape expectations about the economy in the future, and often inspires confidence in the business sector.

This prerogative of the President does not hold true for the Federal Reserve, that is, the Federal Reserve does not always respond to the current economic climate, nor does this study claim that the Federal Reserve *should* respond to the current economic climate. For example, the Federal Reserve might look and recognize concerning trends in the economic data. Bernanke and Yellen's claim that the Federal Reserve uses communication as a tool means sometimes the Federal Reserve needs to talk about the economic trends, and sometimes the best tool might be for the Federal Reserve to not respond.

If future studies provide additional support and evidence, there may be reason to revisit or refine assumption 1 (the Federal Reserve interprets many divergent stimuli/messages) to reflect a close relationship between the Federal Reserve and business community. Again, while this project does not seek to support or prove these assumptions, this is an instance where a proposed assumption from Chapter Two is not necessarily consistent with the broader findings of this dissertation.

**What is the relationship between certainty, content, and sentiment?**

There appear to be some relationships between sentiment and the Federal Reserve chairman's Congressional testimony mentioning unemployment, inflation, and the economic future. However, these effects are small. For example, positive sentiment only increases the likelihood the Federal Reserve chairman is speaking about unemployment by less than 1%, inflation by 3-4%, and the economic future by 1%.

This study also was interested in how the chairman's level of actual certainty predicted the topics on which the chair would speak. A negative relationship was identified with regard to

the economic future; in other words, as the Federal Reserve chairman grows less certain (or, increasingly uncertain), he or she is more likely to speak about the economic future. Perhaps this is an example of the Federal Reserve responding to current economic conditions. Even if the Federal Reserve does not directly respond to changes in GDP and the unemployment rate, there appears to be a relationship between economic future and certainty. The relationship between economic future and certainty may be an example of the Federal Reserve chairman "hedging his bets;" perhaps he wants to speak with less confidence and conviction. The Federal Reserve chairman is trying to avoid a negative market response or increased economic volatility if the future performance of the economy does not take place in the exact way the Federal Reserve chairman forecasted. This is in line with assumption 3, that the Federal Reserve seeks to manage uncertainty, and one measure of uncertainty would be to increase economic volatility. The chairman "hedging his bets" may also be in line with assumption 2, that the Federal Reserve as an organization faces an enormous level of uncertainty itself in responding to current economic conditions and while he seeks to interpret these stimuli, perhaps an incorrect forecast could increase volatility or increase uncertainty (thereby violating assumption 3). While increased economic volatility is not inherently bad, this fluctuation in the economy can be especially hard on middle-income individuals and families and retirees.

## Theoretical Contributions to Uncertainty Management

In exploring uncertainty management in an economic policy context, the Chairman of the Federal Reserve oversees an institution whose daily activity can be summed up by its efforts to manage uncertainty. The Chairman of the Federal Reserve, along with the Board of Governors gathers and seeks to interpret a multitude of stimuli/messages in the form of divergent economic data, though it faces an enormous level of uncertainty in doing so (assumption 1, assumption 2).

Once the organization arrives at some form of consensus through communication (Weick, 1999), the Federal Reserve chair then is positioned in a role to communicate to Congress in an effort to manage (and likely, reduce) uncertainty about the direction of the economy (assumption 3). He does so by telegraphing what the Federal Reserve expects to happen with regard to future economic conditions (assumption 3). By doing so, the Federal Reserve fulfills its purpose of managing uncertainty by increasing predictability for investors, politicians, and policy makers (by narrowing the range of likely alternatives; assumption 5). Of course, such "certainty" can only occur when there is agreement by Federal Reserve governors, as conflicting economic indicators in economic policy communication function to increase uncertainty (assumption 6). When economic conditions go from bad to worse, conflicting information often has the potential to dramatically increase uncertainty and, in so doing, paralyze institutions or individual investors (e.g., a market meltdown or credit freeze) whereby they turn from uncertainty management to emotion-focused coping (e.g., avoidance, denial, or blaming others; assumption 7).

This study makes important theoretical contributions to the study of organizational uncertainty management. Organizational communication scholars should continue to examine the role of the chairman, CEO, and other top executives in managing organizational member uncertainty. The work of Kramer (e.g., 1999, 2004) is certainly an important and meaningful contribution to the organizational communication literature, but it stops short of extending uncertainty management to the most visible member of major organizations: the CEO and/or Chairman. Within economic policy communication contexts during the Great Recession, the CEOs of major banks (e.g., Jamie Dimon of JPMorgan Chase) played *extremely* important roles in managing shareholder uncertainty and expectations. While this external role is taken as a given, it is a natural extension of the concept to investigate the role of a CEO's uncertainty

management efforts within an organization as it relates to company employees. In other words, whereas the previous literature has examined *how* organizational members manage uncertainty and *where* they seek information to lower their uncertainty, this study has extended uncertainty management into an entirely different context, asking questions about the relationship between the substance of what the Federal Reserve chair says and the efficacy of the Federal Reserve's efforts in uncertainty management. As such, this study makes several theoretical contributions.

First, the process of using a DICTION score in order to arrive at a certainty measure provides what Kuang (2015) would call the Federal Reserve chair's *actual uncertainty*, as it accounts for items or factors that are hard for the Federal Reserve chair to control (i.e., which are outside of the Federal Reserve chair's awareness). This measurement of actual uncertainty is valuable because it is a unique extension of the conceptualization of uncertainty management. Because the Federal Reserve chairman is one of a handful of drivers of the U.S. and global economy, certainty in the face of an economic crisis can allay fears from the markets, the public, stockbrokers, and other financial and economic elites, who likely are exhibiting information-seeking behaviors themselves. These associations between uncertainty and communication variables assessed in this study (e.g., sentiment, content of speech) are different than those that the uncertainty management literature has typically explored. For example, the Federal Reserve chair is unlikely to ask questions during Congressional testimony as a vehicle to reduce his uncertainty (i.e., in order to get a sense of the wishes of policy-makers), a direction URT might explore. Yet the value of studying the Fed chair's testimony before Congress about the economy, as demonstrated by the positive relationships between talking about the unemployment rate, inflation, and the economic future and sentiment, is that it shows how communication can inspire confidence as to the future, and subsequently manage uncertainty for others. In other words, this

study shows that the chief executive of an organization, any organization, is unlikely to be able to engage in typical information-seeking uncertainty reduction behavior. Instead, it is imperative that a chief executive project confidence in the face of uncertainty as a vehicle by which to promote the positive direction of an organization (or in the case of the Federal Reserve chair—the direction of the economy), by using a positive sentiment when talking about the future. Said another way, their use of positive sentiment helps others to manage their uncertainty.

A second, and related, extension of uncertainty management is that a decline in the chairman's actual certainty is predictive of mentions of the economic future. As was evidenced in Chapter Four, if the direction of economic signals is uncertain, and the chairman speaks with less certainty during Congressional testimony, he is likely to focus on the economic future. This focus on the future, consequently, is likely, once again, to inspire confidence, as it carries with it the implicit message that even though conditions are difficult, the future is likely to be better (i.e., hope springs eternal). While business conditions may vary from organization to organization, and from industry to industry, this act of projecting confidence by talking about the future in positive terms may be an important function in managing uncertainty of employees, investors, and other key publics. The message that "even though current conditions are difficult, the future has yet to be written" conveys a positive sentiment about the future and enables stakeholders to manage their individual uncertainty.

Third, this study proposed a series of eight assumptions, not for the traditional role of creating a research agenda for testing and study, but rather for the conceptualization of what the Federal Reserve communicates and the channels it uses to communicate in its goal of managing uncertainty during economic duress. While future studies could consider these normative assumptions about the content of the Federal Reserve's communication and/or develop a set of

testable/falsifiable axioms, the identification of the actual ways in which the Federal Reserve uses communication to manage uncertainty served as a guiding principle for this study, and is a unique theoretical contribution in constituting the field of economic policy communication.

Fourth, while uncertainty management clearly was the most appropriate theoretical lens to examine how the Federal Reserve manages expectations about the future of the economy, Babrow's (2016) work on Problematic Integration (PI) theory might provide a useful corollary by which to explore the topics investigated in this study. Babrow argues PI theory is more nuanced than uncertainty management theories: its attention to perspective-taking "allows communicators to speak directly to the form of PI that troubles them, and it allows them to identify alternatives that might provide relief from an otherwise constraining construction of the problem" (Babrow, 2016, p. 1392). While rooted in a critique of uncertainty management, PI theory is ultimately an approach that functions to account for much more than uncertainty, including the five "distinct senses" or "forms" of uncertainty, and the "contextually bound, historically conditioned meaning of uncertainty" (Babrow et al., 1998, p. 14). Extending problematic integration theory to organizational communication studies similar to this study would not only theoretically extend organizational scholars' conceptualizations and understanding of uncertainty, but it would also prove useful in sophisticating understanding of uncertainty. Its twin notions of probabilistic orientation as an assessment of the likelihood of an outcome occurring and evaluative orientation as an assessment of the favorability of that outcome have direct application to this study--that is, the economy is improving too quickly (likelihood)--and that is an outcome likely to bring inflationary pressures (evaluative). Of concern as it relates to the Federal Reserve, however, is the notion that PI theory does not always

view uncertainty as undesirable (or its resolution as desirable). As a general rule, securities markets as well as policy makers do not do well with uncertainty.

## Qualitative Observations with Regard to Federal Reserve Chairs

While Greenspan's, Bernanke's, and Volcker's identity as chairmen of the Federal Reserve do not predict sentence-level associations with regard to the content of what is said, there are some notable differences among them that was revealed during the coding process that provides some nuance and adds color to the findings of the content analysis.

Throughout the corpus of data Greenspan read as very optimistic. Although there are too few cases to compare across chairmen--indeed, a series of *t*-tests would be very susceptible to the sample size of only 30-45 testimonial transcripts per chairman--the average overall sentiment for Greenspan ($n = 41$; $M = 8.34$, $SD = 30.27$) is much higher than for Volcker ($n = 39$; $M = 3.74$, $SD = 20.20$) and Bernanke ($n = 34$; $M = -1.47$, $SD = 44.29$). The high standard deviations for each of these chairmen indicates that while the mean sentiment scores do indicate that Greenspan was more positive than Volcker, who was in turn more positive than Bernanke, there is still a very wide range of sentiment, depending on the Congressional testimony. For example, 68% of Greenspan's sentiment is between -21.93 and 38.61. There were times all three chairmen were much more negative than positive. Moreover, the positive mean sentiment scores for Greenspan and Volcker should not lure scholars into thinking Greenspan was always positive, or Volcker was always optimistic. Again, during the duration of the crises this study measured, there was a wide range of sentiment for all three chairmen.

Volcker also seemed to be much more focused on the past than Greenspan, and is a topic future research should consider exploring further. Volcker consistently recounted the past economic events that led to high inflation in the 1970s much more frequently than Greenspan

ever talked about events leading up to Black Monday in 1987 or the end of the Dot Com Bubble in 2000. But, there was a marked shift in Volcker's language toward the end of the high inflation that plagued the early years of his chairmanship. For example, he said:

> But collectively, such restraint, combined with higher productivity, *will be amply repaid* in the form of higher real wages and *better prospects* for job security. *This is the foundation on which we can expect to build a sustainable recovery*. If these *brighter prospects are to be achieved*, however, we cannot afford—just as the disinflationary process is beginning to take hold—to abandon our monetary vigilance. (Volcker, 1982, para. 6, emphasis added)

This quote illustrates how Volcker began to talk positively about the economic future, and demonstrates how his language shifted markedly.

Chairman Bernanke was much like Volcker, in that he often used his testimony before Congress to explain current economic conditions and indicators, and he, too, focused much more on past performance of the economy. Intuitively, this makes sense, given that he managed the Federal Reserve during the most serious economic crisis since the Great Depression, the 2008 financial crisis (i.e., the Great Recession). Bernanke was spoken about as "the right person at the right time for the job" (e.g., Li, 2013). As such, his focus on explaining what happened and how such a severe crisis could take hold of the global economy accounts for the fact that his discourse focused on the past performance of the economy, as it was the central economic event of his tenure at the Federal Reserve. He may also have been engaged in sense-making, which could be argued is a form of managing uncertainty (and in line with assumption 3). Moreover, perhaps in interpreting the divergent stimuli/messages of the 2008 financial crisis (assumption 1), he recognized bad news can paralyze institutions or individual investors (assumption 7). In an

environment where credit had already dried up (for a detailed overview of the 2008 financial crisis, see Chapter Two), focusing on past economic events may have been a way to appear more in control, or avoiding overloading the economy with too much information about the uncertainties of the future (assumption 8).

But, Bernanke also explicitly discusses transparency, and points to the Federal Reserve's website and changes the Federal Reserve was making to improve its perceived level of transparency. This theme often came up in Bernanke's Congressional testimony. For example, he said:

> We also have renewed and strengthened our longstanding commitment to transparency and accountability. In the making of monetary policy, the Federal Reserve is highly transparent, providing detailed minutes three weeks after each policy meeting, quarterly economic projections, regular testimonies to the Congress, and much other information. Our financial statements are public and audited by an outside accounting firm, we publish our balance sheet weekly, and we provide extensive information through monthly reports and on our website on all the temporary lending facilities developed during the crisis, including the collateral that we take. Further, our financial activities are subject to review by an independent inspector general. And the Congress, through the Government Accountability Office, can and does audit all parts of operations, except for monetary policy and related areas explicitly exempted by a 1978 provision passed by the Congress. (Bernanke, 2009, para. 6)

This quote is merely one example--albeit a rather long-winded one--of the ways in which Bernanke would frequently discuss the Federal Reserve's efforts to increase transparency going forward, in an effort to rebuild and maintain trust in the U.S. Central Banking System.

Transparency, in the future, may be an additional variable scholars should consider coding or measuring, especially if the dataset includes Chairmen Bernanke and Yellen, both of whom have gone on record as advocating for increased Federal Reserve transparency.

Bernanke also spends much of his time discussing an oversight committee to oversee and manage banks, which is not directly related to the performance of the economy, as it is more focused on policy to prevent the behavior banks undertook that ultimately led to the financial meltdown. While attempts to capture this nuance in the coding schema did not succeed, it is worth noting an exemplar from Bernanke. He said:

> Although at present the U.S. economy continues to require the *support of highly accommodative monetary policies*, at some point the Federal Reserve will need to tighten financial conditions by *raising short-term interest rates and reducing the quantity of bank reserves outstanding*. We have spent considerable effort in *developing the tools* we will need to *remove policy accommodation*, and we are fully confident that at the appropriate time we will be able to do so effectively. (Bernanke, 2010, emphasis added)

Even toward the end of the financial crisis testimony, with the economy beginning to improve, Bernanke seems much more focused on the importance of Dodd-Frank and other monetary policies than on discussing the economic future, or setting any expectations about the rate of economic recovery.

Volcker also seemed to be much more focused than Greenspan on policies, but both Volcker and Greenspan spoke often about reducing the budget deficit, and testified several times as to how a balanced budget, or a budget focused on reducing the deficit, would actually stimulate the economy (or, in Volcker's case, reduce inflation). Volcker's testimony in particular felt very cyclical. He often spoke as to the dire circumstances of inflation, and then moved toward

acknowledging that high inflation was attenuating, and finally he all but admitted the economy had turned a corner, whereas Greenspan was much more consistently optimistic.

Finally, although Greenspan enjoys a unique ethos related to his management of the economy, Volcker, during times of crisis, actually spoke almost as much as Greenspan. Although it is only fair to note that high inflation was much more persistent for Volcker than for Greenspan's Flash Crash or Dot Com Bubble crises, it runs contrary to our popular image of Greenspan to observe that on every topic coded except for the general "economy" code, Volcker more frequently incorporated topics related to unemployment, the deficit, inflation, and the economic future into his Congressional testimony lexicon.

## Pragmatic Contributions to Economic Policy Communication

Not only has this dissertation extended uncertainty management theory and its study to organizations, it also has conceptualized Economic Policy Communication (EPC) as an area of inquiry to describe how the Federal Reserve, government officials, economic actors, financial analysts, and journalists socially construct and enact economic expectations about the performance of the U.S. and global economy. It has also proposed a series of eight assumptions which may prove beneficial for economists or the Federal Reserve itself in understanding and critiquing the Federal Reserve's use of communication to manage uncertainty during times of economic crisis.

A significant player in Economic Policy Communication, as already noted, is the President of the United States, of whom past research has developed the relationship between his language on the economy and how the public interprets the performance of the economy. This study has shown that the Federal Reserve in general, and the chairman specifically, play a key role in EPC, as it is the role of the Federal Reserve to manage uncertainty about the economy,

especially during periods of larger economic uncertainty and/or crisis. Although the hypothesis that the Federal Reserve chairman's language is associated with current economic indicators did not hold true in all situations, there are instances where an association does exist between language, the unemployment rate, and the Consumer Sentiment Index. These effects are somewhat small. One likely explanation for the effect size is the use of large, economic-level variables to predict sentence-level change in this study. Although the effects are small the finding does not diminish the fact that the chairman is, in some way, responding to (or being forced to respond to) the broader performance of the economy. Therefore, this study makes a valuable contribution by demonstrating the need for further study of the Federal Reserve by scholars in organizational communication, political science, political communication, and economics, within the context of Economic Policy Communication.

Second, the development of Economic Policy Communication is an important extension of Holmes' (2012) book, *Economy of Words.* An anthropologist, Holmes describes multiple instances of following Federal Reserve and other Central Bank members as they developed the verbiage used to describe and interpret the performance of the economy. Taking this notion one step further, the use of language by the Fed chairman does not just describe and interpret EPC, it also socially constructs it.

Such social construction occurs in the following ways. The chairman regularly is called upon to discuss and respond to economic expectations about the future performance of the economy. While a decline in certainty (or an increase in uncertainty) is associated with mentions of the economic future during Congressional testimony, these mentions of the economic future actually function to socially construct expectations about the future. As the Federal Reserve communicates to reduce uncertainty about the direction of the economy, the chairman often

telegraphs, albeit somewhat obtusely, what the Fed expects to happen. Technically the Federal Reserve chair does not control the future direction of the economy—he can only adjust interest rates and the discount rate at which banks borrow from one another and from the Federal Reserve. But by *broadcasting* expectations about the future and future Fed actions (by lowering or raising interest rates), the Fed chair is likely to inspire confidence or pessimism in economic actors, financial analysts, governmental officials, journalists, and the public—who then proceed to act on that expectation by spending, saving, consuming, and/or trading in securities (assumption 5).

Third, while this dissertation did not seek to prove these assumptions true, the eight assumptions proposed in Chapter Two as ways the Federal Reserve should communicate in this new context of economic policy communication has pragmatic contributions for economists, financial public relations specialists, and other organizational spokespersons. The character of these assumptions is that nowhere has the content of the Federal Reserve's communication been examined. Its uncertainty management practices have never been explicitly examined, nor even defined. Therefore, while the purpose of these assumptions was not to design a programmatic research area, they do serve to identify the ways in which the Federal Reserve might engage in uncertainty management. This serves as an important starting point for an understanding of Federal Reserve uncertainty management practices, which has implications for policymakers, market watchers, economists, and scholars alike.

**Limitations**

There are several limitations worth noting in this study. First, while this study examines the discourse of the Federal Reserve chairman for the three months before, the duration, and six months after an economic crisis, it only coded opening statements delivered as part of

Congressional testimony. These opening statements are heavily scrutinized by other Federal Reserve officials, including lawyers, Federal Reserve governors, and other Federal Reserve staff and policymakers. While this study did not seek to do so, coding and understanding the differences between the opening statement and the answers revealed during the question-and-answer portion of Congressional testimony is important. It may be the case that it is during the question-and-answer portion that a more developed sense of the Federal Reserve chairman's uncertainty may emerge.

Second, this study did not measure the chair's uncertainty directly. In other words, this study did not survey those who have held the position of Chairman of the Federal Reserve and ask how uncertain he was about the economy before certain testimonies before Congress. There also is the presence of a rhetorical imperative here; in that a Federal Reserve chairman may have reasons to want to appear more certain than he actually is, such as in the midst of an economic crisis. The only "script" available in such a situation is to project full confidence in the soundness of economic fundamentals and telegraph the broad availability of credit. As this study only assesses levels of *spoken* certainty, a limitation of this approach is there is not a direct measure of the chairman's uncertainty, only of the level of certainty conveyed by the word choice used by the chairman during Congressional testimony. Moreover, there are values inherent within Hart's (1984) DICTION dictionaries. This becomes a limitation of this computerized coding tool.

Third, this study conducted a qualitative thematic analysis to initially form the codebook using two Congressional testimonies. However, there were items that the codebook did not take into account, even after going through several rounds of reliability coding. For example, fiscal "restraint" does not fit the coding schema, yet restraint often was discussed by the chairmen

during periods of economic uncertainty in discussing future budget proposals when Congress grappled with the uncertainties ahead and tried to decide whether or not their proposed budget appropriately responded to the turbulent economic environment. That the codebook did not take this discussion of restraints and budget into account. The "economic future" code served as a clearinghouse of sorts. Essentially, if a sentence did not explicitly reference the "economic future" (a future tense verbs followed by an explicit reference to the economy), then none of the additional codes were coded because it was not relevant to managing expectations about the future of the economy. While the budget does potentially impact the economy, it is not an explicit mention of the economic future. Future studies should take this into account, especially as there are potential connections to managing uncertainty about the economic future with regards to the budget.

Another example of what future iterations of this codebook should include regards the budget deficit. While the codebook asked if a change had been mentioned (yes or no) and whether or not that change was positive (indicating growth, stability) or negative (indicating contraction, decline), a budget deficit requires a degree of political judgement, and whether or not a chairman recommends closing the budget deficit is related to his or her monetary policy proclivities. Finally, there were cases such as testimony about legislative matters such as the Dodd-Frank Act of 2010, which was an important piece of legislation designed to *prevent* a future economic crisis. On some level this legislation could be seen as an example of talking about the future of the economy (i.e., reminding bankers and policy makers that significant capital reserves are a bulwark to prevent future crises), it is really policy discussion. Cases such as these are some of the nuances that are difficult to capture with the method of content analysis. Coding Chairman Bernanke's testimony, in particular, tended to be much more focused on the

future of Dodd-Frank, and not the future of the economy. In other words, Bernanke was focused on policies to prevent another financial meltdown, not on the future performance of the economy. While the content of his testimony potentially reflects his technocratic reputation, topics such as these make it difficult to assess how frequently he is speaking about the future performance of the economy vis-a-vis a policy discussion within the framework of this dissertation's coding schemata.

Fourth, the change code is limited by a binary choice of being positive or negative in direction. There are instances in which the testimony of Federal Reserve chairs is neutral—they are not discussing growth (positive) or inflation (negative); instead they mention something to the effect that "change is likely to happen." Such was the case of Volcker, who often was less willing than others to place a value judgement on change.

Fifth, the five logistic hierarchical linear models this study ran only include the most recent measures of the GDP, unemployment rate, and Consumer Sentiment Index (i.e., for the month or quarter before the chairman testified before Congress). A limitation of how these models incorporated GDP, unemployment, and the Consumer Sentiment Index is that there is no way to know if the GDP was bad, or if the unemployment rate was concerning, or if there was a large drop in the Consumer Sentiment Index since the previous time the chairman spoke before Congress. Rather, these models reflect, for example, a higher Consumer Sentiment Index increases the likelihood the chairman will mention the economy at the sentence level during Congressional testimony.

Sixth, the method of content analysis inevitably requires a tradeoff between reliability and validity. In pursuit of higher reliability scores that communicate to reviewers that the study adheres to social scientific tenets of replicability and reliability, validity measures can decrease.

Less of the nuance and context (validity) can be captured at times with difficult codes where two coders are struggling to achieve reliability. Therefore, this method is useful in taking textual data and looking at language effects, but it must be recognized that reliability can sometimes be sacrificed in pursuit of validity, and vice versa.

Finally, throughout data collection and analysis, this study was concerned with power to detect statistical effects. While the final logistic hierarchical linear models (HLM) did not exceed the standard of 10 text-level units per variable, there were only 114 Congressional testimonies. Although there were over 11,000 sentences that were individually coded, the logistic HLM predicted change at the sentence level, meaning that because I attempted to predict language change, the effects are very small. Several of the findings displayed trends toward significance. A larger dataset might provide more power to display significant effects.

**Future Directions**

This study is unique in that it is one of the first studies to examine the content of what is said by the Federal Reserve during periods of economic uncertainty (for an exception, see Hearit & Buzzanell, in press). Whereas an increasing number of studies have begun to examine financial and economic discourse, this area is nascent in its development. Hopefully this study and the questions it raises can help to facilitate future work that examines Economic Policy Communication in general and the association of the economy and the Federal Reserve's economic leadership in particular. Recent developments in the National Communication Association, which has seen the formation of an Economics, Communication, & Society interest

group division,[33] show a growing interest in the topic and the questions that economic communication raises.

Relatedly, while some studies have found there is a significant effect on the stock market following the release of Federal Open Market Committee (FOMC) meeting minutes (e.g., see Rosa, 2011a, 2011b), future research should seek to connect and develop the relationship between the content of what is said by the FOMC to economic change and market volatility, especially when seeking to understand and make sense of a noisy marketplace. Such an approach, more than any other, offers the potential to draw a causal connection between statements by the Federal Reserve Chairman and a direct effect on market conditions. This may be an area of interdisciplinary research in which economic and communication methodologies could be conjoined in providing supporting (or disconfirming) evidence with regard to the assumption shared by most everyone--that the Chairman of the Federal Reserve can move markets with his or her speech.

Another potential future research direction is for communication scholars to continue to work at the intersection of political science and communication (perhaps in an area such as political communication) to ascertain and understand the role of the Federal Reserve and other policy-making bodies (e.g., Congress) that shape public perception and understanding of the performance of the economy, especially during periods of economic crisis.

Communication scholars studying uncertainty management should further consider the role of CEOs, COOs, corporate boards, and other C-Suite executives in shaping expectations and managing uncertainty about the future for different publics. While organizational communication scholars have done an admirable job of applying and extending uncertainty management theory

[33]See https://www.natcom.org/nca-inside-out/new-nca-interest-group-economics-communication-and-society

to internal organizational sense-making (e.g., Kramer, 1999, 2004), during periods of uncertainty, it makes sense that the chairpersons and other executives could shape employee *and* public interpretations of the events or actions the company is taking or facing.

Uncertainty management also offers to media scholars a set of questions to answer. For example, there are experts in finance who carefully watch the Federal Reserve chairman's testimony and public statements, and the report on those statements for a lay audience. How do these reporters frame the Federal Reserve's policy proposals, sentiment, or general discourse? This framing serves as a guidepost for lay audiences seeking to manage their own uncertainties about the performance of the economy, the stock market, or the marketplace. Therefore, an uncertainty management function may be enacted by media as they seek to frame complex financial policies and statements for a lay audience.

This study conceptualized the area of economic policy communication to describe the unique context in which the Federal Reserve communicates. While the fields of communication, political science, and economics separately examine the role of economic discourse, it could prove useful and promote interdisciplinary research if a scale--or a series of scales--was designed to measure perceptions of the Federal Reserve's economic communication. Such a scale would ask for rankings with regard to public statements by Federal Reserve chairman concerning his style, tone, and substantive communication as it relates to the direction of economy. This could prove useful to scholars in media studies, political communication, political science, and even economics. It also would further extend studies of the President's economic leadership (e.g., Wood, 2007) research by continuing to argue the Federal Reserve is an equally important economic actor as the President in shaping public opinion about the economy.

The assumptions put forth by this study are also an area for future research. The eight assumptions this study proposed, like Philipsen's (1975) assumptions regarding speech codes, are not all testable/falsifiable. Rather, as many of them are normative, a different set of criteria for evaluating normative theory comes into play than when evaluating traditional post-positivist theory. Regardless, this may be a line of future work that scholars and practitioners alike find useful in the evaluation of effective Federal Reserve communication, especially in a post-2008 financial crisis era.

Finally, the larger area of economic policy communication (EPC) warrants further study by communication scholars. The fields of economics and political science are ripe for contributions from communication scholars; conceptualizing an area where governmental organizations discuss complex financial and economic exigencies--and, indeed, communicatively constitute our understanding and interpretation of the economy--require communication scholars to cross disciplinary lines. Future research should use the theoretical frame of EPC to make contributions to our understanding of how our economy is enacted, and take into account the intersection of communication, economics, and political science.

# EPILOGUE

Through changes in leadership, presidents, and economic conditions, the mission of the Federal Reserve has remained the same since it was created by the Federal Reserve Act of 1913, carrying out its chartered (and conflicting) dual mandate of minimizing inflation while maximizing employment. At the time this dissertation was being completed, yet another transition in leadership occurred as Janet Yellen completed her first and only term as Federal Reserve Chair in early 2018, with Jerome Powell being appointed as her successor as the next Chairman of the Federal Reserve by President Donald Trump. In an interview with CBS Sunday Morning on February 4, 2018, Janet Yellen was asked if she put extra pressure on herself, knowing she was the first woman to hold the Federal Reserve Chairmanship. She said:

> Well, I've tried to do a good job, and I suppose a theme of my life is that I try to be prepared and to get good grades. Yes, I do want to show that women can perform well in these positions. (CBS News, 2018, para. 12)

While President Trump did not re-appoint Yellen, she was nonetheless complimentary of her successor, describing Jerome Powell as "thoughtful, balanced, dedicated to public service . . . [and] a thoughtful policymaker" (CBS News, 2018, para. 35).

As the 16th Chairman of the Federal Reserve, Chairman Powell will be the next to put his stamp on the institution and enact the role in his own distinct manner, as well as struggle with how to best use his own words and sentiment to communicate to policy makers and markets. Only time will tell if his tenure is among the longest (both William M. Martin and Alan Greenspan served close to 20 years) or among the shortest and most rocky (like G. William Miller who lasted a mere 17 months).

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# APPENDIX A

Berger and Calabrese (1975) proposes a series of axioms and theorems. The seven axioms they proposed are as follows:

(1) "Given the high level of uncertainty present at the onset of the entry phase, as the amount of verbal communication between strangers increases, the level of uncertainty for each interactant in the relationship will decrease. As uncertainty is further reduced, the amount of verbal communication will increase" (pp. 101-102).

(2) "As nonverbal affiliative expressiveness increases, uncertainty levels will decrease in an initial interaction situation. In addition, decreases in uncertainty level will cause increases in nonverbal affiliative expressiveness" (p. 103).

(3) "High levels of uncertainty cause increases in information seeking behavior. As uncertainty levels decline, information seeking behavior decreases" (p. 103).

(4) "High levels of uncertainty in a relationship cause decreases in the intimacy level of communication content. Low levels of uncertainty produce high levels of intimacy" (p. 103).

(5) "High levels of uncertainty produce high rates of reciprocity. Low levels of uncertainty produce low reciprocity rates" (p. 105).

(6) "Similarities between persons reduce uncertainty, while dissimilarities produce increases in uncertainty" (p. 106).

(7) "Increases in uncertainty level produce decreases in liking; decreases in uncertainty level produce increases in liking" (p. 107).

# APPENDIX B

## CODEBOOK

### General Document Information – Testimony level

(1) Unique ID number for each item
(2) Date of testimony (Month, Date, Year: 010117)
(3) Which Chairperson?
0 = Volcker
1 = Greenspan
2 = Bernanke

### Economic Factors/Issues – Sentence Level

(4) Is "economic future" mentioned? (Code: Future tense verbs (e.g.,: "will," "would," "shall," "should," "can," "could," "expect," "anticipate," "forecast," "foresee," or "predict"; Scacco, 2014) + reference to the economy/entitlement program impact on economy); hypothetical situations can be coded, too (look for "could" or "expect" language) **No banking or mortgage regulation should be coded in the economic future section.**
Hypothetical situations with "would" – do not code for uncertainty.
Hypothetical situations with "may" – do code for uncertainty.
0 = No
1 = Yes

*If 0, don't code anything else. If yes, are any of the following mentioned?*

a. Is economic **de/regulation** mentioned? (Code direct mentions of "deregulation," "regulation," "control," "freedom," "maintain" + Federal reserve action regarding the economy)
0 = No
1 = Yes

b. Is economic **change** mentioned? (Code any mention of M1, M2, M3 change, economic forecasting change, economic performance change, etc. If change is neither positive or negative, code for stability - code 6e – do not code change.)
0 = No
1 = Yes

c. 0 = Negative ("decline," "negative"); 1 = Positive (Code: "improvement," "resilience," "strength," "growth," "better," "develop," "expand"

d. Is economic **competitiveness** mentioned? (Code: "competitiveness")
0 = No
1 = Yes

e. Is economic **uncertainty** mentioned? (Code: "uncertainty," "weakness," "fragility," "unsure," "doubt," "contraction," "threaten," "volatility," "cautious," "instability" + reference to the future performance of the economy) **Code instability here.**
0 = No
1 = Yes

f. Is economic **stability** mentioned? (Code: "stagnant," "continuing to . . .," "stable," "smooth transition," "no change," "steady," "static," "sustained," "remain," "maintenance," "extend" + reference to the future performance of the economy) **Do not code instability.**
0 = No
1 = Yes

(5) Is the word "economy" mentioned (Wood, 2007)
0 = No
1 = Yes

(6) Is the word "unemployment" mentioned (Wood, 2007)? (Code: unemployment, jobless, jobs – only code direct mentions)
0 = No
1 = Yes

(7) Is the word "inflation" mentioned (Wood, 2007)? (Code: inflation, price increase, price decrease)
0 = No
1 = Yes

(8) Is the word "deficit" mentioned (Wood, 2007)? (Code: deficit, debt, spending)
0 = No
1 = Yes

**(Computerized CA) Style of the Chair**

(9) Certainty – run through Diction (**Certainty defined as:** Language indicating resoluteness, inflexibility, and completeness and a tendency to speak ex cathedra; http://www.dictionsoftware.com/diction-overview/)

# APPENDIX C

This is the sentiment analysis code in the “tidytext” package used for the 1987 “Flash Crash” data.

```
##Flash Crash of 1987##

#Prepare
install.packages("tidytext")
install.packages("ggplot2")
install.packages("pacman")

##Sentiment Analysis, all words##

#One-token-per-row
library(tidytext)
library(dplyr)

tidy_1987 <- X1987_Flash_Crash_Data %>%
  unnest_tokens(word, `text`)

data("stop_words")
tidy_1987 <- tidy_1987 %>%
  anti_join(stop_words)

count_1987 <- tidy_1987 %>%
  count(word, sort = TRUE)

countbydate_1987 <- tidy_1987 %>%
  count(word, index = date, sort = TRUE)

#BING
library(tidyr)
bing <- get_sentiments("bing")

#bydate
sentiment1987 <- tidy_1987 %>%
  inner_join(get_sentiments("bing"), by = "word") %>%
  count(date, sentiment) %>%
  spread(sentiment, n, fill = 0) %>%
  mutate(sentiment = positive - negative)

#valuebywordcount
value1987 <- tidy_1987 %>%
```

```
  inner_join(bing) %>%
  count(word, sentiment, sort = TRUE) %>%
  ungroup()

#export
write.csv(count_1987, file="wordcount1987.csv")
write.csv(countbydate_1987, file="wordcountbydate1987.csv")
write.csv(sentiment1987, file="sentiment1987.csv")
write.csv(value1987, file="value1987.csv")
```

# VITA

## EDUCATION

**Ph.D.**, Organizational Communication, 2018
Purdue University
Minor Areas: Strategic Communication in Banking & Finance; Research Methods
Dissertation: *The Federal Reserve as a Social Actor: On the Intersection of Communication and Investor Expectations*
Committee: Patrice M. Buzzanell (Chair), Josh Scacco, Steve Wilson, Charlene Sullivan (Finance)

Graduate Exchange Student, Copenhagen Business School, 2015
Certificate in International Strategic Communication

**M.A.**, Public Affairs Issue Management, 2014
Purdue University
Minor Areas: Organizational Communication; Research Methods
Thesis: *JPMorgan Chase, Bank of America, Wells Fargo, & the Mortgage Crisis of 2008*
Committee: Josh Boyd (Advisor), Stacey Connaughton, Hyunyi Cho

**B.A.**, Public Policy & French, 2012
Western Michigan University, *magna cum laude*
*Phi Beta Kappa, initiated April 2011*

## PUBLICATIONS

***Peer-Reviewed Articles***

**Hearit, L.B.** (2018). JPMorgan Chase, Bank of America, Wells Fargo, and the Financial Crisis of 2008. *International Journal of Business Communication.* Advance online publication.

Scacco, J.M., Coe, K., & **Hearit, L.B.** (2018). Presidential communication in tumultuous times: Insights into key shifts, normative implications, and research opportunities. *Annals of the International Communication Association, 42,* 1-17.

Martinez, E.K., **Hearit, L.B.**, Banerji, D., Gettings, P.E., & Buzzanell, P.M. (2017). Raising awareness of campus diversity and inclusion: Transformationally teaching diversity through narratives of campus experiences and simulated problem solving. *Communication Teacher, 32,* 19-24.

Clair, R.P. & **Hearit, L.B.** (2017). The meaning of work and the absence of workers in Les Mandarins: Irony at work through the camouflaged essential accessory. *TAMARA: Journal for Critical Organizational Inquiry, 15,* 203-215.

Wilhoit, E.D., Gettings, P., Malik, P., **Hearit, L.B.**, Buzzanell, P.M., & Ludwig, B. (2016). STEM faculty response to proposed workspace changes. *Journal of Organizational Change Management, 29*(5), 804-815. doi: 10.1108/JOCM-04-2015-0064

Anderson, L. B., **Hearit, L. B.**, Morgan, M., & Natt, J. (2015). Using a mixed-methodological approach to assess the communication lab: Gaining insights and making improvements. *Communication Center Journal, 1,* 9-36.

***Book Chapters***

DiTirro, L.J., **Hearit, L.B.**, & Martinez, E.K. (in press). Am I safe?: Understanding the ethical implications of running and maintaining a sharing economy organization. In Brunner, B., & Hickerson, C. (Eds.). *Cases in Public Relations.* New York, NY: Oxford University Press.

**Hearit, L.B.** (2018). Women on Wall Street. In A.V. Laskin (Ed.) *Handbook of Financial Communication and Investor Relations.* Hoboken, NJ: Wiley.

**Hearit, L.B.** & Buzzanell, P.M. (2018). Communication as an economic tool and constitutive force: Chairman Greenspan's talk about uncertainties in future U.S. conditions. In R.X. Browning, (Ed.). *The Year in C-SPAN Archives Research—Volume 4* (pp. 45-63). West Lafayette, IN: Purdue University Press.

**Hearit, L.B.** & Buzzanell, P.M. (2016). Public Understandings of Women in STEM: A Prototype Analysis of Governmental Discourse from the C-SPAN Video Library. In R.X. Browning, (Ed.). *Exploring the C-SPAN Archives: Advancing the research agenda*. West Lafayette, IN: Purdue University Press.

Hearit, K.M. & **Hearit, L.B.** (2013). College & university public relations. In R.L. Heath (Ed.), *(2). Encyclopedia of public relations* (Vols. 1-2). Thousand Oaks, CA: SAGE.

## CONFERENCE PRESENTATIONS

**Hearit, L. B.** (2017, November). Constituting Economic Communication. Paper to be presented at the Economics, Communication, and Society Pre-Conference at the annual meeting of the National Communication Association, Dallas, TX.

Scacco, J. M., **Hearit, L. B.,** & Potts, L. (2017, November). Local News Down the Ballot: The Content Considerations and Digitial Engagement Effects of 2016 Non-Presidential Primary Coverage. Paper presented at the annual meeting of the National Communication Association, Dallas, TX.

**Hearit, L. B.** (2017, August). Economic Policy Communication in the Gendered World of Finance. Paper presented at the annual meeting of the Academy of Management, Atlanta, GA.

**Hearit, L. B.**, & Buzzanell, P. M. (2017, May). Communication as an economic tool and constitutive force: Chairman Greenspan's talk about uncertainties in future U.S. conditions. Paper presented at the Researching the C-SPAN Archives Conference in West Lafayette, IN.

**Hearit, L. B.** (2016, November). JPMorgan Chase, Bank of America, Wells Fargo, and the Mortgage Crisis of 2008. Paper presented at the annual meeting of the National Communication Association, Philadelphia, PA.

Wilhoit, E. D., Gettings, P., Malik, P., **Hearit, L. B.**, Buzzanell, P. M., & Ludwig, B. (2016, April). STEM Faculty Response to Proposed Workspace Changes. Paper presented at the annual meeting of the Central States Communication Association, Grand Rapids, MI.

Boyd, J., Morgan, M., & **Hearit, L. B.** (2015, November). *A Tool Instead of a Chore: Measuring Learning Gains in Order to Improve Instruction.* *Top paper

Buzzanell, P. M. & **Hearit, L. B.** (2015, May). *Public Policy Discourses Regarding Women in STEM: Using the C-SPAN Archives to Understand Gendered Political Communication.* Paper presented at the annual meeting of the International Communication Association, San Juan, Puerto Rico.

**Hearit, L. B.** & Buzzanell, P. M. (2014, November). Consulting Engineering: Allure of and Contradictions with STEM Initiatives, Policies, and Consequences as Captured in CSPAN Archives. Paper presented at The C-SPAN Archives: Advancing the Research Agenda Conference in West Lafayette, IN.

Anderson, L. B., **Hearit, L. B.**, Morgan, M., & Natt, J. (2014, November). "Can you Look at This?": Using a Qualitative Approach to Assess the Communication Help Lab. Paper presented at a scholar-to-scholar session at the annual meeting of the National Communication Association, Chicago, IL.

**Hearit, L. B.** (2013, November). *Public relations in Singapore: A case study*. Paper presented at the annual meeting of the National Communication Association, Washington, D.C.

**Hearit, L.B.** (2013, November). *Tour de farce: When sports stars find themselves in a crisis.* Paper presented at the annual meeting of the National Communication Association, Washington, D.C.

Kristensen, T. M., **Hearit, L. B.**, Gettings, P., Wittrock, Z. & Eller, M. (2013, November). *Conceptualizing workspace: A new perspective.* Paper presented at the annual meeting of the National Communication Association, Washington, D.C.

**Hearit, L. B.** & Hearit, K. M. (2013, October). *A Dimon in the rough: Crisis management at JPMorgan Chase*. Paper presented at the annual meeting of the Midwest Academy of Management, Milwaukee, WI.

**Hearit, L. B.** & Hearit, K. M. (2013, March). *College & University Best Practices in Public Relations.* Paper presented at the annual meeting of the Michigan Academy of Science, Arts & Letters, Holland, MI.

## TEACHING EXPERIENCE

**Assistant Professor**, 2017-Present
Department of Communication, Hope College

**Graduate Teaching Assistant**, 2012-2017
Brian Lamb School of Communication, Purdue University

**Graduate Assistant**, BLSC Online Master's in Strategic Communication Program, 2014-2017

- Assisting with the development and implementation of courses for the online strategic communication M.A. program
- Course development and research includes: introduction to strategic communication; global public relations; crisis communication; PR and strategic writing; leadership; fundraising; financial public relations; strategic public relations; focus groups/interviewing; and integrated marketing communication
- Teaching Assistant for Introduction to Strategic Communication and Quantitative Research Methods (Fall 2016, Spring 2017, Summer 2017)

**Assistant Director of Fundamentals of Speech Communication**, 2013-2015

- This leadership position managed the day-to-day functions of COM 114.
    - Trained and mentored new and returning graduate teaching assistants
    - Observed classroom performance

- Monitored grades of other teaching assistants and continuing lecturers
- Revised the instructor's manual, updated lesson plans, and developed new curriculum

**Teaching Assistant, Purdue Career Services**, Spring 2014

- Developed course syllabus (GS 315) for Purdue undergraduate upperclassmen. Course content includes:
  - How to find internships in comparable professional fields
  - How to network and develop personal contacts
  - How to create a personal brand
  - Relevant interviewing skills and techniques

**Communication courses taught**

Hope College

- The Communication Process (COMM 101)
  - Spring 2018 (2 sections, 46 students)
- Media & Society: Crisis Communication (COMM 151)
  - Fall 2017 (2 sections, 60 students)
  - Spring 2018 (2 sections, 63 students)
- Research Methods (COMM 280)
  - Fall 2017 (17 students)

Purdue University

- Fundamentals of Speech Communication (COM 114)
  - Fall 2012 (50 students)
  - Spring 2013 (76 students)
  - Summer 2013 (19 students)
  - Summer 2014 (24 students)
- Fundamentals of Speech Communication Honors (COM 114H)
  - Spring 2014 (8 students)
- Fundaments of Speech Communication Online (COM 114Y)
  - Spring 2015 (20 students)
  - Summer 2015 (11 students)
- Critical Perspectives on Communication (COM 204)
  - Fall 2013 (3 recitations, 75 students)
  - Spring 2014 (2 recitations, 40 students)
- Public Relations Techniques (COM 257)
  - Spring 2016 (1 section, 18 students)
- Quantitative Methods for Communication Research (COM 304)
  - Fall 2016 (2 recitations, 40 students)
- Introduction to Organizational Communication (COM 324)
  - Fall 2014 (2 recitations, 32 students)
  - Spring 2016 (1 section, 24 students)
- Introduction to Strategic Communication Online (COM 601)
  - Fall 2016 (5 sections, 100 students)

- Quantitative Research Methods (COM 604)
    - Fall 2016 (4 sections, 100 students)

## TRAINING & MENTORING

Training new graduate teaching assistants, Purdue University, 2013-2015

- Conducted orientation-week training
- Assisted in weekly training sessions for over 30 new basic course instructors
- Led training modules on administering quizzes, expectations for teaching demonstrations, and assigning the informative presentation
- Conduct regular course observations and mentor new graduate students about their teaching and teaching pedagogy

## GRANTS

**C-SPAN Archives Research Grant**, 2017

- Received grant to develop book chapter for *The Year in C-SPAN Archives Research—Volume 4* to support graduate student research. $2,000.

**Engaging News Project** (P.I. Natalie Jomini Stroud), 2016-2017
Graduate Research Associate, 2016-present
Annette Strauss Institute for Civic Life, The University of Texas at Austin
Funder: American Press Institute

- Scacco, J.M., **Hearit, L.B.,** Potts, L., Sonderman, J., & Stroud, N.J. (2016). Primary election coverage: What types of news engage audiences. White paper.

**Promise Grant,** College of Liberal Arts, Purdue University, 2016

- Received a grant as part of the College of Liberal Arts' initiative to support graduate student research. $750.

**Cassandra Book Grant**, Brian Lamb School of Communication, 2015

- Received the annual Cassandra Book Grant for a second year Ph.D. student in organizational communication in the Brian Lamb School of Communication to support graduate student research. $700.

**Roschwalb Grant**, Association for Education in Journalism and Mass Communication, 2014

- Received the annual Susanne A. Roschwalb Grant for International Study and Research, awarded by the Public Relations Divisions of AEJMC. $250.

**Communication Graduate School Association Travel Grant,** Purdue University, 2013

- Received one of six competitive travel grants awarded based on research productivity and departmental service to defray costs of presenting at conferences. $100.

## AWARDS AND HONORS

Nominee, Bruce Kendall Award for Teaching Excellence, 2014, 2016

- Highest departmental honor for excellence in undergraduate education by a graduate student

- Honorable Mention, 2016

Ross Fellowship, 2014-2015

- Awarded based on merit for one full year of research funding

Redding Fellowship, 2014

- Awarded based on merit for one summer of research funding

Graduate Teaching Certificate, 2014

- Center for Instructional Excellence, Purdue University
- A certificate that recognizes continual pedagogical development and experience.

Presidential Scholar, Department of Political Science, Western Michigan University, 2012

- Presidential Scholar for the Department of Political Science. Awarded to the top graduating senior from each university department. Based on academic performance, service to the department, and promise in the field.

Winner, iOMe Research Competition, 2009

- iOMe is a national competition on retirement policy reform whose member schools included Harvard University, University of Michigan, Stanford University, and other schools of international reputation.
- Member of a 4-person winning research team from Western Michigan University.
- Presented at a research panel on retirement policy for interest groups, research institutes (i.e. Brookings Institute), and members of Congress, including Senator Debbie Stabenow, Senator Carl Levin, and Representative Fred Upton.

Medallion Scholar, Western Michigan University, 2008

- Awarded the Medallion Scholarship, a competitive merit-based academic scholarship worth $40,000 over four years.
- One of eighteen recipients; over 700 competitors.

## PROFESSIONAL AFFILIATIONS

National Communication Association (NCA)
Academy of Management (AOM)

## UNIVERSITY SERVICE

Panel Participant, Brian Lamb School of Communication, 2016

- Invited to speak to the Brian Lamb School of Communication Advisory Board about graduate student life and my research/teaching experiences, and to answer any questions the Advisory Board had

Communication Graduate Student Association, Purdue University, 2015-2016

- Coordinator of the Annual Communication Graduate Student Conference with approximately 60 attendees

Organizational Communication Mini-Conference, Purdue University, 2014

- Assisted the Director of Graduate Studies with conference planning
- Developed welcome packets for conference attendees

- Helped with set up, clean up, and providing directions for conference attendees

Communication Graduate Student Association, Purdue University, 2013-2014
- New graduate student "buddy program"
- Respondent at the Annual Communication Graduate Student Association Conference (2014)

Purdue Graduate Student Conference on Communication Research, 2012
- Chair of Logistics
    - Responsible for recruiting Michelle Schumate as keynote speaker
    - Made arrangements for travel
    - Developed conference schedule
    - Aided in recruitment of interdisciplinary paper and panel submissions

Recruiter for the Brian Lamb School of Communication
- Graduate Student Fair at NCA, *Fall 2013, Fall 2014*
- Regularly meet with prospective graduate students about life at Purdue, COM 114, and take prospective students to lunch, *Spring 2013, 2014, Fall 2015*
- Took prospective faculty member to lunch, *Spring 2014, Spring 2016*

## DISCIPLINARY SERVICE

Paper Reviewer, National Communication Association, *2016*
Paper Reviewer, National Communication Association, Student Division, *2013*
Paper Reviewer, Midwest Academy of Management, Organizational Behavior Division, *2013*

## GRADUATE COURSEWORK (BY AREA)

**Public Relations/Strategic Communication**

COM 610 Non-traditional Forms of External Communication & Rhetoric (Summer 2013)
- Dr. Josh Boyd, Brian Lamb School of Communication, Purdue University

COM 610 Global Public Relations (Fall 2012)
- Dr. Krishnamurthy Sriramesh, Brian Lamb School of Communication, Purdue University

COM 610 Public Relations Theory (Fall 2012)
- Dr. Jeong-Nam Kim, Brian Lamb School of Communication, Purdue University

COM 576 Risk Communication (Spring 2013)
- Dr. Hyunyi Cho, Brian Lamb School of Communication, Purdue University

Marketing Communication Planning and Research (Spring 2015)
- Arnt Gustafsson & Søren Biune, Department of Intercultural Communication and Management, Copenhagen Business School

Marketing Campaigns & Managing Market Communication (Spring 2015)
- Dr. Fabian Faurholt Csaba, Department of Intercultural Communication and Management, Copenhagen Business School

Public Relations and Issue Management (Spring 2015)

- Dr. Friederike Schultz, Department of Intercultural Communication and Management, Copenhagen Business School

**Quantitative Research Methods**

PSY 681 Research Methods in Industrial/Organizational Pscyhology (Spring 2016)

- Dr. Louis Tay, Department of Psychology, Purdue University

HDFS 617 Advanced Quantitative Methods (Fall 2015)

- Dr. Shawn Whiteman, Department of Human Development and Family Studies, Purdue University

COM 682 ANOVA, Regression, & Beyond (Spring 2013)

- Drs. Steve Wilson & Erina MacGeorge, Brian Lamb School of Communication, Purdue University

COM 582 Descriptive & Experimental Methods in Communication Research (Fall 2012)

- Dr. Torsten Reimer, Brian Lamb School of Communication, Purdue University

**Organizational Communication**

SOC 502 Work in Contemporary America (Fall 2015)

- Dr. Kevin Stainback, Department of Sociology, Purdue University

ECON 380 Money and Banking (Fall 2015)

- Dr. Bob Holland, Department of Economics, Purdue University

COM 674 Career Theory (Fall 2014)

- Dr. Patrice Buzzanell, Brian Lamb School of Communication, Purdue University

COM 590 Constituting Financial Communication (Summer 2016)

- Dr. Patrice Buzzanell, Brian Lamb School of Communication, Purdue University

COM 590 Constituting Economic Communication (Fall 2014)

- Dr. Patrice Buzzanell, Brian Lamb School of Communication, Purdue University

COM 674 Negotiation Theories & Strategies (Spring 2013)

- Dr. Patrice Buzzanell, Brian Lamb School of Communication, Purdue University

COM 574 Organizational Communication Theory (Fall 2013)

- Dr. Seungyoon Lee, Brian Lamb School of Communication, Purdue University

**Communication Theory**

COM 600 Foundations of Human Communication Theory (Fall 2014)

- Drs. Seungyoon Lee & Torsten Reimer, Brian Lamb School of Communication, Purdue University

COM 601 Foundations of Human Communication Theory (Spring 2016)

- Dr. Steve Wilson, Brian Lamb School of Communication, Purdue University

COM 590 Communication Pedagogy (Spring 2016)

- Dr. Josh Boyd, Brian Lamb School of Communication, Purdue University

## RELEVANT WORK EXPERIENCE

Bay View (MI) Music Festival, January-August 2013
Title: **Marketing & Public Relations Coordinator**

*Responsibilities included coordinating social media, reaching out to potential donors and ticket purchasers, educating local communities about the Bay View Music Festival, and creating various campaigns to increase ticket sales. Social media presence, number of Facebook "likes" increased, and interactions with the Facebook page all met target goals for the season.*

Office of Development & Alumni Relations, Western Michigan University, May-August 2011
Title: **Summer Initiative Specialist**

*Responsibilities included researching best marketing practices to reach various subsets of WMU alumni, presenting findings to office administrators, contacting donors, and organizing special events.*