The power of signaling: presidential leadership and rhetoric over 20 years

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Abstract

Purpose – The purpose of this paper is to explore the power of leadership rhetoric with a theoretical foundation of signaling theory. Past research mostly focus on followers and not other stakeholders and the authors attempt to fill that research gap.

Design/methodology/approach – The research explored nearly 20 years and 51,500 pages of information from US presidents and explored the impact on stock market volatility using generalized autoregressive conditional heteroscedasticity.

Findings – The research findings suggest that leaders can/do have a powerful impact on stakeholders. In particular negative statements will cause the greatest reaction due to risk adverse stockholders, neutral rhetoric will calm the market and decrease volatility and positive rhetoric was not significant.

Research limitations/implications – Past research suggests that a focus on the consequences of leadership rhetoric be explored and the research suggests that people do respond to powerful leaders, even if they are not followers. Also the authors filled a gap in regard to the impact of leader communication about economic and marketplace events.

Practical implications – Practitioners benefit from the research as they can focus upon the US presidents’ rhetoric and strategically apply the research as they can predict the movement of the stock market immediately thereafter.

Originality/value – Very little research has ever explored the impact of a leader’s rhetoric and the subsequent economic impact, and no one has explored in particular the president’s rhetorical impact (who is considered by many the top leader in the USA).

Keywords Leadership, Rhetoric, Stock market, President

Paper type Research paper

Introduction

Recent research on the use of imagery in the campaign speeches of President Barrack Obama and contender John McCain suggest how influential rhetoric can be over stakeholders (McGuire et al., 2016). Although presidential leadership research continues (Williams et al., 2012) very little leadership literature has focused on how leaders react to, and communicate about, economic and marketplace events (Bligh and Hess, 2007). Also, past research indicates that most approaches to leadership focus almost extensively on followers and not upon other stakeholders (Ammeter et al., 2002) while adequate consideration to the context as well as the consequences of leaders’ behaviors should be explored (House and Aditya, 1997). Our research attempts to address all 3 of these contentions (i.e. other stakeholders than a follower which in our research is the investment community, consequences of behaviors, and communication about economic/marketplace events).

Rhetorical leadership in regard to the president has been described as information of which the president expresses publicly (Wood et al., 2002; Wood, 2004; Eshbaugh-Soha, 2005). There is a robust body of literature on the president and their rhetorical impact on the economy (not market volatility of which we investigate) (i.e. Wood et al., 2002; Wood, 2004), but as
Eshbaugh-Soha (2005, p. 719) notes, “[…] we do not have a theory of how presidents might influence the economy directly through their rhetoric,” and little literature on how the president’s rhetorical signals influence the stock market. Presidential rhetoric is the most underappreciated force in politics, because it does not disappear, rather presidential rhetoric lasts forever.

Presidential rhetoric can have five key characteristics: First, it is memorable and can shape how we discuss and view a myriad of topics. Second, presidential rhetoric can be uplifting. Third, presidential rhetoric can be depressing. Fourth, presidential rhetoric can have life or death consequences. Fifth, presidential rhetoric can be persuasive. In regard to presidential rhetoric and the economy, past research suggests that there is a correlation between presidential rhetoric and inflation and unemployment (Wood et al., 2002). Other research suggest that presidential signals seem to have an impact as long as they have the authority to act on those signals, act in the short run, and have a measure of credibility in the workplace. Presidential rhetoric is an influential instrument of economic leadership that can affect the marketplace’s perception of current and future economic conditions and is a cue for businesses and consumer making decisions on investment and spending (Wood, 2004; Wood et al., 2005).

The electronic media has created a greater impact over what presidents say and is very quickly disseminated (immediately in many cases). This assisted our study as we utilized as many informational variations such as press conferences, Q&A sessions with reporters, radio addresses, addresses to joint sessions of Congress, addresses to the nation, and announcements of economic programs for about 20 years filling over 51,500 pages of information. The purpose of this study was to assess the influence of leadership rhetoric by using one of the most significant leaders in the USA, the president of the USA, as they can focus the public’s attention on a particular issue through presidential rhetoric (Baumgartner and Jones, 1993). Economic policy is an important factor to the presidency as research suggests it correlates to future electoral success (Campbell, 2000); so presidents will frequently devote a large share of their rhetoric in discussing current economic conditions and potential solutions (Eshbaugh-soha and Peake, 2005). Yet we found no research that attempted to explore whether this economic presidential rhetoric had any effect stock market volatility. Stock market volatility is the non-normal buying and selling of stock, while the stock market in total does not change, also known as a rebalancing of portfolio. Hence, our research explores leadership rhetoric through the US presidents and to measure its subsequent impact on the investment community through stock market volatility.

Our research is important for a variety of reasons. First, we measure the influence of leadership rhetoric by the consequences of the reactions in the marketplace (or lack thereof). In addition, we explore the empirical impact of this critical communication format. Other past leadership research in regard to the president, primarily focuses on presidential charisma, popularity ratings, etc. But, past research (except for a few exceptions) has not explored the consequences of presidential rhetoric directly toward the investment community. In particular, we focus on presidential rhetoric in regard to the economy, inflation, interest rates and the deficit and the reaction by experts in the marketplace, the investors. Extensive research, and the foundation for most economic and finance theory, suggests that new information will cause investors to immediately react, but there has been limited research performed as to whether presidential rhetoric has the ability and importance to affect the stock market. Our paper is organized as follows: we explore the leadership research in regard to leadership rhetoric, then introduce the underlying theoretical foundation of signaling theory, then proceed into our methods.

**Leadership and leader rhetoric**
Leadership research continues to be very active, and over the years has given birth to numerous theoretical foundations in attempting to understand the phenomena. There is
much research that has performed comprehensive reviews and as such will not replicate their work (e.g., Bligh et al., 2011; Mumford, 2011; Gardner et al., 2010; Bass, 1990; House and Aditya, 1997; Yukl and Van Fleet, 1992) but will focus on the research gap that we are exploring. Rhetorical leadership can be either formal and/or informal communication used by leaders to convey their message to stakeholders (Naidoo and Lord, 2008).

Rhetorical leadership has been explored in recent leadership research including, how Bush’s speeches changed after the September 11 crisis (Bligh et al., 2004), that Federal Reserve Chairman rhetoric was a manifestation of his leadership style (Bligh and Hess, 2007), use of metaphors in a leader’s rhetoric to inspire audiences (Mio et al., 2005), how imagery in a leader’s rhetoric impacted ratings of charisma (Emrich et al., 2001), how presidential expressions of optimism influence marketplace performance (Wood et al., 2005), how CEO speeches are related to globalization intent (Den Hartog and Verburg, 1997), and which type of leadership rhetoric can be effective for social change (Seyranian and Bligh, 2008).

Rhetorical leadership is important for the president of the USA as there is extensive media exposure and then subsequent public scrutiny (Foti et al., 1982). The role of the executive branch has evolved over the years and now has numerous foci from international engagement to discussions about the economy, with the president having much discretionary action through his use of rhetoric (Renshon, 1998). Presidential leadership is a relational process through which the president is constantly interacting with stakeholders (Neustadt, 1960) and with new technologies and 24/7 cable television rhetoric becomes more central in the evaluation of an administration’s handling of complex environmental problems.

Our research, however, continues the stream of research in regard to rhetorical leadership and leadership effectiveness (Naidoo and Lord, 2008). The president has the leadership role to influence others and proactively pursues an agenda impacting stakeholders (Deluga, 1998). This leadership role identifies opportunities, takes direct action and perseveres until the goal is accomplished (Bateman and Crant, 1993). For example, recent research suggests presidential rhetoric is a policy making instrument to expand presidential power (Rottinghaus and Maier, 2007) and can set the country’s agenda (Kingdon, 1995). Presidential power can be utilized in differing ways without the consent of Congress, the courts, and the public, by signaling to the public through rhetoric a focus and a possible future agenda (Elsea, 2003; Deering and Maltzman, 1999).

Communication is an essential aspect of the leadership process (e.g. Bligh et al., 2004; Conger and Toegel, 2002; Insch et al., 1997) and the leadership relationship to stakeholders is grounded in language and the process of communication (Conger, 1991; Fiol et al., 1999; House and Shamir, 1993). Leadership is the process of attempting to frame and define circumstances for other individuals (Smircich and Morgan, 1982). Presidents are continuously commenting, formally and informally, on issues throughout each day to assist to explain events that are occurring in the public and international arena. Yet, the research question then becomes:

RQ1. Is there any impact on stakeholders (in specific, investors) due to this rhetoric (e.g. is the rhetoric effective)?

**Leadership and signaling theory**

We use signaling theory as our theoretical foundation as presidential proclamations are often symbolic in nature and as such carry important substantive policy influence affecting the marketplace, but may offer no concrete policy change at that time (Rottinghaus and Maier, 2007). The unexpected timing of statements of economy, inflation, interest rates and the deficit will cause signals to be observed by the market place affecting investor decisions. Signaling theory is in regard to information asymmetry, as some individuals/organizations will have more information than another. Information asymmetries occur when different
people know different things, hence signaling theory focuses on information asymmetry reduction. Public information is freely available, yet is only a portion of information that is available, as much information is private and only certain people may have access to it.

There are a number of studies that discuss signals in the management field. For example, present-focused rhetoric by the Chairman of the Federal Reserve Board signaled to the markets that the Fed was working on the current situation (Bligh and Hess, 2007); a workgroup leader displaying ethical leadership of dependability, self-discipline, responsibility and high standards will signal this behavior such as the group will develop a norm consistent with that behavior (Walumbwa et al., 2012); leaders have multiple reputations, each signaling a likelihood of behavior to a given social context (Hall et al., 2004); celebrity CEOs leadership success is founded on reputation which is grounded in signaling theory and on theories of mass communication (Treadway et al., 2009); the top leaders in multinational organizations signal through informal web-based memos appropriate practices for subsidiaries and future leaders (Novicevic and Harvey, 2004).

The basis for signaling theory is that the positive or negative private information unavailable to others will be useful if one has access (Kirmani and Rao, 2000). This private information has a privileged perspective regarding either new information, or additional new details regarding older information. As presidents are insiders with access to numerous and varied privileged information, they must determine which information they wish to disclose, and as such signaling takes on a greater value due to its selective nature. Presidents also enjoy the foundation of a “positivity bias” on how the public views the president (Greenstein, 1974; Edwards and Wayne, 1997).

Although the signal itself is important, the “quality” of the signaler has been identified in the research as significant (Connelly et al., 2011). Quality of a signal has been identified with the reputation of the signaler (Kreps and Wilson, 1982) and/or prestige of the signaler (Certo, 2003) as there is much market noise and signaling and investors will only focus on legitimate information. Recent research supports this assertion as a critical component to signaling theory as both the sender’s identity and the signal sent, work together for credibility, with the president as the credible individual who is signaling new information to the marketplace (Cameron et al., 2000).

The marketplace environment is fraught with signals, insider information, public information, misinformation and noise that affect the reduction of information asymmetry (Lester et al., 2006). For example, presidential rhetoric may provide an appropriate signal, but the media outlets then comment and report introducing possible changes and alterations (Carter, 2006). Other receivers influencing one another also have an opportunity to alter/influence signals for their own advantage (Branzei et al., 2004). A bandwagon effect can then occur as those that are not sure how to interpret a signal look to others and their actions, translating into potential market volatility (Sliwka, 2007).

Research suggests that most market situations will involve multiple signalers, multiple people receiving the signals, thus incurring varying signals (Connelly et al., 2011). As all investors are constantly seeking market information for portfolio decision making, any information from a respected qualified source would affect these decisions. Adding to the complexity of signals is the presence of false signalers, thus placing more emphasis on the quality of the signal (Ndofor and Levitas, 2004), and as such, presidential rhetoric becomes more valuable due to its inherent quality. The signal honesty, veracity, genuineness/suspiciousness, or the associated underlying quality of the signaler is high in presidential rhetoric due to the signaler’s integrity (Durcikova and Gray, 2009; Cohen and Dean, 2005).

Presidents “go public” with information unexpectedly which signals the importance of the new rhetoric and just mentioning an issue heightens public concern while ignoring an issue also has important implications and sends signals. Research suggests that the
The president is the most visible economic commentator in the US system and that the president’s optimism or pessimism when speaking about the economy can have significant effects on US economic growth and unemployment affecting consumer perception of the current and future economic conditions (Wood et al., 2002; Wood, 2004). To compare the influence of the president to marketplace reaction, research suggests the second most powerful man in America is the Federal Reserve Board Chairman who can send the financial markets into chaos with his rhetoric.

The existing literature suggests that US president is not responding to the marketplace, but is attempting to “craft the future,” as announcements from the president are not driven by only poor macroeconomic performance, as presidents talk steadily about the economy when conditions are both good and bad (Wood, 2004). The timing of marketplace rhetoric provides further signaling as each comment is first filtered through the massive executive branch bureaucracy. For an item to get on the president’s agenda, potential agenda items might have to pass through 13 offices before it reached the president’s office.

Efficient market hypothesis (EMH)

Hypothesis development

There has been abundant research that illustrates the causality of new information to the market and how investors react to that new information immediately, and is the foundation of most economic and financial theory. The EMH has been the dominant theoretical foundation suggesting that whenever new relevant information appears, investors update their expectations appropriately and act immediately. This theory further suggests that stock prices adjust instantaneously to unexpected events and the arrival of new information. Recent extensions of the theory suggest that investors often overreact to new information (the Overreaction Hypothesis) or that new information elevates uncertainty and risk in the equity market (the Uncertain Information Hypothesis) both causing investors to rebalance their portfolio. The only difference in these hypotheses is in how the long-term effect of their immediate reaction to the new information affects their future decisions.

New presidential rhetoric will cause investors to react as people will overweigh new information and underweight prior information and professional investors also display this same overreaction to new information. Even though there can be other marketplace and firm specific signals (i.e. dividend declaration), investors place an overly disproportionate importance to short-term developments. Investors are often overconfident and due to investor heterogeneity reactions will occur because of new information but the reaction may not be uniform.

For example, new information in regard to the ratings of funds will cause investors to buy newly upgraded funds and withdraw from downgraded funds, as the rating is a signal to investors of potential returns. An announcement of a small shortfall in reported vs expected earnings often leads to an immediate overreaction by investors who sell the firms’ stock. Firms who only changed their name to a “.com” had dramatic increases in shareholder wealth even though the firm, fundamentals, profit, etc. did not change.

Recent research used a comprehensive database of headlines about individual companies and then compared to firms that did not have headline financial market information. The results concluded that when new information was presented to the marketplace investors overreacted to the new information. Similar research collected daily news stories from The Wall Street Journal and Dow Jones News Wire, and found that new information about particular firms had both positive and negative abnormal returns due to the new (positive or negative) information in the article.

On a broader note in regard to country-wide-specific new information, coverage of major news item in The New York Times correlated with a reaction in financial asset prices as investors assign importance to prominent news topics. Other research investigated news releases in The Wall Street Journal and found investors conducted a
high degree of trading around the time of the news release. In particular, macro-announcements about the economy, inflation, etc. showed volatility in regard to both good news (buying of large firm stock) and bad news (selling of large firm stock). Research into presidential rhetoric suggests it does have an effect on public reactions, that the president has the ability to sway public opinion, and that his presidential “saber rattling” can affect a country’s economic performance.

The importance of presidential economic rhetoric is highlighted by research that suggests the president’s rhetoric on economic policy is signaling to congress to support his solutions as well as to the marketplace of future changes/implementation items that may occur. Research into signaling theory suggests that shareholders gain from making decisions based upon the information provided by the signaler, or in this instance, the president. Shareholders would buy or sell their stock that signal more profitable returns based upon the future suggested by this signaling by the president.

Even of more importance to presidential rhetoric is the change in investor ownership patterns over the years. A review of the NYSE and the NASDQ over the past two decades suggest that the average holding period for stocks has fallen from roughly two years to about ten months and many of the largest-capitalization technology stocks turn over their entire share base every two or three months. Empirical research investigating this phenomenon suggests that when investors have short term horizons they may all herd on the same information and may even choose to focus on information that is different from their fundamental trading basics. Hence, short term volatility should very well react immediately to new information from the president due to its sensitivity.

The assertion that presidential rhetoric creates a market response agrees with previous research that the volatility of prices is directly related to the flow of information to the market. Presidential communications could affect stock volatility as the early resolution of uncertainty helps investors to plan. Portfolio holders show an aversion to ambiguity (payoff probability occurrence) and this interaction between risk and ambiguity are illustrated through stock price volatility from negative political announcements.

In summary, our primary purpose of this study is to test the influence of presidential rhetoric by addressing its effect on the stock market. Marketplace information may have been already been made available to investors prior to the presidential rhetoric, but the president then confirms, denies, or puts their own twist on the information signaling his potential further actions or policy changes. Past research suggests that information can be positive, negative or neutral. We test the following hypothesis in regard to presidential rhetoric and the stock market:

\[ H1. \] Negative presidential signaling will increase stock market volatility.

\[ H2. \] Positive presidential signaling will increase stock market volatility, but less than negative rhetoric.

\[ H3. \] Neutral presidential signaling will decrease volatility in the stock market.

The rationale for our hypotheses, in summary, is that the president is very influential and the first time they discuss marketplace information (the economy, inflation/interest rates, or the deficit) their signals will cause investors to rebalance their portfolio to seek firms/industries that will benefit from their signal and to exit firms/industries that may be affected detrimentally. We hypothesize that when presidents make new positive or new negative comments about the economy, that signal would create a short-term market response. This immediate reaction to the new rhetoric is based upon the theoretical foundation of the EMH that states investors will react immediately to important new market information, and lesser/or none, to any repeat of the same information. To the best of our knowledge, there has been no empirical work performed on the impact of the president’s rhetoric on financial market volatility illustrating the influence of leadership rhetoric.
As investors are risk averse, negative news should have a greater impact than positive news, as research suggests the media emphasizes negative news stories. Positive news will create volatility of those joining the “herd” to seek out greater returns. Neutral news (those comments which are made a second time (or third time, or fourth, etc.) or are of nothing that is of importance to the USA) will signal to investors that no new information is forthcoming and no change in current policy thus volatility will decrease.

Sample
In order to properly collect, code, and analyze presidential signals as they relate to market responsiveness, data are used from two primary sources and a software application was created uniquely for this project. For presidential signals, an electronic file of the “Public Papers of the President of the United States” provides the most thorough and comprehensive information including press conferences, Q&A sessions with reporters, radio addresses, addresses to joint sessions of Congress, addresses to the nation, and announcements of economic programs of any president. Every time the president says something about the economy it had been recorded by the Public Papers. The study covers 1981 to 1999, nearly 20 years. All prepared and unprepared statements, proclamations, etc., that Presidents Reagan, Bush, and Clinton made about the economy, whether they are positive, negative, neutral, intended or unintended, verbal or written, are coded.

The second primary source of data gathering and analysis is the Standard & Poor’s 500 (S&P 500) Index. S&P 500 Index is a weighted combination of 500 firms chosen based on their market capitalizations and represents the large cap firms. Investors use this index to track the broad domestic economy.

Methods
A software application was designed uniquely for this project. The first tool, the rich-text format (RTF) document parser, reads through (parses) extremely large RTFs “Public Papers of the President of the United States,” and isolates publication year, publication date, the publication title (president’s remarks at a news conference, for example) and the paragraph text under that particular title. President Reagan’s page count from 1981 to 1988 is 18,120, President Bush’s page count from 1989 to 1992 is 10,512, and President Clinton’s page count from 1989 to 1999 is 22,906. The second tool, the natural text search engine of Oracle database technology, provides a visual front-end on the primary database table structure. The basic keyword search operation allows the user to search the approximately 51,500 pages for the keywords that are of interest. Documents that match are returned into a separate tree view control. After parsing and categorization of texts, two graduate students in separate locations examined each paragraph and identified when the president used the keywords (Economy, Deficit, Inflation, and Interest Rate: see below for discussion of keywords) “positively,” “negatively”, “neutrally”, or not at all (see tests for inter-rater reliability below).

The use of computer-aided analysis offers a dramatic increase in the amount of text that can be analyzed and automates the tediousness of human coding. However, it is not a substitute for a good research design and computer-aided analysis does not do away with extensive human input. For example, just looking at a sentence that contains the keyword Economy, may not capture that the President is talking about Japan’s economy and not the USA. Moreover, computer programs fail to pick up nuance in a president’s remarks and cannot handle words that have more than one meaning, phrases, or idioms and thus human coding is needed.

Inter-rater reliability
As this is perceptual data, inter-rater reliability is of utmost importance. As two coders separately coded the signals, we compared for both the reliability of the judgments
empirically, and when there was a disagreement, the signal could then be coded appropriately. After two raters finish coding all keyword signals, an analysis of inter-rater agreement was performed to establish reliability. Based on guidelines for calculating and reporting inter-rater agreement, we followed the following steps: first, the measure of inter-rater agreement is determined, using the proportion of percentage agreement; second, a level of 90 percent for reliability is established; third, a pilot test is performed of 30 signals selected randomly by year, by month and then by keyword; fourth, since the pilot test indicated that reliability levels will be adequate, another sample of the signals was performed.

The percentage agreement between the two coders, adjusting for chance agreements, equals 79.29 percent. Landis and Koch (1977, p. 165) provide a table for interpreting $\kappa$ values, and those values are reproduced in Table I. The 79.29 percent agreement between coders suggests that inter-rater agreement is “substantial” as 81 percent is considered “nearly perfect.” We were comfortable with our results that our data coding reflected the correct signals from presidential rhetoric.

**Presidential signal categories**

Signals are identified as Positive, Negative, Neutral, or No Value by examining a list of keywords, Economy, Deficit, Inflation, and Interest Rate (Table II). Positive signals are defined as new optimistic economic news, initiatives, proclamations, etc. that the market would react favorably during a given day when signaled by the president for the first time. Negative signals are defined as new negative economic news, proclamations, sanctions, etc. that the market would react unfavorably, signaled during a given day by the president for the first time.

Good news or bad news repeated a second time is considered neutral. Presidents often repeat signals and rehash speeches about the economy, education, and social security,

<table>
<thead>
<tr>
<th>Kappa statistic</th>
<th>Strength of agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.00</td>
<td>Poor</td>
</tr>
<tr>
<td>0.00-0.20</td>
<td>Slight</td>
</tr>
<tr>
<td>0.21-0.40</td>
<td>Fair</td>
</tr>
<tr>
<td>0.41-0.60</td>
<td>Moderate</td>
</tr>
<tr>
<td>0.61-0.80</td>
<td>Substantial</td>
</tr>
<tr>
<td>0.81-1.00</td>
<td>Nearly perfect</td>
</tr>
</tbody>
</table>

**Source:** Frequencies provided by Landis and Koch (1977)

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy</td>
<td>The total wealth and resources of the USA in terms of the production and consumption of goods and services</td>
</tr>
<tr>
<td>Deficit</td>
<td>When government spending exceeds the receipts (tax revenue) it receives in a given year. The total accumulation of these deficits is the national debt. Governments finance deficits through the bond market</td>
</tr>
<tr>
<td>Inflation</td>
<td>An increase in the overall prices of goods and services in an economy and the inflation rate is the percentage change in the consumer price index – a measure of the overall cost of the goods and services bought by a typical consumer - from one period to the next, measured monthly</td>
</tr>
<tr>
<td>Interest Rates</td>
<td>The supply of money into the system is under the partial control of the Federal Reserve System as it manipulates the federal funds rate through the open market operations. As interest rates increase, economic actors should borrow, consume, and invest less; as they decrease, economic actors should borrow, consume, and invest more</td>
</tr>
</tbody>
</table>

Table I. Agreement strength for signaling data

Table II. Keyword descriptions
to name a few issues. The theoretical foundation of EMH states that investors pay attention to what the president says the first time, and any further rhetoric will have no effect. We have grouped interest rate and inflation comments together for both statistical and face validity purposes. In reality, interest rates and inflation are highly correlated. When a country is experiencing high inflation, interest rates also increase. The effect on professional investors that receive presidential rhetoric about high inflation will also react similarly to high interest rates. Second, we found that statistically both high inflation and interest rates were highly correlated. Finally, for statistical power for all three presidents in our 20-year data, we need to combine the two, as there were not enough inferences separately to make any reliable valid statistical conclusion (Tables III and IV).

**Controlling for macroeconomic announcements**

Presidential signals are categorized as new if the president is talking about them for the first time. However, investors are also following official macroeconomic announcements and these announcement releases may coincide with the presidential signals that we are analyzing. In this regard, we need to control for a significant number of announcements in our study including consumer price index (CPI), producer price index (PPI), industrial production and capacity utilization (IPCU), new residential construction, productivity and costs, gross domestic product (GDP), employment situation (Unemp), personal income and outlays (PI) and federal open market committee (FOMC) meeting dates. These are the major announcements that are employed in the literature investigating effects of macroeconomic news on the financial markets. The data for macroeconomic announcements is collected from the website of Federal Reserve Bank of St Louis. FOMC meeting dates are kindly provided by Gurkaynak et al. (2005). Table V reports release timing, the institution that makes the release and the frequency for the macroeconomic announcements that we include as controls. We control for the announcement effects by employing a dummy variable which takes one on the day of an announcement and zero otherwise.

There is also evidence that news effects differ across business cycles. Investors may react to the same set of news differently in good and bad times. For example, Andersen et al. (2007) find that positive PPI and CPI shocks have significant effects on stock markets during expansion.

### Table III.

Average number of signals per year

<table>
<thead>
<tr>
<th>President</th>
<th>Deficit</th>
<th>Economy</th>
<th>Inf&amp;Int rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reagan</td>
<td>61</td>
<td>115.5</td>
<td>108.25</td>
</tr>
<tr>
<td>Bush</td>
<td>60.25</td>
<td>134.25</td>
<td>55.25</td>
</tr>
<tr>
<td>Clinton</td>
<td>94.86</td>
<td>152.43</td>
<td>107.86</td>
</tr>
</tbody>
</table>

*Note:* This table presents summary statistics of the average number of times President Reagan, Bush, and Clinton signaled to the market each year, using keywords Deficit, Economy, Inflation, and Interest Rates, from January 1981 to December 1999

### Table IV.

Number of positive and negative signals to the market

<table>
<thead>
<tr>
<th>President</th>
<th>Pos</th>
<th>Deficit</th>
<th>Neg</th>
<th>Ntrl</th>
<th>Pos</th>
<th>Economy</th>
<th>Neg</th>
<th>Ntrl</th>
<th>Pos</th>
<th>Inf&amp;Int rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reagan</td>
<td>36</td>
<td>422</td>
<td>14</td>
<td>22</td>
<td>85</td>
<td>658</td>
<td>38</td>
<td>658</td>
<td>30</td>
<td>741</td>
</tr>
<tr>
<td>Bush</td>
<td>10</td>
<td>196</td>
<td>8</td>
<td>8</td>
<td>70</td>
<td>340</td>
<td>20</td>
<td>340</td>
<td>20</td>
<td>139</td>
</tr>
<tr>
<td>Clinton</td>
<td>42</td>
<td>599</td>
<td>7</td>
<td>53</td>
<td>53</td>
<td>887</td>
<td>24</td>
<td>887</td>
<td>24</td>
<td>704</td>
</tr>
</tbody>
</table>

*Note:* This table presents summary statistics of the number of times President Reagan, Bush, and Clinton sent a positive and negative signal to the market, using keywords Deficit, Economy, Inflation, and Interest Rates, from January 1981 to December 1999
while the same inflationary shocks do not have a significant effect on stock markets during recession. In this respect, investors may also react differently to presidential signals during expansions and recessions. Although our macroeconomic announcement day dummies may interact with the business cycle timing, we control for the business cycle effect with employing dummies for the recessions. The data for the chronology of business cycles are obtained from the website of the National Bureau of Economic Research. We have only three recessions in our sample period. The first one starts January 1980 and lasts for six months. The second one starts July 1981 and lasts for 16 months. The final recession starts July 1990 and lasts eight months.

Empirical tests
This study explores how the president’s rhetorical signals influence the stock market volatility of S&P 500 Composite Index. In order to capture the time varying nature of the conditional variance of returns of the indices, we use generalized autoregressive conditional heteroscedasticity (GARCH) modeling. Widely used GARCH processes use past unpredictable parts of returns, generally referred to as shocks, to predict the future volatility. A univariate GARCH (p, q) model can be written as:

\[ R_t = \mu + \epsilon_t \]

\[ \sigma_t^2 = \omega + \sum_{i=1}^{p} \alpha_i \epsilon_{t-i}^2 + \sum_{j=1}^{q} \beta_j \sigma_{t-j}^2 \]

\[ \omega = \frac{\sigma}{1-\alpha-\beta} \] (1)

where \( R_t \) is the return on an asset at time \( t \), \( \epsilon_t \) the forecast error or shock, \( \sigma_t \) the conditional variance of \( R_t \), \( \omega \), \( \alpha_i \) and \( \beta_j \) are the parameters, \( p \) and \( q \) refer to the number of lags of

<table>
<thead>
<tr>
<th>Announcement Source Frequency Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real activity</td>
</tr>
<tr>
<td>Industrial production FRB Monthly On or around the 16th of the month</td>
</tr>
<tr>
<td>Capacity utilization FRB Monthly On or around the 16th of the month</td>
</tr>
<tr>
<td>Employment situation BLS Monthly The first Friday of the month</td>
</tr>
<tr>
<td>Personal Income and outlays BEA Monthly 4-5 weeks after month’s end</td>
</tr>
<tr>
<td>Productivity and costs BLS Quarterly Approximately five weeks after previous quarter’s end</td>
</tr>
<tr>
<td>GDP BEA Quarterly Three months after quarter ends</td>
</tr>
<tr>
<td>Prices</td>
</tr>
<tr>
<td>Consumer price index (CPI) BLS Monthly Last Tuesday of the month</td>
</tr>
<tr>
<td>Producer price index (PPI) BLS Monthly Second or third week of the month</td>
</tr>
<tr>
<td>Forward looking</td>
</tr>
<tr>
<td>New residential construction CB Monthly On or around the 17th of the month</td>
</tr>
<tr>
<td>FOMC meeting minutes FRB Every six-week</td>
</tr>
</tbody>
</table>

Recession

<table>
<thead>
<tr>
<th>Start</th>
<th>Duration (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1980</td>
<td>6</td>
</tr>
<tr>
<td>July 1981</td>
<td>16</td>
</tr>
<tr>
<td>July 1990</td>
<td>8</td>
</tr>
</tbody>
</table>

Notes: FRB, Federal Reserve Board; BLS, Bureau of Labor and Statistics; BEA, Bureau of Economic Analysis; CB, US Census Bureau. This table reports release timing, the institution that makes the release and the frequency for the macroeconomic announcements.

Table V. Control variables
shocks and conditional variances, respectively, $\bar{\sigma}$ the constant long run volatility of the return process.

GARCH models have many appealing characteristics. They manage to capture the volatility clustering phenomenon, which is an important empirical characteristic of asset distributions. Moreover the return distribution that evolves from a GARCH process has fatter tails than a normal distribution, which is again documented by many researchers. They also have long run forecasting abilities, by capturing the concept of mean reversion with the help of a constant intercept term.

Our analysis includes the following models. Models I through III employ only positive, negative and neutral signal dummies as exogenous variables in the variance equation of GARCH (1, 1), respectively:

$$R_t = \mu + \epsilon_t$$

$$\sigma_t^2 = \omega + \alpha \epsilon_{t-1}^2 + \beta \sigma_{t-1}^2 + \sum_{m=1}^{9} \gamma_m \text{MacroDummy}_m + \delta \text{Recession}$$  \hspace{1cm} (2)

Results are summarized in Table VI. As suggested by a highly significant GARCH coefficient and sum of ARCH and GARCH coefficients that is close to unity, all of our models are covariance stationary and the conditional variance exhibits a high level of persistence. The Ljung-Box test statistics based on squared residuals indicates that there are no serial correlations. We report coefficients and robust $t$-statistics.

<table>
<thead>
<tr>
<th></th>
<th>H2</th>
<th>H1</th>
<th>H3</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2</td>
<td>$\beta$</td>
<td>t-value</td>
<td>$\beta$</td>
</tr>
<tr>
<td>Constant in mean</td>
<td>0.065</td>
<td>5.639</td>
<td>0.068</td>
</tr>
<tr>
<td>Constant in Var.</td>
<td>0.015</td>
<td>3.312</td>
<td>0.016</td>
</tr>
<tr>
<td>ARCH(1)</td>
<td>0.074</td>
<td>31.778</td>
<td>0.075</td>
</tr>
<tr>
<td>GARCH(1)</td>
<td>0.917</td>
<td>234.507</td>
<td>0.916</td>
</tr>
<tr>
<td>Positive signals</td>
<td>0.016</td>
<td>1.209</td>
<td>0.016</td>
</tr>
<tr>
<td>Negative signals</td>
<td>0.066</td>
<td>3.353***</td>
<td>-0.013</td>
</tr>
<tr>
<td>Neutral signals</td>
<td>0.006</td>
<td>0.612</td>
<td>0.000</td>
</tr>
<tr>
<td>CPI</td>
<td>-0.017</td>
<td>-0.417</td>
<td>-0.024</td>
</tr>
<tr>
<td>Unemp.</td>
<td>0.009</td>
<td>3.140***</td>
<td>0.009</td>
</tr>
<tr>
<td>IPCU</td>
<td>-0.026</td>
<td>-0.884</td>
<td>-0.052</td>
</tr>
<tr>
<td>ResCons</td>
<td>-0.018</td>
<td>-0.474</td>
<td>0.006</td>
</tr>
<tr>
<td>PPI</td>
<td>0.110</td>
<td>3.971***</td>
<td>0.084</td>
</tr>
<tr>
<td>GDP</td>
<td>-0.164</td>
<td>-4.951***</td>
<td>-0.153</td>
</tr>
<tr>
<td>PI</td>
<td>0.013</td>
<td>0.408</td>
<td>-0.003</td>
</tr>
<tr>
<td>ProdCosts</td>
<td>-0.007</td>
<td>-3.201***</td>
<td>-0.094</td>
</tr>
</tbody>
</table>

**Notes:** This table presents results for the estimation of following GARCH models:

$$R_t = \mu + \epsilon_t$$

$$\sigma_t^2 = \omega + \alpha \epsilon_{t-1}^2 + \beta \sigma_{t-1}^2 + \sum_{m=1}^{8} \gamma_m \text{MacroDummy}_m$$

Table VI.
GARCH (1, 1) estimates for S&P 500 Index Returns on presidential signals and controls

Models I-III include only positive, negative and neutral signals that the president sends to investors, respectively. Macroeconomic announcements enter the conditional variance equation as control dummies. The return series is the S&P 500 Composite Index daily returns. Sample period is 1981-1999. We report the coefficients and robust $t$-statistics calculated with the Bollerslev-Wooldridge method. *,**,***Significant at 0.10, 0.05 and 0.01, respectively.
Presidential rhetoric that was positive was not significant, hence $H1$ was not supported ($\beta: 0.016; \, t\text{-value} \, 1.209$). President’s negative signals have an increasing effect on the volatility of the S&P 500 Index supporting $H2$ ($\beta: 0.066; \, t\text{-value} \, 3.353$). President’s Neutral statements, or reinforcements of prior information, decrease market volatility providing support for $H3$ ($\beta: 0.013; \, t\text{-value} \, -2.920$). We discuss these findings further in the discussions section.

In line with prior literature, we find that macroeconomic announcements such as CPI, PPI, industrial production/capacity utilization, GDP, employment situation, and personal income and outlays create short term fluctuations in the markets. As a robustness check we conducted the regressions removing days when there is both a positive and negative signal and the results were similar.

**Conclusions and future research**

Overall, we have presented four major findings for leadership theory. First, we have identified several gaps in the leadership field that we have attempted to address. Our review of the leadership literature suggested that the past research focused mainly upon the direct followers of leaders. Although the president has direct followers, we focused more upon the role of president and how his rhetoric affects other stakeholders, in this research, investors. We also noted that the leadership research suggested that the consequences of leaders’ behaviors should be explored. Our research illustrated a relationship with the leaders’ behavior (commenting on the economy through his rhetoric) and how the market reacted. Finally, there has been little attention to how leaders communicate about economic and marketplace events. Our research directly tested this past concern and found presidents are continuously communicating about these events with both new information and repeating of their earlier comments.

Second, that presidential rhetoric is influential and when they are addressing economic policy the market reacts to his signals. Our research continued the stream of rhetorical leadership (Naidoo and Lord, 2008) through the president as research suggests communication is an essential aspect of the leadership process and that the president is one of the most influential people. Although no research has explored whether presidential rhetoric indeed is as influential as to affect the stock market volatility. Our research concludes that when presidential rhetoric is in regard to the economy, inflation, interest rates or the deficit, investors will rebalance their portfolio and abnormal volatility will occur.

Third, we categorized the presidential rhetoric as positive, negative, or neutral to understand the impact of the type of rhetoric that affects risk averse investors. Our results indicate that negative rhetoric from the president will cause the greatest volatility in the marketplace. This is typically due to the risk aversion of investors and the media prefers to cover negative news over positive news so will apply more resources to report this news information. Neutral rhetorical comments by the president illustrated decreased volatility, as the president was signaling that there was no news forthcoming and the investors had all the public marketplace information available. Neutral comments are supported by past research as just mentioning an issue heightens public concern while ignoring an issue (neutral rhetoric) also has important implications and sends signals.

Positive presidential rhetoric was not significant and $H1$ was not supported. Although our arguments suggested a relationship, leadership research in regard to charismatic leadership provides a possible explanation (although one could argue Bush was not charismatic, both Reagan and Clinton are considered very high in charisma according to past research). Charismatic leaders are inspirational, use persuasive rhetoric, and express more positive emotions (Beck et al., 2012) and as such the marketplace would expect a continuous stream of positive information. Hence, savvy investors will not rebalance their portfolio based on positive information that is continually entering the marketplace from the president, but will react quickly and strongly upon negative rhetoric.
Fourth, we used a theoretical foundation of signaling theory. Although there is some rhetorical leadership research that utilizes signaling (e.g. Bligh and Hess, 2007; Walumbwa et al., 2012; Hall et al., 2004; Treadway et al., 2009) but very little research is directly associated signaling theory with leadership rhetoric. Rhetoric is formal and informal communication used by leaders to convey their message to stakeholders and can include voice inflections, eye contact or lack thereof, use of figurative language and imagery, use of stories and metaphors, etc. As such the meaning can often be emotive and is a signal, much often less a concrete statement. Our foundation of signaling theory suggests that when presidential rhetoric is used, investors will react and market volatility will be effected. We suggest that signaling theory should be considered in future rhetorical leadership research.

It is important to note that this study, although it is over 20 years with over 51,000 pages of documentation, is on three presidents and their rhetoric due to the limitation of the availability of the data. This type of research can be important in exploratory research to identify constructs, but we realize much more work will be needed to establish an empirical link between leadership rhetoric and consequences. Also, this research is focused on other stakeholders, not direct followers, and more research needs to evaluate that link. Future research will also need to evaluate actual messages and the signal and the strength of the reaction by stakeholders.

Implications for managers and organizations

There are many implications for managers and organizations. Managers are always attempting to develop future strategy through external environmental analysis. Their future tactics depend upon an accurate assessment of how to utilize their current internal core competencies in regard to the changing global facets of the marketplace. If managers can include one more variable, that of presidential rhetoric, this will assist them in determining the future of the marketplace. Items of critical importance could be issuance of stock, sales figures, borrowing, bonds, inventory management, etc. that could be directly influenced by presidential rhetoric due to stock market volatility. Also most top managers’ compensation is tied to their firms’ stock price (stock, stock options, etc.) and presidential rhetoric could influence their compensation.

From an investor’s view, the implications are enormous, as they trade within seconds of new information and first movers could reap the largest rewards. For example, when negative presidential rhetoric is announced, market volatility is predicted. Savvy investors could then identify where the re-investment would take place and “short” industries that would be dropping and “buy” into industries that would be rising. There are many techniques and portfolio positions that these professionals can take, but just being aware that presidential rhetoric affects the volatility of the stock market will give these professional investors an advantage.

References


Further reading


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