Social Mood, Stock Market Performance and U.S. Presidential Elections:

A Socionomic Perspective on Voting Results

Robert R. Prechter, Jr.[a]

Deepak Goel[a]

Wayne D. Parker[b]

Matthew Lampert[a,c]

[a] Corresponding authors. Socionomics Institute, 200 Main St. Ste. 350, Gainesville, GA

30501, USA; rprechter@socionomics.net, deepakg@socionomics.net,

mattl@socionomics.net.

[b] Emory University School of Medicine, currently on inactive status. 4651 Roswell Road

NE Ste. H-701, Atlanta, GA 30342, USA

[c] University of Cambridge; Faculty of Human, Social and Political Science; Department

of Sociology; Free School Lane; Cambridge; CB2 3RQ; United Kingdom.

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Abstract

We analyze all U.S. presidential election bids. We find a positive, significant relationship between the incumbent's vote margin and the prior net percentage change in the stock market. This relationship does not extend to the incumbent's party when the incumbent does not run for re-election. We find no significant relationships between the incumbent's vote margin and inflation or unemployment. GDP is a significant predictor of the incumbent's popular vote margin in simple regression but is rendered insignificant when combined with the stock market in multiple regression. Hypotheses of economic voting fail to account for the findings. The results are consistent with socionomic voting theory, which includes the hypotheses that (1) social mood as reflected by the stock market is a more powerful regulator of re-election outcomes than economic variables such as GDP, inflation and unemployment and (2) voters unconsciously credit or blame the leader for their mood.

Keywords: economic voting; presidential elections; incumbent; social mood; socionomics

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Introduction

While many researchers have investigated stock market performance *after* U.S. presidential elections, few studies have investigated the connection between elections and *preceding* stock market performance. When they have, the data were usually limited to the election-year performance of the market and only a subset of elections (Biewald, 2003; Chan and Jordan, 2004; Gleisner, 1992). In this paper, we examine the net percentage change in the stock market in the years preceding all American presidential re-election bids. For this study, "re-election" is an election featuring an incumbent president, whether or not he initially obtained office via an election.

We find a significant positive relationship between the stock market's net percentage change during the three years prior to a re-election bid and the incumbent's popular vote margin percentage. The net percentage change in the stock market for one-, two- and four-year periods preceding the election are each a weaker yet significant predictor of re-election outcomes. Our results are robust to multiple variations in the elements of the testing procedure: measures of the stock market's performance, measures of election outcomes, statistical methods used to gauge the relationship between the two, durations of data, and the presence of additional variables. The relationship does not extend to the incumbent party's candidate when the incumbent does not run. We find that relationships between the incumbent's popular vote margin percentage and the preceding net percentage change in gross domestic product, the inflation rate and the unemployment

rate are often insignificant and always weaker than those between the incumbent's popular vote margin and net percentage change in the stock market.

Our results contribute to the literature by elucidating the relative value of stock indexes for election forecasting models, challenging economic voting hypotheses, exploring an underlying motivator of financial and political choice, suggesting a strategy for political party officials and candidates, and offering ideas for future research. At the theoretical level our findings are consistent with Prechter's (1979, 1999, 2003) socionomic theory, which includes the hypotheses that social mood as reflected by the stock market is a powerful regulator of re-election outcomes and that voters unconsciously credit or blame the leader for their mood.

Economic Voting

Many political scientists hypothesize that changes in economic variables cause changes in other social variables such as stock market trends, public mood and voting results (e.g. Fair, 1996, p.132). A number of researchers have characterized the relationship between voters and their elected officials in terms of two types of variables: popularity functions, which are primarily economic factors thought to influence voters' views toward their leaders positively or negatively (Lewis-Beck and Paldam, 2000; Mueller, 1970; Nannestad and Paldam, 1994), and reaction functions, which are government policy-makers' reactions to their perceived popularity, by which they try to manipulate economic variables to curry voters' favor (Alesina, Roubini and Cohen, 1997; Brender and Drazen, 2005; Fair, 1978; Kramer, 1971). Many authors have combined vote

functions—factors leading to election outcomes—with popularity functions—factors leading to poll results—since almost all of the issues overlap (Chappell, 1990; Nannestad and Paldam, 1994). Political scientists have shown much interest in predicting national election results using economic variables in such functions. The "big three" popularity functions traditionally mentioned in the literature are economic growth, inflation and unemployment (Norpoth, 1996).

Jones (2002) considered many models developed since 1952 that attempt to predict U.S. elections and concluded that the most effective single predictor of these election outcomes is the state of the election-year economy. Fair (2002) looked for a relationship between a number of different economic factors and the percentage of the popular vote received by the incumbent party's presidential candidates between 1920 and 1996. He found a strong relationship between the election-year GDP growth and the percentage of popular votes received. Biewald (2003), however, repeated Fair's study with an additional fifty years of data and found that election-year GDP growth is only weakly correlated with election results.

Nannestad and Paldam (1994) found that studies relating economic growth to election outcomes yielded inconsistent results, so they discarded GDP as an explanatory variable and instead emphasized inflation and unemployment. Jones (2002) found some evidence for a relationship between the election-year inflation rate and the percentage of popular votes received. Biewald (2003), however, found that with the inclusion of an additional fifty years of data, the inflation rate was no longer related to election results. Chrystal and Peel (1986) found that neither inflation nor unemployment was robustly

related to the popularity of the government.

Fair (1978, 1982, 1988) constructed models for predicting the Democratic Party's share of the two-party popular vote based on several factors, including the rate of change in gross national product for two different durations prior to an election, a time trend variable coded according to which party was in power, and whether the election involved an incumbent. One version of this model (Fair, 1988) achieved a strong coefficient of determination (R^2) of 0.89.

To an iteration of Fair's model, Gleisner (1992) added the percentage change of the Dow Jones Industrial Average over a ten-month period prior to the election. This addition significantly improved the fit of the model and rendered Fair's time trend variable insignificant. Chan and Jordan (2004) found that the equity market's performance for ten months prior to an election was a better predictor than GDP growth of incumbents' election results in recent years. Our next section explores a possible theoretical explanation for these improved results.

Socionomic Voting

Implicit in much of the economic voting literature is the passive organism model of human action: humans are seen as essentially reactive. Many of the social sciences have adopted this stimulus-response model of human psychology popularized by behaviorist psychologists such as Watson (1913) and Skinner (1938) in the last century. While some scholars (Baars, 1986; Gardner, 1987) have since rejected this model as too simplistic or inaccurate, it lives on in many implicit assumptions of other social sciences,

including political science.

Specifically, the conceptualization of popularity and reaction functions carries with it three assumptions: (a) that there is a reciprocal causal relationship between the electorate's opinions of its elected leaders (popularity functions) and the economic policy responses of those leaders (reaction functions); (b) that voters react to economic conditions, political events and manipulation so that various economic and policy inputs have reactive voting outputs; and (c) that voters act consciously and rationally after logically evaluating candidates' political policies and deciding whether these policies have served (under the theory of retrospective voting) or will serve (under the theory of prospective voting) their best interests.

In contrast, socionomic theory offers competing models of mood, human action and making choices. Prechter (1999) posited that social mood—the aggregate, unconscious levels of optimism and pessimism in a society—emerges spontaneously in self-organizing human social systems, fluctuates according to an internally regulated growth process described by Elliott's (1938) wave model, is impervious to economic and political stimuli, and drives collective human action and non-rational decision-making unconsciously in contexts of uncertainty. Presidential elections—the focus of our study— appear to qualify as a context of uncertainty. Delli Carpini and Keeter (1996), Blendon, et al. (1997), Paldam and Nannestad (2000), and Aidt (2000) have documented convincingly the typical voter's pervasive ignorance and uncertainty with respect to information about elections. Rahn (2000) found that "public mood" may be an important influence upon political decision-making, concluding that the degree of uncertainty

accounts for the extent to which mood influences political behavior.

Socionomic theory specifically applies to the re-election or rejection of incumbents. Prechter (1989, 1999, 2003) hypothesized that when social mood has been trending towards optimism, voters will be more inclined to desire to keep the incumbent in office; and when social mood has been trending towards pessimism, voters will be more inclined to desire a change from the incumbent. Contrasting sharply with Stimson's (1991) more cognitive "policy mood" concept, Prechter (1999, 2003) proposed that the policies of the incumbent and his challenger are irrelevant to this dynamic. He surmised that voters unconsciously (and erroneously) credit incumbents for their positive moods and blame incumbents for their negative moods. This explanation appears similar to the responsibility hypothesis (Downs, 1957; Key, 1966), in which voters blame the incumbent for consciously perceived, externally produced, negative economic circumstances. In the socionomic formulation, however, voters blame the incumbent for unconsciously experienced, internally regulated, negative social mood.

Under socionomic theory, policy statements and actions by leaders are powerless to affect the mood of the voters; instead, the mood of the voters has a powerful effect on the policy statements and actions of leaders. Three studies supported this formulation. Kuklinski and Segura (1995) reviewed literature concerning mood and politics and reported that mood appeared unresponsive to politicians' efforts to influence it. They further argued that Stimson's policy mood concept "might better be viewed as affective: when people become dissatisfied and angry, they come to favor less government or at least a change in the government's current activities" (p. 13). Nofsinger and Kim (2003)

found a relationship between the trend of social mood and the subsequent actions of U.S. lawmakers. They reported that Congress tended to tighten investment restrictions after social mood had become more negative, as indicated by a substantial decline in stock prices, and tended to loosen investment restrictions after social mood had become more positive, as indicated by a substantial rise in stock prices. Geer (2006) reported that, rather than negative political ads making voters feel more pessimistic, voters' pre-existing attitudes instead affected how candidates chose their advertising. In concert with these suggestive ideas, socionomic theory explicitly proposes that economic and political trends are results of social mood, not causes, so the direction of predictive power between mood and social events is the opposite of that traditionally assumed.

Socionomic theory affirms the active organism model of human action (Overton and Ennis, 2006; Overton and Reese, 1973): that humans are innately and spontaneously active in their cognitive, affective and conative processes. Under the socionomic model, voters do not passively wait for politicians' policies and promises to program their responses but rather express social mood spontaneously. Under the hypothesis that changes in social mood unconsciously impel humans to take social actions expressing their moods, socionomic theory proposes that changes in indicators of social mood can be used to anticipate the direction and character of social trends, including those in politics.

Socionomic theory pertains to voting tendencies at the aggregate level. Many individual voters may, to a degree or for a time, consistently cast ballots along party lines, religious lines, single-issue lines, philosophical lines or some other overriding factor. We suspect that "swing" voters with little or no philosophical anchor are among the ones

acting most readily to express social mood in the voting booth. Regardless of departures from socionomic motivation at the individual level, social mood under this theory can powerfully regulate voting outcomes at the aggregate level.

Prechter (1979, 1999; Prechter and Parker 2007) has argued that, for the present, stock market indexes appear to be the best available indicator of social mood, because investors can act swiftly in this context to express their optimism and pessimism. Recent work in the area of online social sentiment analysis by Bollen, Mao and Zeng (2011) and Gilbert and Karahalios (2010) provided empirical support for the idea that financial markets are responsive to changes in social sentiment. Because stock market averages register changes in mood and possess an extensive data history, they are uniquely appropriate for the long term historical analysis which we undertake in this paper.

Riley and Luksetich (1980) saw the stock market as an indicator of social mood. They implied, however, that political parties *influence* mood by shaping the public's expectations of future business conditions. Socionomic theory, in contrast, proposes that social mood—a hidden, independent variable—simultaneously determines both stock market outcomes *and* incumbent presidential re-election outcomes. This formulation avoids the error, as we see it, of confusing the indicator with the cause. Santa-Clara and Valkanov (2003) ruminated over whether political variables cause fluctuations in stock returns, or the reverse. According to socionomic theory, neither formulation is correct; rather, social mood trends regulate stock trends and political trends concurrently.

A popular explanation for why the economy often lags the stock market is that investors accurately anticipate, months in advance, the economic future and then

rationally invest on their expectations (Muth, 1961; Sheffrin, 1996). Prechter (2003, pp. 380-384) challenged this idea on both theoretical and empirical grounds. Socionomic theory proposes instead that macroeconomic indicators, such as rates of economic growth, inflation and unemployment, respond to social mood to some degree, but they do so far less immediately, as it takes months on average for business people to carry out mood-motivated decisions due to the time requirements of meeting, planning, lending or borrowing, opening or closing facilities, hiring or firing, building or reducing inventory, and so on. In the aggregate, these delayed results show up as increases or decreases in production, expansions or contractions of credit, and increases or decreases in the labor force. Investors, on the other hand, can buy or sell in the stock market almost immediately in response to social mood, so its effects appear there prior to appearing in macroeconomic indicators.

Socionomic theory stands in contrast to expectations theory in postulating that social mood regulates other social variables, including the economy, which is merely another result rather than the cause. We shall offer evidence that the trend of social mood, not the trend of the stock market per se, regulates voting with respect to the re-election or rejection of incumbents.

Socionomic theory (Prechter, 1999, pp. 273-277) made the following predictions regarding incumbents' re-election attempts:

1. An increasingly positive social mood, indicated by a rising stock market, will positively influence an incumbent's re-election chances.

2. An increasingly negative social mood, indicated by a falling stock market, will

negatively influence an incumbent's re-election chances.

3. Extreme changes in social mood, indicated by extreme changes in the stock market, will tend to motivate more extreme voting preferences for or against the incumbent.

4. An indicator of social mood, the stock market, will predict the outcomes of re-election bids better than will rates of economic growth, inflation and/or unemployment.

Methods and Results

To investigate these formulations, we first examine the relationship between the net change in the stock market and the ensuing popular vote margin—the number of percentage points separating the incumbent from his nearest challenger in the popular vote—for or against incumbent presidents in U.S. elections. The Dow Jones Industrial Average serves to represent the U.S. stock market from 1897 to the present. Prior to 1897, we use the Foundation for the Study of Cycles' data series, which normalizes stock market data from earlier indexes to the Dow to create a longer series (DJIA) that encompasses all U.S. presidential elections from 1789 through 2008. Popular vote margin is a broad measure that is likely to reflect social mood in an election. For purposes of validation, we also consider four other measures of incumbent performance: percentages of total popular vote, percentages of total electoral vote, electoral vote margin percentages, and overall wins and losses of elections.

Next, we examine the relationship between the stock market and the fates of incumbents in landslide elections. We then relate the stock market to the popular vote

margin for an incumbent's political party when the incumbent does not run. A final set of

analyses assesses the predictive ability of the "big three" economic indicators—GDP,

inflation and unemployment—when modeled individually and together with the stock

market.

Predicting Incumbent Election Results

We first compare the popular vote margin for or against an incumbent president

with the stock market's net percentage gain or loss for the three-year period preceding the

election. We operationally define the three-year period as the span of time from 1

November of the year after the previous election through 31 October of the year of the

election under consideration. We select this period because we observe anecdotally that

society tends to judge a president by the trends that occur during the bulk of the

presidential term, barring much or all of the first year, for which the credit or blame is

typically assigned to the predecessor. Our analysis includes all presidential elections in

which an incumbent candidate ran, beginning in 1824 when popular vote data are first

available. A linear regression analysis yields a large and statistically significant effect, R^2

$= 0.328$, $p = 0.001$. Table 1 displays results for the test described above (see line three) as

well as further statistical results.

To assess the robustness of the results, we examine a number of variations in

model parameters and analytic approaches. As shown in the table, significant positive

predictive relationships continue to emerge when varying the measuring period for the

stock market to one, two and four years. We also bifurcate the data at two cutoff points:

(a) the turn of the 20th century, and (b) the 100-year anniversary of the inception of

popular vote tallies, which also roughly corresponds to the midpoint of the data span. The

three-year results maintain across these bifurcated datasets. This consistency is

compatible with socionomic theory, which proposes that social mood's influence on re-

election results should be comparable despite any changes between the 19th and 20th

centuries in terms of campaign strategies, communications technology, election rules,

extent of public participation and so on. To relax distributional assumptions and lessen

the influence of potential outliers, we also apply the nonparametric Spearman's rank

correlation test to all data conditions, and we obtain similar results, per Table 1.

Table 1. Incumbent's Popular Vote Margin and Prior Net Stock Market Movement: Linear Regression and Linear Rank Regression

Study Period[a]	Prior Net Stock Market Movement Period[b]	N	B	SE	β	p	R^2	ρ	p_ρ
1824 – 2004	Prior 1 yr	26	0.276	0.122	0.361	0.035**	0.130	0.264	0.096*
1824 – 2004	Prior 2 yrs	26	0.145	0.121	0.378	0.028**	0.143	0.314	0.059*
1824 – 2004	**Prior 3 yrs**	**26**	**0.195**	**0.107**	**0.573**	**0.001*****	**0.328**	**0.592**	**7E-4*****
1824 – 2004	Prior 4 yrs	26	0.133	0.113	0.506	0.004***	0.256	0.431	0.014**
1824 – 1900	Prior 3 yrs	8	0.210	0.081	0.665	0.036**	0.442	0.905	0.001***
1901 – 2004	Prior 3 yrs	18	0.188	0.120	0.549	0.009***	0.302	0.494	0.019**
1824 – 1924	Prior 3 yrs	12	0.168	0.124	0.436	0.078*	0.190	0.629	0.014**
1925 – 2004	Prior 3 yrs	14	0.210	0.098	0.681	0.004***	0.464	0.569	0.017**

Note. The above table reports the results of linear regression and linear rank regression analysis. The condition of primary theoretical interest is in bold font. N = the number of elections meeting the specified criteria. One-tailed probability values are presented in accordance with the theorized directional hypothesis; asterisks indicate statistically significant values: *significant at the 0.10 level, **significant at the 0.05 level and ***significant at the 0.01 level.

[a] Popular vote tallies first became available in 1824; the most recent year in which an incumbent ran for re-election was 2004.

[b] As measured by the Dow Jones Industrial Average and normalized predecessor averages (DJIA).

As a final test of robustness, we repeat the entire analysis, substituting four other measures of election results in place of popular vote margin. Bivariate linear regression models for three of these indicators—percentage of total popular vote that the incumbent receives, percentage of total electoral vote that the incumbent receives, and electoral vote margin (the number of percentage points that separate the incumbent from his nearest challenger in the electoral vote)—produce similar results to those presented in Table 1. Evaluating the fourth measure, the incumbent's overall success or failure in winning the re-election bid, requires use of logistic regression. Although this dichotomous variable suffers from a reduction in reliable score variance in comparison to the continuously-scaled criterion variables considered earlier, positive predictive relationships generally emerge, with a statistically significant ($p = 0.022$) logistic regression coefficient associated with the condition of primary theoretical interest (see Table 2).

Table 2. Incumbent's Re-Election Success and Prior Net Stock Market Movement

Study Period[a]	Prior Net Stock Market Movement Period[b]	N	B	SE	p	OR
1824 - 2004	Prior 1 yr	26	1.120	2.501	0.327	3.1
1824 - 2004	Prior 2 yrs	26	3.030	1.928	0.058*	20.8
1824 - 2004	**Prior 3 yrs**	**26**	**7.370**	**3.640**	**0.022****	**1581.5**
1824 - 2004	Prior 4 yrs	26	2.920	1.562	0.031**	18.6
1824 - 1900	Prior 3 yrs	8	NA[c]	--	--	--
1901 - 2004	Prior 3 yrs	18	5.450	3.682	0.070*	232.1
1824 - 1924	Prior 3 yrs	12	10.600	6.383	0.049**	39129.0
1925 - 2004	Prior 3 yrs	14	4.740	3.692	0.100	114.5

Note. The above table reports the results of logistic regression analysis. The condition of primary theoretical interest is in bold font. N = the number of elections meeting the specified criteria. One-tailed probability values are presented in accordance with the theorized directional hypothesis; asterisks indicate statistically significant values: **significant at the 0.10 level, ****significant at the 0.05 level and *****significant at the 0.01 level.

[a] The most recent year in which an incumbent ran for re-election was 2004.

[b] As measured by the Dow Jones Industrial Average and normalized predecessor averages (DJIA).

[c] Unable to interpret results due to small sample size.

To summarize, our results signify that a net gain in the stock market during the three years preceding an election is strongly predictive of more votes cast for the incumbent relative to his nearest challenger, and a net stock market decline during that period is strongly predictive of fewer votes cast for the incumbent relative to his nearest challenger. More generally, net stock market changes for one-, two-, three- and four-year periods preceding Election Day all serve as significant predictors of election outcomes.

Incumbent Wins/Losses in Landslides

Socionomic theory proposes that more extreme changes in social mood tend to motivate more extreme voting preferences for or against the leader. We test this hypothesis with regard to re-election bids by examining the relationship between prior net percentage change in the stock market and incumbent vote margin when both are large.

We look first at landslide victories as measured by electoral vote margins. Records of electoral votes extend farther back in time than popular vote tallies and thus provide more data points to test. To define extreme conditions operationally, we deem an election a landslide victory if the incumbent competed for and won re-election by defeating the nearest competitor with an electoral vote margin of 40% or greater. We deem the election a landslide loss if the incumbent running for re-election trailed the winner by an electoral vote margin of 20% or greater. We define a large positive stock market change as a net gain of 20% or more in the preceding three-year period, and a large negative stock market change as a net loss of 10% or more. We choose asymmetric percentage thresholds for electoral vote margin and net stock market change (i.e., {+40%, -20%} and {+20%, -10%}, respectively) to be consistent with the a priori positive biases

in both data series: Historically, an incumbent has a better than 50% chance of re-election, and the stock market tends to have a positive trend.

We summarize all historical data meeting these criteria in a contingency table (Table 3). Fisher's exact test indicates a high degree of association between the two variables ($p = 0.009$). Although only 15 elections meet the criteria for analysis, we can have confidence that the observed association is unlikely to have arisen due to chance in view of the exceptional predictive accuracy associated with these data (i.e., a 93% classification rate). Results as good or better would occur less frequently than 1 time in 100 if there is, in fact, no relationship between the variables in the theoretical population.

Table 3. Large Net Stock Market Movements and Electoral Landslides

Incumbent Election Result[b]	Direction of Prior Stock Market Movement[a]		Fisher's Exact Test (p)
	Large Positive	Large Negative	
In Percentage Change:[c]			
Landslide Victory	11 (73.3%)	0 (0%)	
Landslide Loss	1 (6.7%)	3 (20.0%)	0.009***
In Lognormal Transform:[d]			
Landslide Victory	9 (75.0%)	0 (0%)	
Landslide Loss	0 (0%)	3 (25.0%)	0.005***

Note. Each data point represents an election result that met the specified criteria. Data from 1792-2004. The most recent year in which an incumbent ran for re-election was 2004; that election did not yield a landslide result. Asterisks indicate statistically significant values: *significant at the 0.10 level, **significant at the 0.05 level and ***significant at the 0.01 level.

[a] As measured over a three-year period by the Dow Jones Industrial Average and normalized predecessor averages (DJIA).

[b] Landslide victory defined as ≥ 40% electoral vote margin; landslide loss defined as ≤ -20% electoral vote margin.

[c] Large net positive change defined as price rise of ≥ 20% in prior 3 years; large net negative change defined as price fall of ≥ 10% in prior 3 years.

[d] Large net positive change defined as log(price) rise of ≥ 0.2 in prior 3 years; large net negative change move defined as log(price) fall of ≥ 0.1 in prior 3 years.

The strong relationship between landslide elections and stock price movements is robust across a number of variations in the parameter definitions, scaling, and indicators in the model, including the following:

- the computation method used to define net stock market movement (i.e., whether considering percentage changes or lognormal changes);

- the stock market indicator (i.e., whether using the DJIA or an inflation-adjusted DJIA obtained by dividing the DJIA by the Producer Price Index);

- the election result indicator (i.e., whether using electoral vote margin or popular vote margin);

- the electoral thresholds that define an election as a landslide (e.g. +20%, -10%; +50%, -50%);

- the thresholds that define a large net stock market change (e.g. +20%, -10%; +10%, -5%);

- the number of years used to calculate net changes in the stock market (i.e., 1, 2, 3 and 4); and

- various combinations of all of the above.

We illustrate several examples of these comparative analyses below.

We find that the predictive success rate when using electoral vote thresholds of $\{+40\%, -20\%\}$ and the inflation-adjusted DJIA with stock market thresholds of $\{+10\%, -5\%\}$ is 82% (14 out of 17 correct classifications, $p = 0.03$). Similarly, we find that the predictive success rate when using electoral vote thresholds of $\{+20\%, -10\%\}$ and the nominal DJIA with stock market thresholds of $\{+20\%, -10\%\}$ to be 94% (15 out of 16, $p = 0.007$). We also test preceding four-year stock market thresholds in the nominal DJIA

of {+0%, –0%}, thereby relaxing the requirement that the movements be large, and electoral vote thresholds of {+40%, –20%}. We obtain a predictive success rate of 83% (19 out of 23, $p = 0.02$).

      With regard to alternative definitions of election results, a large electoral vote advantage can sometimes occur in tandem with only a small popular vote advantage because of the nature of the Electoral College. Consequently, we analyze popular vote landslides as a further means of testing the relationship under consideration. Because popular vote margins are associated with fewer data points and tend to fall within a tighter percentage range, we use smaller thresholds for popular vote margins {+10%, –5%} and three-year percentage stock market changes in the nominal DJIA {+10%, –5%}. Even under these conditions, the data produce a predictive success rate of 87% (13 out of 15, $p = 0.01$). In additional analyses, subjecting the popular vote margin data to the many conditional and definitional variations described above do not diminish this strong relationship. For example, using popular vote-margin thresholds of {+10%, –10%} and three-year stock market thresholds of {+0%, –0%} in the nominal DJIA, we obtain a predictive success rate of 92% (12 out of 13, $p = 0.01$).

      As a final test of robustness, we combine the preceding methodologies and define a landslide election victory as one in which the victor wins by a large margin in either the popular vote (when data are available) or the electoral vote. This is also a somewhat more intuitive definition of what might qualify as a landslide victory. Using the same thresholds as before for electoral vote margin {+40%, –20%}, popular vote margin {+10%, –5%}, and stock market lognormal change {+0.2, –0.1}, we obtain a perfect classification rate (12 out of 12, $p = 0.005$). Again, the results are robust to the many

variations we consider. For example, using thresholds of {+50%, −50%} for electoral vote margin, {+20%, −10%} for popular vote margin, and {+0.1, −0.05} for stock market lognormal change results in a 94% predictive success rate (15 out of 16, $p = 0.007$).

Observing confirmatory findings in response to numerous methodological and analytical variations allows us to conclude with a high degree of confidence that large stock market advances tend to be strongly associated with subsequent landslide victories as opposed to landslide defeats for incumbent candidates in re-election bids. Conversely, large stock market declines tend to be strongly associated with subsequent landslide defeats as opposed to landslide victories for incumbents. The stock market movements and election results shown in Figure 1 illustrate this association visually.

Figure 1 also includes some events that are outside the boundaries of our restrictive statistical tests. We add them to give readers a flavor of the power of extremities in social mood to influence the tenure of leaders. Examples are King George III's ousting as ruler of the American colonies in the late 1700s near the end of a 64-year bear market in English stocks, the regional rejection from ballots of many candidates in 1860 following a 24-year period of lower stock prices, and Richard Nixon's resignation in 1974 during the biggest stock market decline in 36 years.

Figure 1. Landslide Elections and the DJIA
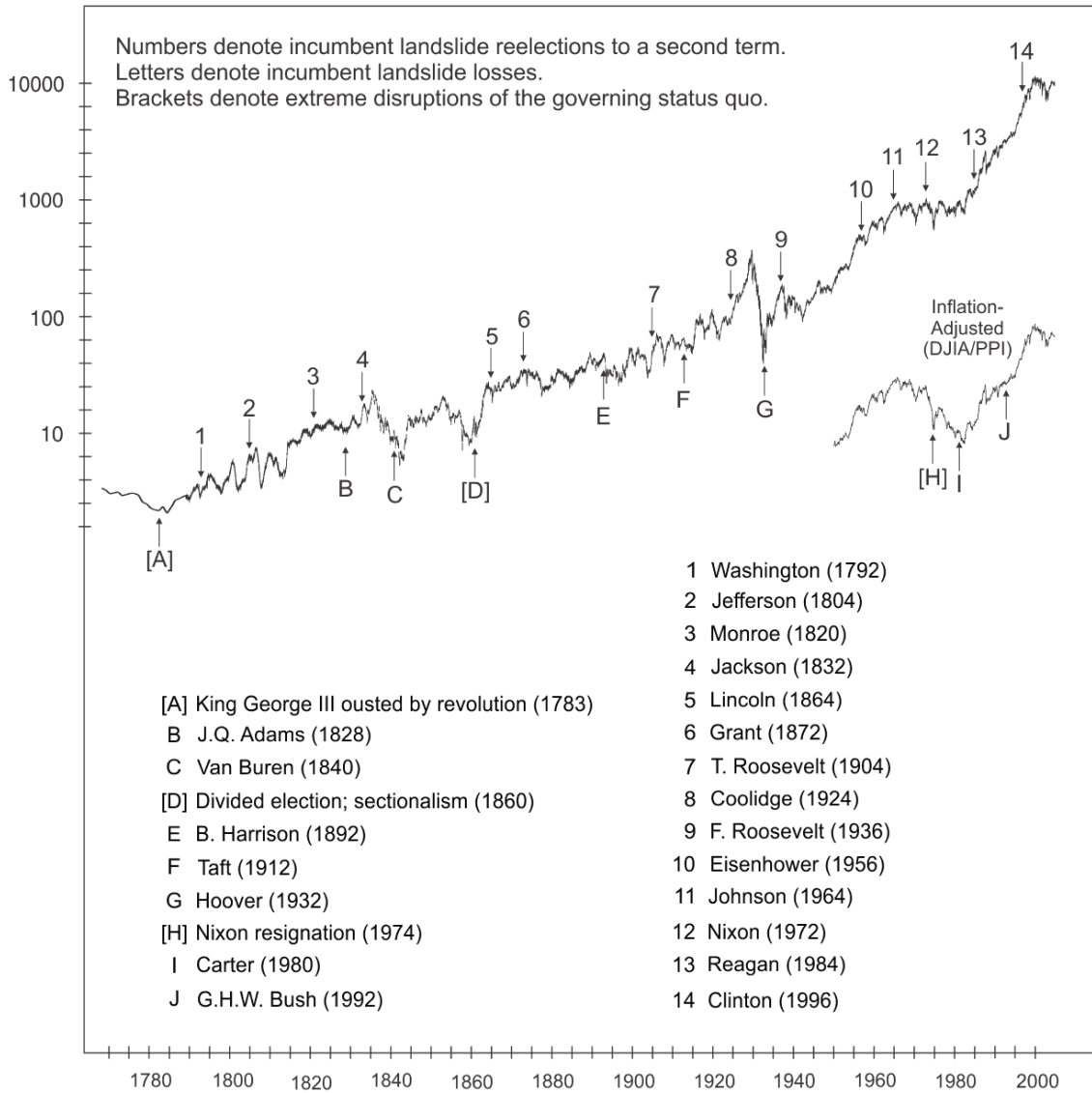
Note. Landslide victory defined as ≥ 40% electoral vote margin or ≥ 10% popular vote margin; landslide loss defined as ≤ -20% electoral vote margin or ≤ -5% popular vote margin. Stock data are from 1760 to 2004. The most recent year in which an incumbent ran for re-election was 2004; that election did not yield a landslide result.

Predicting Election Results for an Incumbent's Political Party

We next investigate whether the relationship between net stock market change and popular vote margin extends to a president's political party when the president is not running for re-election. As shown in the linear regression results in Table 4, we find no association between the three-year net percentage change in the nominal DJIA and the popular vote margin for a non-running incumbent's political party. We are inclined to hypothesize that voters project their moods upon individual leaders, not parties.

Table 4. Popular Vote Margin for Incumbent's Party and Prior Net Stock Market Movement

Political Parties Analyzed	*N*	*B*	*SE*	*β*	*p*	R^2
Democrats and Republicans	15	0.022	0.109	0.064	0.821	0.004
All Parties	18	-0.017	0.107	-0.048	0.850	0.002

Note. The above table reports the results of linear regression analysis. The analysis includes only elections in which the incumbent president did not run for another term. Prior net stock market change measured over a three-year period using DJIA. *N* = the number of elections meeting the specified criteria between the years 1824 and 2008. Two-tailed probability values are presented due to lack of a theorized directional hypothesis.

Considering Predictors Other Than the Stock Market

Is the stock market a unique predictor of presidential re-election outcomes, or do any of

the "big three" economic variables yield stronger results? In this section, we explore the

predictive power of Gross Domestic Product (GDP), inflation as measured by the Producer Price

Index (PPI), and the unemployment rate.

Gross Domestic Product

One might posit that GDP is the determining variable that influences both the stock

market and election outcomes, in which case the link we observe between the stock market and

election outcomes is spurious. The data do not support this causality, however, for two reasons.

First, in line with the leading indicators literature (Mitchell and Burns, 1938/1961;

Moore, 1961), we find stock market movement to be a far better predictor of GDP than GDP is

of the stock market. Using data from 1790 through 2008, we observe a simple correlation of 0.35

($p < 10^{-7}$) between contemporaneous lognormal yearly changes in both the DJIA and GDP. Yet

when lognormal yearly changes in the DJIA are used to predict the *subsequent* year's lognormal

movement in GDP, we observe a significant beta weight of 0.25 ($p < 0.0002$), versus no

relationship at all ($\beta = -0.02$, $p = 0.81$) when we use lognormal yearly changes in GDP to predict

the subsequent year's lognormal movement in the DJIA. Thus, GDP does not predict stock

market movement, but—in accordance with socionomic theory (Prechter, 1999) —the stock

market predicts GDP.

Second, we find that GDP exhibits a weaker relationship to incumbents' election

outcomes than we observe for the DJIA. We repeat all of the regression analyses for incumbent

candidates, applying the same procedures and time intervals described in earlier sections, but use

GDP—both nominal and real—as the predictor variable. The resulting regression equations are

much weaker in predictive ability than those for the DJIA**.** For example, substituting the three-year percentage change in nominal GDP for the DJIA to predict the incumbent's popular vote margin produces weaker relationships across the board, including a reduced linear regression beta weight (0.33 as opposed to 0.57 for the DJIA) and a smaller Spearman's rank correlation (0.27 vs. 0.59). Similar results occur when substituting real GDP as the predictor ($\beta = 0.47$ vs 0.57, $\rho = 0.46$ vs. 0.59). Although GDP continues to be a statistically significant predictor of re-election outcomes in several of the analyses, the level of significance is weaker than that of the DJIA. When predicting the dichotomous criterion of election win/loss, neither real GDP nor nominal GDP emerges as a significant predictor in logistic regression.

These results lead to the conclusion that GDP alone is not as useful as the stock market alone in predicting re-election outcomes. It is still possible that both GDP and the stock market together predict election results, a scenario we take up shortly.

Inflation and Unemployment

We next apply the analyses described in the above section while using the PPI, a measure of inflation, as the predictor variable in simple regression. Using the three-year percentage change in the PPI rather than the DJIA to predict an incumbent's popular vote margin results in a sizably worse beta weight (0.16 vs 0.57 for the DJIA) and Spearman's rho (0.15 vs. 0.59), neither of which is statistically significant. The unemployment rate, with data available from 1940 to the present, fails to register as a significant predictor in the same simple regression analysis. It yields a beta weight of -0.11 and Spearman's rho of -0.18. Neither the PPI nor the unemployment rate is able to predict better than at chance levels with regard to overall election win/loss.

The results are consistent with the negative conclusions reached by Chrystal and Peel (1986) and Biewald (2003), though our study of the unemployment rate may be somewhat impacted by loss of power due to small sample size. In sum, these sets of analyses suggest that changes in unemployment and inflation rates (as measured by the PPI) in the one-, two-, three-, and four-year periods prior to elections have no discernible relationship to presidential re-election outcomes.

Multiple Predictors

All of our analyses up to this point have used single predictors. We now investigate multiple predictors to allow for possible increases in predictive efficacy arising from variable covariations (suppressor effects, variable interactions, etc.). To identify any combinations of indicators that may offer stronger predictive power, we repeat all of the analyses described above using multiple regressions on various sets of predictor variables. We include the set that results from using hierarchical regression to determine the variable entry sequence. We omit the unemployment rate due to an insufficient number of common data points.

In a large number of analyses, the DJIA remains the only significant predictor of election outcomes when combined with nominal GDP, real GDP and/or the inflation rate. With popular vote margin as the criterion, none of eleven combinations of various independent variables registers as a significant predictor; the DJIA remains a significant predictor in all such combinations. A similar pattern of results arises in conducting nonparametric analyses of these variables. With election win/loss as the criterion, every combination of variables again fails to register as a significant predictor, while the DJIA achieves statistical significance in all such combinations.

To address the possibility that our statistically significant results may simply be an outcome of performing a large number of tests, we conduct an omnibus Simes' test for multiple comparisons, where the complete null states that the DJIA is unrelated to election outcomes. Requiring a familywise error rate of 0.05, and pooling in all the *p*-values reported in Tables 1, 2 and 3, we find that the complete null stands rejected. Our findings indicate that none of the alternative measures we test are as powerful as the stock market in predicting U.S. presidential re-election outcomes.

Discussion

In summary, we find that the stock market's performance prior to a U.S. presidential election is a significant predictor of an incumbent's re-election success. Our results are robust to variations in the independent variable (nominal returns in the DJIA vs lognormal returns, and data durations of one, two, three and four years), variations in the dependent variable (popular vote margins, electoral vote margins and a categorical win/loss measure), statistical methods employed, and the presence of intervening variables. Generally, incumbents who preside over a net advance in the stock market tend to obtain a higher vote margin than incumbents who preside over a net decline in the stock market in the one, two, three and four years before the election. Of all the variations we test, the relationship between the three-year net percentage change in the DJIA and the incumbent's popular vote margin is the strongest and achieves the highest level of significance. Large stock market advances during the final three years of incumbent candidates' terms tend to be strongly associated with subsequent landslide victories, as opposed to landslide defeats, for incumbents in their re-election bids. Conversely, large stock market declines during the final three years of incumbent candidates' terms tend to be strongly associated with subsequent landslide defeats, as opposed to landslide victories, for incumbents in their re-

election bids. The significant relationships between stock market changes and election results do not extend to the incumbent's party during elections that feature no incumbent candidate. This difference suggests that voting behavior changes depending upon whether the election includes an incumbent.

We find no significant relationship between the success of re-election bids and prior net percentage change in inflation (as measured by the PPI) or unemployment. GDP-based simple regressions are sometimes significant but always weaker than comparable regressions based on the stock market. The stock market remains a significant predictor of the outcome of incumbents' re-election bids when considered with combinations of the aforementioned macroeconomic variables in multiple regression analyses. The importance of these other variables remains relatively weak or insignificant when examined in combination with the stock market.

As a proposed hidden variable, social mood cannot be tested directly or proven as a voting motivator in these analyses. It is possible that other hidden variables may contribute to or account for our findings. Nevertheless, our results are consistent with the predictions made under the theory that motivated the study while being substantially contrary to economic voting perspectives, a topic we explore next.

Is the Stock Market Per Se a Causal Factor in Re-Election Results?

How can we ascertain whether it is more likely changes in social mood—rather than changes in the stock market per se—that influence re-election outcomes? We now consider other economic voting arguments that may account for our findings. For example, from the idea of egotropic voting, one could argue that grateful stockholders—people who made money in the stock market—would credit the incumbent for their financial success and vote accordingly, while

those losing money in the market would reject the incumbent; see for example Chan and Jordan (2004). Another potential explanation might be a variation on the idea of sociotropic voting, in which presumably "voters are influenced by their subjective views of the national economy even though they are not much swayed by their personal economic standing" (Erikson, 2004, p. 1). Perhaps voters, whether they own stock or not, watch the stock market and vote accordingly for the wellbeing of society.

The grateful (or ungrateful) stockholder explanation seems untenable given that the data for GDP, PPI and unemployment fail to support egotropic hypotheses of "grateful economic participants," "grateful savers" or "grateful employees." This problem for such an explanation seems doubly serious given that economic participants, savers and employees have always outnumbered stockholders, usually substantially. We are unaware of any reason why sociotropic voters' basis for judging social wellbeing should be the stock market averages in lieu of these other variables.

A cursory statistical analysis, moreover, substantially invalidates the grateful stockholder explanation. Data covering more than 100 years show that increased stock ownership within the population does not positively influence the relationship between stock market movement and incumbents' performance in re-election bids. A rigorous test of the grateful stockholder explanation—of gain or loss in stocks per se as a possible lurking variable—is confounded by the lack of compatible data. (Available stock market data, election data and stock ownership data cover different time periods; historical stock ownership data tend to be sporadic; and election data featuring incumbents are available fewer times than once every four years.) We nonetheless devise some simple tests. Stock ownership was likely negligible across the national population prior to 1900, and indeed we could find no robust data series; stock ownership from 1900 to

1950 ranged from 2.1% to 9.6% for years in which data are available (Cox, 1963); and as of

2005, 50.4% of U.S. households held stock (Investment Company Institute and the Securities

Industry Association, 2005). The grateful stockholder explanation would seem to require that the

relationship between the stock market and election outcomes should be far stronger after 1900

than it was before 1900, and far stronger after 1950 than it was before 1950. The difference

should be enough to reject the null hypothesis that postulates no such difference. To test this

idea, we conduct multiple linear regression to predict election outcomes by stock market

performance, time period (dichotomous variables of pre/post 1900 and pre/post 1950), and the

interaction of stock market performance by time period. The interaction effects do not emerge as

statistically significant, thus failing to support the grateful stockholder explanation. Furthermore,

as we see in Table 1, the association between election outcomes and stock market performance is

stronger in the pre-1900 period than the post-1900 period, though both are significant. Thus, we

can safely conclude that voter response to stock-market gains/losses does not explain our results.

Socionomic theory encounters no such counter-indications from the data. Its explanation

holds: Voters in the aggregate are not responding to stock market changes, economic changes,

inflation rates or the availability of jobs; nor are they voting rationally for social improvement.

Rather, they are voting in accordance with trends in social mood. An increasingly positive social

mood produces a rising stock market as well as votes for the incumbent, and an increasingly

negative social mood produces a falling stock market as well as votes against the incumbent, thus

producing the positive relationship we observe. When no candidate in a presidential election is

the recognized leader whom voters have unconsciously credited or blamed for their mood, they

appear to base their voting decisions substantially on other factors.

Future Research and Practical Implications

Theoretical assumptions can instill "strong prior beliefs on both sides" (Hirshleifer, 2001, p. 1534) of a fundamental question. Bias is especially strong against newer ideas, which in recent years have included the proposal of non-rationality in aggregate human behavior (Burnham, 2005, pp. 41-52). One value of the socionomic hypothesis is that it prompted this investigation of a relationship between certain types of social variables, a tack that previous political researchers' theoretical assumptions seem to have impeded them from considering.

We did not set out to optimize a model for predicting elections but to explore a theoretical point. Nevertheless, we hope our approach will open a new avenue for scholars who build models to predict election outcomes. Instead of assuming that the economy is the primary mover of voting preferences, researchers may wish to begin investigating indicators of social mood as predictors of re-election outcomes and to re-interpret economic data as resulting from voters' moods rather than causing them.

Researchers may also wish to explore some of the nuances that our rigid statistical tests are unable to detect. For example, George H.W. Bush lost his bid for reelection even though the Dow was higher over the three years leading to Election Day. The broader Value Line Geometric Index, however, was *down* 11% over the *3.1* years prior to Election Day. So, Bush's landslide loss is not incompatible with socionomic theory even though our tests scored it otherwise. Similar subtleties attend other apparent departures from socionomic expectations, but we have assiduously avoided data fitting to capture such results. Also, distinguishing between bull markets and bear market rallies reveals some informative nuances regarding incumbents' popularity and reelection chances. Future researchers may wish to investigate these considerations further. Future political studies might also examine the relationship of social

mood to the timing of new dictatorships, the frequency of political apologies, and outbreaks of peace and war. Under a broader umbrella, we propose analyzing social mood as it relates to a wide variety of social activities, from instances of mass celebration or destructive riot to trends in fads, fashions and popular entertainment.

Our results suggest a practical strategy for political parties: Whenever one of a party's potential candidates is an incumbent who has served during a period of major mood setback as indicated by a large net decline in the stock market—in real or nominal terms—that party may increase its chance of retaining control of the presidency if it chooses to nominate a candidate other than the incumbent. Our findings also may be of practical value to those who wish someday to seek the presidency: A newcomer's chance of success improves when competing against an incumbent who has served during a period of declining social mood. Likewise, an incumbent who has held office during a major setback in social mood may wish to consider declining to run for a second term and await more favorable conditions to pursue the presidency again or retire from presidential politics to spend hard-earned political capital on other efforts.

Conclusion

Stock market performance relates significantly and positively to the outcome of U.S. presidents' re-election bids. Hypotheses of economic voting fail to account for our findings. Our results, however, are consistent with Prechter's socionomic theory, specifically that social mood, an internally regulated psychological variable reflected in stock indexes, is more powerful than economic variables in motivating voting behavior whenever a leader faces re-election. Our work supports the inclusion of stock market performance in models that forecast the outcomes of re-election bids of U.S. presidents and, we hope, prompts further literature on socionomic voting.

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