Presidential Economic Approval Rating and the Cross-Section of Stock Returns*

Zilin Chen
Southwestern University of Finance and Economics

Zhi Da
University of Notre Dame

Dashan Huang
Singapore Management Universitys

Liyao Wang
Hong Kong Baptist University

August 2021

*We thank Turan G. Bali, Frederico Belo, Jonathan Brogaard, James Brugler, Shane Corwin, Mara Faccio, Huseyin Gulen, Danling Jiang, Travis Johnson, Da Ke, Patrick J. Kelly, Jun Li, Yang Liu, Lin Peng, Garry Twite, Rossen Valkanov, Xiaoxi Wu, Jianfeng Yu, Ran Zhang, Yapei Zhang, Zhuo Zhong, and seminar and conference participants at University of Melbourne, University of Nevada, Las Vegas, University of Notre Dame, University of Texas at Austin, the 2021 China International Conference in Finance, the 2021 China International Risk Forum, and the 2021 Shanghai Financial Forefront Symposium for helpful comments and suggestions. We also thank Christos Pantzalis for sharing the political alignment index data.

Send correspondence to Zhi Da, 258 Mendoza College of Business, University of Notre Dame, Notre Dame, IN 46556, USA. Email: zda@nd.edu.

Presidential Economic Approval Rating and the Cross-Section of Stock Returns

Abstract

We construct a monthly Presidential Economic Approval Rating (PEAR) index from 1981 to 2019, by averaging ratings on president's handling of the economy across various national polls. In the cross-section, stocks with high betas to changes in the PEAR index significantly under-perform those with low betas by 0.96% per month in the future, on a risk adjusted basis. The low-PEAR-beta premium persists up to one year, and is present in various sub-samples (based on industries, presidential cycles, transitions, and tenures) and even in other G7 countries. It is also robust to different risk adjustment models and controls for other related return predictors. PEAR beta dynamically reveals a firm's perceived alignment to the incumbent president's economic policies and investors seem to misprice such an alignment.

Keywords: Presidential puzzle, political cycle, presidential economic approval rating, presidential job approval rating, sentiment

JEL Classification: G41, G14

1 Introduction

Presidential politics have a first-order effect on asset prices. A long strand of literature has documented and examined a time-series presidential puzzle, or the striking empirical fact that stock market returns are much higher under Democratic presidencies than Republican ones (see Huang (1985), Hensel and Ziemba (1995), Santa-Clara and Valkanov (2003), and Pastor and Veronesi (2020)). Would exposure to presidential politics affect stock returns in the cross-section? We study this important question in this paper.

We start by constructing a monthly Presidential Economic Approval Rating (PEAR) index from 1981 to 2019, by averaging approval ratings on president's handling of the economy across various national polls. The monthly index is plotted in Figure 1, together with the Gallup presidential job approval rating (see, e.g., Liu and Shaliastovich, 2021). The two ratings are clearly positively correlated (with a correlation of 65%), yet they also diverge from time to time. Notable examples include the Gulf war, the September 11 terrorist attack, and President Trump's initial tenure. Empirically, we find the PEAR index to generate stronger asset pricing results among individual stocks, consistent with the phrase "the economy, stupid," popularized during Bill Clinton's successful 1992 presidential campaign. The PEAR index appears to be procyclical, and therefore inversely related to the aggregate risk aversion.

Surprisingly, in the cross-section, we document a low-PEAR-beta premium: stocks with high betas to changes in PEAR significantly under-perform those with low betas by 0.96% per month in the future, on a risk adjusted basis. A simple extension of a risk-based model of the aggregate stock market, say Pastor and Veronesi (2020), to the cross-section, would predict the opposite. Since high PEAR beta stocks do worse precisely when aggregate risk aversion increases (or when PEAR decreases), they are therefore more risky and should earn higher returns on average. Of course, the PEAR index is correlated with stock market performance and macroeconomic variables. To clarify, the PEAR beta is computed after controlling for the market return. Further controlling for a

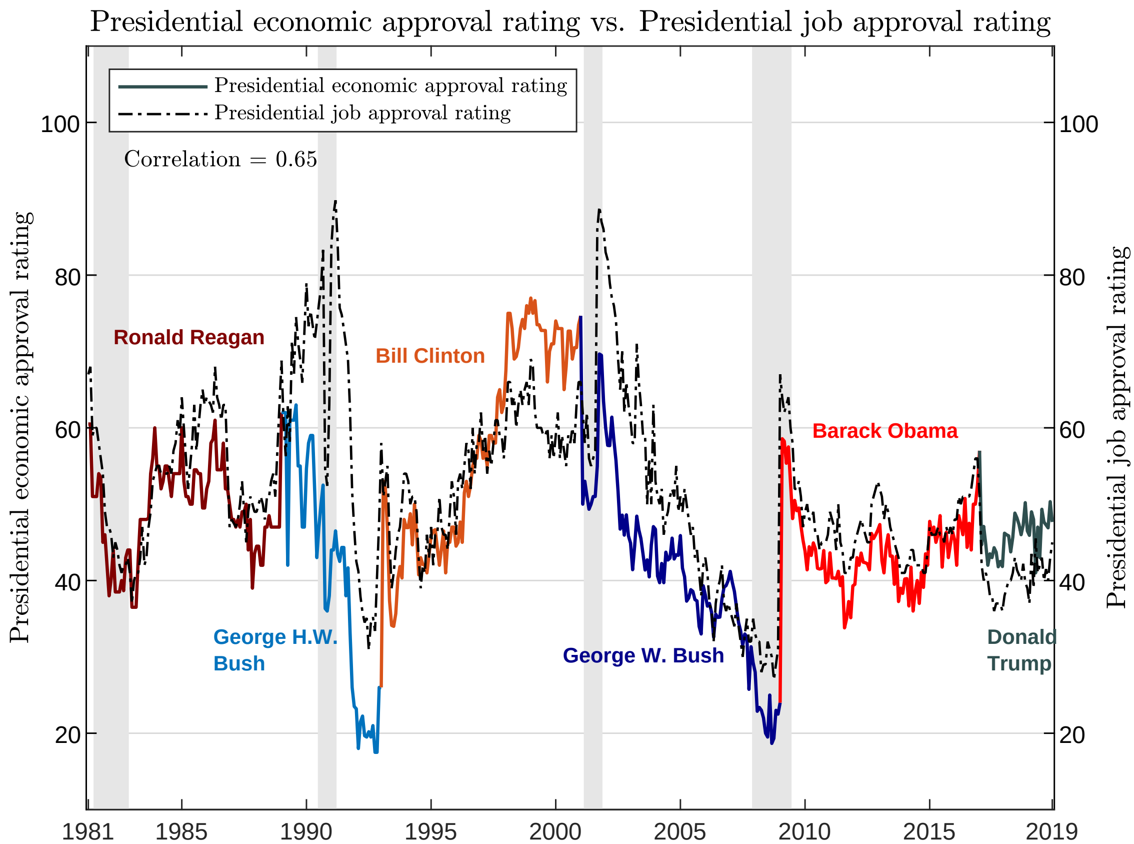

Figure 1: Presidential economic approval rating (PEAR)

This figure depicts the presidential economic approval rating (PEAR) from April 1981 to December 2019, which is based on 1,713 polls conducted by 21 polling organizations and collected by the Roper iPoll at the Roper Center for Public Opinion. It takes the average value if there are multiple polls conducted by different polling organizations in one month. The Gallup presidential job approval rating is also plotted for comparison.

comprehensive list of macroeconomic variables does not qualitatively change the low-PEAR-beta premium either.

The low-PEAR-beta premium is extremely robust. It survives various factor-based and characteristic-based risk adjustment models. It is not driven by any particular sub-samples. For example, it is present during the tenure of each of the six presidents in our sample. It is present in each of the four years of the president's term. It is positive and significant during both Democratic and Republican presidents, or after removing the presidential transition periods (six months surrounding the change of a president). The premium is even larger among large and liquid stocks and it persists up to one year after portfolio formation. It is robust to different backward rolling windows used to estimate the PEAR beta and different methods for computing innovations in PEAR. Finally, it even shows up in other G7 countries and is significant in Canada, Germany, Japan, and the UK, four countries with particularly strong trade links to the US.

Existing literature provides evidence that different industries have differential exposures to presidential policies and government spending [see, e.g., Belo, Gala, and Li (2013) and Addoum and Kumar (2016), among others], which result in predictable variations in industry portfolio returns across political cycles. The low-PEAR-beta premium is not driven by such industry-level return predictability, as it is equally strong when we examine industry-demeaned betas. In contrast, sorting industry portfolios based on their PEAR betas does not generate a low-PEAR-beta premium.

In Fama-MacBeth cross-sectional regressions, we control for a comprehensive set of potential return predictors which we group into three categories. The first category includes alternative measures of beta, such as market beta, the beta on the macroeconomic uncertainty of Jurado, Ludvigson, and Ng (2015), and the beta on the Baker and Wurgler (2006) sentiment index (Chen, Han, and Pan, 2021). The second category includes variables related to government and politics. They are the political alignment index (Kim, Pantzalis, and Park, 2012), political sensitivity (Addoum and Kumar, 2016), political connectedness (Cooper, Gulen, and Ovtchinnikov, 2010), and government spending exposure (Belo, Gala, and Li, 2013). The third category includes other firm characteristics such as size, book-to-market, momentum, short-term reversal, idiosyncratic volatility, illiquidity, and distress. Neither of these return predictors is highly correlated with the PEAR beta. Not surprisingly, we find that the coefficient on PEAR beta remains negative and significant, even after simultaneously including all the control variables and industry fixed effects. Its magnitude is more than half of its counterpart in an univariate regression, suggesting that all the other variables, even when combined, explain less than half of the low-PEAR-beta premium.

Intuitively, PEAR beta measures a firm's perceived alignment to the economic policies of the incumbent president. The business of a positive PEAR beta firm must align well with the incumbent president's economic policies, so its stock price moves in tandem with the economic policies' approval rating. Some investors could have biased cash flow expectations for firms with extreme PEAR betas. In the appendix, we sketch a stylized model that features sentiment investors in the economy who overestimate future earnings of positive PEAR beta firms, or firms that align well with the current president's economic policies, especially when the PEAR index is high. At the same time, they underestimate future earnings of negative PEAR beta firms. If risk-averse rational investors in the economy cannot fully correct such biases, the market-clearing price becomes too high (low) for positive (negative) PEAR beta firms. In the model, PEAR beta therefore becomes a self-revealed and dynamic measure of a firm's perceived alignment with the current presidential economic policies. Mispricing disappears when future earnings are realized, and the price correction results in the low-PEAR-beta premium. The model further predicts that such a premium should be higher following high PEAR periods which we confirm in the data.

We document several pieces of supporting evidence for the mispricing-based explanation. First, if we compute PEAR beta using only months in the five-year rolling window when a former president was in power, the low-PEAR-beta premium ceases to be significant, highlighting the importance of alignment to the incumbent president's economic policies. Second, consistent with the bias in cash flow expectation, we find PEAR beta to negatively predict analyst forecast errors, future revisions in their long term growth (LTG) forecasts, and stock recommendations. In addition, PEAR beta negatively predicts future earnings announcement returns. The evidence suggests that both analysts and investors are initially too optimistic (pessimistic) in forecasting high (low) PEAR beta stocks' cash flows. Portfolio analysis confirms that the majority of the low-PEAR-beta premium accrues on earnings announcement days, consistent with the notion that the realization of earnings corrects mispricing.

Third, we classify stocks in the top and bottom PEAR beta deciles into three groups: (1) stocks whose current PEAR betas are similar compared to a year ago; (2) stocks whose PEAR betas became high or low only recently; and (3) recent IPO stocks. We find significant low-PEAR-beta premium in the second group, but not the first. This contrast supports the mispricing-based explanation as stocks in group (2) are more likely to be mispriced during the formation month. It is less consistent with a risk-based explanation in which a high PEAR beta always translates to a low future return, regardless whether PEAR beta has always been high or only become high recently. We also find positive and significant low-PEAR-beta premium in the “IPO” group. Given their short histories, investors’ future earnings expectations are more affected by the firms’ perceived alignment with the incumbent president.

Finally, we investigate several alternative explanations to the low-PEAR-beta premium and find none to be satisfactory. For example, while the low-PEAR-beta premium cannot be explained by exposure to time-varying risk aversion, it could reflect exposure to other macroeconomic risk factors. We examine a large set of macro variables,[1] and find that they are weakly correlated with the change in PEAR. Even the highest correlation (in absolute term) is only 0.18 (with the ultimate consumption growth). As a result, PEAR beta is not highly correlated with the betas on these macro variables either. In other words, the low-PEAR-beta premium does not seem to capture exposures to these additional risk factors. Including these macro betas in the Fama-MacBeth cross-sectional regressions hardly changes the coefficient on PEAR beta, consistent with the findings in Shen, Yu, and Zhao (2017) that the exposure to macroeconomic risks generally does not explain the cross-sectional variation in average stock returns very well.

Is it possible that presidential alignment leads to a government bailout during bad times? If so, a high PEAR beta stock can be a hedge for downside risk and thus will earn a lower expected return. Empirically, corporate bailouts are relatively rare and tend to happen to mega firms or firms in the finance sector (Faccio, Masulis, and McConnell, 2006). Yet, our sample excludes financial companies and the high PEAR beta stocks are not mega-cap stocks either. Additional evidence does not support such a “hedging” story either. During bad times, as indicated by NBER-dated recessions, high PEAR beta firms earn even lower returns than low PEAR beta firms, inconsistent

[1]The macro variables we examine include industrial production growth, unexpected inflation, change in expected inflation, term premium, default premium, total factor productivity growth, labor income growth, capital share growth (Lettau, Ludvigson, and Ma, 2019), consumption growth, ultimate consumption growth (Parker and Julliard, 2005), change in consumption-wealth ratio, change in aggregate market volatility, change in VIX, variance risk premium, GDP growth, and change in unemployment rate.

with the notion of receiving a bailout. In addition, PEAR beta has a low correlation with the measure of financial distress (Campbell, Hilscher, and Szilagyi, 2008). Controlling for the distress risk does not alter the low-PEAR-beta premium.

Stocks with positive PEAR betas experience higher returns when the presidential economic approval rating improves. To the extent that PEAR captures consumer confidence (De Boef and Kellstedt, 2004; Lemmon and Portniaguina, 2006), high PEAR beta stocks could suffer from sentiment-induced overpricing, explaining their subsequent low returns when their overpricing gets corrected. Empirically, Stambaugh, Yu, and Yuan (2015) find the long-short anomaly returns to be much stronger following high levels of sentiment. They also find this pattern to be especially true for the short legs of various anomaly strategies, consistent with short-sale impediments. Unfortunately, such sentiment-induced overpricing does not seem to fully explain the low-PEAR-beta premium. We examine four measures of investor sentiment: (1) Baker and Wurgler's (2006) sentiment index, (2) Michigan consumer sentiment index, (3) AAII bull-bear index, and (4) the PEAR index itself. We find significantly higher low-minus-high beta return spreads following high levels of sentiment, only when the PEAR index is used, supporting the prediction of our stylized model. However, we do not find any evidence that the short-leg (high PEAR beta stocks) alpha is higher following high levels of sentiment. In fact, in all cases, the long-leg has a higher alpha (in absolute term) than the short-leg, inconsistent with the notion that short sale constraints with investor sentiment explain the low-PEAR-beta premium.

This paper contributes to several strands of literature that connects asset pricing to politics. First, there is a literature focusing on stock returns over political cycles. In time series, Santa-Clara and Valkanov (2003) and Blinder and Watson (2016) find that the US stock market and economy perform better when the president is a Democrat rather than a Republican—the presidential puzzle—which has been recently explained by Pastor and Veronesi (2020) with a time-varying risk aversion model. In the cross-section, Belo, Gala, and Li (2013) find that industries with greater exposure to government spending earn higher returns during Democratic presidencies, while the opposite pattern holds true during Republican presidencies. Addoum and Kumar (2016) show that industries with greater political sensitivity earn higher returns. More recently, Ke (2021) presents a partisan gap that Democrats are less likely than Republicans to participant in the stock market. We focus on presidential rather than party economic approval ratings and their implications on the cross-section of individual stock returns. Our results are obtained at the firm level, not driven by any particular president or presidential party, and distinct from existing findings.

Second, there is another strand of literature that documents a relationship between political connection and stock returns in the cross-section. For example, Cooper, Gulen, and Ovtchinnikov (2010) show that donating firms earn significant higher average and risk-adjusted stock returns. Kim, Pantzalis, and Park (2012) find that firms located in the US states that are more politically aligned with the presidential party earn higher average returns. Brown and Huang (2020) find that corporate executives' meetings with key policymakers are associated with positive abnormal stock returns. Our paper departs from this literature in that our PEAR beta captures a firm's perceived alignment to the current president who comes from either party. Such an alignment is dynamically and self-revealed by a stock's return correlation with changes in the PEAR index.

Third, our paper is related to the growing literature that analyzes theoretical and empirical connections between financial markets and fluctuations in political/policy uncertainty, where fluctuations are defined and measured at the aggregate level (Pastor and Veronesi, 2012, 2013; Brogaard and Detzel, 2015; Baker, Bloom, and Davis, 2016; Kelly, Pastor, and Veronesi, 2016; Brogaard, Dai, Ngo, and Zhang, 2020), industry level (Boutchkova, Doshi, Durnev, and Molchanov, 2012), and firm level (Hassan, Hollander, van Lent, and Tahoun, 2019; Gorbatikov, van Lent, Naik, Sharma, and Tahoun, 2019). The main variable of interest in this paper, the PEAR index, has low correlations with the proxies for political risk and political uncertainty. Different from Kelly, Pastor, and Veronesi (2016) and Brogaard, Dai, Ngo, and Zhang (2020) that focus on the president election periods, we find that our results continue to hold after excluding these presidential transition and election periods.

Finally, our paper is related to the literature that tests finance theories with survey data, which has become a new norm in asset pricing (Brunnermeier, Farhi, Koijen, Krishnamurthy, Ludvigson, Lustig, Nagel, and Piazzesi, 2021; Liu, Peng, Xiong, and Xiong, 2021). Our evidence confirms that survey data contains useful insight relevant for cross-sectional asset pricing.

2 Data and Key Variables

This section describes the data on PEAR and other key variables used in this paper.

2.1 The PEAR index

To measure public opinion on the president's handling of the economy, we construct a presidential economic approval rating (PEAR) index by using various national polls. Unlike the Gallup presidential job approval rating (PJAR) index that captures the extent to which people approve or disapprove of the way the current president is handling the economy, foreign affair, health policy, etc, we focus on the responses to an economy-specific question: "Do you approve or disapprove of the way (name of president) is handling the economy?", which is closely related to the conceptualization of "confidence in the president's economic stewardship". The data are from Roper iPoll at the Roper Center for Public Opinion.[2] We conjecture that the presidential economic approval rating is more relevant for stock market outcomes. Our subsequent results confirm this conjecture.

Specifically, we collect 2,100 polls in total from 46 organizations over the period from April 1981 to December 2019.[3] We do not consider a few polls irregularly conducted between 1971 and

[2]The wording of this question is basically the same across polling organizations, while the predefined responses to the question can be sightly different. Specifically, most polling questions simply ask if a respondent approves or disapproves of the president, while very few questions break out approval or disapproval into subcategories to indicate whether the respondent "strongly" or "somewhat" approves or disapproves of the president. We follow the standard treatment in polling and sum up the percentages of both "strongly" and "somewhat" approve choices as the ratio of approval rating overall.

[3]Some polls may be conducted by one organization but sponsored by another organization. For example, since 1981, ABC News and The Washington Post, both separately and together, have commissioned polls on this issue. These surveys are conducted by themselves and other organizations, including Chilton Research Services, Taylor Nelson Sofres Intersearch, Langer Research Associates, etc. To ensure data consistency, we classify theses polls as conducted by ABC News, The Washington Post, or both.

1981. We exclude organizations conducting less than 5 polls in our sample. We also exclude polls that are conducted in one month but released in subsequent months, so that the public opinion is captured in a timely fashion. In doing so, we are left with 1,713 polls from 21 polling organizations. Hence, each month we have about 3.7 polls on average. Table A1 presents the summary statistics of each polling organization used in the construction of the PEAR index.

From each poll, we obtain an approval rating, a percentage number indicating the proportion of respondents who approve of the way of the president handling the economy. We construct the PEAR index by simply averaging approval ratings available in each month. In our sample period, there are 50 months with missing data and the maximum number of consecutive months with missing data is four. We fill these missing entries with the previous month values to ensure that the PEAR index is a real-time series.

Six polling agents appear most frequently in our data: ABC News/Washington Post (ABCWP), American Research Group (ARG), CBS News (CBS), CBS News/New York Times (CBSNYT), Gallup, and NBC Bews/Wall Street Journal (NBCWSJ). In Table A2 of the Appendix, we conduct pairwise comparisons to see whether one poll reports significantly higher results than the other during overlapping months. We find only three significant differences. ABCWP's results are higher than those from ARG and CBS. ARG's results are lower than those from NBCWSJ. The differences are smaller than 4% in all the three cases. Persistent bias in polls will have little impact on our results as we focus on changes in the rating in our analysis.

According to Table A2, polling results are highly correlated among the top six agents during overlapping months. Not surprising, each of the six polling result is also highly correlated with our PEAR index. With the exception of ARG, the correlation is all higher than 0.94. In a robustness check, we also construct an alternative PEAR index (PEAR_6) using polling results from these six agents only and find similar results.[4] Each of the six polling result is highly correlated with PEAR_6. The minimum correlation is 0.94. Overall, these diagnostics suggest that different polls

[4]We fill in the missing values for this alternative index using the dyad ratios algorithm of Stimson (1999), which uses smoothing and interpolation to deal with irregular, non-balanced, and sparse panel data.

produce highly correlated results and our result is not driven by any single poll. Figure A1 plots the PEAR index, together with upper and lower bounds that are based on the highest and lowest polling results in that month. The figure shows that the dispersion across different polls in the same month is relatively small.

Figure 1 plots the time series dynamics of the PEAR index, together with the Gallup presidential job approval rating (PJAR) index for comparison. The two ratings are clearly positively correlated (with a correlation of 65%), yet they also diverge from time to time. Notable examples include the Gulf war, the September 11 terrorist attack, and President Trump's initial tenure. The contrast between PEAR and PJAR supports the phrase "the economy, stupid," popularized during Bill Clinton's successful 1992 presidential campaign. In Section 3, we confirm that the PEAR index generates much stronger results in asset pricing tests than the PJAR index.

Table 1 reports the summary statistics of PEAR and six other sentiment and politics-related indexes, including Baker and Wurgler (2006) (orthogonalized) investor sentiment, Michigan consumer sentiment, presidential job approval rating, (equally-weighted) aggregate political risk and sentiment (Hassan, Hollander, van Lent, and Tahoun, 2019), and political uncertainty [measured by the economic policy uncertainty of Baker, Bloom, and Davis (2016)]. All the time series are at the monthly frequency and over the April 1981 to December 2019 period, except for the quarterly aggregate political risk and sentiment being over the first quarter of 2002 to the last quarter of 2019, and political uncertainty being over January 1985 to December 2019.

Panel A of Table 1 presents the mean, median, min, max, volatility, and the first- and 12th-order autocorrelations (AR(1) and AR(12)). The PEAR index ranges from 17.5 to 77, with a mean of 47, suggesting that on average less than half of respondents consent to the way how the president is handling of the economy. Two extreme examples are George H.W. Bush and George W. Bush, whose ratings drop to below 20 at the end of their tenures. In contrast, PJAR is generally higher than PEAR, with a mean of 51.65. This pattern is especially pronounced during the presidency of George H.W. Bush and George W. Bush. For example, after the Gulf war, President George H.W. Bush has a job approval rating around 90, but a lugubrious economic approval rating, which is below 50.

To examine the relationships between PEAR and the six other sentiment and politics-related variables, Panel B of Table 1 reports their level and change correlations. PEAR is highly positively correlated with Michigan consumer sentiment and presidential job approval rating, with level correlations of 0.63 and 0.65, and change correlations of 0.14 and 0.23, thereby suggesting that these three indexes capture some common low frequent movements, say the presidential cycles, but they capture different salient events at the monthly frequency. Another interesting observation is that PEAR is not highly correlated with political sentiment and political uncertainty, especially with their changes.

2.2 PEAR beta

We use PEAR beta to measure how the stock price of a firm responds to the change of PEAR. For each stock and each month from June 1981, we run the following time series regression with a 60-month rolling window, requiring at least 24 observations,

$$R_{i,t} = \alpha + \beta_{i,0}\Delta\text{PEAR}_t + \beta_{i,1}\Delta\text{PEAR}_{t-1} + \beta_{i,\text{MKTRF}}\text{MKTRF}_t + \varepsilon_{i,t}, \tag{1}$$

where $R_{i,t}$ is the excess return of stock i in month t, and ΔPEAR_t is the change of PEAR from month $t-1$ to month t, MKTRF_t is the market excess return in month t.[5] We control for MKTRF to isolate the information in PEAR that is orthogonal to the overall market performance. The regression includes the lagged change of PEAR to accommodate the non-synchronicity between the timing of the survey and return measurement. Following Dimson (1979), PEAR beta, β_{PEAR}, is defined as

$$\beta_i = \beta_{i,0} + \beta_{i,1}, \tag{2}$$

[5]Including lagged market return in (1) generates similar results.

where we abbreviate the time subscript for brevity.

Since we require at least 24 months of non-missing observations for each stock to run the regression, we use an expanding window over the June 1981 to May 1983 period and a fixed 60-month rolling window after June 1983. Thus, our empirical analysis spans the June 1983 to December 2019 period, 439 months in total.

2.3 Other variables

We obtain monthly stock returns from the Center for Research in Security Prices (CRSP) and quarterly and annual accounting data from Compustat. Our data sample includes all common stocks listed on the NYSE, Amex, and Nasdaq exchanges. Financial and utility firms are excluded from our analysis. In addition, we exclude stocks with a price per share less than \$1 and stocks with missing returns. We adjust stock returns for delisting to avoid survivorship bias following Shumway (1997).

We estimate market beta (β_{CAPM}), sentiment beta (β_{BW}), and uncertainty-beta (β_{UNC}) as Bali, Brown, and Tang (2017). We calculate firm size (SIZE) as the logarithm of the product of price per share and the number of shares outstanding (in millions of dollars). The logarithm of book to market ratio (BM) is calculated as the book value of shareholder equity plus deferred taxes and investment tax credit (if available) minus the book value of preferred stocks at the end of the last fiscal year, $t-1$, scaled by the market value at the end of December of year $t-1$.[6] Firms with negative book values are excluded from the analysis. We follow Fama and French (1992) and match the annual BM information in year $t-1$ to monthly returns from July of year t to June of year $t+1$.

We define momentum (MOM) as the cumulative return of a stock over a 11-month window ending one month before the portfolio formation. Short-term reversal (STR) is defined as the

[6] Depending on availability, the stockholders' equity, common equity plus the carrying value of preferred stock, or total assets minus total liabilities in that order is used as shareholders' equity. Similarly, we use redemption, liquidation, or par value in that order depending on availability to estimate the book value of preferred stocks.

stock return over the prior month. Following Ang, Hodrick, Xing, and Zhang (2006), the monthly idiosyncratic volatility (IVOL) is the standard deviation of the stock's daily idiosyncratic returns relative to the Fama-French three-factor model over the prior month. We measure the illiquidity (ILLIQ) of a stock as the ratio of the daily absolute stock return to the daily dollar trading volume averaged in the prior month, which is further scaled by 10^6 (Amihud, 2002). A stock is required to have at least 15 valid daily returns to calculate the IVOL and ILLIQ. Distress risk is constructed following Campbell, Hilscher, and Szilagyi (2008). The mispricing score (MISP) is from Stambaugh, Yu, and Yuan (2015), which is a rank variable constructed by 11 anomalies. The higher the score, the more likely the stock is overvalued. MISP ends in 2016 and we extend it to 2019 by ourselves.

We consider four politics-related variables. Following Kim, Pantzalis, and Park (2012), we use the state-level political alignment index (PAI) of each state's leading politicians with the ruling (presidential) party to proxy for local firms' proximity to political power. We use political sensitivity (PS) to capture the return sensitivity of industry segments over the presidential cycles (Addoum and Kumar, 2016). We define political connectedness (PC) as a dummy variable as to whether a firm makes a contribution to the PAC (regardless of party affiliation) in the last 5 years following Cooper, Gulen, and Ovtchinnikov (2010) and Addoum and Kumar (2016). We do not separate the contribution to each party as most of the firms in our sample contribute almost equally to both parties. As in Belo, Gala, and Li (2013), we calculate the industry-level government spending exposure (GSE) as the proportion of the industry's total output (3-digit SIC) being purchased by the government sector for final use to capture the impact of political cycles on asset prices. Table A3 details the construction of these variables.

Table 2 reports the autocorrelations and pairwise correlations of the key variables used in this paper. In Panel A, the monthly and yearly autocorrelations of PEAR beta are 0.81 and 0.32, suggesting that PEAR beta is persistent. The persistence is not surprising given that it is estimated using a five-year backward rolling window. In this way, PEAR beta is very different from other stock characteristics such as past returns and volatility, which are more time-varying.

Panel B of Table 2 shows that PEAR beta has low correlations with all other variables. The absolute values are all smaller than 0.10. For example, since we control for the market excess return, the correlation between PEAR beta and CAPM beta is close to zero (0.02). In addition, PEAR beta has negligible correlations with the four politics-related variables (PAI, PS, PC and GSE), suggesting that the PEAR beta effect, if there is any, on stock returns is unlikely to be explained by these variables and the economic mechanisms underlying them.

3 Empirical Results

In this section, we conduct portfolio analyses and Fama-MacBeth regressions to assess the predictive power of PEAR beta on future stock returns. We perform a number of tests to show that our results are robust qualitatively and quantitatively.

3.1 Average and risk adjusted returns of PEAR beta decile portfolios

At the beginning of each month from June 1983 to November 2019, we form decile portfolios by sorting firms into ten groups based on their PEAR betas in the prior month, where decile 1 (10) contains stocks with the most negative (positive) PEAR betas. We value-weight stocks in these portfolios and rebalance them monthly. The PEAR beta spread portfolio (L-H) refers to the strategy that buys stocks in decile 1 and sells stocks in decile 10.

Panel A of Table 3 reports the portfolio sorting results. The first row presents the average PEAR betas of the decile portfolios, which increase from -1.56 for decile 1 to 1.97 for decile 10. In the second row, the monthly average excess returns of the PEAR beta portfolios decrease from 1.04% for decile 1 to 0.08% for decile 10, with the difference between the low and high PEAR beta portfolios equal to 0.96% (t-value $= 4.18$).

We calculate the risk adjusted returns of the PEAR beta portfolios with five factor models and the Daniel, Grinblatt, Titman, and Wermers (1997) characteristics model (DGTW). The five factor models include the Fama and French (2015) five-factor model (FF5), the Hou, Xue, and Zhang (2015) q-factor model (HXZ), the Stambaugh and Yuan (2017) mispricing-factor model (SY), and the Daniel, Hirshleifer, and Sun (2020) behavioral-factor model (DHS).[7]

Rows 3 to 7 of Panel A present the factor-adjusted results and make two observations. First, although the six models we use represent the most recent advancements in asset pricing, they cannot explain the returns on PEAR beta portfolios well. The abnormal return of the PEAR beta spread portfolio ranges from 0.60% with DGTW to 0.96% with FF5, suggesting that at least 60 percent of the average return of the PEAR beta spread portfolio is not explained by existing asset pricing models. Second, unlike the well-known anomalies in Stambaugh, Yu, and Yuan (2015), the performance of the PEAR beta spread portfolio is mainly from the long-leg. The low PEAR beta portfolio is undervalued, whereas the high PEAR beta portfolio is generally overvalued with a smaller magnitude (DGTW is an exception). For this reason, we label the significant alpha in the last column (L-H) the low-PEAR-beta premium.

Panel B of Table 3 reports the results of portfolios sorted by industry demeaned PEAR betas, where 48 industries are classified following Fama and French (1997). If the low-PEAR-beta premium is an industry-level phenomenon, such as Belo, Gala, and Li (2013) and Addoum and Kumar (2016), the average PEAR betas of the decile portfolios after industry demeaning should have a small spread, and the low-PEAR-beta premium should become negligible.

The results in Panel B show that the industry effect contributes a small fraction of the low-PEAR-beta premium. The average PEAR betas increase from -1.68 for decile 1 to 1.79 for decile 10, with the difference quantitatively close to the case without industry demeaning (-3.47 vs. -3.53). The average returns of the PEAR beta portfolios decrease from 1.02% for decile 1 to 0.05% for decile 10, with the difference equal to 0.97% (t-value = 4.67). This value suggests that the industry dynamics do not affect the predictive power of PEAR beta. Indeed, when we sort

[7] When the FF5 is augmented by the betting-against-beta factor (BAB) (Frazzini and Pedersen, 2014), the MAX factor (FMAX) (Bali, Brown, Murray, and Tang, 2017), and the Left-Tail Momentum factor (LTM) (Atilgan, Bali, Demirtas, and Gunaydin, 2020), the alpha of the PEAR beta spared portfolio equals 1.03% (t-value = 4.48), 0.97% (t-value = 4.24), and 0.99% (t-value = 4.27), respectively.

the 48 industry portfolios based on their PEAR betas, the average return of the bottom five PEAR beta industry portfolios does not differ significantly from that of the top five PEAR beta industry portfolios.

When turning to the risk adjusted return, the low-PEAR-beta premium also remains unaffected. It ranges from 0.67% with DGTW to 0.94% with FF5. All the values are statistically significant and economically sizeable. For simplicity, we use FF5 as the benchmark for calculating the risk adjusted returns in the subsequent analyses.

To explore how much an investor can make if she trades on the low-PEAR-beta premium, Figure 2 plots the log cumulative returns and log cumulative FF5 alphas of the PEAR beta spread portfolio. In our sample period from June 1983 to December 2019, the investor makes a risk adjusted profit of $42.87, which does not suffer from large drawdowns. Hence, trading the PEAR beta spread portfolio can greatly expand an investor's investment opportunities. Indeed, the low-PEAR-beta premium implies an annual Sharpe ratio of 0.69, and it is higher than the market risk premium that has a Sharpe ratio of 0.51.

In this paper, we rebalance the PEAR beta portfolios at the monthly frequency. A natural question is how long the low-PEAR-beta premium persists. Figure 3 presents the average returns and FF5 alphas of the PEAR beta spread portfolio up to 36 months after formation. With 1.96 as the critical value for significance, the figure in Panel A shows that the low-PEAR-beta premium is persistent and generally significant up to 12 months after formation. Moreover, the premium does not display a reversal pattern, suggesting that it does not reflect the price pressure from liquidity-induced trading. This result is comparable with the uncertainty beta premium documented in Bali, Brown, and Tang (2017), which is persistent and significant up to 11 months. Examining the FF5 alphas in Panel B shows a slightly more persistent pattern. The persistent premium rules out short-term market frictions such as liquidity shocks in driving the result.

In sum, this subsection shows that high PEAR beta stocks under-perform low PEAR beta stocks in the future in terms of average, industry- and risk-adjusted returns, which we label as the low-

PEAR-beta premium. A strategy trading for this premium generates statistically and economically significant profits.

3.2 Robustness

This subsection performs a battery of robustness checks to show that the low-PEAR-beta premium is not specific to a sub-sample or a sub-period, and is robust to different estimation methods.

3.2.1 Performance over political cycles

The well-known presidential puzzle refers to the striking time series fact that stock market returns are much higher under Democratic presidencies than Republican ones. While our low-PEAR-beta premium is a cross-sectional phenomenon, one may be still curious if it is also stronger under Democratic presidencies.

We split the sample into two sub-periods, Democratic and Republican. A month is defined as Democratic if the president is a Democrat in that month. Since the inauguration of a new president is always around the 20th of January, we assume February is the commencement of the four-year term as a new president. In doing so, we have identified 192 months as Democratic and 247 months as Republican. Panel A of Table 4 reports the average and risk adjusted returns of the PEAR beta spread portfolio in these two sub-periods. The average return is 1.31% (t-value = 3.84) under Democratic presidencies and 0.69% (t-value = 2.32) under Republican presidencies, with the difference (0.62%) insignificant from zero (t-value = 1.34). The risk adjusted returns are 1.49% (t-value = 3.13) and 0.56% (t-value = 2.07) under Democratic and Republican presidencies, respectively. In this case, the difference is 0.94% and marginally significant (t-value = 1.93). While the premium is higher during Democratic presidency, especially after risk adjustments, importantly, it is also positive and significant during the Republican presidency.

Panel A of Figure 4 goes one step further by plotting the average and risk adjusted returns of the PEAR beta spread portfolio within each president tenure. Our sample covers six presidents, two Democrats and four Republicans. The figure shows that while the low-PEAR-beta premium is stronger during Democratic presidencies, it is also strong during Republican presidencies, echoing the pattern in Figure 2. Indeed, in the four-year term of President George H.W. Bush, the PEAR beta spread portfolio has an average return of 1.49% and an FF5 alpha of 1.34% per month, which is slightly lower than President Bill Clinton's term (1.86% and 2.02%). Of course, the worst performance is also from the Republican presidency, Ronald Reagan, which has mediocre average and risk adjusted returns (0.39% and 0.26%).

In addition, we examine how the PEAR beta spread portfolio performs across the four years of a president tenure. In the literature, Belo, Gala, and Li (2013) show that the government spending exposure has stronger power in predicting future stock returns in years 2 and 3 of a president tenure. In contrast, Addoum and Kumar (2016) find that stock prices are more sensitive to the political climate change in the first and fourth years. Panel B of Figure 4 shows that the low-PEAR-beta premium is different from Belo, Gala, and Li (2013) and Addoum and Kumar (2016). Its performance, especially after risk adjustment, is stronger in the first three years during a president term. Importantly, the low-PEAR-beta premium is present in each of the four years.

3.2.2 Performance over presidential transition and non-transition periods

Addoum and Kumar (2016) and Meeuwis, Parker, Schoar, and Simester (2020) find that investors rebalance their portfolios dramatically around president elections, because of political climate change or political disagreement. To explore if such presidential transitions drive our low-PEAR-beta premium, we split the sample into transition and non-transition periods. A transition period consists of six months before and after a new president's inauguration. With six presidents, we have five transitions, covering 65 months in total.

Panel B of Table 4 shows that the average return in the transition period is higher than that in the non-transition period (1.35% vs. 0.89%), but the risk adjusted returns are statistically indifferent in these two sub-periods, with the difference equal to -0.28 (t-value $= -0.45$). The result is similar if we use November of the election year as the event month as in Brogaard, Dai, Ngo, and Zhang (2020). Thus, the low-PEAR-beta premium is different from and beyond the political climate change in Addoum and Kumar (2016).

3.2.3 Performance over NBER recessions and expansions

As shown in Pastor and Veronesi (2020), financial crises or economic recessions are more likely to happen during a Republican president's term, which raises an interesting question that whether the low-PEAR-beta premium is weaker during economic recessions, given the time series presidential puzzle.

When splitting the sample into NBER-dated economic recessions and expansions, we find that the low-PEAR-beta premium is stronger in NBER recessions. Specifically, the average return and FF5 alpha are 2.59% and 2.06% in recessions, whereas the counterparts in NBER expansions are 0.81% and 0.85%. This result is reported in Panel C of Table 4, and has two immediate implications. First, although the low-PEAR-beta premium is stronger under the Democratic presidencies, it can be even stronger over economic downturns during a Republican presidency. Second, high PEAR beta firms do not perform better than those with low PEAR betas, suggesting in turn that they do not benefit from the Republican president or party policies.

3.2.4 Performance among different firms

Limits-to-arbitrage or transaction costs are an important determinant of mispricing, and plague the existing asset pricing models (Fama and French, 2015; Hou, Xue, and Zhang, 2015). In this subsection, we examine how the low-PEAR-beta premium performs among firms with low and high limits-to-arbitrage.

We consider three measures of limits-to-arbitrage, IVOL (Ang, Hodrick, Xing, and Zhang, 2006), illiquidity (Amihud, 2002), and firm size. For each measure, at the beginning of each month, we independently sort firms into two subgroups based on the measure and into deciles based on PEAR beta, and then we construct a PEAR beta spread portfolio within each subgroup. Panel D of Table 4 reports the results with IVOL. Surprisingly, the low-PEAR-beta premium is stronger among low IVOL stocks. Its FF5 alpha is 0.91% (t-value = 2.88) among low IVOL stocks, and 0.75% (t-value = 3.23) among high IVOL stocks. This empirical pattern continues to hold when we measure limits-to-arbitrage with Amihud's (2002) illiquidity or firm size (Panels E and F). The FF5 alphas of the low-PEAR-beta premiums are 1.00% and 0.05% among liquid and illiquid stocks, and 1.06% (t-value = 3.41) and 0.39% (t-value = 2.33) among big and small firms, respectively. These findings imply that the low-PEAR-beta premium is economically significant as it goes beyond transaction costs. Thus, it is different from most of anomalies that are concentrated among small and illiquid firms (Hou, Xue, and Zhang, 2015).

3.2.5 Alternative PEAR beta estimates

This paper estimates PEAR beta with (2). Because the market return is included when estimating PEAR beta, one natural question is what happens if we exclude the market return. To answer the above question, we exclude the market return in regression (1), redo single portfolio sorting in Table 3, and report the results in Panel G of Table 4. In this case, the average and risk adjusted returns of the PEAR beta spread portfolio are 1.11% (t-value = 4.13) and 0.90% (t-value = 3.77), which are close to the case controlling for the market return (0.96% and 0.96%).

We also examine the robustness to different rolling windows used to estimate the PEAR beta, four and eight years (coinciding with one or two presidential terms). The results are quantitatively similar to the baseline results with a five-year rolling window. Thus, the low-PEAR-beta premium is robust to alternative estimation methods.

3.2.6 Alternative PEAR indexes

In this subsection, we show that the low-PEAR-beta premium is robust to three variations to the construction of the PEAR index.

First, in the main analyses, we use the change of PEAR to calculate PEAR beta, and implicitly assume that the change is independent over time, which may not be true empirically. To address this concern, we assume that the change of PEAR follows an AR(1) process and use the residual to estimate PEAR beta. Panel H of Table 4 shows that, with this variation, the average and risk adjusted returns of the PEAR beta spread portfolio are 0.87% (t-value = 3.82) and 0.90% (t-value = 3.97), which are quantitatively similar to the baseline results. A caveat here is that the AR(1) estimation uses the full sample and thus introduces a forward-looking bias. We thus prefer estimating PEAR beta using the simple changes.

Second, as shown in Table 1, the presidential job approval rating index—PJAR—is highly correlated with PEAR. So one interesting question is whether this alternative index can generate similar results in the cross-section. Panel H of Table 4 shows that the average return and FF5 alpha are 0.72% (t-value = 2.84) and 0.50% (t-value = 2.18), respectively. These values are smaller than those using PEAR, suggesting that PEAR is more relevant for the financial market.

Lastly, we consider the PEAR index constructed by polls from top 6 polling organizations (PEAR_6), which conduct the most surveys in our sample period. By using this new index, the PEAR beta spread portfolio has an average return of 0.76% and an FF5 alpha of 0.72%. This weaker result is due to the smoothing and interpolation when constructing the index, thereby calling for using more polls to better capture the underlying public perspective regarding the president's handling of the economy, especially during the early years, which is exactly what we do in the main analyses.

To conclude, this subsection shows that the low-PEAR-beta premium is largely robust to alternative methods for constructing the PEAR index.

3.3 International evidence

This subsection performs an out-of-sample test by showing that the low-PEAR-beta premium continues to hold in other G7 countries. That is, the US PEAR index also affects the stock returns of other G7 countries.

Specifically, we collect firm-level stock returns and marketcaps of Canada, France, Germany, Italy, Japan, and the UK from DataStream, and use similar filters as Griffin, Kelly, and Nardari (2010) and Hou, Karolyi, and Kho (2011).[8] We collect the major stock market indexes for these countries from FactSet, including the FTSE 100 index for the UK, the Nikkei 225 index for Japan, the DAX index for Germany, the CAC 40 index for France, the S&P/TSX Composite index for Canada, and the FTSE MIB index for Italy. Because the results using US dollar and local currencies are similar, we report the results with local currencies in Table 5. Same as the baseline, all portfolios are valued-weighted and rebalanced at the monthly frequency. The sample period starts from the available date of the market index for each country to December 2019. The FF5 factor data are from Schmidt, von Arx, Schrimpf, Wagner, and Ziegler (2019) and only available after July 1991, except for Japan that starts from July 1990. Finally, following Frankel and Rose (1998), we construct a trade intensity measure between each of G7 countries and the US to capture the economical closeness. Particularly, trade intensity is estimated as the sum of bilateral trade (imports and exports) between each country and the US divided by the sum of their GDPs.

Overall, Table 5 shows that the low-PEAR-beta premium exists in most of G7 countries. The average and risk adjusted returns of the PEAR beta spread portfolios are positive in all the countries, except for Italy. The PEAR beta spread portfolios have significant average and risk adjusted returns in Canada, Germany, Japan, and the UK. The last column of Table 5 shows that Canada, Germany, Japan, and the UK have tighter trade linkages (higher average trade intensity value) with the US, suggesting that firms in countries that are more economically linked to the US will be more affected by the US PEAR index.

[8] In particular, we require that firms selected for each country are domestically incorporated based on their home country information (GEOGC); We eliminate non-common stocks such as preferred stocks, warrants, REITs, and ADRs. If a stock has multiple share classes, only the primary class is included. To filter out suspicious stock returns, we set returns to missing for stocks with returns higher than 300%. Specifically, if R_t or $R_{t\text{-}1}$ is greater than 300%, and $(1+R_t)\times(1+R_{t\text{-}1})-1<50\%$, then both R_t and $R_{t\text{-}1}$ are set to missing. We also treat the monthly returns as missing that fall outside the 0.1% to 99.9% range in each country.

3.4 Fama-MacBeth regressions

So far we have tested the significance of PEAR beta as a determinant of the cross-section of future returns at the portfolio level. This portfolio-level analysis has non-parametric merit in the sense that we do not impose a functional form on the relation between PEAR beta and future returns. However, it also has two disadvantages. First, it gives up a large amount of information in the cross-section via aggregation. Second, it is hard to control for multiple effects or factors simultaneously. To address these concerns, in this subsection we run Fama-MacBeth regressions of firms' one-month-ahead excess returns on their PEAR betas and various firm- and industry-specific characteristics to gauge the incremental return predictive power of PEAR beta.

In Fama-MacBeth regressions, we control for a comprehensive set of potential return predictors which we group into three categories. The first category includes alternative measures of beta, such as the CAPM beta, the beta on the Jurado, Ludvigson, and Ng (2015) macroeconomic uncertainty index (Bali, Brown, and Tang, 2017), and the beta on the Baker and Wurgler (2006) sentiment index (Chen, Han, and Pan, 2021). The second category includes variables related to government and politics. They are the political alignment index (Kim, Pantzalis, and Park, 2012), political sensitivity (Addoum and Kumar, 2016), political connectedness (Cooper, Gulen, and Ovtchinnikov, 2010), and government spending exposure (Belo, Gala, and Li, 2013). The third category includes other firm characteristics such as size, book-to-market, momentum, short-term reversal, idiosyncratic volatility, illiquidity, and distress.

Table 6 reports the results. In column 1, the univariate regression shows that PEAR beta has a significantly negative coefficient of -0.13 with a t-value of -3.38. Economically, the absolute t-value is proportional to the Sharpe ratio of the PEAR beta spread portfolio, which equals the annualized Sharpe ratio times $\sqrt{T}$, the number of years in the sample. So the -3.38 t-value suggests that an investor can earn an annualized Sharpe ratio of 0.56 (i.e., $3.38/\sqrt{37}$) if she trades for the low-PEAR-beta premium. This value is slightly lower than that with portfolio analysis in Section 3.1 (0.69), and reaffirms Table 4 that the low-PEAR-beta premium is stronger among big firms. In column 2, when we control for firm characteristics in the regression, the coefficient of PEAR beta drops to -0.11 but the t-value slightly increases to -3.60 in magnitude, suggesting that the predictive power of PEAR beta is robust to these well-known firm characteristics.

In column 3, when we further include other betas (i.e., β_{CAPM}, β_{UNC}, and β_{BW}), the regression coefficient on PEAR beta slightly changes to -0.09 with a t-value of -3.09. Interestingly, sentiment beta, β_{BW}, has a significantly negative regression coefficient in this case, consistent with the argument in Baker and Wurgler (2006). CAPM beta loses power and uncertainty beta is marginally significant. In column 4, we instead control for political variables (i.e, political alignment index, political sensitivity, political connectedness, and government spending exposure), and find the coefficient of PEAR beta to be -0.10 (t-value $= -3.13$). This result suggests that the interpretations underlying these politics-related variables are unlikely to completely explain the low-PEAR-beta premium.

In column 5, when we pool all the three categories of controls in one regression, the coefficient of PEAR beta remains -0.08 with a t-value of -2.88. The magnitude suggests that all the controlling variables, even when combined, explain at most two fifth of the low-PEAR-beta premium. This result is not surprising because, as we have shown in Table 2, PEAR beta has low correlations with these variables.

In column 6—the last column of Table 6—we run the Fama-MacBeth regression by controlling for the Fama-French 48 industry fixed effects. We drop the industry-level political sensitivity as it is calculated based on the Fama-French 48 industries. The regression coefficient of PEAR beta becomes -0.07 with a t-value of -2.59. Again, the low-PEAR-beta premium is different from Belo, Gala, and Li (2013) and Addoum and Kumar (2016), and it is not an industry-level phenomenon.

Regarding other control variables in our regressions, their coefficients are generally consistent with the literature except for the idiosyncratic volatility (IVOL), which exhibits positive and significant coefficients. This is due to its high correlation with the distress variable (0.92), as evident in Table 2. We confirm that the coefficient on IVOL will be negative and significant if we exclude the distress variable in the regression. In sum, a significant part of the low-PEAR-beta premium cannot be explained by existing well-known return predictors.

4 Perceived Alignment with the Incumbent President

Intuitively, PEAR beta could measure a firm's perceived alignment with the economic policies of the incumbent president. The business of a positive PEAR beta firm must align well with the incumbent president's economic policies, so its stock price moves in tandem with the policies' approval rating. As a concrete example, consider two energy companies: Renewable Energy Group Inc (NASDAQ: REGI) and Panhandle Oil & Gas Inc (NYSE: PHX). As their names imply, the first company aligns well with Obama era's clean energy policy while the second company, being a traditional gas and drilling firm, better aligns with the energy policy from the Trump's administration.

Their alignments with the incumbent president are nicely captured by their PEAR betas, as evident in Panel A of Figure 5. During the Obama's presidency (2014-2016), Renewable Energy has a large and positive PEAR beta and Panhandle has a negative PEAR beta. After Trump's election in 2017, their PEAR betas start to converge. After one year, they even flip. Renewable Energy has a negative PEAR beta while Panhandle has a positive PEAR beta. In this example, PEAR beta becomes a self-revealed and dynamic measure of a firm's perceived alignment with the current presidential economic policies. While a flip in the sign of PEAR beta is rare, Panel B confirms that after a change of president, PEAR betas of high- and low-beta firms quickly converge during the first few months.

In Appendix B, we sketch a stylized model in which sentiment investors have biased cash flow expectations on extreme PEAR beta firms. Using the above example, during Obama's term, sentiment investors overestimate future earnings of Renewable Energy and underestimate future earnings of Panhandle, especially when Obama's PEAR index is high. In the model, the PEAR index does not contain any additional fundamental information, so PEAR beta captures sentiment investors' biased cash flow expectation. Risk-averse rational investors cannot fully correct such biases, and as a result, the market-clearing price is too high for Renewable Energy and too low for Panhandle. Mispricing disappears when future earnings are realized. Thus, Renewable Energy earns lower returns and Panhandle earns higher returns in the future, resulting in the low-PEAR-beta premium. The model further predicts that such a premium should be higher following high PEAR periods, a pattern we confirm in Panel D of Table 11.

We provide three pieces of supporting evidence for such a mispricing-based explanation. First, each month, we split the past 60 months into two sub-samples (if applicable), one coming from months when the incumbent president is in power and the other from months when the former president is in power, with a requirement of at least 12 observations. For each sub-sample, we estimate a PEAR beta for each firm (incumbent president beta or former president beta), and explore the low-PEAR-beta premium in the next month. Table 7 shows that the low-PEAR-beta premium exists and is only significant when the incumbent president beta is used for sorting. The FF5 alpha of the PEAR beta spread portfolio is 0.69% (t-value = 3.42) with the incumbent president beta, whereas it is -0.04% (t-value = -0.16) with the former president beta. This evidence highlights the importance of perceived alignment to the *incumbent* presidential economic policies.

Second, consistent with biases in cash flow expectations, in Panel A of Table 8 we find PEAR beta to negatively predict analyst forecast errors, future revisions in their long term growth (LTG) forecasts, and stock recommendations. It also negatively predicts the next three quarters' earnings announcement returns. These results suggest that both analysts and investors are initially too optimistic (pessimistic) in forecasting the cash flows of high (low) PEAR beta stocks and subsequent earnings announcements facilitate the correction of mispricing. In Panel B of Table 8, we conduct portfolio analyses to examine the performance of the PEAR beta spread portfolio on future earnings announcement days and non-earnings announcement days. At the end of each quarter (March, June, September, and December), we form decile portfolios based on the average

PEAR beta within the quarter, and examine their daily average (value-weighted) returns on the earnings announcement days (the day before, the day, and the day after the announcement) and non-earnings announcement days in the next one quarter. The result shows that the average return on earnings announcement days is four times as high as that on non-earnings announcement days (20.03 bps vs. 4.56 bps), consistent with the notion that the realization of earnings corrects mispricing arising from prior errors in earnings expectation (Engelberg, McLean, and Pontiff, 2020).

Finally, we provide cross-sectional evidence supporting the mispricing-based explanation. At the end of each month, we divide stocks in each of the two extreme PEAR beta deciles (P1 and P10) into three groups based on the differences between their current and 12-month-ago PEAR betas. Stocks whose beta changes are smaller than 0.5 (in absolute term) are assigned into "Unchanged" group. Otherwise, they are assigned to the "Changed" group.[9] Stocks whose PEAR betas are missing 12 months ago are labeled as "IPO" stocks, since they have been listed recently within the past 36 months (recall PEAR beta is calculated with a requirement of at least 24 observations). Table 9 shows that the low-PEAR-beta premium is positive and significant in the Changed group. The FF5 alpha is 1.34% per month with a t-value of 3.11. This group contains stocks that only recently became high or low PEAR beta stocks and therefore are more likely to be mispriced during the formation month. In contrast, the low-PEAR-beta premium in the Unchanged group is much smaller and has a marginally significant FF5 alpha 0.52% (t-value = 1.66). The contrast between the two groups is more consistent with a mispricing-based explanation than a risk-based explanation. Under a risk-based explanation, high PEAR beta always translates to low risk and low future returns, regardless whether PEAR beta has always been high or only recently become high. We also find positive and significant low-PEAR-beta premium in the IPO group. Given their short histories, investors' future earnings expectations are more affected by the firms' perceived alignment with the incumbent president.

[9] We choose a cutoff of 0.5 so that the two groups have about the same number of stocks. Our results are similar if we vary the cutoff from 0.2 to 0.8 or examine the change in PEAR beta over a 6-month horizon instead of 12-month.

5 Alternative Explanations

In this section, we investigate four alternative explanations to our main findings, and show that they are at most partially explaining the low-PEAR-beta premium.

5.1 Risk aversion

To explain the presidential puzzle, Pastor and Veronesi (2020) develop a model of political cycles driven by time-varying risk aversion. They argue that when risk aversion is high, agents are more likely to elect Democrats that promise more redistribution. In contrast, when risk aversion is low, agents are more likely to elect Republicans to take more business risk. With risk aversion as an exogenous driver, the risk premium of the stock market is expected to be high during Democratic presidencies and low during Republican presidencies. Our PEAR index seems negatively related to the risk aversion and therefore correlates well with the political cycle, as low PEAR strongly predicts Democratic presidents and higher stock market returns in the next 8 years.

More formally, we consider four different measures of aggregate risk aversion, including the unemployment rate, aggregate risk aversion from Miranda-Agrippino and Rey (2020), negative of the surplus consumption ratio from the habit model of Campbell and Cochrane (1999), and option-based risk aversion from Faccini, Konstantinidi, Skiadopoulos, and Sarantopoulou-Chiourea (2019). Figure 6 shows that PEAR is indeed negatively correlated with these four risk aversion measures, and the coefficients of regressing these measures on PEAR are always negative and significant, thereby PEAR appearing to be capturing aggregate risk aversion.

In the cross-section, however, a standard risk model would predict the opposite of the low-PEAR-beta premium. If PEAR measures the negative of risk aversion, high PEAR beta stocks do worse precisely when aggregate risk aversion increases (or when PEAR decreases), and they are therefore more risky and should earn higher returns. Such a risk-based story is therefore inconsistent with our empirical findings that high PEAR beta stocks under-perform the low PEAR beta stocks in the future.

5.2 Macroeconomic risk

Although risk aversion does not provide a full explanation to our findings, it is possible that the low-PEAR-beta premium actually reflects exposure to other macroeconomic risk factors. We examine this possibility by studying a large set of macro variables, including industrial production growth, unexpected inflation, change in expected inflation, term premium, default premium, total factor productivity growth, labor income growth, capital share growth (Lettau, Ludvigson, and Ma, 2019), consumption growth, ultimate consumption growth (Parker and Julliard, 2005), consumption-wealth ratio, change in aggregate market volatility, change in VIX, variance risk premium, GDP growth, and change in unemployment rate.

Panel A of Table 10 presents the correlation between the change of PEAR and the macro variables. Generally, the correlations are very low, and the highest one is 0.18 between the change of PEAR and the ultimate consumption growth. However, according to Parker and Julliard (2005), ultimate consumption growth is unlikely to be an explanation to the low-PEAR-beta premium, because it demands a positive risk premium.

Panel B of Table 10 reports the correlations between PEAR beta and the marco betas. To mitigate the potential outlier effects, we also consider the rank correlations that are calculated based on the cross-sectional ranks of these betas. In this panel, PEAR beta has the highest correlation (in absolute term) with VRP beta (-0.15). However, VRP beta is unable to explain the low-PEAR-beta premium either, because it does not have any power in predicting future stock returns in our sample period.

Therefore, although there is always a possibility that PEAR captures a state variable related to macroeconomic risk, and that PEAR beta and its pricing dynamically vary with this state variable, it seems safe to conclude that existing rational channels are unable to fully explain the low-PEAR-beta premium.

5.3 Hedge for downside risk?

Given that high PEAR beta firms are perceived to better align with the incumbent president, it is possible that such a "presidential alignment" could lead to government bailouts during bad times. If that happens, a high PEAR beta stock actually can be a good hedge for downside risk. Do their lower future returns reflect the hedging benefits? We believe the answer is no.

Empirically, corporate bailouts are relatively rare. For stance, Faccio, Masulis, and McConnell (2006) find that over the sample period 1997 to 2002, of the 450 political connected firms from 35 countries, only 51 firms received bailouts. In the US, financial firms, especially banks, are more likely to be bailed out since these firms are deeply intertwined with the economy through debts and obligations, as evident by a list of historical bailouts in the US collected by the non-profit investigative journalism group, ProPublica. However, financial firms are excluded in our analysis. For non-financial firms, only those mega firms have higher chances of receiving bailouts. We confirm that these mega firms tend not to have extreme PEAR betas and therefore rarely enter deciles 1 and 10. The low-PEAR-beta premium hardly changes when we remove the largest 25 firms from our sample each month.

Additional evidence does not support such a "hedging" story either. During bad times, as indicated by NBER-dated recessions, high PEAR beta firms earn even lower returns than low PEAR beta firms (see Panel C of Table 4), inconsistent with the notion of a bailout. In addition, PEAR beta has a low correlation, 0.07 as shown in Panel B of Table 2, with the measure of financial distress (Campbell, Hilscher, and Szilagyi, 2008). Table 6 further shows that controlling for the distress risk does not alter the low-PEAR-beta premium.

5.4 Sentiment-induced overpricing and short sale constraints

Because the PEAR index is based on the responses to "Do you approve or disapprove of the way (name of president) is handling the economy?", one may interpret it as a measure of investor sentiment like the Michigan consumer sentiment index. In this way, stocks with positive PEAR betas experience higher returns when the presidential economic approval rating improves. To the extent that PEAR captures investor confidence (De Boef and Kellstedt, 2004; Lemmon and Portniaguina, 2006), high PEAR beta stocks could suffer from sentiment-induced overpricing, explaining their subsequent low returns when their overpricing gets corrected. Indeed, Stambaugh, Yu, and Yuan (2012) find the long-short anomaly returns to be much stronger following high levels of sentiment. They also find this pattern to be especially true for the short legs of the anomaly strategies, consistent with short-sale impediments.

Unfortunately, such sentiment-induced overpricing does not seem to fully explain the low-PEAR-beta premium. We consider four measure of investor sentiment: (1) Baker and Wurgler (2006) sentiment index, (2) Michigan consumer sentiment index, (3) AAII bull-bear index, and (4) the PEAR index itself. We split the sample into two subsamples based on the median values of the four sentiment measures, and examine the difference of the low-PEAR-beta premium between the high and low sentiment periods. In Table 11 we find significantly higher PEAR beta spread portfolio returns following high levels of sentiment, only when the PEAR index is used, consistent with the prediction of our stylized model. However, we do not find any evidence that the short-leg (high PEAR beta stocks) alpha is higher following high levels of sentiment. In fact, in all cases, the long-leg has a higher alpha (in absolute term) than the short-leg, inconsistent with the notion that short-sale constraints together with investor sentiment fully explain the low-PEAR-beta premium.

In sum, this section examines four alternative explanations and finds none to explain the low-PEAR-beta premium.

6 Conclusion

In this paper, we construct a novel monthly presidential economic approval rating (PEAR) index from 1981 to 2019, and show that, in the cross-section, stocks with high PEAR beta significantly under-perform those with low PEAR beta by 0.96% per month in the future, on a risk adjusted basis. The low-PEAR-beta premium persists up to one year and remains significant in a number of robustness tests. Contrary to the sentiment-induced overpricing, this premium does not come primarily from the short leg during high sentiment period. Since the PEAR index is negatively correlated with measures of aggregate risk aversion, a standard risk model would predict the low PEAR beta stocks to earn lower (not higher) expected returns. In addition, PEAR beta does not correlate with measures of macroeconomic risk exposure and high PEAR beta stocks do not enjoy bailouts to justify their low expected returns. Instead, the PEAR beta captures a firm's perceived alignment to the incumbent president's economic policy and market seems to overprice firms with positive PEAR betas and underprice firms with negative ones.

A number of topics are of interest for future research. First, extending our stylized sentiment model to allow for time-varying risk aversion and studying their interactions is desirable. Second, extending our results to other markets or asset classes could be worthwhile. Finally, given the data availability, we examine the low-PEAR-beta premium over the past four decades. We look forward to finding a way to extend the PEAR index to a longer period.

References

Addoum, J. M., Kumar, A., 2016. Political sentiment and predictable returns. Review of Financial Studies 29, 3471–3518.

Amihud, Y., 2002. Illiquidity and stock returns: cross-section and time-series effects. Journal of Financial Markets 5, 31–56.

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

Atilgan, Y., Bali, T. G., Demirtas, K. O., Gunaydin, A. D., 2020. Left-tail momentum: Underreaction to bad news, costly arbitrage and equity returns. Journal of Financial Economics 135, 725–753.

Baker, M., Wurgler, J., 2006. Investor sentiment and the cross-section of stock returns. Journal of Finance 61, 1645–1680.

Baker, S. R., Bloom, N., Davis, S. J., 2016. Measuring economic policy uncertainty. Quarterly Journal of Economics 131, 1593–1636.

Bali, T. G., Brown, S. J., Murray, S., Tang, Y., 2017. A lottery-demand-based explanation of the beta anomaly. Journal of Financial and Quantitative Analysis 52, 2369–2397.

Bali, T. G., Brown, S. J., Tang, Y., 2017. Is economic uncertainty priced in the cross-section of stock returns? Journal of Financial Economics 126, 471–489.

Belo, F., Gala, V. D., Li, J., 2013. Government spending, political cycles, and the cross section of stock returns. Journal of Financial Economics 107, 305–324.

Blinder, A. S., Watson, M. W., 2016. Presidents and the us economy: An econometric exploration. American Economic Review 106, 1015–45.

Boutchkova, M., Doshi, H., Durnev, A., Molchanov, A., 2012. Precarious politics and return volatility. Review of Financial Studies 25, 1111–1154.

Brogaard, J., Dai, L., Ngo, P. T. H., Zhang, B., 2020. Global political uncertainty and asset prices. Review of Financial Studies 33, 1737–1780.

Brogaard, J., Detzel, A., 2015. The asset-pricing implications of government economic policy uncertainty. Management Science 61, 3–18.

Brown, J. R., Huang, J., 2020. All the president's friends: Political access and firm value. Journal of Financial Economics 138, 415–431.

Brunnermeier, M., Farhi, E., Koijen, R. S., Krishnamurthy, A., Ludvigson, S. C., Lustig, H., Nagel, S., Piazzesi, M., 2021. Review article: Perspectives on the future of asset pricing. Review of Financial Studies 34, 2126–2160.

Campbell, J. Y., Cochrane, J. H., 1999. By force of habit: A consumption-based explanation of aggregate stock market behavior. Journal of Political Economy 107, 205–251.

Campbell, J. Y., Hilscher, J., Szilagyi, J., 2008. In search of distress risk. Journal of Finance 63, 2899–2939.

Chen, Y., Han, B., Pan, J., 2021. Sentiment trading and hedge fund returns. Journal of Finance 76, 2001–2033.

Cooper, M. J., Gulen, H., Ovtchinnikov, A. V., 2010. Corporate political contributions and stock returns. Journal of Finance 65, 687–724.

Daniel, K., Grinblatt, M., Titman, S., Wermers, R., 1997. Measuring mutual fund performance with characteristic-based benchmarks. Journal of Finance 52, 1035–1058.

Daniel, K., Hirshleifer, D., Sun, L., 2020. Short-and long-horizon behavioral factors. Review of Financial Studies 33, 1673–1736.

De Boef, S., Kellstedt, P. M., 2004. The political (and economic) origins of consumer confidence. American Journal of Political Science 48, 633–649.

Dimson, E., 1979. Risk measurement when shares are subject to infrequent trading. Journal of Financial Economics 7, 197–226.

Engelberg, J., McLean, R. D., Pontiff, J., 2020. Analysts and anomalies. Journal of Accounting and Economics 69, 101249.

Faccini, R., Konstantinidi, E., Skiadopoulos, G., Sarantopoulou-Chiourea, S., 2019. A new predictor of U.S. real economic activity: The S&P 500 option implied risk aversion. Management Science 65, 4927–4949.

Faccio, M., Masulis, R., McConnell, J., 2006. Political connections and corporate bailouts. Journal of Finance 6, 2597–2635.

Fama, E. F., French, K. R., 1992. The cross-section of expected stock returns. Journal of Finance 47, 427–465.

Fama, E. F., French, K. R., 1993. Common risk factors in the returns on stocks and bonds. Journal of Financial Economics 33, 3–56.

Fama, E. F., French, K. R., 1997. Industry costs of equity. Journal of Financial Economics 43, 153–193.

Fama, E. F., French, K. R., 2015. A five-factor asset pricing model. Journal of Financial Economics 116, 1–22.

Frankel, J., Rose, A., 1998. The endogeneity of the optimum currency area criteria. The Economic Journal 108, 1009–1025.

Frazzini, A., Pedersen, L. H., 2014. Betting against beta. Journal of Financial Economics 111, 1–25.

Gorbatikov, E., van Lent, L., Naik, N. Y., Sharma, V., Tahoun, A., 2019. Is firm-level political exposure priced? Working Paper.

Griffin, J. M., Kelly, P. J., Nardari, F., 2010. Do market efficiency measures yield correct inferences? A comparison of developed and emerging markets. Review of Financial Studies 23, 3225–3277.

Hassan, T. A., Hollander, S., van Lent, L., Tahoun, A., 2019. Firm-level political risk: Measurement and effects. Quarterly Journal of Economics 134, 2135–2202.

Hensel, C. R., Ziemba, W. T., 1995. United states investment returns during democratic and republican administrations, 1928–1993. Financial Analysts Journal 51, 61–69.

Hou, K., Karolyi, G. A., Kho, B.-C., 2011. What factors drive global stock returns? Review of Financial Studies 24, 2527–2574.

Hou, K., Xue, C., Zhang, L., 2015. Digesting anomalies: An investment approach. Review of Financial Studies 28, 650–705.

Huang, R. D., 1985. Common stock returns and presidential elections. Financial Analysts Journal 41, 58–61.

Jegadeesh, N., 1990. Evidence of predictable behavior of security returns. Journal of Finance 45, 881–898.

Jegadeesh, N., Titman, S., 1993. Returns to buying winners and selling losers: Implications for stock market efficiency. Journal of Finance 48, 65–91.

Jurado, K., Ludvigson, S. C., Ng, S., 2015. Measuring uncertainty. American Economic Review 105, 1177–1216.

Ke, D., 2021. Left behind: Presidential cycles and partisan gap in stock market participation. Working Paper.

Kelly, B. T., Pastor, L., Veronesi, P., 2016. The price of political uncertainty: Theory and evidence from the option market. Journal of Finance 71, 2417–2480.

Kim, C. F., Pantzalis, C., Park, J. C., 2012. Political geography and stock returns: The value and risk implications of proximity to political power. Journal of Financial Economics 106, 196–228.

Lemmon, M., Portniaguina, E., 2006. Consumer confidence and asset prices: Some empirical evidence. Review of Financial Studies 19, 1499–1529.

Lettau, M., Ludvigson, S. C., Ma, S., 2019. Capital share risk in US asset pricing. Journal of Finance 74, 1753–1792.

Liu, H., Peng, C., Xiong, W. A., Xiong, W., 2021. Taming the bias zoo. Journal of Financial Economics, forthcoming.

Liu, Y., Shaliastovich, I., 2021. Government policy approval and exchange rates. Journal of Financial Economics, forthcoming.

Meeuwis, M., Parker, J. A., Schoar, A., Simester, D., 2020. Belief disagreement and portfolio choice. NBER Working Paper .

Miranda-Agrippino, S., Rey, H., 2020. U.S. monetary policy and the global financial cycle. Review of Economic Studies 87, 2754–2776.

Parker, J. A., Julliard, C., 2005. Consumption risk and the cross section of expected returns. Journal of Political Economy 113, 185–222.

Pastor, L., Veronesi, P., 2012. Uncertainty about government policy and stock prices. Journal of Finance 67, 1219–1264.

Pastor, L., Veronesi, P., 2013. Political uncertainty and risk premia. Journal of Financial Economics 110, 520–545.

Pastor, L., Veronesi, P., 2020. Political cycles and stock returns. Journal of Political Economy 128, 4011–4045.

Santa-Clara, P., Valkanov, R., 2003. The presidential puzzle: Political cycles and the stock market. Journal of Finance 58, 1841–1872.

Schmidt, P. S., von Arx, U., Schrimpf, A., Wagner, A. F., Ziegler, A., 2019. Common risk factors in international stock markets. Financial Markets and Portfolio Management 33, 213–241.

Shen, J., Yu, J., Zhao, S., 2017. Investor sentiment and economic forces. Journal of Monetary Economics 86, 1–21.

Shumway, T., 1997. The delisting bias in CRSP data. Journal of Finance 52, 327–340.

Stambaugh, R. F., Yu, J., Yuan, Y., 2012. The short of it: Investor sentiment and anomalies. Journal of Financial Economics 104, 288–302.

Stambaugh, R. F., Yu, J., Yuan, Y., 2015. Arbitrage asymmetry and the idiosyncratic volatility puzzle. Journal of Finance 70, 1903–1948.

Stambaugh, R. F., Yuan, Y., 2017. Mispricing factors. Review of Financial Studies 30, 1270–1315.

Stimson, J., 1999. Public Opinion In America: Moods, Cycles, And Swings. Westview Press Inc; 2nd Edition.

Table 1 Summary statistics of PEAR and other related indexes

This table reports level and change correlations between the presidential economic approval rating (PEAR) and other sentiment and politics related indexes, consisting of (orthogonalized) investor sentiment (Baker and Wurgler, 2006), University of Michigan consumer sentiment, presidential job approval rating (Liu and Shaliastovich, 2021), aggregate political risk and sentiment (Hassan, Hollander, van Lent, and Tahoun, 2019), and political uncertainty [measured by economic policy uncertainty in Baker, Bloom, and Davis (2016)]. AR(1) and AR(12) refer to the first- and 12th-order autocorrelations. All the time series are at the monthly frequency and over the 1981:04–2019:12 period, except for investor sentiment being 1981:04-2018:12, quarterly aggregate political risk and sentiment being 2002Q1–2019Q4, and political uncertainty being 1985:01–2019:12.

Panel A: Summary statistics

	Mean	Median	Min	Max	Volatility	AR(1)	AR(12)
PEAR	47.00	46.17	17.50	77.00	11.48	0.93	0.59
Investor sentiment	0.29	0.16	−0.89	3.20	0.62	0.97	0.33
Consumer sentiment	87.54	90.80	55.30	112.00	11.91	0.95	0.64
Presidential approval	51.65	50.00	27.00	89.80	11.72	0.93	0.48
Political risk	5.65	5.48	4.39	7.72	0.77	0.73	−0.02
Political sentiment	3.82	3.72	1.54	5.61	0.88	0.92	0.59
Political uncertainty	111.47	104.24	52.05	264.40	36.10	0.72	0.37

Panel B: Correlations

	PEAR	Investor sentiment	Consumer sentiment	Presidential approval	Political risk	Political sentiment	Political uncertainty
Correlation between levels							
PEAR	1.00						
Investor sentiment	0.22***	1.00					
Consumer sentiment	0.63***	0.26***	1.00				
Presidential approval	0.65***	0.12***	0.26***	1.00			
Political risk	0.07	−0.56***	−0.54***	0.09	1.00		
Political sentiment	0.19	0.24*	0.59***	−0.35***	−0.23***	1.00	
Political uncertainty	−0.15***	−0.17***	−0.45***	−0.02	0.61***	0.05	1.00
Correlation between changes							
PEAR	1.00						
Investor sentiment	−0.09*	1.00					
Consumer sentiment	0.14***	−0.04	1.00				
Presidential approval	0.23***	−0.05	0.14***	1.00			
Political risk	0.18	−0.09	0.16	0.22*	1.00		
Political sentiment	−0.12	−0.04	−0.14	−0.17	−0.40***	1.00	
Political uncertainty	0.03	0.06	−0.19***	0.11**	−0.02	−0.03	1.00

Table 2 Autocorrelations and pairwise correlations

This table reports autocorrelations and pairwise correlations of firm-specific characteristics, including PEAR beta (β_{PEAR}), market beta (β_{CAPM}), economic uncertainty beta (β_{UNC}, Bali, Brown, and Tang, 2017), sentiment beta (β_{BW}, Chen, Han, and Pan, 2021), political alignment index (PAI, Kim, Pantzalis, and Park, 2012), political sensitivity (PS, Addoum and Kumar, 2016), political connectedness (PC, Cooper, Gulen, and Ovtchinnikov, 2010), government spending exposure (GSE, Belo, Gala, and Li, 2013), log firm size (SIZE), log book-to-market ratio (BM), momentum, short-reversal (STR), idiosyncratic volatility (IVOL), illiquidity (ILLIQ, Amihud, 2002), failure probability (Distress, Campbell, Hilscher, and Szilagyi, 2008), and mispricing score (MISP, Stambaugh, Yu, and Yuan, 2015). AR(1) and AR(12) refer to the first- and 12th-order autocorrelations. The sample period is 1983:05–2019:12, except for β_{BW} being 1983:05–2018:12.

	β_{PEAR}	β_{CAPM}	β_{UNC}	β_{BW}	PAI	PS	PC	GSE	SIZE	BM	MOM	STR	IVOL	ILLIQ	Distress	MISP
Panel A: Autocorrelation																
AR(1)	0.81	0.84	0.78	0.80	0.90	0.85	0.94	0.67	0.84	0.88	0.76	−0.03	0.27	0.46	0.32	0.70
AR(12)	0.32	0.34	0.24	0.31	0.17	0.18	0.53	0.26	0.16	0.08	−0.17	−0.01	0.06	0.04	0.10	−0.02
Panel B: Pairwise correlation: standard (rank) correlation above (below) the diagonal																
β_{PEAR}		0.02	0.09	0.05	−0.01	−0.01	−0.03	0.01	−0.06	0.02	−0.01	0.00	0.06	0.02	0.05	0.02
β_{CAPM}	0.02		0.07	0.11	−0.02	−0.08	−0.08	0.06	0.06	−0.13	−0.01	−0.01	0.13	−0.06	0.10	0.20
β_{UNC}	0.08	0.06		0.03	0.00	−0.02	−0.01	−0.00	0.00	−0.04	−0.01	0.01	0.02	−0.00	0.02	0.02
β_{BW}	0.02	0.12	0.04		−0.02	−0.07	−0.07	−0.02	−0.10	−0.05	0.03	0.01	0.11	0.01	0.09	0.08
PAI	−0.01	−0.00	0.00	−0.02		0.05	−0.01	−0.00	−0.01	−0.01	0.00	0.00	0.01	−0.00	0.00	0.01
PS	−0.01	−0.08	−0.01	−0.08	0.06		−0.02	−0.03	0.03	0.02	0.05	0.02	−0.03	−0.01	−0.03	−0.06
PC	−0.05	−0.07	−0.02	−0.10	−0.02	−0.01		0.08	0.42	−0.06	0.00	−0.00	−0.16	−0.04	−0.15	−0.19
GSE	0.03	0.08	−0.01	0.00	0.00	−0.06	0.01		0.02	−0.02	0.01	−0.00	0.01	−0.01	0.00	0.03
SIZE	−0.07	0.09	0.02	−0.13	−0.01	0.03	0.36	0.02		−0.25	0.14	0.04	−0.40	−0.23	−0.33	−0.22
BM	0.04	−0.13	−0.05	−0.03	−0.02	0.02	−0.06	−0.04	−0.28		0.01	0.02	−0.01	0.10	0.01	−0.09
MOM	−0.02	−0.05	−0.03	−0.01	−0.00	0.06	0.04	−0.00	0.24	0.01		−0.01	−0.10	−0.07	−0.11	−0.20
STR	−0.01	−0.02	−0.00	−0.01	−0.00	0.02	0.02	−0.00	0.10	0.02	0.02		0.21	0.00	0.10	−0.00
IVOL	0.06	0.19	0.01	0.15	0.02	−0.03	−0.24	0.03	−0.48	0.01	−0.21	0.00		0.25	0.68	0.31
ILLIQ	0.06	−0.10	−0.03	0.11	0.01	−0.03	−0.35	−0.03	−0.91	0.30	−0.25	−0.07	0.50		0.20	0.03
Distress	0.07	0.19	0.01	0.15	0.02	−0.04	−0.24	0.02	−0.54	0.07	−0.27	−0.07	0.92	0.53		0.30
MISP	0.02	0.21	0.01	0.08	0.02	−0.04	−0.19	0.03	−0.18	−0.07	−0.31	−0.03	0.38	0.16	0.49	

Table 3 Low-PEAR-beta premium

This table reports monthly average excess returns and alphas (in %) of PEAR beta (β_{PEAR}) decile portfolios, where P1 (P10) refers to the portfolio with low (high) β_{PEAR}, and L-H refers to the strategy that buys P1 and sells P10. All portfolios are value-weighted and rebalanced at a monthly frequency. Factor models include Fama and French (2015) five-factor model (FF5), Hou, Xue, and Zhang (2015) q-factor model (HXZ), Stambaugh and Yuan (2017) mispricing-factor model (SY), Daniel, Hirshleifer, and Sun (2020) behavioral-factor model (DHS), and Daniel, Grinblatt, Titman, and Wermers (1997) characteristics-based model (DGTW). Reported in parentheses are t-values. Industry demeaned β_{PEAR} is based on the Fama-French 48 industries. The sample period is 1983:06–2019:12.

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	L-H
Panel A: Sort on β_{PEAR}											
β_{PEAR}	−1.56	−0.67	−0.37	−0.17	−0.00	0.16	0.34	0.57	0.91	1.97	−3.53
Excess	1.04	0.96	0.82	0.76	0.66	0.65	0.52	0.56	0.50	0.08	0.96
	(3.05)	(3.85)	(3.81)	(3.66)	(3.12)	(3.08)	(2.26)	(2.19)	(1.63)	(0.21)	(4.18)
α_{FF5}	0.60	0.29	0.07	0.03	−0.05	−0.10	−0.16	−0.13	−0.05	−0.36	0.96
	(3.84)	(2.48)	(0.91)	(0.39)	(−0.68)	(−1.25)	(−1.88)	(−1.12)	(−0.40)	(−2.35)	(4.20)
α_{HXZ}	0.66	0.38	0.12	0.04	−0.06	−0.05	−0.07	−0.05	0.01	−0.21	0.87
	(4.10)	(3.19)	(1.51)	(0.58)	(−0.77)	(−0.68)	(−0.79)	(−0.41)	(0.09)	(−1.25)	(3.71)
α_{SY}	0.57	0.46	0.09	−0.04	−0.04	−0.07	−0.09	−0.07	−0.06	−0.37	0.94
	(3.33)	(3.70)	(1.11)	(−0.52)	(−0.55)	(−0.89)	(−1.02)	(−0.62)	(−0.42)	(−1.92)	(3.77)
α_{DHS}	0.64	0.34	0.12	−0.02	−0.07	−0.07	−0.03	0.07	−0.01	−0.02	0.66
	(3.58)	(2.66)	(1.43)	(−0.22)	(−0.81)	(−0.83)	(−0.35)	(0.62)	(−0.05)	(−0.09)	(2.65)
DGTW	0.24	0.12	0.08	0.05	−0.03	−0.02	−0.08	−0.08	−0.10	−0.35	0.60
	(1.60)	(1.40)	(1.34)	(0.95)	(−0.55)	(−0.41)	(−1.23)	(−0.98)	(−0.82)	(−2.12)	(3.06)
Panel B: Sort on industry demeaned β_{PEAR}											
β_{PEAR}	−1.68	−0.78	−0.49	−0.29	−0.12	0.04	0.21	0.43	0.76	1.79	−3.47
Excess	1.02	0.85	0.66	0.77	0.77	0.66	0.72	0.52	0.54	0.05	0.97
	(2.95)	(3.46)	(3.14)	(3.63)	(3.80)	(3.05)	(3.12)	(2.16)	(1.85)	(0.13)	(4.67)
α_{FF5}	0.59	0.24	−0.05	0.10	0.01	−0.10	0.00	−0.23	−0.06	−0.35	0.94
	(3.77)	(2.34)	(−0.68)	(1.52)	(0.23)	(−1.35)	(0.02)	(−2.25)	(−0.48)	(−2.49)	(4.62)
α_{HXZ}	0.66	0.28	0.02	0.10	0.03	−0.04	0.05	−0.13	0.00	−0.24	0.90
	(4.14)	(2.63)	(0.19)	(1.39)	(0.44)	(−0.45)	(0.58)	(−1.25)	(0.02)	(−1.48)	(4.27)
α_{SY}	0.52	0.28	−0.07	0.04	0.05	0.00	0.02	−0.18	−0.01	−0.32	0.84
	(2.99)	(2.64)	(−0.80)	(0.57)	(0.67)	(0.02)	(0.20)	(−1.71)	(−0.06)	(−1.75)	(3.78)
α_{DHS}	0.68	0.28	−0.05	0.01	0.07	0.01	0.08	−0.10	0.07	−0.05	0.72
	(3.86)	(2.49)	(−0.55)	(0.13)	(0.99)	(0.09)	(0.88)	(−0.93)	(0.51)	(−0.25)	(3.19)
DGTW	0.25	0.11	−0.03	0.02	0.07	−0.01	0.09	−0.17	−0.11	−0.42	0.67
	(1.66)	(1.32)	(−0.47)	(0.31)	(1.34)	(−0.19)	(1.29)	(−2.23)	(−1.07)	(−2.65)	(3.54)

Table 4 Low-PEAR-beta premium: Robustness

This table reports the monthly average excess returns and FF5 alphas of PEAR beta (β_{PEAR}) spread portfolios in different subsamples. Panels A, B, and C split the sample in time series into Democratic and Republican presidency periods, president transition and non-transition periods (transition periods are defined as six months surrounding the January of new president inauguration), and NBER-dated recessions and expansions, respectively. Panels D, E, and F split the sample in cross-section based on idiosyncratic volatility (IVOL) (Ang, Hodrick, Xing, and Zhang, 2006), illiquidity (Amihud, 2002), and firm size according to the median NYSE breakpoints, respectively. Panel G considers alternative β_{PEAR} estimations: estimating β_{PEAR} by excluding the MKT factor or using a 4-year or 8-year rolling window. Panel H considers alternative PEAR indexes, including using the innovation of the AR(1) process of ΔPEAR, the president job approval rating, and the index based on the polls from top 6 polling agents [the missing values are filled by using the dyad ratios algorithm of Stimson (1999)]. All portfolios are value-weighted and rebalanced at a monthly frequency. Reported in parentheses are t-values. The sample period is 1983:06–2019:12.

	Excess return	FF5 alpha	#(obs.)		Excess return	FF5 alpha	#(obs.)
Panel A: Democratic vs. Republican presidents				Panel B: Transition vs. non-transition periods			
Democratic	1.31	1.49	192	Transition	1.35	1.20	65
	(3.84)	(3.13)			(2.26)	(2.07)	
Republican	0.69	0.56	247	Non-transition	0.89	0.92	374
	(2.32)	(2.07)			(3.59)	(3.11)	
Difference	−0.62	−0.94		Difference	−0.46	−0.28	
	(−1.34)	(−1.93)			(−0.71)	(−0.45)	
Panel C: Recessions vs. expansions				Panel D: Low vs. high IVOL firms			
Recession	2.59	2.06	34	Low IVOL	1.02	0.91	
	(2.64)	(2.07)			(3.29)	(2.88)	
Expansion	0.81	0.85	405	High IVOL	0.76	0.75	
	(3.47)	(3.42)			(3.32)	(3.23)	
Difference	−1.78	−1.21		Difference	−0.27	−0.16	
	(−1.77)	(−1.19)			(−0.84)	(−0.48)	
Panel E: Liquid vs. illiquid firms				Panel F: Small vs. big firms			
Liquid	0.98	1.00		Small	0.55	0.39	
	(4.04)	(3.64)			(3.25)	(2.33)	
Illiquid	0.30	0.05		Big	1.03	1.06	
	(1.76)	(0.32)			(3.34)	(3.41)	
Difference	−0.68	−0.95		Difference	0.48	0.68	
	(−2.69)	(−3.64)			(1.76)	(2.38)	
Panel G: Alternative β_{PEAR} estimation				Panel H: Alternative PEAR			
Excluding MKT	1.11	0.90		Innovation of ΔPEAR AR(1)	0.87	0.90	
	(4.13)	(3.77)			(3.82)	(3.97)	
4-year rolling	0.74	0.62		Presidential approval rating	0.72	0.50	
	(3.18)	(2.74)			(2.84)	(2.18)	
8-year rolling	0.79	0.77		Top 6 agents	0.76	0.72	
	(3.55)	(3.54)			(2.98)	(3.01)	

Table 5 International evidence

This table reports monthly average excess returns and FF5 alphas (in %) of PEAR beta (β_{PEAR}) portfolios in other G7 countries. Stock return and market capitalization information are from Datastream. All returns and market capitalizations are based on local currencies, risk-free rate for each country is the 90-day interbank rate, and the international Fama-French five-factor data are from Schmidt, von Arx, Schrimpf, Wagner, and Ziegler (2019). P1 (P10) refers to the portfolio with low (high) PEAR beta, and L-H refers to the strategy that buys P1 and sells P10. The last column reports the average trade intensity (Frankel and Rose, 1998) between each country and the US, which is defined as the sum of bilateral trade (imports and exports) between each country and the US divided by the sum of their GDPs. All portfolios are value-weighted and rebalanced at a monthly frequency. Reported in parentheses are t-values. The sample period for results of excess returns are 1987:01–2019:12 for Canada, 1989:12–2019:12 for France, 1996:01–2019:12 for Germany, 1999:12–2019:12 for Italy, 1983:06–2019:12 for Japan, and 1987:12–2019:12 for the UK given the availability of the country's prevalent stock market index. The sample period for FF5 factors is 1991:07–2019:12 (1990:07–2019:12 for Japan).

	Excess return			FF5 alpha			Trade
	P1	P10	L-H	P1	P10	L-H	intensity
Canada	0.35	−0.97	1.32	−0.04	−1.19	1.15	2.86
	(0.68)	(−1.79)	(2.37)	(−0.08)	(−2.45)	(2.01)	
France	0.46	0.22	0.24	−0.02	−0.33	0.31	0.35
	(1.57)	(0.52)	(0.67)	(−0.10)	(−1.04)	(0.81)	
Germany	0.41	−0.39	0.80	0.02	−1.12	1.15	0.65
	(0.87)	(−0.97)	(1.67)	(0.06)	(−3.04)	(2.04)	
Italy	0.08	−0.00	0.08	−0.12	0.04	−0.16	0.29
	(0.19)	(−0.01)	(0.21)	(−0.50)	(0.13)	(−0.38)	
Japan	0.37	−0.08	0.44	0.24	−0.25	0.49	1.20
	(1.43)	(−0.23)	(1.71)	(1.89)	(−1.54)	(2.17)	
UK	1.03	0.10	0.93	0.65	−0.30	0.94	0.57
	(3.79)	(0.29)	(3.04)	(3.20)	(−1.15)	(2.69)	

Table 6 Fama-Macbeth regressions

This table reports the results of Fama-MacBeth regressions of one-month-ahead stock excess returns on PEAR beta (β_{PEAR}), controlling for other firm-specific characteristics, which include log firm size (SIZE), log book-to-market ratio (BM), price momentum (MOM), short-term reversal (STR), idiosyncratic volatility (IVOL), illiquidity (ILLIQ, Amihud, 2002), failure probability (Distress, Campbell, Hilscher, and Szilagyi, 2008), β_{CAPM}, β_{UNC} (Bali, Brown, and Tang, 2017), β_{BW} (Chen, Han, and Pan, 2021), political alignment index (PAI, Kim, Pantzalis, and Park, 2012), political sensitivity (PS, Addoum and Kumar, 2016), government spending exposure (GSE, Belo, Gala, and Li, 2013), and political connectedness (PC, Cooper, Gulen, and Ovtchinnikov, 2010). In Column 6, we include 48 industry dummies classified following Fama and French (1997). All independent variables except for industry dummies are winsorized at the 1st and 99th percentiles, and then normalized to have zero mean and standard deviation of one. Intercepts are included in all the regressions but unreported for brevity. Newey-West t-values are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. The sample period is 1983:06–2019:12.

	DepVar.: One-month-ahead excess returns (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
β_{PEAR}	-0.13^{***}	-0.11^{***}	-0.09^{***}	-0.10^{***}	-0.08^{***}	-0.07^{***}
	(-3.38)	(-3.60)	(-3.09)	(-3.13)	(-2.88)	(-2.59)
β_{CAPM}			0.07		0.08	0.08
			(0.88)		(0.94)	(1.05)
β_{UNC}			-0.05^{*}		-0.05	-0.07^{**}
			(-1.68)		(-1.44)	(-2.23)
β_{BW}			-0.08^{*}		-0.05	-0.05
			(-1.73)		(-1.18)	(-1.13)
PAI				0.07^{**}	0.06^{**}	0.04^{*}
				(2.13)	(2.01)	(1.84)
PS				0.18^{***}	0.17^{***}	
				(3.14)	(3.33)	
PC				0.14^{**}	0.15^{***}	0.15^{***}
				(2.28)	(2.68)	(2.73)
GSE				0.02	0.03	0.04
				(0.55)	(0.79)	(1.51)
SIZE		-0.17^{***}	-0.20^{***}	-0.17^{**}	-0.19^{***}	-0.18^{**}
		(-2.60)	(-2.90)	(-2.44)	(-2.63)	(-2.48)
BM		0.22^{***}	0.21^{***}	0.22^{***}	0.22^{***}	0.27^{***}
		(2.94)	(3.06)	(3.12)	(3.31)	(4.96)
MOM		0.21^{**}	0.22^{***}	0.18^{**}	0.19^{***}	0.17^{***}
		(2.55)	(3.11)	(2.32)	(2.88)	(2.83)
STR		-0.44^{***}	-0.50^{***}	-0.52^{***}	-0.58^{***}	-0.63^{***}
		(-6.89)	(-7.37)	(-7.35)	(-7.65)	(-8.49)
IVOL		0.36^{***}	0.39^{***}	0.25^{**}	0.28^{**}	0.25^{**}
		(3.30)	(3.69)	(2.17)	(2.51)	(2.42)
ILLIQ		0.06	0.07^{*}	0.05	0.07	0.07^{*}
		(1.26)	(1.83)	(1.00)	(1.63)	(1.77)
Distress		-0.76^{***}	-0.81^{***}	-0.55^{***}	-0.58^{***}	-0.55^{***}
		(-5.30)	(-5.76)	(-3.51)	(-3.76)	(-3.87)
Industry FEs	No	No	No	No	No	Yes
#(obs.)	1,374,724	1,220,378	1,196,935	743,936	731,174	749,207
Adj. R^2	0.002	0.038	0.045	0.047	0.055	0.070

Table 7 Low-PEAR-beta premium: Incumbent vs. former president betas

This table reports the monthly average excess returns and FF5 alphas of PEAR beta (β_{PEAR}) decile portfolios, where PEAR beta is calculated conditioning on the months whether the incumbent (former) president is in power. Specifically, at the end of each month, we split the past 60 months into two sub-samples, one coming from months when the incumbent president is in power and the other from months when the former president is in power (with a requirement of at least 12 observations), and then estimate a incumbent president beta and a former president beta for each firm accordingly. The sample period is 1983:06–2019:12.

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	L-H
Panel A: Incumbent president beta											
Excess	0.73	0.81	0.66	0.69	0.64	0.54	0.43	0.59	0.37	0.00	0.73
	(1.96)	(2.96)	(2.86)	(3.02)	(2.72)	(2.30)	(1.76)	(2.21)	(1.11)	(0.01)	(3.58)
α_{FF5}	0.47	0.26	0.03	0.03	−0.04	−0.12	−0.16	0.03	−0.01	−0.21	0.69
	(3.15)	(2.19)	(0.28)	(0.43)	(−0.47)	(−1.37)	(−1.93)	(0.26)	(−0.11)	(−1.50)	(3.42)
Panel B: Former president beta											
Excess	0.84	1.20	1.10	0.93	0.98	0.83	0.83	0.95	1.07	0.63	0.21
	(1.96)	(3.81)	(3.66)	(3.38)	(3.57)	(2.87)	(2.86)	(3.07)	(2.91)	(1.45)	(0.79)
α_{FF5}	−0.13	0.11	0.01	−0.14	0.08	−0.01	−0.03	0.11	0.15	−0.08	−0.04
	(−0.78)	(0.80)	(0.13)	(−1.51)	(0.92)	(−0.06)	(−0.29)	(0.77)	(0.97)	(−0.40)	(−0.16)

Table 8 Analyst forecasts and low-PEAR-beta premium: Edays vs. non-Edays

Panel A reports the results from Fama-MacBeth regressions of analyst forecast-related measures and three-day cumulative abnormal returns (CAR, in %) around earnings announcement days (Edays) on PEAR beta (β_{PEAR}), controlling for firm-specific characteristics (same as column 2 of Table 6). Analyst forecast-related measures include analyst forecast errors (AFE_{t+12}, in%), revisions in long-term growth rate forecasts ($\Delta\text{LTG}_{t+12} = \text{LTG}_{t+12} - \text{LTG}_t$, in %), and revisions in analyst recommendations ($\Delta\text{Rec}_{t+12} = \text{Rec}_{t+12} - \text{Rec}_t$, in %). The CAR results, adjusted by Daniel, Grinblatt, Titman, and Wermers (1997) benchmark returns, are at the quarterly frequency and based on the quarter-end month PEAR betas. Panel B reports the daily average returns of PEAR beta decile portfolios on Edays and non-Edays, respectively. Also reported are daily returns adjusted by Daniel, Grinblatt, Titman, and Wermers (1997) characteristics-based returns and market returns. The sample period is 1983:06–2019:12, expect for analyst recommendations being 1994:12–2019:12.

Panel A: Analyst reactions and CARs around Edays

	AFE_{t+12}	ΔLTG_{t+12}	ΔRec_{t+12}	CAR_{q+1}	CAR_{q+2}	CAR_{q+3}
β_{PEAR}	-0.76^{***}	-0.07^{**}	-0.11^{*}	-0.07^{***}	-0.06^{***}	-0.04^{*}
	(-3.71)	(-2.37)	(-1.84)	(-3.25)	(-2.97)	(-1.79)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.048	0.061	0.065	0.010	0.008	0.009

Panel B: Low-PEAR-beta premiums among Edays and non-Edays

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	L-H
					Earnings announcement days						
Excess	9.42	10.12	8.39	5.03	5.97	2.74	10.70	1.24	13.07	−10.61	20.03
	(1.58)	(1.65)	(1.98)	(1.23)	(1.48)	(0.76)	(2.07)	(0.20)	(2.11)	(−1.54)	(2.57)
DGTW	5.30	4.60	5.69	1.89	2.95	1.31	5.08	−0.45	8.26	−10.44	15.75
	(1.11)	(1.24)	(2.42)	(0.92)	(1.22)	(0.63)	(1.49)	(−0.12)	(1.99)	(−2.04)	(2.29)
MKT	9.08	9.34	7.66	3.29	3.54	1.98	8.05	1.69	11.89	−10.57	19.66
	(1.72)	(1.93)	(2.41)	(1.04)	(1.07)	(0.71)	(1.90)	(0.35)	(2.30)	(−1.78)	(2.65)
					Non-earnings announcement days						
Excess	4.51	4.07	3.40	3.62	3.14	2.51	1.29	1.86	1.05	−0.05	4.56
	(2.25)	(2.78)	(2.78)	(3.03)	(2.93)	(2.29)	(0.99)	(1.27)	(0.56)	(−0.02)	(3.71)
DGTW	1.64	0.54	0.45	0.59	0.15	−0.23	−0.85	−0.44	−0.74	−1.03	2.67
	(2.14)	(1.19)	(1.59)	(2.00)	(0.64)	(−0.81)	(−2.06)	(−0.94)	(−1.28)	(−1.12)	(2.56)
MKT	3.08	2.64	2.01	2.33	1.83	1.13	−0.02	0.41	−0.34	−1.67	4.75
	(2.88)	(4.21)	(5.29)	(5.78)	(4.83)	(2.73)	(−0.04)	(0.64)	(−0.37)	(−1.23)	(3.87)

Table 9 Low-PEAR-beta premium: Migration analysis

This table reports the performance of PEAR beta (β_{PEAR}) portfolios conditional on migration of stocks across PEAR beta deciles. Each month, we split stocks in each of two extreme PEAR beta deciles (P1 and P10) into three groups based on change in PEAR beta and examine their performance in next month. The change in PEAR beta is defined as the difference between the current month and 12-month-ago betas. We assign a stock into the "Unchanged" group if the absolute change is smaller than 0.5 and the "Changed" group otherwise (so that the numbers of firms in the unchanged and changed groups are equal). Stocks whose PEAR betas are missing 12 months ago are assigned to the "IPO stocks" group. We include back stocks with prices smaller than $1 to ensure that the "IPO stocks" are identified correctly. We report the average number of stocks in P1 and P10 for each group, as well as the average excess returns and FF5 alphas of the PEAR beta portfolios. The sample period is 1983:06–2019:12.

	Number of stocks		Excess returns			FF5 alphas		
	P1	P10	P1	P10	L-H	P1	P10	L-H
Unchanged	143	124	1.04	0.57	0.47	0.28	−0.23	0.52
			(3.08)	(1.44)	(1.55)	(1.53)	(−0.95)	(1.66)
Changed	140	149	0.90	−0.65	1.54	0.23	−1.11	1.34
			(2.16)	(−1.31)	(3.77)	(0.82)	(−2.98)	(3.11)
IPO stocks	52	62	1.07	0.03	1.04	0.75	−0.28	1.03
			(2.25)	(0.07)	(2.52)	(2.43)	(−0.95)	(2.37)

Table 10 The relationship between PEAR and macro variables

Panel A reports the correlations between the change in PEAR and other macro variables, and Panel B reports the correlations of their betas, where raw corr refers to the correlation without transforming the variables, and rank corr refers to the rank correlation after transforming each variable into a rank one. Macro variables include industrial production growth (IPG), unexpected inflation (UI), change in expected inflation (DEI), term premium (TERM), default premium (DEF), total factor productivity growth (TFP), labor income growth (LIG), capital share growth (CSG, Lettau, Ludvigson, and Ma, 2019), consumption growth (CG), ultimate consumption growth (UCG, Parker and Julliard, 2005), change in consumption to wealth ratio (CAY), change in aggregate market volatility (VOL), change in VIX, variance risk premium (VRP), growth in gross domestic product (GDP), and change in unemployment rate (UNPR). The correlations of PEAR with TFP, CSG, CG, UCG, CAY, and GDP are at the quarterly frequency. β_{CSG}, β_{CG}, β_{UCG}, β_{CAY}, β_{TFP}, and β_{GDP} are estimated from regressions of quarterly excess returns on the current and lagged values of the variables as well as excess market returns in the past 10 years. β_{VIX} is estimated from regressions of excess stock returns on the excess market returns and the current and lagged changes in VIX using daily data in a month. Other monthly betas are estimated using the same specification of estimating β_{PEAR}. We flip the signs of β_{UI}, β_{DEI}, β_{TERM}, β_{DEF}, β_{VOL}, β_{VIX}, β_{VRP}, and β_{UNPR} so that they are capturing the correct direction of risk (i.e., high beta implies high risk). The sample period is 1983:05–2019:12, except for UCG being 1983:05–2017:03, and VIX and VRP being 1990:01–2019:12.

Panel A: Correlations between the change in PEAR and other macro variables

	IPG	UI	DEI	TERM	DEF	TFP	LIG	CSG
Raw corr	0.03	−0.06	−0.05	0.01	0.03	0.12	−0.06	0.16
	CG	UCG	CAY	VOL	VIX	VRP	GDP	UNPR
Raw corr	0.10	0.18	0.05	0.05	0.02	0.10	0.16	0.02

Panel B: Correlations between β_{PEAR} and macro betas

	β_{IPG}	β_{UI}	β_{DEI}	β_{TERM}	β_{DEF}	β_{TFP}	β_{LIG}	β_{CSG}
Raw corr	−0.06	0.08	0.06	0.04	0.00	−0.03	−0.07	0.08
Rank corr	−0.06	0.08	0.05	0.03	−0.00	−0.02	−0.05	0.10
	β_{CG}	β_{UCG}	β_{CAY}	β_{VOL}	β_{VIX}	β_{VRP}	β_{GDP}	β_{UNPR}
Raw corr	0.03	0.05	−0.03	−0.04	0.00	−0.15	0.00	−0.04
Rank corr	0.03	0.05	−0.02	−0.04	0.00	−0.10	0.01	−0.04

Table 11 Low-PEAR-beta premiums in high and low sentiment periods

This table reports the monthly average excess returns and FF5 alphas (in %) of PEAR beta (β_{PEAR}) decile portfolios in high and low sentiment periods. We consider four indexes as the proxy for investor sentiment, including Baker and Wurgler (2006) sentiment index, Michigan consumer sentiment index, AAII bull-bear index, and PEAR itself. A month is defined as a high sentiment month if the sentiment index in the previous month is above its median. P1 and P10 refer to the low and high β_{PEAR} portfolios, and L-H refers to their difference. All portfolios are value-weighted and rebalanced at a month frequency. Reported in parentheses are t-values. The sample period is 1983:06–2019:12.

	Low sentiment	High sentiment	Difference
Panel A: Baker and Wurgler (2006) sentiment index			
P1	0.91	0.45	−0.46
	(3.39)	(2.12)	(−1.45)
P10	−0.40	−0.31	0.09
	(−1.66)	(−1.60)	(0.30)
LS	1.32	0.76	−0.55
	(3.61)	(2.50)	(−1.24)
Panel B: Michigan consumer sentiment index			
P1	0.46	0.71	0.25
	(2.11)	(2.94)	(0.83)
P10	−0.12	−0.53	−0.41
	(−0.48)	(−2.86)	(−1.38)
LS	0.58	1.23	0.66
	(1.66)	(3.92)	(1.47)
Panel C: AAII bull-bear index			
P1	0.56	0.64	0.09
	(2.26)	(2.60)	(0.27)
P10	−0.52	−0.32	0.20
	(−2.29)	(−1.42)	(0.66)
LS	1.08	0.96	−0.12
	(3.10)	(2.73)	(−0.25)
Panel D: PEAR			
P1	0.16	1.08	0.92
	(0.84)	(3.92)	(2.98)
P10	−0.19	−0.53	−0.34
	(−0.98)	(−2.30)	(−1.14)
LS	0.35	1.61	1.26
	(1.26)	(4.20)	(2.75)

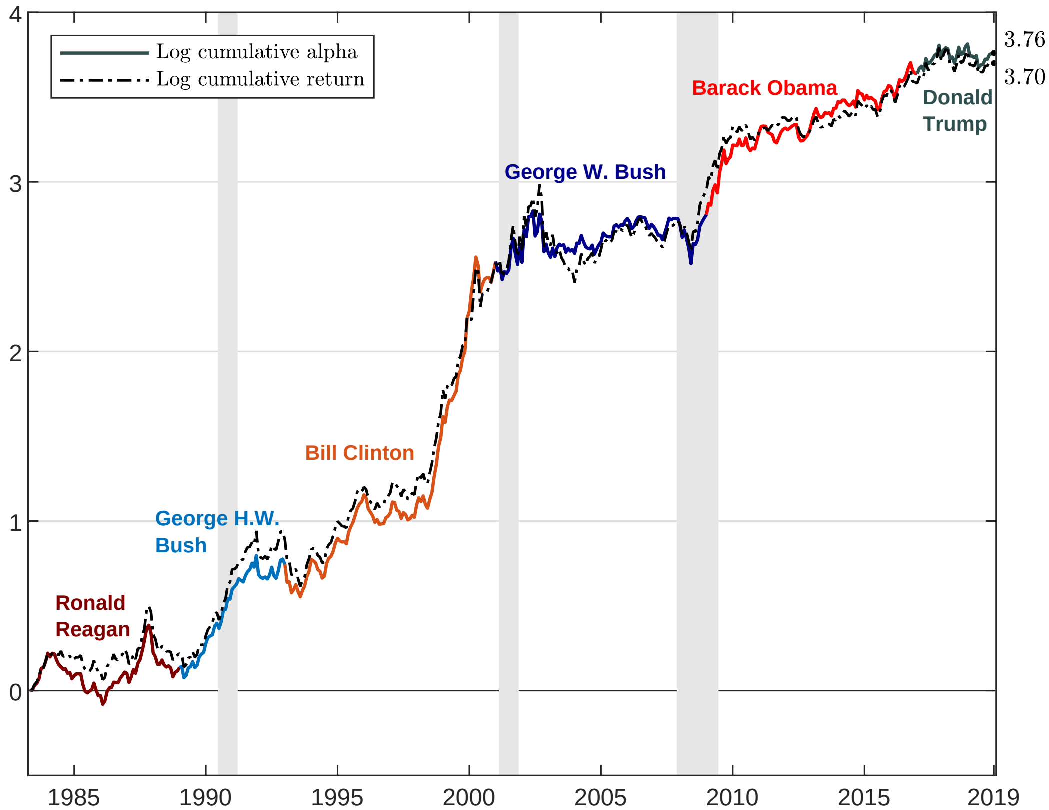

Figure 2: Log cumulative return and alpha of the PEAR beta spread portfolio

This figure plots the log cumulative return and FF5 alpha of the PEAR beta spread portfolio. The sample period is 1983:06-2019:12.

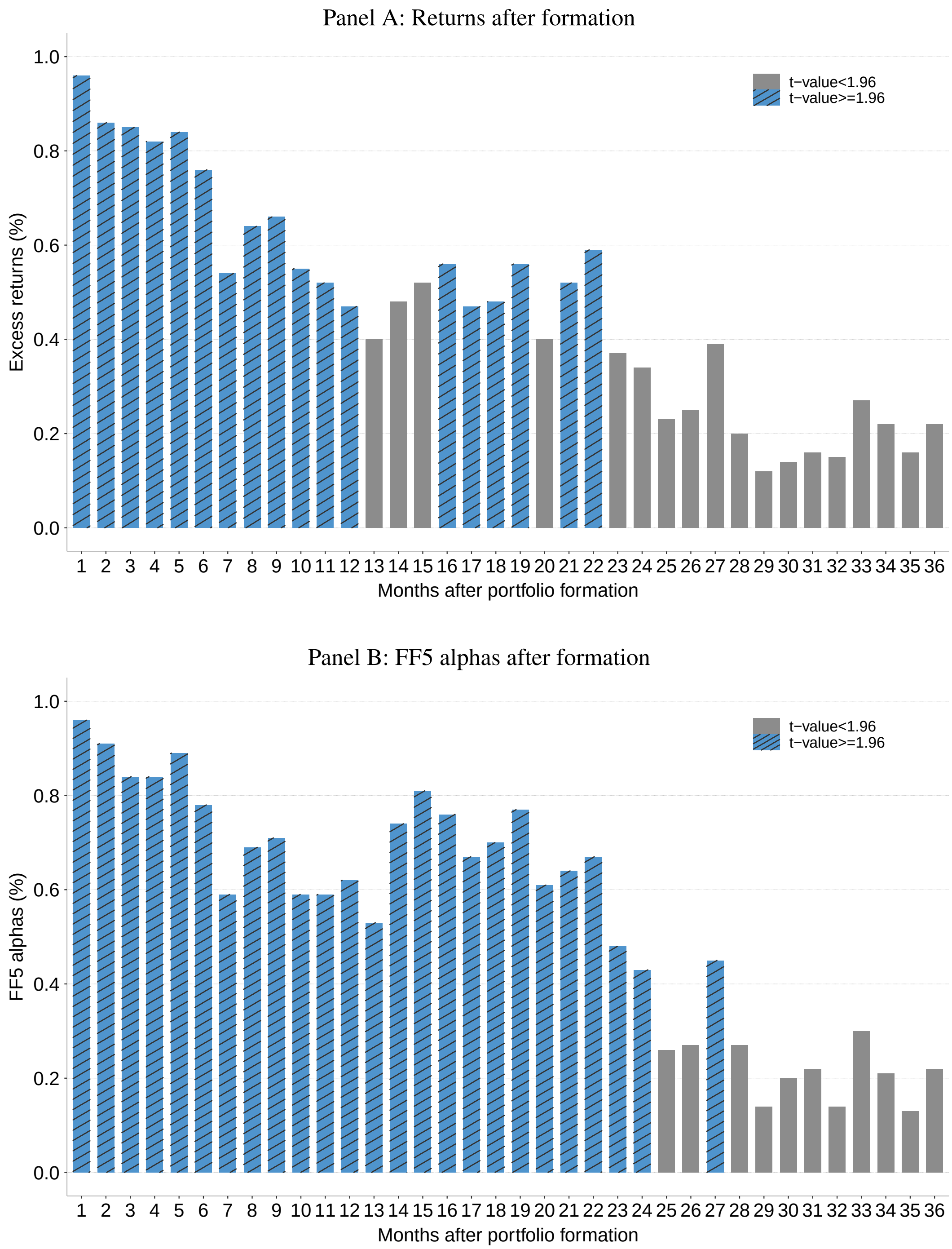

Figure 3: PEAR beta spread portfolio performance after formation

This figure plots the average excess returns (Panel A) and FF5 alphas (Panel B) of the PEAR beta spread portfolio after formation. Grey (blue) indicates that the t-value is smaller (larger) than 1.96. The sample period is 1983:06–2019:12.

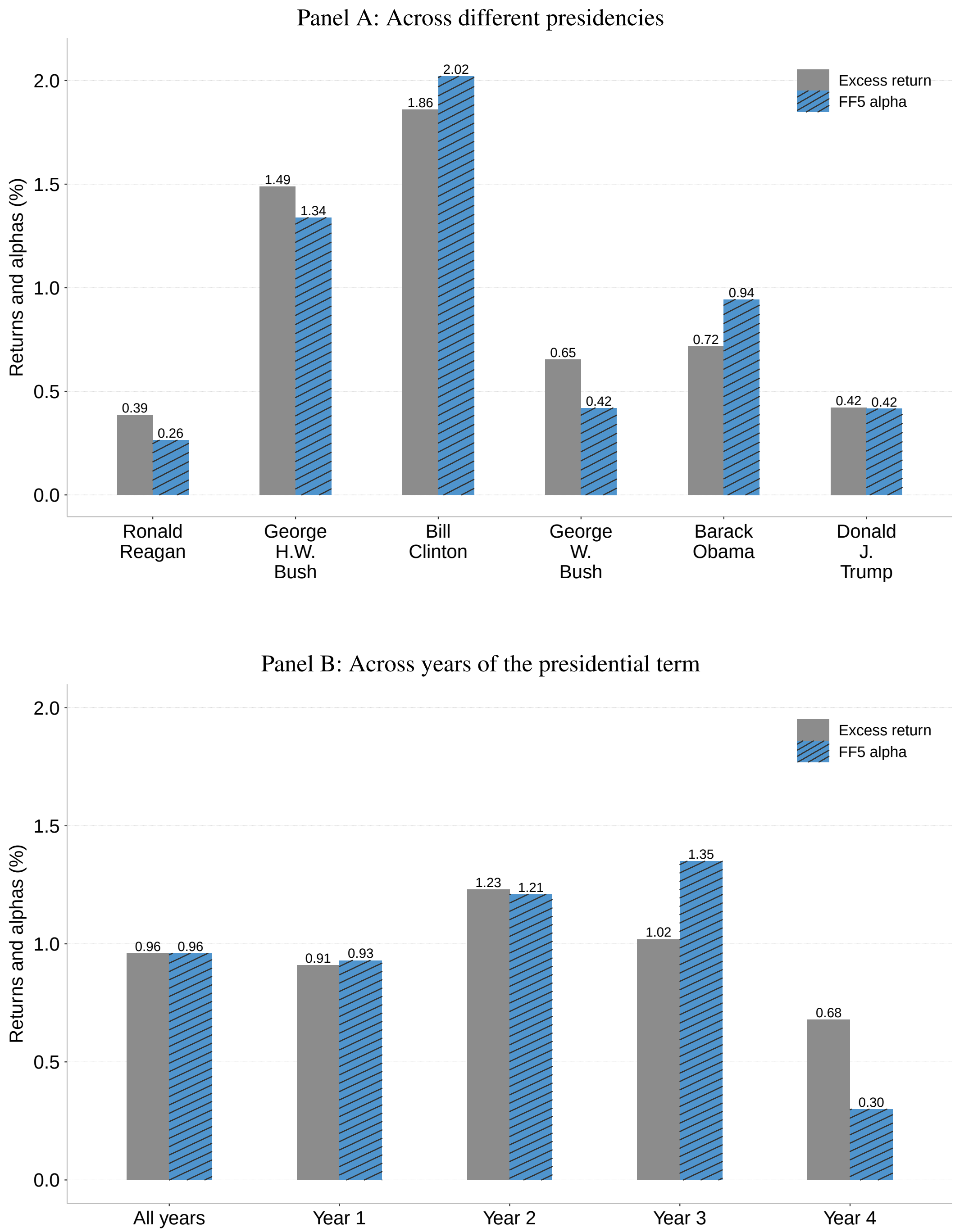

Figure 4: Low-PEAR-beta premiums over president cycles

This figure plots the monthly average excess returns and FF5 alphas of the PEAR beta spread portfolio across different presidents (Panel A) and across years of the president term (Panel B). The sample period is 1983:06-2019:12.

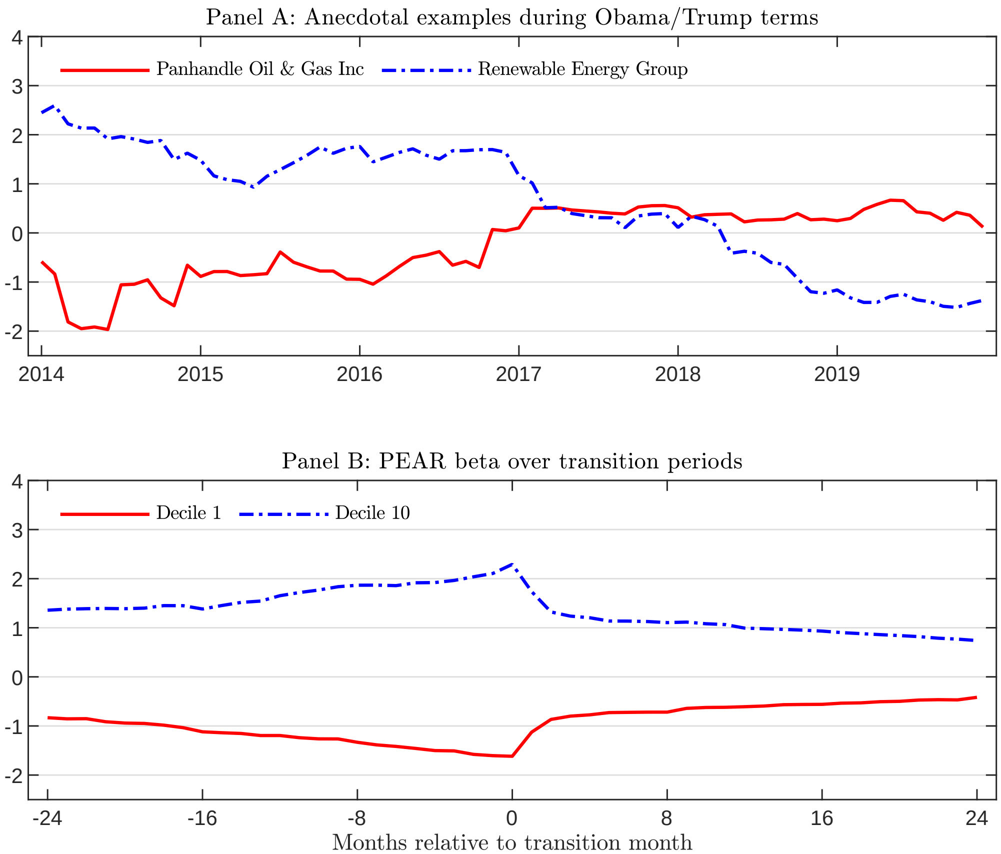

Figure 5: Trend of PEAR beta

Panel A plots the PEAR betas of two anecdotal examples (Panhandle Oil & Gas Inc. vs. Renewable Energy Group) during Obama's and Trump's terms. Panel B plots the average values of PEAR beta in decile 1 and decile 10 around the presidential transition periods. The sample period is 1983:05–2019:12.

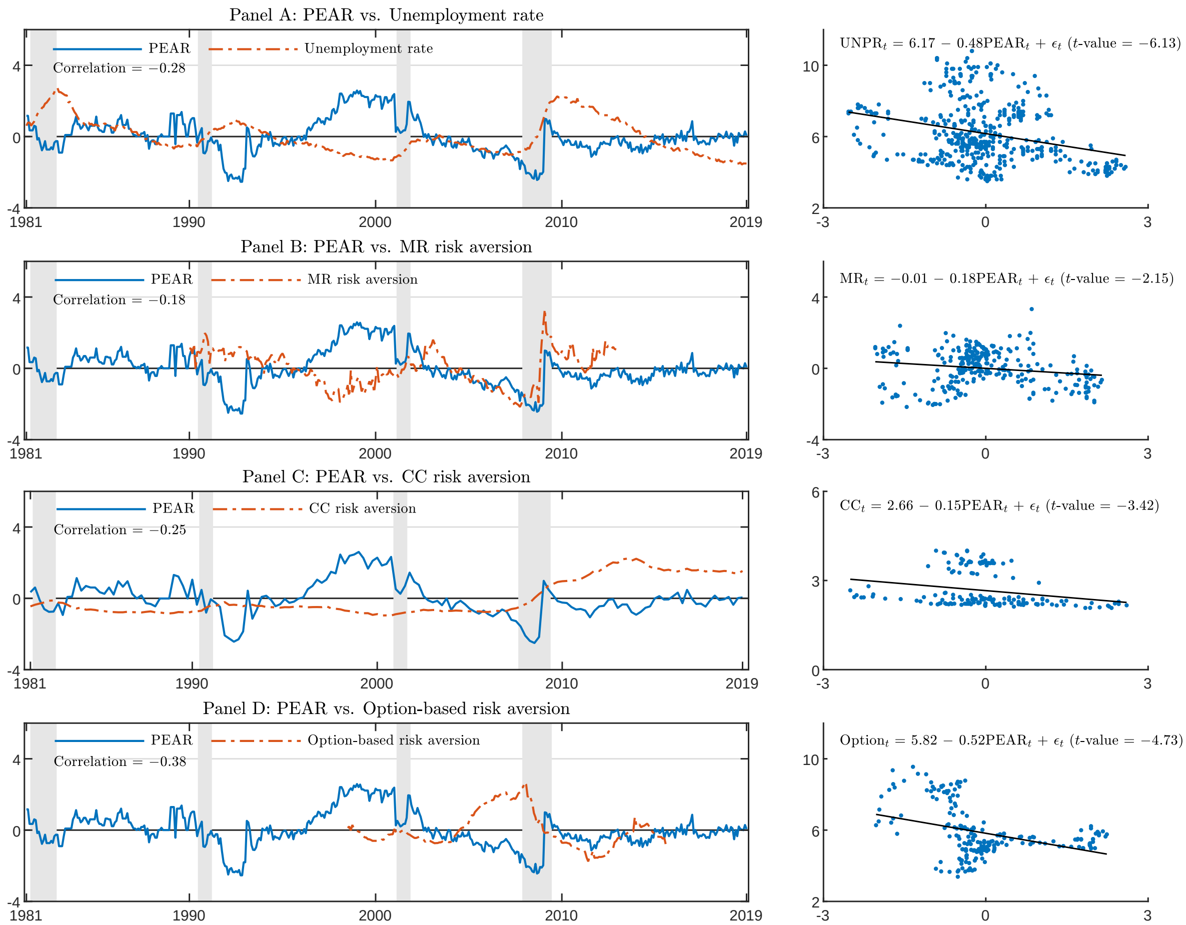

Figure 6: PEAR vs. risk aversion

This figure plots the time series dynamics and scatter diagrams of PEAR and risk aversion. We consider four risk aversion measures, including unemployment rate (UNPR) (Pastor and Veronesi, 2020), aggregate risk aversion (MR, Miranda-Agrippino and Rey, 2020), negative of surplus consumption ratio (CC, Campbell and Cochrane, 1999), and option-based risk aversion (Option) (Faccini, Konstantinidi, Skiadopoulos, and Sarantopoulou-Chiourea, 2019). The sample period is 1981:04–2019:12 for UNPR and CC, 1990:01–2012:12 for MR, and 1998:07–2015:08 for the option-based risk aversion.

Appendix A: Additional Tables and Figures

Table A1 Data sources of PEAR

This table reports the summary statistics of the survey data used to construct our PEAR index. Reported are polling organization name, sample period, the total number of polling results, and the typical question wording of each polling organization. In total, there are 21 polling organizations with 1,713 polling results included in the sample.

Survey organization	Period	*N*	Typical question wording
ABC News	1981:09-2003:09	22	Do you approve or disapprove of the way Ronald Reagan/(George) Bush/(Bill) Clinton/(George W.) Bush is handling the nation's economy?
ABC News/Washington Post	1981:10-2019:09	203	Do you approve or disapprove of the way Reagan/(President George) Bush/(Bill) Clinton/(George W.) Bush/(Barack) Obama/(Donald) Trump is handling the economy?
American Research Group	2001:07-2019:12	210	Do you approve or disapprove of the way George W. Bush/Barack Obama/Donald Trump is handling the economy?
The Associated Press-NORC Center for Public Affairs Research	2002:11-2019:10	12	Overall, do you approve, disapprove, or neither approve nor disapprove of the way George W. Bush/Barack Obama/Donald Trump is handling the economy?
CBS News	1991:01-2019:05	150	How about the economy? Do you approve or disapprove of the way George Bush/Bill Clinton/George W. Bush/Barack Obama/Donald Trump is handling the economy?
CBS News/New York Times	1981:04-2016:07	196	Do you approve or disapprove of the way Ronald Reagan/Bill Clinton/George W. Bush/Barack Obama is handling the economy?
Consumer News and Business Channel (CNBC)	2009:12-2019:12	11	Do you generally approve or disapprove of the way Barack Obama/Donald Trump is handling the economy?
Cable News Network (CNN)	2006:05-2019:11	58	Do you approve or disapprove of the way George W. Bush/Barack Obama/Donald Trump is handling the economy?
FOX news (FOX)	2017:03-2019:09	21	Do you approve or disapprove of the way Donald Trump is handling... the economy?

Table A1 (continued)

Survey organization	Period	*N*	Typical question wording
Gallup Organization	1992:01-2019:11	169	Do you approve or disapprove of the way President Reagan/Bush/Bill Clinton/George W. Bush/Barack Obama/ Donald Trump is handling the economy?
Gesellschaft fr Konsumforschung (CfK)	2009:02-2018:10	43	Overall, do you approve, disapprove, or neither approve nor disapprove of the way Barack Obama/Donald Trump is handling... the economy?
Greenberg	2005:07-2011:05	11	Do you approve or disapprove of the way George (W.) Bush/Barack Obama is handling the economy?
Ipsos	2002:01-2008:07	139	And when it comes to handling the economy, do you approve or disapprove or have mixed feelings about the way George W. Bush is handling that issue?
Los Angeles Times	1981:04-2008:05	56	Do you approve or disapprove of the way Ronald Reagan/(Bill) Clinton/George W. Bush is handling the economy?
Marist College Institute for Public Opinion	2003:04-2019:09	32	Do you approve of disapprove of how President George (W.) Bush/Barack Obama/Donald Trump is handling the economy?
NBC News/Wall Street Journal	1988:07-2019:08	183	Do you generally approve or disapprove of the job Ronald Reagan/George Bush/Bill Clinton/Barack Obama/Donald Trump is doing in handling the economy?
Princeton Survey Research Associates	1994:10-2017:02	92	Do you approve or disapprove of the way Bill Clinton/George W. Bush/Barack Obama/Donald Trump is handling the economy?
Quinnipiac University Polling Institute	2002:02-2019:12	64	Do you approve or disapprove of the way George W. Bush/Barack Obama/Donald Trump is handling the economy?
The Tarrance Group	1994:01-2003:09	8	Do you approve or disapprove of the way President George W. Bush/Bill Clinton is handling the economy?
Time magazine	2004:04-2013:06	25	Do you approve or disapprove of the job President (George W.) Bush/(Barack) Obama is doing in each of these areas... handling the economy
Washington Post	1990:03-2010:03	8	Do you approve of the way (Bill) Clinton/(George W.) Bush/(Barack) Obama is handling... the economy?

Table A2 Summary statistics of polling results from top 6 agents

This table reports the summary statistics of the polling results from the top 6 agents. For the first six columns, the upper triangular area reports the correlations of polling results between each pair of the six agents, and the lower triangular area denotes which agent's polling results are statistically higher than the paired agent's results with the difference indicated in the bracket. The last two columns reports the correlations of polling results between each of six agents and the PEAR index and the PEAR index ($PEAR_6$) constructed using polls from the top 6 agents alone [the missing values are filled by using the dyad ratios algorithm of Stimson (1999)].

Agents	ABCWP	ARG	CBS	CBSNYT	Gallup	NBCWSJ	PEAR	$PEAR_6$
ABCWP		0.80	0.91	0.95	0.92	0.94	0.97	0.97
ARG	ABCWP (3.7)		0.71	0.86	0.73	0.87	0.88	0.96
CBS	ABCWP (3.9)			0.93	0.93	0.96	0.97	0.95
CBSNYT					0.93	0.96	0.98	0.98
Gallup						0.96	0.97	0.94
NBCWSJ		NBCWSJ (3.0)					0.99	0.98

Table A3 Variable definitions

This table describes the constructions of main variables used in this paper.

Variable	Description
Other betas	
CAPM beta (β_{CAPM})	We estimate the market beta using a 60-month rolling window, with the requirement of at least 24 months of data are available (Fama and French, 1992).
Sentiment beta (β_{BW})	We estimate the sentiment beta using changes and lagged changes of the Baker and Wurgler (2006) sentiment index in a 60-month rolling window, with the requirement of at least 24 months of data are available (Chen, Han, and Pan, 2021).
UNC beta (β_{UNC})	We estimate the UNC beta using 60-month rolling regressions of excess stock returns on UNC index together with market, size, book-to-market, momentum, liquidity, investment, and profitability factors, with the requirement of at least 24 months of data are available (Bali, Brown, and Tang, 2017).
Political variables	
Political alignment index (PAI)	PAI is calculated as the degree of a state's governor, control of its legislature, and the bulk of its members in Congress aligned with the presidential party (Kim, Pantzalis, and Park, 2012).
Political sensitivity (PS)	PS is estimated using the 15-year monthly rolling regressions of Fama and French (1997) 48 industry value-weighted excess returns on market excess return and a Republican dummy (Addoum and Kumar, 2016).
Political connectedness (PC)	PC is defined as a dummy variable which equals to one if a firm makes a contribution to a PAC (regardless of party affiliation) in the last 5 years and zero otherwise (Cooper, Gulen, and Ovtchinnikov, 2010; Addoum and Kumar, 2016).
Government spending exposure (GSE)	GSE is calculated as the proportion of an industry's total output (3-digit SIC) being purchased by the government sector for final use (Belo, Gala, and Li, 2013).
Analyst variables	
Analyst earnings forecast revisions (AFE)	The difference between actual reported earnings and the consensus earnings forecast, scaled by the closing stock price in the previous month.
Revision in analyst recommendations (ΔRec)	The difference between the current consensus recommendation and its value over one previous month.
Revision in long-term growth rate forecasts (ΔLTG)	The difference between the current consensus long-term growth rate forecast and its value over one previous month.

Table A3 (continued)

Variable	Description
Other anomaly variables	
Size	The logarithm of the product of price per share and the number of shares outstanding (in millions of dollars).
Book-to-market ratio (BM)	The book value of shareholder equity plus deferred taxes and investment tax credit (if available) minus the book value of preferred stocks at the end of fiscal year $t-1$, scaled by the market value at the end of December of year $t-1$ (Fama and French, 1992).
Momentum (MOM)	The cumulative return of a stock over a 11-month window ending one month before the portfolio formation (Jegadeesh and Titman, 1993).
Short-term reversal (STR)	The return of a stock over the prior month (Jegadeesh, 1990).
Idiosyncratic volatility (IVOL)	The standard deviation of a stock's daily idiosyncratic returns relative to the Fama and French (1993) three-factor model over the prior month (Ang, Hodrick, Xing, and Zhang, 2006).
Illiquidity ratio (ILLIQ)	The ratio of the daily absolute stock return to the daily dollar trading volume averaged in the prior month (Amihud, 2002).
Failure probability (Distress)	Distress is defined as $-9.164-0.058*\text{PRICE}+0.075*\text{MB}-2.13*\text{CASHMTA}-0.045*\text{RSIZE}+1.41*\text{IdioRisk}-7.13*\text{EXRETAVG}+1.42*\text{TLMTA}-20.26*\text{NIMTAAVG}$, where all other variables are calculated following Campbell, Hilscher, and Szilagyi (2008).
Other variables	
Trade intensity	Sum of bilateral trade (imports and exports) between each country and the US divided by the sum of their GDPs (Frankel and Rose, 1998).

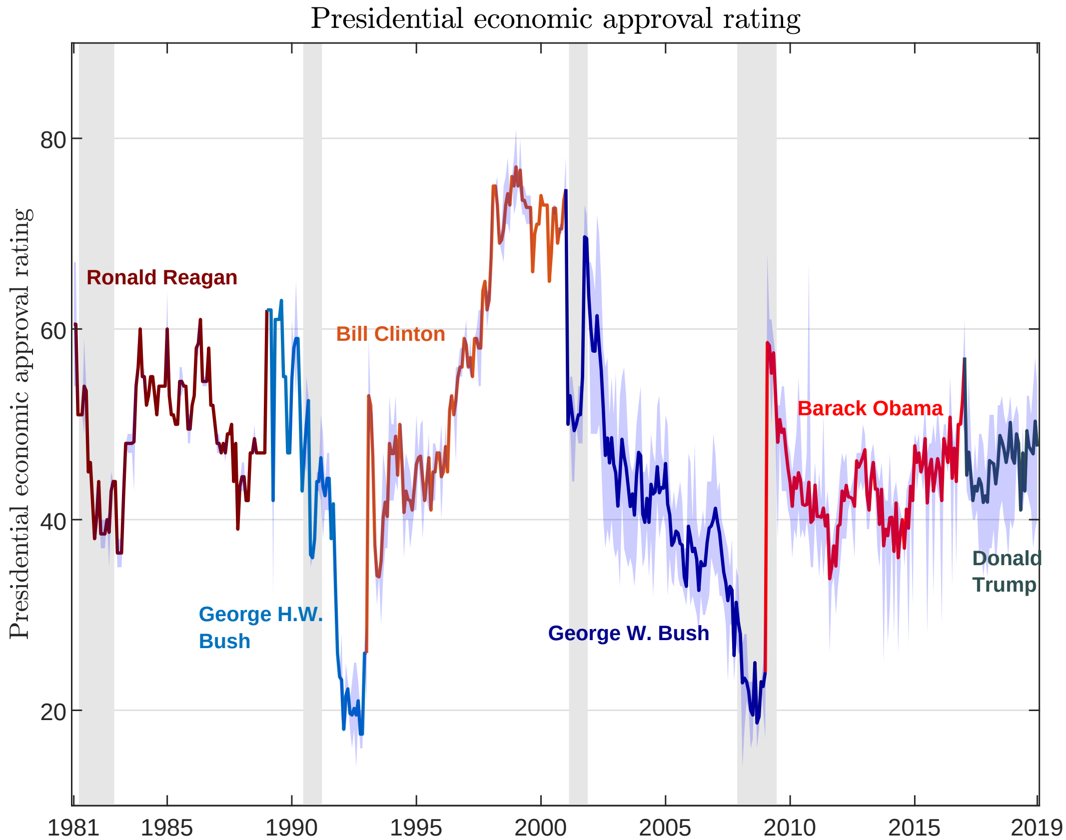

Figure A1: PEAR

This figure depicts the presidential economic approval rating (PEAR) from 1981:04 to 2019:12, with the upper and lower bounds presented in the shaded area.

Appendix B: A Stylized Model of Investor Sentiment towards Presidential Alignment

We consider an economy with three dates, $t = 0, 1, 2$. There are N risky assets with supplies zero and one risk-free asset with return zero. At date 2, the risky assets deliver dividends $d = (d_1, \cdots, d_N)'$, which follow a one factor structure such that, for each i,

$$d_i = \theta_i f + \varepsilon_i, \; i = 1, \cdots, N, \tag{A1}$$

where θ_i is the loading of d_i on f, $f \sim N(0, \sigma_f^2)$, $\varepsilon_i \sim N(0, \sigma_\varepsilon^2)$, and f, ε_1 through ε_N are mutually uncorrelated. In matrix notation, we write $d \sim N(0, \Sigma)$ with $\Sigma = \sigma_f^2 \theta\theta' + \Sigma_\varepsilon$, where $\theta = (\theta_1, \cdots, \theta_N)'$ and Σ_ε is a diagonal matrix with each diagonal entry σ_ε^2.

There are two types of agents in the market: rational investors (labelled as r) and sentiment investors (labelled as s). Sentiment investors account for a fraction m of the economy, while rational investors account for the remaining $1 - m$. Both types of investors have a CARA utility over their end-of-period consumption,

$$U_j(C_j) = \mathrm{E}_j(C_j) - \frac{\gamma}{2}\mathrm{Var}_j(C_j),$$

where $j \in \{r, s\}$ and γ is the coefficient of risk-aversion.

At date 0, all investors correctly price and trade each risky asset i at $p_{0,i} = 0$.

At date 1, all investors observe a fundamental signal $g = f + e$ with $e \sim N(0, \sigma_e^2)$, and a presidential economic approval rating (PEAR) $z \in [0, 1]$, where $z = 0$ indicates that no respondent approves the current president's handling of the economy, whereas $z = 1$ indicates that all respondents approve. Assume that z does not provide any additional information for d, i.e., $\mathrm{Cov}(z, g) = 0$ and $\mathrm{Cov}(z, \varepsilon_i) = 0$ for $i = 1, \cdots, N$.[10] Rational investors correctly ignore z and

[10] We assume $\mathrm{Cov}(z, g) = 0$ without loss of generality. Alternatively, we could assume $z = g + \eta$ where η is uncorrelated with all other variables. The main implications of the model remain unchanged. The key is that z does not provide any additional information for d above and beyond g.

update their beliefs as

$$\mathrm{E}_r[d|g] = \theta\lambda g, \tag{A2}$$

where $\lambda = \sigma_f^2/(\sigma_f^2 + \sigma_e^2)$. In contrast, sentiment investors incorporate z into their beliefs as

$$\mathrm{E}_s[d|g,z] = \theta\lambda g + bz, \tag{A3}$$

where $b_1 \leq \cdots \leq b_N$ ($b_1 < b_N$) are the sensitivities of the N risky assets to z. b can be thought of as assets' presidential alignments. Sentiment investors are too optimistic regarding the future cash flows of assets aligned well with the current president's economic policies ($b_i > 0$), especially when such policies are more popular. In contrast, they are too pessimistic on assets with negative b.

Suppose the N risky asset prices at time 1 are p_1. At the equilibrium, the rational investors' demand is

$$w_r = \frac{1}{\gamma}\Sigma^{-1}(\theta\lambda g - p_1). \tag{A4}$$

The sentiment investors' demand is

$$w_s = \frac{1}{\gamma}\Sigma^{-1}(\theta\lambda g + bz - p_1). \tag{A5}$$

With the market clearing condition,

$$(1-m)w_r + mw_s = 0, \tag{A6}$$

we have

$$p_1 = \theta\lambda g + mzb. \tag{A7}$$

Hence, when there is no sentiment investor ($m = 0$) or respondents disapprove the president's handling of the economy ($z = 0$), there is no mispiricing. Otherwise, asset i, $i \in \{1, \cdots, N\}$, can be either overpriced with $b_i > 0$ or underpriced with $b_i < 0$.

Now we define the return of asset i from date 0 to date 1 (given that the risk-free rate is 0) as

$$R_{1,i} = p_{1,i} - p_{0,i} = \theta_i \lambda g + mzb_i. \tag{A8}$$

PEAR beta is

$$\beta_{\text{PEAR},i} = \frac{\text{Cov}(R_i, z)}{\text{Var}(z)} = mb_i. \tag{A9}$$

The return of asset i from date 1 to date 2 is

$$R_{2,i} = d_i - p_{1,i} = d_i - \theta_i \lambda g - mzb_i = \theta_i f + \varepsilon_i - \theta_i \lambda g - z\beta_{\text{PEAR},i}. \tag{A10}$$

Suppose a PEAR beta strategy is constructed by buying the lowest PEAR beta stock and selling the highest PEAR beta stock. The expected return of this strategy at date 1 is

$$\text{E}(R_{\text{PEAR},2}) = mz(b_N - b_1) = z(\beta_{\text{PEAR},N} - \beta_{\text{PEAR},1}). \tag{A11}$$

Thus, Equations (A10) and (A11) generate two implications.

1. The higher the PEAR beta, the lower the stock return.
2. The higher the PEAR index, the higher the low-PEAR-beta premium.

Table 3 confirms implication 1 and Table 11 confirms implication 2.