

**STAFF SUMMARY SHEET**

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1	DFM	sig	<i>Reilly, Lt Col, 16 Sep 14</i> Col Troy R. Harting	6			
2	DFER	approve	<i>Soltz, A322, 17 Sep 14</i>	7			
3	DFM	action	Lt Col Brian C. Payne	8			
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**SUMMARY**

1. **PURPOSE.** To provide security and policy review on the document at Tab 1 prior to release to the public.

2. **BACKGROUND.**  
 Authors: Lt Col Brian C. Payne, Dr. Jiri Tresl, Dr. Jeffery Bredthauer, and Dr. Gordon V. Karels  
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3. **DISCUSSION.**

4. **VIEWS OF OTHERS.**

5. **RECOMMENDATION.** Department Head or designee reviews as subject matter expert. DFER reviews for policy and security. Coordination indicates the document is suitable for public release. Suitability is based on the document being unclassified, not jeopardizing DoD interests, and accurately portraying official policy [Reference DoDD 5230.09]. Release is the decision of the originator (author). Compliance with AFI 35-102 is mandatory.

//Signed//  
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Tab  
 1. Title Page  
 2. Journal Article  
 3. Tables and Figures

## Presidential Parties, Monetary Regimes, and Health Care Returns

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*The views in this paper are solely the authors' and do not represent those of the US Government, the Air Force, or the Air Force Academy.*

## Presidential Parties, Monetary Regimes, and Health Care Returns

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### ABSTRACT

*Purpose* – This study investigates the absolute and risk-adjusted stock return performance of the US health care industry conditional upon the Presidential administration’s political party and the Federal Reserve’s monetary policy stance. It evaluates this return behavior across the 60-year time period from 1954 to 2013, and subdivides this entire period into the pre-Medicare period (1954-1964), Medicare period (1965-1984), and Medicare-plus-high-health-care-inflation period (1985-2013).

*Design/methodology/approach* – The study uses monthly returns to the health care industry and overall market, characterizing each sample month as either having a Republican or Democratic President and either a contractionary or expansionary monetary policy regime determined by whether the Federal Reserve is increasing or decreasing interest rates, respectively. It incorporates univariate and multivariate analysis to quantify the return behavior of both the health care industry and the overall market during the entire period and all three sub-periods. Additionally, it utilizes a common four-factor multivariate regression model and associated hypothesis testing to characterize risk-adjusted excess returns (i.e., alpha) to the health care industry during the entire period and all three sub-periods.

*Findings* – The health care industry earns robust, positive risk-adjusted returns with the magnitude of the returns sensitive to the political party of the administration and the monetary policy regime. We find that prior to 1965 (1954-1964), when the president was a Republican, during times of monetary contraction, health care earned an excess risk adjusted return. Democrats had no impact on health care returns prior to 1965. In contrast, we find that after 1965 this relationship changes. We find that returns to health care are positive for Republicans during times of monetary expansion and positive for Democrats during monetary contraction. We also find this relationship gets more pronounced after 1984.

*Originality/value* – The study extends prior literature, which has shown that the health care industry is a priced factor in the US stock market and that it provides significant risk-adjusted returns in the recent past. Uniquely, this study shows that the excess returns to health care vary considerably over the past 60 years, and that these excess returns are quite sensitive to political policy, proxied by the Presidential administration party, and monetary policy, as measured using Fed discount rate changes. These findings have implications for management and shareholders of highly-regulated and subsidized industries and firms.

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## **Introduction**

Health care in the US represents a political touchstone over the past six decades. Beginning with the advent of government-subsidized Medicare in the mid-1960s, health care has come to symbolize political defeat, such as during the Clinton administration, and political victory, as witnessed during the Obama administration. Along the way, the health care industry has become a juggernaut in the US market, representing almost one of every six dollars that Americans spend.<sup>1</sup>

As an industry, health care sits at the nexus of policy and the market. Given its political and economic impacts, understanding how the health care industry behaves in the US market is particularly insightful, especially for firms and management operating in highly-regulated or highly-subsidized industries as well as investors focusing on such firms.

Recent literature also highlights that political parties significantly affect economic growth in the US (e.g., Blinder and Watson, 2014) and that the health care industry has provided a unique investment opportunity (e.g., Tresl, Karels, and Payne, 2014). Given that political parties impact the broader economy, our research seeks to identify at a more detailed level whether political parties are correlated with health care returns. Clearly, and by design, monetary policy also has a causal relationship with the economy, and while political parties make choices about who runs the Federal Reserve (i.e., the people that set monetary policy), in theory that policy should be independent of political intentions. Thus this paper disentangles the effects that political parties and monetary regimes have had on health care returns. Specifically, we investigate the absolute and risk-adjusted stock return performance of the US health care industry conditional upon the

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<sup>1</sup> This number is projected to grow to one of every four (two) by 2025 (2082), absent changes in federal law <http://www.cbo.gov/ftpdocs/87xx/doc8758/11-13-LT-Health.pdf>

Presidential administration's political party and the Federal Reserve's monetary policy stance as popularized by Jensen and Johnson (1995).<sup>2</sup>

Analyzing the health care industry, political administration, and the macroeconomic environment in the US over the 60 years encompassing 1954 to 2013 yields 3 key conclusions. (1) The industry's performance remains relatively constant across different monetary regimes. (2) Over the entire 60 year period, when a Republican was the president, health care earned a positive monthly alpha of 0.43% (0.60%) during expansionary (contractionary) monetary regimes compared to a Democratic president monthly alpha of 0% (0.77%) per month during expansionary (contractionary) regimes. Most importantly (3), the relationship among presidential parties, monetary policy, and health care returns has evolved over the last six decades, culminating in a recent regime shift. The health care alpha is clearly-separated across Presidential party-monetary policy regime combinations from 1985 to 2013 where positive risk-adjusted returns only occur during Democratic/contractionary, and Republican/expansionary political and monetary policy regime combinations. Specifically, during expansionary monetary policy periods, health care experienced a positive alpha of 0.57% per month only during Republican administrations; the Democratic party experienced no positive alpha. On the other hand, during contractionary monetary policy periods, health care experienced a positive alpha of 1.38% per month only during Democratic administrations, while the Republican party experienced no positive alpha.

These results reinforce conventional wisdom about Presidential party politics and the economy. That is, more government intervention—as advocated by the Democratic party—appears to help the health care industry's returns during challenging macroeconomic environments

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<sup>2</sup> Changing macroeconomic environments as exemplified by monetary regimes significantly affect stock returns. Jensen and Johnson [1995] find higher (lower) market returns during expansionary (contractionary) monetary policy. Further, Conover, Jensen, Johnson, and Mercer [2008] expand these earlier findings to sectors, finding targeting non-cyclical (cyclical) stocks during contractionary (expansionary) regimes can enhance portfolio performance.

(i.e., increasing interest rates). On the other hand, the Republicans' stereotypical "hands-off" stance bears excess risk-adjusted returns during favorable macroeconomic times (i.e., lower interest rates). And, relative to prior findings, which suggest that the health care industry excess returns (alpha) are long-lasting, this result shows that practitioners would be wise to consider the political and interest rate environments before making any health care investment decisions.

Given health care's significance within the US economy and its unique position within the political spectrum, this study extends the literature by showing that the excess returns to health care vary considerably over the past 60 years, and that these excess returns are quite sensitive to political policy, proxied by the Presidential administration party, and monetary policy, as measured by interest rates. More importantly, our results find that health care has been particularly resilient during this time period. However, when the Federal Reserve has maintained a contractionary monetary policy and when a Democrat was the US president, health care has produced a highly significant positive alpha. In contrast, when a Republican was in the White House, health care earned a positive alpha during expansionary monetary policy regimes. What we also find is that while positive alphas can be identified for both parties during the period of observation, the alpha for Democrats is economically more impactful to health care returns. The fact that Democratic presidential administrations are associated with higher mean returns for both the broad market and health care industry is consistent with the Blinder and Watson (2014) finding that the US economy has grown faster under Democratic presidential administrations. Additionally, these findings help explain with a greater degree of fidelity why the health care industry has sustained excess risk-adjusted returns since 1985; holding health care stocks during Democrat/contractionary and Republican/expansionary presidential/monetary regimes provided highly positive health care industry alphas. During months where these combinations were not the case, the alpha is

insignificant. So holding a health care industry portfolio was good when political and monetary policies were “matched,” and it was neutral during times of mismatch. Ex-post, health care investing shows no downside risk.

The remainder of the paper is organized as follows. Section 2 provides an overview of the data and methodology used in this study. Section 3 outlines the results. Section 4 discusses and concludes.

## **Background**

As prior work has documented,<sup>3</sup> the health care industry has grown five-fold as a percentage of total US market capitalization, from less than two percent in the 1930s to between 10 and 13 percent in the most recent decade. It has been a pivotal economic force in the US equity markets since the mid-1980s. The Department of Health and Human Services’ Centers for Medicare and Medicaid Services reports health care spending represents a large percentage of US GDP (17.6 percent in 2009). In fact, measured by GDP percentage, US spending on health care is larger than many other notable economic sectors, such as energy (6-10 percent since 2000), manufacturing (12.2 percent in 2006 ), the financial industry (7-8 percent since 2000 ), and agriculture (1.2 percent in 2010). Payne and Geppert (forthcoming) have found evidence that health care is a source of priced risk in the US market, bolstering the case for its economic significance.

With the advent of Medicare and Medicaid in 1965, the US government has undergirded the health care industry with a substantial, taxpayer-funded financial subsidy. We posit that Medicare and Medicaid are at least some of the factors that have led to an uptick in health care

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<sup>3</sup> See Jennings, Fraser, and Payne (2009); Tresl, Karels, and Payne (2014); and Payne and Geppert (forthcoming)

inflation since the inception of those programs. While the increase in health care inflation lagged the implementation of these new entitlements, there were numerous obstacles facing the US economy, and the health care industry, from 1965 until 1984 (e.g., the Vietnam conflict, political and social instability, high inflation and unemployment—or stagflation—combined with contractionary monetary policies). These obstacles collectively retarded economic expansion.

By 1985 the Federal Reserve was able to moderate monetary policy. This policy stance, combined with a fiscal policy that focused on supply-side economics, tax reform, and massive government spending, quickly improved the US economy. Subsequently equity markets in general, and the health care sector in particular, benefited from a rising tide. Interestingly, while equity markets have ebbed and flowed during three recessions from 1985 to 2013, the health care industry has been able to sustain returns that have outpaced the broader markets, earning positive absolute and risk-adjusted returns. We attribute this outperformance in part to the subsidization of the health care sector and conjecture that this outperformance is sensitive to political and monetary policy regimes.

### **Sample Characteristics and Univariate Results**

To highlight the inflationary regime of the health care industry we obtain the seasonally-adjusted inflation levels for overall inflation (*CPIAUCSL*) and four major components: medical (*CPIMEDSL*), food (*CPIUFDSL*), housing (*CPIHOSSL*), and transportation (*CPITRNSL*) from the St. Louis Federal Reserve Economic Data (FRED) database. All values are sampled monthly from February 1954 to December 2013 except for housing. The housing index data (*CPIHOSSL*) is available beginning January 1967.

Figure 1 shows the evolution of health care inflation (*CPIMEDSL*) relative to the overall inflation (*CPIAUCSL*), food inflation (*CPIUFDSL*), housing inflation (*CPIHOSSL*), and transportation inflation (*CPITRNSL*). Health care inflation clearly outpaces these other major sub-indexes beginning in 1984-1985, which contributes to an ever-widening cost difference between health care and all other goods and services in the US economy.

Motivated by the political introduction of Medicare and Medicaid in 1965 and the aforementioned health care inflation “kink,” we split the entire sample, February 1954 to December 2013, into three periods. We denote the first period as the Pre-Medicare (and Pre-Medicaid) Period, occurring from February 1954 to December 1964. The second period covers the introduction of the Medicare and Medicaid until the health care inflation kink, from January 1965 to December 1984. The final period is one of excessive health care inflation (see Figure 1) as well as established Medicare and Medicaid programs, running from January 1985 to December 2013. In summary, we have the entire sample period, as well as the pre-Medicare, Medicare, and inflation plus Medicare sub-samples during which we can analyze returns to the health care industry.

Instrumental to our study is the health care industry definition as proposed and constructed by Fama and French (1997), who partition the market into 5 industry segments: health care firms (*HLTH*), consumer firms, manufacturing firms, high technology firms, and other firms. We use value-weighted monthly excess returns (net of the risk-free rate) for the health care industry, *HLTHRF*, and we also obtain excess returns on the broader market as well, *MKTRF*. The health care index, the risk free rate, and the market data come from Ken French’s data library.<sup>4</sup>

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<sup>4</sup> [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html)

Prior literature also helps us evaluate monetary policy effects. Specifically, months during which the Federal Reserve exercises expansionary (contractionary) monetary policy with decreasing (increasing) discount rates are denoted with a dummy variable  $CONTRACTION=0$  ( $CONTRACTION=1$ ).<sup>5</sup> Complete data is unavailable until after February 1954, and the data set runs through December of 2013, totaling 719 months. Months where the cycle transitions from expansionary to contractionary or vice versa are deleted (see Jensen and Johnson, 1995, and Conover, Jensen, Johnson, and Mercer, 1996, for details). The final period covers a total of 689 months over this almost 60-year period from January 1954 to December 2013.

Table 1 shows the sample statistics of the excess monthly returns (net of the risk-free rate) for the broader market ( $MKTRF$ ) and the health care industry ( $HLTHRF$ ) for the entire period (Panel A) and subdivided into the aforementioned shorter periods (Panels B through D). The point estimates in Panel A show that the health care monthly returns had a higher mean but lower median than the broader market for the entire 60-year period. This suggests that the return distribution for the health care industry is right (positively) skewed while the return distribution for the broader market is left (negatively) skewed.<sup>6</sup> Interestingly, the positive skewness of the health care industry significantly reverses only in Democratic presidential regimes while the negative skewness of the market remains constant in all regimes. This provides the first univariate insights into the effects of political leadership on health care returns.

Panel B shows the sample statistics for return distributions of the health care industry and the broader market in the pre-Medicare period, February 1954 to December 1964. While the return

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<sup>5</sup> The data can be obtained from the Federal Reserve release section H.15, <http://www.federalreserve.gov/releases/h15/data.htm>.

<sup>6</sup> We follow the typical rule of thumb for the relationship between the median and mean as an indication for the asymmetry of the probability distribution of the return. This rule can fail in multimodal distributions and with distributions that are characterized with one long tail and the other heavy. Also, discrete distributions with unequal areas split by the median.

distribution for the broader market retains its left skewness, the health care distribution reverses its skewness in the expansionary and Democratic regimes. Additionally, contrary to the overall period, returns to both the overall market and health care industry lag during Democratic presidential administrations relative to Republican ones.

Panel C displays the sample statistics for the Medicare and Medicaid Period, January 1965 to December 1984. The subsample distribution is negatively skewed and switches in the expansionary and the Democratic regimes. Similar switching occurs for the broader market. The market is negatively skewed in the subperiod and reverses its skewness in both monetary regimes and during Republican presidencies. Comparing returns to presidential administrations yields markedly different results than the prior period: Democratic administrations accompany higher monthly returns to the market and to the health care industry.

Panel D reports the sample statistics for the Health Care Inflation, Medicare and Medicaid Period, January 1985 to December 2013. Both the health care and the market return distributions are negatively skewed in the entire subperiod and across both monetary and presidency regimes. Interestingly, the mean and median values are much closer to each other for the health care industry than for the market, suggesting a lesser degree of skewness. Further, the health care industry has higher standard deviations across all regimes, which suggests an increasing riskiness to the returns in this period. Continuing the prior trend, and in support of Blinder and Watson (2014), Democratic administrations are associated with notably higher mean monthly returns than Republican administrations.

Table 2 tests the prior point estimates for statistical differences. Panel A shows the mean monthly returns for the health care industry (*HLTHRF*) and the overall market (*MKTRF*) risk premia during months where the Federal Reserve exhibits expansionary (contractionary) monetary

policy. The mean return significance is tested using a two-tail difference in means test. The mean return difference between each monetary regime is tested with a Satterthwaite unequal variance independent two-sample T-test of means. Panel A shows that during the entire period, 1954-2013, the health care excess return is significantly positive across both contractionary and expansionary monetary regimes, at about 0.8% per month. It is not statistically different from expansionary to contractionary monetary policy—that is, it is robust to Fed interest rate moves. The pre-Medicare and most recent high health care inflation period primarily drive this result, with all three significant point estimates occurring in these two sub-periods. This result suggests that health care returns during the entire period are immune to monetary policy regimes. The health care industry enhances the market, which is only significantly positive during expansionary monetary environments. The insignificant market return data for the overall period appear to be driven by the Medicare and Medicaid period from 1965 to 1984, as the other sub-periods are significantly positive even during contractionary regimes. In the latest period, however, the market return is statistically indistinguishable from the health care return data between each monetary regime. The bottom of Panel A shows some interesting results that support health care as an industry relatively immune to monetary policy regime changes—attenuating the extremes of the overall market during these changes. This industry provides statistically higher returns than the market during contractionary policy regimes in the pre-Medicare and Medicare periods (1954-84), and insignificantly ( $p$ -value = 0.128) higher returns during contractionary regimes in the post-1984 period. Meanwhile, the health care industry performs the same as the overall market during expansionary periods, except during the 1965-1984 Medicare period, where it underperforms significantly.

Panel B of Table 2 shows the mean excess monthly returns for the health care industry (*HLTHRF*) and the overall market (*MKTRF*) conditional upon the US having a Republican or Democratic President. During the entire period, 1954-2013, health care returns are always significantly positive, about 0.6% and 1% per month, and there is no difference in returns conditioned on the President's party. This whole period result masks the sub-period outcomes; it appears the Pre-Medicare and most recent periods offset each other, as the former (latter) shows large returns to health care for Republican (Democrat) presidencies. Interestingly, from 1985 to 2013 the health care industry excess returns are significantly positive during Democratic regimes and they are also significantly higher than the Republican excess returns at conventional levels.

As for the excess market returns over the entire period, it appears that only the "Democratic" market produced significantly positive returns, 0.9% per month, and these are significantly higher than "Republican" markets. This finding supports the Blinder and Watson (2014) argument that many measures of the US economy fare better under Democratic leadership. This relationship is mainly driven by the latest sub-period. As for the health care industry relative to the market, the only major difference occurs during Republican administrations, when the health care industry outperforms the market across the entire period. This result is driven primarily by the pre-Medicare sub-period.

Univariate results present an initial insight into the matter but do not provide a complete picture of the combined underlying effects of political and monetary policy processes. These univariate results suggest that the macroeconomic monetary environment and political direction of the country affect the health care industry returns in different ways than the market as a whole. Table 3 extends our insight, showing the joint effects of monetary policy and presidential party on excess returns to the health care industry and the overall market. Panel A shows that across the

entire sample period monthly returns to health care are statistically positive for the president/monetary regime combinations of Democrat/Contractionary and Republican/Expansionary. Additionally, during contractionary regimes, Democratic presidents experience significantly higher average monthly returns than their Republican counterparts by almost a full 100 basis points. As for the overall market, it exhibits significantly positive returns in all president/monetary combinations except Republican/Contractionary. And these insignificant returns are significantly lower than during Republican/Expansionary and Democrat/Contractionary average months. The bottom section of Panel A tests for differences between the health care industry and overall market. We see evidence of health care's defensive nature in that it provides significantly higher returns during contractionary monetary regimes, independent of the presidential administration. During expansionary regimes the health care industry is statistically indifferent from the market.

Panels B through D show how the joint effects of monetary policy and presidential politics on the health care industry and market have evolved over time. Notably, in the pre-Medicare period—Panel B—the health care industry (overall market) earned significantly positive excess returns only during Republican administrations in both monetary regimes (Republican/expansionary and Democrat/contractionary combinations). The only significant difference between the health care industry and overall market is for Republican/Contractionary combinations. Panel C shows during the Medicare period that only the overall market earned significant returns while under a Republican administration. These returns are positive (negative) during expansionary (contractionary) monetary regimes. The health care industry did not earn statistically significant returns during this period despite some economically noteworthy point estimates (e.g., 0.83% and 0.78% per month). Panel D shows how much the joint effects of

presidential administration and monetary policy have evolved over time, presumably in no small part resulting from Medicare. Instead of significantly positive returns during Republican administrations, since 1985 the returns to the health care industry are only significant for Democratic administrations during contractionary monetary regimes. Meanwhile, the market overall is only significantly positive during Democratic regimes, irrespective of the monetary regime. And while there are no significant differences between the health care industry and market at conventional levels, we want to note that the 0.73% per month average for Democrat/contractionary is significant at the 89% level (p-value of 0.107). Once again, to summarize, the entire period results show positive and significant excess returns to the health care industry that differ from the overall market when considering presidential administrations and monetary policy regimes. Even more, the results from 1954 to 2013 whole period mask some of the nuanced evolution that has occurred over time.

And given these excess returns to health care could simply reflect excess risk, further analysis will help clarify these joint effects of presidential and monetary policy on the previously-documented excess risk-adjusted returns (i.e., alpha) that the health care industry has provided to investors.

### **Methodology and Multivariate Results**

This section provides a more granular, multivariate insight in to the relationship between the excess health care returns and the monetary and political regimes when considering common risk factors as possible explanations for the health care returns. Specifically, other studies show the health care industry uniquely provides alpha for investors. Given the differences in health care

returns across monetary policy regimes and presidential administrations, this next section focuses on the joint effects.

We use monthly value-weighted returns in a conventional four-factor model that includes the following risk factors: the market risk premium (*MKTRF*), Small-minus-Big (*SMB*), High-minus-Low (*HML*), and Momentum (*MOM*). The factors come from Ken French's data library. We also use the monetary regime switching methodology explained in the previous section. The regressions are based on monthly returns for a four-factor model based on Fama and French (1993), Jegadeesh and Titman (1993), and Carhart (1997). We estimate the following multifactor model twice, once for months where the US President is Republican and again for a Democratic President:

$$HLTHRF_t = \alpha_0 + \alpha_1 CONTRACTION + \beta_{HLTHRF} MKTRF_t + \beta_S SMB_t + \beta_H HML_t + \beta_M MOM_t + u_t \quad (1)$$

In this model  $\alpha_0$  is the constant, or risk-adjusted excess return (i.e., alpha), and  $u_t$  represents the residuals.

Table 4, Panel A, shows the regression results for entire period, which is February 1954 to December 2013. Across the whole period, the Republican alpha is statistically positive at 0.43% per month during expansionary periods, while the expansionary alpha is indifferent from zero for the Democratic regimes. The difference in expansionary alphas is also statistically different between Republican and Democratic administrations. However, the bottom of Panel A shows that during contractionary periods, the health care alpha is positive and significant for both Democrat and Republican regimes; and the alpha is statistically indistinguishable from one party to the other. So while the health care industry alpha has been robust to the Presidential party during contractionary monetary policy regimes, a positive alpha has only existed during expansionary regimes when the US President is Republican. However, as stated before, this 60-year overall

result obscures the evolution of the health care industry's relationship with policy that has occurred over time.

Panel B of Table 4 covers the Pre-Medicare and Pre-Medicaid Period from 1954 to 1964, again looking at both the differences in health care alpha across Presidential administrations within expansionary or contractionary monetary regimes. In this pre-government-subsidized era, there is only one significant President-monetary regime combination that results in positive alphas to the health care industry: Republican administrations during contractionary monetary policy regimes. This 1.02% per month alpha is substantial and somewhat counterintuitive based on today's conventional wisdom about government intervention in health care matters as well as how one expects stocks to perform worse during periods of interest rate increases. While the Republican-contractionary alpha is not statistically different from the Democrat-contractionary alpha ( $p$ -value = 0.18) at conventional levels, the 1.2% per month difference (and opposite sign) appears economically substantial.

Panel C covers the 20 years we call the Medicare and Medicaid Period, from 1965 to 1984. This period marks a transition from a one-party health care alpha. And, in fact, despite the opposite signs (Republicans are positive; Democrats negative), there is no statistically significant alpha for either party during expansionary monetary regimes. However, this result changes for contractionary periods, in which case both parties are associated with significantly positive health care industry alphas. And while the Republican point estimate (0.95% per month) is higher than the Democrat point estimate (0.56% per month), they are not significantly different. Thus, the Medicare-Medicaid period, the health care industry yielded excess risk-adjusted returns only during contractionary monetary regimes. This result further bolsters the case that health care

investing can represent a hedge for worsening economic times—demand presumably remains steady for non-elective health care procedures no matter the macroeconomic environment.

Most interesting is the last set of panels, which show the main result of this paper—the market performance of the health care industry in the last 30 years has been highly sensitive to Presidential politics and the Federal Reserve’s monetary policy stance. Specifically, in contrast to both the pre-Medicare and Medicare/Medicaid periods from 1954-1984, the health care alpha is clearly-separated across Presidential party-monetary policy regime combinations. Specifically, during expansionary monetary policy periods, health care experienced a positive alpha only during Republican administrations. And during contractionary regimes, the Democratic alpha of 1.14% per month is significantly higher than the -0.02% per month for Republican administrations. This result accords more with conventional wisdom about Presidential party politics and the economy. That is, more government intervention—as advocated by the Democratic party—appears to help the health care industry’s returns during challenging macroeconomic environments (i.e., increasing interest rates). On the other hand, the Republicans’ stereotypical “hands-off” stance bears excess risk-adjusted returns during favorable macroeconomic times (i.e., lower interest rates). And, relative to prior findings, which suggest that the health care industry excess returns (alpha) are long-lasting, this result shows that practitioners would be wise to consider the political and interest rate environments before making any health care investment or external financing decisions.

## **Conclusion**

The health care industry sits at the nexus of US political policy and the US stock market, which prior studies have determined behaves differently as US monetary policy changes. Health care has been at the forefront of policy makers for many years and its relevance within the US markets has grown immensely over time. One of six dollars US citizens spend is in the health care area, so of great concern has been the ever-increasing share of GDP that health care consumes. Meanwhile, for the past 30 years the costs of health care have grown abnormally relative to the balance of the US economy. We posit that Medicare and Medicaid—that is, government subsidies—are contributing factors for this growth. While difficult to make an irrefutable argument for the causation of health care cost inflation, it is widely accepted that subsidies produce dead-weight losses and impart inefficiencies into economic systems. With inefficiencies comes waste, yet a purely market-based economy will quickly eliminate such waste. However, when the government is largely funding an industry, inefficiencies can be difficult to contain. We pause to consider: have these inefficiencies benefited the health care industry?

In this paper we provide enhanced granularity for the explanation of excess positive returns realized by the health care industry over the recent 60 years, from 1954 to 2013. Prior literature clearly shows positive absolute and risk-adjusted returns to health care for the recent past, yet we find that since 1955 there is more to the story for health care returns than just a positive alpha over the past 60 years. The behavior of health care's excess returns is sensitive to both the political party controlling the US presidency and the direction of the Federal Reserve's interest rate policies, measured as expansionary or contractionary monetary policy. Across the entire 60-year period, the health care industry experienced positive abnormal returns during contractionary monetary regimes and when a Republican was president during expansionary monetary regimes. However,

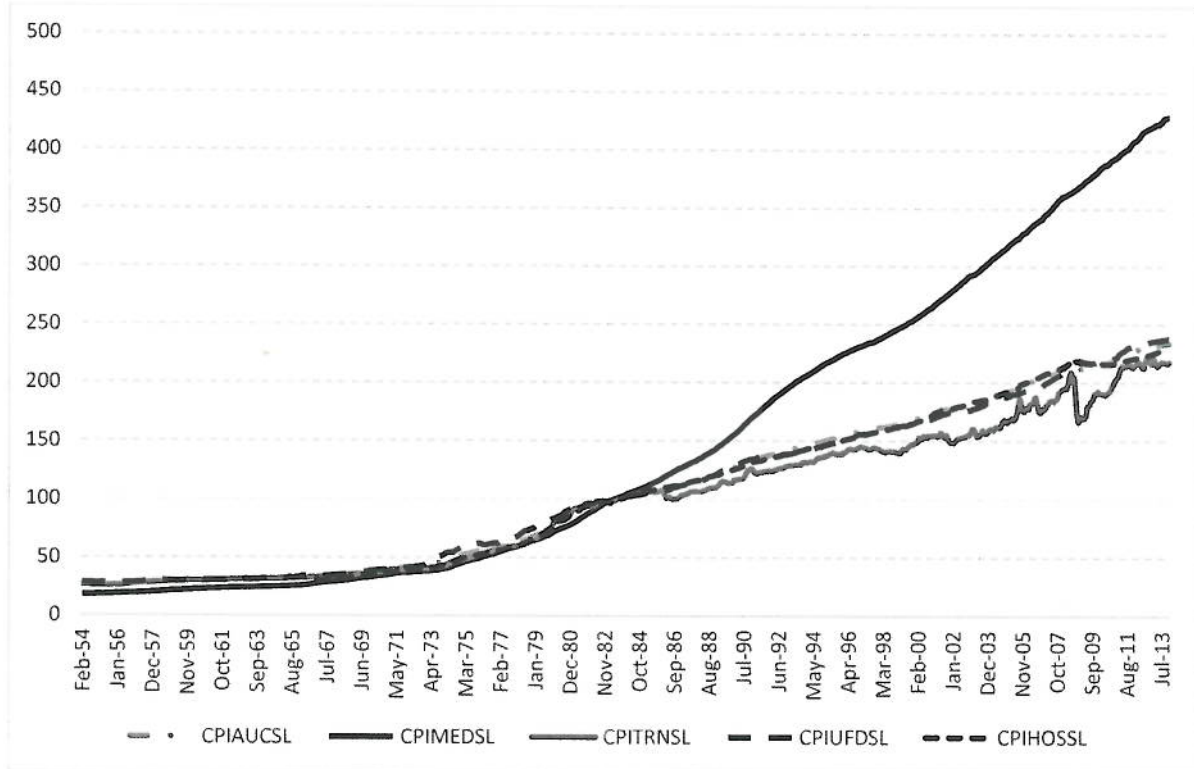
this alpha was only positive for Republican administrations during contractionary regimes early in this six decade span. This finding transitioned, and since 1985, Democratic (Republican) administrations and contractionary (expansionary) monetary regimes have been especially beneficial to health care returns. While these findings are of particular importance to corporate managers in the health care industry, managers in other subsidized industries, such as energy, banking or utilities may wish to consider these results when developing financial risk management strategies and identifying appropriate costs of capital. While the health care industry has enjoyed positive returns over this time period, it is interesting to note how politics and monetary regimes have impacted those returns.

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**Figure 1**  
**US Inflation Component Indices**

This graph shows the seasonally-adjusted inflation levels for overall inflation (*CPIAUCSL*) and four major components: medical (*CPIMEDSL*), food (*CPIUFDSL*), housing (*CPIHOSSL*), and transportation (*CPITRNSL*). All values are sampled monthly from February 1954 to December 2014 except for housing. The housing index data (*CPIHOSSL*) is not available until January 1967. Data comes from the St. Louis Federal Reserve Economic Data (FRED) database.



**Table 1**  
**Summary Statistics**

This table reports the mean, median, standard deviation, and the several percentiles (5<sup>th</sup>, 25<sup>th</sup>, 75<sup>th</sup>, and 95<sup>th</sup>) of excess monthly returns (net of the risk-free rate) for the broader market (*MKTRF*) and the health care industry (*HLTHRF*). The data covers four periods which are represented in Panels A-D. Entire period, February 1954 to December 2013, Pre-Medicare and Pre-Medicaid Period, February 1954 to December 1964, Medicare and Medicaid Period, January 1965 to December 1984, and the Health Care Inflation, Medicare and Medicaid Period, January 1985 to December 2013. Expansionary Monetary Regime vs Contractionary Monetary Regime indicate months where the Federal Reserve exhibits contractionary or expansionary monetary policy using increasing (decreasing) interest rates. Months where the cycle transitions from expansionary to contractionary or vice versa are deleted (see Jensen and Johnson [1995] and Jensen, Mercer, and Johnson [1996] for details). *MKTRF* and *HLTHRF* return data come from Ken French's data library.

*Panel A: Excess Returns, Entire Period, 1954-2013*

Regime	Variable	N	Mean	Median	Std Dev	Percentile			
						5th	25th	75th	95th
Whole Period	<i>HLTHRF</i>	689	0.801	0.780	5.001	-7.370	-2.240	3.740	8.300
	<i>MKTRF</i>	689	0.573	0.940	4.439	-7.160	-2.060	3.520	6.920
Expansionary Monetary	<i>HLTHRF</i>	332	0.808	0.785	5.055	-7.770	-2.560	3.995	8.350
	<i>MKTRF</i>	332	0.954	1.205	4.489	-6.570	-1.855	3.990	7.350
Contractionary Monetary	<i>HLTHRF</i>	357	0.796	0.770	4.958	-7.270	-2.090	3.640	8.300
	<i>MKTRF</i>	357	0.219	0.730	4.368	-7.580	-2.210	3.130	6.640
Republican President	<i>HLTHRF</i>	401	0.641	0.640	5.199	-7.460	-2.610	3.720	8.380
	<i>MKTRF</i>	401	0.316	0.710	4.593	-7.470	-2.300	3.400	6.720
Democratic President	<i>HLTHRF</i>	288	1.025	1.330	4.713	-7.020	-1.890	3.900	8.210
	<i>MKTRF</i>	288	0.932	1.360	4.196	-6.200	-1.530	3.660	6.930

Panel B: Excess Returns, Pre-Medicare and Pre-Medicaid Period, 1954-1964

Excess Returns									
<i>Period</i>	<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>Std Dev</i>	<i>5th Pctl</i>	<i>25th Pctl</i>	<i>75th Pctl</i>	<i>95th Pctl</i>
Expansionary Monetary Regime	<i>HLTHRF</i>	125	1.485	1.460	4.966	-6.710	-1.690	4.480	8.160
	<i>MKTRF</i>	125	0.994	1.460	3.556	-5.250	-1.410	3.170	6.280
Contractionary Monetary Regime	<i>HLTHRF</i>	57	1.153	1.560	5.604	-11.020	-2.180	4.830	8.160
	<i>MKTRF</i>	57	1.348	2.400	4.042	-6.570	-1.530	4.200	6.340
Republican President Regime	<i>HLTHRF</i>	68	1.764	1.425	4.383	-4.500	-1.480	4.470	9.310
	<i>MKTRF</i>	68	0.698	1.090	3.091	-5.150	-1.115	2.670	5.070
Democratic President Regime	<i>HLTHRF</i>	78	1.999	1.800	4.639	-5.270	-1.460	5.820	11.530
	<i>MKTRF</i>	78	1.088	1.365	3.515	-5.250	-1.530	3.520	6.480
Democratic President Regime	<i>HLTHRF</i>	47	0.632	1.240	5.409	-11.020	-2.180	3.550	7.510
	<i>MKTRF</i>	47	0.839	1.460	3.657	-6.570	-0.820	2.770	6.200

Panel C: Excess Returns, Medicare and Medicaid Period, 1965-1984

Excess Returns									
<i>Period</i>	<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>Std Dev</i>	<i>5th Pctl</i>	<i>25th Pctl</i>	<i>75th Pctl</i>	<i>95th Pctl</i>
Expansionary Monetary Regime	<i>HLTHRF</i>	225	0.258	0.320	5.367	-8.310	-2.720	3.380	8.300
	<i>MKTRF</i>	225	0.192	0.220	4.628	-7.250	-2.680	3.160	6.900
Contractionary Monetary Regime	<i>HLTHRF</i>	92	0.677	0.535	4.852	-6.870	-2.525	3.680	8.350
	<i>MKTRF</i>	92	1.269	0.815	3.978	-4.260	-1.640	3.760	8.760
Republican President Regime	<i>HLTHRF</i>	133	-0.032	0.100	5.697	-8.500	-3.260	3.090	8.300
	<i>MKTRF</i>	133	-0.554	-0.690	4.906	-8.140	-3.660	2.870	6.900
Democratic President Regime	<i>HLTHRF</i>	136	0.013	0.250	5.774	-8.640	-3.225	3.200	8.380
	<i>MKTRF</i>	136	-0.043	-0.265	4.926	-7.620	-3.225	3.155	8.760
Democratic President Regime	<i>HLTHRF</i>	89	0.633	0.410	4.686	-5.680	-2.190	3.640	8.300
	<i>MKTRF</i>	89	0.550	0.730	4.133	-6.010	-1.450	3.160	6.410

*Panel D: Excess Returns, Health Care Inflation, Medicare and Medicaid Period, 1985-2013*

Excess Returns										
<i>Period</i>	<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>Median</i>	<i>Std Dev</i>	<i>5th Pctl</i>	<i>25th Pctl</i>	<i>75th Pctl</i>	<i>95th Pctl</i>	
	<i>HLTHRF</i>	339	0.910	1.100	4.733	-7.060	-1.980	3.790	8.510	
	<i>MKTRF</i>	339	0.671	1.150	4.593	-7.600	-2.010	3.700	7.100	
Expansionary Monetary Regime										
	<i>HLTHRF</i>	183	0.766	0.830	4.999	-7.370	-2.610	4.030	8.510	
	<i>MKTRF</i>	183	0.673	1.110	4.851	-8.260	-2.140	3.960	7.350	
Contractionary Monetary Regime										
	<i>HLTHRF</i>	156	1.079	1.275	4.409	-6.070	-1.540	3.560	8.110	
	<i>MKTRF</i>	156	0.669	1.200	4.286	-6.410	-1.825	3.485	6.820	
Republican President Regime										
	<i>HLTHRF</i>	187	0.532	0.540	4.893	-7.370	-2.600	3.660	8.830	
	<i>MKTRF</i>	187	0.254	0.930	4.721	-8.260	-2.100	3.550	7.010	
Democratic President Regime										
	<i>HLTHRF</i>	152	1.375	1.760	4.500	-7.020	-1.170	4.365	8.210	
	<i>MKTRF</i>	152	1.184	1.860	4.392	-6.200	-1.750	3.885	7.120	

**Table 2****Univariate Analysis: Health Care Industry and Market Performance Across Monetary Regimes and Presidencies**

This table shows the mean monthly returns for the health care industry (*HLTHRF*) and the overall market (*MKTRF*) risk premia during months where the Federal Reserve exhibits expansionary (contractionary) monetary policy using increasing (decreasing) interest rates. Months where the cycle transitions from expansionary to contractionary or vice versa are deleted (see Jensen and Johnson [1995] and Jensen, Mercer, and Johnson [1996] for details). *MKTRF* and *HLTHRF* return data come from Ken French's data library. This is Panel A. Panel B shows the mean excess monthly returns for the health care industry (*HLTHRF*) and the overall market (*MKTRF*) during months the United States of America were led by a Republican President (President Democratic=0) or by a Democratic President (President Democratic=1). Whether the mean returns are significantly different is tested using a two-tail difference in means test. Whether the mean returns are significantly different between each monetary regime and president regime is tested with a Satterthwaite unequal variance independent two-sample t-test of means. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels respectively.

*Panel A: Monetary Policy Regimes*

	Dates	Monetary Policy		Difference (E-C)
		Expansionary	Contractionary	
<i>HLTHRF</i>	02/54-12/13	0.808***	0.796***	0.012
	<i>N</i>	332	357	
	02/54-12/64	1.153	1.764***	-0.61
	<i>N</i>	57	68	
	01/65-12/84	0.677	-0.032	0.709
	<i>N</i>	92	133	
<i>MKTRF</i>	01/85-12/13	0.766**	1.079***	-0.313
	<i>N</i>	183	156	
	02/54-12/13	0.954***	0.219	0.735**
	<i>N</i>	332	357	
	02/54-12/64	1.348**	0.698*	0.650
	<i>N</i>	57	68	
<i>HLTHRF-MKTRF</i>	01/65-12/84	1.269***	-0.554	1.823***
	<i>N</i>	92	133	
	01/85-12/13	0.673*	0.669*	0.004
	<i>N</i>	183	156	
	02/54-12/13	-0.146	0.577	-0.723***
	02/54-12/64	-0.195	1.066***	-1.261**
	01/65-12/84	-0.593*	0.522**	-1.1145
	01/85-12/13	0.093	0.41	-0.317

*Panel B: Presidential Administrations*

	Dates	Presidential Administration		Difference (R-D)
		Republican	Democrat	
<i>HLTHRF</i>	02/54-12/13	0.641***	1.025***	-0.383
	<i>N</i>	401	288	
	02/54-12/64	1.999***	0.632	1.367
	<i>N</i>	78	47	
	01/65-12/84	0.013	0.633	-0.620
	<i>N</i>	136	89	
<i>MKTRF</i>	01/85-12/13	0.471	1.425***	-0.954*
	<i>N</i>	192	156	
	02/54-12/13	0.316	0.932***	-0.617*
	<i>N</i>	401	288	
	02/54-12/64	1.088***	0.839	0.248
	<i>N</i>	78	47	
<i>HLTHRF-MKTRF</i>	01/65-12/84	-0.043	0.550	-0.593
	<i>N</i>	136	89	
	01/85-12/13	0.279	1.186***	-0.907*
	<i>N</i>	192	156	
	02/54-12/13	0.326*	0.093	0.233
	02/54-12/64	0.912**	-0.207	1.119**
	01/65-12/84	0.056	0.082	-0.027
	01/85-12/13	0.192	0.239	-0.047

**Table 3****Health Care Industry and Market Returns Across Monetary Regimes and Presidencies**

This table shows the mean monthly returns for the health care industry (*HLTHRF*) and the overall market (*MKTRF*) risk premia during months where the Federal Reserve exhibits expansionary (contractionary) monetary policy using increasing (decreasing) interest rates and during months the United States of America were led by a Republican President (President Democratic=0) or by a Democratic President (President Democratic=1). Months where the cycle transitions from expansionary to contractionary or vice versa are deleted (see Jensen and Johnson [1995] and Jensen, Mercer, and Johnson [1996] for details). *MKTRF* and *HLTHRF* return data come from Ken French's data library. The data covers four periods which are represented in Panels A-D. Entire period, February 1954 to December 2013, Pre-Medicare and Pre-Medicaid Period, February 1954 to December 1964, Medicare and Medicaid Period, January 1965 to December 1984, and the Health Care Inflation, Medicare and Medicaid Period, January 1985 to December 2013. Whether the mean returns are significantly different between each monetary regime and president regime is tested with a Satterthwaite unequal variance independent two-sample t-test of means. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels respectively.

## Panel A: Entire Period, 1954-2013

Health Care Industry Returns		Monetary Policy		
		Expansionary	Contractionary	Difference (E-C)
Presidential Party	Democrat	0.605	1.324***	-0.720
		120	168	
	Republican	0.923***	0.325	0.597
		212	189	
Difference (D-R)		-0.318	0.999*	

Market Returns		Monetary Policy		
		Expansionary	Contractionary	Difference (E-C)
Presidential Party	Democrat	1.071***	0.833***	0.238
		120	168	
	Republican	0.888***	-0.327	1.215***
		212	189	
Difference (D-R)		0.183	1.160***	

Difference (HC-Market)		Monetary Policy		
		Expansionary	Contractionary	Difference (E-C)
Presidential Party	Democrat	-0.466	0.491*	-0.957**
		120	168	
	Republican	0.035	0.652***	-0.618*
		212	189	
Difference (D-R)		-0.501	-0.161	

Panel B: Pre-Medicare and Pre-Medicaid Period, 1954-1964

Health Care Industry Returns		Monetary Policy		
		Expansionary	Contractionary	Difference (E-C)
Presidential Party	Democrat	0.334	1.158	-0.8239
		30	17	
	Republican	2.063**	1.965***	0.0978
		27	51	
Difference (D-R)		-1.730	-0.8073	

Market Returns		Monetary Policy		
		Expansionary	Contractionary	Difference (E-C)
Presidential Party	Democrat	0.685	1.112**	-0.427
		30	17	
	Republican	2.085***	0.560	1.525*
		27	51	
Difference (D-R)		-1.400	0.552	

Difference (HC-Market)		Monetary Policy		
		Expansionary	Contractionary	Difference (E-C)
Presidential Party	Democrat	-0.351	0.046	-0.397
		30	17	
	Republican	-0.021	1.405***	-1.427*
		27	51	
Difference (D-R)		-0.329	- 1.359*	

Panel C: Medicare and Medicaid Period, 1965-1984

Health Care Industry Returns		Monetary Policy		
		Expansionary	Contractionary	Difference (E-C)
Presidential Party	Democrat	0.101	0.777	-0.676
		19	70	
	Republican	0.827	-0.930	1.757*
		73	63	
Difference (D-R)		-0.726	1.708*	

Market Returns		Monetary Policy		
		Expansionary	Contractionary	Difference (E-C)
Presidential Party	Democrat	0.921	0.450	0.471
		19	70	
	Republican	1.360***	-1.669**	3.029***
		73	63	
Difference (D-R)		-0.440	2.119**	

Difference (HC-Market)		Monetary Policy		
		Expansionary	Contractionary	Difference (E-C)
Presidential Party	Democrat	-0.819	0.327	-1.147*
		19	70	
	Republican	-0.534	0.738*	-1.272**
		73	63	
Difference (D-R)		-0.286	-0.411	

Panel D: Health Care Inflation, Medicare and Medicaid Period, 1985-2013

Health Care Industry Returns		Monetary Policy		Difference (E-C)
		Expansionary	Contractionary	
Presidential Party	Democrat	0.854	1.832***	-0.978
		71	81	
	Republican	0.710	0.265	0.445
		112	75	
Difference (D-R)		0.144	1.567**	

Market Returns		Monetary Policy		Difference (E-C)
		Expansionary	Contractionary	
Presidential Party	Democrat	1.274**	1.105**	0.168
		71	81	
	Republican	0.292	0.198	0.094
		112	75	
Difference (D-R)		0.982	0.910	

Difference (HC-Market)		Monetary Policy		Difference (E-C)
		Expansionary	Contractionary	
Presidential Party	Democrat	-0.420	0.727	-1.147*
		71	81	
	Republican	0.418	0.067	0.351
		112	75	
Difference (D-R)		-0.838	0.656	

**Table 4****Contraction and President Democratic**

This table shows the regression results for a four-factor model based on Fama and French (1993), Jegadeesh and Titman (1993), and Carhart (1997). The regressions are based on monthly returns. The multifactor model follows:

$$HLTHRF_t = \alpha_0 + \alpha_1 CONTRACTION + \beta_{HLTHRF} MKTRF_t + \beta_S SMB_t + \beta_H HML_t + \beta_M MOM_t + u_t$$

where  $HLTHRF_t$  ( $MKTRF_t$ ) is the month  $t$  excess return on the health care industry (broader market).  $CONTRACTION$  indicates months where the Federal Reserve exhibits contractionary ( $CONTRACTION = 1$ ) or expansionary ( $CONTRACTION = 0$ ) monetary policy using increasing (decreasing) interest rates. Months where the cycle transitions from expansionary to contractionary or vice versa are deleted (see Jensen and Johnson [1995] and Jensen, Mercer, and Johnson [1996] for details).  $SMB_t$  is Small-minus-Big risk factor at time  $t$ ,  $HML_t$  represents the risk factor High-minus-Low at time  $t$ ,  $MOM_t$  is momentum factor at time  $t$ ,  $\alpha_0$  is the constant, and  $u_t$  represents the residuals. The returns for all factors, the market factor ( $MKTRF$ ),  $SMB$ ,  $HML$ ,  $MOM$ , and the health care industry ( $HLTHRF$ ), come from Ken French's data library. Monetary regime data comes from Jensen, Mercer, and Johnson [1996]. Panel A covers the entire period which is February 1954 to December 2013. Panel B covers the Pre-Medicare and Pre-Medicaid Period, February 1954 to December 1964. Panel C covers the Medicare and Medicaid Period, January 1965 to December 1984 and D covers the Health Care Inflation, Medicare and Medicaid Period, January 1985 to December 2013.

Panel A: Entire Period, 1954-2013

HLTHRF	Presidential Party		
	Republican	Democrat	Difference (R-D)
Intercept (Expansion Alpha)	0.432**	-0.189	0.621*
Contraction	0.163	0.960**	-0.797*
MRKTRF	0.873***	0.835***	0.038
SMB	-0.214***	-0.146**	-0.068
HML	-0.437***	-0.155**	-0.282***
MOM	0.128***	-0.029	0.157**
Intercept + Contraction (Contraction Alpha)	0.596***	0.771***	-0.175
N	401	288	
Adj. R-Sqr	0.69	0.54	

Panel B: Pre-Medicare and Pre-Medicaid Period, 1954-1964

HLTHRF	Presidential Party		Difference (R-D)
	Republican	Democrat	
Intercept (Expansion Alpha)	0.053	-0.411	0.464
Contraction	0.969	0.182	0.787
MRKTRF	1.025***	1.326***	-0.301*
SMB	0.618**	-0.267	0.885**
HML	-0.287	-0.16	-0.127
MOM	0.244	-0.116	0.36
Intercept + Contraction (Contraction Alpha)	1.022**	-0.229	1.251
N	78	47	
Adj. R-Sqr	0.53	0.79	

Panel C: Medicare and Medicaid Period, 1965-1984

HLTHRF	Presidential Party		Difference (R-D)
	Republican	Democrat	
Intercept (Expansion Alpha)	0.271	-0.708	0.979
Contraction	0.681	1.272*	-0.591
MRKTRF	0.901***	0.909***	-0.008
SMB	-0.269***	0.17	-0.439***
HML	-0.627***	-0.465***	-0.162
MOM	0.065	-0.255***	0.320**
Intercept + Contraction (Contraction Alpha)	0.951**	0.563*	0.388
N	136	89	
Adj. R-Sqr	0.75	0.71	

Panel D: Health Care Inflation, Medicare and Medicaid Period, 1985-2013

HLTHRF	Presidential Party		Difference (R-D)
	Republican	Democrat	
Intercept (Expansion Alpha)	0.571**	0.016	0.555
Contraction	-0.593	1.122**	-1.715**
MRKTRF	0.866***	0.673***	0.193**
SMB	-0.306***	-0.220***	-0.086
HML	-0.268***	-0.152	-0.116
MOM	0.138***	0.005	0.133*
Intercept + Contraction (Contraction Alpha)	-0.022	1.138***	-1.16**
N	187	152	
Adj. R-Sqr	0.72	0.42	