Empirical Research Partners

Aram Rubinson 212 803-7930 | Wes Sapp 212 803-7945 | Sungsoo Yang 212 803-7925 | Yi Liu 212 803-7942

February 27, 2018

Portfolio Strategy February 2018

Dissecting Inflation: Frameworks That Tell the Story

Will It Remain A Slow-Moving Force?

- In this report we dig into the guts of the inflation issue like an analyst might do when dissecting a complicated company. In our analysis we organized the inflation data into themes and came away feeling that this inflation genie doesn't look poised to leave the bottle and rewrite the rules of the game. The risk of it is greater than a year ago, but we think the best bet is still on glacial, rather than abrupt change. Our advice is to think fast, but move slowly.
- To understand the inflation dynamic we created a series of fundamental frameworks that we discuss below. We have also deployed our quantitative expertise to devise a model that helps us estimate the underlying trend. We classified stocks as to their sensitivity to interest rates and Appendix 1 on page 14 highlights those that have an inverse correlation sorted by their rank in our core model, while Appendix 2 on page 15 shows those with less flattering characteristics.

Frameworks to Measure Cyclical and Structural Components of Inflation

- The cyclical components of inflation, that amount to 40% of consumption, have been remarkably steady over the past five years, contributing around +50 basis points to the core number. The contribution from that cohort has been consistent with that in prior economic recoveries. Cyclical inflation is not spring-loaded, making a violent upside surprise less likely.
- The acyclical categories, such as drugs, telecom and financial services, have been the outliers, causing a swoon in the reported numbers last year. Lapping that weakness might cause a ripple effect, much like a business facing tough compares. Those idiosyncratic movements are worth monitoring, but should carry less weight when assessing the underlying trend.
- Historically the average inflation statistics have been driven by the most inflationary categories, the top decile of contribution. Recently though it's the deflationary ones that have counted more. Churn inside the deflationary cohort has fallen significantly and now matches that of their inflationary counterparts. We think the balance between those opposing forces will serve as a check on overall inflation.
- Technological disruption is a key source of deflation and we think it's here to stay. We identified 40 categories that qualify as disrupted and identified their contributions to inflation. As a group their price trend is tracking well below the core rate of inflation. It is likely that restraining force will persist as Amazon, Google and others attack bigger categories in order to sustain their exceptional growth rates.
- Imports represent only 13% of consumption and we estimate they've weighed on inflation by just over (20) basis points. The Dollar has weakened considerably, creating a risk, although the stickiness of pricing means it will take time for it to appear. Moreover, the bulk of U.S. imports are denominated in Dollars or in currencies linked to it.

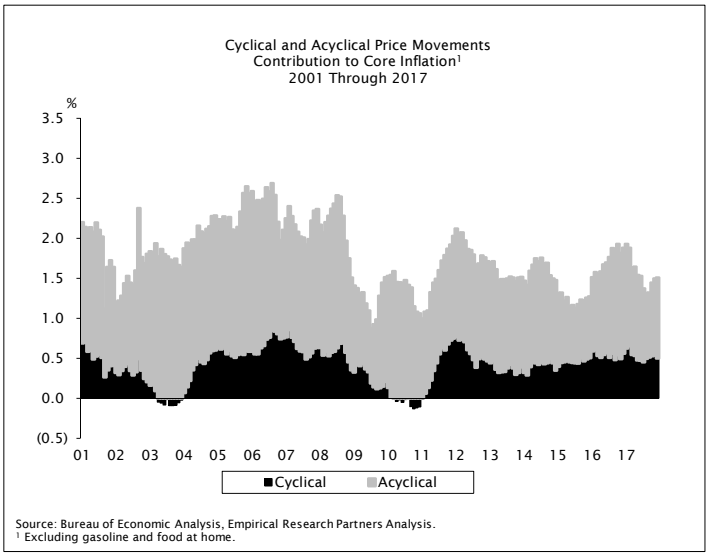
Think Fast, But Move Slowly

- The path to higher inflation does exist and we're paying close attention to trends in housing, health care and imports. We will also be mindful of "animal spirits" that might emerge on the back of tax cuts. The cuts mostly benefit those at the top of the distribution, who typically display a below-average marginal propensity to consume.
- Stocks still look cheaper than they did at prior market peaks, real rates are far lower and margins are structurally higher. We continue to favor businesses that benefit from a slow build in nominals like the financials, technology and consumer cyclicals. We remain skeptical of bond proxies like the REITs, utilities and consumer staples. Many face fundamental struggles in addition to their now well-documented rate sensitivity.

Nicole Price 212 803-7935 Yu Bai 212 803-7919 Longying Zhao 212 803-7940 Iwona Scanzillo 212 803-7915

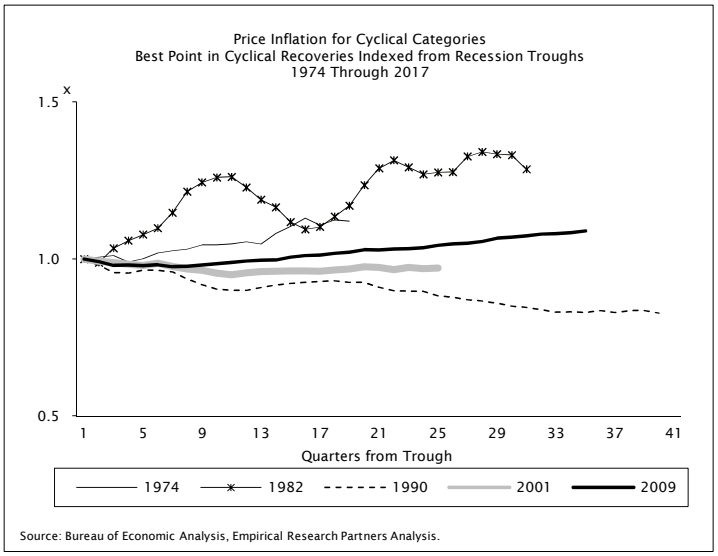
Conclusions in Brief

- The cyclical components of inflation are tame…



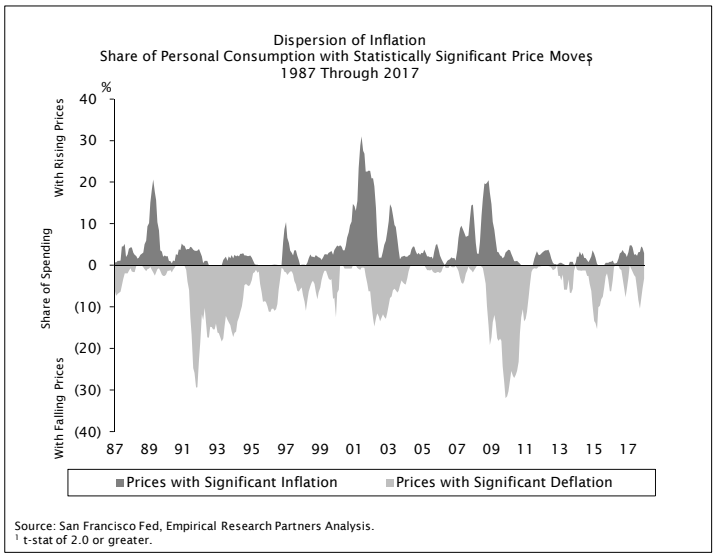
Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.
[1] Excluding gasoline and food at home.

- …And in line with previous cycles:



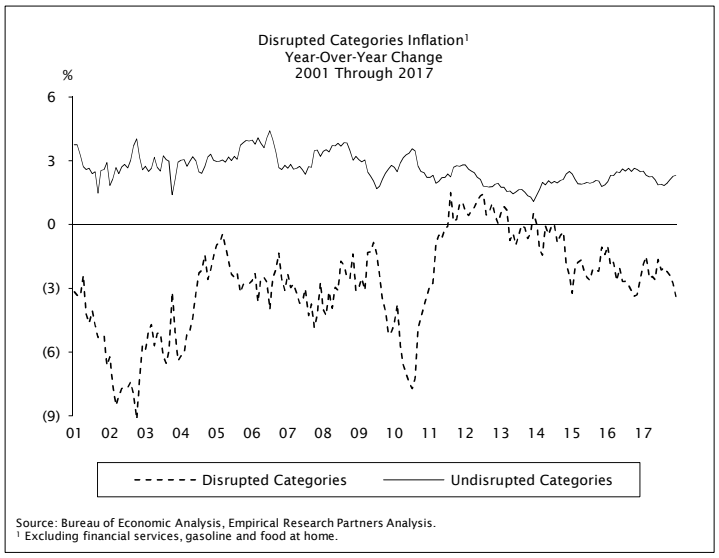
Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

- Deflationary forces have served as a counter-weight to inflation:



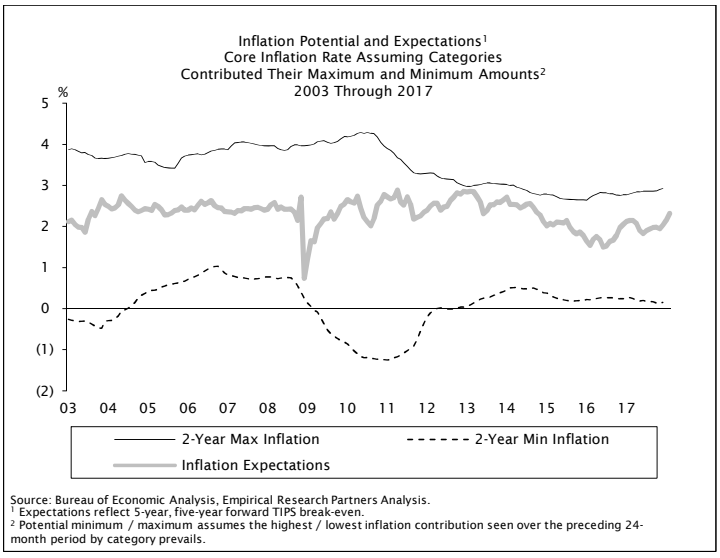
Source: San Francisco Fed, Empirical Research Partners Analysis.
[1] t-stat of 2.0 or greater.

- This is partly due to technological disruption, among other factors:



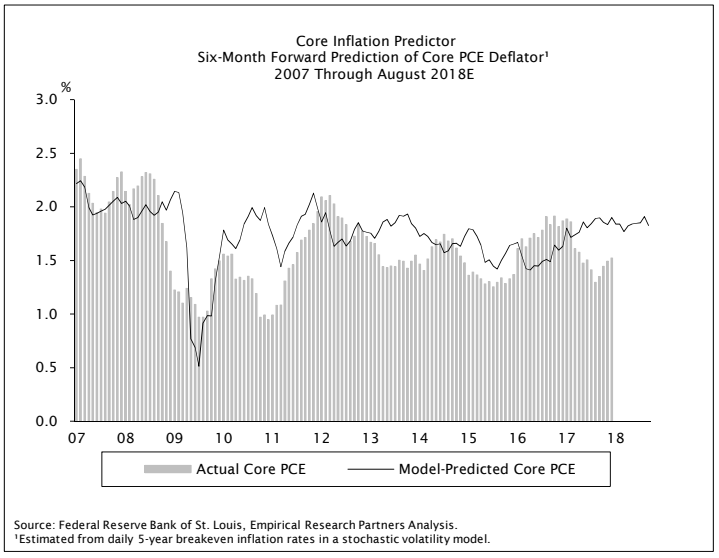
Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.
[1] Excluding financial services, gasoline and food at home.

- Inflation expectations seem to be reverting to the max, not the mean:



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.
[1] Expectations reflect 5-year, five-year forward TIPS break-even.
[2] Potential minimum / maximum assumes the highest / lowest inflation contribution seen over the preceding 24-month period by category prevails.

- Our predictor expects the trend to remain glacial and slow-moving:



Source: Federal Reserve Bank of St. Louis, Empirical Research Partners Analysis.
[1]Estimated from daily 5-year breakeven inflation rates in a stochastic volatility model.

Frameworks That Tell the Story

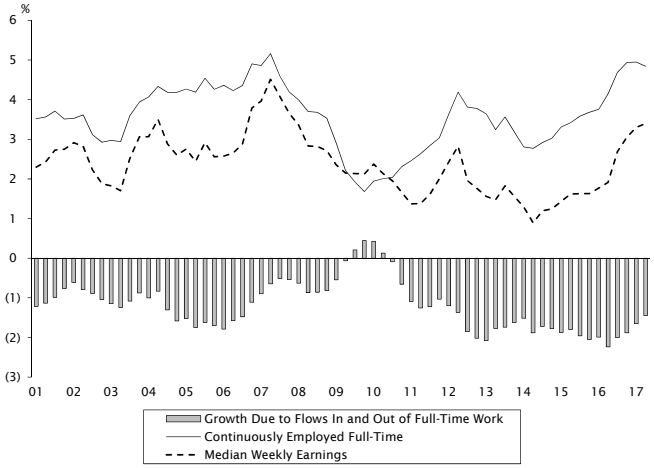
Dissecting Inflation

The market is acting as if it has been aroused from a slumber, not exactly sure what time it is. Investors had grown comfortable with the status quo and were grateful for the extra blanket thrown to them courtesy of the administration. But then something went bump in the night. Should investors go to high alert or should they instinctively hit the snooze button. In this report we dig into the subject of inflation in both traditional and non-traditional ways. We developed frameworks that attribute inflation to cyclical forces, business model disruption, import sensitivity and other factors. We did that by digging into the guts of the data much like an analyst might do in covering a complicated company. We drew upon our quantitative capabilities and built an inflation predictor, based on an analysis of inflation expectations. We also classified stocks based on their sensitivity to interest rates. In the end we concluded that the best course of action was to think fast, but move slowly.

A Little Wage Growth Shouldn't Hurt Anyone

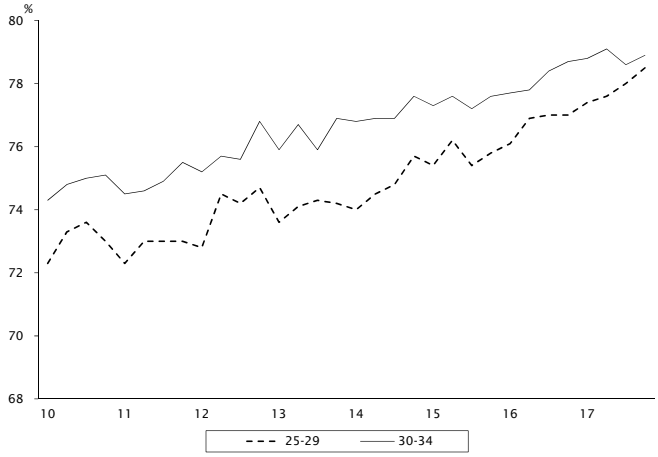
Stronger wage gains, like those seen in the January jobs report, feels like a new thing but they've been building for a while. Core wage growth has been stronger than the widely-followed average hourly earnings statistic. Mix effects have been influencing the numbers and they're beginning to fade. This is just like a retailer whose top line might be distorted by acquisitions, new store openings and currency. When it comes to wages, distortions include entry into and exit from the workforce (see Exhibit 1). Boomers deciding to retire for example can adversely affect the mix as their above-market wage rates fade from view. That effect is compounded by new entrants into the workforce that usually earn less than the median. The mix headwind, which has been wide since 2013, is likely to dwindle for a number of reasons. There are half as many part-timers on the sidelines and Millennials' employment participation has recovered (see Exhibit 2). Wage rates for low-skilled workers have already begun to rise as supply has tightened (see Exhibit 3). The market, that was originally focused on stagnant wage growth, has now turned fearful that wages are too hot, setting the stage for a demand-driven rise in inflation, putting the central bank in an untenable position. A pick-up in spending on big-ticket items by Millennials, 75 million strong, could put the argument for secular stagnation to rest and cause this expansion to finally resemble its predecessors.

Exhibit 1: Median Wage Growth
Contribution from Continuously-Employed Full-Timers and from Flows Into and Out of Full-Time Work
2001 Through Q2 2017



Source: Federal Reserve Bank of San Francisco, Empirical Research Partners Analysis.

Exhibit 2: Millennials at Work
Employment-to-Population Ratio
2010 Through 2017

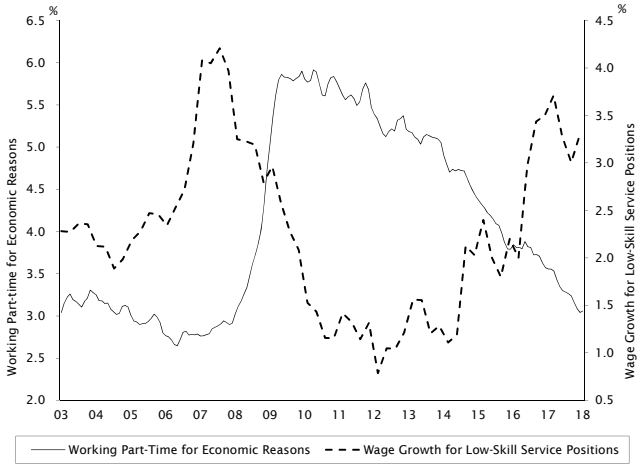


Source: Bureau of Labor Statistics, Empirical Research Partners Analysis.

The linkage between employment and inflation, widely known as the Phillips Curve, has been hard to detect in recent years. In Exhibit 4 we plot growth in the quarterly Employment Cost Index and the corresponding change in PCE inflation one year hence. While there are some examples of a relationship between the two there are just as many exceptions. In the globalization era (i.e. the past 30 years) the linkage has entirely broken down. The Federal Reserve Bank of San Francisco uses city-level instead of national data to study this relationship. Their findings also depict a much flatter curve since the turn of the century. The more recent data indicate that a (1)% drop in unemployment corresponds with a mere +15 basis-point increase in wage growth (see Exhibit 5). In the preceding two

decades, the slope of the line was three-times as steep. Researchers have also noted a non-linear relationship between unemployment and inflation. This means that unemployment needs to be as much as two percentage points above or below normal in order to steepen the Phillips Curve.[1] That is because wages can be rigid and slow to move. Suffice to say, wages are not our primary concern at the moment. If anything, they underpin our optimism about a slow-moving rise in the nominals produced by the economy. That's been seen in the top-line growth rate of the S&P 500 that's gone from less than +2% two years ago to more than +7% in the latest quarter with +70 basis points of that coming from a weaker Dollar.

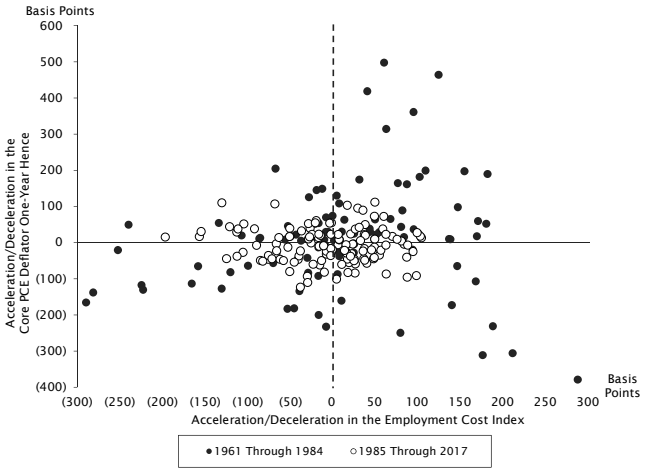
Exhibit 3: Working Part-Time for Economic Reasons as a Share of the Labor Force[1] and Wage Growth for Low-Skill Service Positions 2003 Through January 2018



Source: Bureau of Labor Statistics, Empirical Research Partners Analysis.

[1] Working part-time data smoothed on a trailing three-month basis.

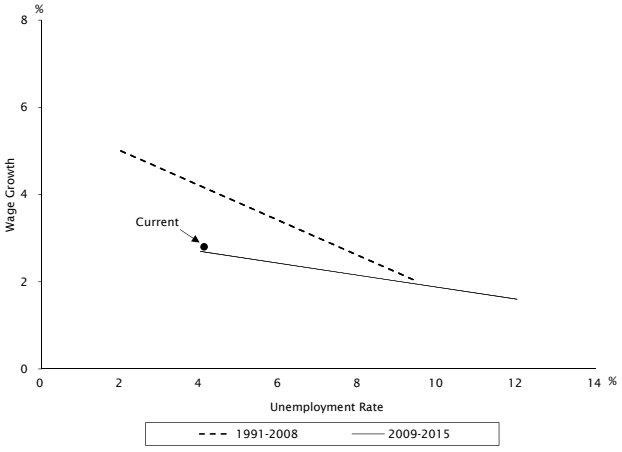
Exhibit 4: Acceleration/Deceleration in the Employment Cost Index and in the Core PCE Deflator, One-Year Hence[1] 1961 Through 2017



Source: Bureau of Labor Statistics, Bureau of Economic Analysis, Empirical Research Partners Analysis.

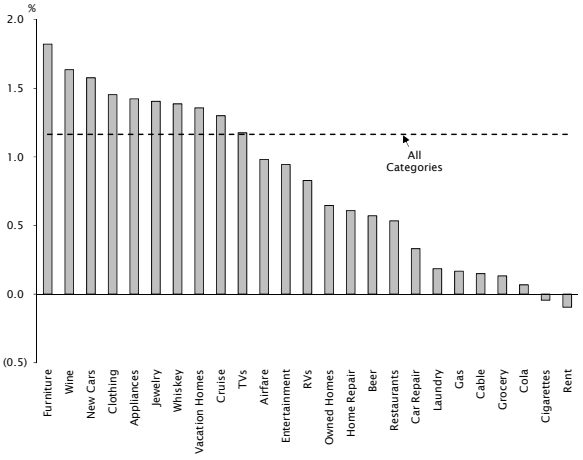
[1] For all private sector employees excluding bonuses; measured on a year-over-year basis.

Exhibit 5: Wage Growth and Unemployment City-Level Relationships Across Two Time Periods 1991-2008 and 2009-2015



Source: Federal Reserve Bank of San Francisco, 2017. "Has the Wage Phillips Curve Gone Dormant?" FRBSF Economic Letter, 2017-30, Empirical Research Partners Analysis.

Exhibit 6: Impact of Tax Cut on Spending Growth by Category Estimated Lift to Growth Under Various Assumptions[1] 2019E



Source: Bureau of Labor Statistics, Empirical Research Partners Analysis.

[1] Assumes funds associated stimulus are allocated by income cohort per the Joint Committee on Taxation and spent according to historical marginal propensity to consume per the consumer expenditure survey. Analysis is further refined to include historical stimulus spending patterns.

What concerns us more are increased odds that "animal spirits" will emerge on the back of the Tax Cut and Jobs Act of 2017 that looks to have been poorly timed. Stimulus has traditionally been reserved for periods of economic

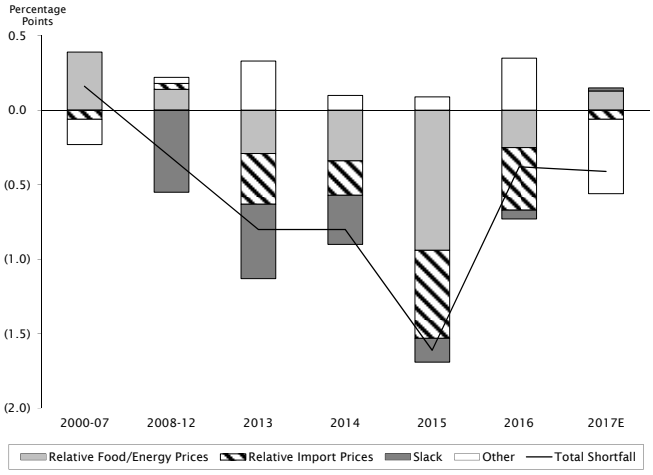
[1]Kumar, A. and Pia Orrenius, 2015. "A Closer Look at the Phillips Curve Using State-Level Data," Federal Reserve Bank of Dallas, Working Paper 1409.

slack, not the case this time. What's more, the cuts disproportionately benefited those at the top-end of the distribution, and that will impact how they flow into the economy. The Joint Committee for Taxation estimates that the bottom 80% of the income pyramid will see improvements in after-tax income ranging from +0.8% to +2.4% in 2018 after accounting for both the reduction in individual and business tax rates. The top 1% meanwhile should see a gain of +7.5%. As we noted in our recent report "Response to Tax Cuts: The Bottom Line," the marginal propensity to consume for high-income earners is (15)% below the MPC for low-income earners. We analyzed the consumption effects from the tax cut by income cohort, applying an appropriate MPC to each. Using that data and the history of their consumption decisions we can then estimate which categories of spending are likely to see the greatest lift. Those are likely to be highly discretionary ones that border on luxury (see Exhibit 6 overleaf).

Digging into Inflation

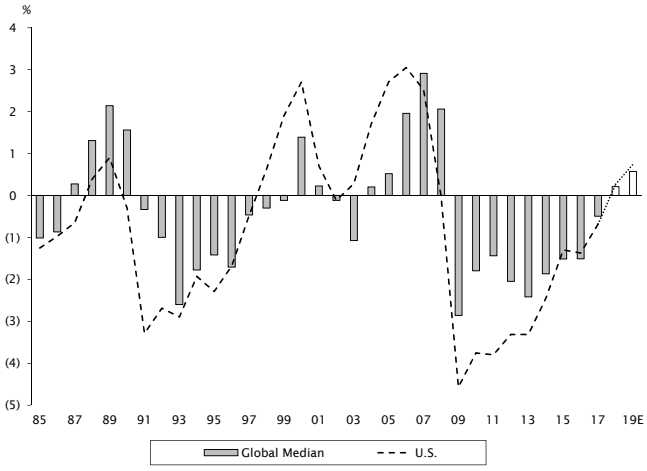
Investors are right to be thinking about the concurrent increases in wage growth, inflation and capital spending. These are all significant dynamics that have emerged to threaten what had been a steady state. Our take is that wages on balance represent a positive force, not a negative one. The pick-up in capital expenditures could be a game changer and we recently analyzed it concluding that it was more benign than it appeared at first glance. Here we'll focus on inflation, which is top-of-mind for many investors. There are few signs that reduced slack in the economy is set to trigger an inflationary episode, but given the starting point the stakes are high, and the rest of the world may no longer have our back (see Exhibits 7 and 8). In the pages that follow we dive into the guts of inflation.

Exhibit 7: Deviation of Core PCE Inflation from the Fed's 2% Target
The Shortfall and the Attribution to Specific Factors
2000 Through 2017E



Source: Janet L. Yellen. "Inflation, Uncertainty, and Monetary Policy." Prospects for Growth: Reassessing the Fundamentals, 59th Annual Meeting of the National Association for Business Economics, 26 September 2017, Cleveland, OH, Chair Address.

Exhibit 8: Global Economic Slack
Gap Between GDP and Potential GDP for the U.S. and the World[1]
1985 Through 2019E



Source: OECD, Empirical Research Partners Analysis.

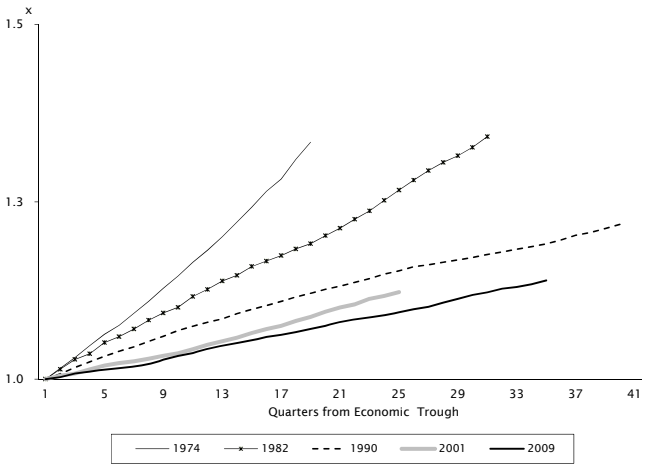
[1] Global gap reflects the median across the 34 OECD countries.

Cyclical and Acyclical Inflation

The fact that inflation in the current economic recovery has not kept pace with prior cycles is well understood (see Exhibit 9). The composition of inflation however, is less familiar. The Fed has characterized inflation as being driven by cyclical forces and acyclical ones. We have built upon that concept by breaking down core inflation in a similar way. We include autos, household durables, housing, apparel, travel, restaurants and recreation in the cyclical component. These account for 40% of consumption. Health care, financial services, education, professional services, tobacco and most other non-durables are classified as acyclical. These account for 50% of consumption. The data do not suggest that inflation is about to over-heat. The cyclical component has been tame. If anything, the acyclical component has been more important to the outcome and it's harder to predict (see Exhibit 10).

The cyclical component of inflation also doesn't seem to be spring-loaded since inflationary trends in this cycle don't stand up (see Exhibit 11). Here too, the acyclical forces are more pronounced for categories including telecom, financial services and drugs that helped to cause a (60) basis-point moderation in the pace of core inflation growth last year (see Exhibit 12). The deflationary force associated with those acyclical categories has begun to abate after a twelve-month downtrend.

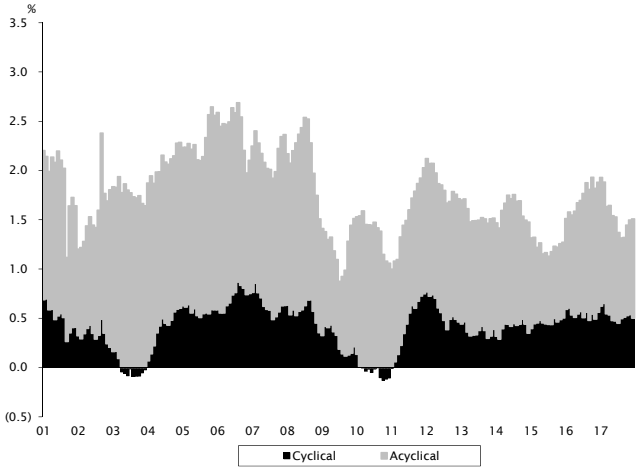
Exhibit 9: Core PCE Deflator[1]
Best Point in Cyclical Recoveries Indexed
from Recession Troughs
1974 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

[1] Excludes food and energy.

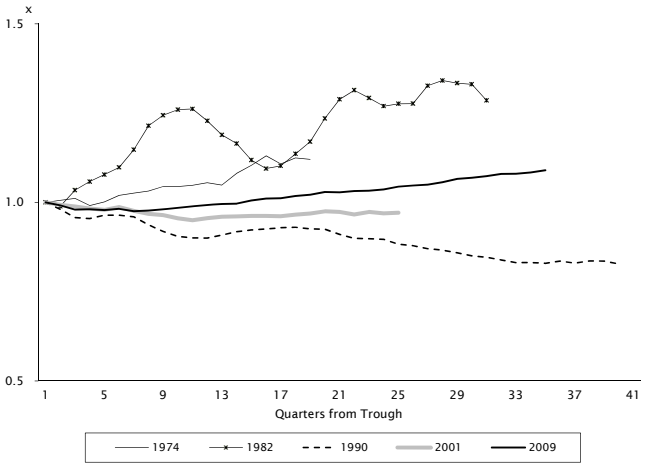
Exhibit 10: Cyclical and Acyclical Price Movements
Contribution to Core Inflation[1]
2001 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

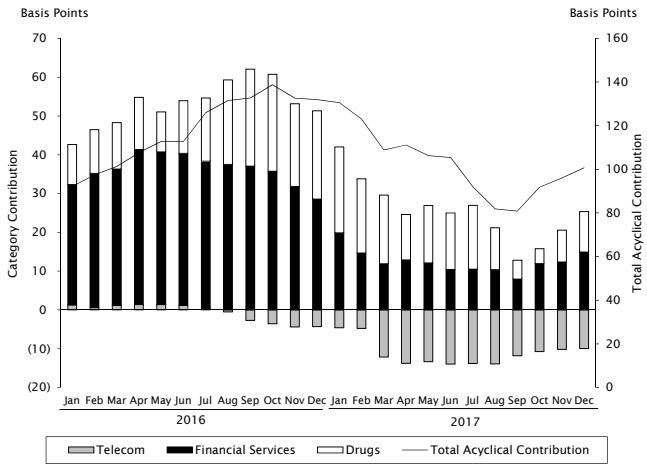
[1] Excluding gasoline and food at home.

Exhibit 11: Price Inflation for Cyclical Categories
Best Point in Cyclical Recoveries Indexed
from Recession Troughs
1974 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

Exhibit 12: Contributors to Acyclical Inflation
Basis-Point Contribution to Core Inflation[1]
2016 Through 2017



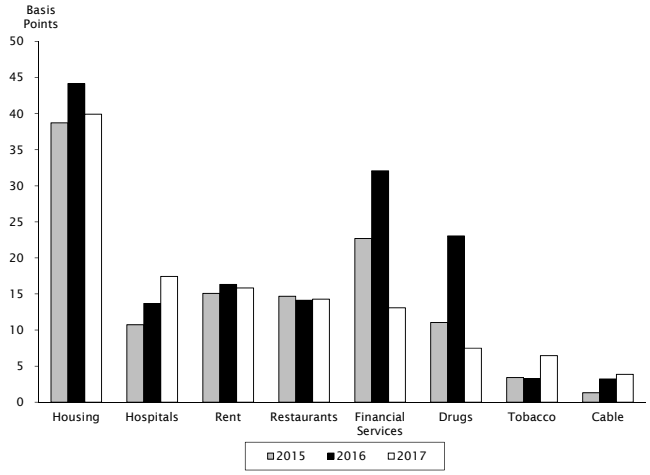
Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

[1] Excluding gasoline and food at home.

The Cast of Characters

If just a few categories can impact inflation enough to worry the market, it might be important to understand all of the forces acting on inflation and deflation up close and personal. We identify the most important contributors to inflation in Exhibit 13. The cost of housing is the biggest contributor to the core PCE inflation rate and actual rent payments aren't far behind. These two bear close scrutiny not only because of their size, but also because of their fundamental outlook. In a recent report called "The Housing Cycle: In Balance, On Balance," we estimate pent-up demand for owned homes at five million units (see Exhibit 14). The trick will be satisfying this demand given the slow growth of supply (see Exhibit 15). Doing so without inviting inflation would border on masterful. At present, this potential inflationary trend has been kept at bay, but it makes sense to keep a close watch. We would not like to see the contribution from owned homes and rentals rise in tandem (see Exhibit 16). The system may prove to be self-adjusting as higher borrowing costs could put home purchase out of reach for many Millennials. A decade after the bust affordability is already an issue.

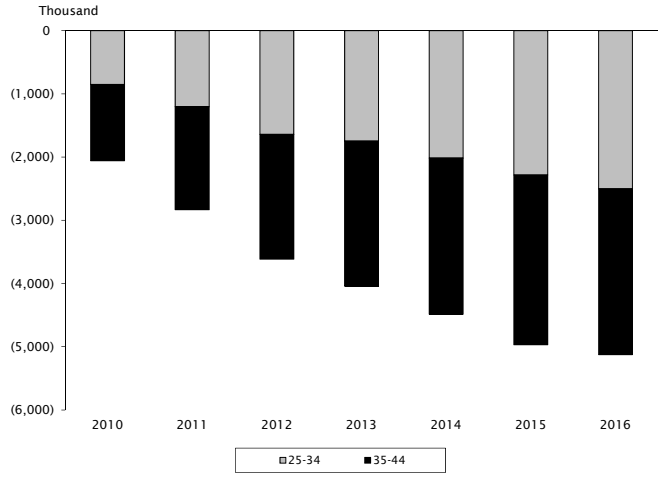
Exhibit 13: Top Contributors to PCE Inflation
Basis-Point Contribution to the Core[1]
2015 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

[1] Data smoothed three months at year-end.

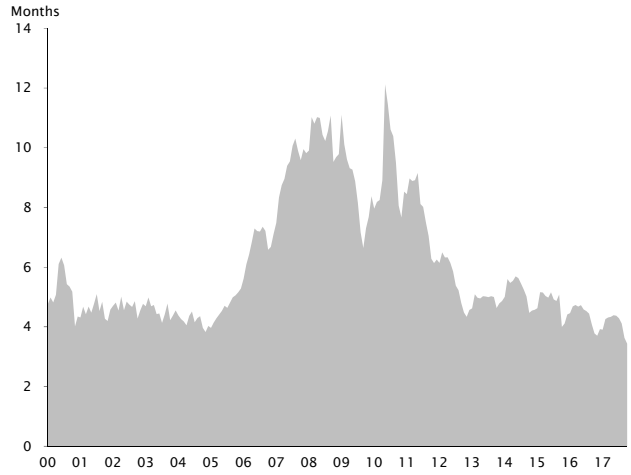
Exhibit 14: The Homeownership Gap
Actual Homeowner Households
Versus Expected Result for Younger Age Cohorts[1]
2010 Through 2016



Source: U.S. Census Bureau, Empirical Research. Partners Analysis.

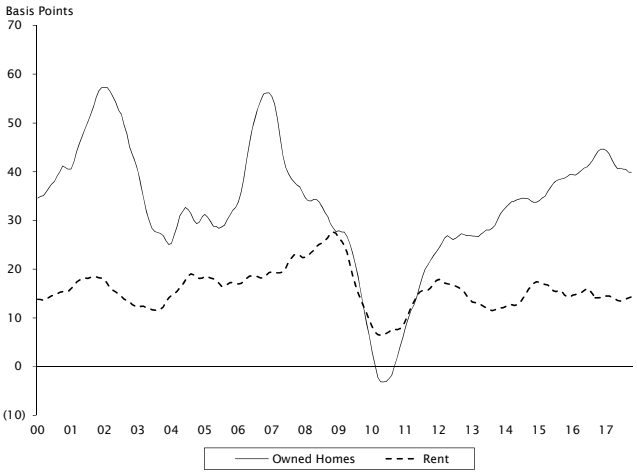
[1] Expected result uses10-year pre-recession average of homeowners to population.

Exhibit 15: Housing Inventory
Months Supply of New and Existing Homes
2000 Through 2017



Source: U.S. Census Bureau, National Association of Realtors, Empirical Research Partners Analysis.

Exhibit 16: Price Movement for Owned Homes and Rent[1]
Contribution to Overall Core Inflation
2000 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

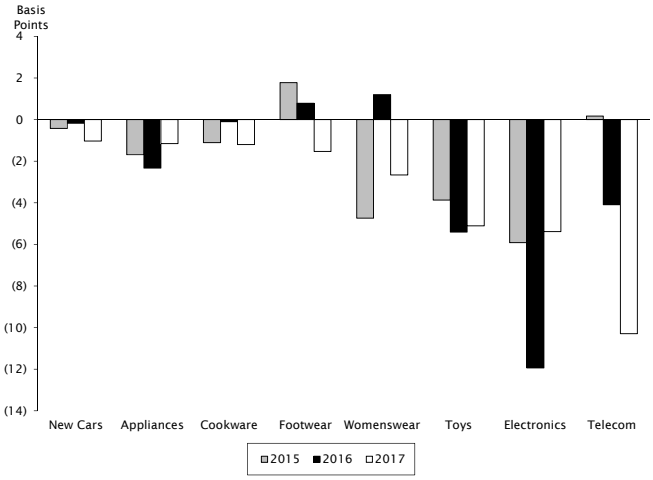
[1] Owned homes classified as imputed rent.

The contributors to deflation represent a narrower cast of characters. The most recurring ones in recent years have been toys, electronics and telecom, but these do not contribute much weight to the overall picture (see Exhibit 17). For example, the eight categories in the graph add about as much to deflation as hospitals source in inflation. Since contributors to inflation tend to ebb and flow, we prefer to group categories into cohorts that we can track over time. This exercise also helps us detect and quantify underlying themes.

Inflation Deciles

We start by looking at inflation contributors by percentile rather than by name. The San Francisco Fed does a good job of tracking this (see Exhibit 18). Their data suggests that the bottom 10% has had a consistent impact creating deflation of roughly (2) percentage points. The impact of the top decile is more variable but created around +3 to 4 points of inflation last year. The data do not paint a picture of an inflationary tide lifting all boats. Rather, what's separated this decade from the last one is the lesser contribution seen at the top-end of the inflation spectrum**.** We just haven't seen really big pricing power. This is borne out in our statistical work as well.

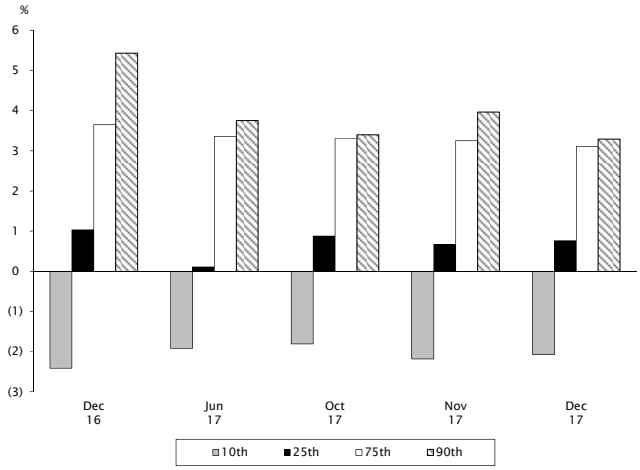
Exhibit 17: Contributors to PCE Deflation
Basis-Point Contribution to the Core[1]
2015 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

[1] Data smoothed three months at year-end.

Exhibit 18: Distribution of Inflation
Year-over-Year Change in PCE Deflator by Percentile
2017

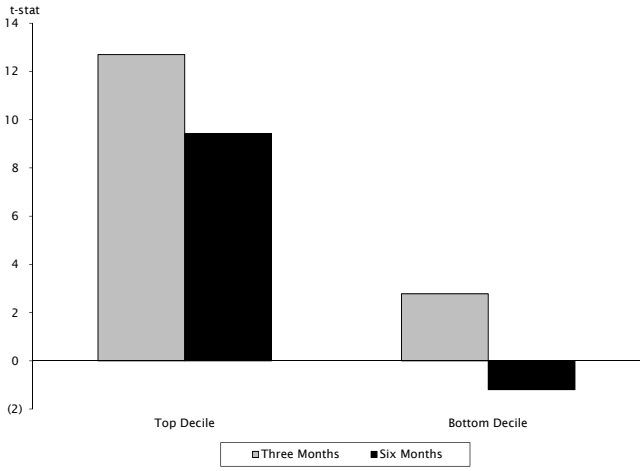


Source: Federal Reserve Bank of San Francisco, Bureau of Economic Analysis, Empirical Research Partners Analysis.

From 1982 through the turn of the century, the top contributors to core inflation represented a more dominant force than any other cohort. The categories underpinning the top decile of inflation were four-times more likely to influence forward inflation results than the elements in the bottom decile (see Exhibit 19). That is no longer the case. What's key is that deflationary forces are now more deterministic to the overall inflation picture (see Exhibit 20). To make sure we are detecting signals and not noise, we examined the share of price movements that are statistically significant (see Exhibit 21). The dark grey area represents the share of spending that is experiencing a statistically significant inflationary force while the light grey area depicts the same for deflationary ones. To us, it appears that it's the downside forces that've kept inflation below the Fed's 2% target level.

Keeping track of deflationary categories used to be like nailing Jell-o to the wall since their make-up was unpredictable. From 1980 through 1999, a category that qualified in the bottom decile of inflation was more likely to flee the cohort than to stay in the mix one year hence. Since then, deflationary forces have become less prone to churn. The composition of the bottom decile now behaves more like the top decile (see Exhibit 22). These more equal, but opposing forces should help to keep inflation slow moving.

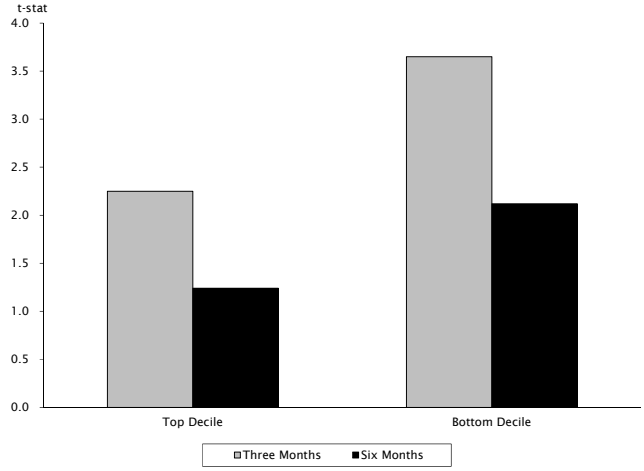
Exhibit 19: Top and Bottom Decile of Inflation Contribution
Before 2000
Significance in Determining Forward Three- and Six-Month Core Inflation[1]
1982 Through 2000



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

[1] Monthly PCE deflator excluding food and energy.

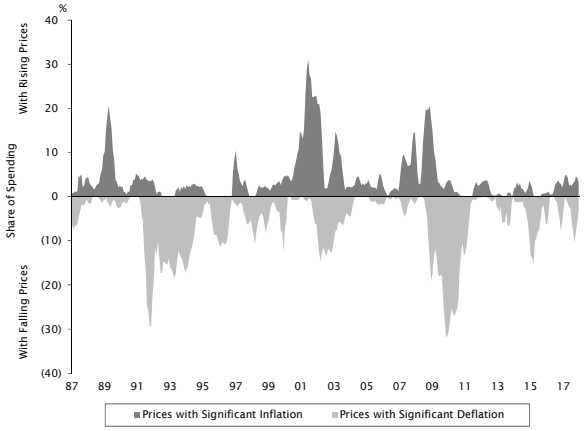
Exhibit 20: Top and Bottom Decile of Inflation Contribution
Since 2000
Significance in Determining Forward Three- and Six-Month Core Inflation[1]
2000 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

[1] Monthly PCE deflator excluding food and energy.

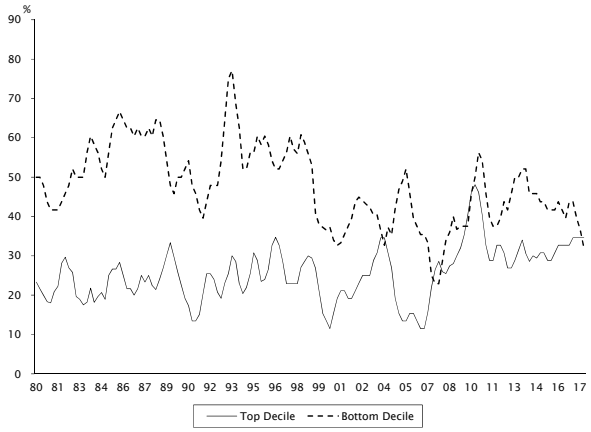
Exhibit 21: Dispersion of Inflation
Share of Personal Consumption with Statistically Significant Price Moves[1]
1987 Through 2017



Source: San Francisco Fed, Empirical Research Partners Analysis.

[1] t-stat of 2.0 or greater.

Exhibit 22: Inflationary and Deflationary Categories
Constituent Churn of the Top and Bottom Decile of Core Inflation[1]
1980 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

[1] Based on contribution to the core inflation rate.

Disruption and Globalization

We are often asked what impact technological disruption has on inflation patterns. To help understand that we have hand-picked 40 categories of consumption that qualify as disrupted, in our view. These include furniture, toys, household products, cable, newspapers and telecom services. As a group prices for these disrupted categories are tracking (150) basis points below the rate of core inflation and their undisrupted counterparts (see Exhibit 23). Those other 75 categories are more insulated from Amazon, Wayfair, Netflix and the internet as a whole. In our view, technological disruption is likely to remain a deflationary force since Amazon, Google and others will be influencing larger pools of demand (i.e., cars) as they get bigger.

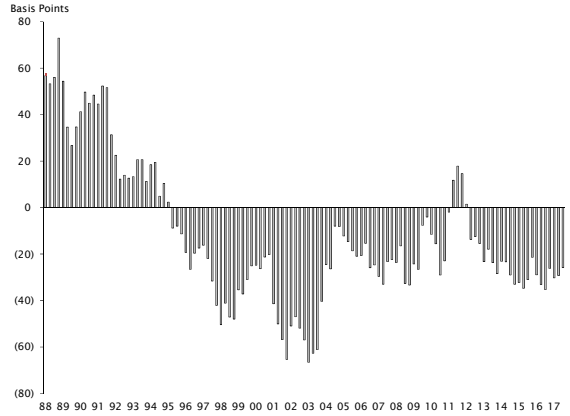
In Exhibit 24 we investigate another theme -- categories that have a high import quotient. To help with this classification we rely on the San Francisco Fed that ranked PCE components by their exposure to imports a few years back.[2] Our calculations point to the fact that deflation in high-import categories intensified after China was admitted into the WTO in 2001 and has persisted since then. Our calculations also indicate that high-import categories are currently weighing down inflation by roughly (20) basis points. The risk is that this drag narrows if a weak dollar persists. We have begun to see import prices rise, but the impact is likely to be felt over time since pricing is sticky and many imports are contracted in either dollars or currencies that are pegged to it.

Exhibit 23: Disrupted Categories Inflation[1]
Year-Over-Year Change
2001 Through 2017

Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

[1] Excluding financial services, gasoline and food at home.

Exhibit 24: High-Import Categories
Contribution to Core Inflation[1]
1988 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

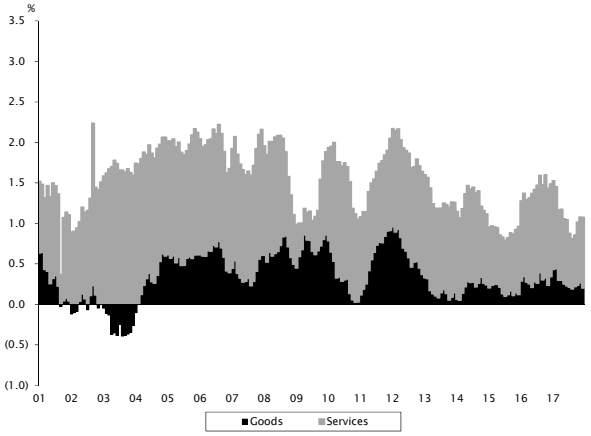
[1] Excluding gasoline and food at home.

[2] Hale, G., and Bart Hobijin, 2011. "The U.S. Content of Made in China," August 2011, Federal Reserve Bank of San Francisco Working Paper 2011-25.

Goods and Services

At the highest level consumption is comprised of goods and services. This classification however can be misleading since housing (rentals and owned homes) is technically considered a service. The same goes for auto leasing. Our definition of services strives to understand price movement in non-discretionary areas like health care, education and financial services. In aggregate, the rate of inflation for these services far outpaced mundane goods in the early 2000's, but that differential has been somewhat smaller lately (see Exhibit 25). Health care inflation is at the center of this debate. After peaking earlier in the decade, price increases in most areas of health care swooned, making it seem as if they could dampen inflation all on their own (see Exhibit 26). Health care inflation can tell a different story depending on the yardstick used to measure it. Our best guess is that it will remain relatively subdued, but a surprising uptick in the January PPI creates some consternation (see Exhibits 27 and 28).

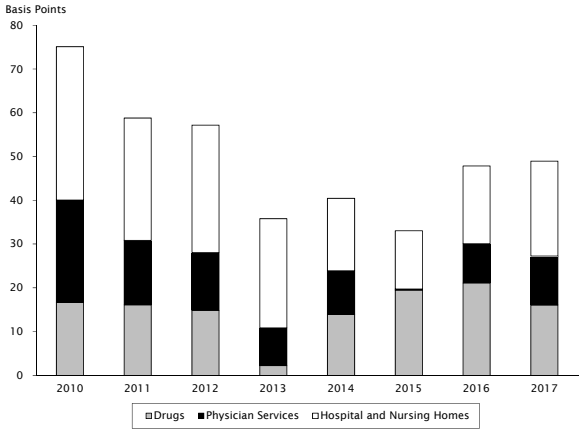
Exhibit 25: Goods and Services Price Movements[1]
Contribution to Core Inflation[2]
2001 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

[1] Services excludes housing.
[2] Excluding gasoline and food at home.

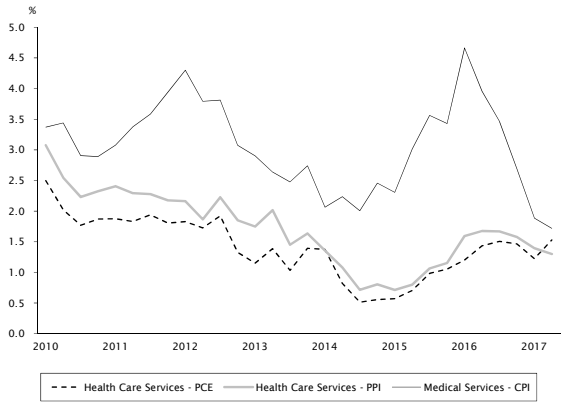
Exhibit 26: Health Care Inflation
Basis-Point Contribution to Core PCE Inflation[1]
2010 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

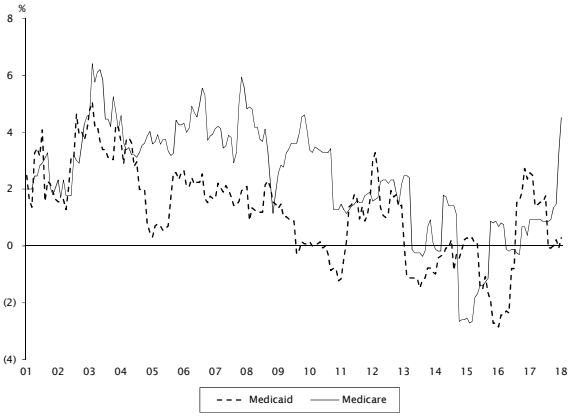
[1] Excluding gasoline and food at home.

Exhibit 27: Health Care Services Inflation
Year-over-Year Change in the CPI, PPI and PCE
2010 Through 2017



Source: Bureau of Labor Statistics, Bureau of Economic Analysis, Federal Reserve Bank of St. Louis, Empirical Research Partners Analysis.

Exhibit 28: Medicaid and Medicare Hospital Producer Price Index
Year-over-Year Percent Change
2001 Through January 2018

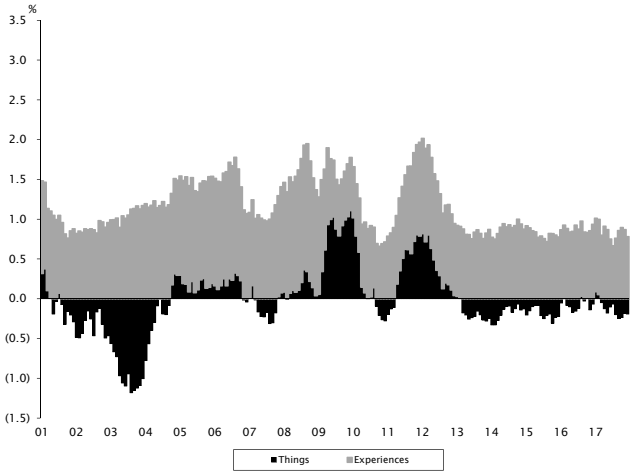


Source: Bureau of Labor Statistics, Empirical Research Partners Analysis.

Experiences and Things

Another way of breaking down goods and services is to categorize them as experiences and things. This has become a popular way of conceptualizing customer preferences, but it's been more difficult to quantify. Classifying the "things" side of the equation generally conforms to the broader definition of "goods". But in order to arrive at "experiences," we reclassify services to exclude financial services, health care and housing. The theme centers on travel, restaurants, recreation, education and personal services. We see from Exhibit 29 that mundane "things" lost pricing power back in 2013. The differential in inflation for these two cohorts however, is not as wide as it used to be (see Exhibit 30).

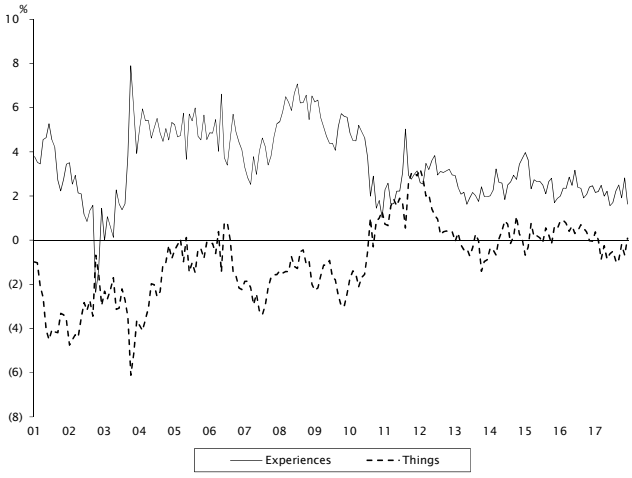
Exhibit 29: Experiences and Things Price Movements[1]
Contribution to Core Inflation[2]
2001 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

[1] Experiences represent services other than housing, financial and professional.
[2] Excluding gasoline and food at home.

Exhibit 30: Experiences and Things Inflation[1]
Year-over-Year Percent Changes
2001 Through 2017



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

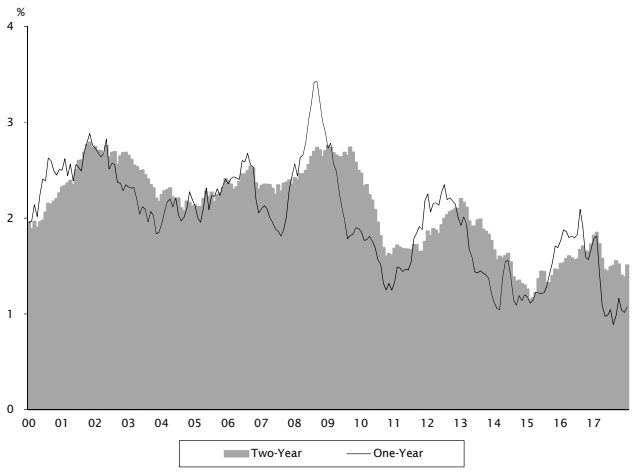
[1] Experiences represent services other than housing, financial and professional.

The Two-Year Stack

Tough comps matter for inflation just like they do for company results. When a retailer reports a surprisingly strong comp, the first thing investors do is stack it on a two-year basis. The result is far more convincing if the two-year trend is accelerating. Otherwise, the good result can probably be attributed to an easy comparison from a year ago. We use the Fed's data on sticky and flexible price movement to make a similar point with inflation.

As the name entails "sticky" prices tend to move less often. They include items like children's clothes, alcohol, education, rent and motor vehicle fees and account for 60% of core consumption. Exhibit 31 graphs the "sticky" component of inflation on a one-year and a two-year basis. The first thing we notice is that last year's nose dive was far more pronounced on a one-year basis. We see the same dynamic in Exhibit 32 that tracks the change in flexible prices. These include items such as clothing, footwear, jewelry and automobiles. To us this paints a picture of a market that over-reacted to last year's drop in core inflation rates, which were driven by idiosyncratic factors. As these begin to roll off, we might end up with an over-reaction in the other direction. The volatility might very well be fleeting. The underlying trend seems pretty steady.

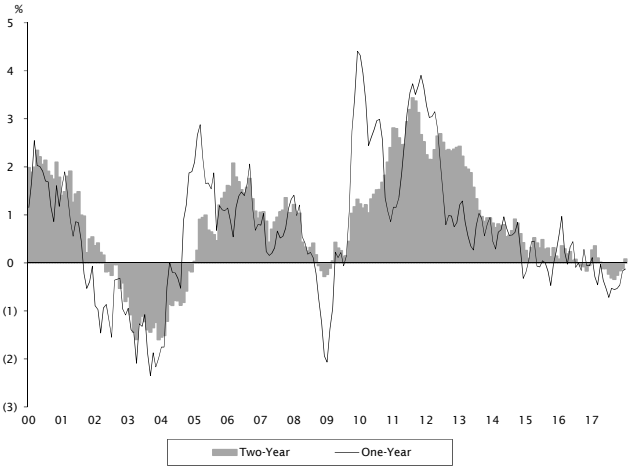
Exhibit 31: Core Sticky CPI Ex-Shelter[1]
One-Year and Two-Year Compounded Monthly Change[2]
2000 Through January 2018



Source: Federal Reserve Bank of Atlanta, Empirical Research Partners Analysis.

[1] Sticky CPI relates to items with infrequent price fluctuation.

Exhibit 32: Core Flexible CPI
One-Year and Two-Year Compounded Monthly Change
2000 Through January 2018



Source: Federal Reserve Bank of Atlanta, Empirical Research Partners Analysis.

The data seem to suggest that inflation expectations are reverting to something closer to the *max* instead of the mean. The dotted line in Exhibit 33 represents what inflation would look like if each underlying category saw prices inflate at the lowest rate seen in the preceding two years. The top line represents what inflation would look like if every category inflated at the highest rate seen in the preceding two years. The grey line depicts inflation expectations using the five-year breakeven rate for TIPS. To us, expectations seem to be factoring in more of a worst-case scenario than a base-case one.

An Inflation Forecasting Model

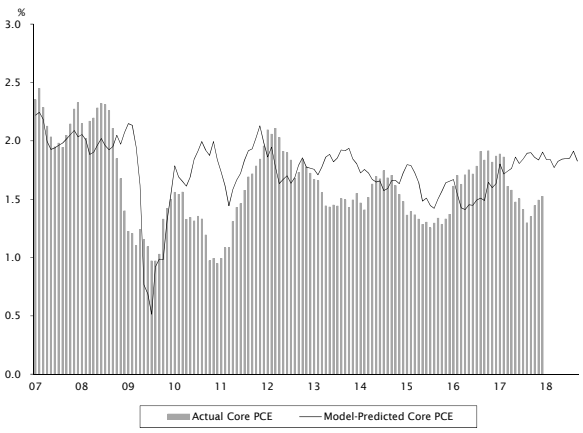
With so many moving pieces, predicting inflation is a difficult task, to say the least. Developing a set of fundamental frameworks – as we have in this report – should help us measure some important themes and dynamics. In order to help predict inflation outright, our quant team has developed a model (see Exhibit 34). It essentially relies on the historical relationship between inflation expectations and core PCE inflation. The model would have missed last year's down-tick and agreed with our fundamental conclusion that 2017 was an anomaly. It now suggests that the Fed's 2% target is credible.

Exhibit 33: Inflation Potential and Expectations[1]
Core Inflation Rate Assuming Categories Contributed Their Maximum and Minimum Amounts[2]
2003 Through 2017

Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

[1] Expectations reflect 5-year, five-year forward TIPS break-even.
[2] Potential minimum / maximum assumes the highest / lowest inflation contribution seen over the preceding 24-month period by category prevails.

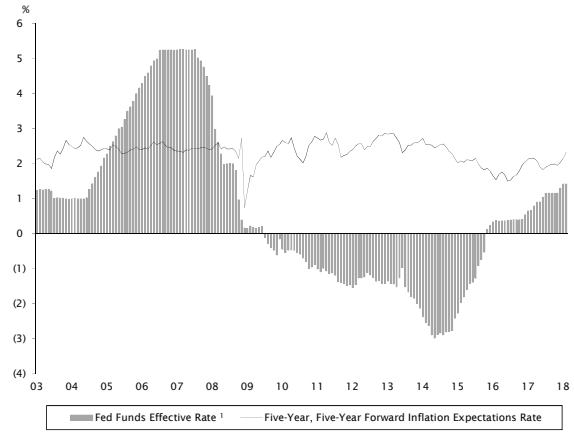
Exhibit 34: Core Inflation Predictor
Six-Month Forward Prediction of Core PCE Deflator[1]
2007 Through August 2018E



Source: Federal Reserve Bank of St. Louis, Empirical Research Partners Analysis.

[1] Estimated from daily 5-year breakeven inflation rates in a stochastic volatility model.

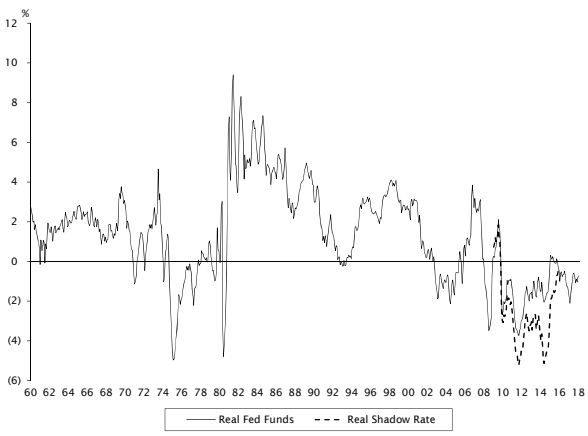
Exhibit 35: Forward Inflation Expectation and Fed Funds
Adjusted for Quantitative Easing
2003 Through Early-February 2018



Source: Wu, J. C. and Fan Dora Xia, 2015. "Measuring the Macroeconomic Impact of Monetary Policy at the Zero Lower Bound," Chicago Booth Research Paper No. 13-77, Federal Reserve Bank of St. Louis.

[1] Fed Funds effective rate is supplanted by the Fed shadow rate between mid-2009 and late-2015, that is the unobserved short-term rate not bounded by zero and derived by a non-linear term structure model.

Exhibit 36: Real Interest Rates
Fed Funds and Shadow Rates Minus the CPI[1]
1960 Through January 2018



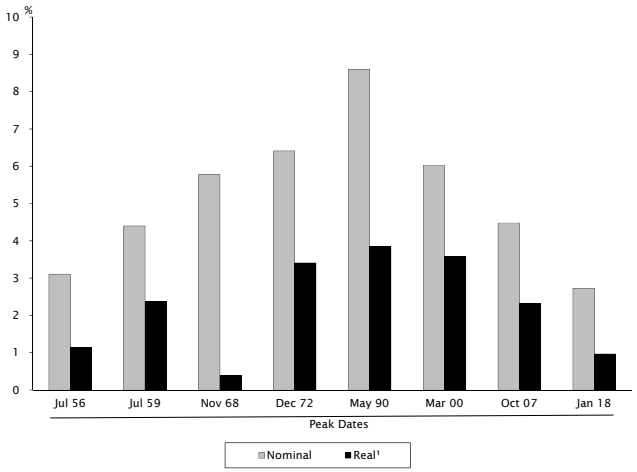
Source: Wu, J. C. and Fan Dora Xia, 2015. "Measuring the Macroeconomic Impact of Monetary Policy at the Zero Lower Bound," Chicago Booth Research Paper No. 13-77, Federal Reserve Bank of St. Louis, Bureau of Labor Statistics.

[1] Real shadow rate between mid-2009 and late-2015, is the unobserved short-term rate not bounded by zero and derived by a non-linear term structure model.

The Fed might also be more in sync with inflation than some suggest. Formal increases in interest rate may seem small by historical standards, but the shadow rate that accounts for unconventional policies, has already risen by +400 basis points if we give effect to the reversal of quantitative easing (see Exhibit 35 overleaf).

At the end of the day, we are still attracted to stocks. Rates might be rising, but they are rising from low levels. Real rates are off historical lows, but are still slightly negative if we look at the Fed Funds rate less CPI (see Exhibit 36 overleaf). Using the 10-year would put real rates in positive territory, but they would still be a fraction of the levels seen at historical market peaks (see Exhibit 37). Stocks are also more attractively priced than they have been in prior periods of rising interest rates as the equity market never embraced the secular stagnation scenario (see Exhibit 38).

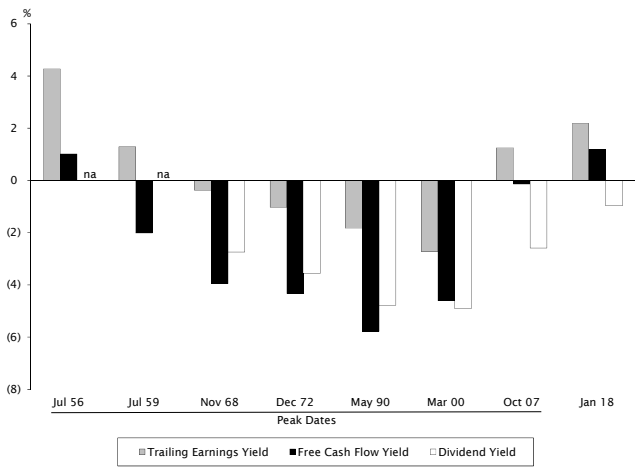
Exhibit 37: Nominal and Real Ten-Year Treasury Bond Yields At Market Peaks Following Periods of Rising Rates 1952 Through Early-February 2018



Source: Federal Reserve Board, Bureau of Labor Statistics, Empirical Research Partners Analysis.

¹ Deflated using core CPI Inflation, prior to 1957 overall CPI is used.

Exhibit 38: Large-Capitalization Stocks Trailing Earnings, Free Cash Flow and Dividend Yields Less That of the Ten-Year Treasury Bonds¹ at Market Peaks Following Periods of Rising Rates 1952 Through January 2018



Source: Federal Reserve Board, Empirical Research Partners Analysis.

¹ Excludes financials, REITs and utilities for free cash flow yields; trailing earnings yields are for the S&P 500 stocks.

Conclusion: Think Fast, But Act Slowly

Cyclical components of inflation that amount to 40% of consumption have been remarkably steady for five years, contributing an estimated +50 basis points to core inflation. The contribution from that cohort has been consistent with prior economic recoveries. Cyclical inflation is not spring-loaded, in our opinion. Acyclical categories such as drugs, telecom and financial services have been the outliers, causing a swoon in reported inflation last year. Lapping that impact might be causing a ripple effect in the current year much like a business facing a tough comparison. These idiosyncratic movements are worth monitoring, but are less concerning.

Some inflationary pressures do exist and we will be careful to watch trends in housing where pent-up demand is surfacing in an environment with limited supply. Health care and imports will also be important factors. We will also be mindful of "animal spirits" that might emerge on the back of tax cuts that look to have been poorly timed. Our best advice is to think fast, but act slowly. Stocks are still cheaper than they were at prior market peaks, real rates are far lower and margins are structurally higher. We continue to favor businesses that benefit from a slow build in nominals like financials, technology and consumer cyclicals. We remain skeptical of bond proxies like REITs, utilities and consumer staples. Many of these face fundamental struggles in addition to the now well-documented rate sensitivity.

Appendix 1: Large-Capitalization Stocks: Lowest Decile of Bond Beta[1]
Sorted by Sector, Core Model Rank and Market Capitalization
As of Mid-February 2018

			Quintile Ranks (1=Best; 5=Worst)								
			Super Factors								
Symbol	Company	Price	Valuation	Capital Deployment	Earnings Quality and Trend	Market Reaction	Core Model Rank	**Bond Beta**	YTD Returns		Market Capitalization ($ Billion)
Consumer Cyclicals:											
Consumer Durables											
GM	GENERAL MOTORS CO	$41.85	1	1	1	3	1	**(0.4)** x	2.1	%	$58.7
GT	GOODYEAR TIRE & RUBBER CO	29.96	1	1	5	4	2	**(0.4)**	(6.9)		7.2
Retail and Other Consumer Cyclicals											
LVS	LAS VEGAS SANDS CORP	$74.84	3	1	1	1	1	**(1.0)** x	7.7	%	$59.2
MGM	MGM RESORTS INTERNATIONAL	35.00	4	2	1	3	2	**(0.8)**	4.8		19.8
TIF	TIFFANY & CO	101.69	3	3	1	3	3	**(0.4)**	(2.2)		12.6
Media											
BATRA	LIBERTY MEDIA BRAVES GROUP	$23.00	5	5	5	5	5	**(0.7)** x	4.3	%	$22.6
Capital Equipment											
PCAR	PACCAR INC	$68.98	2	2	1	3	2	**(0.3)** x	(2.6)	%	$24.3
FLR	FLUOR CORP	57.85	1	2	3	3	2	**(0.4)**	12.0		8.1
WBC	WABCO HOLDINGS INC	143.60	4	1	2	3	2	**(0.6)**	0.1		7.7
IR	INGERSOLL-RAND PLC	92.01	2	2	4	4	3	**(0.3)**	3.2		23.0
FLS	FLOWSERVE CORP	42.87	4	1	1	5	3	**(0.4)**	2.2		5.6
TXT	TEXTRON INC	59.68	3	2	5	2	4	**(0.3)**	5.5		15.7
PH	PARKER-HANNIFIN CORP	184.63	3	4	5	3	5	**(0.3)**	(7.1)		24.6
MIDD	MIDDLEBY CORP	133.06	4	5	5	4	5	**(0.6)**	(1.4)		7.4
Commercial Services and Supplies											
MAN	MANPOWERGROUP	$122.87	1	2	4	1	2	**(0.6)** x	(2.6)	%	$8.1
RHI	ROBERT HALF INTERNATIONAL INC	56.38	2	2	4	1	2	**(0.4)**	1.5		7.1
Industrial Commodities											
LYB	LYONDELLBASELL INDUSTRIES NV	$109.97	1	2	2	1	1	**(0.7)** x	(0.3)	%	$43.4
MT	ARCELORMITTAL	35.29	1	1	3	1	1	**(0.7)**	9.2		36.0
FCX	FREEPORT MCMORAN COPPER & GOLD -CL B	19.12	1	1	1	1	1	**(0.9)**	0.8		27.7
TECK	TECK RESOURCES LTD	30.33	1	1	3	1	1	**(1.1)**	15.9		17.5
EMN	EASTMAN CHEMICAL CO	100.11	1	3	2	1	1	**(0.4)**	8.1		14.3
WLK	WESTLAKE CHEMICAL CORP	109.24	2	1	2	1	1	**(0.8)**	2.5		14.1
HUN	HUNTSMAN CORP	32.84	2	2	3	2	2	**(1.3)**	(1.4)		7.9
RS	RELIANCE STEEL & ALUMINUM CO	91.47	1	3	4	2	2	**(0.4)**	6.6		6.7
CE	CELANESE CORP	103.11	4	1	5	2	3	**(0.4)**	(3.7)		14.0
DWDP	DOWDUPONT INC	71.85	4	5	5	3	5	**(0.4)**	0.9		168.1
Transports											
FDX	FEDEX CORP	$245.03	4	3	2	2	3	**(0.2)** x	(1.8)	%	$65.6
Technology:											
Technology Software and Services											
SINA	SINA CORP	$118.85	2	1	3	4	1	**(1.3)** x	18.5	%	$8.5
CSRA	CSRA INC	40.52	2	3	4	1	2	**(1.4)**	35.9		6.6
YNDX	YANDEX N.V.	41.96	5	3	3	2	3	**(1.4)**	28.1		13.7
Technology Hardware											
WDC	WESTERN DIGITAL CORP	$84.54	1	1	2	4	1	**(0.7)** x	6.3	%	$25.2
XRX	XEROX CORP	30.50	2	2	5	4	3	**(0.3)**	4.6		7.8
Semiconductors											
MU	MICRON TECHNOLOGY INC	$43.50	1	4	1	1	1	**(0.8)** x	5.8	%	$50.4
TER	TERADYNE INC	43.46	3	1	1	2	1	**(0.5)**	3.8		8.5
ASML	ASML HOLDING NV	194.90	5	2	3	1	3	**(0.6)**	12.1		83.3
NXPI	NXP SEMICONDUCTORS NV	116.92	3	3	3	5	3	**(0.6)**	(0.1)		39.6
STM	STMICROELECTRONICS NV	22.70	4	5	5	1	4	**(0.5)**	3.9		20.5
AMD	ADVANCED MICRO DEVICES	12.19	5	4	2	3	5	**(0.9)**	18.6		11.8
Health Care:											
Biotechnology											
NBIX	NEUROCRINE BIOSCIENCES INC	$85.57	5	5	4	2	3	**(6.7)** x	10.3	%	$7.6
Health Care - Equipment and Services											
A	AGILENT TECHNOLOGIES INC	$72.02	5	3	1	2	3	**(0.4)** x	7.5	%	$23.3
Financials:											
Banks, Consumer Finance and Other											
JPM	JPMORGAN CHASE & CO	$115.51	2	1	na	1	1	**(0.4)** x	8.6	%	$400.8
CFG	CITIZENS FINANCIAL GROUP INC	46.02	1	1	na	1	1	**(1.2)**	10.1		22.6
ALLY	ALLY FINANCIAL INC	28.73	1	1	na	1	1	**(0.6)**	(1.0)		12.6
ZION	ZIONS BANCORPORATION	54.77	2	1	na	1	1	**(0.5)**	8.1		10.8
SC	SANTANDER CONSUMER USA HLDGS	17.00	1	2	na	2	1	**(1.4)**	(8.4)		6.1
C	CITIGROUP INC	77.08	2	1	na	2	2	**(0.4)**	4.0		203.8
CMA	COMERICA INC	97.67	4	2	na	1	2	**(0.3)**	12.5		16.9
VOYA	VOYA FINANCIAL INC	50.55	2	1	na	2	2	**(1.1)**	2.2		9.1
LUK	LEUCADIA NATIONAL CORP	24.93	1	2	na	5	2	**(0.3)**	(5.9)		8.9
SIVB	SVB FINANCIAL GROUP	248.87	5	4	na	1	4	**(1.3)**	6.5		13.1
EWBC	EAST WEST BANCORP INC	66.82	4	4	na	2	4	**(1.2)**	10.2		9.7
SBNY	SIGNATURE BANK/NY	154.50	2	4	na	3	4	**(0.6)**	12.6		8.5
PACW	PACWEST BANCORP	53.97	2	5	na	3	4	**(1.3)**	7.1		7.0
FRC	FIRST REPUBLIC BANK	95.05	3	4	na	5	5	**(0.3)**	9.9		15.4
Capital Markets											
GS	GOLDMAN SACHS GROUP INC	$267.68	1	1	na	3	1	**(0.5)** x	5.1	%	$105.4
MS	MORGAN STANLEY	55.40	1	1	na	1	1	**(0.7)**	6.1		100.2
AMG	AFFILIATED MANAGERS GRP INC	190.29	2	1	na	2	1	**(0.5)**	(7.1)		10.6
ETFC	E TRADE FINANCIAL CORP	51.73	2	3	na	1	2	**(0.7)**	4.4		13.9
RJF	RAYMOND JAMES FINANCIAL CORP	91.31	2	4	na	3	3	**(0.3)**	2.5		13.3
SCHW	SCHWAB (CHARLES) CORP	52.33	5	3	na	2	4	**(0.3)**	2.1		70.2
Insurance											
PRU	PRUDENTIAL FINANCIAL INC	$109.73	1	3	na	3	1	**(0.3)** x	(4.6)	%	$46.6
LNC	LINCOLN NATIONAL CORP	77.18	1	1	na	2	1	**(0.5)**	0.8		16.9
MET	METLIFE INC	46.73	1	2	na	4	2	**(0.3)**	(6.8)		49.2
MFC	MANULIFE FINANCIAL CORP	19.97	1	4	na	3	2	**(0.6)**	(4.3)		39.5
Real Estate											
CBG	CBRE GROUP INC	$44.93	1	3	2	1	1	**(0.8)** x	3.7	%	$15.3
JLL	JONES LANG LASALLE INC	158.45	1	2	4	1	1	**(0.6)**	6.4		7.2
Energy:											
Integrateds, Oil Service, Refiners and Other											
MPC	MARATHON PETROLEUM CORP	$67.80	1	1	2	1	1	**(0.5)** x	2.8	%	$33.0
NOV	NATIONAL OILWELL VARCO INC	35.13	3	1	1	5	2	**(0.5)**	(2.5)		13.4
HP	HELMERICH & PAYNE	65.73	3	2	4	2	3	**(0.6)**	2.8		7.2
SLB	SCHLUMBERGER LTD	66.21	4	2	2	5	4	**(0.3)**	(1.1)		91.6
Exploration and Production											
COP	CONOCOPHILLIPS	$54.54	2	1	1	2	1	**(0.3)** x	(0.1)	%	$64.2
HES	HESS CORP	45.53	3	1	2	3	2	**(0.4)**	(4.1)		14.5
PXD	PIONEER NATURAL RESOURCES CO	179.59	4	3	2	2	3	**(0.5)**	3.9		30.6

Source: Empirical Research Partners Analysis.

[1]Statistically significant long-term sensitivity of stock returns to change in the ten-year treasury returns since 1980.

Appendix 2: Large-Capitalization Stocks: Highest Decile of Bond Beta[1]
Sorted by Sector, Core Model Rank and Market Capitalization
As of Mid-February 2018

			Quintile Ranks (1=Best; 5=Worst)								
			Super Factors								
Symbol	Company	Price	Valuation	Capital Deployment	Earnings Quality and Trend	Market Reaction	Core Model Rank	**Bond Beta**		YTD Returns	Market Capitalization ($ Billion)
Consumer Cyclicals:											
Retail and Other Consumer Cyclicals											
MCD	MCDONALD'S CORP	$160.78	5	3	2	4	4	**0.3**	x	(6.6) %	$128.2
Industrial Commodities											
SHW	SHERWIN-WILLIAMS CO	$401.09	4	3	5	3	4	**0.4**	x	(2.2) %	$37.5
Technology:											
Technology Software and Services											
BR	BROADRIDGE FINANCIAL SOLUTNS	$99.00	3	3	1	2	1	**0.5**	x	9.3 %	$11.5
Health Care:											
Pharmaceuticals											
PFE	PFIZER INC	$35.71	2	2	1	3	1	**0.3**	x	(0.5) %	$212.9
NVS	NOVARTIS AG	86.68	3	4	2	4	3	**0.4**		3.2	225.6
GSK	GLAXOSMITHKLINE PLC	37.31	1	3	3	5	3	**0.4**		5.2	91.2
JNJ	JOHNSON & JOHNSON	131.23	3	3	5	3	4	**0.3**		(6.1)	352.6
MRK	MERCK & CO	55.99	3	2	4	4	4	**0.4**		(0.5)	153.1
LLY	LILLY (ELI) & CO	78.02	3	5	4	3	4	**0.4**		(7.0)	85.9
Health Care - Equipment and Services											
ABT	ABBOTT LABORATORIES	$59.50	5	5	4	2	4	**0.4**	x	4.8 %	$103.6
Consumer Staples											
PEP	PEPSICO INC	$110.97	4	2	1	4	2	**0.3**	x	(7.5) %	$157.8
GIS	GENERAL MILLS INC	56.89	3	3	2	3	2	**0.5**		(3.3)	32.4
CHD	CHURCH & DWIGHT INC	49.71	3	1	3	3	2	**0.5**		(0.5)	12.4
PG	PROCTER & GAMBLE CO	82.41	3	4	1	4	3	**0.3**		(9.6)	207.8
HSY	HERSHEY CO	100.79	4	2	1	5	3	**0.4**		(11.2)	21.2
UN	UNILEVER NV	54.74	4	4	3	4	4	**0.4**		(2.1)	92.9
KMB	KIMBERLY-CLARK CORP	115.82	3	2	5	4	4	**0.5**		(4.0)	40.7
K	KELLOGG CO	69.82	3	3	3	5	4	**0.4**		2.7	24.2
MO	ALTRIA GROUP INC	65.32	4	3	5	4	5	**0.4**		(8.5)	124.7
KHC	KRAFT HEINZ CO	72.71	4	5	5	5	5	**0.4**		(6.5)	88.6
CL	COLGATE-PALMOLIVE CO	71.22	4	3	5	4	5	**0.4**		(5.1)	62.5
CLX	CLOROX CO/DE	131.03	4	5	4	2	5	**0.4**		(11.4)	17.0
MKC	MCCORMICK & CO INC	104.81	4	5	4	2	5	**0.4**		2.8	13.7
Financials:											
Banks, Consumer Finance and Other											
NLY	ANNALY CAPITAL MANAGEMENT	$10.64	1	5	na	5	3	**0.7**	x	(10.5) %	$12.3
AGNC	AGNC INVESTMENT CORP	19.25	1	5	na	5	3	**0.9**		(3.8)	7.5
Real Estate											
VER	VEREIT INC	$7.08	1	4	1	5	1	**1.0**	x	(9.1) %	$6.9
AMT	AMERICAN TOWER CORP	136.22	5	2	1	2	2	**0.3**		(4.5)	58.5
VTR	VENTAS INC	50.64	1	3	4	5	2	**0.7**		(15.6)	18.0
WPC	W P CAREY INC	61.20	2	3	1	3	2	**0.9**		(11.2)	6.5
SPG	SIMON PROPERTY GROUP INC	156.15	4	3	4	3	3	**0.4**		(7.9)	55.9
PSA	PUBLIC STORAGE	190.48	4	3	2	4	3	**0.5**		(8.9)	33.2
HCN	WELLTOWER INC	55.17	1	3	2	5	3	**0.6**		(12.1)	20.4
O	REALTY INCOME CORP	49.28	4	5	3	4	3	**0.8**		(13.2)	13.9
HCP	HCP INC	22.29	2	4	1	5	3	**0.7**		(13.1)	10.5
EXR	EXTRA SPACE STORAGE INC	82.51	4	4	2	1	3	**0.9**		(5.6)	10.4
MAA	MID-AMERICA APT CMNTYS INC	88.98	3	3	3	4	3	**0.9**		(10.6)	10.1
SUI	SUN COMMUNITIES INC	86.52	5	4	4	3	3	**1.1**		(6.7)	6.9
NNN	NATIONAL RETAIL PROPERTIES	38.17	3	5	4	3	3	**1.4**		(10.4)	5.9
FRT	FEDERAL REALTY INVESTMENT TR	112.10	4	4	4	5	4	**0.6**		(15.6)	8.2
KRC	KILROY REALTY CORP	67.70	4	3	4	4	4	**0.6**		(9.3)	6.7
ARE	ALEXANDRIA R E EQUITIES INC	121.74	5	5	5	3	5	**0.4**		(6.8)	12.3
REG	REGENCY CENTERS CORP	57.84	4	5	5	4	5	**0.5**		(16.4)	9.9
DRE	DUKE REALTY CORP	25.64	5	1	3	5	5	**0.6**		(5.0)	9.2
ELS	EQUITY LIFESTYLE PROPERTIES	85.32	5	3	5	2	5	**1.1**		(4.2)	7.6
DEI	DOUGLAS EMMETT INC	36.41	5	4	3	4	5	**1.1**		(11.3)	7.1
Telecommunications											
VZ	VERIZON COMMUNICATIONS INC	$49.74	2	3	2	2	2	**0.4**	x	(5.0) %	$202.9
BCE	BCE INC	44.51	2	4	3	4	3	**0.3**		(7.3)	40.1
Utilities											
EXC	EXELON CORP	$37.50	1	4	2	2	1	**0.5**	x	(3.9) %	$36.2
SCG	SCANA CORP	37.21	1	1	1	5	1	**0.6**		(6.5)	5.3
PCG	PG&E CORP	39.96	1	3	2	5	2	**0.6**		(10.9)	20.6
FE	FIRSTENERGY CORP	32.79	1	4	1	5	2	**0.6**		8.3	14.6
ETR	ENTERGY CORP	76.31	1	3	2	3	2	**0.6**		(5.1)	13.8
CNP	CENTERPOINT ENERGY INC	26.76	2	1	3	2	2	**0.4**		(4.6)	11.5
NEE	NEXTERA ENERGY INC	154.43	4	3	4	1	3	**0.6**		(1.1)	72.6
PEG	PUBLIC SERVICE ENTERPRISE GROUP INC	48.61	3	3	3	1	3	**0.6**		(5.6)	24.6
EIX	EDISON INTERNATIONAL	60.09	1	2	2	5	3	**0.6**		(5.0)	19.6
AEE	AMEREN CORP	56.26	2	3	4	3	3	**0.6**		(4.6)	13.7
SO	SOUTHERN CO	44.56	2	3	3	5	4	**0.7**		(7.3)	44.8
AEP	AMERICAN ELECTRIC POWER CO	66.68	3	4	4	4	4	**0.6**		(8.5)	32.8
ED	CONSOLIDATED EDISON INC	77.11	2	4	4	4	4	**0.7**		(8.4)	23.9
XEL	XCEL ENERGY INC	44.19	3	3	2	4	4	**0.6**		(8.1)	22.4
PPL	PPL CORP	31.10	2	3	5	4	4	**0.5**		0.5	21.4
WEC	WEC ENERGY GROUP INC	61.32	3	4	5	3	4	**0.6**		(6.9)	19.4
DUK	DUKE ENERGY CORP	76.20	2	4	3	5	5	**0.6**		(8.3)	53.3
D	DOMINION ENERGY INC	75.42	4	4	2	3	5	**0.6**		(7.0)	48.6
SRE	SEMPRA ENERGY	107.98	4	5	3	4	5	**0.4**		1.0	27.5
ES	EVERSOURCE ENERGY	58.57	3	3	4	5	5	**0.5**		(7.3)	18.6
DTE	DTE ENERGY CO	103.15	3	4	4	4	5	**0.5**		(5.8)	18.5
AWK	AMERICAN WATER WORKS CO INC	79.71	5	3	2	2	5	**0.6**		(12.4)	14.5
CMS	CMS ENERGY CORP	43.74	3	3	3	5	5	**0.6**		(6.8)	12.4
LNT	ALLIANT ENERGY CORP	39.05	4	4	2	4	5	**0.6**		(7.6)	9.0
PNW	PINNACLE WEST CAPITAL CORP	78.06	3	4	1	4	5	**0.6**		(7.6)	8.7
NI	NISOURCE INC	23.37	4	5	5	5	5	**0.5**		(8.2)	7.9
OGE	OGE ENERGY CORP	31.34	3	4	3	4	5	**0.4**		(3.8)	6.3

Source: Empirical Research Partners Analysis.

[1]Statistically significant long-term sensitivity of stock returns to change in the ten-year treasury returns since 1980.