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# One Asset Does Not Fit All: Inflation Hedging by Index and Horizon

Stefania D'Amico and Thomas B King\*

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## Abstract

We examine the inflation-hedging properties of various financial assets and portfolios by estimating simple time-series models of the joint dynamics of each asset-inflation pair, for multiple inflation indices and at horizons from one month to 30 years. There is no one-size-fits-all approach to inflation hedging: the optimal hedge depends on the particular types of prices that an investor is exposed to and at which horizons. For example, food and energy prices are easy to hedge with commodities and certain stock portfolios, while non-housing service prices and wages are not highly correlated with any financial asset. Inflation-protected bonds are good hedges for headline consumer inflation at horizons matching their maturities but can perform quite poorly at shorter horizons and for other price indices. During the inflationary period of 2020 - 2022, many historical hedging relationships failed, as monetary policy tightening lagged inflation.

Keywords: Inflation, real assets, Treasury Inflation Protected Securities, hedging

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\*D'Amico: Federal Reserve Bank of Chicago (corresponding author, stefania.damico@chi.frb.org), King: Federal Reserve Bank of Chicago (Thomas.King@chi.frb.org). The analysis in this paper updates and extends the results discussed in our companion chapter in the *Research Handbook of Financial Markets* (D'Amico and King, forthcoming). In particular, Appendix A contains the detailed tables referenced in that chapter. For helpful comments, discussions, and suggestions we thank Francois Gourio, Refet Gurkaynak, Shane Sherlund, and Jonathan Wright. Corey Feldman and Andrew Souther provided superb research assistance. The views expressed are not official positions of the Federal Reserve Bank of Chicago or the Federal Reserve System.

# 1 Introduction

The dramatic increase in inflation that began in 2021 reminded financial-market participants of the importance of insulating themselves against movements in non-financial prices. Yet, it is far from clear just how effectively an inflation-averse investor might have done this in advance. Many financial assets that one might have expected to move together with nominal prices, such as broad equity indices and inflation-protected Treasury bonds, experienced large, negative returns during the post-COVID period. Moreover, there were large discrepancies between different measures of inflation—for example, headline versus core inflation, the CPI versus the PCE, and wages versus consumer prices. The prices of housing, non-housing services, and goods all experienced their own, separate dynamics, as monetary policymakers noted.<sup>1</sup> These examples highlight the importance of customizing inflation hedging portfolios to the individual needs and exposures of a given investor.

This study analyzes the efficacy of some simple strategies for hedging inflation risk in financial markets. We look at how individual assets and portfolios are correlated with a range of different inflation *indices*. In addition to differing across the inflation measure, these correlations also depend significantly on the investment *horizon*. An asset may be highly correlated with a given inflation measure at an annual frequency but only weakly correlated over a ten-year horizon, or vice versa. Our analysis looks exhaustively across *asset-index-horizon* triplets to uncover simple inflation-hedging strategies that can be customized to the specific requirements of individual investors. The optimal portfolio for a firm that needs to hedge year-to-year wage inflation is much different from that of a retirement-planning household looking to insure its ability to afford consumer prices over a long horizon.

If we were only interested in short-run comovements between assets and inflation measures, we could simply examine their sample correlations in the data. At longer horizons, however, this approach becomes infeasible. Even using data going back to the 1970s (as far as most of our financial series extend), we have only five non-overlapping observations at the ten-year horizon, so raw sample correlations are only weakly identified. To overcome this problem, we estimate VARIMA models for the joint dynamics of each asset-inflation pair, with the order of each model chosen optimally to fit the data. These models then allow us to project the correlations of asset returns and

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<sup>1</sup>See, for instance, Chair Powell’s speech, “Inflation and the Labor Market,” on November 30, 2022.

inflation at each horizon in a consistent manner across horizons and in a way that exploits the full information contained in the data. We extend the analysis to consider hypothetical “portfolios” of two assets, estimating a separate tri-variate VARIMA for each portfolio and inflation index.

Overall, our analysis in this paper updates and extends the results discussed in our companion chapter in the *Research Handbook of Financial Markets* (D’Amico and King, forthcoming). In particular, Appendix A contains the detailed tables referenced in that article, reporting the full results of our correlation exercises across all asset-inflation-horizon combinations in the two samples covering 1999 - 2021 and 1972 - 2021. Some of the discussion below also closely follows the text of the handbook chapter although we more fully describe our approach and provide additional results. In particular, the out-of-sample exercise for the inflationary period of 2020-2022 is completely novel.

Over the last twenty years, we find that commodities are generally successful in hedging headline consumer inflation, but this mostly seems to reflect their significantly positive relation with energy prices. Related assets, such as the stocks of oil-and-gas and metals-mining firms and some emerging-market (EM) currencies, share this property. Hedging core inflation is harder. At horizons of less than a year, there is little protection available, except for TIPS. At longer horizons, short-term nominal bonds and real estate provide a decent hedge. Certain stock-market strategies can also work, but here one has to be careful because performance varies substantially across different types of stocks. There are also some significant differences in how stock and bond strategies perform against core CPI vs. core PCE. For instance, post 1999, 2-year nominal bonds are a good hedge for core CPI at longer horizons, while certain stock-market sectors such as oil and gas are a good hedge for core PCE. We find that core producer prices (PPI) and wages are the most difficult types of inflation to hedge, although real estate and short-term nominal bonds provide some protection.

Most of consumer-price inflation stems from three sources: real estate costs, the passthrough of materials and energy prices to consumer goods, and the passthrough of labor costs to goods and services. Materials and energy prices are closely tied to commodities, which can be hedged very effectively through futures markets or closely related assets like sectoral equities. Real estate can now be effectively hedged through REITs and other instruments that provide broad exposure to this sector. While the literature does not typically focus on hedging labor costs, our empirical

exercise identifies short-term nominal bonds and real estate as reasonably good hedges in this dimension. And, since wages are a particularly large component of the cost of non-housing services, the same instruments do a decent job hedging service inflation.

Our portfolio analysis considering all combinations of two assets included in our sample indicate that, although the top portfolios can forecast realized inflation quite well in sample (1972-2020), they perform poorly out-of-sample (2020-2022). The only exception is the portfolio combining the risk-free asset with the WTI crude oil price, with weight of about 0.6 and 0.3, respectively, which hedged CPI energy extremely well post-Covid. Our out-of-sample results, which consider many assets beyond stocks, are quite similar to Ang et al. (2012). They show that trying to forecast inflation exposure at the individual stock level is difficult, as co-movements with inflation exhibit pronounced time variation, including a change in sign post 2008. This makes it hard to construct portfolios of stocks that are good out-of-sample inflation hedges.

Regarding the relation of this study to the literature, it should be noted that Parikh et al. (2019) already stress the idea that different investors might have different inflation-hedging needs. Kat and Oomen (2006), in analyzing the hedging properties of commodity futures, focus on three different types of inflation: CPI, PPI, and the employment cost index (ECI). And, in the case of CPI and PPI, they consider both headline and core. Finally, Fang, Liu, and Roussanov (2021) (henceforth FLR) also find that commonly used “real assets” such as stocks, commodity futures, and real estate are generally good hedges for energy inflation but not for core inflation.

The remainder of the paper is organized as follows. Section 2 described the VARIMA models and the data. Section 3 discusses our in-sample results, while Section 4 focuses on the out-of-sample results. Section 5 offers concluding remarks.

## **2 Empirical Approach**

### **2.1 Model specification**

Our measure of a given asset’s inflation-hedging ability is its nominal price’s simple (Pearson) correlation with each type of inflation (abstracting from transactions costs). Computing these correlations at short horizons would be straightforward. However, as noted above, at investment horizons of more than a few years the raw data are not sufficient to estimate correlations precisely. To overcome this problem, we estimate

time-series models of each price index/asset price pair, and we use these models to project the correlations at different horizons. Specifically, for each price index  $P^i$  and asset price  $Q^j$  we estimate a VARIMA( $p,1,q$ ) model of the form:

$$\begin{pmatrix} \Delta \log P_t^i \\ \Delta \log Q_t^j \end{pmatrix} = \mathbf{a}^{i,j} + \sum_{k=1}^{p^{i,j}} \mathbf{A}_k^{i,j} \begin{pmatrix} \Delta \log P_{t-k}^i \\ \Delta \log Q_{t-k}^j \end{pmatrix} + \sum_{k=0}^{q^{i,j}} \mathbf{B}_k^{i,j} \begin{pmatrix} e_{t-k}^i \\ e_{t-k}^j \end{pmatrix} \quad (1)$$

where  $(e_t^i \ e_t^j)' \sim N(\mathbf{0}, \mathbf{I})$  are iid error terms. To determine the lag orders, we search across all possible models in the range  $p^{i,j} \in [0, 12]$  and  $q^{i,j} \in [0, 3]$  for monthly data and  $p^{i,j} \in [0, 4]$  and  $q^{i,j} \in [0, 1]$  for the few quarterly series we consider. In each case, we select the best model using the AIC. Having chosen and estimated the best model for each asset-inflation pair, we simulate 1 million observations, and compute the correlations between log-levels at horizons of 1 month to 30 years.

The treatment of equities, commodities, and currencies in this exercise is relatively straightforward, but some difficulty arises when considering hedging using bonds in this context. A strategy of holding a bond for its entire life is very different from a strategy of continuously rolling over to maintain a bond portfolio of constant maturity. Consider a zero-coupon nominal bond of maturity  $\tau$  and an investment horizon  $h \leq \tau$ .<sup>2</sup> Denote the initial (time- $t$ ) yield on the nominal bond by  $y_{t,\tau}^N$ , and define the bond's return as the change in its log price, recalling that the price of a bond is just  $\exp[-\tau y_{t,\tau}^N]$ . Then, the total return on the nominal bond over the investment horizon is:

$$r_{t,t+h}^{N(\tau)} = \tau (y_{t,\tau}^N - y_{t+h,\tau-h}^N) + h y_{t+h,\tau-h}^N. \quad (2)$$

When it comes to TIPS, the nominal return is:

$$r_{t,t+h}^{R(\tau)} = \tau (y_{t,\tau}^R - y_{t+h,\tau-h}^R) + h y_{t+h,\tau-h}^R + \pi_{t,t+h} \quad (3)$$

where  $\pi_{t,t+h} = \log \frac{CPI_{t+h}}{CPI_t}$  is the log change in the CPI between periods  $t$  and  $t+h$  and  $y_{t,\tau}^R$  is the real yield on the TIPS. Thus, to calculate the return on a holding strategy for both types of bonds, one needs to know the  $\tau$ -period yields at the beginning of the investment and the  $(\tau-h)$ -period yields at the end. In the case of TIPS, one also needs to know the intervening rate of inflation.<sup>3</sup>

<sup>2</sup>If  $\tau > h$  some rollover will be necessary. We sidestep this more-complicated case.

<sup>3</sup>The calculation for TIPS abstracts from their embedded deflation floor and indexation lag.

With this in mind, for nominal bonds, we modify our strategy by extending the considered VARIMA models to include three variables rather than two: a price index, an  $\tau$ -maturity bond yield, and an  $(\tau - h)$ -maturity bond yield:

$$\begin{pmatrix} \Delta \log P_t^i \\ \Delta \log y_{t,\tau}^N \\ \Delta \log y_{t,\tau-h}^N \end{pmatrix} = \mathbf{a}^{i,\tau,h} + \sum_{k=1}^{p^{i,\tau,h}} \mathbf{A}_k^{i,\tau,h} \begin{pmatrix} \Delta \log P_{t-k}^i \\ \Delta \log y_{t-k,\tau}^N \\ \Delta \log y_{t-k,\tau-h}^N \end{pmatrix} + \sum_{k=0}^{q^{i,\tau,h}} \mathbf{B}_k^{i,\tau,h} \begin{pmatrix} e_{t-k}^i \\ e_{t-k}^\tau \\ e_{t-k}^{\tau-h} \end{pmatrix} \quad (4)$$

For TIPS, we also include the CPI as a fourth variable in these models. Then, in our simulations, we calculate the returns on the bonds using equations (2) and (3) at each horizon and compute the correlations with the simulated inflation series over the same horizon.

Finally, we calculate returns on hypothetical two-asset “portfolios” and compare them to inflation outcomes across different indices in a similar way. This involves a two-stage process. In the first stage, we run three-variable VARIMA models of the form

$$\begin{pmatrix} \Delta \log P_t^i \\ \Delta \log Q_t^j \\ \Delta \log Q_t^k \end{pmatrix} = \mathbf{a}^{i,j,k} + \sum_{l=1}^{p^{i,j,k}} \mathbf{A}_k^{i,j,k} \begin{pmatrix} \Delta \log P_{t-l}^i \\ \Delta \log Q_{t-l}^j \\ \Delta \log Q_{t-l}^k \end{pmatrix} + \sum_{l=0}^{q^{i,j,k}} \mathbf{B}_k^{i,j,k} \begin{pmatrix} e_{t-l}^i \\ e_{t-l}^j \\ e_{t-l}^k \end{pmatrix} \quad (5)$$

where, as before, the lag structure is selected according to the AIC. We then simulate the model for 1 million periods, and, at each horizon, we regress the cumulative change in  $\log P_t^i$  on the cumulative changes in  $\log Q_{t-l}^j$  and  $\log Q_{t-l}^k$ . This second regression provides us with optimal “portfolio weights.” We sort the portfolios of assets by their  $R^2$  in these regressions, for each inflation measure at each horizon.

## 2.2 Data

We begin our baseline sample in 1999. The focus on this relatively short period allows us to bring in TIPS and many other inflation and asset-return series that cannot be considered in longer samples. It is also valuable to focus on relatively recent data, since there is evidence that correlations have shifted over time. We also consider a second sample beginning in 1972 using a subset of the series that are available since then. For our main set of results, we end both samples in August 2021. We also conduct an out-of-sample test over the post-COVID inflationary period. For the purposes of this

exercise, we re-estimate the models on data only through May 2020, and we examine their performance over the period June 2020 - May 2022.

The inflation measures we consider are listed in Table 1, while the financial assets are listed in Table 2. (See Table B1 in Appendix for a detailed list of the data used and related sources.) Note that we include commodity prices in both categories, since, depending on the investor, a particular commodity may either represent a cost that needs to be hedged or a potential hedging instrument.

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Table 1: Measures of Inflation

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CPI: Headline; Core; Energy; Services; Durables; Nondurables  
PCE: Headline and Core  
PPI: Finished Goods and Finished Goods Core  
Wage Inflation: Hourly Earnings  
Broad Commodity Indices: BCOM and GSCI

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Table 2: Asset price indices

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Equities indices: Wilshire 5000; S&P 500  
Equity portfolios: S&P industry sub-indices; Fama-French 5 factors  
Bonds: GI EM-bond index; nominal Treasury securities and TIPS at various maturities  
Commodity indices: BCOM index; GS index and sub-indices  
Commodities: gold, silver, wheat, soybeans, hogs; WTI and Brent oil spot and futures  
Real estate: Case-Shiller; Wilshire REIT ETF  
Currencies: dollar vs. yen, euro, rand, ruble, real

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### 3 In-Sample Results

Here we summarize our most important results, starting with the post-1999 sample (Tables 1A through 3A in Appendix) and then turning briefly to the post-1972 sample (Tables 4A and 5A in Appendix). In the next section, we describe our out-of-sample results (Tables 6A and 7A in Appendix).



## 3.1 Post-1999 Sample

### 3.1.1 Headline inflation

In general, we find that hedging food and energy inflation is relatively easy because these prices are closely linked to commodities. In particular, oil and natural gas spot and future prices displaying some of the highest correlations (between 70% and 95% beyond the one-year horizon). Because variation in food and energy prices makes up most of the variation in headline inflation indices, this also means that commodities are generally a good hedge for headline inflation. The broad commodity indices and oil futures have correlations as high as 70% at the 6-month horizon and beyond with headline CPI, PCE, and PPI.

Broad stock indices can also provide a good hedge for headline inflation, although much of the correlation is driven by energy-related stocks.<sup>4</sup> Currencies of emerging markets (EM) that are commodities exporters also provide some protection (i.e., the ruble displays correlations of about 50%). This is because those currencies typically gain when there is a rise in the prices of commodities exported by the country. Finally, real estate, as proxied by the Case-Shiller index, does a surprisingly good job of hedging consumer prices at longer horizons (i.e., correlations range between 60% and 75%), while the Wilshire REIT index effectively hedges the PPI (i.e., correlations range between 50% and 60% beyond the one-year horizon).<sup>5</sup>

Contrary to conventional wisdom, we do not find any ability of gold to hedge headline inflation over the post-1999 sample.

Generally speaking, returns on longer-term nominal bonds are negatively correlated with headline inflation, so that their inclusion in an investor's portfolio increases the exposure to inflation risk, rather than hedging it. This is true whether the bonds are held to maturity, continually rolled over to constant maturities, or held for an intermediate period.<sup>6</sup> On the other hand, a strategy of holding one-month Treasury bills (T-bills) provides relatively good protection against headline inflation. This is

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<sup>4</sup>The strong correspondence between energy-sector stocks and headline CPI is consistent with Ang et al. (2012) and Parikh et al. (2019). However, those studies also find that technology stocks are important. In contrast, we find only weak correlations between headline inflation and the semiconductor and telecommunications sectors and significant *negative* correlations with the software sector at longer horizons.

<sup>5</sup>We caution that the results involving the Case-Shiller index in this sample are strongly influenced by the run-up to the 2008 housing crisis and its aftermath.

<sup>6</sup>In principle, a strategy of shorting nominal bonds provides protection against headline inflation, although such strategies can be costly to implement.

because these rates rise when monetary policy tightens in response to higher inflation. Finally, short- and medium-term TIPS have performed quite well at protecting against headline CPI over short investment horizons (from 1 month to 1 year). At similar horizons, the 10-year TIPS has also provided some protection against headline PCE and PPI, with correlations higher than those for the 2- and 5-year TIPS at horizons between 6 months and 2 years.

### 3.1.2 Consumer and producer inflation components

While there are multiple attractive strategies for hedging non-core inflation, the prospects are somewhat dimmer when it comes to core. At horizons of less than a year, few of the assets we consider provide good protection. (This is arguably not a very serious problem, however, because core inflation displays very little volatility at short horizons.) One exception is TIPS. The 10-year TIPS returns from the 3-month to the 1-year horizon have correlations of about 0.3-0.4 with core CPI, while the 2-year TIPS has a similar size correlation at the 1-month horizon. Correlations with core PCE are also positive but a bit smaller. The correlations with core PPI are mostly negative, however.

At longer horizons, there are substantial differences across the three core indices. Core PCE behaves somewhat similarly to headline PCE. It is correlated with the broad commodity indices and oil futures, certain stock-market sectors including oil and gas, and real estate. However, in all of these cases the correlations are at most around 60%, which is significantly lower than the best-performing assets for headline inflation. For core CPI, on the other hand, the only assets that provide some hedging value are the 2- and 5-year nominal bonds rolling returns, some of the Fama-French factors, and the Case-Schiller price index. It is perhaps unsurprising that house prices perform well with core CPI as housing services constitute a large percentage of the core basket. Unlike with headline CPI, broad commodity indices and oil futures do not perform well with core CPI. Gold and most stock-market indices are significantly *negatively* correlated with core CPI.<sup>7</sup> Interestingly, although the overall stock market is negatively exposed to core inflation, the “robust-minus-weak” and “conservative-minus-aggressive” Fama-French factors seem to provide good protection at longer horizons, perhaps

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<sup>7</sup>The opposite signs on the correlation of the stock market with headline and core inflation are roughly consistent with the findings in FLR.

suggesting that profitable and conservative firms are more resilient to inflation.<sup>8</sup> To hedge core PPI is even harder. Only the 30-year nominal bond rolling returns, the “robust-minus-weak” Fama-French factor, and the Case-Shiller price index offer some protection (i.e., correlations vary between 20% and 40%).

Decomposed somewhat differently, the nondurable (ND) components of the CPI are dominated by food and energy, so their results are similar to the headline CPI correlations discussed above. Broad commodity indices and oil futures provide an almost perfect hedge against ND CPI at the 1-year horizon and beyond. Moreover, energy prices have high passthrough to the cost of durable goods, so CPI durables are also highly correlated with broad commodity indices and oil futures. Stock market sectors such as metals-mining, financials, and insurance also perform well with durables. In contrast, very few assets provide a decent hedge for CPI Services. Only the 2-year nominal bond rolling returns, T-bills, and the Case-Shiller price index display positive correlation larger than 30%. (At very long horizons, the S&P Oil and Gas Exploration and Production sector returns and 2-year future on WTI also have correlations around 30%.) Thus, the weak correlations noted for core CPI inflation stems from the lack of a good hedge for prices in the service sector. Further, also TIPS can provide a decent protection against CPI services. In particular, the 2-year TIPS works well at the 3-month horizon, the 5-year TIPS at the 6-month horizon, and the 10-year TIPS for horizons longer than 6 months.

Not surprisingly, strategies of holding nominal bonds for long periods, including to maturity, almost always generate additional exposure to inflation, rather than providing a hedge. Across bond maturities and holding periods, the correlations with various components of consumer and producer inflation range from slightly positive to -40%. The exception is CPI services, where we find that ten-year bonds held to maturity have a positive 50% correlation.

### 3.1.3 Wages and house prices

One reason that hedging prices in the service sector is difficult seems to be labor costs, which reflect a large fraction of service prices. We find few good hedges for wage inflation. Indeed, most of the asset returns we consider display a negative correlation with average hourly earnings. And, since these are also generally small in magnitude, even potential short positions would not be successful in hedging wages. The main

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<sup>8</sup>However, this result is not robust to the longer sample discussed below.

exception is rolling returns in shorter-term nominal Treasuries. T-bills and 2-year bonds have correlations with average hourly earnings of more than 50% at horizons beyond one year, and ten-year bonds have a 34% correlation if held to maturity. Further, also TIPS provide some protection, with the 2-year TIPS hedging relatively well at the 3-month horizon, the 5-year TIPS at the 6-month horizon, and the 10-year TIPS at the 10-year horizon.<sup>9</sup>

Finally, although we have discussed real estate as a potential hedging instrument (and, indeed, we have shown that it performs well as a hedge in many cases), one might also want to hedge real-estate costs themselves. Our results using the Case-Shiller index show that there are a variety of ways of doing this successfully at horizons of 1 year and longer. Most components of the stock market, including the “small-minus-big” and “high-minus-low” factors, as well as most commodities and some currencies are strongly correlated with house prices at these horizons. Of course, all of these results apply to national house prices at an aggregate level; since local housing markets are very idiosyncratic, no hedging strategy based on financial instruments is likely to offer much protection for an individual homeowner.

In contrast, rolling returns on longer-term bonds, display strong negative correlations with real-estate prices.

## 3.2 Post-1972 sample

To examine the stability of the above results over time, we re-estimate the models using data since 1972, where possible. Before describing the results obtained in this sample period, it is worth noting that measures of headline and core inflation are considerably more highly correlated than in the 1999 sample. For example, at the five-year horizon, core and headline CPI have a correlation of 0.97 in the post-1972 sample, compared to just 0.55 in the post-1999 sample. This means that they are more likely to be hedged well by the same set of instruments. Most notably, commodities—in particular oil—do a better job of hedging core inflation over the longer sample period. This is consistent with oil’s large role in driving business-cycle fluctuations throughout the 1970s and is quite different from what is emphasized in FLR.

Gold and silver perform quite well against most inflation measures in the post-

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<sup>9</sup>The Case-Shiller index also appears to provide a good hedge for wages at long horizons, but this result may be spurious since it does not hold for our other measure of real estate prices (the Wilshire REIT) and there is no obvious economic reason that it should be true.

1972 sample, suggesting that those commodities' inflation-hedging abilities must have been particularly good in the pre-1999 period. This behavior may have contributed to the common perception that precious metals are robust inflation hedges. However, as we showed above, that property seems to have disappeared over the last 20 years. In contrast, the two currencies that we can track do worse (against both headline or core) over the longer sample period.

We continue to find relatively few possibilities for hedging wage inflation in the longer sample. Unlike in the post-1999 sample, average hourly earnings are positively correlated with commodity prices, but, except at very long horizons those correlations are still quite modest.

## 4 Out-of-Sample Results

Tables 6A and 7A in the appendix report the results of our out-of-sample tests during the inflationary period brought about by the COVID-19 crisis. Again, in undertaking this analysis, we re-did the estimation using data from 1972 through May 2020, as this gave us two full years for the out-of-sample evaluation. But, this implies that the hedging predictions differ slightly from those that would have been made by the models presented in Section 3, which are estimated up to August 2021. However, in general these differences are not large.

### 4.1 Post-COVID results for individual assets

Table 3 reports some highlights of the results for the post-COVID inflationary period, June 2020 - May 2022. Specifically, we focus first on the best performing single-asset "portfolios" over an investment horizon of two years.

By comparing the first and second columns, it can be noted that, based on the in-sample results, the best inflation-hedging security for almost all measures of inflation is expected to be the risk-free one, that is, the one-month T-bill on a rolling basis. And indeed, the expected returns from this single-asset strategy are quite close to the inflation realized from June 2020 to May 2022, as shown in the 6th and 8th columns. However, the actual returns reported in the 5th column are very different from the expected returns, indicating that even the security that was expected to be the best inflation hedge did a very poor job. The out-of-sample forecast errors of returns

were in several cases more than three times the standard errors of the corresponding regressions (shown in the last column).

The poor out-of-sample performance of the one-month T-bill, and implicitly of all the other assets that were already expected to perform worse than the risk-free one, indicate that the post-COVID inflationary period is characterized by a profound break with the past. This is in part consistent with the broad observation of changing correlation between nominal yields and inflation over various business cycles analyzed in Cieslak and Pflueger (2023). In other words, trying to forecast ex-ante which asset would have hedged well the sharp increase in inflation observed post COVID is not easy because the (cor)relations estimated in the past broke down.<sup>10</sup> In the particular case of the risk-free rate, the correlations observed in the past are not relevant for the post-COVID period because of the substantial variation in the monetary-policy response. As previously discussed, short-term rates, such as the one-month T-bill rate, tend to rise when inflation increases because monetary policy tightens, providing a good inflation hedge. But, when the monetary policy tightening lags inflation, rolling T-bills suddenly becomes a bad strategy.

The big exception in terms of out-of-sample performance are commodities. In particular, oil future prices provided a very good hedge for CPI Energy and wheat future prices a good hedge for the Agriculture sub-index price. This confirms that hedging Food and Energy inflation is relatively easier.

## 4.2 Post-COVID results for two-asset portfolios

Table 4 reports highlights of the results for the post-COVID inflationary period related to the best performing two-asset portfolios, over an investment horizon of two years. The weights for each of the two assets are reported in the 3rd and 5th columns.

Again, it is possible to observe that the risk-free security is one of the two assets in almost all the portfolios. Oil futures, the broad commodity index, and the Case-Shiller index are the other assets that show up frequently in the top portfolios, although they tend to receive relatively little weight outside of the hedging regressions for commodity prices themselves. One counterintuitive result is that the best portfolio for hedging house prices (as measured by Case-Shiller) turns out to be composed of the Fama-French conservative-minus-aggressive factor and the Wilshire 5000 index. This seems

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<sup>10</sup>This result is in line with Ang et al. (2012), who study the out-of-sample performance of equities in a different sample period, but it is in contrast with Bampinas and Panagiotidis (2016).

to reflect in part the outperformance of the CMA strategy in the early 2000s, around the time of the housing boom. Again, however, the performance of strategies to hedge house-price inflation are limited compared to some other cases—the in-sample  $R^2$  of the portfolio is only 0.48.

As in the single-asset case, most of the two-asset portfolios perform poorly out-of-sample. This is not surprising given the high weight placed on the rolling T-Bill as a hedging instrument. Overall, forecast errors are slightly smaller in the two-asset models, both in absolute terms and relative to the regression standard errors. Nonetheless, they are still quite large, double digits in some cases. Again, this highlights the dependence of assets' inflation-hedging ability on the particular structural regime underlying the data, and on the monetary-policy reaction function in particular.

## 5 Conclusion

There is no one-size-fits-all approach to inflation hedging; the optimal hedge depends on the particular types of prices that an investor is exposed to and at which horizons. Over the last twenty years, we find that commodities and commodity-related stocks and currencies are generally successful in hedging headline consumer inflation, but this mostly seems to reflect their significantly positive relation with energy prices. Hedging core inflation is harder. At horizons of less than a year, there is little protection available, except for TIPS. At longer horizons, short-term nominal bonds and real estate provide a decent hedge, and there is some evidence supporting certain stock-market strategies. Core producer prices and wages are the most difficult types of inflation to hedge, although real estate and short-term nominal bonds provide some protection. And, since wages are a particularly large component of the cost of non-housing services, the same instruments do a decent job hedging service inflation. Finally, house prices can be effectively hedged through REITs and other instruments that provide broad exposure to this sector.

The above paragraph applies entirely to the historical, *in-sample* experience. A separate question—perhaps more relevant for practicing investors—is how various assets and portfolios perform out of sample. Here, unfortunately, our results are not encouraging. At least during the out-of-sample period we look at, the two years immediately following the COVID-19 crisis, many of the hedging relations that had prevailed since at least 1972 broke down. In particular, short-term interest rates did not adhere to

their usual pattern of closely following broad measures of inflation. These results highlight the dependence of assets' inflation-hedging ability on the structural regime and the monetary-policy rule and further reinforce the difficulties of hedging any measure of inflation reliably.



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**Table 3. Best Hedging Assets at 2-year horizon and out-of-sample performance**

<b>Inflation Index</b>	<b>Asset</b>	<b>In-sample R<sup>2</sup></b>	<b>Actual returns 6/20 – 5/22</b>	<b>Predicted returns</b>	<b>Forecast error</b>	<b>Realized Inflation 6/20 – 5/22</b>	<b>Std err of regression</b>
CPI Headline	RISKREE	0.78	0.15%	12.74%	-12.59%	12.8%	2.42%
CPI Core	RISKREE	0.84	0.15%	9.90%	-9.75%	9.2%	3.98%
CPI Durables	RISKREE	0.50	0.15%	20.26%	-20.10%	20.4%	4.50%
CPI Energy	WTI Crude	0.53	111.83%	71.32%	40.51%	54.7%	19.93%
CPI Nondurables	RISKREE	0.72	0.15%	18.10%	-17.95%	20.3%	5.01%
CPI Services	RISKREE	0.83	0.15%	8.19%	-8.04%	9.0%	4.02%
PCE Headilne	RISKREE	0.78	0.15%	11.64%	-11.49%	10.2%	4.45%
PCE Core	RISKREE	0.83	0.15%	10.37%	-10.22%	8.2%	4.02%
PPI	RISKREE	0.57	0.15%	17.61%	-17.46%	25.3%	5.88%
Agg subindex	Wheat	0.72	71.92%	91.76%	-19.83%	68.2%	18.54%
GSCI Index	BCOM	0.70	76.86%	92.13%	15.27%	111.8%	17.66%
Hourly Earnings	RISKREE	0.75	0.15%	9.05%	-8.90%	8.4%	6.00%
Case-Shiller	RISKREE	0.41	0.15%	10.20%	-10.05%	27.7%	6.42%

**Table 4. Best Hedging Portfolios at 2-year horizon and out-of-sample performance**

<b>Inflation Index</b>	<b>Asset 1</b>	<b>Weight 1</b>	<b>Asset 2</b>	<b>Weight 2</b>	<b>In-sample R<sup>2</sup></b>	<b>Actual returns 6/20 – 5/22</b>	<b>Predicted returns</b>	<b>Forecast error</b>	<b>Realized Inflation 6/20 – 5/22</b>	<b>Std err of regression</b>
CPI Headline	RISKFREE	0.69	Gold	0.06	0.87	0.65%	10.93%	-10.3%	12.8%	2.7%
CPI Core	RISKFREE	0.65	Case_Shiller	0.13	0.89	3.70%	8.36%	-4.66%	9.2%	2.63%
CPI Durables	RISKFREE	0.49	BCOM	0.03	0.63	2.16%	12.10%	-9.94%	20.4%	2.13%
CPI Energy	RISKFREE	0.63	WTI_Crude	0.29	0.87	54.09%	47.81%	6.28%	54.7%	6.70%
CPI Nondurables	RISKFREE	0.63	WTI_Crude	0.06	0.88	11.80%	18.03%	-6.23%	20.3%	2.91%
CPI Services	RISKFREE	0.74	Case_Shiller	0.18	0.90	5.05%	8.34%	-3.29%	9.0%	3.06%
PCE Headilne	RISKFREE	0.61	Gold	0.06	0.87	0.56%	8.83%	-8.27%	10.2%	2.49%
PCE Core	RISKFREE	0.57	Case_Shiller	0.10	0.88	2.96%	7.34%	-4.38%	8.2%	2.27%
PPI	RISKFREE	0.61	BCOM	0.12	0.83	9.56%	20.47%	-10.91%	25.3%	3.27%
Agg subindex	Wheat	0.44	Gold	0.20	0.84	33.63%	58.76%	-25.13%	68.2%	8.68%
GSCI Index	BCOM	0.74	WTI_Crude	0.24	0.83	101.72%	93.57%	8.15%	111.8%	12.59%
Hourly Earnings	RISKFREE	0.68	Gold	0.06	0.81	0.65%	6.93%	-6.28%	8.4%	3.95%
Case-Shiller	CONS - AG	0.42	Willshire_5000	0.25	0.48	20.70%	11.09%	9.61%	27.7%	5.47%

TABLE 1A: Correlations of inflation indices with asset returns, since 1999

Headline CPI VS:	1m	3m	6m	1y	2y	5y	10y	30y
Agriculture_Subindex	0.05	0.18	0.31	0.56	0.59	0.64	0.67	0.69
Energy_Subindex	0.32	0.58	0.70	0.73	0.77	0.80	0.82	0.83
Gold_Subindex	0.04	0.04	0.03	0.03	0.03	0.03	0.04	0.05
Copper_Subindex	0.23	0.41	0.51	0.55	0.57	0.58	0.58	0.58
Natural Gas_Subindex	0.07	0.24	0.34	0.55	0.57	0.59	0.61	0.62
Alluminum_Subindex	0.18	0.37	0.51	0.57	0.60	0.62	0.62	0.63
Silver_Subindex	0.09	0.14	0.16	0.16	0.16	0.17	0.18	0.19
GSCI_Index	0.33	0.60	0.70	0.75	0.78	0.81	0.83	0.84
WTI_Crude	0.52	0.64	0.73	0.74	0.76	0.78	0.80	0.80
Brent_Crude	0.56	0.67	0.74	0.76	0.76	0.76	0.77	0.78
S&P 500	0.04	0.21	0.32	0.36	0.38	0.40	0.41	0.42
Wilshire_5000	0.04	0.21	0.31	0.35	0.36	0.38	0.38	0.37
S&P_Oil and Gas_Equipment	0.13	0.38	0.50	0.54	0.57	0.58	0.59	0.59
S&P_Oil and Gas_Production	0.09	0.37	0.55	0.68	0.72	0.77	0.79	0.81
S&P_Technology_Hardware	0.04	0.12	0.16	0.17	0.18	0.18	0.18	0.18
S&P_Metals_Mining	0.02	0.22	0.32	0.33	0.34	0.34	0.35	0.36
S&P_Financials	0.06	0.25	0.33	0.25	0.22	0.20	0.19	0.18
S&P_Insurance	0.01	0.23	0.32	0.33	0.33	0.33	0.33	0.31
S&P_Softwares	0.05	0.10	0.11	0.00	-0.18	-0.33	-0.38	-0.43
S&P_Semiconductors	0.00	0.11	0.17	0.20	0.21	0.21	0.22	0.24
S&P_Telecom	-0.06	0.01	0.09	0.13	0.15	0.15	0.15	0.14
BCOM Index	0.27	0.55	0.63	0.72	0.72	0.73	0.74	0.75
WTI_1Month future	0.31	0.55	0.69	0.70	0.75	0.79	0.81	0.82
WTI_2Year future	0.38	0.63	0.75	0.79	0.81	0.82	0.83	0.84
Brent_1Month future	0.33	0.56	0.70	0.72	0.77	0.80	0.82	0.83
Silver	0.09	0.14	0.15	0.15	0.16	0.16	0.16	0.16
Corn	0.03	0.13	0.24	0.46	0.43	0.43	0.42	0.42
Wheat	-0.03	0.02	0.03	0.04	0.05	0.04	0.05	0.06
Soybean	0.09	0.22	0.31	0.36	0.38	0.39	0.40	0.40
Hogs	0.10	0.33	0.47	0.37	0.40	0.41	0.42	0.43
Wilshire_REIT	0.09	0.30	0.41	0.43	0.45	0.45	0.45	0.44
EM_Bonds	0.06	0.18	0.24	0.26	0.27	0.27	0.28	0.27
JPY/USD	0.01	0.10	0.14	0.16	0.17	0.18	0.18	0.19
USD/EUR	0.05	0.17	0.25	0.29	0.31	0.32	0.32	0.33
RUB/USD	-0.24	-0.41	-0.50	-0.53	-0.54	-0.55	-0.56	-0.57
BRL/USD	-0.12	-0.29	-0.37	-0.40	-0.42	-0.42	-0.43	-0.43
ZAR/USD	-0.10	-0.24	-0.30	-0.32	-0.34	-0.34	-0.34	-0.34
Treas 2Y_RollingReturn	-0.09	-0.15	-0.08	0.14	0.22	0.32	0.36	0.38
Treas 5Y_RollingReturn	-0.15	-0.25	-0.28	-0.28	-0.29	-0.28	-0.29	-0.30
Treas 10Y_RollingReturn	-0.19	-0.27	-0.29	-0.29	-0.30	-0.29	-0.30	-0.30
Treas 30Y_RollingReturn	-0.24	-0.31	-0.31	-0.32	-0.32	-0.33	-0.33	-0.32
Fama-French: MKT_ER	0.03	0.19	0.27	0.30	0.32	0.33	0.33	0.33
Fama-French: SMALL - BIG	0.02	0.04	0.07	0.09	0.09	0.10	0.09	0.09
Fama-French: HIGH - LOW	0.05	0.16	0.29	0.35	0.38	0.39	0.39	0.39
Fama-French: ROBUST - WEAK	-0.03	0.02	0.08	0.10	0.12	0.12	0.12	0.12
Fama-French: CONSERV. - AGRESS.	-0.07	-0.06	-0.04	-0.03	-0.02	-0.01	-0.02	-0.04
T-bill	0.12	0.16	0.22	0.39	0.48	0.52	0.50	0.50
Gold	0.07	0.06	0.03	0.01	0.00	-0.01	-0.01	-0.01
Case_Shiller	0.30	0.38	0.43	0.41	0.48	0.60	0.68	0.76

<b>GSCI Index VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.44	0.46	0.47	0.48	0.48	0.48	0.48	0.48
Energy_Subindex	0.97	0.98	0.98	0.98	0.98	0.99	0.99	0.99
Gold_Subindex	0.26	0.21	0.21	0.20	0.20	0.20	0.20	0.21
Copper_Subindex	0.56	0.66	0.70	0.72	0.72	0.72	0.72	0.73
Natural Gas_Subindex	0.40	0.42	0.56	0.69	0.76	0.80	0.82	0.83
Alluminum_Subindex	0.44	0.55	0.63	0.62	0.62	0.63	0.63	0.63
Silver_Subindex	0.37	0.42	0.46	0.49	0.49	0.50	0.49	0.50
<b>GSCI_Index</b>	<b>0.65</b>	<b>0.86</b>	<b>0.90</b>	<b>0.93</b>	<b>0.96</b>	<b>0.98</b>	<b>0.99</b>	<b>1.00</b>
WTI_Crude	0.68	0.89	0.93	0.95	0.96	0.97	0.97	0.97
Brent_Crude	0.33	0.60	0.70	0.75	0.78	0.81	0.83	0.84
S&P 500	0.39	0.51	0.57	0.60	0.62	0.63	0.63	0.63
Wilshire_5000	0.41	0.53	0.59	0.62	0.64	0.65	0.65	0.66
S&P_Oil and Gas_Equipment	0.67	0.77	0.82	0.84	0.85	0.85	0.85	0.86
S&P_Oil and Gas_Production	0.67	0.75	0.80	0.82	0.83	0.84	0.84	0.84
S&P_Technology_Hardware	0.28	0.33	0.35	0.36	0.36	0.36	0.36	0.37
S&P_Metals_Mining	0.49	0.56	0.57	0.56	0.56	0.56	0.56	0.56
S&P_Financials	0.28	0.45	0.52	0.46	0.40	0.37	0.36	0.36
S&P_Insurance	0.28	0.47	0.55	0.57	0.58	0.58	0.58	0.57
S&P_Softwares	0.26	0.30	0.39	0.43	0.44	0.45	0.46	0.48
S&P_Semiconductors	0.25	0.26	0.26	0.26	0.27	0.27	0.27	0.28
S&P_Telecom	0.07	0.16	0.24	0.28	0.30	0.31	0.31	0.31
<b>BCOM Index</b>	<b>0.89</b>	<b>0.91</b>	<b>0.91</b>	<b>0.91</b>	<b>0.91</b>	<b>0.91</b>	<b>0.91</b>	<b>0.91</b>
WTI_1Month future	0.91	0.94	0.96	0.97	0.97	0.98	0.98	0.98
WTI_2Year future	0.83	0.87	0.89	0.89	0.89	0.89	0.90	0.90
Brent_1Month future	0.91	0.95	0.96	0.96	0.97	0.97	0.97	0.97
Silver	0.38	0.43	0.47	0.50	0.50	0.50	0.50	0.49
Corn	0.27	0.38	0.49	0.54	0.54	0.54	0.54	0.54
Wheat	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.21
Soybean	0.29	0.39	0.45	0.48	0.50	0.50	0.51	0.50
Hogs	0.15	0.25	0.38	0.52	0.56	0.62	0.64	0.65
Wilshire_REIT	0.25	0.45	0.51	0.54	0.55	0.55	0.55	0.55
EM_Bonds	0.37	0.43	0.46	0.48	0.48	0.49	0.48	0.48
JPY/USD	0.02	0.04	0.05	0.05	0.05	0.06	0.06	0.08
USD/EUR	0.35	0.37	0.37	0.37	0.37	0.37	0.37	0.39
RUB/USD	-0.49	-0.57	-0.61	-0.62	-0.62	-0.63	-0.63	-0.63
BRL/USD	-0.29	-0.39	-0.41	-0.43	-0.43	-0.44	-0.44	-0.44
ZAR/USD	-0.34	-0.47	-0.51	-0.52	-0.53	-0.54	-0.54	-0.54
Treas 2Y_RollingReturn	-0.19	-0.26	-0.21	-0.17	-0.14	-0.13	-0.13	-0.12
Treas 5Y_RollingReturn	-0.21	-0.39	-0.37	-0.35	-0.34	-0.34	-0.35	-0.35
Treas 10Y_RollingReturn	-0.23	-0.41	-0.44	-0.45	-0.46	-0.46	-0.46	-0.45
Treas 30Y_RollingReturn	-0.29	-0.48	-0.51	-0.52	-0.53	-0.53	-0.53	-0.52
Fama-French: MKT_ER	0.41	0.51	0.57	0.60	0.61	0.61	0.62	0.63
Fama-French: SMALL - BIG	0.22	0.25	0.26	0.26	0.26	0.26	0.26	0.26
Fama-French: HIGH - LOW	0.12	0.20	0.21	0.20	0.20	0.20	0.20	0.19
Fama-French: ROBUST - WEAK	-0.10	-0.11	-0.11	-0.12	-0.12	-0.12	-0.13	-0.13
Fama-French: CONSERV. – AGRESS.	-0.11	-0.05	-0.03	-0.02	-0.01	-0.01	-0.01	0.00
T-bill	0.03	0.06	0.10	0.14	0.20	0.29	0.33	0.36
Gold	-0.04	-0.14	-0.17	-0.18	-0.19	-0.19	-0.19	-0.19
Case_Shiller	0.14	0.23	0.31	0.37	0.47	0.62	0.72	0.83

Core CPI VS:	1m	3m	6m	1y	2y	5y	10y	30y
Agriculture_Subindex	-0.01	0.03	0.05	0.00	-0.06	-0.13	-0.15	-0.16
Energy_Subindex	0.11	0.19	0.25	0.09	0.01	-0.07	-0.10	-0.12
Gold_Subindex	-0.02	-0.02	-0.10	-0.24	-0.32	-0.42	-0.46	-0.48
Copper_Subindex	0.10	0.13	0.08	-0.15	-0.29	-0.44	-0.50	-0.53
Natural Gas_Subindex	0.01	0.00	0.00	0.18	0.23	0.29	0.32	0.35
Alluminum_Subindex	0.11	0.11	0.14	0.05	-0.04	-0.12	-0.15	-0.17
Silver_Subindex	0.02	0.04	-0.06	-0.28	-0.40	-0.51	-0.56	-0.59
GSCI_Index	0.12	0.20	0.23	0.07	-0.04	-0.13	-0.17	-0.19
WTI_Crude	0.23	0.28	0.29	0.13	0.05	-0.02	-0.05	-0.07
Brent_Crude	0.23	0.29	0.30	0.12	0.02	-0.09	-0.13	-0.17
CPI_Headline	0.58	0.64	0.62	0.51	0.51	0.55	0.57	0.60
S&P 500	-0.04	-0.02	-0.02	-0.17	-0.28	-0.39	-0.44	-0.47
Wilshire_5000	-0.05	-0.04	-0.03	-0.21	-0.32	-0.44	-0.49	-0.54
S&P_Oil and Gas_Equipment	-0.02	0.08	0.15	-0.06	-0.19	-0.33	-0.39	-0.44
S&P_Oil and Gas_Production	-0.02	0.11	0.21	0.13	0.03	-0.05	-0.09	-0.14
S&P_Technology_Hardware	0.01	-0.04	-0.11	-0.29	-0.35	-0.43	-0.47	-0.50
S&P_Metals_Mining	-0.04	0.04	0.10	-0.04	-0.11	-0.17	-0.19	-0.19
S&P_Financials	-0.04	0.02	0.05	0.04	-0.03	-0.10	-0.13	-0.16
S&P_Insurance	-0.09	-0.04	0.01	-0.02	-0.11	-0.20	-0.25	-0.27
S&P_Softwares	-0.02	-0.06	-0.08	-0.26	-0.38	-0.49	-0.54	-0.56
S&P_Semiconductors	0.03	-0.01	-0.03	-0.23	-0.33	-0.43	-0.46	-0.49
S&P_Telecom	-0.05	-0.05	-0.08	-0.28	-0.39	-0.51	-0.55	-0.58
BCOM Index	0.10	0.18	0.20	0.09	-0.01	-0.09	-0.12	-0.15
WTI_1Month future	0.13	0.21	0.29	0.10	0.04	-0.03	-0.06	-0.09
WTI_2Year future	0.18	0.26	0.31	0.13	0.03	-0.06	-0.11	-0.14
Brent_1Month future	0.13	0.22	0.29	0.11	0.03	-0.04	-0.07	-0.09
Silver	0.03	0.05	-0.05	-0.27	-0.38	-0.51	-0.55	-0.57
Corn	0.05	0.09	0.11	0.08	-0.02	-0.11	-0.14	-0.16
Wheat	-0.06	-0.03	-0.03	0.07	0.08	0.09	0.11	0.14
Soybean	0.06	0.13	0.18	-0.03	-0.06	-0.10	-0.12	-0.13
Hogs	0.01	0.20	0.34	-0.07	-0.18	-0.30	-0.36	-0.40
Wilshire_REIT	-0.05	0.02	0.06	-0.05	-0.17	-0.29	-0.34	-0.35
EM_Bonds	0.02	0.07	-0.01	-0.18	-0.27	-0.36	-0.39	-0.42
JPY/USD	-0.01	0.03	0.09	0.27	0.34	0.41	0.45	0.46
USD/EUR	-0.08	-0.02	0.00	-0.11	-0.28	-0.43	-0.48	-0.52
RUB/USD	-0.15	-0.24	-0.25	-0.05	0.02	0.10	0.13	0.14
BRL/USD	-0.05	-0.11	-0.13	0.05	0.16	0.28	0.32	0.36
ZAR/USD	0.05	0.01	0.05	0.30	0.45	0.58	0.63	0.67
Treas 2Y_RollingReturn	0.04	0.04	0.08	0.31	0.40	0.53	0.59	0.64
Treas 5Y_RollingReturn	0.02	0.00	-0.05	0.12	0.23	0.36	0.41	0.44
Treas 10Y_RollingReturn	0.00	0.00	-0.07	0.02	0.10	0.19	0.22	0.23
Treas 30Y_RollingReturn	-0.04	-0.06	-0.09	-0.01	0.05	0.10	0.13	0.14
Fama-French: MKT_ER	-0.06	-0.05	-0.07	-0.28	-0.40	-0.53	-0.58	-0.63
Fama-French: SMALL - BIG	-0.07	-0.06	0.03	-0.08	-0.17	-0.25	-0.28	-0.31
Fama-French: HIGH - LOW	-0.01	0.08	0.14	0.32	0.29	0.28	0.28	0.28
Fama-French: ROBUST - WEAK	0.02	0.09	0.18	0.41	0.54	0.64	0.68	0.71
Fama-French: CONSERV. - AGRESS.	-0.05	-0.04	0.03	0.21	0.29	0.37	0.39	0.43
T-bill	0.05	0.07	0.11	0.20	0.20	0.14	0.08	0.05
Gold	0.00	0.01	-0.09	-0.22	-0.31	-0.40	-0.45	-0.47
Case_Shiller	0.16	0.26	0.42	0.52	0.56	0.62	0.66	0.70

<b>CPI Energy VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.06	0.21	0.36	0.60	0.66	0.71	0.73	0.75
Energy_Subindex	0.30	0.62	0.76	0.89	0.93	0.96	0.97	0.98
Gold_Subindex	0.00	-0.01	-0.01	0.00	0.00	0.00	-0.01	-0.02
Copper_Subindex	0.23	0.46	0.55	0.62	0.66	0.68	0.69	0.69
Natural Gas_Subindex	0.06	0.29	0.42	0.67	0.69	0.73	0.75	0.77
Alluminum_Subindex	0.18	0.40	0.54	0.56	0.55	0.56	0.56	0.57
Silver_Subindex	0.07	0.11	0.20	0.35	0.52	0.66	0.72	0.75
GSCI_Index	0.34	0.67	0.78	0.88	0.91	0.94	0.96	0.97
WTI_Crude	0.55	0.70	0.79	0.89	0.92	0.94	0.95	0.96
Brent_Crude	0.60	0.75	0.82	0.90	0.93	0.95	0.96	0.96
CPI_Headline	0.92	0.94	0.95	0.90	0.84	0.77	0.73	0.70
S&P 500	0.08	0.29	0.40	0.44	0.46	0.48	0.48	0.50
Wilshire_5000	0.07	0.25	0.39	0.40	0.40	0.41	0.40	0.41
S&P_Oil and Gas_Equipment	0.18	0.45	0.63	0.73	0.79	0.83	0.84	0.84
S&P_Oil and Gas_Production	0.11	0.44	0.62	0.76	0.81	0.85	0.86	0.87
S&P_Technology_Hardware	0.05	0.14	0.15	0.16	0.17	0.17	0.16	0.15
S&P_Metals_Mining	0.07	0.27	0.44	0.55	0.60	0.63	0.64	0.65
S&P_Financials	0.08	0.31	0.43	0.42	0.40	0.39	0.39	0.39
S&P_Insurance	0.04	0.28	0.36	0.37	0.35	0.34	0.33	0.33
S&P_Softwares	0.06	0.15	0.17	0.18	0.19	0.19	0.20	0.20
S&P_Semiconductors	0.01	0.10	0.12	0.13	0.14	0.14	0.14	0.14
S&P_Telecom	-0.03	0.03	0.10	0.17	0.21	0.24	0.25	0.24
BCOM Index	0.29	0.65	0.76	0.91	0.93	0.94	0.95	0.95
WTI_1Month future	0.30	0.58	0.73	0.85	0.90	0.94	0.95	0.96
WTI_2Year future	0.38	0.67	0.80	0.86	0.89	0.92	0.93	0.93
Brent_1Month future	0.34	0.62	0.75	0.87	0.91	0.94	0.95	0.96
Silver	0.09	0.13	0.21	0.35	0.52	0.68	0.74	0.79
Corn	-0.01	0.09	0.20	0.48	0.53	0.59	0.61	0.63
Wheat	-0.01	0.00	0.10	0.22	0.24	0.25	0.26	0.28
Soybean	0.09	0.22	0.29	0.35	0.36	0.38	0.39	0.39
Hogs	0.13	0.32	0.45	0.49	0.54	0.58	0.60	0.62
Wilshire_REIT	0.13	0.35	0.41	0.46	0.48	0.50	0.51	0.52
EM_Bonds	0.07	0.22	0.28	0.31	0.32	0.34	0.35	0.35
JPY/USD	0.02	0.10	0.04	-0.10	-0.13	-0.16	-0.17	-0.19
USD/EUR	0.08	0.22	0.30	0.30	0.28	0.28	0.27	0.27
RUB/USD	-0.24	-0.45	-0.61	-0.70	-0.76	-0.82	-0.84	-0.85
BRL/USD	-0.13	-0.30	-0.44	-0.56	-0.64	-0.69	-0.71	-0.73
ZAR/USD	-0.19	-0.36	-0.40	-0.44	-0.44	-0.45	-0.45	-0.45
Treas 2Y_RollingReturn	-0.14	-0.23	-0.17	-0.05	-0.03	-0.02	-0.01	-0.01
Treas 5Y_RollingReturn	-0.20	-0.34	-0.36	-0.37	-0.38	-0.38	-0.37	-0.37
Treas 10Y_RollingReturn	-0.26	-0.37	-0.39	-0.40	-0.40	-0.40	-0.40	-0.40
Treas 30Y_RollingReturn	-0.30	-0.40	-0.42	-0.42	-0.43	-0.44	-0.44	-0.45
Fama-French: MKT_ER	0.08	0.28	0.37	0.41	0.43	0.44	0.45	0.45
Fama-French: SMALL - BIG	0.10	0.14	0.15	0.16	0.16	0.16	0.16	0.15
Fama-French: HIGH - LOW	0.06	0.18	0.27	0.24	0.18	0.15	0.13	0.09
Fama-French: ROBUST - WEAK	-0.09	-0.10	-0.10	-0.10	-0.11	-0.11	-0.10	-0.09
Fama-French: CONSERV. – AGRESS.	-0.05	-0.10	-0.11	-0.12	-0.12	-0.12	-0.12	-0.14
T-bill	0.08	0.10	0.13	0.21	0.30	0.41	0.47	0.51
Gold	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.04
Case_Shiller	0.30	0.38	0.41	0.42	0.52	0.67	0.76	0.85

<b>CPI Durables VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.10	0.16	0.25	0.34	0.45	0.58	0.67	0.74
Energy_Subindex	0.10	0.17	0.30	0.40	0.53	0.67	0.74	0.80
Gold_Subindex	0.00	0.00	-0.02	-0.06	-0.10	-0.16	-0.21	-0.26
Copper_Subindex	0.13	0.19	0.24	0.31	0.41	0.55	0.64	0.72
Natural Gas_Subindex	0.10	0.16	0.18	0.21	0.21	0.21	0.22	0.22
Alluminum_Subindex	0.22	0.36	0.46	0.59	0.72	0.84	0.90	0.94
Silver_Subindex	0.02	0.02	-0.01	-0.05	-0.10	-0.16	-0.21	-0.26
GSCI_Index	0.11	0.16	0.25	0.31	0.40	0.52	0.61	0.69
WTI_Crude	0.13	0.21	0.35	0.46	0.59	0.73	0.80	0.86
Brent_Crude	0.13	0.20	0.33	0.44	0.56	0.70	0.78	0.84
CPI_Headline	0.23	0.29	0.36	0.48	0.52	0.57	0.59	0.60
S&P 500	0.09	0.17	0.29	0.36	0.46	0.58	0.65	0.71
Wilshire_5000	0.07	0.13	0.25	0.33	0.42	0.53	0.60	0.67
S&P_Oil and Gas_Equipment	0.05	0.09	0.16	0.22	0.30	0.41	0.48	0.56
S&P_Oil and Gas_Production	0.04	0.09	0.23	0.30	0.37	0.45	0.49	0.52
S&P_Technology_Hardware	-0.05	-0.08	-0.06	-0.10	-0.14	-0.23	-0.29	-0.35
S&P_Metals_Mining	0.14	0.25	0.32	0.43	0.55	0.70	0.78	0.84
S&P_Financials	0.10	0.18	0.31	0.44	0.56	0.70	0.77	0.83
S&P_Insurance	0.13	0.25	0.39	0.51	0.63	0.76	0.83	0.88
S&P_Softwares	0.04	0.06	0.13	0.15	0.19	0.24	0.28	0.31
S&P_Semiconductors	0.00	0.02	0.10	0.16	0.23	0.28	0.30	0.29
S&P_Telecom	0.07	0.14	0.20	0.26	0.33	0.45	0.54	0.62
BCOM Index	0.11	0.18	0.24	0.29	0.36	0.48	0.56	0.63
WTI_1Month future	0.11	0.18	0.31	0.42	0.54	0.68	0.75	0.80
WTI_2Year future	0.13	0.19	0.29	0.39	0.51	0.64	0.72	0.78
Brent_1Month future	0.07	0.12	0.27	0.36	0.48	0.62	0.70	0.77
Silver	0.04	0.07	0.07	0.07	0.08	0.10	0.13	0.16
Corn	0.18	0.18	0.16	0.28	0.36	0.44	0.47	0.50
Wheat	0.10	0.12	0.15	0.21	0.28	0.39	0.47	0.56
Soybean	0.04	0.05	0.01	0.04	0.06	0.10	0.11	0.10
Hogs	0.10	0.17	0.23	0.43	0.57	0.71	0.76	0.79
Wilshire_REIT	0.06	0.14	0.25	0.39	0.45	0.51	0.53	0.55
EM_Bonds	0.00	-0.01	0.00	-0.02	-0.01	0.00	0.01	0.03
JPY/USD	0.04	0.09	0.16	0.24	0.33	0.47	0.57	0.68
USD/EUR	0.08	0.07	-0.09	-0.26	-0.41	-0.53	-0.58	-0.59
RUB/USD	-0.21	-0.24	-0.19	-0.19	-0.12	-0.03	0.00	0.02
BRL/USD	-0.10	-0.12	-0.13	-0.17	-0.20	-0.25	-0.26	-0.26
ZAR/USD	-0.05	-0.07	-0.02	0.07	0.23	0.41	0.47	0.52
Treas 2Y_RollingReturn	0.06	0.09	0.05	0.07	0.10	0.16	0.21	0.27
Treas 5Y_RollingReturn	0.04	0.04	-0.06	-0.09	-0.13	-0.17	-0.20	-0.24
Treas 10Y_RollingReturn	0.08	0.11	0.02	0.04	0.04	0.08	0.11	0.13
Treas 30Y_RollingReturn	0.12	0.17	0.08	0.13	0.17	0.25	0.30	0.34
Fama-French: MKT_ER	0.05	0.09	0.17	0.21	0.27	0.35	0.41	0.46
Fama-French: SMALL - BIG	-0.10	-0.14	-0.13	-0.10	-0.10	-0.11	-0.13	-0.14
Fama-French: HIGH - LOW	0.19	0.32	0.46	0.59	0.72	0.84	0.90	0.94
Fama-French: ROBUST - WEAK	0.16	0.27	0.42	0.50	0.59	0.71	0.77	0.82
Fama-French: CONSERV. - AGRESS.	-0.07	-0.04	0.03	0.12	0.18	0.26	0.30	0.32
T-bill	0.38	0.41	0.46	0.48	0.52	0.60	0.71	0.83
Gold	0.01	0.01	-0.04	-0.07	-0.12	-0.19	-0.25	-0.33
Case_Shiller	0.20	0.22	0.27	0.33	0.31	0.26	0.21	0.15



<b>CPI Services VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.05	0.11	0.14	0.14	0.15	0.15	0.16	0.16
Energy_Subindex	0.03	0.16	0.20	0.20	0.22	0.27	0.29	0.32
Gold_Subindex	0.06	0.09	0.10	0.10	0.11	0.11	0.10	0.11
Copper_Subindex	0.08	0.05	0.02	0.00	0.00	-0.01	-0.02	-0.03
Natural Gas_Subindex	-0.17	0.11	0.21	0.26	0.36	0.46	0.51	0.54
Alluminum_Subindex	0.16	0.17	0.16	0.09	0.02	-0.02	-0.03	-0.04
Silver_Subindex	0.04	0.04	0.00	-0.03	-0.04	-0.05	-0.05	-0.04
GSCI_Index	0.05	0.16	0.18	0.17	0.20	0.24	0.26	0.27
WTI_Crude	0.17	0.22	0.21	0.19	0.21	0.25	0.28	0.31
Brent_Crude	0.16	0.21	0.21	0.19	0.21	0.25	0.27	0.29
CPI_Headline	0.35	0.39	0.43	0.57	0.60	0.67	0.71	0.73
S&P 500	-0.01	-0.07	-0.13	-0.23	-0.30	-0.37	-0.40	-0.42
Wilshire_5000	-0.02	-0.09	-0.15	-0.26	-0.33	-0.41	-0.44	-0.46
S&P_Oil and Gas_Equipment	0.03	0.12	0.16	0.12	0.12	0.13	0.14	0.14
S&P_Oil and Gas_Production	-0.05	0.12	0.22	0.29	0.32	0.33	0.33	0.31
S&P_Technology_Hardware	0.05	-0.08	-0.13	-0.15	-0.17	-0.17	-0.17	-0.18
S&P_Metals_Mining	0.04	0.09	0.11	0.12	0.12	0.12	0.12	0.13
S&P_Financials	-0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
S&P_Insurance	-0.04	0.00	0.02	-0.03	-0.09	-0.15	-0.16	-0.17
S&P_Softwares	0.03	-0.11	-0.20	-0.26	-0.29	-0.30	-0.31	-0.30
S&P_Semiconductors	0.03	-0.11	-0.21	-0.29	-0.23	-0.14	-0.11	-0.09
S&P_Telecom	-0.01	-0.10	-0.17	-0.21	-0.22	-0.23	-0.24	-0.24
BCOM Index	0.09	0.23	0.23	0.22	0.23	0.25	0.25	0.27
WTI_1Month future	0.11	0.17	0.20	0.19	0.23	0.29	0.32	0.34
WTI_2Year future	0.16	0.26	0.34	0.39	0.41	0.43	0.44	0.46
Brent_1Month future	0.08	0.15	0.18	0.17	0.19	0.24	0.26	0.28
Silver	0.04	0.04	0.00	-0.02	-0.03	-0.04	-0.04	-0.06
Corn	0.00	0.07	0.06	0.03	0.02	0.01	0.01	0.00
Wheat	-0.01	0.03	0.06	0.07	0.07	0.08	0.08	0.08
Soybean	0.04	0.04	0.00	0.04	0.06	0.08	0.08	0.06
Hogs	-0.02	0.10	0.05	-0.02	-0.12	-0.20	-0.22	-0.25
Wilshire_REIT	0.04	0.09	0.08	0.02	-0.04	-0.09	-0.11	-0.12
EM_Bonds	0.08	0.10	0.01	-0.05	-0.09	-0.13	-0.14	-0.14
JPY/USD	0.04	0.11	0.14	0.15	0.16	0.17	0.17	0.18
USD/EUR	0.04	0.07	0.09	0.09	0.09	0.09	0.09	0.09
RUB/USD	-0.02	-0.06	-0.08	-0.09	-0.09	-0.09	-0.09	-0.09
BRL/USD	-0.14	-0.17	-0.14	-0.13	-0.12	-0.11	-0.10	-0.10
ZAR/USD	0.02	-0.01	0.03	0.06	0.07	0.08	0.08	0.09
Treas 2Y_RollingReturn	0.05	0.13	0.26	0.41	0.50	0.60	0.63	0.66
Treas 5Y_RollingReturn	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	-0.01
Treas 10Y_RollingReturn	-0.02	-0.01	-0.02	-0.03	-0.03	-0.04	-0.05	-0.07
Treas 30Y_RollingReturn	-0.01	0.01	0.00	-0.01	-0.02	-0.02	-0.03	-0.03
Fama-French: MKT_ER	-0.02	-0.11	-0.20	-0.32	-0.40	-0.50	-0.53	-0.57
Fama-French: SMALL - BIG	0.06	0.02	0.00	0.00	-0.01	-0.01	-0.02	-0.03
Fama-French: HIGH - LOW	0.05	0.24	0.36	0.43	0.47	0.48	0.49	0.49
Fama-French: ROBUST - WEAK	-0.06	0.05	0.09	0.11	0.12	0.13	0.13	0.12
Fama-French: CONSERV. - AGRESS.	-0.04	0.10	0.23	0.27	0.25	0.19	0.18	0.17
T-bill	0.39	0.52	0.62	0.72	0.80	0.87	0.89	0.90
Gold	0.08	0.08	-0.05	-0.16	-0.22	-0.25	-0.27	-0.28
Case_Shiller	0.27	0.36	0.46	0.55	0.62	0.76	0.84	0.91

<b>CPI Nondurables VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.09	0.23	0.42	0.58	0.66	0.72	0.74	0.75
Energy_Subindex	0.33	0.68	0.79	0.85	0.87	0.89	0.89	0.89
Gold_Subindex	0.03	0.05	0.05	0.05	0.06	0.05	0.05	0.06
Copper_Subindex	0.26	0.50	0.64	0.69	0.72	0.74	0.74	0.74
Natural Gas_Subindex	0.10	0.32	0.38	0.41	0.42	0.43	0.44	0.44
Alluminum_Subindex	0.22	0.49	0.60	0.65	0.68	0.69	0.70	0.70
Silver_Subindex	0.06	0.15	0.28	0.47	0.63	0.76	0.81	0.84
GSCI_Index	0.35	0.68	0.81	0.86	0.89	0.90	0.91	0.91
WTI_Crude	0.55	0.71	0.80	0.83	0.84	0.85	0.86	0.86
Brent_Crude	0.60	0.75	0.82	0.83	0.84	0.85	0.85	0.85
CPI_Headline	0.69	0.68	0.70	0.93	0.88	0.83	0.81	0.81
S&P 500	0.08	0.32	0.44	0.49	0.52	0.53	0.54	0.53
Wilshire_5000	0.09	0.33	0.45	0.50	0.52	0.54	0.54	0.55
S&P_Oil and Gas_Equipment	0.18	0.48	0.60	0.65	0.68	0.69	0.70	0.69
S&P_Oil and Gas_Production	0.10	0.41	0.53	0.58	0.60	0.62	0.63	0.63
S&P_Technology_Hardware	0.08	0.18	0.20	0.22	0.22	0.22	0.22	0.22
S&P_Metals_Mining	0.07	0.29	0.43	0.49	0.52	0.53	0.54	0.54
S&P_Financials	0.09	0.33	0.49	0.55	0.58	0.60	0.61	0.61
S&P_Insurance	0.04	0.28	0.35	0.27	0.17	0.10	0.07	0.06
S&P_Softwares	0.08	0.20	0.23	0.25	0.25	0.26	0.26	0.27
S&P_Semiconductors	0.05	0.14	0.17	0.18	0.18	0.18	0.19	0.19
S&P_Telecom	-0.05	0.05	0.15	0.18	0.20	0.22	0.22	0.21
BCOM Index	0.29	0.62	0.76	0.82	0.84	0.86	0.87	0.87
WTI_1Month future	0.30	0.63	0.76	0.82	0.86	0.88	0.88	0.89
WTI_2Year future	0.38	0.67	0.80	0.85	0.87	0.89	0.89	0.90
Brent_1Month future	0.31	0.65	0.77	0.83	0.86	0.88	0.88	0.89
Silver	0.07	0.18	0.33	0.46	0.54	0.59	0.60	0.62
Corn	0.02	0.12	0.29	0.46	0.51	0.55	0.56	0.57
Wheat	0.02	0.09	0.12	0.13	0.13	0.15	0.15	0.16
Soybean	0.06	0.16	0.29	0.43	0.43	0.46	0.47	0.48
Hogs	0.02	0.15	0.29	0.47	0.48	0.53	0.55	0.57
Wilshire_REIT	0.10	0.35	0.50	0.57	0.60	0.62	0.63	0.63
EM_Bonds	0.07	0.23	0.33	0.37	0.40	0.42	0.43	0.43
JPY/USD	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.02
USD/EUR	0.08	0.23	0.33	0.38	0.40	0.41	0.42	0.41
RUB/USD	-0.21	-0.41	-0.57	-0.61	-0.64	-0.65	-0.65	-0.66
BRL/USD	-0.12	-0.34	-0.45	-0.49	-0.51	-0.53	-0.53	-0.53
ZAR/USD	-0.18	-0.33	-0.43	-0.47	-0.49	-0.50	-0.51	-0.52
Treas 2Y_RollingReturn	-0.12	-0.21	-0.17	-0.13	-0.11	-0.10	-0.10	-0.11
Treas 5Y_RollingReturn	-0.21	-0.34	-0.37	-0.38	-0.38	-0.39	-0.39	-0.37
Treas 10Y_RollingReturn	-0.28	-0.40	-0.41	-0.42	-0.42	-0.42	-0.42	-0.41
Treas 30Y_RollingReturn	-0.30	-0.42	-0.43	-0.43	-0.43	-0.43	-0.43	-0.43
Fama-French: MKT_ER	0.08	0.31	0.42	0.46	0.48	0.49	0.49	0.50
Fama-French: SMALL - BIG	0.07	0.16	0.21	0.23	0.24	0.25	0.25	0.26
Fama-French: HIGH - LOW	0.07	0.19	0.33	0.39	0.42	0.45	0.45	0.46
Fama-French: ROBUST - WEAK	-0.11	-0.16	-0.17	-0.17	-0.17	-0.16	-0.17	-0.16
Fama-French: CONSERV. - AGRESS.	-0.04	-0.10	-0.11	-0.12	-0.12	-0.12	-0.13	-0.15
T-bill	0.08	0.11	0.15	0.21	0.26	0.33	0.36	0.39
Gold	0.08	0.17	0.19	0.20	0.20	0.21	0.20	0.20
Case_Shiller	0.12	0.17	0.20	0.16	0.16	0.17	0.20	0.25

<b>Headline PCE VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.14	0.28	0.34	0.37	0.38	0.39	0.40	0.40
Energy_Subindex	0.34	0.60	0.70	0.74	0.76	0.78	0.78	0.79
Gold_Subindex	0.05	0.08	0.10	0.10	0.11	0.10	0.10	0.10
Copper_Subindex	0.26	0.47	0.53	0.51	0.49	0.48	0.47	0.46
NG_Subindex	0.11	0.34	0.43	0.47	0.49	0.51	0.52	0.53
Alluminum_Subindex	0.26	0.53	0.64	0.69	0.71	0.73	0.73	0.74
Silver_Subindex	0.10	0.18	0.20	0.22	0.23	0.23	0.22	0.24
GSCI_Index	0.35	0.63	0.73	0.77	0.79	0.80	0.81	0.81
WTI_Crude	0.54	0.67	0.72	0.74	0.75	0.76	0.76	0.75
Brent_Crude	0.55	0.69	0.74	0.77	0.78	0.79	0.79	0.80
CPI_Headline	0.80	0.82	0.85	0.97	0.97	0.96	0.96	0.96
S&P 500	0.12	0.30	0.37	0.40	0.42	0.43	0.44	0.44
Wilshire_5000	0.13	0.31	0.38	0.41	0.43	0.44	0.44	0.45
S&P_Oil and Gas_Equipment	0.19	0.41	0.49	0.54	0.56	0.58	0.58	0.57
S&P_Oil and Gas_Production	0.14	0.41	0.60	0.68	0.72	0.75	0.76	0.77
S&P_Technology_Hardware	0.13	0.22	0.26	0.28	0.29	0.30	0.30	0.31
S&P_Metals_Mining	0.09	0.30	0.42	0.48	0.51	0.53	0.54	0.54
S&P_Financials	0.13	0.36	0.50	0.56	0.59	0.60	0.60	0.61
S&P_Insurance	0.08	0.33	0.42	0.45	0.46	0.47	0.47	0.48
S&P_Softwares	0.13	0.23	0.26	0.28	0.29	0.29	0.29	0.28
S&P_Semiconductors	0.09	0.17	0.21	0.23	0.24	0.25	0.25	0.25
S&P_Telecom	-0.09	-0.02	0.01	0.02	0.03	0.03	0.03	0.02
BCOM Index	0.33	0.64	0.75	0.81	0.83	0.85	0.86	0.86
WTI_1Month future	0.33	0.55	0.64	0.68	0.70	0.71	0.72	0.72
WTI_2Year future	0.38	0.66	0.79	0.84	0.87	0.88	0.88	0.88
Brent_1Month future	0.33	0.57	0.66	0.70	0.72	0.74	0.74	0.74
Silver	0.10	0.18	0.21	0.23	0.24	0.24	0.25	0.26
Corn	0.07	0.16	0.28	0.46	0.53	0.57	0.59	0.59
Wheat	0.05	0.10	0.12	0.14	0.14	0.15	0.15	0.16
Soybean	0.08	0.17	0.25	0.28	0.29	0.30	0.31	0.31
Hogs	0.07	0.20	0.31	0.45	0.45	0.48	0.48	0.49
Wilshire_REIT	0.15	0.39	0.53	0.60	0.63	0.64	0.65	0.65
EM_Bonds	0.10	0.19	0.23	0.26	0.27	0.27	0.27	0.26
JPY/USD	0.04	0.11	0.02	-0.05	-0.08	-0.10	-0.10	-0.12
USD/EUR	0.12	0.21	0.25	0.27	0.27	0.28	0.28	0.27
RUB/USD	-0.26	-0.45	-0.59	-0.64	-0.67	-0.68	-0.68	-0.69
BRL/USD	-0.16	-0.31	-0.37	-0.41	-0.42	-0.43	-0.44	-0.46
ZAR/USD	-0.19	-0.32	-0.38	-0.41	-0.42	-0.42	-0.41	-0.42
Treas 2Y_RollingReturn	-0.11	-0.17	-0.12	-0.06	-0.03	-0.01	-0.01	-0.03
Treas 5Y_RollingReturn	-0.18	-0.29	-0.33	-0.35	-0.35	-0.36	-0.36	-0.37
Treas 10Y_RollingReturn	-0.23	-0.33	-0.36	-0.37	-0.37	-0.38	-0.37	-0.36
Treas 30Y_RollingReturn	-0.26	-0.36	-0.37	-0.38	-0.38	-0.38	-0.38	-0.39
Fama-French: MKT_ER	0.12	0.28	0.35	0.39	0.40	0.41	0.42	0.42
Fama-French: SMALL - BIG	0.10	0.12	0.13	0.13	0.13	0.14	0.15	0.16
Fama-French: HIGH - LOW	0.07	0.23	0.36	0.43	0.47	0.49	0.49	0.49
Fama-French: ROBUST - WEAK	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07
Fama-French: CONSERV. - AGRESS.	-0.11	-0.11	-0.08	-0.07	-0.07	-0.06	-0.07	-0.07
T-bill	0.13	0.17	0.21	0.27	0.34	0.43	0.48	0.51
Gold	0.07	0.12	0.14	0.15	0.15	0.15	0.16	0.16
Case_Shiller	0.24	0.32	0.39	0.42	0.50	0.62	0.71	0.79

<b>Core PCE VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.14	0.27	0.30	0.32	0.33	0.34	0.36	0.37
Energy_Subindex	0.16	0.34	0.47	0.54	0.57	0.59	0.59	0.59
Gold_Subindex	0.01	0.06	0.07	0.08	0.08	0.08	0.07	0.07
Copper_Subindex	0.12	0.27	0.36	0.42	0.44	0.45	0.45	0.47
Natural Gas_Subindex	0.07	0.18	0.24	0.27	0.28	0.28	0.27	0.27
Alluminum_Subindex	0.18	0.37	0.43	0.45	0.46	0.47	0.47	0.46
Silver_Subindex	0.03	0.13	0.11	0.10	0.09	0.09	0.09	0.09
GSCI_Index	0.18	0.36	0.49	0.55	0.59	0.60	0.61	0.61
WTI_Crude	0.28	0.40	0.48	0.51	0.53	0.53	0.54	0.55
Brent_Crude	0.19	0.37	0.47	0.52	0.55	0.56	0.57	0.57
CPI_Headline	0.34	0.53	0.61	0.65	0.66	0.67	0.67	0.66
S&P 500	0.09	0.24	0.29	0.31	0.32	0.33	0.33	0.32
Wilshire_5000	0.10	0.24	0.29	0.31	0.32	0.33	0.33	0.34
S&P_Oil and Gas_Equipment	0.06	0.20	0.24	0.26	0.28	0.28	0.29	0.32
S&P_Oil and Gas_Production	0.05	0.26	0.42	0.50	0.55	0.57	0.58	0.57
S&P_Technology_Hardware	0.13	0.17	0.18	0.19	0.19	0.18	0.19	0.20
S&P_Metals_Mining	0.08	0.22	0.35	0.43	0.47	0.50	0.51	0.52
S&P_Financials	0.10	0.27	0.33	0.35	0.36	0.37	0.37	0.38
S&P_Insurance	0.07	0.26	0.34	0.41	0.45	0.47	0.47	0.45
S&P_Softwares	0.11	0.18	0.20	0.21	0.21	0.22	0.22	0.20
S&P_Semiconductors	0.14	0.14	0.14	0.14	0.14	0.13	0.12	0.11
S&P_Telecom	-0.11	0.00	0.04	0.06	0.06	0.07	0.07	0.06
BCOM Index	0.18	0.39	0.51	0.58	0.60	0.62	0.62	0.64
WTI_1Month future	0.18	0.33	0.45	0.52	0.55	0.57	0.58	0.59
WTI_2Year future	0.19	0.36	0.41	0.43	0.44	0.45	0.45	0.46
Brent_1Month future	0.14	0.32	0.42	0.47	0.49	0.50	0.49	0.49
Silver	0.03	0.13	0.10	0.08	0.08	0.08	0.08	0.06
Corn	0.11	0.18	0.22	0.25	0.26	0.27	0.27	0.26
Wheat	0.08	0.16	0.18	0.19	0.20	0.21	0.20	0.21
Soybean	0.07	0.13	0.13	0.13	0.12	0.12	0.11	0.14
Hogs	0.04	0.15	0.14	0.18	0.24	0.28	0.29	0.30
Wilshire_REIT	0.09	0.31	0.40	0.47	0.51	0.54	0.55	0.56
EM_Bonds	0.06	0.11	0.13	0.14	0.14	0.14	0.15	0.16
JPY/USD	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.07
USD/EUR	0.08	0.15	0.18	0.18	0.19	0.18	0.18	0.19
RUB/USD	-0.15	-0.30	-0.35	-0.37	-0.39	-0.39	-0.40	-0.40
BRL/USD	-0.11	-0.26	-0.30	-0.31	-0.32	-0.32	-0.32	-0.32
ZAR/USD	-0.07	-0.19	-0.23	-0.24	-0.25	-0.26	-0.26	-0.26
Treas 2Y_RollingReturn	-0.05	-0.06	-0.02	0.05	0.11	0.17	0.20	0.22
Treas 5Y_RollingReturn	-0.07	-0.12	-0.14	-0.14	-0.15	-0.15	-0.15	-0.16
Treas 10Y_RollingReturn	-0.05	-0.16	-0.21	-0.24	-0.26	-0.27	-0.28	-0.29
Treas 30Y_RollingReturn	-0.04	-0.15	-0.20	-0.24	-0.26	-0.27	-0.27	-0.30
Fama-French: MKT_ER	0.08	0.22	0.26	0.28	0.29	0.31	0.31	0.30
Fama-French: SMALL - BIG	0.03	-0.02	-0.04	-0.05	-0.05	-0.05	-0.05	-0.04
Fama-French: HIGH - LOW	0.03	0.20	0.26	0.29	0.30	0.30	0.30	0.30
Fama-French: ROBUST - WEAK	0.00	0.05	0.07	0.07	0.08	0.08	0.08	0.08
Fama-French: CONSERV. - AGRESS.	-0.10	-0.06	-0.04	-0.04	-0.04	-0.04	-0.04	-0.03
T-bill	0.09	0.12	0.15	0.17	0.21	0.27	0.30	0.32
Gold	0.03	0.09	0.10	0.11	0.12	0.12	0.12	0.11
Case_Shiller	0.21	0.33	0.43	0.49	0.50	0.53	0.57	0.62

<b>PPI Final Goods VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.15	0.37	0.51	0.67	0.75	0.80	0.81	0.83
Energy_Subindex	0.40	0.67	0.76	0.79	0.81	0.82	0.83	0.83
Gold_Subindex	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.03
Copper_Subindex	0.22	0.44	0.51	0.54	0.55	0.56	0.57	0.58
Natural Gas_Subindex	0.05	0.36	0.49	0.56	0.60	0.62	0.62	0.63
Alluminum_Subindex	0.24	0.48	0.54	0.57	0.58	0.59	0.59	0.57
Silver_Subindex	0.16	0.25	0.35	0.43	0.48	0.51	0.52	0.54
GSCI_Index	0.41	0.69	0.77	0.81	0.84	0.86	0.86	0.87
WTI_Crude	0.67	0.74	0.78	0.78	0.78	0.78	0.78	0.77
Brent_Crude	0.67	0.76	0.78	0.79	0.80	0.80	0.80	0.81
CPI_Headline	0.69	0.71	0.74	0.89	0.83	0.78	0.76	0.75
S&P 500	0.09	0.32	0.40	0.43	0.45	0.47	0.48	0.48
Wilshire_5000	0.10	0.34	0.41	0.44	0.46	0.47	0.47	0.49
S&P_Oil and Gas_Equipment	0.17	0.48	0.59	0.65	0.68	0.70	0.70	0.72
S&P_Oil and Gas_Production	0.10	0.45	0.54	0.59	0.61	0.62	0.62	0.63
S&P_Technology_Hardware	0.08	0.21	0.26	0.28	0.29	0.30	0.30	0.31
S&P_Metals_Mining	0.01	0.32	0.48	0.57	0.61	0.64	0.65	0.64
S&P_Financials	0.10	0.36	0.41	0.30	0.19	0.11	0.08	0.07
S&P_Insurance	0.07	0.34	0.39	0.37	0.35	0.33	0.32	0.32
S&P_Softwares	0.09	0.22	0.25	0.27	0.28	0.29	0.29	0.29
S&P_Semiconductors	0.02	0.17	0.22	0.24	0.25	0.26	0.26	0.28
S&P_Telecom	-0.05	0.04	0.06	0.07	0.08	0.09	0.09	0.10
BCOM Index	0.32	0.66	0.74	0.76	0.75	0.73	0.73	0.73
WTI_1Month future	0.43	0.62	0.71	0.79	0.84	0.87	0.88	0.88
WTI_2Year future	0.41	0.65	0.71	0.74	0.75	0.76	0.76	0.76
Brent_1Month future	0.41	0.64	0.71	0.75	0.76	0.77	0.78	0.78
Silver	0.15	0.25	0.35	0.43	0.48	0.51	0.52	0.53
Corn	0.06	0.22	0.34	0.46	0.37	0.35	0.34	0.32
Wheat	-0.02	0.08	0.10	0.12	0.13	0.13	0.13	0.13
Soybean	0.07	0.20	0.28	0.33	0.35	0.37	0.37	0.39
Hogs	0.05	0.25	0.38	0.56	0.56	0.58	0.60	0.60
Wilshire_REIT	0.12	0.36	0.47	0.52	0.54	0.56	0.57	0.59
EM_Bonds	0.10	0.23	0.28	0.30	0.31	0.32	0.32	0.32
JPY/USD	0.02	0.11	0.13	0.15	0.16	0.17	0.17	0.18
USD/EUR	0.09	0.22	0.26	0.28	0.29	0.30	0.30	0.29
RUB/USD	-0.22	-0.43	-0.50	-0.53	-0.54	-0.56	-0.56	-0.56
BRL/USD	-0.12	-0.31	-0.36	-0.39	-0.40	-0.40	-0.40	-0.41
ZAR/USD	-0.15	-0.36	-0.42	-0.45	-0.46	-0.47	-0.47	-0.47
Treas 2Y_RollingReturn	-0.13	-0.22	-0.18	-0.15	-0.13	-0.12	-0.12	-0.11
Treas 5Y_RollingReturn	-0.20	-0.37	-0.41	-0.44	-0.45	-0.45	-0.46	-0.46
Treas 10Y_RollingReturn	-0.25	-0.38	-0.39	-0.40	-0.40	-0.40	-0.40	-0.40
Treas 30Y_RollingReturn	-0.29	-0.37	-0.36	-0.36	-0.36	-0.36	-0.35	-0.35
Fama-French: MKT_ER	0.09	0.32	0.39	0.42	0.44	0.44	0.44	0.44
Fama-French: SMALL - BIG	0.11	0.19	0.21	0.22	0.23	0.23	0.23	0.23
Fama-French: HIGH - LOW	0.08	0.25	0.35	0.40	0.43	0.44	0.44	0.45
Fama-French: ROBUST - WEAK	-0.08	-0.04	-0.02	-0.01	-0.01	-0.01	-0.01	0.00
Fama-French: CONSERV. - AGRESS.	-0.06	-0.06	-0.06	-0.06	-0.06	-0.05	-0.04	-0.02
T-bill	0.06	0.09	0.11	0.14	0.15	0.16	0.16	0.17
Gold	0.06	0.07	0.07	0.07	0.07	0.08	0.08	0.07
Case_Shiller	0.09	0.14	0.18	0.16	0.11	0.07	0.05	0.03

<b>PPI Final Goods Core VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	-0.06	-0.09	-0.08	-0.08	-0.07	-0.07	-0.07	-0.08
Energy_Subindex	-0.07	-0.09	-0.07	-0.05	-0.04	-0.04	-0.03	-0.02
Gold_Subindex	-0.06	-0.08	-0.07	-0.07	-0.06	-0.05	-0.05	-0.06
Copper_Subindex	-0.15	-0.27	-0.30	-0.33	-0.35	-0.36	-0.36	-0.37
Natural Gas_Subindex	-0.12	-0.04	-0.07	-0.09	-0.11	-0.11	-0.12	-0.14
Alluminum_Subindex	-0.03	-0.12	-0.16	-0.20	-0.24	-0.26	-0.27	-0.27
Silver_Subindex	-0.05	-0.19	-0.19	-0.20	-0.21	-0.21	-0.21	-0.22
GSCI_Index	-0.10	-0.12	-0.12	-0.11	-0.11	-0.11	-0.11	-0.10
WTI_Crude	-0.01	-0.09	-0.08	-0.06	-0.04	-0.04	-0.04	-0.04
Brent_Crude	0.02	-0.08	-0.07	-0.05	-0.04	-0.03	-0.03	-0.04
CPI_Headline	0.17	0.17	0.19	0.21	0.22	0.24	0.24	0.24
S&P 500	-0.06	-0.10	-0.11	-0.13	-0.14	-0.15	-0.14	-0.16
Wilshire_5000	-0.04	-0.09	-0.10	-0.10	-0.11	-0.10	-0.10	-0.11
S&P_Oil and Gas_Equipment	-0.13	-0.19	-0.19	-0.18	-0.18	-0.18	-0.18	-0.18
S&P_Oil and Gas_Production	-0.10	-0.10	-0.08	-0.05	-0.03	-0.01	-0.01	-0.01
S&P_Technology_Hardware	-0.01	-0.05	-0.06	-0.07	-0.07	-0.08	-0.08	-0.08
S&P_Metals_Mining	-0.18	-0.27	-0.28	-0.31	-0.33	-0.35	-0.35	-0.35
S&P_Financials	-0.07	-0.17	-0.24	-0.31	-0.36	-0.40	-0.42	-0.43
S&P_Insurance	-0.12	-0.19	-0.22	-0.25	-0.27	-0.29	-0.30	-0.31
S&P_Softwares	-0.02	-0.05	-0.04	-0.03	-0.03	-0.02	-0.02	-0.02
S&P_Semiconductors	-0.05	-0.11	-0.14	-0.17	-0.19	-0.21	-0.22	-0.21
S&P_Telecom	-0.04	-0.06	-0.05	-0.04	-0.02	-0.01	-0.01	0.00
BCOM Index	-0.13	-0.20	-0.22	-0.27	-0.32	-0.36	-0.38	-0.40
WTI_1Month future	-0.06	-0.12	-0.13	-0.16	-0.19	-0.21	-0.21	-0.19
WTI_2Year future	-0.02	-0.04	-0.02	-0.01	0.00	0.01	0.01	0.01
Brent_1Month future	-0.02	-0.08	-0.04	-0.01	0.00	0.01	0.01	0.03
Silver	-0.04	-0.18	-0.19	-0.20	-0.21	-0.21	-0.22	-0.21
Corn	-0.02	-0.04	-0.03	-0.02	-0.02	-0.01	-0.01	0.00
Wheat	-0.07	-0.10	-0.11	-0.13	-0.13	-0.14	-0.14	-0.13
Soybean	-0.02	-0.10	-0.13	-0.15	-0.16	-0.17	-0.18	-0.18
Hogs	-0.04	-0.03	-0.05	-0.10	-0.14	-0.20	-0.22	-0.23
Wilshire_REIT	-0.04	-0.15	-0.20	-0.27	-0.32	-0.35	-0.36	-0.37
EM_Bonds	-0.15	-0.26	-0.29	-0.32	-0.34	-0.35	-0.35	-0.35
JPY/USD	-0.11	-0.07	-0.03	0.07	0.13	0.18	0.19	0.20
USD/EUR	-0.09	-0.19	-0.21	-0.23	-0.23	-0.24	-0.23	-0.23
RUB/USD	-0.02	0.02	0.01	0.00	0.00	0.00	-0.01	-0.01
BRL/USD	0.00	0.02	-0.04	-0.09	-0.12	-0.14	-0.15	-0.16
ZAR/USD	0.15	0.11	0.12	0.12	0.13	0.13	0.13	0.15
Treas 2Y_RollingReturn	-0.01	-0.09	-0.11	-0.13	-0.15	-0.16	-0.17	-0.16
Treas 5Y_RollingReturn	0.02	-0.03	-0.01	0.00	0.00	0.01	0.02	0.03
Treas 10Y_RollingReturn	0.02	0.03	0.07	0.11	0.13	0.14	0.15	0.15
Treas 30Y_RollingReturn	0.04	0.12	0.16	0.19	0.21	0.23	0.24	0.25
Fama-French: MKT_ER	-0.04	-0.09	-0.10	-0.10	-0.10	-0.10	-0.10	-0.11
Fama-French: SMALL - BIG	-0.01	-0.15	-0.23	-0.29	-0.32	-0.34	-0.35	-0.37
Fama-French: HIGH - LOW	-0.04	-0.03	-0.04	-0.04	-0.04	-0.04	-0.03	-0.04
Fama-French: ROBUST - WEAK	0.00	0.20	0.30	0.36	0.39	0.41	0.41	0.40
Fama-French: CONSERV. - AGRESS.	-0.07	-0.12	-0.19	-0.24	-0.27	-0.28	-0.29	-0.31
T-bill	-0.06	-0.12	-0.14	-0.16	-0.20	-0.26	-0.29	-0.30
Gold	-0.04	-0.07	-0.08	-0.09	-0.09	-0.09	-0.09	-0.06
Case_Shiller	0.08	0.13	0.15	0.18	0.22	0.30	0.37	0.48

<b>Hourly Earnings VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	-0.01	-0.08	-0.11	-0.13	-0.14	-0.14	-0.14	-0.14
Energy_Subindex	-0.06	-0.18	-0.22	-0.24	-0.25	-0.25	-0.25	-0.23
Gold_Subindex	0.09	0.04	0.13	0.15	0.17	0.18	0.19	0.19
Copper_Subindex	0.00	-0.06	-0.08	-0.09	-0.10	-0.11	-0.11	-0.10
Natural Gas_Subindex	0.10	0.07	0.06	0.05	0.05	0.05	0.05	0.06
Alluminum_Subindex	-0.02	-0.09	-0.04	-0.01	0.01	0.03	0.03	0.04
Silver_Subindex	0.02	-0.11	-0.07	-0.05	-0.05	-0.04	-0.04	-0.05
GSCI_Index	-0.04	-0.14	-0.17	-0.18	-0.19	-0.19	-0.19	-0.19
WTI_Crude	-0.37	-0.38	-0.39	-0.39	-0.40	-0.40	-0.40	-0.40
Brent_Crude	-0.18	-0.24	-0.21	-0.20	-0.19	-0.19	-0.19	-0.20
CPI_Headline	-0.08	-0.01	0.08	0.12	0.14	0.15	0.15	0.16
S&P 500	0.07	-0.14	-0.23	-0.28	-0.30	-0.32	-0.32	-0.31
Wilshire_5000	0.07	-0.15	-0.24	-0.29	-0.31	-0.33	-0.33	-0.34
S&P_Oil and Gas_Equipment	0.09	-0.17	-0.19	-0.21	-0.21	-0.21	-0.22	-0.21
S&P_Oil and Gas_Production	0.16	-0.08	-0.08	-0.10	-0.12	-0.13	-0.14	-0.14
S&P_Technology_Hardware	-0.01	-0.12	-0.18	-0.21	-0.23	-0.24	-0.25	-0.25
S&P_Metals_Mining	0.13	0.04	0.00	-0.02	-0.03	-0.04	-0.03	-0.03
S&P_Financials	0.03	-0.18	-0.26	-0.30	-0.33	-0.34	-0.34	-0.35
S&P_Insurance	0.00	-0.19	-0.18	-0.16	-0.14	-0.13	-0.12	-0.09
S&P_Softwares	0.05	-0.07	-0.11	-0.13	-0.15	-0.16	-0.16	-0.16
S&P_Semiconductors	0.01	-0.07	-0.12	-0.14	-0.16	-0.17	-0.18	-0.17
S&P_Telecom	0.03	-0.11	-0.17	-0.21	-0.23	-0.24	-0.24	-0.24
BCOM Index	-0.02	-0.11	-0.03	0.05	0.09	0.11	0.12	0.12
WTI_1Month future	-0.13	-0.22	-0.25	-0.26	-0.27	-0.26	-0.26	-0.26
WTI_2Year future	-0.08	-0.13	-0.15	-0.16	-0.16	-0.17	-0.17	-0.17
Brent_1Month future	-0.04	-0.21	-0.26	-0.29	-0.30	-0.31	-0.31	-0.33
Silver	0.03	-0.12	-0.07	-0.05	-0.05	-0.04	-0.04	-0.06
Corn	-0.02	-0.06	-0.07	-0.08	-0.09	-0.09	-0.09	-0.10
Wheat	0.03	0.00	-0.03	-0.05	-0.05	-0.06	-0.06	-0.06
Soybean	-0.02	-0.07	-0.09	-0.10	-0.11	-0.11	-0.10	-0.09
Hogs	0.06	0.00	-0.02	-0.02	-0.03	-0.04	-0.05	-0.05
Wilshire_REIT	0.06	-0.16	-0.17	-0.16	-0.16	-0.15	-0.15	-0.14
EM_Bonds	-0.04	-0.24	-0.25	-0.27	-0.28	-0.28	-0.29	-0.29
JPY/USD	-0.04	0.00	-0.01	0.00	0.00	0.00	0.00	-0.02
USD/EUR	0.01	-0.02	-0.03	-0.04	-0.04	-0.04	-0.05	-0.06
RUB/USD	-0.08	-0.01	0.01	0.02	0.03	0.03	0.02	0.02
BRL/USD	0.07	0.15	0.18	0.19	0.19	0.20	0.21	0.25
ZAR/USD	0.07	0.16	0.19	0.20	0.21	0.21	0.21	0.21
Treas 2Y_RollingReturn	0.11	0.28	0.40	0.48	0.52	0.54	0.54	0.55
Treas 5Y_RollingReturn	0.09	0.17	0.21	0.23	0.24	0.25	0.25	0.25
Treas 10Y_RollingReturn	0.07	0.13	0.16	0.18	0.19	0.19	0.19	0.18
Treas 30Y_RollingReturn	0.06	0.10	0.13	0.14	0.15	0.16	0.15	0.17
Fama-French: MKT_ER	0.06	-0.16	-0.26	-0.31	-0.33	-0.35	-0.35	-0.37
Fama-French: SMALL - BIG	0.02	-0.08	-0.10	-0.11	-0.11	-0.12	-0.12	-0.11
Fama-French: HIGH - LOW	-0.02	-0.16	-0.19	-0.21	-0.22	-0.23	-0.24	-0.26
Fama-French: ROBUST - WEAK	0.05	0.05	0.04	0.04	0.05	0.05	0.06	0.06
Fama-French: CONSERV. - AGRESS.	0.00	-0.01	-0.03	-0.05	-0.06	-0.06	-0.07	-0.09
T-bill	0.11	0.24	0.37	0.51	0.63	0.73	0.77	0.78
Gold	0.08	0.03	0.11	0.14	0.16	0.18	0.18	0.17
Case_Shiller	0.15	0.24	0.34	0.45	0.54	0.68	0.77	0.84

Case Shiller VS:	1m	3m	6m	1y	2y	5y	10y	30y
Agriculture_Subindex	-0.03	-0.03	0.00	0.04	0.02	0.00	-0.01	-0.02
Energy_Subindex	0.15	0.24	0.34	0.40	0.51	0.67	0.76	0.86
Gold_Subindex	-0.12	-0.22	-0.30	-0.39	-0.48	-0.61	-0.70	-0.79
Copper_Subindex	0.18	0.27	0.37	0.50	0.62	0.76	0.84	0.91
Natural Gas_Subindex	0.19	0.34	0.45	0.62	0.76	0.87	0.92	0.96
Alluminum_Subindex	0.18	0.31	0.41	0.57	0.72	0.84	0.90	0.94
Silver_Subindex	-0.08	-0.14	-0.14	-0.17	-0.24	-0.34	-0.42	-0.52
GSCI_Index	0.14	0.23	0.31	0.37	0.47	0.62	0.72	0.83
WTI_Crude	0.15	0.24	0.33	0.37	0.48	0.63	0.74	0.84
Brent_Crude	0.13	0.20	0.26	0.27	0.32	0.42	0.51	0.63
CPI_Headline	0.30	0.38	0.43	0.41	0.48	0.60	0.68	0.76
S&P 500	0.16	0.27	0.37	0.48	0.57	0.71	0.79	0.86
Wilshire_5000	0.15	0.26	0.37	0.47	0.58	0.72	0.80	0.88
S&P_Oil and Gas_Equipment	0.09	0.17	0.26	0.30	0.32	0.37	0.41	0.46
S&P_Oil and Gas_Production	0.12	0.23	0.35	0.47	0.60	0.76	0.84	0.91
S&P_Technology_Hardware	0.03	0.05	0.07	0.06	0.07	0.11	0.14	0.16
S&P_Metals_Mining	0.13	0.22	0.34	0.49	0.64	0.79	0.87	0.92
S&P_Financials	0.30	0.47	0.60	0.76	0.86	0.93	0.96	0.98
S&P_Insurance	0.29	0.48	0.60	0.72	0.83	0.92	0.95	0.98
S&P_Softwares	0.03	0.06	0.11	0.13	0.14	0.16	0.18	0.22
S&P_Semiconductors	0.06	0.10	0.15	0.22	0.29	0.41	0.50	0.61
S&P_Telecom	0.04	0.04	0.06	0.05	0.06	0.09	0.13	0.18
BCOM Index	0.21	0.33	0.44	0.56	0.71	0.84	0.90	0.95
WTI_1Month future	0.11	0.20	0.30	0.35	0.44	0.59	0.68	0.78
WTI_2Year future	0.21	0.31	0.40	0.47	0.58	0.72	0.81	0.88
Brent_1Month future	0.12	0.21	0.30	0.34	0.43	0.57	0.66	0.77
Silver	-0.07	-0.11	-0.09	-0.10	-0.15	-0.22	-0.28	-0.35
Corn	-0.07	-0.11	-0.12	-0.14	-0.22	-0.34	-0.44	-0.55
Wheat	0.04	0.08	0.11	0.14	0.21	0.32	0.41	0.50
Soybean	-0.01	-0.03	-0.08	-0.18	-0.27	-0.41	-0.51	-0.63
Hogs	0.05	0.08	0.08	0.13	0.18	0.27	0.35	0.43
Wilshire_REIT	0.25	0.42	0.52	0.65	0.77	0.88	0.93	0.96
EM_Bonds	0.02	0.06	0.11	0.12	0.15	0.21	0.26	0.32
JPY/USD	0.15	0.24	0.39	0.61	0.72	0.83	0.89	0.93
USD/EUR	0.04	0.08	0.12	0.15	0.22	0.32	0.40	0.50
RUB/USD	-0.11	-0.16	-0.21	-0.21	-0.23	-0.27	-0.31	-0.36
BRL/USD	-0.02	-0.05	-0.06	-0.04	-0.02	0.00	0.02	0.06
ZAR/USD	-0.05	-0.08	-0.10	-0.08	-0.07	-0.05	-0.04	-0.04
Treas 2Y_RollingReturn	-0.08	-0.11	-0.12	-0.12	-0.09	-0.03	0.04	0.13
Treas 5Y_RollingReturn	-0.15	-0.24	-0.34	-0.47	-0.54	-0.66	-0.74	-0.82
Treas 10Y_RollingReturn	-0.11	-0.19	-0.29	-0.47	-0.59	-0.74	-0.82	-0.89
Treas 30Y_RollingReturn	-0.07	-0.12	-0.20	-0.34	-0.46	-0.62	-0.72	-0.82
Fama-French: MKT_ER	0.12	0.20	0.30	0.37	0.45	0.57	0.67	0.77
Fama-French: SMALL - BIG	0.06	0.10	0.15	0.23	0.34	0.49	0.59	0.69
Fama-French: HIGH - LOW	0.16	0.25	0.34	0.47	0.59	0.73	0.81	0.88
Fama-French: ROBUST - WEAK	0.04	0.04	0.02	0.00	0.02	0.04	0.06	0.09
Fama-French: CONSERV. - AGRESS.	0.00	0.01	0.06	0.15	0.18	0.23	0.28	0.34
T-bill	0.26	0.27	0.28	0.31	0.35	0.50	0.67	0.82
Gold	-0.14	-0.25	-0.34	-0.42	-0.53	-0.68	-0.76	-0.83



TABLE 2A: Correlations of inflation indices with nominal bonds over alternative holding periods, since 1999

Headline CPI

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.12	-0.19	-0.14	0.00	0.00		
5y	-0.16	-0.26	-0.29	-0.26	-0.16	0.08	
10y	-0.18	-0.23	-0.20	-0.18	-0.16	-0.08	0.21

GSCI Index

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.22	-0.30	-0.26	-0.13	0.01		
5y	-0.21	-0.38	-0.40	-0.37	-0.30	0.02	
10y	-0.19	-0.36	-0.39	-0.38	-0.33	-0.17	0.16

Core CPI

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.00	-0.03	-0.06	0.08	0.00		
5y	0.00	-0.04	-0.17	-0.13	-0.13	-0.11	
10y	-0.01	-0.02	-0.13	-0.21	-0.28	-0.42	-0.44

CPI Energy

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.16	-0.27	-0.23	-0.12	0.01		
5y	-0.22	-0.35	-0.36	-0.32	-0.25	0.02	
10y	-0.24	-0.31	-0.29	-0.27	-0.27	-0.12	0.18

CPI Durables

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.08	-0.10	-0.14	-0.23	-0.05		
5y	-0.03	-0.04	-0.07	-0.14	-0.26	-0.14	
10y	0.00	-0.01	-0.07	-0.13	-0.22	-0.40	-0.51

CPI Services

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.01	0.07	0.18	0.36	0.10		
5y	-0.04	-0.06	-0.07	-0.01	0.11	0.31	
10y	-0.03	0.01	0.03	0.04	0.04	0.08	0.50

### CPI Nondurables

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.15	-0.24	-0.21	-0.09	0.04		
5y	-0.23	-0.34	-0.35	-0.32	-0.25	0.04	
10y	-0.26	-0.35	-0.35	-0.32	-0.23	-0.02	0.19

### Headline PCE

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.14	-0.21	-0.17	-0.06	0.01		
5y	-0.20	-0.31	-0.33	-0.32	-0.26	0.07	
10y	-0.21	-0.27	-0.29	-0.29	-0.29	-0.21	0.10

### Core PCE

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.09	-0.14	-0.13	-0.07	-0.01		
5y	-0.07	-0.18	-0.21	-0.24	-0.23	0.05	
10y	-0.03	-0.05	-0.07	-0.10	-0.14	-0.20	-0.23

### PPI Final Goods

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.16	-0.26	-0.22	-0.13	-0.01		
5y	-0.22	-0.34	-0.33	-0.32	-0.30	-0.04	
10y	-0.24	-0.32	-0.34	-0.33	-0.28	-0.12	-0.01

### PPI Final Goods Core

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.00	-0.09	-0.15	-0.21	-0.05		
5y	0.00	-0.04	-0.05	-0.12	-0.24	-0.18	
10y	-0.03	-0.02	0.01	-0.01	-0.09	-0.29	-0.55

### Hourly Earnings

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.10	0.23	0.36	0.48	0.10		
5y	0.08	0.13	0.17	0.17	0.17	0.15	
10y	0.06	0.08	0.08	0.04	-0.04	-0.15	0.34

### Case-Shiller

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.09	-0.08	-0.08	0.01	0.01		
5y	-0.13	-0.22	-0.32	-0.45	-0.46	-0.23	
10y	-0.10	-0.18	-0.28	-0.46	-0.59	-0.65	-0.38

TABLE 3A: Correlations of inflation indices with TIPS over alternative holding periods, since 1999

Headline CPI

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.58	0.63	0.60	0.59	0.45		
5y	0.40	0.47	0.45	0.44	0.36	0.50	
10y	0.21	0.30	0.31	0.33	0.42	0.31	0.11

GSCI Index

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.42	0.49	0.28	0.43	0.42		
5y	0.35	0.59	0.49	0.25	0.26	0.29	
10y	0.21	0.47	0.57	0.55	0.43	0.38	0.48

Core CPI

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.37	0.14	0.24	0.29	0.26		
5y	0.25	0.45	0.00	0.23	0.22	0.20	
10y	0.18	0.33	0.39	0.38	0.24	0.18	-0.22

CPI Energy

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.51	0.54	0.23	0.42	0.41		
5y	0.34	0.57	0.53	0.26	0.28	0.33	
10y	0.13	0.42	0.54	0.54	0.43	0.40	0.57

CPI Durables

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.09	0.01	0.16	0.24	0.14		
5y	0.09	0.15	-0.31	0.22	0.17	0.06	
10y	0.09	0.18	0.22	0.13	-0.04	-0.20	-0.45

CPI Services

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.15	0.45	0.12	0.19	0.22		
5y	0.13	0.25	0.60	0.13	0.14	0.17	
10y	0.07	0.18	0.30	0.40	0.34	0.30	0.61

### CPI Nondurables

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.50	0.52	0.22	0.41	0.42		
5y	0.31	0.56	0.45	0.23	0.33	0.32	
10y	0.11	0.41	0.53	0.52	0.42	0.38	0.42

### Headline PCE

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.46	0.47	0.22	0.35	0.36		
5y	0.32	0.52	0.36	0.22	0.24	0.22	
10y	0.14	0.40	0.48	0.47	0.35	0.22	0.29

### Core PCE

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.13	0.23	0.18	0.28	0.24		
5y	0.11	0.27	0.10	0.22	0.22	0.18	
10y	0.08	0.25	0.34	0.30	0.17	0.05	-0.04

### PPI Final Goods

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.42	0.36	0.19	0.36	0.33		
5y	0.29	0.50	0.16	0.21	0.22	0.24	
10y	0.10	0.38	0.45	0.38	0.28	0.23	0.13

### PPI Final Goods Core

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.06	-0.29	-0.12	-0.22	-0.29		
5y	-0.02	-0.13	-0.54	-0.14	-0.17	-0.21	
10y	-0.03	-0.15	-0.19	-0.28	-0.40	-0.36	-0.59

### Hourly Earnings

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.01	0.43	-0.05	0.00	0.02		
5y	0.04	-0.02	0.40	-0.06	-0.09	-0.11	
10y	0.07	-0.04	0.11	0.25	0.10	-0.07	0.31

### Case-Shiller

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.02	-0.02	-0.07	-0.06	-0.13		
5y	-0.07	0.01	0.02	-0.10	-0.19	-0.27	
10y	-0.05	-0.07	0.08	0.12	-0.17	-0.31	0.00

TABLE 4A: Correlations of inflation indices with asset returns, since 1972

<b>CPI Headline VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	-0.01	0.10	0.17	0.25	0.27	0.32	0.35	0.38
GSCI_Index	0.15	0.32	0.35	0.29	0.28	0.29	0.31	0.34
WTI_Crude	0.39	0.48	0.51	0.50	0.57	0.68	0.75	0.81
S&P 500	-0.09	-0.04	-0.06	-0.14	-0.20	-0.27	-0.32	-0.34
BCOM Index	0.16	0.35	0.41	0.42	0.44	0.51	0.56	0.61
Gold	0.10	0.16	0.24	0.35	0.39	0.47	0.51	0.56
Silver	0.05	0.08	0.12	0.20	0.25	0.34	0.40	0.44
Corn	-0.01	0.07	0.14	0.21	0.23	0.28	0.31	0.36
Wheat	-0.01	0.02	0.06	0.15	0.19	0.26	0.31	0.35
Soybean	0.00	0.06	0.08	0.04	0.03	0.01	0.00	0.01
JPY/USD	0.02	0.07	0.08	0.06	0.06	0.06	0.06	0.06
ZAR/USD	-0.05	-0.11	-0.12	-0.13	-0.12	-0.11	-0.12	-0.12
5Y_RollingReturn	-0.07	-0.11	-0.10	-0.03	0.02	0.09	0.13	0.17
10Y_RollingReturn	-0.14	-0.20	-0.21	-0.20	-0.19	-0.20	-0.21	-0.21
Fama-French: MKT_ER	-0.11	-0.08	-0.12	-0.21	-0.29	-0.39	-0.45	-0.50
Fama-French: SMALL - BIG	-0.01	0.04	0.10	0.16	0.23	0.33	0.39	0.43
Fama-French: HIGH - LOW	0.08	0.14	0.16	0.15	0.13	0.12	0.12	0.12
Fama-French: ROBUST - WEAK	-0.07	-0.07	-0.10	-0.13	-0.17	-0.23	-0.27	-0.32
Fama-French: CONSERV. – AGRESS.	0.04	0.07	0.11	0.15	0.16	0.19	0.22	0.23
T-bill	0.42	0.51	0.58	0.65	0.67	0.71	0.76	0.81
Willshire_5000	-0.07	-0.01	-0.01	-0.06	-0.09	-0.12	-0.14	-0.17
Case_Shiller	0.39	0.46	0.50	0.50	0.51	0.55	0.59	0.64

<b>GSCI VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.59	0.60	0.68	0.75	0.79	0.81	0.81	0.82
WTI_Crude	0.53	0.71	0.74	0.80	0.82	0.83	0.84	0.84
CPI_Headline	0.15	0.32	0.35	0.29	0.28	0.29	0.31	0.34
S&P 500	0.18	0.13	0.11	0.11	0.10	0.10	0.11	0.12
BCOM Index	0.83	0.84	0.84	0.84	0.85	0.85	0.85	0.85
Gold	0.22	0.24	0.25	0.25	0.25	0.25	0.24	0.23
Silver	0.30	0.34	0.35	0.35	0.36	0.36	0.35	0.36
Corn	0.35	0.38	0.43	0.54	0.64	0.73	0.76	0.78
Wheat	0.35	0.37	0.43	0.52	0.61	0.69	0.71	0.73
Soybean	0.37	0.40	0.47	0.55	0.64	0.70	0.72	0.74
JPY/USD	0.03	0.02	0.02	0.02	0.01	0.01	0.00	-0.01
ZAR/USD	-0.23	-0.31	-0.33	-0.34	-0.35	-0.35	-0.36	-0.36
5Y_RollingReturn	-0.12	-0.26	-0.31	-0.34	-0.35	-0.36	-0.37	-0.39
10Y_RollingReturn	-0.16	-0.32	-0.39	-0.42	-0.44	-0.45	-0.45	-0.45
Fama-French: MKT_ER	0.20	0.13	0.12	0.11	0.11	0.10	0.10	0.10
Fama-French: SMALL - BIG	0.13	0.10	0.09	0.09	0.08	0.09	0.09	0.10
Fama-French: HIGH - LOW	0.07	0.14	0.11	0.05	0.01	-0.02	-0.03	-0.03
Fama-French: ROBUST - WEAK	-0.11	-0.08	-0.11	-0.12	-0.12	-0.12	-0.11	-0.10
Fama-French: CONSERV. – AGRESS.	0.00	0.08	0.10	0.10	0.11	0.11	0.11	0.11
T-bill	-0.02	-0.03	-0.03	-0.03	-0.03	-0.04	-0.05	-0.04
Willshire_5000	0.20	0.14	0.12	0.11	0.11	0.11	0.12	0.11
Case_Shiller	0.09	0.17	0.24	0.29	0.38	0.51	0.61	0.73

<b>Core CPI VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.02	0.03	0.03	0.01	0.02	0.03	0.04	0.04
GSCI_Index	0.06	0.07	0.04	0.01	0.00	0.00	0.00	0.02
WTI_Crude	0.13	0.17	0.19	0.24	0.33	0.46	0.57	0.68
CPI_Headline	0.70	0.79	0.86	0.92	0.95	0.97	0.98	0.99
S&P 500	-0.09	-0.13	-0.12	-0.12	-0.13	-0.15	-0.17	-0.20
BCOM Index	0.06	0.11	0.12	0.14	0.18	0.27	0.35	0.45
Gold	0.03	0.05	0.11	0.16	0.19	0.24	0.29	0.36
Silver	-0.01	-0.03	-0.02	0.02	0.06	0.13	0.20	0.28
Corn	0.00	0.02	0.01	0.01	0.03	0.05	0.07	0.08
Wheat	-0.02	0.00	-0.02	-0.04	-0.02	0.01	0.02	0.01
Soybean	-0.01	-0.02	-0.03	-0.08	-0.12	-0.19	-0.24	-0.32
JPY/USD	-0.01	0.02	0.04	0.03	0.02	0.00	-0.01	-0.01
ZAR/USD	0.03	0.02	0.03	0.02	0.03	0.03	0.04	0.04
5Y_RollingReturn	0.05	0.05	0.06	0.11	0.16	0.24	0.32	0.40
10Y_RollingReturn	-0.02	-0.05	-0.08	-0.08	-0.08	-0.10	-0.12	-0.15
Fama-French: MKT_ER	-0.12	-0.16	-0.17	-0.20	-0.22	-0.28	-0.34	-0.41
Fama-French: SMALL - BIG	-0.06	-0.02	0.07	0.17	0.25	0.38	0.47	0.57
Fama-French: HIGH - LOW	0.05	0.10	0.12	0.14	0.16	0.19	0.22	0.26
Fama-French: ROBUST - WEAK	-0.01	-0.01	-0.03	-0.07	-0.10	-0.16	-0.21	-0.27
Fama-French: CONSERV. – AGRESS.	0.04	0.08	0.11	0.14	0.16	0.19	0.22	0.28
T-bill	0.55	0.64	0.71	0.74	0.75	0.76	0.77	0.80
Willshire_5000	-0.08	-0.09	-0.06	-0.04	0.00	0.03	0.06	0.11
Case_Shiller	0.29	0.36	0.42	0.46	0.47	0.49	0.52	0.57

<b>CPI Energy VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.00	0.09	0.21	0.46	0.49	0.53	0.55	0.57
GSCI_Index	0.22	0.49	0.62	0.71	0.71	0.71	0.70	0.69
WTI_Crude	0.50	0.67	0.78	0.86	0.90	0.93	0.94	0.94
CPI_Headline	0.72	0.72	0.70	0.69	0.73	0.81	0.87	0.91
S&P 500	0.00	0.11	0.13	0.14	0.15	0.15	0.15	0.15
BCOM Index	0.19	0.42	0.54	0.69	0.74	0.77	0.78	0.78
Gold	0.06	0.10	0.16	0.35	0.43	0.49	0.52	0.53
Silver	0.07	0.15	0.24	0.39	0.44	0.48	0.49	0.51
Corn	0.03	0.14	0.27	0.44	0.49	0.52	0.53	0.53
Wheat	-0.02	-0.02	0.02	0.11	0.12	0.13	0.12	0.12
Soybean	0.05	0.11	0.16	0.24	0.24	0.25	0.24	0.25
JPY/USD	0.04	0.10	0.09	0.08	0.08	0.08	0.08	0.09
ZAR/USD	-0.12	-0.21	-0.27	-0.38	-0.43	-0.47	-0.48	-0.48
5Y_RollingReturn	-0.15	-0.22	-0.22	-0.22	-0.22	-0.22	-0.23	-0.22
10Y_RollingReturn	-0.20	-0.28	-0.29	-0.29	-0.30	-0.30	-0.30	-0.29
Fama-French: MKT_ER	0.00	0.08	0.06	0.01	-0.02	-0.04	-0.05	-0.06
Fama-French: SMALL - BIG	0.09	0.13	0.21	0.23	0.24	0.24	0.25	0.25
Fama-French: HIGH - LOW	0.06	0.16	0.18	0.14	0.13	0.12	0.12	0.11
Fama-French: ROBUST - WEAK	-0.10	-0.09	-0.14	-0.24	-0.31	-0.37	-0.38	-0.39
Fama-French: CONSERV. – AGRESS.	0.01	0.04	0.06	0.06	0.06	0.06	0.06	0.06
T-bill	0.08	0.11	0.14	0.22	0.28	0.40	0.48	0.58
Willshire_5000	0.02	0.10	0.13	0.14	0.15	0.16	0.16	0.14
Case_Shiller	0.32	0.40	0.44	0.45	0.55	0.69	0.78	0.86

<b>CPI Durables VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.08	0.09	0.10	0.12	0.16	0.23	0.28	0.34
GSCI_Index	0.08	0.09	0.10	0.10	0.12	0.15	0.18	0.22
WTI_Crude	0.12	0.14	0.19	0.26	0.33	0.43	0.49	0.53
CPI_Headline	0.49	0.60	0.71	0.79	0.83	0.87	0.90	0.91
S&P 500	-0.01	0.00	0.03	0.05	0.07	0.11	0.14	0.16
BCOM Index	0.13	0.19	0.21	0.24	0.31	0.41	0.48	0.54
Gold	0.00	0.03	0.06	0.08	0.10	0.15	0.18	0.21
Silver	0.02	0.04	0.06	0.10	0.20	0.34	0.42	0.49
Corn	0.09	0.09	0.10	0.15	0.20	0.30	0.36	0.42
Wheat	0.06	0.05	0.03	0.04	0.08	0.14	0.18	0.21
Soybean	0.05	0.06	0.03	0.02	0.02	0.02	0.02	0.02
JPY/USD	0.04	0.07	0.07	0.06	0.08	0.10	0.12	0.17
ZAR/USD	0.01	0.01	0.01	0.03	0.05	0.09	0.12	0.15
5Y_RollingReturn	-0.07	-0.05	0.00	0.04	0.09	0.17	0.22	0.26
10Y_RollingReturn	-0.09	-0.10	-0.11	-0.11	-0.14	-0.18	-0.21	-0.23
Fama-French: MKT_ER	-0.03	-0.03	-0.02	-0.03	-0.02	-0.03	-0.03	-0.03
Fama-French: SMALL - BIG	0.00	0.03	0.12	0.23	0.34	0.48	0.57	0.63
Fama-French: HIGH - LOW	0.02	0.06	0.12	0.18	0.23	0.30	0.36	0.42
Fama-French: ROBUST - WEAK	0.03	0.05	0.05	0.00	-0.06	-0.12	-0.17	-0.21
Fama-French: CONSERV. – AGRESS.	0.00	0.03	0.10	0.15	0.20	0.26	0.30	0.34
T-bill	0.37	0.42	0.46	0.50	0.53	0.60	0.68	0.78
Willshire_5000	0.01	0.04	0.09	0.14	0.20	0.30	0.37	0.44
Case_Shiller	0.42	0.47	0.55	0.61	0.63	0.65	0.69	0.74

<b>CPI Services VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	-0.04	-0.02	0.01	0.03	0.05	0.08	0.10	0.13
GSCI_Index	-0.04	0.01	0.04	0.05	0.06	0.08	0.08	0.09
WTI_Crude	0.11	0.15	0.20	0.25	0.33	0.43	0.48	0.52
CPI_Headline	0.63	0.73	0.83	0.92	0.94	0.97	0.98	0.98
S&P 500	-0.05	-0.12	-0.16	-0.17	-0.17	-0.17	-0.18	-0.19
BCOM Index	-0.02	0.04	0.10	0.14	0.19	0.26	0.32	0.37
Gold	0.04	0.06	0.13	0.18	0.22	0.28	0.33	0.36
Silver	-0.04	-0.06	-0.02	0.05	0.10	0.16	0.19	0.23
Corn	-0.06	-0.03	-0.01	0.01	0.04	0.06	0.07	0.07
Wheat	-0.05	-0.04	-0.03	-0.02	0.00	0.04	0.06	0.06
Soybean	-0.07	-0.09	-0.09	-0.08	-0.09	-0.11	-0.13	-0.14
JPY/USD	0.01	0.02	0.02	0.01	0.00	-0.02	-0.04	-0.06
ZAR/USD	0.03	0.02	0.04	0.03	0.03	0.03	0.03	0.04
5Y_RollingReturn	0.08	0.09	0.06	0.09	0.12	0.17	0.20	0.24
10Y_RollingReturn	0.02	-0.02	-0.09	-0.12	-0.15	-0.20	-0.22	-0.25
Fama-French: MKT_ER	-0.07	-0.15	-0.21	-0.24	-0.26	-0.29	-0.32	-0.34
Fama-French: SMALL - BIG	0.02	0.06	0.13	0.21	0.30	0.40	0.45	0.49
Fama-French: HIGH - LOW	0.05	0.10	0.11	0.10	0.09	0.08	0.08	0.09
Fama-French: ROBUST - WEAK	-0.07	-0.07	-0.09	-0.11	-0.14	-0.18	-0.20	-0.23
Fama-French: CONSERV. – AGRESS.	0.03	0.10	0.14	0.13	0.10	0.06	0.04	0.01
T-bill	0.65	0.72	0.74	0.76	0.78	0.81	0.84	0.89
Willshire_5000	-0.03	-0.08	-0.10	-0.09	-0.05	0.00	0.03	0.06
Case_Shiller	0.34	0.38	0.43	0.47	0.49	0.55	0.61	0.71

<b>CPI Nondurables VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.02	0.19	0.34	0.47	0.48	0.48	0.47	0.49
GSCI_Index	0.22	0.50	0.61	0.62	0.57	0.51	0.49	0.47
WTI_Crude	0.47	0.63	0.71	0.74	0.75	0.77	0.78	0.79
CPI_Headline	0.76	0.79	0.83	0.88	0.92	0.96	0.97	0.99
S&P 500	-0.04	0.06	0.10	0.12	0.13	0.13	0.13	0.13
BCOM Index	0.20	0.48	0.61	0.66	0.64	0.62	0.61	0.60
Gold	0.08	0.19	0.29	0.45	0.53	0.59	0.61	0.62
Silver	0.07	0.16	0.21	0.22	0.24	0.24	0.24	0.25
Corn	0.01	0.12	0.26	0.33	0.37	0.39	0.40	0.42
Wheat	0.02	0.08	0.18	0.32	0.38	0.42	0.43	0.45
Soybean	0.00	0.08	0.15	0.20	0.18	0.17	0.16	0.17
JPY/USD	0.01	0.07	0.09	0.09	0.09	0.10	0.09	0.09
ZAR/USD	-0.14	-0.23	-0.28	-0.32	-0.30	-0.27	-0.25	-0.25
5Y_RollingReturn	-0.13	-0.21	-0.22	-0.22	-0.23	-0.23	-0.23	-0.24
10Y_RollingReturn	-0.21	-0.30	-0.32	-0.33	-0.34	-0.34	-0.35	-0.35
Fama-French: MKT_ER	-0.05	0.06	0.09	0.11	0.12	0.13	0.14	0.14
Fama-French: SMALL - BIG	0.03	0.12	0.14	0.15	0.15	0.15	0.16	0.16
Fama-French: HIGH - LOW	0.07	0.14	0.15	0.12	0.10	0.08	0.08	0.09
Fama-French: ROBUST - WEAK	-0.10	-0.15	-0.15	-0.15	-0.15	-0.16	-0.16	-0.14
Fama-French: CONSERV. – AGRESS.	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.04
T-bill	0.21	0.29	0.38	0.49	0.60	0.74	0.82	0.87
Willshire_5000	-0.04	0.07	0.12	0.14	0.15	0.15	0.16	0.15
Case_Shiller	0.21	0.29	0.36	0.40	0.44	0.54	0.62	0.72

<b>Headline PCE VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.03	0.13	0.21	0.26	0.26	0.27	0.29	0.32
GSCI_Index	0.14	0.28	0.31	0.29	0.25	0.23	0.23	0.25
WTI_Crude	0.35	0.43	0.45	0.48	0.55	0.63	0.68	0.71
CPI_Headline	0.84	0.89	0.94	0.98	0.99	0.99	0.99	1.00
S&P 500	-0.06	-0.04	-0.06	-0.13	-0.20	-0.29	-0.35	-0.39
BCOM Index	0.17	0.35	0.40	0.42	0.43	0.49	0.55	0.62
Gold	0.10	0.20	0.26	0.33	0.37	0.45	0.50	0.54
Silver	0.05	0.11	0.15	0.20	0.26	0.35	0.41	0.46
Corn	0.02	0.10	0.17	0.22	0.23	0.24	0.27	0.28
Wheat	0.02	0.06	0.10	0.16	0.20	0.27	0.31	0.35
Soybean	0.02	0.06	0.07	0.07	0.07	0.08	0.09	0.12
JPY/USD	0.02	0.04	0.03	0.02	0.02	0.03	0.03	0.03
ZAR/USD	-0.10	-0.15	-0.15	-0.15	-0.13	-0.11	-0.11	-0.10
5Y_RollingReturn	-0.07	-0.09	-0.05	0.00	0.07	0.19	0.27	0.32
10Y_RollingReturn	-0.15	-0.19	-0.17	-0.18	-0.19	-0.22	-0.24	-0.24
Fama-French: MKT_ER	-0.08	-0.07	-0.11	-0.19	-0.28	-0.40	-0.46	-0.51
Fama-French: SMALL - BIG	0.04	0.10	0.15	0.20	0.26	0.34	0.39	0.42
Fama-French: HIGH - LOW	0.08	0.15	0.16	0.17	0.18	0.21	0.23	0.25
Fama-French: ROBUST - WEAK	-0.09	-0.11	-0.12	-0.16	-0.23	-0.32	-0.38	-0.42
Fama-French: CONSERV. – AGRESS.	0.05	0.11	0.15	0.18	0.22	0.26	0.28	0.28
T-bill	0.47	0.54	0.59	0.62	0.66	0.72	0.78	0.84
Willshire_5000	-0.04	0.00	0.00	-0.04	-0.08	-0.12	-0.15	-0.15
Case_Shiller	0.39	0.44	0.48	0.52	0.53	0.57	0.61	0.67



<b>CORE PCE VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.01	0.05	0.06	0.07	0.09	0.11	0.13	0.16
GSCI_Index	0.03	0.06	0.08	0.07	0.06	0.05	0.04	0.04
WTI_Crude	0.14	0.17	0.21	0.28	0.37	0.49	0.57	0.63
CPI_Headline	0.60	0.73	0.83	0.91	0.95	0.97	0.98	0.99
S&P 500	-0.05	-0.06	-0.07	-0.11	-0.15	-0.21	-0.26	-0.30
BCOM Index	0.09	0.17	0.20	0.22	0.26	0.34	0.39	0.45
Gold	0.05	0.10	0.15	0.18	0.20	0.24	0.28	0.33
Silver	0.01	0.03	0.04	0.07	0.10	0.16	0.21	0.26
Corn	0.03	0.06	0.06	0.07	0.08	0.11	0.13	0.16
Wheat	0.01	0.01	0.01	0.00	0.00	-0.01	-0.01	-0.02
Soybean	0.01	0.02	0.00	-0.03	-0.05	-0.09	-0.12	-0.14
JPY/USD	0.02	0.00	-0.01	-0.01	-0.01	-0.01	0.00	0.01
ZAR/USD	-0.02	-0.05	-0.04	-0.03	-0.02	-0.01	-0.01	0.01
5Y_RollingReturn	0.00	0.02	0.08	0.14	0.20	0.29	0.36	0.41
10Y_RollingReturn	-0.05	-0.07	-0.05	-0.04	-0.04	-0.05	-0.06	-0.08
Fama-French: MKT_ER	-0.07	-0.09	-0.12	-0.17	-0.24	-0.33	-0.39	-0.46
Fama-French: SMALL - BIG	0.05	0.11	0.17	0.25	0.34	0.47	0.54	0.61
Fama-French: HIGH - LOW	0.06	0.12	0.15	0.19	0.24	0.33	0.39	0.46
Fama-French: ROBUST - WEAK	-0.04	-0.06	-0.08	-0.13	-0.19	-0.28	-0.33	-0.39
Fama-French: CONSERV. – AGRESS.	0.04	0.11	0.15	0.18	0.19	0.21	0.23	0.26
T-bill	0.60	0.67	0.69	0.71	0.73	0.78	0.83	0.88
Willshire_5000	-0.03	-0.02	-0.02	-0.02	-0.03	-0.04	-0.05	-0.05
Case_Shiller	0.37	0.42	0.46	0.50	0.51	0.52	0.55	0.60

<b>PPI Final Goods VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	0.12	0.30	0.39	0.47	0.50	0.52	0.53	0.54
GSCI_Index	0.30	0.53	0.58	0.58	0.54	0.52	0.52	0.54
WTI_Crude	0.56	0.63	0.65	0.70	0.76	0.82	0.84	0.85
CPI_Headline	0.67	0.76	0.82	0.88	0.90	0.93	0.95	0.96
S&P 500	-0.03	0.02	0.03	0.03	0.03	0.03	0.03	0.03
BCOM Index	0.24	0.53	0.60	0.61	0.61	0.61	0.61	0.61
Gold	0.11	0.24	0.31	0.41	0.48	0.56	0.58	0.60
Silver	0.12	0.18	0.23	0.31	0.41	0.53	0.59	0.62
Corn	0.05	0.19	0.27	0.35	0.38	0.41	0.41	0.42
Wheat	0.00	0.10	0.16	0.27	0.37	0.45	0.48	0.50
Soybean	0.04	0.16	0.17	0.16	0.17	0.18	0.19	0.22
JPY/USD	0.05	0.09	0.06	0.03	0.02	0.01	0.00	-0.03
ZAR/USD	-0.10	-0.25	-0.29	-0.33	-0.32	-0.31	-0.31	-0.30
5Y_RollingReturn	-0.08	-0.15	-0.17	-0.19	-0.21	-0.22	-0.22	-0.20
10Y_RollingReturn	-0.17	-0.26	-0.30	-0.35	-0.38	-0.41	-0.42	-0.44
Fama-French: MKT_ER	0.08	0.13	0.14	0.15	0.16	0.17	0.18	0.19
Fama-French: SMALL - BIG	0.04	0.08	0.12	0.15	0.16	0.17	0.17	0.16
Fama-French: HIGH - LOW	0.06	0.15	0.23	0.27	0.30	0.31	0.32	0.32
Fama-French: ROBUST - WEAK	-0.11	-0.13	-0.17	-0.20	-0.30	-0.38	-0.42	-0.45
Fama-French: CONSERV. – AGRESS.	0.03	0.10	0.13	0.12	0.12	0.14	0.15	0.14
T-bill	0.18	0.26	0.31	0.35	0.41	0.50	0.59	0.69
Willshire_5000	-0.01	0.04	0.05	0.05	0.05	0.05	0.05	0.06
Case_Shiller	0.22	0.30	0.38	0.44	0.47	0.54	0.60	0.68

<b>Hourly Earnings VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	-0.02	0.00	0.04	0.08	0.13	0.21	0.26	0.31
GSCI_Index	-0.02	-0.03	0.03	0.07	0.13	0.21	0.27	0.31
WTI_Crude	-0.15	-0.07	0.08	0.23	0.38	0.54	0.62	0.68
CPI_Headline	0.25	0.49	0.69	0.82	0.88	0.93	0.95	0.97
S&P 500	0.00	-0.16	-0.17	-0.18	-0.18	-0.20	-0.21	-0.21
BCOM Index	0.01	0.06	0.15	0.22	0.30	0.39	0.45	0.49
Gold	0.04	0.05	0.14	0.21	0.27	0.35	0.40	0.45
Silver	-0.01	-0.03	0.05	0.14	0.23	0.33	0.39	0.43
Corn	0.00	0.03	0.07	0.11	0.15	0.21	0.25	0.29
Wheat	0.02	0.03	0.04	0.06	0.12	0.20	0.25	0.30
Soybean	-0.01	0.01	0.04	0.06	0.08	0.11	0.13	0.15
JPY/USD	-0.05	0.01	0.03	0.03	0.04	0.04	0.04	0.05
ZAR/USD	-0.01	0.03	0.00	-0.04	-0.08	-0.12	-0.15	-0.18
5Y_RollingReturn	0.04	0.00	0.00	0.00	0.00	0.02	0.02	0.03
10Y_RollingReturn	0.02	-0.05	-0.09	-0.14	-0.20	-0.26	-0.31	-0.34
Fama-French: MKT_ER	-0.02	-0.19	-0.21	-0.24	-0.28	-0.35	-0.40	-0.45
Fama-French: SMALL - BIG	0.02	0.06	0.12	0.22	0.32	0.45	0.53	0.61
Fama-French: HIGH - LOW	0.01	-0.01	0.02	0.07	0.11	0.18	0.22	0.25
Fama-French: ROBUST - WEAK	0.01	-0.04	-0.06	-0.13	-0.21	-0.32	-0.40	-0.46
Fama-French: CONSERV. – AGRESS.	0.00	0.04	0.07	0.10	0.14	0.19	0.22	0.25
T-bill	0.29	0.46	0.53	0.56	0.59	0.63	0.67	0.74
Willshire_5000	0.00	-0.13	-0.12	-0.10	-0.08	-0.06	-0.04	-0.02
Case_Shiller	0.28	0.40	0.48	0.55	0.58	0.64	0.70	0.79

<b>Case Shiller VS:</b>	<b>1m</b>	<b>3m</b>	<b>6m</b>	<b>1y</b>	<b>2y</b>	<b>5y</b>	<b>10y</b>	<b>30y</b>
Agriculture_Subindex	-0.05	-0.05	-0.02	0.02	0.02	0.01	0.01	0.01
GSCI_Index	0.09	0.17	0.24	0.29	0.38	0.51	0.61	0.73
WTI_Crude	0.14	0.21	0.28	0.32	0.42	0.56	0.67	0.78
CPI_Headline	0.39	0.46	0.50	0.50	0.51	0.55	0.59	0.64
PPI_FG	0.22	0.30	0.38	0.44	0.47	0.54	0.60	0.68
S&P 500	0.07	0.12	0.18	0.24	0.30	0.40	0.49	0.61
BCOM Index	0.11	0.20	0.28	0.36	0.44	0.58	0.68	0.79
Gold	0.00	0.02	0.05	0.10	0.14	0.20	0.27	0.37
Silver	-0.01	0.00	0.04	0.09	0.12	0.17	0.22	0.30
Corn	-0.07	-0.11	-0.12	-0.13	-0.20	-0.31	-0.40	-0.50
Wheat	0.00	0.02	0.03	0.05	0.07	0.09	0.11	0.14
Soybean	-0.02	-0.04	-0.07	-0.12	-0.17	-0.26	-0.35	-0.46
JPY/USD	0.04	0.06	0.10	0.16	0.20	0.28	0.35	0.46
ZAR/USD	-0.04	-0.07	-0.12	-0.17	-0.22	-0.30	-0.38	-0.48
5Y_RollingReturn	-0.10	-0.16	-0.23	-0.32	-0.37	-0.46	-0.55	-0.66
10Y_RollingReturn	-0.11	-0.17	-0.26	-0.37	-0.43	-0.55	-0.65	-0.75
Fama-French: MKT_ER	0.06	0.10	0.16	0.21	0.26	0.35	0.43	0.55
Fama-French: SMALL - BIG	0.09	0.14	0.22	0.30	0.39	0.53	0.62	0.73
Fama-French: HIGH - LOW	0.09	0.14	0.18	0.22	0.27	0.36	0.44	0.55
Fama-French: ROBUST - WEAK	-0.01	-0.03	-0.08	-0.12	-0.15	-0.19	-0.24	-0.31
Fama-French: CONSERV. – AGRESS.	0.03	0.04	0.08	0.12	0.15	0.21	0.26	0.35
T-bill	0.14	0.14	0.15	0.16	0.17	0.20	0.24	0.35
Willshire_5000	0.08	0.14	0.22	0.29	0.37	0.50	0.60	0.72

TABLE 5A: Correlations of inflation indices with nominal bonds over alternative holding periods, since 1972

Headline CPI

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.02	-0.03	-0.24	-0.16	-0.12		
5y	-0.10	0.07	-0.03	-0.30	-0.34	-0.35	
10y	-0.16	-0.15	0.15	0.30	-0.03	-0.23	0.09

GSCI Index

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.10	-0.10	-0.26	-0.28	-0.31		
5y	-0.11	-0.20	-0.24	-0.32	-0.34	-0.37	
10y	-0.11	-0.25	-0.21	-0.22	-0.32	-0.38	-0.36

Core CPI

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.14	-0.11	-0.12	-0.03	0.01		
5y	0.01	0.21	-0.13	-0.19	-0.24	-0.27	
10y	-0.06	-0.01	0.30	0.44	0.07	-0.20	0.04

CPI Energy

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.09	0.09	-0.24	-0.20	-0.29		
5y	-0.15	-0.11	0.10	-0.24	-0.22	-0.23	
10y	-0.19	-0.21	-0.11	-0.02	-0.23	-0.16	0.16

CPI Durables

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.06	-0.04	-0.24	-0.20	-0.20		
5y	-0.14	0.00	-0.28	-0.30	-0.39	-0.45	
10y	-0.17	-0.17	0.09	0.18	-0.18	-0.45	-0.22

CPI Services

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.20	0.13	-0.05	0.03	0.08		
5y	0.06	0.30	0.24	-0.14	-0.17	-0.15	
10y	0.00	0.07	0.35	0.47	0.20	-0.02	0.39

### CPI Nondurables

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.05	0.27	-0.27	-0.19	-0.10		
5y	-0.14	-0.05	0.43	-0.27	-0.22	-0.15	
10y	-0.19	-0.21	0.03	0.18	0.04	0.08	0.58

### Headline PCE

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.03	0.12	-0.24	-0.11	-0.08		
5y	-0.10	0.10	0.17	-0.26	-0.29	-0.29	
10y	-0.17	-0.13	0.21	0.33	0.03	-0.14	0.43

### Core PCE

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.09	0.17	-0.14	-0.01	0.02		
5y	-0.03	0.20	0.17	-0.16	-0.20	-0.21	
10y	-0.08	-0.04	0.32	0.44	0.11	-0.11	0.31

### PPI Final Goods

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.06	0.19	-0.29	-0.22	-0.18		
5y	-0.13	-0.08	0.32	-0.30	-0.29	-0.23	
10y	-0.18	-0.22	-0.03	0.10	-0.07	-0.06	0.45

### Hourly Earnings

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	0.08	0.05	-0.13	-0.09	-0.12		
5y	0.03	0.10	0.01	-0.20	-0.30	-0.35	
10y	0.00	-0.06	0.16	0.25	-0.07	-0.30	0.02

### Case-Shiller

maturity\horizon	1m	3m	6m	1y	2y	5y	10y
2y	-0.11	-0.37	-0.21	-0.34	-0.44		
5y	-0.14	-0.17	-0.56	-0.32	-0.45	-0.56	
10y	-0.12	-0.23	-0.21	-0.20	-0.51	-0.62	-0.49

TABLE 6A. Single-asset forecast performance, June 2020 – May 2022

<b>CPI Headline VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
<b>T-bill</b>	0.1%	12.7%	-12.6%	4.6%
<b>2y_Treasury</b>	0.3%	14.8%	-14.5%	6.6%
<b>Case_Shiller</b>	27.7%	13.5%	14.2%	9.6%
<b>5y_Treasury</b>	-6.5%	13.3%	-19.8%	11.2%
<b>Gold</b>	8.6%	29.6%	-21.0%	33.8%
<b>Willshire_5000</b>	36.8%	17.8%	18.9%	23.0%
<b>WTI_Crude</b>	188.4%	37.5%	150.9%	43.3%
<b>FF: Conserv - agres</b>	28.0%	8.3%	19.7%	12.1%
<b>BCOM</b>	76.9%	18.8%	58.1%	27.8%
<b>10y_Treasury</b>	-16.1%	9.6%	-25.8%	17.5%
<b>Silver</b>	36.4%	22.4%	14.0%	43.4%
<b>S&amp;P 500</b>	35.0%	9.8%	25.2%	22.8%
<b>ZAR/USD</b>	-16.8%	9.5%	-26.3%	22.8%
<b>Agg_Subindex</b>	68.2%	10.3%	57.9%	22.1%
<b>FF: High - Low</b>	37.7%	7.9%	29.8%	19.8%
<b>FF: Small - Big</b>	10.4%	6.8%	3.6%	16.1%
<b>Corn</b>	88.3%	13.5%	74.8%	35.5%
<b>Wheat</b>	71.9%	12.4%	59.5%	35.4%
<b>FF: Robust - weak</b>	23.4%	3.6%	19.7%	13.4%
<b>FF: MKT ER</b>	36.4%	4.3%	32.1%	22.7%
<b>JPY/USD</b>	18.4%	-3.5%	21.9%	18.1%
<b>Soybean</b>	68.3%	6.0%	62.3%	32.2%

<b>Core CPI VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
T-bill	0.1%	9.9%	-9.8%	4.0%
2y_Treasury	0.3%	12.4%	-12.1%	5.9%
Case_Shiller	27.7%	11.3%	16.5%	9.6%
5y_Treasury	-6.5%	13.0%	-19.5%	10.9%
Willshire_5000	36.8%	19.3%	17.5%	23.6%
10y_Treasury	-16.1%	13.0%	-29.1%	17.8%
FF: Conserv - agres	28.0%	7.1%	20.9%	12.2%
Gold	8.6%	18.6%	-10.1%	35.8%
ZAR/USD	-16.8%	13.1%	-29.9%	23.1%
S&P 500	35.0%	12.6%	22.4%	23.1%
WTI_Crude	188.4%	14.6%	173.8%	49.8%
FF: High - Low	37.7%	6.4%	31.2%	19.8%
FF: Robust - weak	23.4%	5.4%	18.0%	13.5%
FF: Small - Big	10.4%	3.9%	6.5%	16.0%
BCOM	76.9%	7.3%	69.5%	31.0%
FF: MKT ER	36.4%	8.9%	27.5%	23.4%
Silver	36.4%	11.0%	25.4%	45.4%
JPY/USD	18.4%	-4.3%	22.7%	18.3%
Agg_Subindex	68.2%	3.9%	64.3%	23.3%
Wheat	71.9%	5.4%	66.6%	36.0%
Corn	88.3%	4.7%	83.7%	36.4%
Soybean	68.3%	2.6%	65.7%	32.3%

<b>CPI Durables VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
<b>T-bill</b>	0.1%	20.3%	-20.1%	4.5%
<b>2y_Treasury</b>	0.3%	22.3%	-22.0%	6.0%
<b>5y_Treasury</b>	-6.5%	19.2%	-25.7%	10.2%
<b>Case_Shiller</b>	27.7%	15.9%	11.8%	9.7%
<b>WTI_Crude</b>	188.4%	58.0%	130.4%	50.6%
<b>FF: Conserv - agres</b>	28.0%	12.5%	15.5%	11.5%
<b>FF: Small - Big</b>	10.4%	15.3%	-4.9%	15.3%
<b>Willshire_5000</b>	36.8%	24.7%	12.1%	22.5%
<b>Gold</b>	8.6%	35.1%	-26.6%	36.0%
<b>FF: High - Low</b>	37.7%	16.1%	21.5%	18.6%
<b>BCOM</b>	76.9%	25.1%	51.8%	30.3%
<b>Silver</b>	36.4%	35.4%	1.0%	45.5%
<b>ZAR/USD</b>	-16.8%	14.7%	-31.5%	21.6%
<b>10y_Treasury</b>	-16.1%	11.4%	-27.5%	16.6%
<b>S&amp;P 500</b>	35.0%	11.2%	23.7%	22.2%
<b>Corn</b>	88.3%	14.3%	74.0%	36.0%
<b>Agg_Subindex</b>	68.2%	8.5%	59.7%	21.8%
<b>JPY/USD</b>	18.4%	-4.4%	22.8%	17.2%
<b>Wheat</b>	71.9%	9.0%	62.9%	35.7%
<b>FF: MKT ER</b>	36.4%	3.5%	32.9%	22.6%
<b>Soybean</b>	68.3%	1.3%	67.0%	33.4%
<b>FF: Robust - weak</b>	23.4%	-0.9%	24.3%	13.0%

<b>CPI Energy VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
WTI_Crude	188.4%	134.6%	53.9%	22.1%
BCOM	76.9%	67.2%	9.6%	21.6%
Gold	8.6%	61.7%	-53.2%	33.2%
T-bill	0.1%	15.3%	-15.2%	6.3%
Agg_Subindex	68.2%	38.1%	30.1%	18.6%
2y_Treasury	0.3%	16.9%	-16.6%	7.8%
Silver	36.4%	77.0%	-40.5%	40.1%
Case_Shiller	27.7%	18.4%	9.3%	9.5%
Willshire_5000	36.8%	27.2%	9.6%	22.7%
Corn	88.3%	38.4%	49.9%	35.0%
5y_Treasury	-6.5%	7.5%	-14.0%	10.2%
S&P 500	35.0%	17.2%	17.7%	21.3%
FF: Conserv - agres	28.0%	7.9%	20.1%	11.4%
FF: High - Low	37.7%	11.8%	25.9%	16.3%
FF: Small - Big	10.4%	10.4%	0.0%	13.7%
FF: MKT ER	36.4%	16.0%	20.4%	22.4%
Soybean	68.3%	23.0%	45.3%	34.2%
Wheat	71.9%	19.3%	52.7%	35.9%
10y_Treasury	-16.1%	8.1%	-24.2%	16.7%
ZAR/USD	-16.8%	-14.5%	-2.3%	20.3%
FF: Robust - weak	23.4%	-6.8%	30.2%	13.4%
JPY/USD	18.4%	3.3%	15.1%	15.9%



<b>CPI Nondurables VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
T-bill	0.1%	18.1%	-18.0%	5.0%
2y_Treasury	0.3%	18.3%	-18.0%	7.3%
Case_Shiller	27.7%	16.1%	11.7%	9.7%
5y_Treasury	-6.5%	15.0%	-21.5%	10.6%
Gold	8.6%	58.3%	-49.7%	31.3%
WTI_Crude	188.4%	93.9%	94.6%	33.3%
Willshire_5000	36.8%	28.6%	8.2%	22.3%
BCOM	76.9%	49.2%	27.7%	22.9%
S&P 500	35.0%	20.7%	14.2%	21.5%
10y_Treasury	-16.1%	11.4%	-27.5%	16.9%
Agg_Subindex	68.2%	29.0%	39.2%	19.7%
FF: Conserv - agres	28.0%	8.1%	19.9%	10.7%
FF: MKT ER	36.4%	18.1%	18.3%	22.6%
Silver	36.4%	53.1%	-16.7%	42.0%
Wheat	71.9%	34.2%	37.7%	34.0%
Corn	88.3%	40.5%	47.8%	36.6%
FF: High - Low	37.7%	9.5%	28.2%	18.4%
FF: Robust - weak	23.4%	-0.7%	24.0%	13.0%
Soybean	68.3%	17.5%	50.8%	31.2%
FF: Small - Big	10.4%	8.0%	2.4%	15.9%
JPY/USD	18.4%	-2.7%	21.1%	16.6%
ZAR/USD	-16.8%	-3.4%	-13.4%	21.3%

<b>CPI Services VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
T-bill	0.1%	8.2%	-8.0%	4.0%
2y_Treasury	0.3%	10.7%	-10.3%	6.1%
Case_Shiller	27.7%	9.9%	17.8%	9.3%
5y_Treasury	-6.5%	12.6%	-19.1%	10.5%
Willshire_5000	36.8%	19.8%	17.0%	23.2%
ZAR/USD	-16.8%	13.2%	-30.0%	20.4%
10y_Treasury	-16.1%	12.5%	-28.6%	16.8%
Gold	8.6%	16.7%	-8.1%	35.2%
FF: Conserv - agres	28.0%	6.4%	21.6%	12.2%
WTI Crude	188.4%	11.9%	176.6%	49.4%
S&P 500	35.0%	13.9%	21.0%	22.4%
FF: Small - Big	10.4%	2.5%	7.9%	14.9%
FF: High - Low	37.7%	4.8%	32.8%	18.8%
Silver	36.4%	11.2%	25.2%	43.7%
FF: MKT ER	36.4%	11.3%	25.1%	23.1%
BCOM	76.9%	5.6%	71.3%	30.0%
FF: Robust - weak	23.4%	5.5%	17.8%	13.9%
JPY/USD	18.4%	-4.6%	23.0%	15.8%
Agg_Subindex	68.2%	3.1%	65.1%	21.9%
Corn	88.3%	4.8%	83.6%	36.3%
Wheat	71.9%	5.2%	66.7%	35.0%
Soybean	68.3%	3.2%	65.1%	35.0%

<b>Headline PCE VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
T-bill	0.1%	11.6%	-11.5%	4.5%
2y_Treasury	0.3%	13.5%	-13.1%	6.3%
Case_Shiller	27.7%	12.8%	14.9%	9.5%
5y_Treasury	-6.5%	13.9%	-20.4%	10.8%
Gold	8.6%	26.5%	-18.0%	33.6%
FF: Conserv - agres	28.0%	8.4%	19.6%	11.2%
Willshire_5000	36.8%	19.1%	17.7%	22.7%
10y_Treasury	-16.1%	12.3%	-28.5%	17.0%
WTI_Crude	188.4%	31.8%	156.6%	44.4%
BCOM	76.9%	16.4%	60.5%	27.9%
S&P 500	35.0%	11.2%	23.8%	22.0%
Silver	36.4%	19.6%	16.8%	44.0%
FF: High - Low	37.7%	7.7%	29.9%	18.8%
Agg_Subindex	68.2%	8.8%	59.4%	22.3%
FF: Small - Big	10.4%	6.0%	4.4%	16.0%
ZAR/USD	-16.8%	9.0%	-25.8%	22.6%
Corn	88.3%	11.8%	76.5%	34.4%
Wheat	71.9%	11.0%	60.9%	36.5%
JPY/USD	18.4%	-4.4%	22.8%	17.2%
FF: MKT ER	36.4%	6.3%	30.1%	22.4%
FF: Robust - weak	23.4%	3.3%	20.1%	13.3%
Soybean	68.3%	7.1%	61.2%	32.3%

<b>Core PCE VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
<b>T-bill</b>	0.1%	10.4%	-10.2%	4.0%
<b>2y_Treasury</b>	0.3%	12.9%	-12.5%	5.6%
<b>5y_Treasury</b>	-6.5%	13.5%	-20.0%	10.1%
<b>Case_Shiller</b>	27.7%	11.8%	15.9%	9.6%
<b>10y_Treasury</b>	-16.1%	13.6%	-29.8%	17.2%
<b>Willshire_5000</b>	36.8%	19.6%	17.2%	23.0%
<b>FF: Conserv - agres</b>	28.0%	7.4%	20.6%	12.0%
<b>Gold</b>	8.6%	19.5%	-10.9%	36.2%
<b>ZAR/USD</b>	-16.8%	12.4%	-29.2%	19.6%
<b>WTI Crude</b>	188.4%	18.5%	170.0%	49.7%
<b>S&amp;P 500</b>	35.0%	12.4%	22.5%	22.4%
<b>FF: Small - Big</b>	10.4%	5.0%	5.4%	14.5%
<b>FF: High - Low</b>	37.7%	7.1%	30.5%	18.6%
<b>BCOM</b>	76.9%	9.5%	67.4%	30.4%
<b>Silver</b>	36.4%	13.4%	23.0%	42.0%
<b>FF: Robust - weak</b>	23.4%	4.7%	18.7%	13.1%
<b>FF: MKT ER</b>	36.4%	8.7%	27.7%	22.9%
<b>JPY/USD</b>	18.4%	-4.4%	22.8%	16.0%
<b>Agg_Subindex</b>	68.2%	4.9%	63.3%	22.7%
<b>Corn</b>	88.3%	6.4%	81.9%	36.9%
<b>Wheat</b>	71.9%	5.2%	66.7%	36.5%
<b>Soybean</b>	68.3%	4.0%	64.3%	35.2%

<b>PPI VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
<b>T-bill</b>	0.1%	17.6%	-17.5%	5.9%
<b>WTI Crude</b>	188.4%	119.7%	68.7%	33.8%
<b>2y_Treasury</b>	0.3%	16.9%	-16.5%	7.7%
<b>Case_Shiller</b>	27.7%	16.2%	11.5%	9.9%
<b>Gold</b>	8.6%	61.7%	-53.1%	32.8%
<b>5y_Treasury</b>	-6.5%	14.9%	-21.4%	10.9%
<b>BCOM</b>	76.9%	56.2%	20.7%	24.7%
<b>Willshire_5000</b>	36.8%	22.6%	14.2%	22.4%
<b>Silver</b>	36.4%	74.4%	-37.9%	41.9%
<b>Agg_Subindex</b>	68.2%	34.9%	33.3%	20.0%
<b>10y_Treasury</b>	-16.1%	7.8%	-23.9%	17.2%
<b>FF: High - Low</b>	37.7%	27.9%	9.7%	17.4%
<b>FF: Conserv - agress</b>	28.0%	11.6%	16.4%	12.2%
<b>Corn</b>	88.3%	44.4%	43.9%	33.6%
<b>S&amp;P 500</b>	35.0%	9.3%	25.7%	21.1%
<b>Wheat</b>	71.9%	39.8%	32.1%	34.7%
<b>FF: MKT ER</b>	36.4%	7.6%	28.8%	22.8%
<b>FF: Small - Big</b>	10.4%	11.0%	-0.6%	14.6%
<b>Soybean</b>	68.3%	21.3%	47.0%	31.4%
<b>JPY/USD</b>	18.4%	-4.6%	23.0%	17.5%
<b>ZAR/USD</b>	-16.8%	-7.6%	-9.2%	21.3%
<b>FF: Robust - weak</b>	23.4%	-5.4%	28.8%	13.0%

<b>Agg Subindex VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
Wheat	71.9%	91.8%	-19.8%	18.5%
Corn	88.3%	94.4%	-6.1%	25.0%
BCOM	76.9%	69.9%	6.9%	18.5%
Gold	8.6%	85.1%	-76.5%	26.1%
Soybean	68.3%	72.7%	-4.4%	31.0%
Silver	36.4%	82.1%	-45.7%	31.0%
WTI Crude	188.4%	36.3%	152.2%	59.3%
Willshire_5000	36.8%	25.7%	11.1%	22.5%
FF: MKT ER	36.4%	16.3%	20.1%	21.7%
T-bill	0.1%	7.9%	-7.7%	6.6%
FF: Small - Big	10.4%	6.0%	4.4%	14.7%
FF: Conserv - agres	28.0%	7.5%	20.5%	10.4%
S&P 500	35.0%	15.7%	19.3%	21.4%
ZAR/USD	-16.8%	2.2%	-19.0%	20.5%
FF: High - Low	37.7%	5.9%	31.8%	17.0%
2y_Treasury	0.3%	6.2%	-5.8%	7.8%
10y_Treasury	-16.1%	5.9%	-22.0%	17.1%
Case_Shiller	27.7%	7.4%	20.3%	10.1%
FF: Robust - weak	23.4%	3.2%	20.2%	12.8%
JPY/USD	18.4%	-3.9%	22.3%	16.0%
5y_Treasury	-6.5%	6.1%	-12.6%	10.4%

<b>GSCI Index VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
WTI_Crude	188.4%	151.5%	37.0%	35.6%
JPY/USD	18.4%	-4.2%	22.6%	16.1%
ZAR/USD	-16.8%	-9.2%	-7.6%	19.7%
FF: MKT ER	36.4%	16.0%	20.4%	24.0%
FF: Small - Big	10.4%	5.4%	5.0%	14.7%
FF: High - Low	37.7%	15.6%	22.0%	16.8%
FF: Robust - weak	23.4%	-0.1%	23.4%	12.7%
FF: Conserv - agres	28.0%	10.1%	17.9%	10.4%
T-bill	0.1%	9.3%	-9.2%	6.7%
BCOM	76.9%	92.1%	-15.3%	17.7%
Corn	88.3%	70.0%	18.3%	31.3%
Soybean	68.3%	57.1%	11.2%	35.6%
S&P 500	35.0%	19.0%	16.0%	22.4%
Wheat	71.9%	63.1%	8.8%	30.9%
Silver	36.4%	59.9%	-23.4%	43.5%
Gold	8.6%	38.5%	-29.9%	27.6%
Willshire_5000	36.8%	26.7%	10.0%	23.7%
Case_Shiller	27.7%	14.8%	12.9%	9.9%
Agg_Subindex	68.2%	62.8%	5.4%	14.7%
10y_Treasury	-16.1%	-2.9%	-13.2%	16.7%
5y_Treasury	-6.5%	3.0%	-9.5%	10.3%
2y_Treasury	0.3%	5.5%	-5.2%	7.7%

<b>Hourly Earnings VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
JPY/USD	0.1%	9.0%	-8.9%	6.0%
ZAR/USD	0.3%	11.5%	-11.1%	8.2%
FF: MKT ER	27.7%	8.9%	18.8%	9.9%
FF: Small - Big	8.6%	17.0%	-8.4%	34.4%
FF: High - Low	28.0%	6.8%	21.2%	12.3%
FF: Robust - weak	36.8%	19.7%	17.0%	23.6%
FF: Conserv - agres	-16.8%	13.1%	-30.0%	21.6%
T-bill	-6.5%	12.4%	-18.9%	11.8%
Corn	10.4%	3.4%	7.0%	15.6%
Soybean	37.7%	5.8%	31.8%	18.8%
S&P 500	36.4%	9.6%	26.8%	44.7%
Wheat	76.9%	4.6%	72.3%	30.2%
Silver	188.4%	8.9%	179.6%	53.0%
Gold	35.0%	13.4%	21.5%	22.5%
Willshire_5000	71.9%	5.4%	66.6%	35.4%
Case_Shiller	68.3%	4.3%	64.0%	33.2%
WTI_Crude	18.4%	-4.2%	22.6%	17.2%
BCOM	88.3%	3.7%	84.7%	35.3%
10y_Treasury	-16.1%	13.5%	-29.6%	16.9%
5y_Treasury	23.4%	5.3%	18.1%	13.1%
2y_Treasury	36.4%	9.8%	26.6%	23.6%



<b>Case Shiller VS:</b>	<b>actual returns</b>	<b>expected returns</b>	<b>forecast error</b>	<b>std resid</b>
T-bill	0.1%	10.2%	-10.0%	6.4%
2y_Treasury	0.3%	11.0%	-10.7%	7.7%
Willshire_5000	36.8%	29.0%	7.8%	23.5%
5y_Treasury	-6.5%	10.2%	-16.6%	11.0%
S&P 500	35.0%	20.1%	14.9%	23.2%
FF: Conserv - agres	28.0%	9.5%	18.5%	12.1%
FF: MKT ER	36.4%	17.5%	18.9%	24.3%
FF: High - Low	37.7%	14.3%	23.4%	18.6%
Gold	8.6%	23.0%	-14.4%	36.8%
FF: Small - Big	10.4%	11.9%	-1.5%	15.6%
BCOM	76.9%	20.3%	56.6%	30.2%
10y_Treasury	-16.1%	6.3%	-22.4%	16.3%
ZAR/USD	-16.8%	7.5%	-24.3%	22.6%
WTI_Crude	188.4%	25.6%	162.8%	54.3%
Silver	36.4%	17.3%	19.1%	45.9%
JPY/USD	18.4%	-2.0%	20.4%	17.4%
FF: Robust - weak	23.4%	-0.6%	23.9%	13.1%
Corn	88.3%	-11.5%	99.9%	36.5%
Wheat	71.9%	4.5%	67.5%	37.2%
Soybean	68.3%	-6.7%	75.0%	33.2%
Agg_Subindex	68.2%	0.3%	67.9%	23.0%

TABLE 7A. Top-30 portfolio forecast performance, June 2020 – May 2022

CPI Headline VS:

Asset 1	weight 1	Asset 2	Weight 2	R2	actual returns	expected returns	forecast error	std resid
T-bill	0.69	Gold	0.06	0.87	0.6%	10.9%	-10.3%	2.7%
WTI_Crude	0.04	T-bill	0.73	0.85	8.0%	10.9%	-2.9%	3.1%
T-bill	0.65	Case_Shiller	0.15	0.85	4.3%	10.6%	-6.4%	3.0%
T-bill	0.74	Silver	0.04	0.85	1.7%	10.7%	-9.0%	3.0%
T-bill	0.74	BCOM	0.06	0.83	4.8%	10.6%	-5.8%	3.2%
Agg_Subindex	0.07	T-bill	0.75	0.82	4.9%	10.4%	-5.5%	3.3%
FF: MKT ER	-0.77	Willshire_5000	0.77	0.82	0.2%	10.4%	-10.2%	3.3%
T-bill	0.76	Corn	0.03	0.81	3.0%	10.3%	-7.2%	3.4%
FF: Small - Big	0.08	T-bill	0.75	0.81	1.0%	10.2%	-9.3%	3.4%
T-bill	0.76	Wheat	0.03	0.80	2.2%	10.1%	-7.9%	3.4%
ZAR/USD	-0.06	T-bill	0.84	0.80	1.1%	10.2%	-9.1%	3.4%
T-bill	0.77	Soybean	0.03	0.80	1.9%	10.0%	-8.1%	3.4%
T-bill	0.79	S&P 500	-0.02	0.80	-0.6%	10.1%	-10.7%	3.5%
FF: Robust - weak	-0.05	T-bill	0.80	0.79	-1.1%	10.0%	-11.1%	3.5%
JPY/USD	-0.01	T-bill	0.77	0.79	-0.1%	10.0%	-10.0%	3.5%
FF: MKT ER	0.00	T-bill	0.76	0.78	0.0%	9.9%	-9.9%	3.4%
T-bill	0.78	Willshire_5000	0.00	0.78	0.1%	9.9%	-9.7%	3.5%
FF: Conserv - agress	0.02	T-bill	0.74	0.78	0.6%	9.8%	-9.1%	3.3%
FF: High - Low	-0.01	T-bill	0.75	0.77	-0.1%	9.7%	-9.8%	3.4%
S&P 500	-1.08	Willshire_5000	1.07	0.71	1.4%	8.9%	-7.5%	3.8%
Gold	0.07	Case_Shiller	0.38	0.61	11.6%	7.5%	4.1%	4.3%
Corn	0.08	Case_Shiller	0.47	0.60	19.1%	7.4%	11.7%	4.3%
WTI_Crude	0.05	Case_Shiller	0.40	0.58	20.1%	7.3%	12.8%	4.5%
Agg_Subindex	0.09	Case_Shiller	0.44	0.55	18.0%	6.8%	11.2%	4.3%
FF: Conserv - agress	0.12	Case_Shiller	0.41	0.54	13.2%	6.6%	6.6%	4.3%
Silver	0.04	Case_Shiller	0.42	0.54	13.6%	6.7%	7.0%	4.4%
Wheat	0.04	Case_Shiller	0.46	0.54	14.7%	6.6%	8.1%	4.3%
FF: Conserv - agress	0.30	Willshire_5000	0.15	0.54	13.7%	5.3%	8.4%	3.7%
Soybean	0.05	Case_Shiller	0.46	0.53	16.0%	6.5%	9.5%	4.3%
BCOM	0.05	Case_Shiller	0.41	0.53	14.8%	6.5%	8.2%	4.4%

CPI Core VS:

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
T-bill	0.65	Case_Shiller	0.13	0.89	3.7%	8.4%	-4.7%	2.6%
T-bill	0.73	Gold	0.04	0.87	0.4%	8.1%	-7.7%	2.8%
FF: Small - Big	0.08	T-bill	0.75	0.87	0.9%	8.0%	-7.0%	2.9%
T-bill	0.76	Silver	0.02	0.86	0.9%	8.0%	-7.0%	2.9%
WTI_Crude	0.02	T-bill	0.76	0.86	3.3%	7.9%	-4.6%	3.0%
T-bill	0.76	BCOM	0.02	0.85	1.3%	7.8%	-6.5%	3.0%
FF: High - Low	-0.01	T-bill	0.78	0.85	-0.2%	7.8%	-8.1%	3.1%
T-bill	0.77	Corn	0.00	0.85	0.3%	7.8%	-7.5%	3.1%
ZAR/USD	-0.03	T-bill	0.80	0.85	0.6%	7.8%	-7.2%	3.1%
T-bill	0.75	Willshire_5000	0.01	0.85	0.6%	7.8%	-7.3%	3.1%
T-bill	0.77	Wheat	0.00	0.85	0.1%	7.8%	-7.7%	3.1%
T-bill	0.77	Soybean	0.00	0.85	0.4%	7.8%	-7.4%	3.1%
Agg_Subindex	0.02	T-bill	0.77	0.85	1.2%	7.8%	-6.7%	3.0%
T-bill	0.78	S&P 500	-0.01	0.85	-0.1%	7.8%	-7.9%	3.1%
JPY/USD	-0.02	T-bill	0.76	0.84	-0.2%	7.8%	-8.0%	3.1%
FF: Conserv - agres	0.01	T-bill	0.77	0.84	0.3%	7.8%	-7.5%	3.1%
FF: MKT ER	0.01	T-bill	0.77	0.84	0.5%	7.7%	-7.2%	3.1%
FF: MKT ER	-0.73	Willshire_5000	0.75	0.84	0.8%	7.7%	-6.8%	2.9%
FF: Robust - weak	-0.02	T-bill	0.77	0.84	-0.4%	7.7%	-8.1%	3.0%
S&P 500	-1.06	Willshire_5000	1.06	0.74	1.6%	7.0%	-5.4%	3.7%
FF: Conserv - agres	0.12	Case_Shiller	0.39	0.53	12.5%	5.2%	7.3%	4.0%
ZAR/USD	0.07	Case_Shiller	0.38	0.53	9.4%	5.3%	4.1%	3.8%
FF: Robust - weak	0.11	Case_Shiller	0.42	0.53	13.8%	5.3%	8.5%	3.9%
Gold	0.04	Case_Shiller	0.39	0.52	11.4%	5.0%	6.4%	4.1%
Corn	0.04	Case_Shiller	0.44	0.52	15.4%	5.1%	10.3%	4.1%
Willshire_5000	0.05	Case_Shiller	0.37	0.52	12.5%	5.2%	7.3%	4.0%
Agg_Subindex	0.03	Case_Shiller	0.43	0.51	13.9%	5.0%	9.0%	4.1%
Wheat	0.00	Case_Shiller	0.44	0.51	12.2%	4.9%	7.3%	4.1%
FF: MKT ER	-0.02	Case_Shiller	0.44	0.50	11.5%	4.9%	6.6%	4.1%
FF: High - Low	0.02	Case_Shiller	0.42	0.50	12.3%	4.9%	7.4%	4.1%

CPI Durables VS:

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
T-bill	0.49	BCOM	0.03	0.63	2.2%	12.1%	-9.9%	2.1%
T-bill	0.50	Corn	0.01	0.61	0.6%	11.7%	-11.1%	2.1%
FF: MKT ER	-0.59	Willshire_5000	0.54	0.57	-1.3%	11.8%	-13.2%	2.9%
FF: Small - Big	0.11	T-bill	0.50	0.56	1.2%	11.8%	-10.6%	2.5%
FF: Robust - weak	-0.13	T-bill	0.58	0.55	-2.9%	11.6%	-14.4%	2.8%
WTI_Crude	0.03	T-bill	0.49	0.54	5.4%	11.6%	-6.2%	2.7%
T-bill	0.57	S&P 500	-0.04	0.53	-1.5%	11.0%	-12.4%	2.7%
FF: MKT ER	-0.03	T-bill	0.55	0.53	-1.1%	10.9%	-12.0%	2.7%
T-bill	0.53	Case_Shiller	-0.03	0.52	-0.7%	10.4%	-11.1%	2.4%
T-bill	0.57	Willshire_5000	-0.03	0.52	-0.9%	10.7%	-11.6%	2.6%
ZAR/USD	-0.06	T-bill	0.59	0.51	1.1%	11.2%	-10.1%	2.6%
T-bill	0.50	Silver	0.02	0.51	0.9%	10.8%	-9.9%	2.2%
T-bill	0.53	Soybean	-0.01	0.50	-0.3%	10.6%	-10.9%	2.5%
FF: High - Low	0.02	T-bill	0.51	0.50	0.8%	10.4%	-9.6%	2.4%
T-bill	0.52	Wheat	0.00	0.50	0.0%	10.5%	-10.4%	2.4%
T-bill	0.48	Gold	0.02	0.50	0.2%	10.4%	-10.1%	2.1%
Agg_Subindex	0.01	T-bill	0.52	0.50	0.9%	10.7%	-9.8%	2.4%
FF: Conserv - agres	0.00	T-bill	0.51	0.50	0.0%	10.2%	-10.2%	2.3%
S&P 500	-0.81	Willshire_5000	0.76	0.49	-0.2%	9.4%	-9.6%	2.8%
JPY/USD	0.02	T-bill	0.52	0.48	0.4%	10.1%	-9.7%	2.4%
WTI_Crude	0.07	ZAR/USD	0.11	0.26	11.1%	5.3%	5.8%	3.1%
FF: Small - Big	0.11	Case_Shiller	0.19	0.24	6.8%	4.9%	1.9%	2.8%
Corn	0.04	Case_Shiller	0.25	0.24	10.3%	4.7%	5.6%	2.5%
WTI_Crude	0.04	Case_Shiller	0.17	0.24	11.4%	4.8%	6.6%	2.8%
FF: Conserv - agres	0.10	Case_Shiller	0.21	0.24	7.3%	4.6%	2.7%	2.5%
Silver	0.03	Case_Shiller	0.22	0.23	7.5%	4.5%	3.1%	2.5%
FF: High - Low	0.06	Case_Shiller	0.21	0.22	7.4%	4.4%	3.0%	2.5%
ZAR/USD	0.13	BCOM	0.11	0.22	6.0%	4.3%	1.7%	2.6%
Gold	0.03	Case_Shiller	0.20	0.22	5.9%	4.3%	1.6%	2.3%
WTI_Crude	0.05	FF: Conserv - agres	0.15	0.22	13.3%	4.6%	8.7%	3.0%

CPI Energy VS:

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
WTI_Crude	0.29	T-bill	0.63	0.87	54.1%	47.8%	6.3%	6.7%
WTI_Crude	0.28	Case_Shiller	0.37	0.84	58.5%	46.1%	12.4%	6.9%
WTI_Crude	0.31	Willshire_5000	0.12	0.81	62.0%	44.6%	17.4%	7.1%
WTI_Crude	0.28	Gold	0.09	0.80	54.3%	44.1%	10.2%	7.0%
WTI_Crude	0.33	ZAR/USD	0.11	0.80	59.7%	43.8%	15.9%	7.1%
WTI_Crude	0.31	S&P 500	0.10	0.79	61.7%	43.7%	18.1%	7.1%
WTI_Crude	0.30	Corn	0.05	0.79	60.7%	43.5%	17.2%	6.7%
WTI_Crude	0.31	FF: MKT ER	0.08	0.79	61.3%	43.4%	17.9%	7.0%
WTI_Crude	0.30	FF: Conserv - agress	0.14	0.79	60.7%	43.3%	17.3%	7.1%
Agg_Subindex	0.10	WTI_Crude	0.29	0.78	60.8%	43.2%	17.6%	6.7%
WTI_Crude	0.31	Soybean	0.04	0.78	60.3%	43.0%	17.4%	6.8%
WTI_Crude	0.30	Wheat	0.06	0.77	60.0%	43.0%	17.0%	6.7%
WTI_Crude	0.30	FF: High - Low	0.08	0.77	60.2%	42.6%	17.6%	7.0%
WTI_Crude	0.28	BCOM	0.07	0.77	57.2%	42.8%	14.4%	6.7%
WTI_Crude	0.31	JPY/USD	-0.09	0.76	56.2%	42.5%	13.7%	6.8%
WTI_Crude	0.28	FF: Small - Big	0.15	0.73	53.7%	40.9%	12.7%	7.0%
WTI_Crude	0.26	Silver	0.06	0.73	51.5%	40.7%	10.8%	7.2%
WTI_Crude	0.29	FF: Robust - weak	0.14	0.72	58.1%	40.4%	17.7%	7.4%
T-bill	0.74	BCOM	0.34	0.67	26.2%	36.1%	-9.9%	7.9%
BCOM	0.33	Case_Shiller	0.44	0.55	32.9%	29.7%	3.2%	9.0%
Agg_Subindex	0.37	T-bill	0.85	0.54	25.5%	28.5%	-3.0%	7.9%
Agg_Subindex	0.42	Case_Shiller	0.65	0.53	43.6%	27.6%	16.0%	8.5%
ZAR/USD	0.20	BCOM	0.42	0.48	29.3%	25.9%	3.4%	8.7%
ZAR/USD	-0.37	T-bill	1.40	0.47	6.4%	25.5%	-19.1%	9.1%
FF: Small - Big	0.25	BCOM	0.36	0.47	30.0%	26.2%	3.8%	8.6%
Corn	0.22	Case_Shiller	0.75	0.46	38.4%	23.4%	14.9%	8.0%
T-bill	0.86	Silver	0.16	0.45	6.0%	23.6%	-17.6%	7.3%
FF: Robust - weak	0.12	BCOM	0.37	0.43	31.4%	23.9%	7.4%	8.6%
BCOM	0.39	Willshire_5000	0.19	0.43	37.1%	23.4%	13.7%	10.0%
Gold	0.20	Case_Shiller	0.48	0.42	15.9%	21.5%	-5.6%	7.9%

CPI Nondurables VS:

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
WTI_Crude	0.06	T-bill	0.63	0.88	11.8%	18.0%	-6.2%	2.9%
T-bill	0.64	BCOM	0.12	0.86	9.1%	17.2%	-8.1%	3.1%
Agg_Subindex	0.09	T-bill	0.69	0.78	6.6%	14.5%	-8.0%	3.5%
T-bill	0.68	Silver	0.04	0.77	1.7%	14.1%	-12.4%	3.3%
T-bill	0.63	Gold	0.07	0.77	0.7%	13.8%	-13.1%	3.2%
ZAR/USD	-0.08	T-bill	0.81	0.76	1.4%	14.3%	-12.9%	3.6%
T-bill	0.69	Corn	0.04	0.75	4.0%	13.9%	-10.0%	3.6%
FF: Robust - weak	-0.04	T-bill	0.73	0.73	-0.9%	13.2%	-14.1%	3.5%
FF: MKT ER	0.04	T-bill	0.68	0.73	1.5%	13.0%	-11.5%	3.4%
T-bill	0.69	Wheat	0.03	0.73	2.5%	13.4%	-10.9%	3.6%
T-bill	0.64	Willshire_5000	0.04	0.73	1.6%	13.0%	-11.3%	3.3%
T-bill	0.66	S&P 500	0.04	0.73	1.5%	13.0%	-11.5%	3.4%
T-bill	0.71	Soybean	0.03	0.73	2.5%	13.2%	-10.7%	3.5%
FF: High - Low	0.04	T-bill	0.68	0.73	1.5%	13.1%	-11.6%	3.6%
FF: Small - Big	0.04	T-bill	0.70	0.72	0.6%	13.1%	-12.5%	3.6%
JPY/USD	-0.02	T-bill	0.70	0.72	-0.2%	12.9%	-13.1%	3.5%
FF: Conserv - agress	0.00	T-bill	0.71	0.72	0.0%	12.9%	-12.8%	3.6%
FF: MKT ER	-0.74	Willshire_5000	0.72	0.69	-0.4%	13.2%	-13.6%	3.9%
T-bill	0.59	Case_Shiller	0.14	0.68	3.8%	11.8%	-7.9%	3.4%
WTI_Crude	0.09	Case_Shiller	0.34	0.64	24.3%	13.4%	10.9%	4.4%
Corn	0.11	Case_Shiller	0.45	0.61	21.4%	11.5%	9.9%	4.4%
Gold	0.10	Case_Shiller	0.33	0.61	10.3%	11.3%	-1.0%	4.3%
Agg_Subindex	0.16	Case_Shiller	0.41	0.60	21.1%	11.3%	9.8%	4.3%
BCOM	0.11	Case_Shiller	0.34	0.56	16.7%	11.2%	5.5%	4.5%
S&P 500	-0.89	Willshire_5000	0.90	0.55	2.1%	7.5%	-5.4%	3.2%
WTI_Crude	0.12	ZAR/USD	0.15	0.54	20.2%	12.1%	8.1%	4.3%
Silver	0.07	Case_Shiller	0.38	0.53	13.8%	9.8%	4.0%	4.4%
Wheat	0.07	Case_Shiller	0.41	0.53	15.6%	9.5%	6.1%	4.4%
WTI_Crude	0.07	Willshire_5000	0.14	0.52	17.5%	11.5%	6.0%	4.2%
FF: Conserv - agress	0.27	Willshire_5000	0.15	0.50	13.1%	6.5%	6.6%	3.5%

CPI Services VS:

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
T-bill	0.74	Case_Shiller	0.18	0.90	5.1%	8.3%	-3.3%	3.1%
T-bill	0.85	Gold	0.05	0.87	0.5%	7.9%	-7.4%	3.2%
FF: MKT ER	-0.83	Willshire_5000	0.86	0.84	1.3%	7.5%	-6.2%	3.6%
FF: Small - Big	0.10	T-bill	0.87	0.84	1.2%	7.3%	-6.1%	3.4%
WTI_Crude	0.02	T-bill	0.88	0.84	3.7%	7.3%	-3.6%	3.5%
T-bill	0.88	BCOM	0.02	0.84	1.8%	7.4%	-5.7%	3.6%
FF: Robust - weak	-0.02	T-bill	0.91	0.84	-0.2%	7.5%	-7.7%	3.6%
T-bill	0.88	Willshire_5000	0.01	0.84	0.7%	7.5%	-6.9%	3.6%
FF: Conserv - agres	-0.01	T-bill	0.91	0.84	-0.2%	7.5%	-7.7%	3.6%
T-bill	0.91	S&P 500	-0.01	0.83	-0.1%	7.4%	-7.5%	3.7%
T-bill	0.90	Soybean	0.01	0.83	0.8%	7.5%	-6.7%	3.6%
T-bill	0.90	Wheat	0.00	0.83	0.4%	7.5%	-7.0%	3.6%
T-bill	0.89	Corn	0.00	0.83	0.3%	7.4%	-7.1%	3.7%
FF: MKT ER	0.01	T-bill	0.89	0.83	0.6%	7.5%	-6.9%	3.6%
T-bill	0.88	Silver	0.03	0.83	1.2%	7.3%	-6.2%	3.5%
Agg_Subindex	0.02	T-bill	0.89	0.82	1.7%	7.3%	-5.6%	3.7%
FF: High - Low	-0.01	T-bill	0.91	0.82	-0.1%	7.3%	-7.4%	3.6%
ZAR/USD	-0.03	T-bill	0.93	0.82	0.6%	7.1%	-6.5%	3.6%
JPY/USD	-0.03	T-bill	0.90	0.81	-0.4%	7.2%	-7.5%	3.7%
S&P 500	-1.20	Willshire_5000	1.19	0.74	2.0%	7.0%	-5.0%	4.2%
ZAR/USD	0.09	Case_Shiller	0.49	0.60	12.1%	6.2%	5.9%	4.8%
FF: Robust - weak	0.15	Case_Shiller	0.53	0.60	17.6%	6.2%	11.4%	4.8%
Corn	0.05	Case_Shiller	0.55	0.58	19.7%	5.8%	13.9%	5.0%
Gold	0.05	Case_Shiller	0.50	0.58	14.4%	5.7%	8.7%	5.0%
FF: Conserv - agres	0.11	Case_Shiller	0.50	0.57	15.7%	5.7%	9.9%	4.9%
Willshire_5000	0.06	Case_Shiller	0.47	0.57	15.5%	5.9%	9.6%	4.9%
JPY/USD	-0.06	Case_Shiller	0.53	0.56	14.3%	5.6%	8.7%	5.0%
Soybean	0.03	Case_Shiller	0.55	0.56	17.3%	5.5%	11.7%	5.0%
Wheat	0.02	Case_Shiller	0.54	0.55	16.3%	5.5%	10.8%	5.0%
S&P 500	0.02	Case_Shiller	0.52	0.55	15.3%	5.6%	9.7%	5.0%

PCE Headline VS:

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
T-bill	0.61	Gold	0.06	0.87	0.6%	8.8%	-8.3%	2.5%
FF: Small - Big	0.08	T-bill	0.66	0.86	0.9%	8.8%	-7.9%	2.6%
FF: Conserv - agres	0.04	T-bill	0.66	0.86	1.1%	8.7%	-7.6%	2.7%
T-bill	0.58	Case_Shiller	0.13	0.85	3.6%	8.7%	-5.1%	2.6%
T-bill	0.66	Silver	0.04	0.85	1.6%	8.6%	-7.1%	2.6%
WTI_Crude	0.03	T-bill	0.64	0.84	6.3%	8.6%	-2.3%	2.7%
T-bill	0.65	BCOM	0.05	0.83	4.1%	8.5%	-4.3%	2.8%
ZAR/USD	-0.06	T-bill	0.75	0.82	1.1%	8.3%	-7.2%	2.9%
FF: High - Low	0.00	T-bill	0.68	0.81	0.0%	8.3%	-8.2%	2.8%
Agg_Subindex	0.06	T-bill	0.66	0.81	4.0%	8.2%	-4.2%	2.9%
T-bill	0.67	Wheat	0.03	0.81	2.0%	8.2%	-6.2%	3.0%
FF: Robust - weak	-0.07	T-bill	0.71	0.80	-1.4%	8.2%	-9.6%	3.0%
T-bill	0.66	Corn	0.03	0.80	2.9%	8.2%	-5.2%	3.0%
T-bill	0.68	Soybean	0.03	0.80	1.9%	8.2%	-6.2%	3.0%
T-bill	0.70	S&P 500	-0.01	0.80	-0.3%	8.1%	-8.5%	3.1%
FF: MKT ER	-0.67	Willshire_5000	0.67	0.79	0.2%	8.1%	-7.9%	3.0%
JPY/USD	-0.01	T-bill	0.68	0.79	-0.2%	8.1%	-8.3%	3.1%
FF: MKT ER	0.00	T-bill	0.68	0.79	0.2%	8.0%	-7.9%	3.0%
T-bill	0.67	Willshire_5000	0.00	0.76	0.3%	7.7%	-7.4%	3.1%
S&P 500	-0.97	Willshire_5000	0.95	0.74	1.2%	7.5%	-6.3%	3.3%
Gold	0.06	Case_Shiller	0.34	0.59	10.1%	6.0%	4.1%	3.8%
Corn	0.06	Case_Shiller	0.40	0.58	16.4%	5.9%	10.5%	3.8%
WTI_Crude	0.04	Case_Shiller	0.34	0.58	17.0%	5.9%	11.1%	3.9%
FF: Conserv - agres	0.30	Willshire_5000	0.13	0.54	13.0%	5.2%	7.9%	3.4%
Agg_Subindex	0.08	Case_Shiller	0.38	0.54	15.5%	5.5%	10.1%	3.8%
Soybean	0.04	Case_Shiller	0.40	0.54	14.0%	5.4%	8.6%	3.7%
Wheat	0.03	Case_Shiller	0.40	0.53	12.8%	5.4%	7.4%	3.8%
Silver	0.03	Case_Shiller	0.37	0.53	11.9%	5.4%	6.5%	3.8%
FF: Conserv - agres	0.12	Case_Shiller	0.35	0.53	11.4%	5.3%	6.1%	3.7%
BCOM	0.05	Case_Shiller	0.35	0.52	12.9%	5.3%	7.6%	3.8%



PCE Core VS:

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
T-bill	0.57	Case_Shiller	0.10	0.88	3.0%	7.3%	-4.4%	2.3%
T-bill	0.62	Gold	0.03	0.86	0.4%	7.1%	-6.7%	2.4%
FF: MKT ER	-0.64	Willshire_5000	0.65	0.86	0.5%	7.1%	-6.5%	2.4%
FF: Small - Big	0.08	T-bill	0.63	0.86	1.0%	6.9%	-6.0%	2.4%
T-bill	0.65	Silver	0.02	0.85	1.0%	6.9%	-6.0%	2.5%
FF: Conserv - agres	0.02	T-bill	0.65	0.84	0.8%	6.9%	-6.1%	2.6%
WTI_Crude	0.02	T-bill	0.63	0.84	3.4%	6.7%	-3.4%	2.5%
JPY/USD	-0.04	T-bill	0.65	0.84	-0.5%	6.9%	-7.4%	2.6%
FF: Robust - weak	-0.04	T-bill	0.68	0.84	-0.8%	6.8%	-7.6%	2.6%
T-bill	0.64	BCOM	0.02	0.84	2.0%	6.8%	-4.8%	2.6%
T-bill	0.66	Wheat	0.01	0.83	0.5%	6.8%	-6.3%	2.6%
T-bill	0.64	Willshire_5000	0.01	0.83	0.5%	6.8%	-6.3%	2.6%
FF: MKT ER	0.01	T-bill	0.65	0.83	0.5%	6.8%	-6.3%	2.6%
T-bill	0.65	Soybean	0.01	0.83	1.0%	6.8%	-5.7%	2.6%
T-bill	0.66	S&P 500	0.00	0.83	0.0%	6.7%	-6.7%	2.6%
T-bill	0.65	Corn	0.01	0.83	1.0%	6.7%	-5.7%	2.6%
ZAR/USD	-0.03	T-bill	0.69	0.82	0.6%	6.7%	-6.1%	2.5%
Agg_Subindex	0.03	T-bill	0.65	0.82	1.9%	6.7%	-4.8%	2.6%
FF: High - Low	0.01	T-bill	0.65	0.82	0.4%	6.7%	-6.3%	2.7%
S&P 500	-0.91	Willshire_5000	0.91	0.75	1.4%	6.3%	-4.9%	3.1%
Corn	0.05	Case_Shiller	0.37	0.53	14.1%	4.5%	9.6%	3.5%
FF: Conserv - agres	0.11	Case_Shiller	0.32	0.53	10.5%	4.6%	5.9%	3.4%
Gold	0.04	Case_Shiller	0.33	0.52	9.6%	4.4%	5.2%	3.4%
ZAR/USD	0.06	Case_Shiller	0.34	0.52	8.3%	4.6%	3.7%	3.3%
FF: Robust - weak	0.07	Case_Shiller	0.35	0.51	11.1%	4.5%	6.6%	3.3%
Willshire_5000	0.04	Case_Shiller	0.32	0.51	10.4%	4.5%	6.0%	3.3%
Soybean	0.03	Case_Shiller	0.36	0.50	11.8%	4.4%	7.4%	3.4%
JPY/USD	-0.05	Case_Shiller	0.36	0.50	9.5%	4.4%	5.2%	3.4%
Silver	0.01	Case_Shiller	0.35	0.49	10.5%	4.3%	6.2%	3.5%
FF: MKT ER	-0.02	Case_Shiller	0.38	0.49	9.7%	4.3%	5.4%	3.5%

**PPI VS:**

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
T-bill	0.61	BCOM	0.12	0.83	9.6%	20.5%	-10.9%	3.3%
WTI_Crude	0.09	T-bill	0.58	0.82	16.8%	20.8%	-4.0%	3.8%
Agg_Subindex	0.11	T-bill	0.66	0.75	7.7%	17.2%	-9.6%	3.5%
ZAR/USD	-0.10	T-bill	0.81	0.74	1.8%	17.3%	-15.4%	3.8%
T-bill	0.66	Silver	0.05	0.73	1.9%	16.0%	-14.1%	3.4%
T-bill	0.68	Corn	0.05	0.69	4.2%	15.7%	-11.5%	3.7%
FF: Small - Big	0.05	T-bill	0.67	0.68	0.6%	14.6%	-13.9%	3.6%
FF: MKT ER	0.01	T-bill	0.68	0.68	0.5%	14.4%	-13.8%	3.6%
FF: Conserv - agress	0.04	T-bill	0.66	0.68	1.3%	14.4%	-13.0%	3.6%
FF: Robust - weak	-0.06	T-bill	0.72	0.67	-1.3%	14.7%	-16.1%	3.8%
T-bill	0.55	Gold	0.09	0.67	0.9%	14.8%	-13.9%	3.3%
T-bill	0.69	Soybean	0.04	0.67	2.7%	14.8%	-12.0%	3.6%
T-bill	0.68	S&P 500	0.01	0.67	0.3%	14.3%	-14.0%	3.6%
FF: High - Low	0.06	T-bill	0.65	0.67	2.4%	14.6%	-12.2%	3.7%
T-bill	0.66	Willshire_5000	0.01	0.67	0.6%	14.1%	-13.5%	3.6%
JPY/USD	-0.02	T-bill	0.69	0.66	-0.3%	14.0%	-14.3%	3.6%
WTI_Crude	0.10	Case_Shiller	0.28	0.65	25.2%	16.9%	8.4%	4.6%
T-bill	0.67	Wheat	0.03	0.63	2.0%	14.0%	-11.9%	3.6%
FF: MKT ER	-0.72	Willshire_5000	0.69	0.59	-1.0%	13.8%	-14.8%	4.2%
T-bill	0.58	Case_Shiller	0.11	0.58	3.2%	11.8%	-8.6%	3.5%
WTI_Crude	0.09	Gold	0.09	0.57	17.6%	16.1%	1.6%	4.3%
WTI_Crude	0.14	ZAR/USD	0.12	0.56	23.9%	15.3%	8.7%	4.6%
Agg_Subindex	0.17	Case_Shiller	0.38	0.55	21.0%	12.4%	8.6%	4.4%
Gold	0.10	Case_Shiller	0.29	0.54	9.4%	11.7%	-2.3%	4.4%
Corn	0.11	Case_Shiller	0.42	0.53	20.4%	11.9%	8.6%	4.4%
S&P 500	-0.87	Willshire_5000	0.87	0.53	1.4%	7.6%	-6.2%	3.0%
WTI_Crude	0.11	FF: Conserv - agress	0.18	0.52	25.1%	14.5%	10.6%	4.4%
BCOM	0.13	Case_Shiller	0.30	0.51	16.3%	12.3%	4.0%	4.7%
ZAR/USD	0.18	BCOM	0.22	0.50	14.2%	12.4%	1.8%	4.4%
WTI_Crude	0.13	FF: Robust - weak	0.14	0.50	27.2%	14.2%	13.0%	4.3%

Agg Subindex VS:

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
Wheat	0.44	Gold	0.20	0.84	33.6%	58.8%	-25.1%	8.7%
ZAR/USD	-0.19	Corn	0.51	0.79	48.3%	51.9%	-3.6%	9.3%
Corn	0.40	Gold	0.20	0.77	37.2%	53.7%	-16.5%	8.3%
BCOM	0.41	Wheat	0.37	0.76	58.3%	53.0%	5.3%	10.3%
Soybean	0.23	Wheat	0.40	0.76	44.0%	52.3%	-8.3%	9.7%
Corn	0.33	Wheat	0.27	0.76	48.3%	52.1%	-3.7%	10.5%
Corn	0.42	Silver	0.13	0.74	41.8%	51.0%	-9.3%	9.9%
Wheat	0.53	Case_Shiller	-0.03	0.71	28.9%	48.6%	-19.7%	10.4%
Corn	0.51	Case_Shiller	0.19	0.70	46.6%	49.0%	-2.4%	10.0%
Corn	0.36	Soybean	0.16	0.70	42.5%	47.3%	-4.8%	10.9%
BCOM	0.35	Corn	0.37	0.70	59.6%	48.1%	11.5%	11.0%
Wheat	0.53	Willshire_5000	0.04	0.69	39.9%	48.0%	-8.1%	11.0%
BCOM	0.55	Gold	0.09	0.68	43.1%	47.7%	-4.6%	11.0%
Soybean	0.38	Silver	0.19	0.66	32.8%	45.9%	-13.2%	11.2%
Soybean	0.45	Gold	0.17	0.66	32.0%	46.6%	-14.6%	11.0%
Corn	0.47	Willshire_5000	0.02	0.66	42.2%	44.9%	-2.7%	11.7%
Corn	0.47	S&P 500	0.01	0.65	41.8%	44.7%	-2.8%	11.7%
JPY/USD	-0.05	Corn	0.47	0.65	40.4%	44.6%	-4.1%	11.6%
FF: MKT ER	0.01	Corn	0.47	0.65	41.7%	44.4%	-2.7%	11.7%
BCOM	0.60	Case_Shiller	-0.35	0.64	28.4%	42.2%	-13.8%	10.7%
T-bill	0.08	Corn	0.47	0.63	41.2%	43.6%	-2.4%	11.9%
FF: High - Low	0.04	Corn	0.47	0.63	42.8%	43.2%	-0.3%	11.8%
WTI_Crude	0.05	Wheat	0.46	0.62	43.3%	42.9%	0.5%	11.7%
T-bill	0.06	Wheat	0.46	0.62	33.2%	42.8%	-9.6%	10.8%
Wheat	0.37	Silver	0.13	0.62	31.8%	43.0%	-11.3%	10.5%
WTI_Crude	0.17	Soybean	0.39	0.62	59.2%	42.8%	16.3%	11.6%
ZAR/USD	-0.10	Wheat	0.47	0.61	35.4%	41.2%	-5.8%	11.8%
S&P 500	0.03	Wheat	0.47	0.61	35.0%	42.1%	-7.1%	11.8%
FF: Small - Big	-0.01	Wheat	0.48	0.60	34.5%	41.6%	-7.1%	11.8%
FF: High - Low	0.07	Wheat	0.47	0.60	36.5%	41.8%	-5.3%	11.8%

GSCI Index VS:

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
WTI_Crude	0.24	BCOM	0.74	0.83	101.72%	93.57%	8.15%	12.59%
Agg_Subindex	0.60	WTI_Crude	0.41	0.79	117.46%	89.26%	28.20%	13.62%
BCOM	0.89	Soybean	-0.01	0.74	67.85%	83.20%	-15.35%	16.00%
Agg_Subindex	0.04	BCOM	1.05	0.72	82.96%	82.07%	0.89%	14.83%
ZAR/USD	-0.06	BCOM	1.05	0.72	81.85%	81.62%	0.23%	14.98%
FF: Conserv - agres	-0.10	BCOM	1.08	0.72	80.40%	81.73%	-1.33%	15.03%
FF: Robust - weak	-0.12	BCOM	1.07	0.72	79.40%	81.32%	-1.92%	15.08%
FF: High - Low	0.03	BCOM	1.07	0.72	83.16%	81.96%	1.20%	14.98%
FF: Small - Big	0.00	BCOM	1.07	0.71	82.09%	81.62%	0.47%	14.94%
BCOM	0.96	Wheat	0.01	0.7	74.88%	80.05%	-5.17%	15.19%
BCOM	0.96	S&P 500	0.11	0.7	77.58%	80.81%	-3.23%	14.81%
FF: MKT ER	0.13	BCOM	0.96	0.7	78.45%	80.87%	-2.42%	14.77%
T-bill	-0.20	BCOM	0.93	0.7	71.41%	78.48%	-7.08%	14.94%
BCOM	1.01	Corn	-0.05	0.7	73.31%	79.80%	-6.49%	15.16%
BCOM	0.96	Willshire_5000	0.09	0.7	76.83%	80.53%	-3.70%	14.83%
BCOM	1.01	Silver	-0.05	0.7	76.11%	79.38%	-3.27%	15.24%
WTI_Crude	0.42	Soybean	0.24	0.7	95.20%	78.98%	16.23%	14.28%
JPY/USD	0.07	BCOM	0.97	0.7	75.96%	79.31%	-3.36%	15.13%
WTI_Crude	0.45	Wheat	0.24	0.69	101.42%	78.64%	22.79%	15.43%
BCOM	1.00	Gold	-0.18	0.68	75.05%	75.79%	-0.74%	15.56%
BCOM	0.81	Case_Shiller	-0.11	0.68	48.23%	75.88%	-27.65%	14.73%
WTI_Crude	0.48	Case_Shiller	-0.02	0.68	81.54%	76.12%	5.42%	14.57%
WTI_Crude	0.44	Corn	0.23	0.67	103.36%	76.43%	26.93%	15.61%
WTI_Crude	0.43	Silver	0.11	0.65	85.82%	73.34%	12.48%	16.03%
WTI_Crude	0.45	ZAR/USD	-0.14	0.63	86.77%	69.69%	17.08%	16.24%
WTI_Crude	0.46	FF: Conserv - agres	0.05	0.63	87.74%	70.80%	16.95%	16.35%
WTI_Crude	0.45	Gold	0.10	0.63	85.17%	71.35%	13.82%	16.16%
WTI_Crude	0.46	FF: High - Low	-0.03	0.62	85.84%	69.90%	15.94%	16.35%
WTI_Crude	0.46	Willshire_5000	0.02	0.62	87.16%	70.04%	17.13%	16.39%
WTI_Crude	0.46	FF: Small - Big	-0.07	0.62	86.13%	69.69%	16.44%	16.40%

### Hourly Earnings VS:

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
FF: MKT ER	-0.73	Willshire_5000	0.71	0.84	-0.65%	7.26%	-7.91%	4.15%
T-bill	0.68	Gold	0.06	0.81	0.65%	6.93%	-6.28%	3.95%
T-bill	0.63	Case_Shiller	0.21	0.81	5.96%	7.25%	-1.29%	4.06%
S&P 500	-1.19	Willshire_5000	1.17	0.8	1.37%	6.92%	-5.56%	4.09%
T-bill	0.71	Silver	0.05	0.79	1.75%	6.80%	-5.05%	4.02%
T-bill	0.72	Soybean	0.05	0.78	3.40%	6.83%	-3.42%	4.22%
T-bill	0.75	S&P 500	-0.03	0.78	-1.05%	6.58%	-7.63%	4.27%
T-bill	0.74	Willshire_5000	-0.01	0.78	-0.23%	6.71%	-6.95%	4.32%
FF: Conserv - agress	0.03	T-bill	0.70	0.77	0.87%	6.88%	-6.01%	4.36%
T-bill	0.74	Wheat	0.01	0.77	0.86%	6.82%	-5.96%	4.34%
FF: High - Low	-0.04	T-bill	0.75	0.76	-1.55%	6.69%	-8.24%	4.33%
T-bill	0.71	BCOM	0.04	0.76	2.98%	6.67%	-3.69%	4.36%
Agg_Subindex	0.05	T-bill	0.73	0.76	3.42%	6.75%	-3.33%	4.39%
FF: Small - Big	0.11	T-bill	0.67	0.75	1.21%	6.41%	-5.20%	4.34%
FF: MKT ER	0.00	T-bill	0.71	0.73	-0.04%	6.24%	-6.28%	4.27%
FF: Robust - weak	-0.08	T-bill	0.72	0.73	-1.76%	6.01%	-7.77%	4.28%
WTI_Crude	0.00	T-bill	0.71	0.73	0.77%	6.27%	-5.50%	4.21%
JPY/USD	-0.03	T-bill	0.70	0.71	-0.41%	6.25%	-6.66%	4.33%
T-bill	0.70	Corn	0.02	0.71	1.64%	6.21%	-4.57%	4.36%
ZAR/USD	-0.03	T-bill	0.74	0.71	0.65%	6.08%	-5.42%	4.36%
ZAR/USD	0.23	Gold	0.20	0.7	-2.16%	6.22%	-8.38%	4.85%
WTI_Crude	0.01	Case_Shiller	0.53	0.57	16.40%	5.21%	11.19%	5.12%
ZAR/USD	0.12	Case_Shiller	0.45	0.57	10.30%	5.82%	4.48%	4.79%
Corn	0.06	Case_Shiller	0.54	0.56	19.94%	5.27%	14.67%	5.05%
Gold	0.08	Case_Shiller	0.40	0.55	12.11%	4.89%	7.22%	4.90%
Agg_Subindex	0.07	Case_Shiller	0.51	0.53	18.64%	4.99%	13.65%	5.01%
FF: Conserv - agress	0.19	Case_Shiller	0.42	0.52	14.48%	5.05%	9.43%	4.96%
FF: MKT ER	-0.05	Case_Shiller	0.55	0.52	12.84%	4.49%	8.35%	5.11%
Soybean	0.06	Case_Shiller	0.51	0.51	18.24%	4.89%	13.35%	5.00%
Willshire_5000	0.03	Case_Shiller	0.48	0.51	14.85%	5.06%	9.79%	4.96%

Case-Shiller VS:

Asset 1	weight 1	Asset 2	weight 2	R2	actual returns	expected returns	forecast error	std resid
S&P 500	-1.11	Willshire_5000	1.19	0.49	4.96%	11.29%	-6.33%	5.29%
FF: Conserv - agres	0.42	Willshire_5000	0.25	0.48	20.70%	11.09%	9.61%	5.47%
FF: MKT ER	-0.64	Willshire_5000	0.79	0.48	5.62%	10.88%	-5.26%	5.69%
FF: MKT ER	0.15	T-bill	0.79	0.47	5.44%	10.56%	-5.12%	5.62%
FF: High - Low	0.27	Willshire_5000	0.25	0.46	19.49%	11.42%	8.07%	6.20%
T-bill	0.61	Willshire_5000	0.15	0.45	5.50%	10.30%	-4.80%	5.46%
FF: Small - Big	0.21	T-bill	0.80	0.43	2.26%	10.13%	-7.87%	6.08%
T-bill	0.78	Gold	0.07	0.43	0.69%	9.51%	-8.82%	5.48%
FF: High - Low	0.11	T-bill	0.78	0.43	4.23%	9.81%	-5.58%	5.77%
T-bill	0.70	S&P 500	0.12	0.43	4.32%	9.57%	-5.25%	5.40%
T-bill	0.90	Corn	-0.07	0.42	-5.88%	9.63%	-15.51%	6.15%
FF: Conserv - agres	0.14	T-bill	0.75	0.42	4.04%	9.38%	-5.35%	5.48%
FF: Conserv - agres	0.45	S&P 500	0.25	0.41	21.57%	9.60%	11.97%	5.79%
FF: Robust - weak	-0.12	T-bill	0.93	0.41	-2.71%	9.41%	-12.12%	6.06%
T-bill	0.88	Wheat	0.00	0.41	-0.09%	8.98%	-9.07%	5.70%
Gold	0.11	Willshire_5000	0.24	0.4	9.56%	9.45%	0.12%	5.86%
FF: MKT ER	0.25	FF: Conserv - agres	0.50	0.4	23.35%	9.44%	13.91%	5.92%
T-bill	0.85	Soybean	-0.03	0.4	-2.25%	9.10%	-11.34%	5.71%
T-bill	0.80	Silver	0.04	0.4	1.73%	8.93%	-7.20%	5.44%
JPY/USD	0.00	T-bill	0.85	0.39	0.15%	8.60%	-8.45%	5.48%
Agg_Subindex	-0.02	T-bill	0.87	0.39	-1.18%	8.57%	-9.76%	5.64%
WTI_Crude	0.05	Willshire_5000	0.26	0.39	19.61%	9.30%	10.31%	6.49%
T-bill	0.79	BCOM	0.08	0.39	6.17%	8.84%	-2.67%	5.81%
ZAR/USD	-0.05	T-bill	0.88	0.38	0.91%	8.60%	-7.70%	5.63%
FF: Small - Big	0.21	Willshire_5000	0.23	0.37	10.61%	9.28%	1.34%	6.13%
FF: High - Low	0.28	S&P 500	0.25	0.37	19.35%	9.22%	10.14%	6.28%
BCOM	0.10	Willshire_5000	0.24	0.37	16.28%	8.99%	7.30%	6.21%
WTI_Crude	0.02	T-bill	0.81	0.35	3.90%	8.09%	-4.20%	5.54%
FF: MKT ER	0.24	FF: High - Low	0.31	0.34	20.36%	8.61%	11.74%	6.30%
S&P 500	0.23	Gold	0.13	0.33	9.04%	7.76%	1.29%	5.91%

TABLE B1: Data Dictionary

<b>Series ID</b>	<b>Name</b>	<b>Info</b>	<b>Source</b>
<b>GSALE</b>	Agriculture Subindex	GSCI Subindex	Haver
<b>GSENE</b>	Energy Subindex	GSCI Subindex	Haver
<b>GSGCE</b>	Gold Subindex	GSCI Subindex	Haver
<b>GSICE</b>	Copper Subindex	GSCI Subindex	Haver
<b>GSNGE</b>	Natural Gas Subindex	GSCI Subindex	Haver
<b>GSIAE</b>	Aluminum Subindex	GSCI Subindex	Haver
<b>GSSIE</b>	Silver Subindex	GSCI Subindex	Haver
<b>GSCIE</b>	GSCI Broad Commodity Index	Goldman Sachs Commodity Index	Haver
<b>PZTEXP</b>	WTI Crude		Haver
<b>PZBRT</b>	Brent Crude		Haver
<b>MPCUN</b>	CPI Headline		Haver
<b>MPCSLFEN</b>	CPI Core		Haver
<b>MPCUSEN</b>	CPI Energy		Haver
<b>MPCUCCD</b>	CPI Durables		Haver
<b>MPCUCS</b>	CPI Services		Haver
<b>MPCUSND</b>	CPI Nondurables		Haver
<b>JCBM</b>	PCE Headline		Haver
<b>JCXFEBM</b>	PCE Core		Haver
<b>SP3000</b>	PPI FG		Haver
<b>SP3500</b>	PPI FG Core		Haver
<b>SPX_INDEX</b>	S&P 500		Haver
<b>SPWI</b>	Wilshire 5000		Haver
<b>S5101AB</b>	S&P Oil and Gas Equipment	S&P Industry Subindex	Haver
<b>S5101BB</b>	S&P Oil and Gas Production	S&P Industry Subindex	Haver
<b>S5452I</b>	S&P Technology Hardware	S&P Industry Subindex	Haver
<b>S5151DI</b>	S&P Metals Mining	S&P Industry Subindex	Haver
<b>S540I</b>	S&P Financials	S&P Industry Subindex	Haver
<b>S5403I</b>	S&P Insurance	S&P Industry Subindex	Haver
<b>S5451I</b>	S&P Softwares	S&P Industry Subindex	Haver
<b>S5453I</b>	S&P Semiconductors	S&P Industry Subindex	Haver
<b>S5501I</b>	S&P Telecom	S&P Industry Subindex	Haver
<b>S560I</b>	S&P Real Estate	S&P Industry Subindex	Haver
<b>BCOM_INDEX</b>	BCOM Broad Commodity Index	Bloomberg Commodity Index	Bloomberg
<b>CL1_COMDTY</b>	WTI 1Month	1 month Future	Bloomberg
<b>CL24_COMDTY</b>	WTI 2Year	2 year future	Bloomberg
<b>CL60_COMDTY</b>	WTI 5Year	5 year future	Bloomberg
<b>CO1_COMDTY</b>	Brent 1Month	1 month future	Bloomberg
<b>CO24_COMDTY</b>	Brent 2Year	2 year future	Bloomberg
<b>CO60_COMDTY</b>	Brent 5year	5 year future	Bloomberg
<b>XAG_CURNCY</b>	Silver		Bloomberg

<b>C_1_COMDTY</b>	Corn		Bloomberg
<b>W_1_COMDTY</b>	Wheat		Bloomberg
<b>S_1_COMDTY</b>	Soybean		Bloomberg
<b>LH1_COMDTY</b>	Hogs		Bloomberg
<b>WILREITT_INDEX</b>	Wilshire REIT		Bloomberg
<b>GI</b>	EM Bonds	EM Bond Total Return Index	Haver
<b>USDJPY_CURRENCY</b>	USDJPY		Bloomberg
<b>EURUSD_CURRENCY</b>	EURUSD		Bloomberg
<b>USDRUB_CURRENCY</b>	USDRUB		Bloomberg
<b>USDBRL_CURRENCY</b>	USDBRL		Bloomberg
<b>USDZAR_CURRENCY</b>	USDZAR		Bloomberg
<b>Mkt-RF</b>	MKT ER		Fama/French
<b>SMB</b>	SMALL MINUS BIG		Fama/French
<b>HML</b>	HIGH MINUS LOW		Fama/French
<b>RMW</b>	ROBUST MINUS WEAK		Fama/French
<b>CMA</b>	CONSERVATIVE MINUS AGRESSIVE		Fama/French
<b>RF</b>	RISKFREE		Fama/French
<b>AHETPI</b>	Hourly Earnings	US Average Hourly Earnings	FRED
<b>GOLDAMGBD228NLBM</b>	Gold		FRED
<b>WILL5000INDFC</b>	Willshire 5000		FRED
<b>CS_NOM</b>	Case-Shiller		Shiller Website
<b>FTBID1M</b>	1Y RollingReturn		Haver
<b>FCMID2Y</b>	2Y RollingReturn		Haver
<b>FCMID5Y</b>	5Y RollingReturn		Haver
<b>FCMID10</b>	10Y RollingReturn		Haver
<b>FCMID30</b>	30Y RollingReturn		Haver
<b>FTIID5Y</b>	5Y TIPS Rolling		Haver
<b>FTIID10</b>	10Y TIPS Rolling		Haver
<b>FTIID30</b>	30Y TIPS Rolling		Haver