Problems With The "Inflation" Figures – The CPI Has A Kink In It

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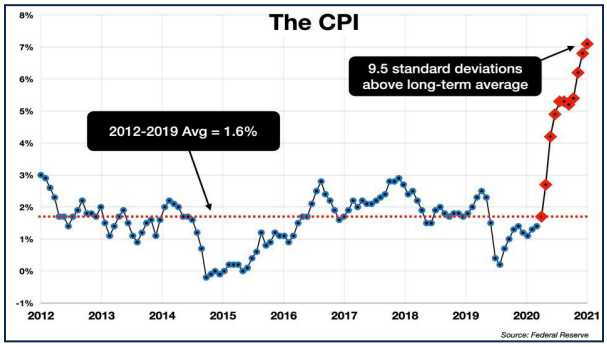
Is it "inflation"? Or is the instrument broken?

Designing an index presents a technical challenge that is much more complex than it might seem. Indexes are sophisticated technological objects, which is why the companies that know how to design them are so valuable – as described in a **previous column**. However, like all advanced technologies they are subject to certain vulnerabilities and predictable failure modes. Some of these vulnerabilities are associated with the occurrence of "unusual behaviors" of the system that the index is intended to track and measure, which may provoke what we might call "error messages" that compromise the quality of the signal that the index produces.



The CPI Skewed CHART BY AUTHOR

Right now, and for about the last year, the Consumer Price Index (CPI) — the headline "inflation" number that is driving much public and professional anxiety lately – is stuck in just such an "error message" state. It is giving false readings that do not reflect the underlying reality that it is intended to measure. The distortion is severe; ***it inflates "inflation"*** by as much as **25-50%**. The problem is recognized by some (including, it appears, the leadership at the Federal Reserve), but is not reflected in many media accounts.

Aside from the psychological effects of this exaggeration upon the public and the body politic, this distortion has serious practical consequences. Because the CPI is used to calculate the Cost of Living Adjustments to federal and state entitlement programs (and some union wage agreements) it adds to the government deficit and gooses the very inflation it seeks to measure. The CPI is also used to set the interest rate for inflation-protected government bonds, so any distortion in the index creates a knock-on distortion in the capital markets.

To make this case, let us first consider an analogous situation involving the other most prominent index that we interact with on a regular basis: the S&P 500 index of the U.S. stock market.

An Analogy: The S&P 500 Index

While the public might think of the S&P 500 Index as a simple cumulation of the share prices of the 500 largest U.S. public companies into a unitary, transparent data-point reflecting the price-level of the broad "market"… it is nothing of the kind. For one thing, there are actually 505 securities included in the S&P 500, and the index does not include *hundreds* of companies that would qualify if the criterion were simply market capitalization. In fact, it is not even an "average." The share prices of those companies that are included are combined in a complex formula that is frequently "adjusted" to smooth out the trend. The somewhat clunky mechanics of these adjustments can make for sometimes clunky market movements (the storm around the addition of Tesla to the Index last year is a prominent case in point). Nor is the process "transparent — there are no clear rules for index membership, and the decision as to which companies to include or not is so secretive that the identities of the members of the S&P committee that manages the index are kept secret from the public. (I have addressed the S&P structure and its "issues" in a series of previous columns, beginning with this one.)

The initial design challenges in index construction are:

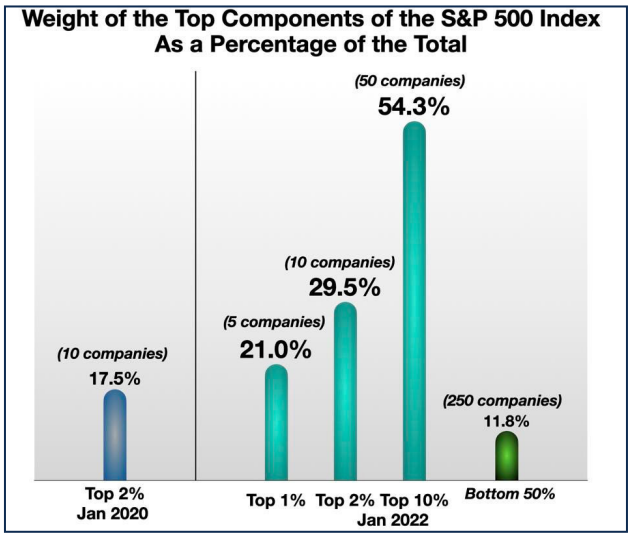
- component selection: what "elements" to include in the index
- weighting of the components, which includes (1) how are the weights calculated, and (2) how are individual components assigned the correct weights

The problems facing an index designer/manager don't stop there. As the underlying phenomenon changes over time, distortions

can appear in the index. These are of at least two types:

- Composition changes: for various reasons, the list of index components may need to be updated
- "Skewing" problems: sometimes a component may go haywire, and pull the whole index with it, to the point where the index no longer measures accurately what it was designed to measure

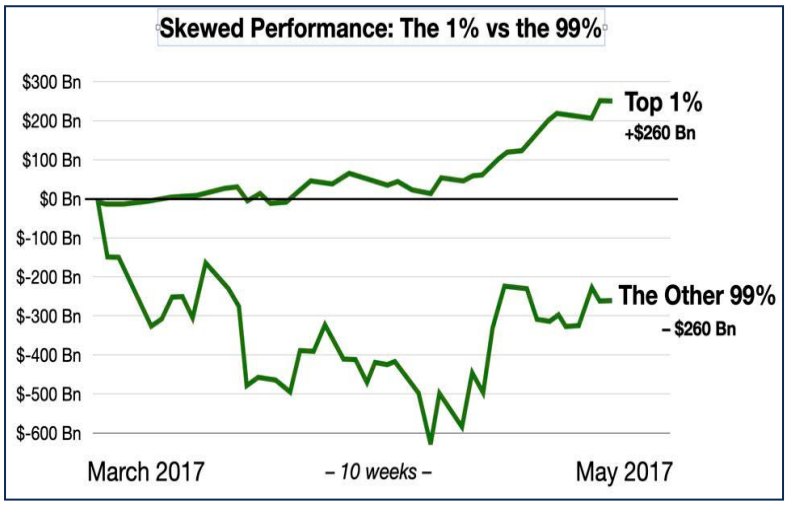
In the case of the S&P 500 index, the composition adjustments are driven by changes in the market and the economy which require updating the list of companies that are included, dropping some and adding others. This requires some behind-the-curtain mechanics that are not always straightforward, but the guiding idea is to make the changes as smooth as possible.



Weightings of the Top Components of the S&P 500 CHART BY AUTHOR

The tendency to skew is a more intractable problem. It arises when a few components break away from past trends and context, and start to drive the overall index into a new pattern. In the case of the S&P 500, this problem has recently become acute. There is a large and growing distortion of the index by just a handful of individual stocks. In January, for example, the 10 largest market-cap stocks accounted for just under 30% of the entire value of the index – the highest skew ever recorded (5% higher than the peak of the dot-com bubble). The top 5 stocks – just 1% of the total components of the index – accounted for 21.1% of the total – vs the long-term average of just 10-12%. Two years earlier, the top 10 contributed only 17% of the total.

Bizarre market patterns have developed on occasion. During one 10-week period in 2017, the top five stocks (1% of the S&P 500 components) added $260 Bn in value – while the other 99% lost the same amount of value.



The 1% vs the 99% CHART BY AUTHOR

A market distortion can drive an index distortion. In December 2021, a Goldman Sachs analysis called attention to such a distortion:

- "Goldman's research shows that **five stocks have accounted for 51% of the S&P 500's return since the end of April.** Those five stocks — Microsoft, Google, Apple, Nvidia and Tesla — account for more than one-third of the S&P 500s 26% return this year."

The index distortion is serious. The S&P 500 is intended to portray the trend of the overall market. Passive index-tracking funds rely upon the S&P 500 to provide exposure to market "beta." The severe skew implies, however, that the S&P 500 index has lost some of that value as a measure of the broad market performance. It is becoming more a measure of how Apple, Microsoft, Google, Amazon and Facebook are doing. As commentators are fond of saying, "the S&P 500 has become the S&P 5."

Or to put it another way, all those passive investors putting their money into index funds are really buying *over-weight exposure to a very small set of very large-cap tech stocks.*

- "The S&P 500 is supposed to be a broad representation of the US economy. So if you're plowing money into an index fund, you might think you're doing a good job of diversifying your assets. You'd be wrong. These days, it's basically the S&P 5. This could be a big problem for investors who are planning for retirement or other long-term goals who don't understand the risks of having all their proverbial eggs in one basket." – Paul Lamonica, CNN

In short, the S&P 500 — under these conditions, at least — no longer offers us high-quality "beta." It is in reality giving us a lot of tech-sector "alpha." *Not* what it was designed to do.

The "Inflation" Problem: Distortion of the CPI

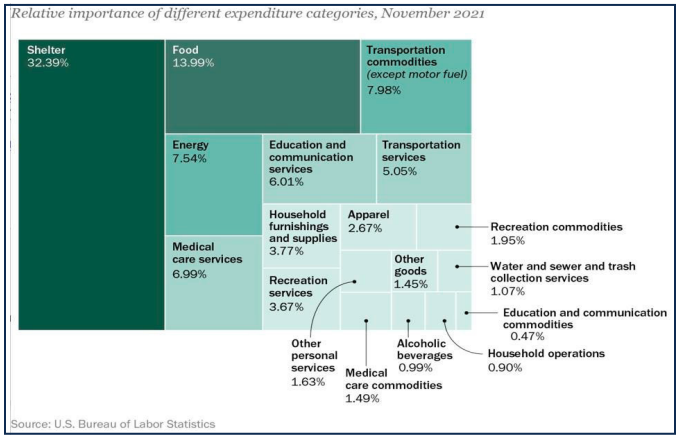
This same type of problem is now distorting the CPI. The index is being overdriven by a small handful of components. It compro-

mises its value as a guide for fiscal or monetary policy decisions.

The CPI comprises dozens of categories and hundreds of individual items. Here is a graphic depiction (from the Pew Foundation) of the major category weightings.

The surge in the CPI over the past year has been strongly driven by just a few of these categories.

The price rises in these categories are far outside the long-term trends. In other words, they are highly skewed.



CPI Categories CHART BY THE PEW FOUNDATION

Gasoline

Gas is a volatile category. But the spike in the last year is outside the trend – 4 standard deviations above the long-term average of inflation for this category.

Lodging Away From Home

Hotel accommodations show a similar pattern – a crash followed by a powerful resurgence. The recent values are 12 standard deviations above the long term average.

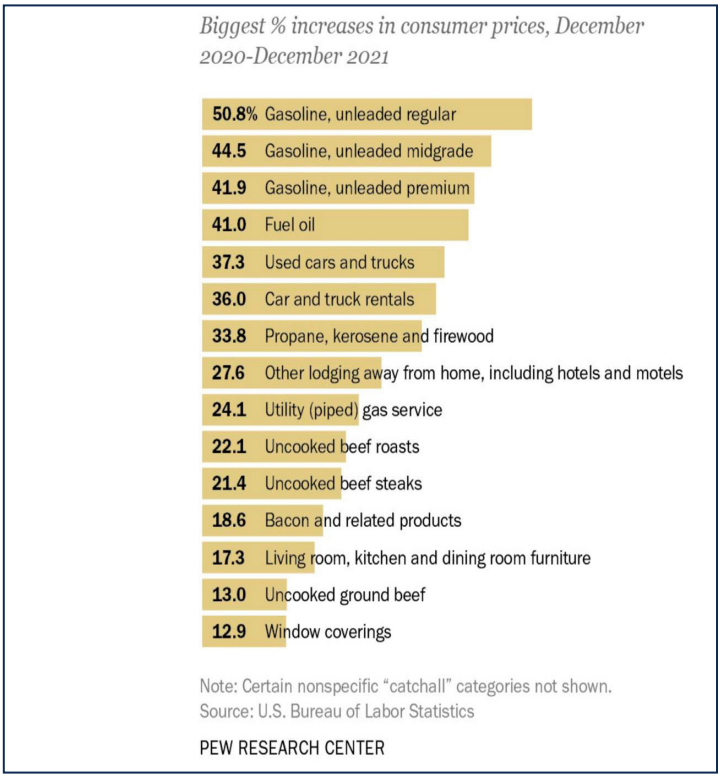
Used Cars

Used Cars is the most extreme case (described in more detail in the **previous column**) – more than 20 standard deviations above the trend.

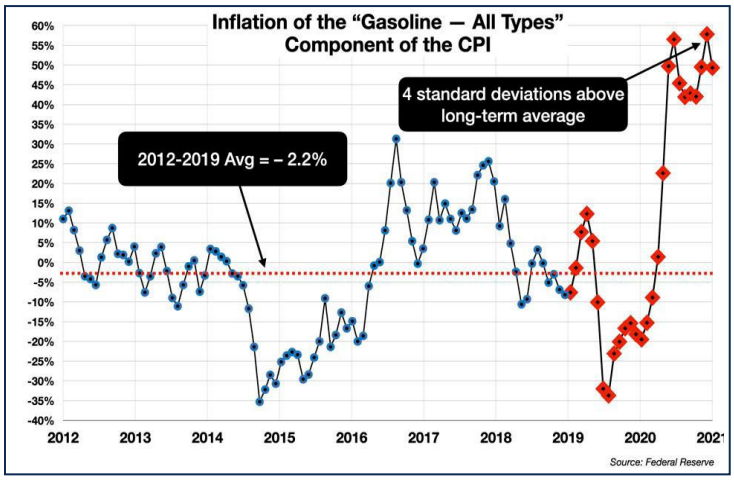
Along with the inflation in air fares (up 8 standard deviations), these categories account for almost 10% of the weight of the CPI. They have jumped above their long-term averages by an average of 12 standard deviations.

This has skewed and distorted the entire CPI. In some months last year, the Used Car component alone was responsible for a third of the total annualized increase in "inflation."

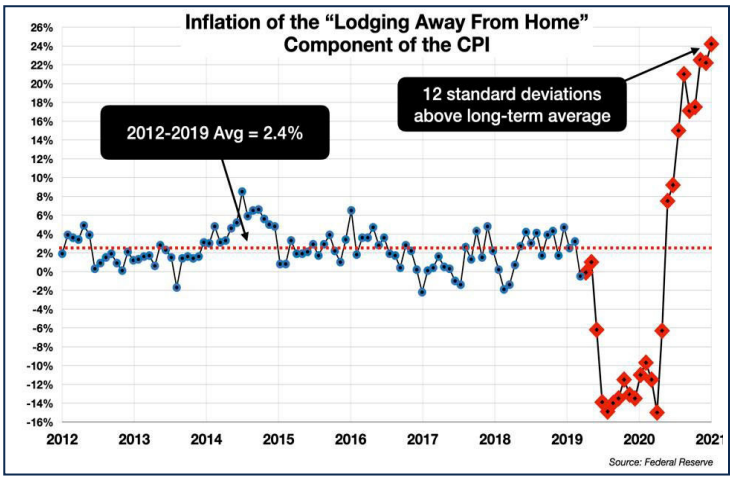
Yes, some prices are rising — some are jumping – but the index as a whole has been thrown off by extraordinary price pressures in just a few odd categories. Inflation metrics that eliminate these outliers are running at half or less the levels of the Headline CPI.



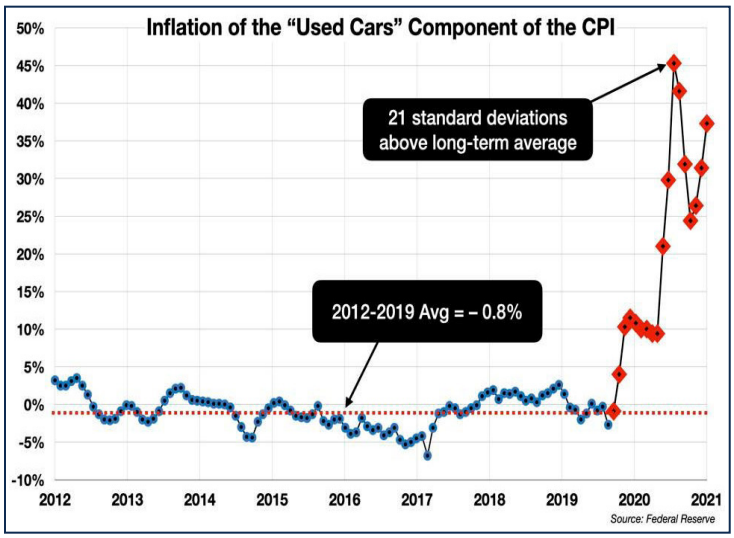
Largest Price Increases in the CPI CHART BY THE PEW FOUNDATION



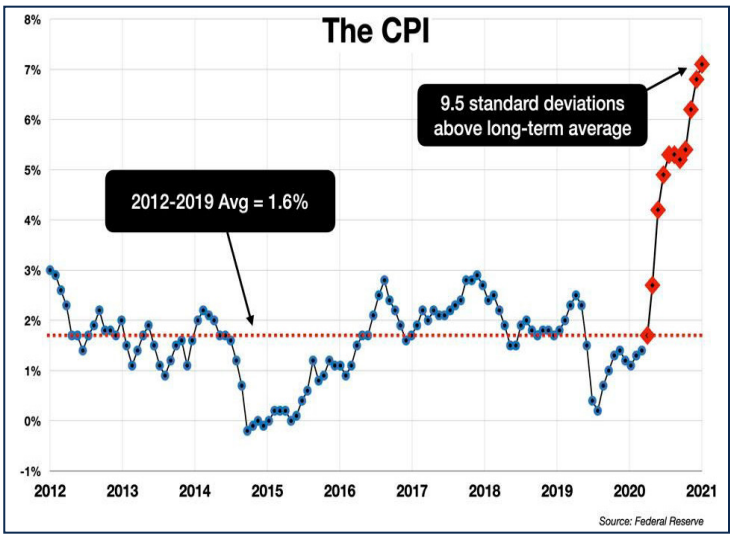
Gasoline Outlier CHART BY AUTHOR



Hotels as Outlier CHART BY AUTHOR



Used Cars Outlier CHART BY AUTHOR



The CPI Skewed CHART BY AUTHOR

It is not that there are no inflationary pressures. The point is that the meaning of the index has been distorted. It has a new kink in it, which has deviated it from its designers' intent. It has ceased to be an accurate indicator of the broad big picture and instead is being overdriven by a few highly stressed components. The analogy with the skewing of the S&P 500 is apt.

What does it mean? Instead of concluding that "inflation is everywhere" and jamming the economy with much higher interest rates, we should be focusing on understanding the mechanics underlying the price movements in a few of these specific outliers, to see what is causing "Used Cars" or "Lodging" or "Gasoline" to suddenly behave in ways that so violate the previously established patterns. We can't do that in this column, but we can ask (for example): How likely is it that "Used Cars" will go up another 40% in 2022?

In most cases, the answer will be "Not likely" – which favors a "transitory" view of the price trend, and a much more surgical approach to mitigating these price pressures.

About the Author:

DR. GEORGE CALHOUN, A GRADUATE OF THE UNIVERSITY OF PENNSYLVANIA, RECEIVED HIS DOCTORATE DEGREE FROM THE WHARTON SCHOOL OF BUSINESS. He has served in multiple capacities in the Financial Sector and in the Wireless Communication Industry. He has authored multiple articles on subjects of interest to him and several books. His most recent book "Price & Value: A Guide to Equity Market Valuation Metrics" is available through the Publisher Springer/Aspress. Dr. Calhoun currently serves as the Executive Director of the Hanlon Financial Systems Research Center at the Stevens Institute of Technology And is an Advisory Board Member of Hanlon Investment Management.

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