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INFLATION—JOINING THE DOTS

SHIFTING PRIORITIES OPEN THE DOOR TO HIGHER INFLATION

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IN THIS PAPER: As the world starts to recover from the COVID-19 pandemic, a range of factors are converging to create a new inflationary era. Crucially, the policy regime is changing, driven by the need to respond to emerging social and environmental challenges and help manage record peacetime debt levels. These developments reinforce longer-term structural changes that are ending the long period of disinflation that the developed world enjoyed from 1980 to 2020. Such secular trends include the reversal of positive demographics and the start of deglobalization. How did we get to this juncture? What can we learn from previous inflationary episodes? And what are the chances of a different outcome this time?

INFLATION—ALWAYS AND EVERYWHERE A POLITICAL CHOICE

Inflation is back. The most obvious example is US core inflation, which is rising at its fastest pace since 1992—close to when the inflation-targeting era began. Much of the upward pressure on prices reflects demand distortions and supply dislocations associated with COVID-19 and will probably fade with time. Even so, there are signs that inflation may be waking from its long slumber and beginning to shift to a new, higher regime.

Markets are currently focusing on supply chains and pent-up household savings. These factors will help shape the near-term outlook and the extent to which upward pressure on prices is transitory. But they won't tell us much about the longer-term outlook for inflation. Nor will the Phillips curve—the economics profession's favorite tool for thinking about inflation—for reasons we discuss below. Where, then, should we look to join together the dots of information to get a picture of inflation in the years ahead?

Structural factors—like demographics, technological progress and populism—should not be ignored when thinking about the longer-term outlook for prices. But our analysis suggests that the policy regime itself is decisive for inflation over longer horizons. And there are more and more signs that this is changing, driven by the response to rising populism, record debt levels and an ever-expanding list of policy priorities. To twist Milton Friedman's famous dictum: inflation is always and everywhere a political choice.

THE PHILLIPS CURVE: TAKING A KNIFE TO A GUNFIGHT

The Phillips curve links the rate of inflation to the output gap, or spare capacity in the economy. It's a helpful way of thinking about the behavior of inflation during the business cycle. At the beginning of the cycle, when there's lots of spare capacity, inflation tends to be relatively low, and vice versa. Because the Phillips curve underpins modern central banking, it's also a useful tool for trying to anticipate future changes in monetary policy.

But the Phillips curve doesn't tell us much about the behavior of inflation over longer horizons. We can see this very clearly in long-run data from the UK. Using Bank of England data, we calculated five-year averages for the output gap and inflation between 1210 and 2019, more than eight centuries of data. As *Display 1, left,* shows, there's virtually no correlation between the two.

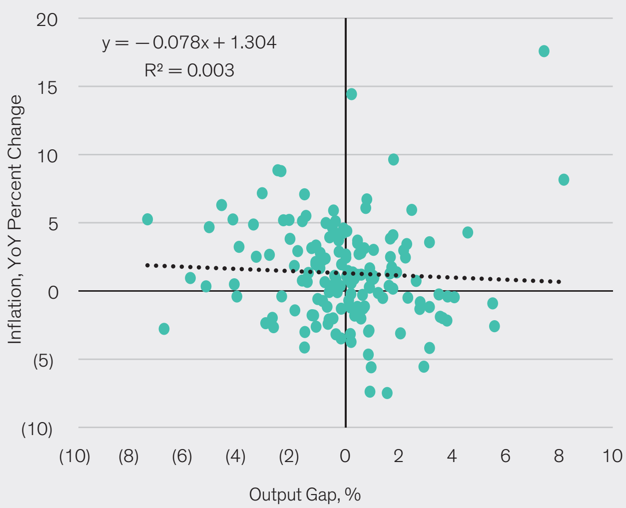
The Phillips curve has also been a poor guide to more recent shifts in inflation. In the 1960s, UK inflation averaged 3.3%. It then rose to 12.0% in the 1970s, before falling back again. The output gap signaled none of these changes (Display 1, *right*). Indeed, the decade in which inflation was at its lowest (2000 to 2009, when inflation averaged 1.8%) was the same decade in which the output gap was at its most positive (1.2% on average). That's the opposite of what the Phillips curve would have predicted.[1]

In short, the Phillips curve is a useful tool for thinking about cyclical movements in inflation. But it doesn't help us identify the underlying (or trend) rate around which actual inflation fluctuates. That's likely to be influenced by more complex forces.

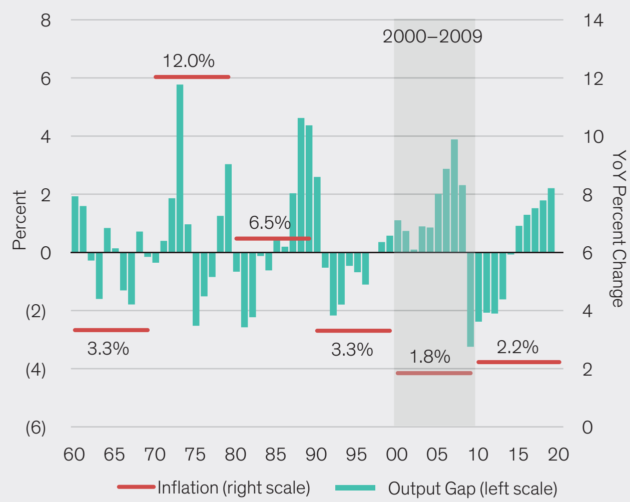
DISPLAY 1: THE PHILLIPS CURVE—AN UNRELIABLE GUIDE TO LONGER-TERM INFLATION OUTCOMES

UK Output Gap Has Been Lowly Correlated with Inflation

UK Output Gap and Inflation: 1210 to 2019*



UK Output Gap and Average Inflation Rates by Decade



Historical analyses do not guarantee future results.

*Five-year averages

As of December 31, 2019

Source: Bank of England, Haver Analytics and AllianceBernstein (AB) calculations

1 It is, of course, possible that we aren't measuring the output gap accurately. But an inability to measure the output gap also limits its usefulness as an inflation and/or policy gauge.

SECULAR PRESSURES POINT HIGHER

As we look beyond the cyclical horizon, slower-moving structural forces begin to exert an influence on inflation. That's because they either have a direct impact on prices or alter the balance of power within the economy—for instance, labor versus capital, debtors versus creditors and young versus old.

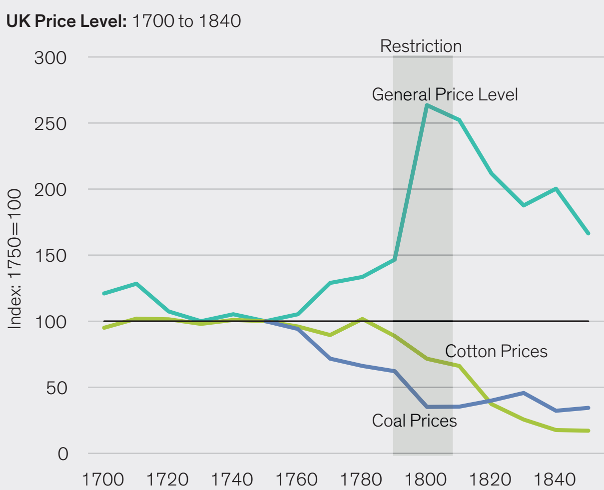
Over the coming years, we expect structural factors to exert more upward pressure on inflation than has been the case recently. That's partly because two key disinflationary forces—demographics and globalization—have each reached an inflection point. But it's also because populist pressures are likely to lead to the adoption of policies that alter the balance of power within the economy, in particular between labor and capital—e.g., minimum-wage reform.

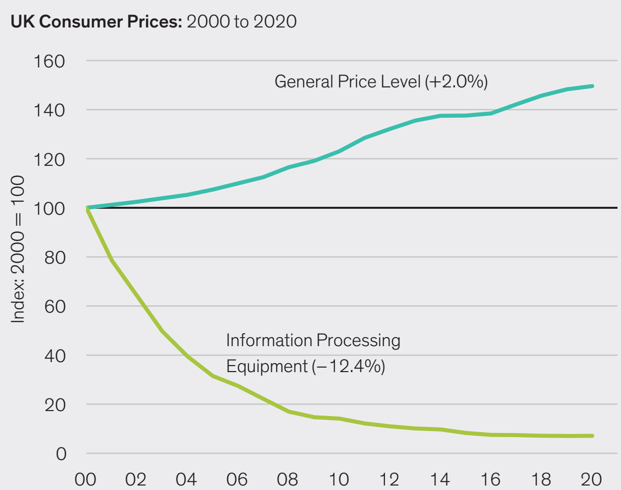
One secular factor that is likely to continue pushing down on inflation is technological change. However, we doubt that this will be sufficient on its own to offset the combined weight of other factors pushing in the opposite direction.

Past technological revolutions have not always resulted in a lower general price level. During the first industrial revolution, for example, the general price level rose sharply when the British government suspended gold convertibility between 1797 and 1821, despite intense downward pressure on the price of some commodities (*Display 2, left*). This pattern has been repeated in recent years, with UK inflation close to target despite massive declines in technology-related prices (Display 2, *right*).

DISPLAY 2: ADVANCES IN TECHNOLOGY INFLUENCE—BUT DON'T DETERMINE—THE OVERALL PRICE LEVEL

UK Tech and Tech-Related Prices Fell Materially in Past Eras Without Reversing the General Trend in Prices





Historical analyses do not guarantee future results.

As of December 31, 2019

Source: Bank of England; Greg Clark, "The Secret History of the Industrial Revolution," (Manuscript, University of California, Davis, 2001); and Haver Analytics

> There is no record of a prolonged war or a great social upheaval which has not been accompanied by a change in the legal tender, but an almost unbroken chronicle...of a progressive deterioration in the real value of the successive legal tenders which have represented money."

J.M. Keynes, *A Tract on Monetary Reform* (London: Macmillan & Co.,1923)

To take another example, the US price level dropped by 14.5% between 1920 and 1929 (an average inflation rate of –1.6%). Some commentators have linked this decline to electrification and other technological advances. But all of the reduction in the price level during this period took place in 1920 and 1921. The major price declines actually weren't due to technology but to a belated attempt to rein in explosive postwar inflation.

The huge price declines seen in the US in the early 1920s were apparent in several other countries. In the UK, for example, the price level fell by 26% between 1920 and 1923 as the government prepared for a return to the prewar gold standard. But a few countries chose a different route, resulting in radically different inflation outcomes. Germany, Austria and Hungary continued to print money after the war, unleashing devastating hyperinflations.

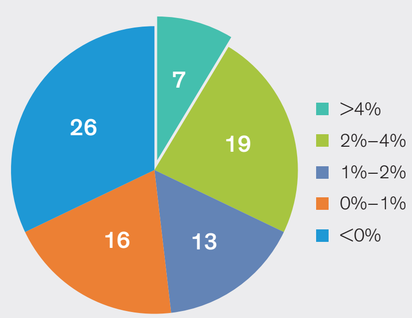
Both the increase in the UK price level when the gold standard was suspended during the first industrial revolution and the diverse inflation outcomes in some countries post-WW1 hint at a more fundamental determinant of longer-term inflation outcomes: the monetary regime itself. To explore this possibility further, we're going to return to the Bank of England's historical database.

LESSONS FROM PAST INFLATIONARY PERIODS

Perhaps surprisingly, the Bank of England data reveal that periods of high inflation are unusual. In the last eight centuries, there have been just seven decades in which UK inflation has averaged more than 4% (our chosen benchmark). For comparison, there have been 26 decades in which the average rate of UK inflation has been negative (*Display 3*).

DISPLAY 3: INFLATION ABOVE 4% HAS BEEN RELATIVELY RARE OVER THE LONG SPAN OF HISTORY...
..but Has Been More Frequent During Wartime and Soft Policy Regimes

Incidence of Inflation by Decade: UK 1210 to 2019



Number of Decades in Each Inflation Bracket

High-Inflation Decades in Rank Order: UK 1210 to 2019

Decade	Average Inflation	War	Soft Policy Regime
1970s	12.0%		✓
1910s	9.6%	✓	✓
1980s	6.5%		✓
1940s	6.4%	✓	✓
1950s	4.7%		✓
1540s	4.5%	✓	✓
1790s	4.3%	✓	✓

Historical analyses do not guarantee future results.
As of December 31, 2019
Source: Bank of England, Haver Analytics and AB

Still, high inflation has become more frequent since the fiat/paper-money era began in the 20th century. In fact, five of the seven episodes of high inflation have occurred in the last 110 years. That leaves just two decades before 1910 in which inflation averaged more than 4%:

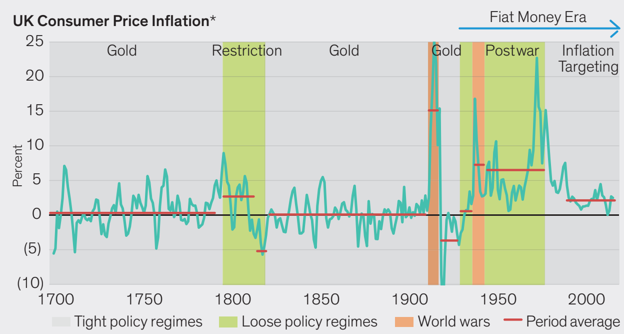
+ The 1540s, when Henry VIII's lavish lifestyle, and wars with France, Scotland and Ireland, put a huge strain on the public finances and led to the Great Debasement, a period in which the precious-metal content of the coinage was reduced.

+ The 1790s, when pressures created by the Napoleonic Wars led to the Bank Restriction Act of 1797, which suspended the Bank of England's legal obligation to redeem its liabilities in gold.

What do the seven inflationary periods have in common? We see two recurring themes: war-related pressure on public finances (present in four high-inflation decades) and soft monetary regimes (present in all seven high-inflation decades).

DISPLAY 4: HIGH RATES OF INFLATION HAVE BECOME MORE COMMON IN THE FIAT MONEY ERA...

...but Arose Previously Only When There Was Pressure on the Public Purse



Historical analyses do not guarantee future results.

*As annual inflation was highly volatile in the 18th century and for much of the 19th century, we are showing a five-year rolling average for actual inflation between 1700 and 1870.

Through December 31, 2019

Source: Bank of England, Haver Analytics and AB

REGIME SHIFTS DETERMINE INFLATIONARY OUTCOMES

The key role that monetary regimes play in determining longer-term inflation outcomes becomes clear if we track their relationship through time. For most of the period between 1700 and the outbreak of WW1 in 1914, the value of the pound was linked to gold—a tight policy regime. While the price level was highly volatile during this period, there was little or no net inflation except in the years when gold convertibility was suspended—namely, the restriction mentioned above (*Display 4*).[2]

A similar pattern emerges during the 20th century. At the beginning of WW1, the UK loosened the link to gold, and inflation surged. After the war, the government restored the link to gold, and inflation turned negative (in sharp contrast to the hyperinflation that overwhelmed paper-money regimes in Germany, Hungary and Austria). The UK government finally abandoned the gold standard in 1931, after which inflation started to rise again, before accelerating sharply during WW2.

There are two notable post-WW2 policy regimes. The first occurred during the immediate postwar decades, when Keynesian policies dominated and the UK experienced its first sustained period of high peacetime inflation (6.5%, on average, between 1946 and 1979). The second regime began at the end of the 1970s, with the introduction of monetary targeting, and subsequent adoption of inflation targeting (1992) and Bank of England independence (1997). Since 1997, UK inflation has averaged 1.9%.

We can summarize this section by comparing two periods: (1) the 93 years between the end of the restriction in 1821 and the beginning of WW1; and (2) the 100-year period after the end of WW1. In the first period, with the pound linked to gold, the price level declined by 1.1% (essentially unchanged). In the second period, with paper money the norm, the UK price level increased 38-fold.[3] Both periods involved technological change, positive and negative demographic trends, and the back-and-forth of globalization. Yet the price level was stable in the first and rose enormously in the second.

2 Although the suspension of gold convertibility lasted from 1797 to 1821, the period after Napoleon's defeat in 1815 was used to prepare for the reintroduction of convertibility, including a reduction in note issuance. Between 1797 and 1815, inflation averaged 2.7%, and at its peak in 1813, the price level was 73% higher than in 1797. Between 1816 and 1821, by contrast, inflation averaged –5.2%.

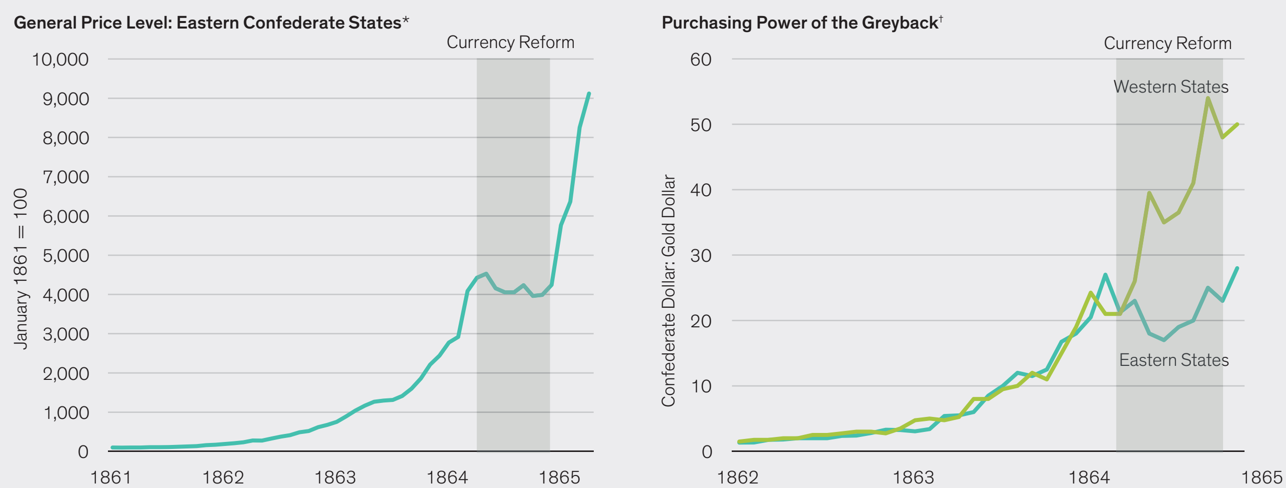
3 Put differently, the average rate of inflation since 1700 under the gold standard has been 0.0%, whereas under a fiat money standard it has been 4.5%.

CASE STUDY: SWITCHING CONTINENTS

The American Civil War provides more evidence on the importance of the monetary regime when thinking about inflation. With the Confederate war effort financed mainly through note issuance, the price level in the US South rose by more than 9,000% between 1861 and 1865 (*Display 5, left*). The only exception to the upward march in prices came between April and November 1864, when a currency reform reduced note issuance in the eastern Confederate states by one-third. This move was sufficient to offset other forces that might otherwise have been expected to push the price level higher—namely, the invading Union army, collapsing trade and impending military defeat.

DISPLAY 5: US CIVIL WAR: CONFEDERATE STATES' EXPERIENCE SHOWS KEY ROLE OF CURRENCY ISSUANCE

Currency Reform Arrested Inflation in Eastern States, While Inflation Soared in Western States



Historical analyses do not guarantee future results.

As of December 31, 1865

Source: (left) Lerner, "Money, Prices, and Wages in the Confederacy, 1861-65," *Journal of Political Economy* 63, no. 1 (1955): 20-40; (right) Richard C.K. Burdekin and Marc D. Weidenmier, "Inflation Is Always and Everywhere a Monetary Phenomenon: Richmond vs. Houston in 1864," *American Economic Review* 91, no. 5 (2001): 1621-1630

The most fascinating aspect of this period is the divergence in the purchasing power of the Greyback (Confederate notes) after the currency reform. Because Union forces controlled the Mississippi River in 1864, the Confederacy was effectively split in two. This meant that currency reform was not enacted in the western Confederate states until January 1865. The impact on the purchasing power of the currency is shown in *Display* 5, *right*.

In the West, where old notes continued to circulate, the purchasing power of the Greyback continued to depreciate after April 1864. In the East, though, the purchasing power of the new notes increased for several months, before heavy note issuance toward year-end led to a further collapse in purchasing power and sent the price level soaring again.

The inflation experienced by the Confederate states was at the extreme end of history. But it does highlight the hugely powerful influence that the monetary regime exerts over inflation dynamics.

> The power of taxation by currency depreciation is one which has been inherent in the State since Rome discovered it."
>
> J.M. Keynes, *A Tract on Monetary Reform* (London: Macmillan & Co., 1923)

WHY EXPECT A NEW, MORE INFLATIONARY ERA AHEAD?

The UK historical record provides compelling evidence linking longer-term inflation outcomes to the monetary regime. But why do we think we're on the verge of an important shift now?

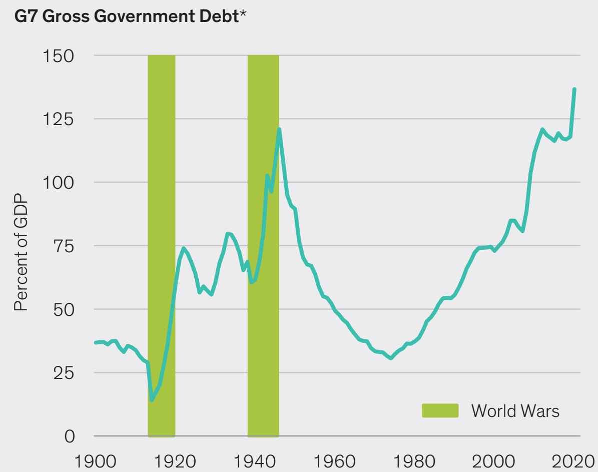
The last major regime change occurred at the end of the 1970s, when it became clear that the existing regime had failed and that a new approach was needed to tackle double-digit inflation. Today, inflation is not the foremost problem. But there's the same sense that the system is failing, with the focus on inequality and real-income stagnation. Fresh challenges are also emerging—notably, combating climate change. These trends are bolstering support for far greater government intervention in the economy than in recent decades.

More specifically, we would highlight three key drivers:

+ **Fiscal activism back in fashion.** COVID-19 has helped bring the fiscal activism that dominated the inflationary post-WW2 era back from the wilderness. It has also broken the long-standing taboo against using the central bank balance sheet to facilitate government borrowing. That's important at a time when governments have long priority lists—such as tackling climate change and confronting rising populism—and the public sector balance sheet is already encumbered.
+ **Overburdened central banks.** Until recently, central banks had a simple remit: maintain price stability. Now, they are being drawn into different areas: reducing inequality, supporting the green transition and so forth. If inflation becomes just another goal, there's an increased risk that it will be traded off to focus on more pressing imperatives.
+ **Record peacetime levels of government debt** (*Display 6*). In the absence of a sustained period of very strong economic growth (which we consider unlikely), managing high levels of government debt is likely to involve a mixture of financial repression (holding interest rates lower than they would otherwise be) and higher inflation. Quantitative easing and yield-curve control mean that the first part of this process is already under way.

DISPLAY 6: DEVELOPED-WORLD GOVERNMENT BORROWING HAS REACHED UNPRECEDENTED LEVELS

G7 Gross Government Debt as a Percentage of GDP Exceeds Wartime Peaks



Historical analyses do not guarantee future results.

*G7 is the US, Japan, Germany, France, Italy, the UK and Canada.
As of December 31, 2020
Source: Haver Analytics, International Monetary Fund (IMF) and Jordà-Schularick-Taylor Macrohistory Database

WHAT'S THE ENDGAME FOR TODAY'S POLICYMAKERS?

So what type of regime would help achieve these goals? Since the end of WW2, there have been three global inflation regimes,[4] with Japan's experience hinting at a fourth (*Display 7*):

+ The post-WW2 years, in which governments used fiscal policy to actively pursue their goals, with a mixture of financial repression and inflation helping to lower government debt
+ The 1970s, when inflation surged into double digits
+ The inflation-targeting era that started in the early 1990s, with widespread adoption of formal inflation targets and the achievement of quasi-price stability (an annual inflation rate of 2.0%)
+ Japanification, with inflation fluctuating around zero

There are two reasons that a return to the golden age of inflation targeting looks unlikely. First, many of the factors underpinning that regime have changed. Second, inflation at 2.0% simply wouldn't generate the requisite degree of financial repression.

That constraint also helps explain why widespread Japanification looks unlikely. Unless countries are willing to accept perpetual negative interest rates, managing high debt in a zero-inflation, low-growth world is an arduous task. Japan is noted for its cohesive social structure and relatively low inequality, but it's not clear that a period of Japan-style stagnation would be politically or socially sustainable in other democracies, particularly with populism on the rise.

That leaves the two higher-inflation scenarios. Double-digit inflation is highly disruptive, unpopular and, as the UK historical record demonstrates, unusual. There is zero support for very high levels of inflation, and we regard the 1970s redux scenario as unlikely—though inflation could temporarily overshoot to very high levels as the world transitions from one regime to another.

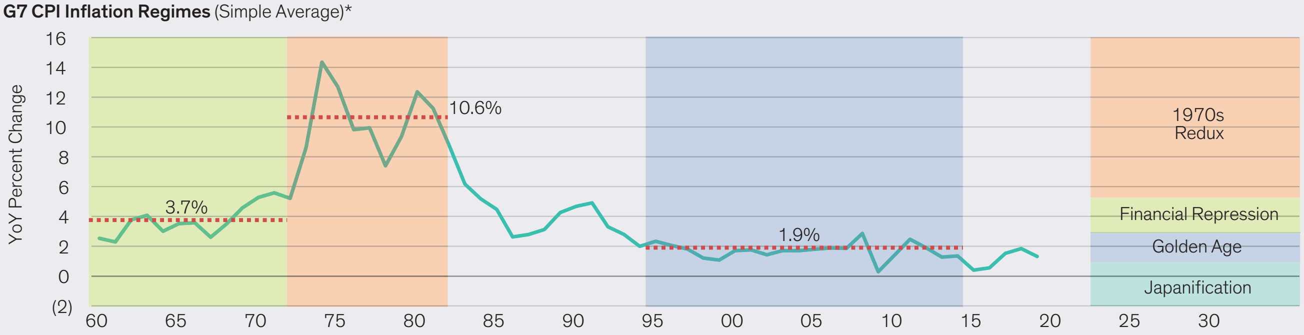
The period that offers the best template for coming years is the post-WW2 period. Then, as now, fiscal policy gained dominance, while containing inflation slipped down the pecking order, as governments pursued broader objectives. Similar to today, there was also widespread use of financial repression to help manage government debt—and "financial repression is most successful in liquidating debts when accompanied by a steady dose of inflation." [5]

A key difference between the post-WW2 period and today is that economic growth was far stronger in the postwar years. That doesn't change the prescription, but only the recommended dosage: interest rates need to be lower and/or inflation higher than they were after WW2.

DISPLAY 7: THE GOLDEN AGE OF INFLATION TARGETING IS OVER

Financial Repression the Most Likely Outcome

G7 CPI Inflation Regimes (Simple Average)*



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*G7 is the US, Japan, Germany, France, Italy, the UK and Canada.

Through December 31, 2019

Source: Haver Analytics and AB

4 Earlier, we combined the first two regimes into one when taking a very long-run view of UK inflation. For our present purposes, however, it is helpful to spilt this regime into two: a moderately higher inflation regime in the 1950s and 1960s, and the double-digit regime of the 1970s.

5 Carmen M. Reinhart and M. Belen Sbrancia, "The Liquidation of Government Debt" (working paper, International Monetary Fund, 2015).

> It would be too cynical to suppose that...Governments...depreciate their currencies *on purpose*. As a rule, they are, or consider themselves to be, driven to it by their necessities."
>
> J.M. Keynes, *A Tract on Monetary Reform* (London: Macmillan & Co., 1923)

CHANGING PRIORITIES OPEN THE DOOR TO HIGHER INFLATION

The change in the policy regime at the end of the 1970s was underpinned by a clear commitment to drive inflation lower—and was backed by policies that inflicted considerable economic pain. There are not many signs that the reverse is happening today. Several economists have made the case for higher inflation targets,[6] and the US Federal Reserve (the Fed) has adopted a new average inflation-targeting strategy. That strategy is subject to important safeguards: any overshoot of the Fed's 2.0% target must be temporary and moderate, and longer-term expectations need to remain well anchored.

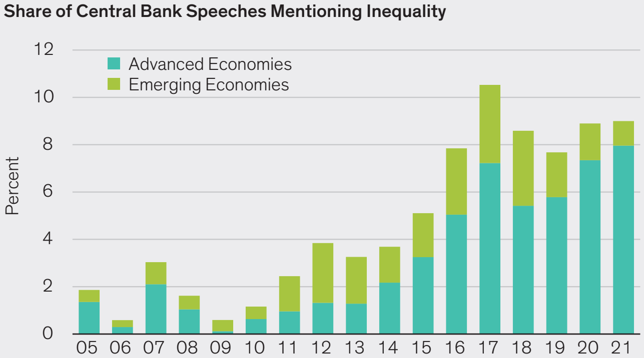
But focusing on publicly stated targets misses the point. Few (if any) historical episodes of high inflation started out as deliberate attempts to drive the price level higher. Instead, inflation arose indirectly as policymakers pursued other goals. We expect the same thing to happen in coming years. New policy imperatives, such as climate change and populism, are likely to push policy in a direction that, over time, generates higher inflation. Crucially, this will be seen as an acceptable price to pay.

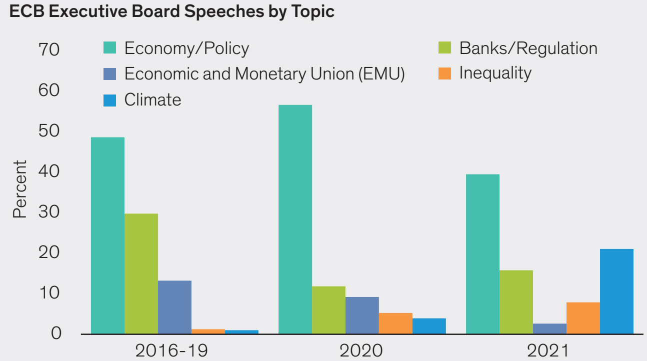
The intellectual framework has already been laid out. Speaking in 2015,[7] (then) Fed Chair Janet Yellen noted some of the benefits of a 2.0% inflation target: it provides the central bank with greater scope to combat recessions (because it's easier to achieve negative real interest rates), helps "grease the wheels" of the labor market and favors debtors over creditors (which benefits the economy, as debtors have a higher marginal propensity to consume).

In other words, "modest" positive inflation is seen as an acceptable trade-off for these benefits.[8] But if 2.0% inflation is acceptable, why not 3.0% or 4.0%, especially if this allows policymakers to achieve more ambitious goals? Would 4% inflation really be so bad if it helps combat climate change or makes the world a more equal place? If recent speeches are anything to go by, central banks may already be taking their eyes off the (inflation) ball (*Display 8*).

DISPLAY 8: CENTRAL BANK PRIORITIES ARE SHIFTING

New Objectives Increasingly Prominent





Historical analyses do not guarantee future results.
Speeches of central bankers mentioning the keywords "inequality" and "distributional consequences/impact of monetary policy" expressed as a share of all central bankers' speeches in the Bank for International Settlements (BIS) database.
Through May 31, 2021
Source: BIS

Through June 30, 2021
Source: European Central Bank (ECB)

6 See, for example, Olivier Blanchard, Giovanni Dell'Ariccia and Paolo Mauro, "Rethinking Macroeconomic Policy" (IMF Staff Position Notes, International Monetary Fund, 2010). **7** Fed Chair Janet L. Yellen, "Inflation Dynamics and Monetary Policy" (speech at the Philip Gamble Memorial Lecture, University of Massachusetts, Amherst, MA, 2015). **8** While a 2.0% annual rate of inflation in any individual year can be described as modest in the context of the fiat money era, it should be noted that this means the purchasing power of money halves every 35 years and that after 100 years, a dollar is worth just 14 cents in real terms.

> The chief question we ask today is why is inflation so difficult to control? Why, despite the announced hopes and plans of governments, has inflation stayed with us?"
>
> Stanley Fischer and Rudiger Dornbusch, *Economics* (New York: McGraw-Hill, 1983)

INFLATION GAMEKEEPERS TURN POACHERS

Over the past year, we have become more convinced that the world is on the cusp of a new, more inflationary era. That's partly because COVID-19 has pushed government debt even further past the point of no return and partly because of the speedy embrace of fiscal activism and quasi-monetary financing. We're also struck by the consensus now forming around the idea that debt levels don't matter anymore.

Some policymakers have already seen the way the wind is blowing. In the US, President Joe Biden has pushed through a huge stimulus package and is pressing companies to pay higher wages. Intellectual cover has been provided by Treasury Secretary Janet Yellen, who recently called for fiscal policy to "go big." Meanwhile, German Chancellor Angela Merkel recently spoke of the need for countries to "spend gigantic sums" and warned that "without state cash" Germany risked falling behind.

Mario Draghi's actions are perhaps even more revealing. As European Central Bank president, Draghi drove monetary policy deep into fiscal territory and flirted with breaching the European Union Treaties' prohibition on monetary financing. Now, as prime minister of Italy, Draghi tends the fiscal tiller. He has wasted no time in capitalizing on the ECB's largesse, launching a huge fiscal package that simply wouldn't have been possible without the central bank's backing. It's the ultimate example of monetary and fiscal policy being joined at the hip.

INFLATION: ALWAYS AND EVERYWHERE A POLITICAL CHOICE

Identifying secular shifts in real time is a difficult task. Back in the early 1980s, many economists wondered if they would ever beat inflation. But then, as now, the sand was shifting beneath their feet. Much that we once took for granted has changed—from the return of fiscal activism to breaking the taboo on monetary financing—and governments face huge, perhaps even existential, challenges. Viewed this way, it is hard to believe that the inflationary regime over the next decade will look the same as over the last.

Writing in the early 1920s about the rampant inflation that had wiped out savings across Europe, John Maynard Keynes warned us not to regard recent experience as being immutable, "part of the permanent social fabric," or to disregard the "warning of past misfortunes." In the 1960s, Milton Friedman—who led the monetarist counterrevolution against Keynesianism—famously said that "inflation is always and everywhere a monetary phenomenon."

But that's only half the story. The policy regime that allows those monetary conditions to arise is key. That's why we think it's more accurate to say that inflation is always and everywhere a political choice. After all, who doesn't think 4.0% inflation is a small price to pay for saving the planet?

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