2. What is the outlook for inflation?

The global economy is on the cusp of a significant paradigm shift where the low and stable inflation of the last few decades will likely transition to a new regime of moderately higher but more volatile inflation. The principal structural drivers of this shift are: 1) the transition to renewable energy, 2) a peaking of globalisation, and 3) rising demands by labour for a greater share of both national income and corporate revenue. This new paradigm of less benign inflation will have similarities to the macro context in place before the 1990's. Central banks will no longer be able to optimise monetary policy solely to cushion growth during downturns and will have to face difficult choices supporting employment while battling inflation through higher rates for longer. Similarly, fiscal policymakers will be constrained by conflicting pressures from populist movements advocating for greater spending and from higher borrowing costs and debt levels which necessitate spending restraint. Hence, growth and inflation will be volatile as policy errors become more likely given that monetary policy in particular operates with long lags.

In addition, the toolkit central bankers rely on to calibrate the size and timing of interest rate adjustments (e.g., output gap models, R* estimates, Philips and Beveridge curves, etc.) is generally not that reliable, particularly in periods of elevated volatility.

The investment implications of this new paradigm of higher macro volatility are not only that risk-free interest rates will be higher and more variable, but also that risk premia across asset classes will be subject to large moves. For some securities, higher premia will be justified, for others it will be an unwarranted knee-jerk reaction. This overall macro constellation creates both risks and opportunities for long-term investors. While the initial impact of rising yields is clearly negative across most asset classes as we saw in 2022, higher yields also eventually set the foundation for higher long-term return streams in both fixed-income and risk assets. Importantly, any indiscriminate volatility and dispersion across risk premia (in equities, credit and other assets) may create fertile opportunities to benefit from active management across well-diversified portfolios. We expect segments of Absolute Return, structured credit, non-cyclical/less-correlated alternatives, select private markets and disruptive technologies to outperform in this environment.

As in previous years, we begin our in-depth analysis of inflation with a study of the near-term (next 1-2 years) contributors before turning to longer-term drivers and implications.

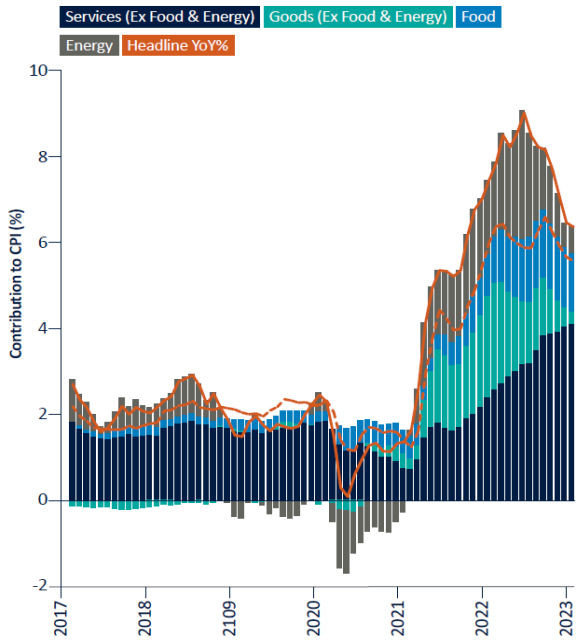
Near-Term Outlook: Inflation pressures to subside in 2023

Over the near-term, our base case scenario calls for inflation to slow meaningfully in 2023. In the US, it is likely to decline from 6.5% at the start of year level to c. 3% by year end. This decline will be driven by falling contributions from goods, food and energy costs as supply issues (in both manufactured goods and commodities) fade, as well as a material downshift in the contribution from shelter costs as the housing market cools. Wage growth is the most important unknown. Given tight labour markets, wage growth remains stubbornly high. However, real-time data in the form of job postings and leading indicators such as company employment surveys suggest labour demand is beginning to ease and wage pressures are moderating. One paradox of cooling inflation pressures is that the resulting easing of financial conditions may sow the seeds for a renewed inflation surge in the latter part of the year, forcing central banks to raise rates further. Since Q4 last year, credit spreads have contracted sharply and liquidity conditions have eased. Borrowing costs on speculative loans have declined even as the Fed raised rates. As a result, in 2023 we are seeing an early uptick in several economic activity measures that had previously been declining. This points to a credible risk that inflation either becomes sticky at around 3-4% over the second half of the year, or worse, starts to climb again as 2024 approaches.

Inflation is showing signs of abating from the extreme levels of 2022. In the US, the year-on-year (y/y) change in the Consumer Price Index (CPI) peaked at 9.1% in June then declined to 6.4% by January 2023. Consecutive waves of inflationary pressure from supply chain disruptions in goods and energy have steadily faded, leaving food and services as the key contributors today (Exhibit 2).

Exhibit 2

Contribution to inflation is increasingly coming from Services



Source: *Bloomberg*

Encouragingly, the more recent sequential rates of inflation have dropped sharply. Core CPI (which excludes food and energy) increased at an annualised rate of 4.1% in Q4 relative to Q3, near the softest quarterly rate of change in over a year. Excluding shelter, the core index dropped to 1.6% over Q4 (annualised), its weakest three-month change in recent history outside of the pandemic and already below the Fed's 2% target (Exhibit 3).

With the impact on inflation from goods and energy markets now moderating, the near-term outlook for US inflation is increasingly contingent on:

a) The labour market, which remains very tight relative to history but on a favourable trajectory.

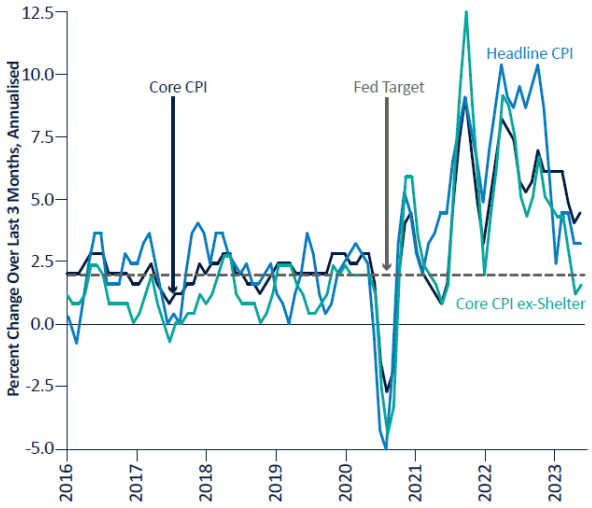
b) Cost of shelter, which is the largest component of core inflation and is expected to fall sharply in 2023.

Unemployment is likely to increase, reducing wage pressures

The US labour market remains exceptionally tight. As of January 2023, the US unemployment rate was 3.4%, close to a 70-year low. By other measures, the US has been facing the tightest labour market on record, with the highest job shortages in the post-war era (Exhibit 4).

Exhibit 3

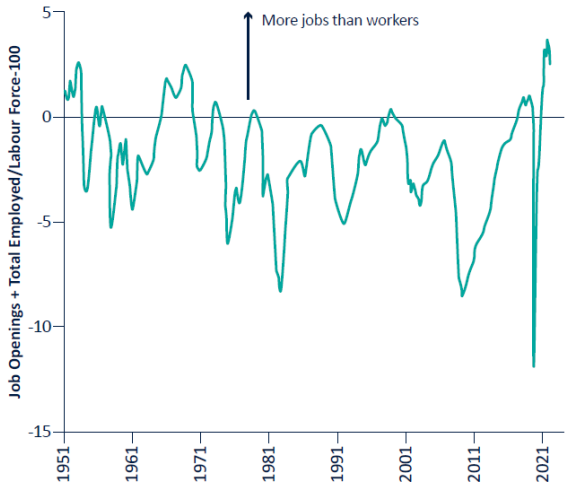
Quarterly inflation rates (annualised) are already running close to the Fed's target



Source: *Bloomberg*

Exhibit 4

The US is dealing with the largest worker shortage on record



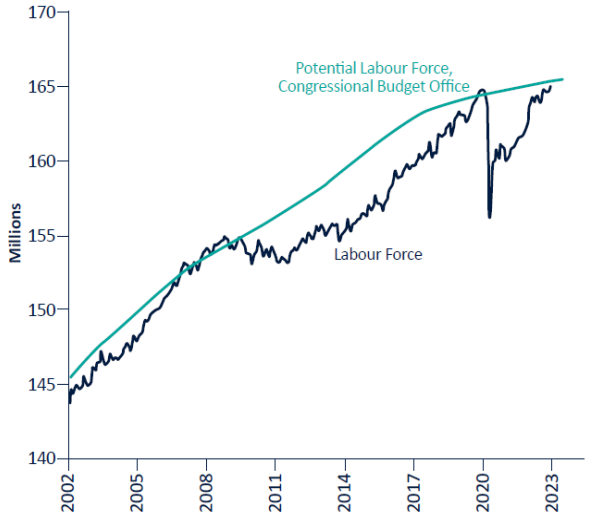
Source: *BLS, JPMAM, data through 31 October 2022*

The demand for labour currently exceeds supply, but does appear to be abating. Data from the Bureau of Labor Statistics shows that the number of job openings peaked in March 2022, but have since declined by the largest margin in the post-war era outside of a recession.

High labour demand translates into high wage growth, but here too there are signs of moderation from a peak of +5.9% y/y in March to +4.4% y/y through January 2023. This remains high by historical standards, average wage growth between 2010-2020 was 2.4% per annum. Further easing of wage pressures will need to come primarily from a reduction in labour demand, since labour supply has now largely recovered from Covid-related anomalies. Specifically, the labour force participation rate has nearly returned to the pre-pandemic trend implied by demographic changes.

Exhibit 5

Labour force participation has already recovered

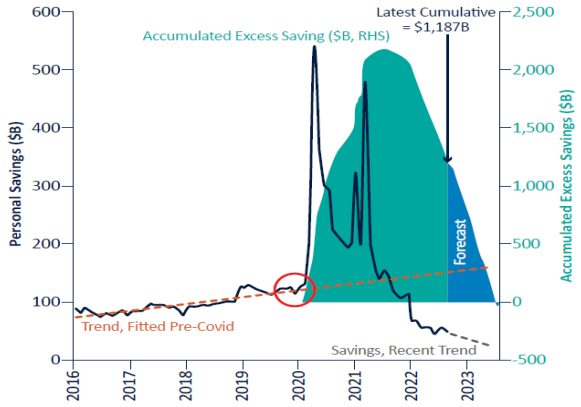


Source: *Congressional Budget Office, Goldman Sachs*

Any moderation in wage growth is likely to feed directly into a softening of personal consumption, as the cushion from excess savings accumulated during the pandemic has largely been depleted (Exhibit 6). Real spending growth was close to 7% annualised through December, but it increasingly came at the expense of savings and credit card balances. Revolving credit card balances now exceed the pre-pandemic peak, and the savings rate has plummeted to 2.7%. As a consequence, there is likely to be some deleveraging by consumers in 2023, particularly as the average interest rate on US credit card plans at commercial banks has increased to 19%. A decline in consumer spending will further weigh on inflation.

Exhibit 6

Personal consumption may soften as excess savings decline



Source: JP Morgan

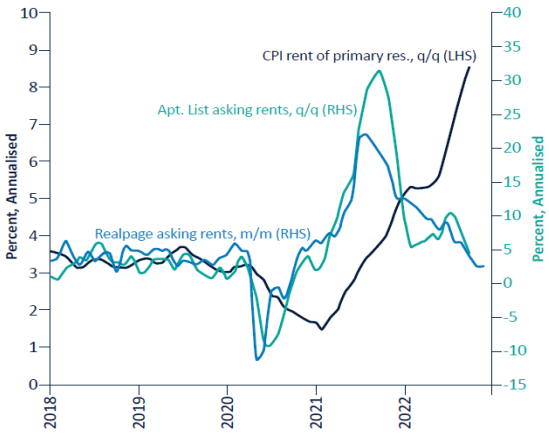
A sharp fall in housing costs will significantly dampen 2023 inflation – with a lag

Shelter costs account for roughly one-third of the CPI basket, generating an outsized impact on inflation. The shelter component covers rents on both new leases and continuing leases for existing tenants. As the latter component usually adjusts more gradually over time, it introduces a lag in the inflation measurement. I.e., home price and rental increases of the last couple of years are being reflected in current CPI data. Current measures such as apartment asking rents are slowing significantly, which should start feeding into measures of CPI shelter inflation during 2023. The lag is evident in Exhibit 7 overleaf, which shows the degree to which asking rents have already declined.

Supply will also cap inflationary pressures within shelter, with the largest percentage increase in multifamily units since the 1970's expected to come online in 2023. This reflects a boom in building over the last two years in response to rising prices.

Exhibit 7

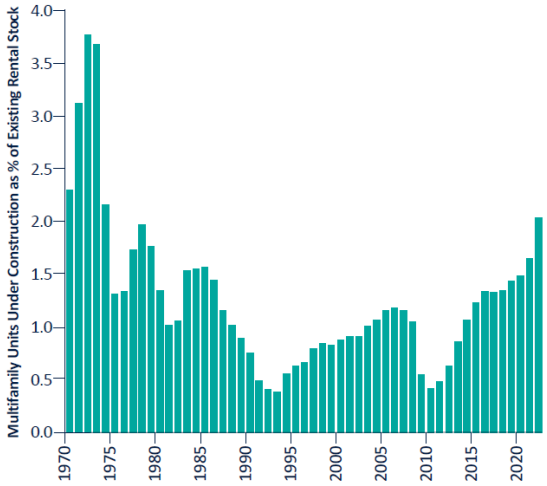
Apartment asking rents have slowed significantly



Source: *Apartment list, RealPage, Bloomberg, JPMAN. November 2002.*

Exhibit 8

Housing supply is rising at the fastest rate since the 1980s



Source: *Census Bureau, JPMAM. Q3 2022.*

The risk to this outlook is an easing of financial conditions

It is sometimes suggested that fighting inflation is similar to losing weight: the first declines are easy – the last few pounds are the most difficult. The great irony of an early cooling of inflation pressures is that it may lay the foundation for a second wave of inflation that forces central banks to raise rates further. Signs of this dynamic have been evident in early 2023. As the "soft-landing" narrative became increasingly accepted, credit spreads contracted sharply and liquidity conditions eased. Borrowing costs on speculative loans are declining even as the Fed raises rates. This undermines the Fed's attempt to gradually take the steam out of the economy. As a result, some measures that had previously been falling are now firming, including certain commodity prices, gasoline demand and used car sales.

Hence, there is a credible risk that inflation either becomes sticky at around 3-4% over the second half of this year, or worse, starts to climb again. This would force the Fed to choose between engineering a recession in order to bring inflation down to its 2% target or waiting to see whether the US (and more importantly bond markets) can live with 3-4% inflation. Political pressures may support an acceptance of higher inflation as it would inflate away existing high debt levels relative to nominal GDP, however this would only create a larger problem in the future if borrowing costs were to rise sharply (as happened in the UK in late 2022).

Short-term inflation scenarios

Exhibit 9

Short-term inflation scenarios

Inflation Scenarios	Downside	Base Case	Upside	Expected Value
Probability	**20%**	**60%**	**20%**	
US (CPI)	The lagged impact of cumulative interest rate rises severely impacts consumer spending and business confidence, leading to rising unemployment. The Fed avoids easing sharply due to persistent inflation fears. A US recession begins in late in 2023.	Near-term inflation pressures continue to subside as goods, energy and food prices stabilise. Housing costs fall due to combination of new supply and higher mortgage rates. Labour market pressures ease as number of job openings decline and household spending slows.	Labour market proves more resilient than expected. Wage growth in excess of 4% feeds higher consumer spending, sustaining labour demand. Economy continues to run hot despite Fed tightening, and fully recovered China drives up goods prices.	
Context	12m to 31 Jan 2023 = 6.3%, market breakeven expectation for next 12m starting 31 Jan 2023 = 2.3%			
PC Forecast	2.0%	3.0%	4.0%	3.0%
Europe (HICP)	Policy-error induced recession in the US cascades across regions. Demand for goods and services falls sharply in Europe, leading to sharp fall in inflation.	Energy prices continue to fall as Brussels agrees on an EU-wide energy security/ transition plan. Sufficient slack remains in labour markets to keep wage growth below 2.5% p.a.	Energy prices remain punitively high due to ongoing war and increased demand from China. Potential for further energy supply shock from unrest in the Middle East.	
Context	12m to 31 Jan 2023 = 8.4%, market breakeven expectation for next 12m starting 31 Jan 2023 = 2.4%			
PC Forecast	2.0%	3.0%	4.0%	3.0%
UK (RPI)	Domestic consumption falls as economy stagnates and real wages fall. Reduced investment and weak corporate capital expenditure further weigh on demand.	Further declines in energy prices sees inflation trend steadily lower, but tight labour markets and high wage growth see inflation become sticky around 4%.	Migration of skilled labour remains low keeping wage pressure high, especially in the core services sector.	
Context	12m to 31 Jan 2023 = 13.4%, market breakeven expectation for next 12m starting 31 Jan 2023 = 3.7%			
PC Forecast	2.5%	4.0%	5.0%	3.9%

Long-Term Inflation Outlook: End of the Great Moderation?

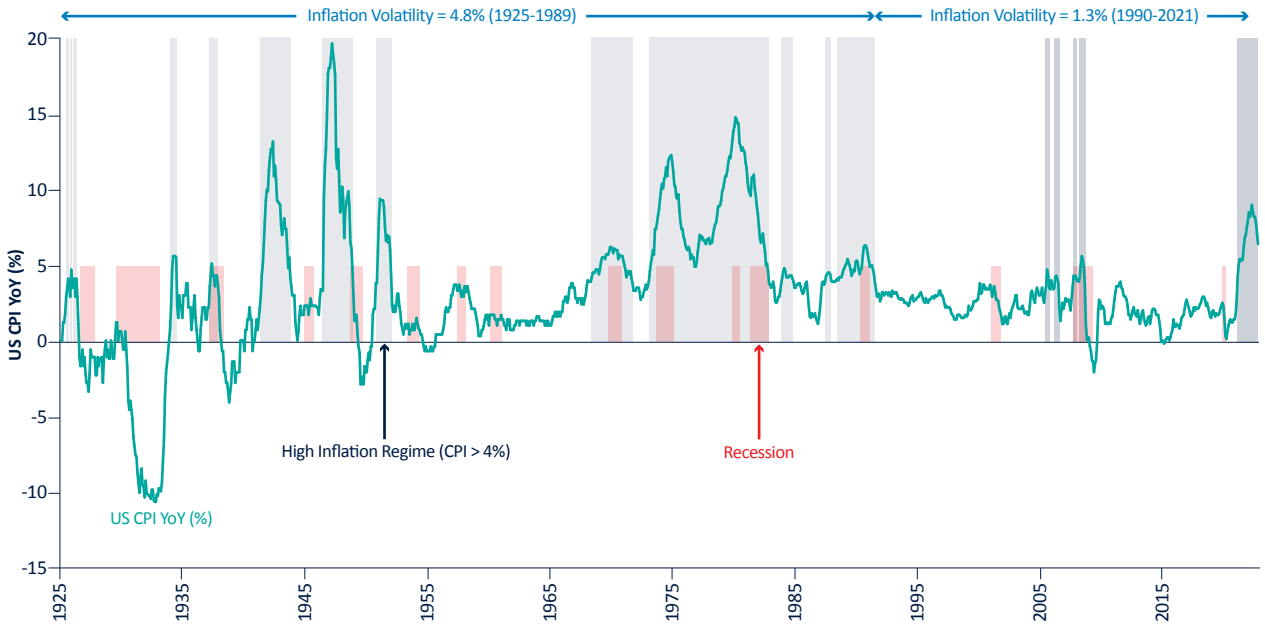
Over the longer-term horizon, the trends that are now well underway suggest that inflation will be higher over the coming decade compared to the last. Specifically, three major structural shifts including the energy transition to renewables, a potential peak in globalisation and the prospect of wealth redistribution from capital owners to labour providers all have the potential to boost inflation. With respect to green energy, experts estimate that the transition will add 0.25-0.5% to global inflation, all else equal. Regarding peak globalisation and supply chain diversification, the outlook is for a slowly evolving process and even in the longer-term a full reversal of the past four decades of globalisation is highly unlikely. More likely is a complex pattern of diversification of supply chains and strategic 'decoupling' from geopolitically sensitive regions. The inflationary impact of this diversification could be partially or even fully offset by further acceleration in the portability and automation of services, a trend that could cause significant disruption for middle-class 'white-collar' workers in developed markets. Less controversial is that higher labour costs would create inflation not only by constraining the supply side, but also by increasing aggregate demand as low-income households have a higher marginal propensity to spend.

Some Historical Context

Between 1990 and 2021 the annualised volatility of US inflation was just 1.3%, with a mean of 2.4%. This was a tranquil period relative to the preceding 60 years in which inflation had an annualised volatility of 4.8% (Exhibit 10). It is not surprising to note that recessions (indicated by pink bars) and higher inflation volatility went hand-in-hand, as more frequent boom and bust cycles took place.

Exhibit 10

The stable inflation of recent decades is shifting to a higher volatility paradigm



Source: *Bloomberg*

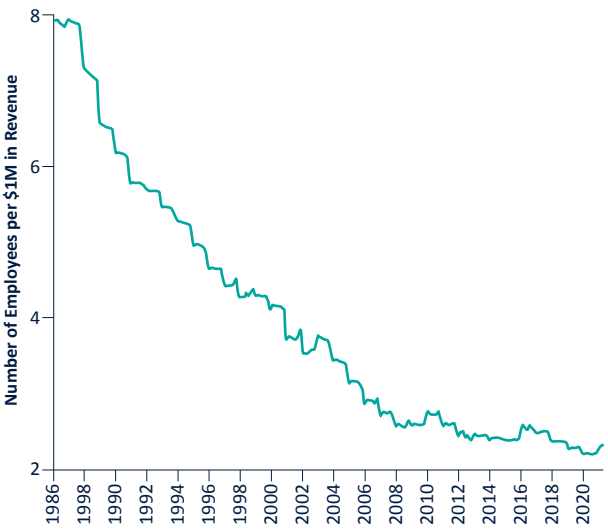
The Federal Reserve was established in 1913, but it was the Federal Reserve Reform Act of 1977 that required the Fed to direct its policies toward achieving both maximum employment and price stability, the so-called dual mandate. The Fed's job of achieving both mandates over the last three decades was made significantly easier by exogenous factors which drove down inflation, including: cheap and abundant energy supplies; a positive labour supply shock following China's international integration; and rapid technological advances which boosted productivity. To illustrate this point, Exhibit 11 shows the labour intensity of the S&P 500 over time. In the late 1980s it took an average of 8 employees to generate $1 million in revenue p.a., whereas it now takes just 2 employees.

This structural downward inflation pressure allowed the Fed and other developed market central banks to focus on maximising employment via easy monetary policy without risking higher inflation. For fiscal authorities, lower interest rates allowed for greater public and private sector borrowing, funding investment and growth. It also facilitated greater counter-cyclical fiscal policy responses to economic slowdowns, helping to smooth out the economic cycle. The result has been a remarkably prosperous period in human history.

However, some of the forces that suppressed inflation over the last three decades appear to be waning. The 2020s may be the first decade since the 1990's that sees the Fed having to prioritise one mandate at the expense of the other, since maximising unemployment is unlikely to be compatible with an inflation target of 2%.

Exhibit 11

The S&P 500 is 70% less labour intensive than it was in the late 80s



Source: *BofA Global Research*

Below we focus on three long-term challenges that could result in structurally higher inflation, more specifically:

- **The Energy Transition:** This will initially prove inflationary, especially with respect to the cost of building and managing renewable energy infrastructure, including the cost of commodities that go into EVs, charging stations, lithium-ion batteries, solar panels and wind turbines.
- **Peak globalisation:** While there will be a short-term inflationary impact, the longer-term cost of peaking globalisation is often overstated. Optimising supply chains for resilience rather than cost efficiency may be inflationary in the near-term, but increased capital investment will boost long-term productivity. Importantly, wage differentials between developed and emerging economies have narrowed since globalisation accelerated with the WTO in 1995. In addition, services (which tend to be sourced from domestic labour) contribute a much larger share of GDP than several decades ago and the continued portability and automation of services will be disinflationary.
- **Income redistribution:** This is a source of significant tail risk. Inequality appears to be reaching its limits, as manifested in populist politics. Not only will higher wages translate to higher costs, but low-income households have a higher marginal propensity to spend, so a significant wealth transfer would add to inflationary pressures.

The Energy Transition

Experts believe that a significant increase in investment coupled with tightness in commodity markets and a protracted implementation period will contribute an additional 25-50bps to inflation, all else equal.

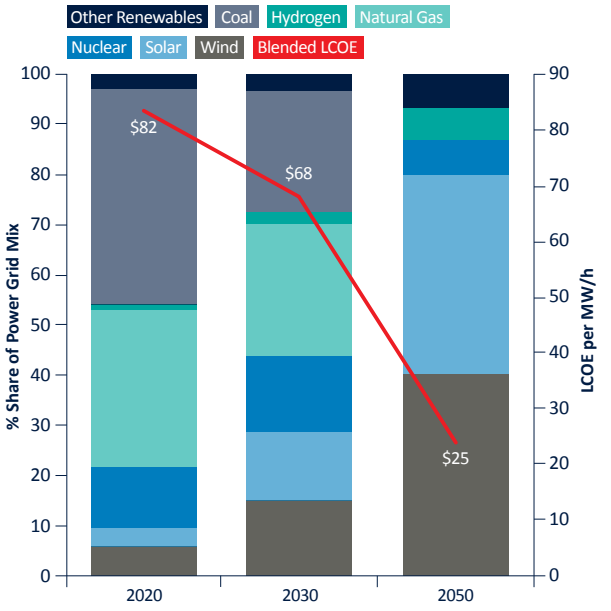
Proponents of renewable energy often argue that the cost per MWh of solar and wind energy is already significantly below that of fossil fuels as gauged by the standard industry metric of LCOE (levelised cost of energy), a measure that incorporates all of the investment and operational costs associated with generating energy over the life of a project, including carbon taxation. The International Energy Agency (IEA) estimates that the LCOE for wind is c. $40/MWh versus roughly $60/MWh for natural gas.

However, renewable energy is intermittent and unpredictable. To make renewables comparable with traditional fossil fuels and nuclear energy, the total system cost required to enable renewables to be the majority power source on the grid must be included. This means incorporating the cost of producing renewable power, the cost of storing that energy (batteries, green hydrogen) and the cost to upgrade the power grid to handle unpredictable spikes in power generation (balancing costs).

Research from the Potsdam Institute for Climate Impact and Rice University, notes that incorporating total system costs dramatically increases short-medium term total cost expectations for renewables, particularly as they become a larger proportion of an energy system.[1] Exhibit 12 shows a forecast trajectory for blended power generation costs based on estimates from the IEA and IRENA.[2] While the trajectory for costs out to 2030 appears marginally lower it ignores the likely spikes in cost between now and 2030. The sheer pace of growth has the potential to create commodity shortages and pressure on end products. However, by 2030, after significant amounts of baseline investment have been made, those inflationary pressures should begin to subside rapidly as supply and demand are brought into balance.

Exhibit 12

Power generation costs should decline post 2030 but will remain elevated and volatile until then



Source: *IRENA/IEA. Blended cost estimates exclude hydroelectric (14% in 2020) as it is a relative constant supply share and has prices that reflect costs of other energy sources. This reflects the expected costs in the US and Europe, ignoring the fact that China will still be relying on cool beyond 2050.*

1 https://www.sciencedirect.com/science/article/abs/pii/S0360544222018035

2 International Renewable Energy Agency

Investment of $4-7T/year out to 2050 will be required decarbonise energy production

The world has not been investing in green energy fast enough to make up for declining fossil fuel capex, but that imbalance is expected to fade this decade. The US Energy Information Administration (EIA) and BloombergNEF estimate that roughly $4-7T/year of investment out to 2050 will be required to achieve net zero emissions (NZE) by 2050. For context, investment in the energy transition has averaged just $2T/year over the last five years. There will be some offsets, given that there is a natural replacement rate for items such as cars, boilers and power plants. The McKinsey Global Institute calculates that an annual average of 9.2% of global GDP must be spent on physical assets in order to achieve net zero by 2050, but estimates this to be an increase of only 0.9% over current plans. The IMF and the International Energy Agency similarly put the necessary incremental investment over the next decade at 0.6-0.9% of cumulative output. This additional investment is not anticipated to generate an equivalent increase in energy output as it is geared towards replacing the current carbon intensive output. It should therefore be considered as an inflationary force, particularly over the next decade.

The increase in renewable investment has been slow to get going, but the retrenchment from fossil fuel investment has not. Total global energy investment has declined by roughly -35% over the last decade. Traditional fossil fuels will still be required to bridge the transition to renewables, and years of underinvestment suggest that supplies will remain tight in these markets, leaving them vulnerable to price spikes. Experts now estimate that the combination of new investment spending to develop renewables coupled with tightness in traditional energy markets will have the effect of raising inflation by 25-50bps over the next decade.

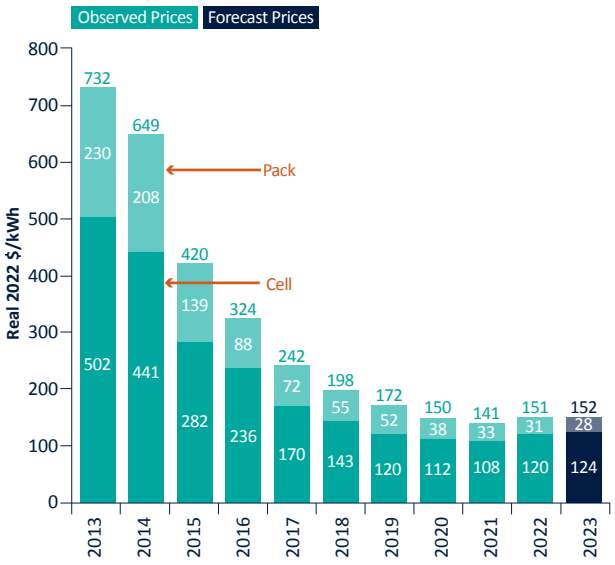
Policymakers have already noted that the energy transition presents them with a "greenflation" dilemma. Specifically, the European Central Bank has raised concerns that monetary policy could slow down the building of a less carbon-intensive economy should it react to higher energy price inflation by removing monetary stimulus. Potential solutions to this include raising the official inflation target or excluding certain energy components from consideration in the inflation basket.

Renewables are very metals intensive

McKinsey estimate that generating one terawatt-hour of electricity from solar and wind consumes between 2-3 times more metals than generating the same terawatt-hour from a gas-fired plant. Analysis from BloombergNEF shows that demand for energy transition related metals such as Lithium, Cobalt, Nickel and Copper is expected to grow dramatically. This increase in demand is occurring against a backdrop of structural underinvestment in the mining sector over the past five years. Goldman Sachs highlight that capex for the mining sector is -50% below its peak. They expect this to create a structural supply/demand mismatch in the next decade. Similarly, Wood Mackenzie, an energy and metals focused consultancy, are forecasting record deficits in the copper market by 2030. In 2022 lithium-ion battery prices rose for the first time ever, as shown in Exhibit 13.

Exhibit 13

Near-term lithium-ion battery cell and pack price forecast



Source: *BloombergNEF*

The impact on inflation will vary over time, and innovation may provide some offsets

The risks to inflation are not one-sided, particularly over a longer time horizon. Wright's Law suggests that manufacturing costs decline by roughly -15% with every doubling of production. The Economist notes that the price of generating solar power has consistently been lower than forecasted over the last two decades. Green energy is also an area with scope for huge shifts in price curves. For example, if the cost of producing green hydrogen were to decline by a sufficient margin, then existing heating infrastructure could be utilised instead of requiring a full retrofit of buildings, dramatically reducing total system costs. Scaled production of iron air batteries has the potential to reduce energy storage costs by -90%.[3] There are also "moon-shot" projects like getting direct air carbon capture to a price point that changes the math on everything. In short, over a longer time horizon, human ingenuity will likely bring costs down significantly, but the base case over the next 5-10 years has to be one in which the green energy transition is moderately inflationary.

Globalisation – not reversing, but evolving

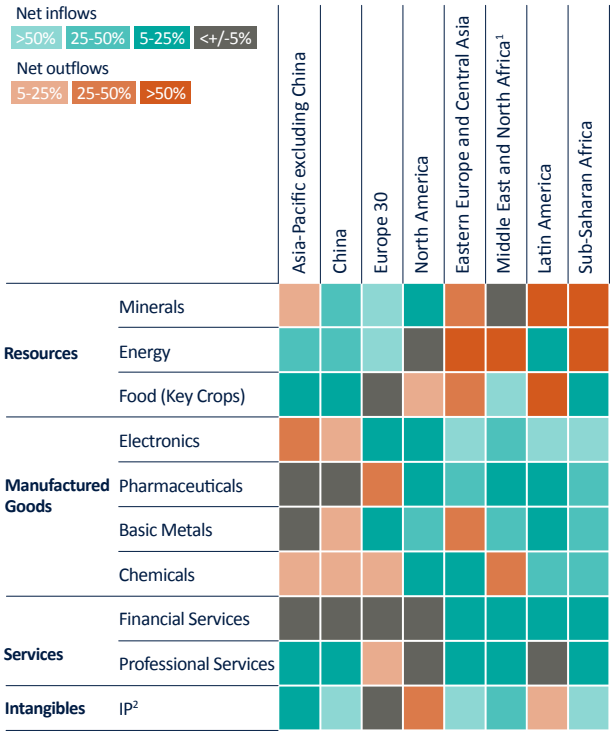
Emphasis on the resilience of supply chains will see regional trade continue to grow faster than inter-regional trade, as has been the case since 2013. This is not strictly deglobalisation, but a natural evolution resulting from a shift in consumer spending power (i.e., a growing middle class in Asia) and the growth in trade of services. Trade in intermediate services is only likely to accelerate in the coming decade due to technological advances including AI, which could result in significant disruption to the high-income middle class in developed markets. Compared to goods, trade in services will be harder to regulate, tax or otherwise manage for governments, and so will be less exposed to protectionist policies. The disinflation from globalisation of services is likely to match or outweigh any inflation coming from "reshoring" or "friendshoring" of goods production.

The global pandemic, turbulent geopolitics, and increased environmental concerns have put greater scrutiny on supply chain resilience and trade relationships. Survey data indicates that corporations are likely to place emphasis on the resilience and security of supply lines, even at the expense of some cost efficiency. This will result in a gradual reconfiguration and diversification of trade flows, and a continuation of the trend towards greater regionalism.

The world is more interconnected than it has ever been. A recent study by the McKinsey Global Institute[4] found that no region on earth could be classed as adequately self-sufficient. As shown in Exhibit 14, every region has been importing 25% or more of at least one important type of resource or manufactured good that it needs, and often much more. Companies and policymakers will continue to seek ways to harness the benefits of these interconnections while managing the risks and downsides of dependency, particularly where products are concentrated in their places of origin.

Exhibit 14

Share of domestic consumption (in value-added terms) met by inflows in 2019



Notes:

1. Limited sample for Middle East and Africa in manufactured goods and services

2. IP calculated as net inflows as a share of total flows. IP flows can be distorted by different tax regimes. If outliers with very large IP flows relative to their size are excluded, Latin America is a net importer of IP.

3. Data sourced from McKinsey Global Institute, International Energy Agency, USDA, UN Comtrade, OECD

3 https://www.autoevolution.com/news/iron-air-batteries-10-times-cheaper-than-li-ion-will-start-mass-production-in-2024-208539.html

4 Global flows: The ties that bind in an interconnected world; McKinsey Global Institute, November 2022

Trade in goods as a share of the global economy stabilised around 2008 after 30 years of rapid expansion. Within that period, regional trade has been growing faster than intra-regional trade since 2013. Falling trade intensity (trade in manufactured goods as a percent of global output) and greater regionalism are both a natural evolution of globalisation. Specifically, they reflect:

- **Growing domestic consumption in developing economies.** Developing countries are home to a growing consumer class – simply, more of what is produced in China is now sold in China. Trade intensity as a percent of global output should continue to stabilise or decline as companies in emerging markets move up the value chain, producing intermediate goods domestically rather than importing them. This is not necessarily a sign of deglobalisation, nor is it necessarily inflationary. It likely means more international competition, which is typically disinflationary.
- **Changes in the composition of trade.** Most of the growth in cross-border flows is now driven by intangibles, services, and talent. This increase in trade in services and diminishing influence of labour cost arbitrage (both discussed in more detail below), favour greater regionalism due to advantages of proximity, time differences and cultural exposure including familiarity with language and customs.

In short, the inflationary impact of the changing composition of globalisation is likely overstated. Growing concern over the security of supply chains will manifest in changes in configuration, though whether the result will be "reshoring" or "friendshoring" is doubtful. More likely is a complex pattern of diversification. Any changes will also happen slowly. Data from the McKinsey Global Institute shows that between 1995 and 2019, no individual country gained or lost more than a 2% annual share of the global value chain (measured as foreign value added).

The importance of labour-cost arbitrage in global trade has diminished.

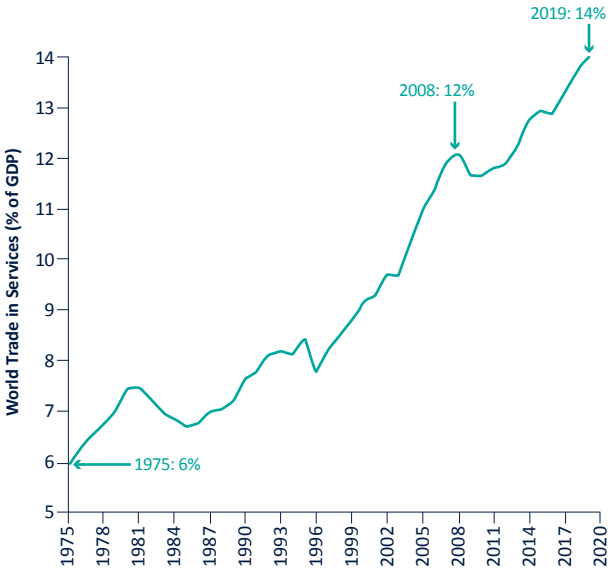
The importance of labour-cost arbitrage in supply chain decisions has declined for two main reasons. First, labour now constitutes a much smaller proportion of the cost structure for most industries than it did in the past. Second, wages in developing economies have been rising faster than productivity. As a result, less than 20% of today's global goods trade is from a low-wage country to a high-wage country (defined as exports from countries whose GDP per capita is one-fifth or less than that of the importing country). Considerations other than low wages factor into company decisions about where to base production, such as access to skilled labour or natural resources, proximity to consumers, and the quality of infrastructure. This suggests any evolution of supply chains should be less inflationary than some anticipate. In those industries where labour-cost arbitrage is a key factor, such as clothing and footwear, and/or geopolitical concerns are muted (e.g. Vietnam, Thailand) a re-shoring of production is less likely.

Trade in services is the fastest growing component of global trade because global value chains are becoming more knowledge-intensive

The ratio of trade in services to world output, though much lower than for goods, has continued to rise since the financial crisis, reaching 14% in 2019 (Exhibit 15). For reference, world trade in goods peaked at 50% of GDP in 2008 but had declined to 43% in 2019 for the reasons discussed above.

Exhibit 15

Trade in services continues to rise as a percent of global GDP



Source: *WTO Trade Data, Professor Richard Baldwin (IHEID)*

Trade in services has historically been less portable than goods, but advances in digitech are rapidly changing this, particularly since the pandemic. As discussed in a 2022 paper presented to the European Central Bank by Professor of International Economics at the Geneva Graduate Institute Richard Baldwin,[5] there are several reasons to expect trade in intermediate services to accelerate. Intermediate services include roles as varied as online client helpdesks, forensic accountants, software engineers, lawyers who can check contracts and financial analysts who can write reports. The three key reasons to expect continued globalisation of services are:

- **Limited non-technological barriers:** a crucial point is that the expansion of trade in intermediate services depends little on trade agreements. The regulation of service activities focuses on final services, not intermediate ones. There exist, for example, strict rules on selling accounting services in the US. Yet there are few rules on the qualifications of the workers who do the paperwork behind the provision of such services. To quote Baldwin: "A US accountant can employ pretty much anybody to tally up a client's travel expenses and collate them with expense receipts. The quality control burden falls on the sellers of the final service, not government regulators."
- **EM capacity not dependent on large initial capital requirements:** unlike for goods manufacturing, the provision of intermediate services does not require large-scale investment in new sectors, or the development of factories, farms or mines. Most EM countries already have a large, sufficiently educated workforce providing these services domestically at a lower cost than their peers in developed markets. For reference, the average advertised salary for a forensic accountant in India is one tenth of that in the US and UK.[6]
- **High demand from developed economies:** as of 2021, services accounted for roughly 78% of US GDP (value added, World Bank estimates).

Given this confluence of factors, the potential for technology-enabled trade in services is huge. It will also be highly disruptive: the white-collar workers who provide these services in high-income countries contribute a great deal to consumer demand. If technology allows workers in emerging markets to compete with them, the end result is likely to be disinflationary. It will also be very difficult for governments to provide much tariff protection, since the trade in services and digital goods are not easily taxed at border crossings.

5 Baldwin, R (2022), "Globotics and macroeconomics: Globalisation and automation of the service sector", paper presented at 2022 ECB Forum on Central Banking in Sintra.

6 Data from PayScale

Income redistribution

Wealth inequality in the US and some European counties has reached a point whereby a majority of voters now believe some form of re-distribution policies are appropriate. Lower-income groups have a higher propensity to spend, suggesting that any redistribution via higher taxation would likely be inflationary, particularly if the higher tax rate discouraged investment. A debt-funded increase in public spending is typically inflationary in the short-term, but disinflationary thereafter as more of future government spending is channeled to interest payments, which typically accrue to savers with low propensity to spend. Unfunded spending would also be largely unaffordable - already, in the US, entitlement spending and interest payments are expected to consume the entire Federal revenue collection by 2032, allowing little scope for discretionary spending.

Analysis from the Financial Times in late 2022 provided a stark picture of the degree of inequality in the US and the UK at present. It rank ordered living standards (measured by disposable income after tax) across different countries by their respective income brackets. The top 10% in the US have the highest disposable income of any countries' top 10% of earners, followed by Switzerland, Norway, Germany and the UK.

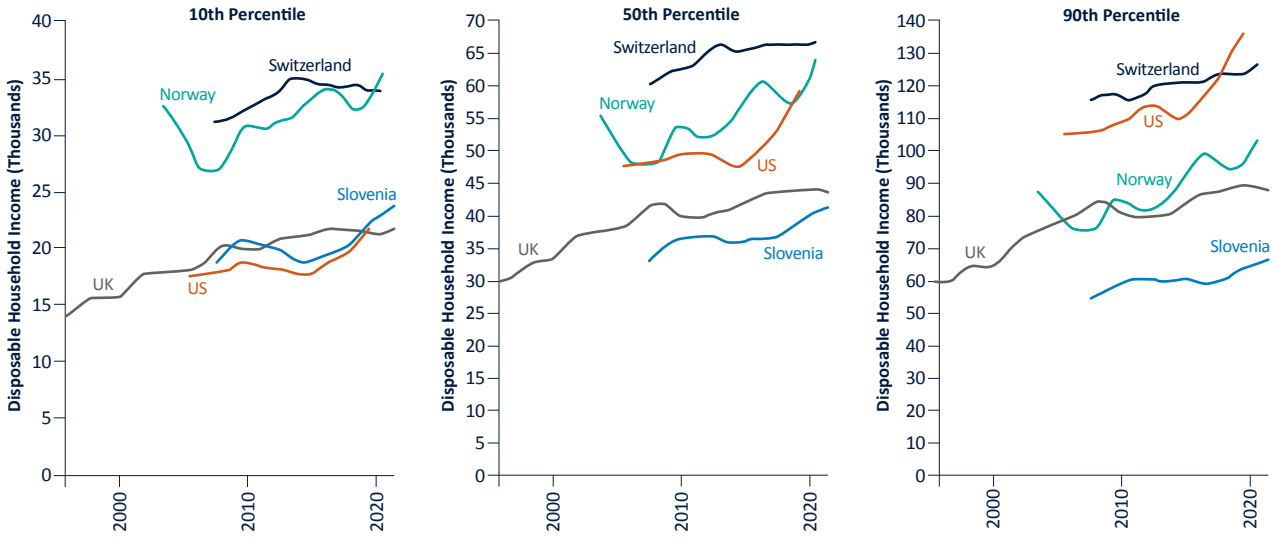
However, the lowest 10% in the US struggle with a standard of living that is worse than the poorest 10% in 14 European countries including Slovenia (Exhibit 16). It is a similar story for the UK, and the outlook is bleak. As noted by the author, "on present trends, the average Slovenian household will be better off than its British counterpart by 2024, and the average Polish family will move ahead before the end of the decade. [The UK], a country in desperate need of migrant labour, may soon have to ask new arrivals to take a pay cut."

Problems of inequality have been simmering for some time. Thomas Piketty's widely read book on the subject, "Capital in the Twenty-First Century", was published over a decade ago. Last year, President Biden proposed a "billionaire minimum income tax" as part of his 2023 federal budget, calling for a 20% levy on households with a net worth of more than $100 million. The midterm election results have likely halted this, but the intent was there.

The same trend is evident in the UK, where a government sponsored poll conducted in January showed that nearly 75% of respondents were in favour of a wealth tax of 2% on wealth of over £5 million. Such measures would not be without precedent. In the aftermath of the 2008-09 financial crisis, Ireland imposed a five-year

Exhibit 16

The lowest 10% of income earners in US and UK experience a worse standard of living than the lowest 10% in Slovenia and other emerging European countries, while the top 10% are among the highest earners in the world



Source: *FT analysis of data from Eurostat EU-SILC survey, OECD and UK Family Resources Survey. Household incomes equivalised using modified OECD scale to be representative of a two-adult household.*

0.6% wealth tax on private-sector pensions to address the fiscal repercussions of its banking-sector collapse. The Irish policy was credited for generating up to 0.5% of GDP in annual revenue.

If there were to be large-scale wealth redistribution it would likely lead to higher overall consumer spending. A 2019 Federal Reserve Bank of Boston working paper found that the marginal propensity to consume (MPC) is 10 times larger for low-wealth households than it is for wealthy households. Further, if an additional $1.1 trillion were earned by the bottom 99 percent of US households instead of the wealthiest 1 percent, annual aggregate consumption would be about $230 billion higher[7], an increase of c. 1.5% vs. consumer spending in 2021. Such an increase would bias inflation upward relative to what we have experienced over the last decade.

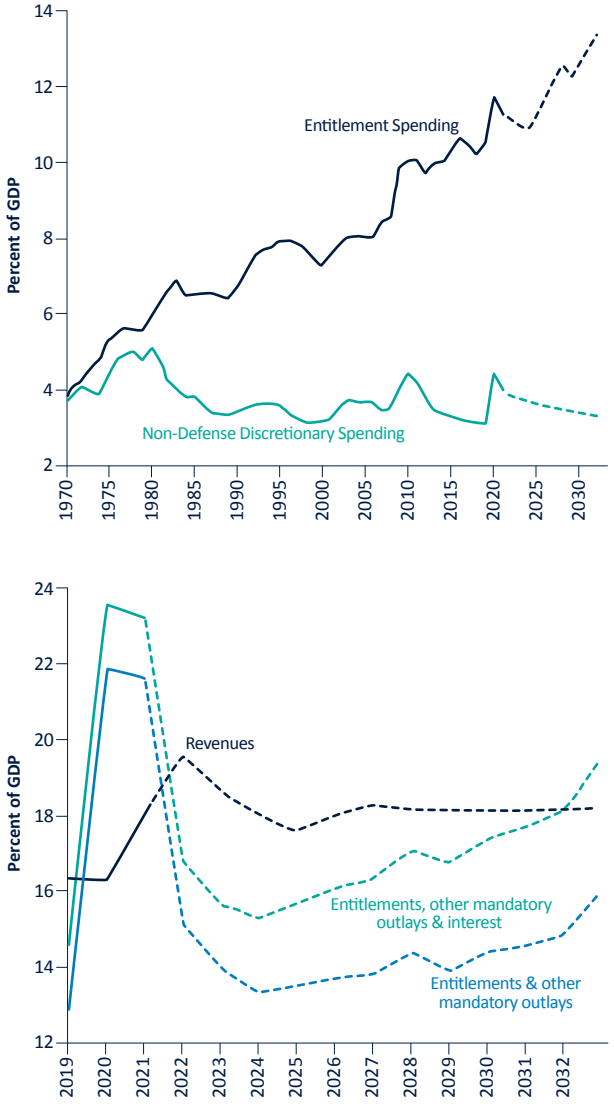
A related issue is how the composition of US public spending evolves. In the US, entitlement and non-defence discretionary spending were on a par in the late 1960s. As things stand, by 2032, entitlement spending is expected to be 4 times higher than non-defence discretionary spending. This matters, as discretionary spending projects typically have the highest growth, employment and productivity multipliers – e.g., infrastructure, healthcare, and education. Another way to think about the challenge is that by 2032, entitlement spending plus interest payments on debt are expected to consume all Federal revenue collection on a permanent basis (Exhibit 17).

Unfortunately, as highlighted by Michael Cembalest at JP Morgan Asset Management, given Federal debt is expected to exceed 100% of GDP before 2030, it will be difficult to increase discretionary spending without (a) one of the largest tax increases since WWII, (b) the largest entitlement reduction on record, or (c) a grand bargain combining a good amount of both. None of these options appear very likely.

Instead, other than occasional spats over the raising of the debt ceiling, the political path of least resistance is to do nothing and allow entitlements to continue crowding out spending that benefits future generations. The risk is sizable though, as it will most likely manifest in lower growth and productivity, and with an increasingly disenfranchised population inclined to roll the dice on unorthodox candidates.

Exhibit 17

Entitlement spending has crowded out discretionary spending, and by 2032, entitlement spending + interest payments will exceed the Federal revenue (all else equal)



Source: *J.P. Morgan. Congressional Budget Office. Dots are CBO projections.*

7 Fisher, Jonathan, David Johnson, Timothy Smeeding, and Jeffrey P. Thompson. 2019. "Estimating the Marginal Propensity to Consume Using the Distributions of Income, Consumption, and Wealth." Federal Reserve Bank of Boston Research Department Working Papers No. 19-4.

Will Artificial Intelligence and tools like ChatGPT be disinflationary?

Artificial intelligence (AI), including language models like ChatGPT, can potentially have both inflationary and disinflationary effects on the economy, depending on how they are implemented and the specific context in which they are used.

On the one hand, AI can lead to cost savings and increased efficiency in many industries, which can lower prices and reduce inflationary pressures. For example, AI can be used to optimise supply chains, reduce waste, and automate repetitive tasks, which can all lead to lower costs for businesses and ultimately lower prices for consumers.

On the other hand, AI can also contribute to inflation if it leads to increased demand for goods and services. For example, if AI-powered technologies lead to increased productivity and economic growth, this could lead to increased demand for goods and services, which could in turn lead to higher prices.

Overall, the impact of AI on inflation is complex and depends on a range of factors. However, in general, it is possible that AI could have disinflationary effects if it leads to increased efficiency and cost savings in the economy.

[Editor's note: In the interests of boosting services productivity, the answer to the above question was directly sourced and presented unedited from ChatGPT, a natural language processing tool driven by AI technology. Readers can form their own opinions on its relative utility vs research produced by Partners Capital analysts.]

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