



THE RETURN OF INFLATION: A BANKER'S
PERSPECTIVE

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Robert Amzallag is a Knight of the Legion of Honour.

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Abstract

The COVID 19 pandemic followed by the invasion of Ukraine is a two-punch economic strike never seen in recent history. The pandemic not only disrupted many aspects of a tightly knit integrated world but also exposed its fragility. The devastation of Ukraine and the vast program of sanctions quickly imposed by most major developed countries have accelerated the retreat of globalization. For many decades, Central Bankers and economists considered stable prices as an almost permanent feature. Today, the consumer price index in the US hit a 40-year high at more than 8 per cent and experts were unable to predict such course of inflation.

In this paper, we offer a unique perspective on these events. First, we identify a few major influential factors that have altered significantly and reliably inflation since World War II. We then turn to looking at recent events in the light of these factors to try and extrapolate a likely trend for inflation in the coming years. Despite the dire economic challenges of World War II, the economy recovered quickly, the financial imbalances rectified in only a few years and inflation was tamed. Can the same thing be achieved after the pandemic? Our analysis suggests that this is highly improbable.

Deep-rooted inflationary forces are at work because of the distortions that the economic order of the last 40 years has created. These distortions, exacerbated by the dual crisis, will take long to repair. We are then looking at an unsettled economic and inflationary future. The wise course of action to avoid a chaotic future requires that the US authorities withdraw from hands-on policies and instead, pave the way for the agile private sector to take the lead and adapt the economy to the changing conditions.

La pandémie de COVID 19, suivie de l'invasion de l'Ukraine, représente un choc économique d'une ampleur jamais vue dans l'histoire récente. La pandémie a perturbé de nombreux aspects d'une économie mondiale tissée serrée. Elle a également mis en évidence sa fragilité. La dévastation de l'Ukraine et le vaste programme de sanctions rapidement imposé par la plupart des grands pays développés ont accéléré le processus de repli de la mondialisation. Pendant de nombreuses décennies, les gouverneurs des banques centrales et les économistes ont considéré la stabilité des prix comme quelque chose de permanent. Aujourd'hui, l'indice des prix à la consommation aux États-Unis a atteint son plus haut niveau depuis 40 ans, à plus de 8 %, une évolution que les experts ont été incapables de prévoir.

Dans cet article, nous offrons une perspective unique sur ces événements. Tout d'abord, nous identifions les facteurs les plus influents qui ont réellement marqué l'évolution de l'inflation depuis la Seconde Guerre mondiale. Nous examinons ensuite les événements récents à la lumière de ces facteurs d'influence afin de dégager une tendance dans l'évolution de l'inflation pour les années à venir. Malgré les graves difficultés économiques de la Seconde Guerre mondiale, l'économie s'est rapidement redressée, les déséquilibres financiers ont été corrigés en seulement quelques années et l'inflation a été maîtrisée. Est-ce qu'on aura un tel succès après la pandémie ? Notre analyse suggère que c'est très improbable.

Au cours des 40 dernières années, l'ordre économique a créé des distorsions telles que des forces inflationnistes se sont profondément enracinées. Ces distorsions, exacerbées par le double choc, mettront

du temps à se résorber. On est donc face à un avenir incertain en ce qui concerne l'inflation et l'économie en général.

Afin d'éviter un tel chaos, ce qu'il faut c'est que les autorités américaines cessent leurs politiques interventionnistes et laissent plutôt le secteur privé jouer le rôle qui lui revient, soit celui d'adapter l'économie aux conditions de marché en constante mutation.

Keywords / Mots -clés : Economic crisis, Inflation, Covid-19, War in Ukraine, Distortions / Crise économique, Inflation, Covid-19, Guerre en Ukraine, Distorsions

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INTRODUCTION

In August 2020, well into the COVID 19 pandemic, Jerome Powell, the chairman of the Federal Reserve, delivered a speech titled “New Economic Challenges and the Fed's Monetary Policy Review.” In his opinion, four economic reasons of uneven importance justified the review, but only one of them was considered concerning: the low level of inflation. This highly unusual statement from a Central Banker echoed this 2019 article published in a well-respected financial publication titled: “The Fed doesn’t have to worry about high inflation and that’s a problem.” At that point in time, Central Bankers and economists considered stable prices as an almost permanent feature.

Twenty months later, the consumer price index in the US hit 40-year high at 8.5%. Clearly, the most powerful Central Bank in the world and its expert’s models could not predict the immediate course of inflation. This is not surprising as inflation results from highly complex economic interactions and is very difficult to describe with formulas, let alone forecast accurately.

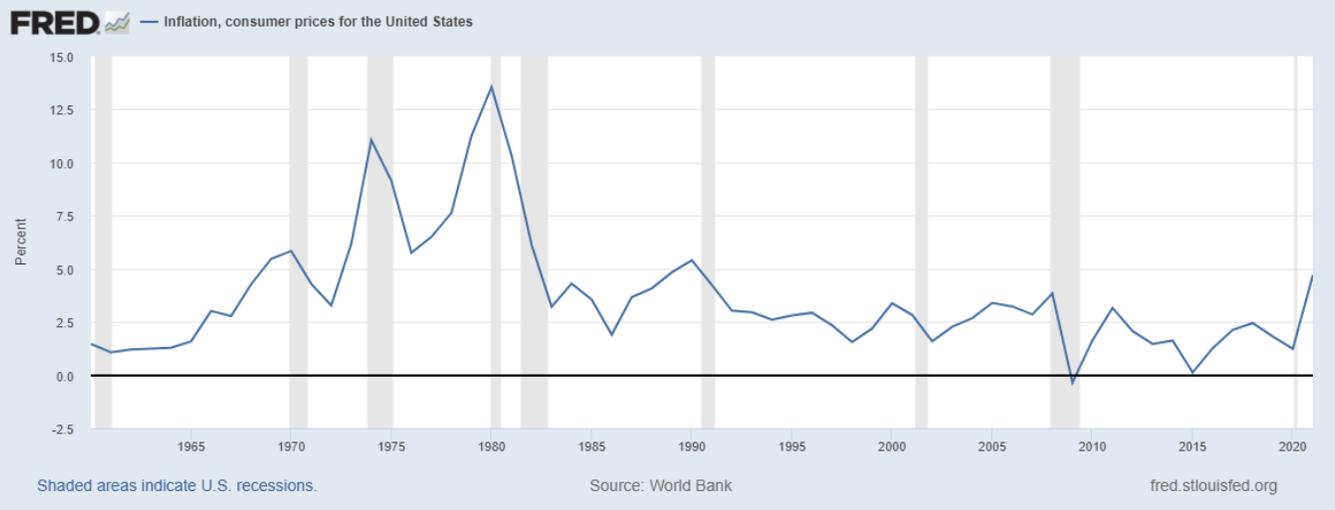
« The Fed doesn’t have to worry about high inflation and that’s a problem. »

Jeff Cox, Financial Editor for CNBC.com

In this paper, we propose a unique perspective of the return of inflation. To circumvent the inadequacies of top-down models in such complex environment, we first identify a few major influential factors that have altered significantly and reliably inflation in recent history. We then analyze recent events in the light of these factors to try and extrapolate a likely trend for inflation in the coming years.

To that effect, we selected the period from World War II to the present days. We considered that during these years, the US economy and its governing institutions were sufficiently like the present ones to allow a reasonable historical comparison. Also, this period included several powerful events including a world war, oil shocks, financial crisis, stock market bubbles and more. Importantly, it displayed powerful distinguishable trends of growing and declining inflation.

Figure 1: Inflation, Consumer Prices for the United States, 1960-2020



Source: World Bank, Inflation, consumer prices for the United States [FPCPITOTLZGUSA], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/FPCPITOTLZGUSA>, May 20, 2022

Throughout this paper, we will use the US Consumer Price Index (CPI) as a measure of inflation. Any reference to supply and demand will also relate to goods included in the CPI. It can be argued that CPI gives a limited view of price dynamics and consumption costs. It is true that since the Internet revolution, many items of popular consumption are now free or cost very little, particularly in the field of entertainment and information, and this index has not been adjusted accordingly. Nevertheless, the CPI is widely used by the economic, financial, labour and industry leaders to integrate inflation into their decisions. Long track records of this indicator also help comparisons in time.

From World War II through to the Great Depression

1.1 WORLD WAR II AND ITS AFTERMATH: THE MIRACLE RECOVERY

The year 1939 marked the end of the Great Depression in the US. It left the country financially exhausted with a Federal Debt at 51% of Gross Domestic Product (GDP) and a Federal Reserve balance sheet at 23% of GDP. That year also marked the beginning of WWII, a global crisis that would involve the US two years later and require enormous financial efforts.

At the end of the war, the financial situation was predictably worse. In 1945, the Federal debt reached 112% of GDP. The Federal Reserve had to lower three-month Treasury Bills interest rates to 0.375% and maintain its balance sheet at 20% of GDP.

The economic future of the country appeared grim to influential economists. Their position was best summarized by Paul Samuelson who wrote in 1943: "Some ten million men will be thrown on the labour market." And that it would be "the greatest period of unemployment and industrial dislocation which any economy has ever faced." Another future Nobel laureate, Gunnar Myrdal, predicted a post-war economic turmoil so severe that it would generate an "epidemic of violence."

None of that happened.

Instead, the economy boomed from 1944 to 1947: consumption rose by 22%, gross private investment rose by 223% and residential housing expenditures by 600%. It will be called later "The miracle recovery."

Personal consumption expenditures as a percentage of GDP was at more than 80% in the 1930s and then dropped to less than 50% during the war. Soon after the war, it recovered very quickly to 63% and then showed remarkable stability for the following 80 years despite momentous economic events. We will refer to this phenomenon as demand stability for CPI goods.

It is really the lag of adaptation in production and supply that created the post-war spike in inflation. However, US industry revamped its production and was able to meet demand in a remarkably short time due to the great flexibility of the private sector encouraged by the appropriate government policies.

Indeed, of the 20 million people released from the military, 16 million reallocated to the private sector over that period. A common belief is that women who withdrew from the work pool after the war helped returning male soldiers find new jobs. Indeed, women participation in the workforce dipped to 32% by 1947 from 37% in 1940. However, the number of jobs vacated by female workers was a mere fraction of

the number of GI's coming back and as early as 1950, the number of women at work matched the highest levels reached during the war.

After the 1946 elections, Congress and the presidency were from opposite parties resulting in a balanced approach to recovery policies. First, the war command economy was swiftly and efficiently dismantled. By the end of 1946, direct government allocations of resources—by edict, price controls, and rationing schemes—were essentially eliminated and tax rates were cut leaving room for the private sector to fill the gap and transform the war machine into an industry attuned to peace-time consumer demand (see Annex 1). The reduction of national defense spending was drastic and immediate and dropped by 85% from 1945 to 1947. In only three years—from 1944 to 1947—government spending went from 55% to 16% of GDP. Prudently, only a fraction of these savings was reinvested into carefully selected areas.

Perhaps the most important measure was the GI Bill, officially called the *Servicemen's Readjustment Act of 1944*. It helped veterans of WWII by establishing hospitals, providing low-interest mortgages, and granting stipends covering tuition and expenses for those attending college or trade schools. From 1944 to 1949, nearly 9 million veterans received close to \$4 billion from the unemployment compensation program. The educational aspect of the Bill was a crucial factor of increased future production. The path to home ownership created pent-up demand for construction and house appliances. Private industry was quick to seize these opportunities and address market needs by using the latest technical innovations.

On the international front, the US, as a clear winner of the war, was economically in a commanding position. European and Japanese industrial capacity was decimated and America controlled more than 50% of world production.

Instead of taking advantage of this situation, the US, under the impulse of Secretary of State George Marshall, initiated a reconstruction program to help countries devastated by the war. The \$15 billion plan (about 7% of US GDP) was voted in 1948. It turned out to be a highly productive investment that insured the world subsequent prosperity and opened markets to US products. Another wise decision was to extend and increase Federal support for Research and Development (R&D).

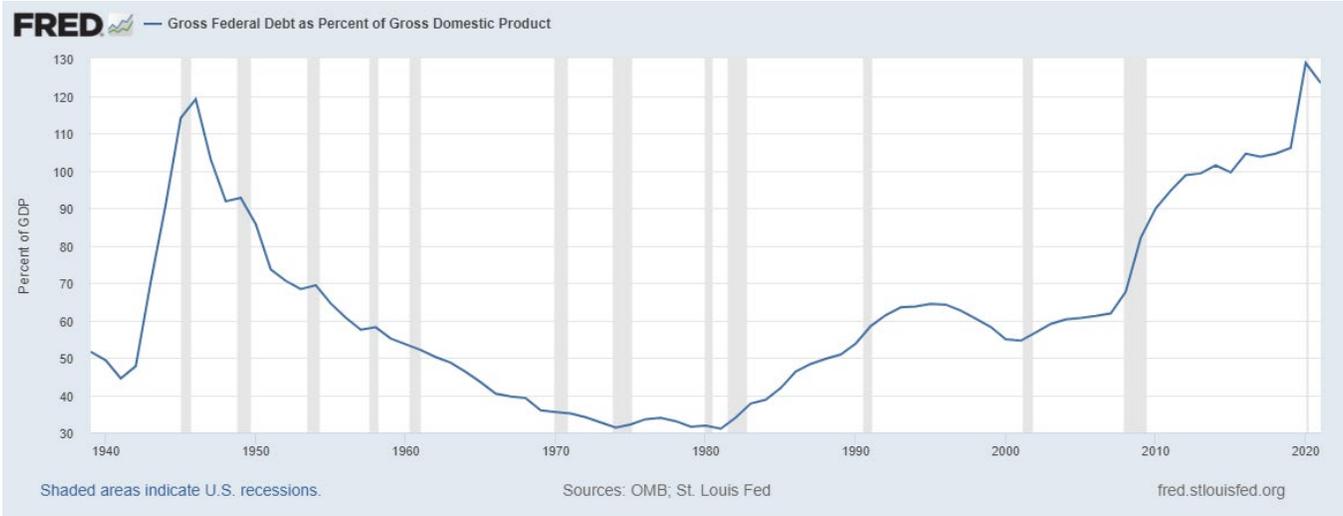
In a drastic change of policies, scientists were allowed to work on government return contracts from their own private institutions and R&D contracts were reviewed to pay for performance of work. This measure by itself unleashed the research potential of industry and universities.

The successful research reforms devised by Vannevar Bush, then head of the US wartime R&D effort, also included an efficient consolidation of federal research support around a few organizations like the National Science Foundation (NSF). In 1958, new agencies such as NASA and ARPA were created. Others, such as the Atomic Energy Commission were reorganized to respond to new challenges. In the following five decades, increasing funding of these organizations was voted every year.

Such policies provided the US with the strongest R&D system in the world, helped the remarkable post-war recovery and, through innovation, contributed to economic growth and lower inflation.

The “Miracle Recovery” and a responsible attitude of the succeeding administrations also allowed a rapid improvement of the US financial situation. In 1951, the Federal Reserve became fully independent, overseeing a currency well anchored to the price of gold through the Bretton Woods accords. Its balance sheet as a percentage of GDP was reduced by half to 10%. These measures created the perfect environment for an efficient private sector to transform the war machine into an industry attuned to peace-time consumer needs and capable of supplying a much-revived private demand. It eliminated the post-war inflation spike and kept it under control until the mid 1960s which marks the start of the Great Inflation.

Figure 2: Gross Federal Debt as Percent of Gross Domestic Product in United States, 1940-2020



Source: U.S. Office of Management and Budget and Federal Reserve Bank of St. Louis, Gross Federal Debt as Percent of Gross Domestic Product [GFDGPA188S], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/GFDGPA188S>, May 21, 2022.

What lessons can we draw from the World War II aftermath?

1. A momentous event such as World War disrupts the economic order deeply.
2. Personal consumption expenditures in the US recovered fast.
3. Controlling inflation becomes a question of adopting the proper supply growth policies.
4. Keeping a steady focus on public spending in areas of high GDP return such as education, health and innovation as well as avoiding direct intervention in the economy and leaving room for the more flexible and entrepreneurial private sector to take over proved successful in lowering inflation for many years.

1.2 THE GREAT INFLATION: GOVERNMENT-INDUCED PRICE RISES

In the first half of the 1960s, the US economy was solid and dominant. GDP was growing at a rate of 5.5% and, 20 years after the end of the war, that still represented 38% of the world GDP. The freely exchangeable US dollar, well anchored to gold through the Bretton Woods agreements, was by far the preferred reserve currency. The Federal debt was declining fast and, in the mid 1960s, stood below 50% of GDP for the first time since 1940. The only dark spot was unemployment which stubbornly oscillated between 5% and 7.5% since the early 1960s.

US politicians prompted by vivid memories of the Great Depression decided that it was necessary to minimize the importance of price levels and concentrate on fighting unemployment

At that point, the government and the Federal Reserve felt compelled to do something about it as they had to comply with the Employment act of 1946 which declared a responsibility of the federal government “to promote maximum employment, production, and purchasing power.”

At that time, a well-accepted predictor among economists was the *Phillips curve*. In his original paper published in 1958, William Phillips simply observed an inverse relationship between wage changes and unemployment in the British economy over a defined period of time. The problem arose later when many economists believed his results indicated a general and permanent relationship between inflation and unemployment.

US politicians prompted by vivid memories of the Great Depression decided that it was necessary to minimize the importance of price levels and concentrate on fighting unemployment. Warnings from economists such as Milton Friedman or Edmund Phelps about the weaknesses of the Phillips curve theory and the potential instability created by inflation expectation that could pull the economy towards more price increases and less employment were largely ignored.

President Johnson launched his “Great Society” project in 1964, arguably the largest social reform plan in modern history. It spanned from war on poverty to Medicare/Medicaid programs, education reform, Urban renewal, arts and humanities and environmental initiatives.

This complete departure from the more balanced policies of his predecessors directed public spending into lower multiplier effect expenses. It also increased substantially long-term federal spending and marked the beginning of an era of Federal Debt increase. All the while, the Korean War, the Cold War and the Vietnam War boosted defense spending—another type of spending with a poor multiplier effect—from 3.5% of GDP in 1948 to around 9% in the mid 1970s.

Not surprisingly, the surge of public expenses in areas generating poor economic and supply growth induced higher inflation. Under these circumstances, the last anchor holding back inflation was the link between the US dollar and gold, mandated by the Bretton Woods agreements. Already, in the mid 1960s, this link had started to weaken.

As global trade—mostly denominated in US dollar—grew, so did the world demand for the American currency. By the mid 1970s, US trade deficits widened and the ratio of US gold stock to US dollar liabilities became unsustainably large. The Gold Standard system put in place by the Bretton Woods accord had become untenable.

In 1971, President Nixon broke the link between the US dollar and gold. The US monetary system was left unanchored, in the hands of the Federal Reserve deciding bodies and at the mercy of any unforeseeable economic shock. Such a shock did not take long to happen.

In 1971, an Arab oil embargo more than doubled the price of oil. Such increase in the cost of energy inevitably induced price rises across the board due to its pervasive effect on practically all CPI goods and services. Rapidly, US authorities lost control of inflation.

At first, the Central Bank considered that the root cause of inflation—the rise of oil prices — was beyond its control and decided to accommodate large fiscal unbalances to protect the economy. In doing so, the Federal Reserve allowed the monetary aggregates, as measured by M2, to double from December 1973 to December 1980, thus adding fuel to the fire.

In 1979, because of the Iranian revolution, a second oil shock tripled the price of oil, creating a runaway inflation and aggravating economic stagnation. Economists, financial experts, and Government officials were at a loss to find a way out of what was then called *stagflation*.

Mainstream economists, still fixated on the Phillips curve theory, declared that realistically, it would take a million additional unemployed for each 1% drop in inflation

This is not what happened

Near the end of this era, the situation seemed so desperate that, then candidate, Ronald Reagan was widely mocked for advocating supply-side policies. Mainstream economists, still fixated on the Phillips curve theory, declared it would take a million additional unemployed for each 1% drop in inflation.

This is not what happened.

The Great Inflation attests that:

1. The government can induce price rises when it loses sight of inflation and embarks in policies conducive to unproductive spending.
2. Without strict anchoring rules, the Federal Reserve can excessively increase the money supply—and therefore provide fuel to inflation—to accommodate current Treasury needs.
3. Government and Central Bank actions can cause inflation, but the process is relatively progressive: it takes a shock, whether economic or external, to induce a rapid rise of prices to unusual levels.

1.3 THE GREAT DEFLATION: MISSED OPPORTUNITIES

In October 1979, Paul Volker, then Federal Reserve Chairman, realized that previous policies favouring employment had not only failed but also raised inflation to the unacceptable level of 14.8%. He considered that the first mandate of the Federal Reserve had been clearly contravened and that the absolute priority was now to fight inflation.

To that end, he set clear targets on monetary expansion that had been out of control. He limited the growth of the Monetary Mass (M1) and sent a clear and consistent message that he was ready to hold his targets and let interest rates rise to wherever market forces would take them to. They eventually reached a maximum of 20%.

Figure 3: Consumer Price Index, Effective Federal Funds Rate, United States, 1960-2020



Source: Organization for Economic Co-operation and Development, Consumer Price Index: All Items Excluding Food and Energy for the United States [USACPICORMINMEI], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/USACPICORMINMEI>, May 21, 2022. Federal Reserve Bank of New York, Effective Federal Funds Rate [EFFR], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/EFFR>, May 21, 2022.

He firmly conducted the equivalent of a shock and awe campaign without regard for the recession he created. His resolve broke the back of inflation.

The results were spectacular and quick.

The Federal Reserve measures on interest rates were so successful that as soon 1982, they started to be rolled back, and a substantial and sustained decreasing trend of inflation ensued. Nevertheless, the Federal Reserve remained vigilant in the following years and did not hesitate to raise interest rates sporadically. However, these measures were short-lived and had more to do with curbing speculative excesses than responding to high consumer prices.

The firm stance of the Federal Reserve is often credited for the extraordinary 40 years of low inflation that followed. We would argue that this was not the case and point out to the fact that the main causes that triggered the great inflation occurred all over again during the following 40-year period but did not sway the smooth downward course of consumer prices despite a much toned-down intervention.

Indeed, during the Great Deflation, energy prices fluctuated widely; unemployment rates reached, at times, levels considered unacceptable during the Great Inflation; and finally, the Federal Reserve, in its effort to control recurring crisis originating from the financial sector, and in particular during the Great Recession of 2008, allowed market liquidities to explode through Quantitative Easing programs.

In spite of these developments considered by economists as reliable triggers of future inflation, the CPI continued its smooth downward trend, so much so that in 2019, the greatest concern of financial authorities turned out to be deflation.

What was the overwhelming economic force that kept price levels under control for so long? We would propose that it was the march of globalization.

Economic globalization started in the last years of Jimmy Carter presidency and accelerated in earnest in the late 1980s and beyond.

Mid 1980s: Exchange controls were progressively abandoned and movements of capital were freed paving the way for a global economy.

1992: The Association of Southeast Asian Nations (ASEAN) Free Trade Area was born and presently counts ten members and six observers including China, India, Japan and Australia.

1993: The World Trade Organization (WTO) replaced the General Agreement on Tariffs and Trade (GATT) created by 27 nations in 1948 and now counts 162 members. Its role in providing a forum and legal framework to promote trade liberalization has been a success. In the same year, a complete single market was achieved within Europe, and now regroups 27 countries.

1994: The North American Free Trade Agreement came into effect and created a free trade zone between Canada, the US and Mexico.

The clear political commitment to globalization described above was well supported by new technologies. Sprawling supply chains and new powerful software coordinating global production were put in place. Right on time techniques increased productivity and successfully cut down costs. Progress in shipping and

transportation shortened delivery delays. These technological advances, enhanced by progress in telecom, opened world markets to emerging economies.

The results were impressive.

Worldwide, exports as a percentage of GDP grew from 13% in 1970 to more than 30% in 2008 with a marked acceleration since 1990. Over the same period, US imports grew from 6% to 18% of GDP. The growth originated mostly from developing countries. Imports from Mexico grew by 450% and those from China were multiplied by 100 from 1985 to 2019.

A global economy with a quasi-inexhaustible pool of cheap but increasingly productive labour had been created and there lies the core reason for the exceptional drop in inflation witnessed since the 1980s. The magnitude of the cost differential between the US and other economies, especially China, Mexico and Vietnam, led to large savings in labour costs. Added productivity was passed to the rest of the world economies through the competitive forces of an open market, keeping inflation expectations and actual prices in check. In an April 2006 Outlook, the International Monetary Fund supports this notion and argues that “globalization has had a significant effect on relative prices in industrial economies. Sectors that have become more exposed to foreign competition have seen the largest relative price declines in recent years.”¹

When President Reagan was elected in the midst of a stagflation impasse, he proposed the adoption of supply-side economics. His timing was perfect as globalization was taking flight. His successors followed the same policies and the surge in worldwide production and labour availability finally overwhelmed the powerful force of US private consumption which grew but at a much steadier pace.

In a paper published in 2019, MIT Professor Kristin J. Forbes, then serving on the Advisory Panel for the Bank for International Settlements, wrote that: “... just as the global economy has grown and nations that were at the periphery have become more integrated, our basic inflation models should also grow and more explicitly integrate global factors that have largely remained at the periphery of standard models.”²

The Great Deflation provided a unique opportunity for politicians and US financial authorities to correct the excesses of the great inflation and improve the public financial balance. But they did not.

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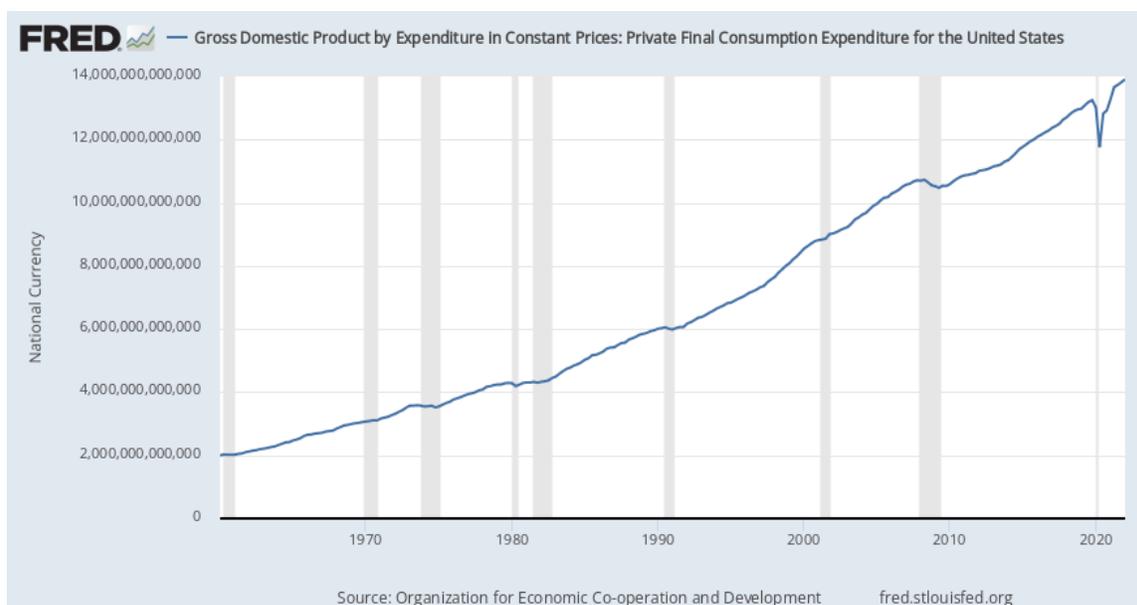
¹International Monetary Fund, World Economic Outlook, Globalization and Inflation, April 2006.

² Kristin J., "Has Globalization Changed the Inflation Process?" Forbes, MIT Sloan Working Paper 5591-18. Cambridge, MA: MIT Sloan School of Management, July 2019.

As the authorities and Central Bankers were able to shift their attention away from inflation, they concentrated on protecting economic growth. To that end, they fought at all cost any crisis that could have weakened the economy. As these crises grew in severity, counteracting measures required ever larger outlays and highly unorthodox policies which culminated in the 2008 financial crisis as we explain in a 2010 paper.³ In the process, these hurried efforts depleted the strength of the Treasury and the Federal Reserve. The Treasury had to increase its debt significantly.

The Federal Reserve became ever more accommodative by repeatedly launching Quantitative Easing programs and adopting Zero Interest Rate Policy. Consequently, it grew its balance sheet five times between 2007 and 2019. Only the American consumers contained their spending growth and did not deviate from consumption historical growth trends. This acted as a stabilizing force and pulled the country out of many economic slowdowns.

Figure 4: Gross Domestic Product by Expenditure in Constant Prices, United States, 1960-2020



Source: Organization for Economic Co-operation and Development, Gross Domestic Product by Expenditure in Constant Prices: Private Final Consumption Expenditures for the United States, retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/NAEXKP01USQ652S>, May 21, 2022.

In a 2015 paper, we argued that it was urgent to rectify these excesses to be able to face in a position of strength a future crisis that would inevitably be coming.⁴

³ See: Amzallag R. (2010). The Financial Crisis: One year later. A banker’s perspective. (2010s-10), CIRANO). <https://cirano.qc.ca/files/publications/2010s-10.pdf>

⁴ See Amzallag R. (2015). The role of central banks in the aftermath of the 2008 financial crisis. (2015DT-01). <https://cirano.qc.ca/files/publications/2015DT-01.pdf>

The Great Deflation confirmed that:

- 1.** Fluctuations of supply was the predominant factor influencing the course of inflation in the US, and proved to be more sensitive to external factors and thus subject to fluctuations and long-term trends. Demand, as measured by CPI goods consumption, follows over the long term a stable path, remains quite inelastic, catches up quickly from temporary setbacks and is barely influenced by surges in liquidity.
- 2.** The Federal Reserve can act on liquidity and interest rates. Liquidity provides the fuel to price rises but, on its own, is a weak inflation modulator. Interest rates have more influence on inflation.
- 3.** Most of the time, the Federal Reserve will try to accommodate the needs of the Treasury. Episodically, it can create a temporary shock by raising interest rates rapidly to break a dangerous trend. This requires, however, a steadfast resolve—even at the risk of creating a recession—and great credibility. Such a move can only be conducted briefly as the damage on the economy can be considerable. To yield longer results, it has to be relayed by measures promoting supply over demand.

COVID 19 and Ukraine Invasion: The Return of Inflation

At the end of 2019, the US was enjoying low unemployment, high consumer confidence, low inflation, a robust economy, and a blockbuster Christmas. The ghosts of the 2008 financial crisis finally seemed to have evaporated and the economic horizon was clear, and no one was paying attention to the financial fragility on which these ideal conditions in the US were built. In reality, the Federal Reserve was still unable to raise interest rates or slowdown the growth of its balance sheet, and a previous attempt to do so was quickly thwarted by markets. The US federal debt stood at \$22.7 trillion (three times its 2008 level), and as for the banking industry, it was shrinking and has difficulty recovering from the 2008 crisis.

This is precisely the time when two major world crises hit an unprepared world: the COVID 19 pandemic and more recently, the Ukraine invasion.

In this part of the paper, we analyze these two major crises to understand how they created inflation and what could be its future course. We propose a unique methodology to assess the inflationary consequences of an economic or an external event that has repercussions on the US economy drawing from the lessons learned in Part 1.

We proceed as follows.

- We recognize early events capable of inducing economic shocks and accelerate inflation and then, when possible, we identify a similar past situation and analyze the similarities and differences to strengthen the forecast.
- We focus on the supply side, since it proved to be the main driver of inflation.
- We gauge public finances and the capacity of public spending to counter the economic consequences of the event and evaluate the government's commitment to keep inflation under control, particularly through wise public spending in areas that grow the economy the most.
- We also assess the Federal Reserve's will and capacity—in terms of independence and financial strength—to follow its mandated control of inflation by increasing substantially interest rates even at the risk of causing a recession.

It is important to note that we look at these events strictly from an economic point of view. We do not reflect any opinion on the event themselves.

2.1 COVID 19 AND WORLD WAR II: SIMILAR, BUT DIFFERENT

First looking at the 2020 pandemic, we searched for a comparable event in the last 75 years and opted for World War II itself. These two major events are similar in a number of ways.

Similarity #1: Exceptional financial measures to win the battle at all costs

WWII as well as the 2020 pandemic are shocks external to the economic and financial order. Both could not be solved through economic measures only. The fight had to be won on other fronts and winning was imperative, whatever the cost involved.

In both cases, the Treasury and Federal Reserve resorted to exceptional financial measures to give the government the means to win the battle and salvage the economy. They did it despite already depleted financial means due to the Depression before WWII on the one side, and due to the 2008 financial crisis nowadays. Indeed, the Federal debt reached 112% of GDP in 1945, comparable but still below to 122% in 2021. At the end of the war, three-month Treasury Bills rates were historically low at 0.375% and the Federal Reserve Balance sheet climbed to 20% of GDP. In comparison, three-month Treasury Bills rates are at 0.05% today and the balance sheet was already reaching 40% in 2021.

Similarity #2: A workforce economically unproductive

In both instances, large parts of the workforce were rendered economically unproductive. In 1945, 12 million Americans were in the armed forces, accounting for 8.5% of the population, while in April 2020, the number of unemployed on temporary layoffs soared to 18 million, or 5.5% of the population.

Similarity #3: A disruption of the economic order of great magnitude

The magnitude of these two events disrupted the old economic order. During the 1940s, international trade, already seriously affected by the depression, was cut further by about 25% as supply lines were disrupted by the war. In 2020, international trade declined by about 12%. Supply lines were also profoundly disturbed by the demise of on-time supply policies indispensable to globalization.

After both events, different demand and work patterns emerged and created a need for the economy and the private sector to adjust to the new conditions. In either situation, inflation perked up to 9% in the 1940s and to 6.8% in 2021. Despite the dire economic challenges of WWII, the economy soon recovered, inflation was tamed, and the financial imbalances rectified in a matter of few years. Can the same thing be achieved today?

This is not likely, because of important differences.

Difference #1: A weaker current economic outlook

Nowadays, the US economic outlook is weaker than in the mid 1940s. At the end of the war, the US was unchallenged militarily, economically and financially. Lawmakers were not constrained by international considerations and could enact bold policies.

This is not the case today. Worldwide, the US is still preponderant economically, but is weaker. Its share of world output is now reduced to 24%. Its supremacy is challenged by China which has become a superpower in its own right and is now, by far, the dominant manufacturer in the world.

Difference #2: A less motivated workforce

In 1945, the US economy was ready to benefit from a highly energized workforce. The returning GIs were young but had experienced the harshness of the Great Depression and had been confronted by the horrors of the war. They came back eager to live a better life, work, start a family and consume. Similarly, women who filled the positions of millions of drafted soldiers and played a key role in the war effort, were also eager to contribute to the economic growth.

Today, the workforce seems much less motivated. During the COVID 19 crisis, the US government intervened to shield the public from the harshness of an economic catastrophe and introduced the following measures:

- Pandemic Emergency Unemployment Compensation
- Pandemic Unemployment Assistance
- Federal Pandemic Unemployment Compensation
- Mixed Earner Unemployment Compensation

Although these measures expired in September 2021, they seem to have initiated a certain reluctance to get back to work. Indeed, in March 2022, job openings were at a record high of 11.5 million, up 53% from pre-COVID 19 era, but the employment-to-population ratio was still 1.2% below its February 2020 pre-COVID 19 level. As demand recovery combined with a lack of available workforce, job openings doubled in the last three years. It appears that certain sectors such as food services, manufacturing, transportation, and healthcare are suffering the most. The reluctance to go back to work seems to affect the low paying hard-work jobs. Such dislocation of the labour market added to the high number of job openings tends to create a supply shortage and contribute to future inflation.

Difference #3: A weakened financial system

After WWII, the US economy, with its industry intact, was reigning supreme in the world. The US dollar was well anchored to gold price and, as the only freely convertible major currency in the 1950s, became the standard of international transactions. Treasury bonds were considered the most solid investment available.

This is not the case today. The US economy share in the world output has shrunk by half and is back now to its level in early 20th century. The financial standing of US treasuries has also been eroded as the percentage of US government debt held abroad has started a downward trend. It is also the case for China indicating that this crucial commercial partner is not as ready as before to extend a form of supplier credit to America.

The patriotic enthusiasm in the 1940s that translated into public willingness to fund the war effort and the recovery by purchasing Government bonds is absent nowadays. The Fed has taken an increasing share of funding the federal deficit. Its balance sheet reached 40% of GDP in 2021, 20% only after WWII, indicating a reduced willingness of other buyers to fund federal expenses.

The patriotic enthusiasm in the 1940s that translated into public willingness to fund the war effort and the recovery by purchasing Government bonds is absent nowadays

Difference #4: The US Government inflationary moves

Notwithstanding the adverse conditions described above, the new administration, still caught in the midst of new virus variant outbreaks, has decided to forge ahead and start post crisis recovery investments. The “Infrastructure investment and jobs act” was signed into law in November 2021. Costing \$1.2 trillion over 8 years, it is the largest infrastructure spending bill in history.

This bill not only uses up a large share of the present Government intervention capacity but the sectors benefitting from it have not been selected for future growth potential. It aims at sectors of weaker job creation and largely focuses on low innovation areas. Indeed, the biggest beneficiary is traditional transportation infrastructure which future is unclear now due to rising new technology trends such as telework.

This early investment decision largely differs from post-war policies focused on high return areas such as education and innovation that best supported the recovery and held back inflation.

On the energy front, the new US administration has taken clear measures to accelerate decarbonization and promote green energy. These policies might be necessary in the long-term but right now, they do create external constraints and put further inflationary pressures on the US economy by increasing the

cost of energy. The new administration measures turned the US from a net exporter to a net importer of oil in 2021. More importantly, it introduced a high level of uncertainty over future supply of fossil fuels which still represents 80% of world consumption. As a consequence, a rapid rise in oil prices followed.

Even electricity production, now under the constraints of international agreements, has also the potential to ignite inflation. Very few sources of electricity-producing energy are presently acceptable and among them, many are not continuous or stable. Regardless, governments through international accords are now actively limiting established energy sources, creating, down the line, an electricity supply contraction. In the meantime, demand is growing fast. Under active government campaigns and generous incentives, demand for electricity, particularly in transportation, is on a trend that could overwhelm supply. Europe in particular, aims at a doubling of electrical demand by 2050. Such diverging trends between supply and demand for electricity can induce an energy shock sufficient to propel inflation higher, similar to what happened in the 1980s.

In contrast, none of these energy curbs were present after WWII. Put together, such actions show that, in contrast with its counterpart after the war, the present US Government does not yet give high priority to inflation, sending a signal of acceptability that also affects inflation expectations among economic agents.

Finally, the exposed fragility of supply chains has prompted US efforts towards manufacturing independence. Such shift in attitude towards globalization creates an additional challenge to control long-term inflation.

Difference #5: An incapacitated Federal Reserve

The 2008 Financial Crisis response seriously depleted the Federal Reserve intervention capacity.⁵ Its already bloated Balance Sheet had to contend with funding the COVID 19 government response. At 40% of GDP or \$8.5 trillion, it is now reaching a level where the very credibility of the institution could be questioned.

The Federal Reserve's capacity to use interest rates as a mean to regulate the economy is also limited. The Zero Interest Rate Policy, now in place for 15 years, could not trigger inflation by itself, but became the foundation of soaring markets. It did also induce a borrowing addiction of the Treasury, private companies, and individuals. Eventually, a new type of economy, sometimes called the *financial economy*, took hold. This type of economy is built around a high-risk tolerance level affecting CEOs, investors, and even private individuals. Their decisions are often based on the deep belief that the Central Bank will

⁵ See: Amzallag R. (2015). The role of central banks in the aftermath of the 2008 financial crisis. (2015DT-01). <https://cirano.qc.ca/files/publications/2015DT-01.pdf>

forever “have the back of the markets.” Therefore, ZIRP and endless Quantitative Easing became an indispensable ingredient to growth and now their reversal could have potentially serious and largely unknown adverse consequences. Indeed, the Federal Reserve received a serious warning when, in 2017, a timid attempt to roll back some of these policies jolted the markets so much that, under intense political pressure, it had to be rescinded.

COVID 19 versus WWII: What lessons can we draw?

In 2021, two years into the pandemic, prices started to rise, reversing a 40-year trend. Based on the similarities of this crisis with WWII, our methodology explains the present level of inflation by the economic disturbance created by COVID 19 as it happened right after the WWII.

Looking further in time, the predictions differ from what happened in the mid 20th century. This time around, the US is in a much weaker economic and financial position. The new administration longer term policies are intrinsically inflationary. Also, developed countries have signalled a will to curtail globalization and favour security of supply over foreign production efficiency. Finally, the Federal Reserve which did not rebalance its financial position during the Great Deflation, is left with a depleted capacity to intervene.

Based on the COVID 19 crisis alone, our model points towards a continuing and significant inflation in the medium term even in a stable environment. In other words, at the beginning of 2022, the US and the world were in poor position to weather another shock.

Based on the COVID 19 crisis alone, our model points towards a continuing and significant inflation in the medium term even in a stable environment

2.2 THE UKRAINE INVASION

Unexpectedly, it took only a few months for another external crisis to unfold and create a new global economic shock. There are no instances, in our historical period of reference, of two back-to-back major international crises. Having no similar reference, we have to examine the present situation with the sole use of our methodology.

The Russian invasion of Ukraine started in February 2022. On their own, Ukraine and Russia represent a small share of the world economy. However, the shock created by this invasion is economically serious, as both countries are important exporters of goods essential to the world economy.

The devastation of Ukraine and the vast program of sanctions quickly imposed by most major developed countries has created a sudden supply vacuum. In a globalized tightly knit world, such disturbance can have a critical ripple effect on global supply which, as history shows, is the primary source of inflation.

This conflict has jeopardized several vital supplies to the world economy. Two of them are critical: food and energy.

Food shortages: Russia and Ukraine represent almost 30% of wheat and over 65% of sunflower oil worldwide exports. Moreover, Russia is dominant on fertilizers with, as an example, 49% of global ammonium nitrate exports and 20% of world output of potash. As a result, prices of fertilizers and wheat are already up 45% from last year with the bulk of the increase taking place in 2022.

Food demand is highly inelastic, particularly for staples like wheat. Supply, on the other hand, cannot be increased easily. If the war in Ukraine and the attached sanctions linger, it could perpetuate further price increases worldwide, particularly in less developed countries where food prices can reach as much as 45% of emerging economies CPI. As a consequence, food prices remain a good precursor of global inflation.

Figure 5: UN Food and Agricultural World Food Prices and Global CPI, 2000-2020



Source: Bloomberg, National Sources

Energy shock: The price of oil started rising at the beginning of 2021 due to the restrictive policies stated and enacted by the new US administration. Natural gas prices moved accordingly 3 months later but went much further, especially in Europe. Caught between costlier oil and gas and an increasingly inadequate balance of demand and supply due to environmental factors, electricity prices are also on the rise.

History shows that energy price shocks have a strong effect on inflation as they further affect price increases across many CPI components. A 2021 study by the Federal Reserve Bank of Dallas suggested that if crude oil prices rose to \$100 per barrel for three months before retreating, the shock could boost the annual inflation rate by 3 percentage points.⁶

Russia is a major player in these markets. It is the third largest oil exporter at 10.5% of world exports; the largest world exporter of natural gas with around 16% of world exports; and the main natural gas exporter to Europe with 40% of its imports. Clearly, any attempt to economically cancel suddenly such major exporter could only result in a major disruption of the energy market and a strong spike in prices. An energy shock, similar or even more powerful than the oil shocks of the 70's and 80's becomes now more probable. Food and energy price spikes constitute an inflationary explosive mix that points towards a rapid and serious—perhaps even runaway—rise in prices in the short-term. It also reinforces the inflationary medium-term factors derived from the pandemic by aggravating some major trends working against price stability.

⁶ Kilian, Lutz and Zhou, Xiaoqing, The Impact of Rising Oil Prices on U.S. Inflation and Inflation Expectations in 2020-23 (November, 2021). FRB of Dallas Working Paper No. 2116.

CONCLUSION

The COVID 19 pandemic followed by the Ukraine invasion is a two-punch economic strike never seen in recent history. The pandemic not only disrupted many aspects of a tightly knit integrated world but also exposed its fragility and the risk it poses to countries too dependent on it. The sanctions imposed after the war in Europe have accelerated and solidified this trend, accelerating the retreat of globalization. They also weakened a corner stone of the post WWII economy: The role of the US dollar as a universal exchange, trade and reserve currency. First, the dual crisis has sent the US trade balance in free fall. After hovering around \$40 billion a month for 20 years, it started dropping in 2020 and stood in March 2022 at \$109 billion. Perhaps more importantly, watching the freezing of Russian assets denominated in US dollars, many countries, no doubt, are wondering whether they should loosen their ties with the US dollar in favour of other currencies. Such move would affect the monetary system efficiency and could even breakdown the world into a few economic blocks each with its lead currency. For these reasons, a full return to pre-crisis globalization is highly improbable.

In this paper, we proposed an historical perspective on these events. Our forecasts derive from a methodology based on diverse past events, and so their accuracy could be challenged by unprecedented developments. But if our predictions prove correct, does any of the major US economic partakers have today the capacity to significantly counter them? We do not believe so.

First, the Federal Government debt has now reached \$30 trillion—which represent about 150% of GDP—and growing. It is still fighting a lingering pandemic and must contend with the recent conflict in Ukraine that will now compel the Western World to raise military spending and induce further public borrowing. Its enacted policies are, as described above, inflationary in nature. For the new administration to seriously be in a position to fight inflation, it would have to benefit from a quick resolution of the ongoing crisis as well as reverse its present policies completely. In the present circumstances, we consider such turn around highly unlikely.

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In the present circumstances, we consider such turn around highly unlikely

Second, US consumers could, through drastic cuts in spending, induce a recession that would help control prices. However, this has not happened in the recent past as US consumption as a percentage of GDP has a long history of slow but steady increase. Today, consumers' inclination is rather pointing towards catching up on pandemic years of low spending. What's more, after a few months of rising prices the "buy now before it gets more expensive" mentality is settling in, resulting in even more consumption. It is highly improbable that demand will decline on its own or be easily restrained.

Therefore, full weight of finding a solution to the current impasse falls on the Federal Reserve as was the case in 2008. The Central Bank is fully aware that a Zero Interest Rate Policy has become untenable in the light of an accelerating inflation. Its accommodative policy had created a dangerous liquidity level that could fuel inflation to unacceptable levels.

In spring 2022, the Chairman of the Federal Reserve announced that actions would be taken on two fronts: it will increase interest rates until inflation comes under control and start reducing its bond holdings at a maximum pace of \$95 billion a month. However, we do not believe that the Central Bank can realistically go ahead with that plan, at least not to the extent of generating a meaningful drop in inflation.

A rise in interest rates to levels comparable to 1980 is simply impossible as it would add an unbearable burden on public finances and increase the likelihood of a recession. The Federal Reserve is confronted today with an enormous public debt of \$30 trillion as well as a non-financial corporate debt that has doubled since 2010 and now reaches \$12 trillion. Household debt is also huge: mortgage loans total \$17.5 trillion and consumer debt has increased to \$15 trillion. Only a modest move on short-term interest rates in the order of 2 to 3% can be envisaged, but such modest increase will have little effect on inflation.

Reducing bond holdings is not realistic either. Today, the Federal Reserve assets are composed mainly of Treasuries (62%) and Mortgage-Backed Securities (25%). An ambitious plan to reduce the assets really means a substantial reduction in new issues purchases. Foreign buying of US Treasuries was on the decline even before the crisis. With the war in Ukraine, the financial sanctions imposed can only increase future international hesitancy. As for the domestic market, buyers will demand much higher long-term rates in an inflationary environment, creating a risk of recession and plunging stock markets. The Federal Reserve cannot even count on the banking system to pick up the slack. Banks will benefit from higher interest rates, but their lending policies will tighten as the risk of a recession rises. They will shore up their reserves to account for future bad debt provisions.

In essence, the Federal Reserve is left with a narrow path of baby steps in short-term interest rate increases along with a watered-down reduction of its assets to avoid a run up of long-term interest rates. The Bank's directors are certainly aware of this and they hope that their tough talk combined with reasonable steps in the right direction will contain inflation until the current issues get resolved and the

Deep-rooted
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residual disturbances are rectified. Such soft-landing scenario is however unlikely, as it is fundamentally based on the belief that current inflation is transitory. Our analysis suggests this is not the case.

Deep-rooted inflationary forces are at work because of the distortions that the economic order of the last 40 years has created. These distortions, exacerbated by the dual crisis, will take long to repair. We are then looking at an unsettled economic and inflationary future. Is there then a way out?

Short of a highly improbable return to the pre-crisis conditions, our historical analysis does not provide an easy solution. There is always the possibility that events that did not occur in the past 70 years will emerge and resolve the current crisis, but such developments are, of course, impossible to predict.

One thing remains, however: the wise course of action to avoid a chaotic future requires that the US authorities withdraw from hands-on policies and instead, pave the way for the agile private sector to take the lead and adapt the economy to the changing conditions as it did so successfully after WWII.

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Annex 1

Superfunction and Function	1945	1946	1947	1948
	In millions of dollars			
National Defense	82,965	42,681	12,808	9,105
Human resources	1,859	5,493	9,909	9,868
Education, Training, Employment, and Social Services	134	85	102	191
Health	211	201	177	162
Medicare	.....	.....	.....	.....
Income Security	1,137	2,384	2,820	2,499
Social Security	267	358	466	558
(On-budget)	.....	.....	.....	.....
(Off-budget)	267	358	466	558
Veterans Benefits and Services	110	2,465	6,344	6,457
Physical resources	1,747	836	1,227	2,243
Energy	25	41	18	292
Natural Resources and Environment	455	482	700	780
Commerce and Housing Credit	-2,630	-1,857	-923	306
(On-budget)	-2,630	-1,857	-923	306
(Off-budget)	.....	.....	.....	.....
Transportation	3,654	1,970	1,130	787
Community and Regional Development	243	200	302	78
Net interest	3,112	4,111	4,204	4,341
(On-budget)	3,236	4,259	4,367	4,532
(Off-budget)	-124	-148	-163	-191
Other functions	4,418	3,580	7,900	5,851
International Affairs	1,913	1,935	5,791	4,566
General Science, Space, and Technology	111	34	5	1
Agriculture	1,635	610	814	69
Administration of Justice	178	176	176	170
General Government	581	825	1,114	1,045
Allowances	.....	.....	.....	.....
Undistributed offsetting receipts	-1,389	-1,468	-1,552	-1,643
(On-budget)	-1,389	-1,468	-1,552	-1,643
(Off-budget)	.....	.....	.....	.....
Total, Federal outlays	92,712	55,232	34,496	29,764