The End of the Post Cold War Era
Near & Long Term Implications for the Economy, Policy & Markets

MARCH 2022
Total Returns by Asset Class

In stagflation environments, very few asset classes outperform. In 2022 YTD, commodities are an outlier in their positive performance with most other debt and equity asset classes experiencing their worst Q1 total return performance in many years.

<table>
<thead>
<tr>
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</tr>
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<tbody>
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<td>3.6%</td>
<td>17.5%</td>
<td>22.3%</td>
<td>1.0%</td>
<td>31.5%</td>
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<td>28.7%</td>
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<td>Mortgages</td>
<td>S&amp;P 500</td>
<td>EM Sov</td>
<td>Mortgages</td>
<td>High Yield</td>
<td>High Grade</td>
<td>Commodities</td>
<td>Loans</td>
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<tr>
<td>1.5%</td>
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<td>10.0%</td>
<td>1.0%</td>
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<tr>
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<td>Commodities</td>
<td>High Yield</td>
<td>US Gov't</td>
<td>EM Sov</td>
<td>US Gov't</td>
<td>Loans</td>
<td>S&amp;P 500</td>
</tr>
<tr>
<td>1.4%</td>
<td>11.4%</td>
<td>7.5%</td>
<td>0.8%</td>
<td>14.3%</td>
<td>8.2%</td>
<td>5.4%</td>
<td>(-2.6%)</td>
</tr>
<tr>
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<td>Loans</td>
<td>High Grade</td>
<td>Loans</td>
<td>High Grade</td>
<td>High Yield</td>
<td>High Yield</td>
<td>High Yield</td>
</tr>
<tr>
<td>0.8%</td>
<td>10.4%</td>
<td>6.5%</td>
<td>0.6%</td>
<td>14.2%</td>
<td>6.2%</td>
<td>5.4%</td>
<td>(-4.9%)</td>
</tr>
<tr>
<td>EM Sov</td>
<td>EM Sov</td>
<td>Munis</td>
<td>High Grade</td>
<td>Loans</td>
<td>Munis</td>
<td>Munis</td>
<td>Mortgages</td>
</tr>
<tr>
<td>0.6%</td>
<td>9.5%</td>
<td>5.4%</td>
<td>(-2.2%)</td>
<td>8.7%</td>
<td>5.3%</td>
<td>1.8%</td>
<td>(-5.3%)</td>
</tr>
<tr>
<td>Loans</td>
<td>High Grade</td>
<td>Loans</td>
<td>High Yield</td>
<td>Munis</td>
<td>EM Sov</td>
<td>High Grade</td>
<td>US Gov't</td>
</tr>
<tr>
<td>0.1%</td>
<td>6.0%</td>
<td>4.6%</td>
<td>(-2.3%)</td>
<td>7.7%</td>
<td>4.8%</td>
<td>(-1.0%)</td>
<td>(-5.9%)</td>
</tr>
<tr>
<td>High Grade</td>
<td>Mortgages</td>
<td>Mortgages</td>
<td>S&amp;P 500</td>
<td>US Gov't</td>
<td>Mortgages</td>
<td>Mortgages</td>
<td>US Gov't</td>
</tr>
<tr>
<td>(-0.6%)</td>
<td>1.7%</td>
<td>2.4%</td>
<td>(-4.4%)</td>
<td>7.0%</td>
<td>4.1%</td>
<td>(-1.2%)</td>
<td>(-2.4%)</td>
</tr>
<tr>
<td>High Yield</td>
<td>US Gov't</td>
<td>US Gov't</td>
<td>EM Sov</td>
<td>Mortgages</td>
<td>Loans</td>
<td>US Gov't</td>
<td>High Grade</td>
</tr>
<tr>
<td>(-4.6%)</td>
<td>1.1%</td>
<td>2.4%</td>
<td>(-4.6%)</td>
<td>6.5%</td>
<td>3.5%</td>
<td>(-2.4%)</td>
<td>(-8.2%)</td>
</tr>
<tr>
<td>Commodities</td>
<td>Munis</td>
<td>Commodities</td>
<td>Commodities</td>
<td>Commodities</td>
<td>Commodities</td>
<td>EM Sov</td>
<td>EM Sov</td>
</tr>
<tr>
<td>(-24.7%)</td>
<td>0.4%</td>
<td>0.7%</td>
<td>(-13.0%)</td>
<td>5.4%</td>
<td>(-3.5%)</td>
<td>(-2.6%)</td>
<td>(-10.3%)</td>
</tr>
</tbody>
</table>

Source: USD Markets, Bloomberg, CreditSights. EM Sov is USD EM Sovereign BBB & Lower index. Commodities is Bloomberg Commodity Index. Full year returns except for 2022 YTD calculated through March 30, 2022.
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2. Global Sanctions Response
3. Economic Implications
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1. Ukraine Situation Analysis
Putin’s (Mis)Calculations

The peak-winter season, perceived Western leadership weakness and tacit Chinese support have all contributed to the current timing of President Putin’s long-held wish to restore Russia’s 20th century borders and pushback on potential NATO expansion. However, while seeking to take advantage of a seemingly weakened West and fragmented NATO alliance, Putin’s actions have become a catalyst for much stronger NATO unity and policy coordination than anticipated.

- **Winter** timing would maximize leverage over Europe
- **Weakened West** (Afghanistan, Biden, Johnson, Macron, Scholz)
- **Fragmented NATO**
- **Complexity and logistics** of military campaign
- **Ukraine weakness** politically, economically, militarily
- **Strength of Zelensky** leadership in crisis
- **Scale and speed of sanctions** and (private sector) self-sanctioning
- **Willingness to reduce or ban** Russian energy despite historically tight markets
Near & Long Term Implications of Russia-Ukraine

In many ways, the Russia-Ukraine crisis may prove to be a seminal event in the multi-year breakdown of the post Cold War geopolitical and global market paradigm. The near and longer term implications are likely to be profound, perhaps more than anticipated.

**Near Term Implications**

- Growth decelerating
- Supply side dislocations
- Inflation rising (food, energy, housing)
- Policy tightening
- Higher cost of funding
- Commodity import economies & currencies under pressure
- Higher structural volatility

**Longer Term Implications**

- Rising conflict between democracies & autocracies
- Rapidly rising defense spending
- Accelerating de-globalization
- Regionalization & reshoring of supply chains
- Weakening of US Dollar-dominated global financial system
- Accelerating energy transition & diversification
- More assertive gov’t role in global economy (sanctions, regulatory, trade)
2. Global Sanctions Response
Russia Prepared for Ukraine

**FX reserves rising**
Russia FX reserves, USD bn

**External debt declining**
Total external debt, USD bn

**US Dollar decoupling**
Russia’s ownership of USTs, USD bn

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Breakdown of Russia’s $643 Billion FX Reserves

Central Bank of Russia foreign exchange and gold assets, % market value

- Euro: 32%
- Gold: 22%
- Renminbi: 13%
- USD: 16%
- GBP: 7%
- Other: 10%

Over 65% of Russia’s FX Reserves are Sanctioned


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US Sanctions

President Putin failed to anticipate the speed and likelihood with which the US would move to: (i) sanction Russia’s Central Bank; (ii) deny Russian banks access to SWIFT; and (iii) implement a complete ban on new purchases of Russian oil, LNG and coal.

Sanctions as of March 30

1. **Russian Energy**: Biden signed EO banning US imports of Russian oil, LNG and coal, as well as prohibitions on investments or financing Russia’s energy sector.

2. **Central Bank**: Imposed restrictive measures to prevent the Russian Central Bank from accessing reserves in foreign currencies (done in conjunction with EU, UK and Canada).

3. **Financial Sector**: Announced removal of selected Russian banks from SWIFT system.

4. **Visas**: Restricted sale of “golden passports” to exclude wealthy Russians.

5. **Financial Sector**: Sanctions on several significant Russian financial institutions (including two largest, VTB and Sberbank) and selected Belarusian banks:
   - Range from correspondent banking sanctions to full blocking sanctions.
   - Full blocking sanctions freezes assets in US, prohibits transactions with US individuals and businesses, restricts access to the global financial system and US Dollar.
US Sanctions
Sanctions as of March 30

6 Funding: Restrictions on US individuals and firms from purchasing debt issued by Russia’s MoF, central bank (CBR), National Wealth Fund, Russian SOEs, banks, and private corporations (including gas, oil and power companies)

7 President Putin: Direct sanctions on President Putin

8 Russian Elites: Full blocking sanctions and travel restrictions for an expanded list of Russian elites and family members

9 Russian Lawmakers: 328 members of Russian State Duma sanctioned for their role supporting Putin’s actions

10 Export Restrictions: Export controls on critical technologies (semiconductors, lasers, sensors, etc.) and oil equipment, as well as the addition of several Russian military companies and their subsidiaries to the “Entity List”

11 Regional Sanctions: Broad jurisdiction-based sanctions in the Donetsk and Luhansk regions

• Prohibitions on new investments, imports, exports and financing transactions (similar to sanctions put on the Crimea region after annexation in 2014)
US Sanctions
Sanctions as of March 30

12 Gold: Gold-related transactions involving sanctioned Russian entities prohibited

13 Nat Gas: Sanctions on Nord Stream 2 and the company’s leadership

14 Airlines: All Russian-owned aircrafts, both cargo and passenger, banned from US airspace

15 KleptoCapture: New task force under the US Department of Justice focused on export restrictions, sanctions enforcement and economic countermeasures

16 Trade: Stripping Russia of MFN trading status, and suspending from WTO, is under consideration

17 “Secondary” Sanctions: Sanctions under consideration for selected companies or countries (i.e., China, India) that have not adopted Western sanctions with Russian entities, and/or if viewed to be assisting Russia in circumventing sanctions.
A ban on all Russian oil exports by the US and Europe would impact nearly 50% of total Russian oil exports. Preemptive self regulation has already begun to adversely impact Russian exports as shipping companies become concerned with safety of the Black Sea, reputation risk, letters of credit and insurance challenges.

Russia’s Most Important Oil Export Partners, % of total

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN</td>
<td>23.77</td>
</tr>
<tr>
<td>NL</td>
<td>9.42</td>
</tr>
<tr>
<td>DE</td>
<td>6.28</td>
</tr>
<tr>
<td>KR</td>
<td>5.03</td>
</tr>
<tr>
<td>PL</td>
<td>4.18</td>
</tr>
<tr>
<td>IT</td>
<td>3.74</td>
</tr>
<tr>
<td>BY</td>
<td>3.54</td>
</tr>
<tr>
<td>FI</td>
<td>2.76</td>
</tr>
<tr>
<td>JP</td>
<td>2.09</td>
</tr>
<tr>
<td>SK</td>
<td>1.47</td>
</tr>
<tr>
<td>UK</td>
<td>1.11</td>
</tr>
<tr>
<td>HU</td>
<td>1.03</td>
</tr>
<tr>
<td>US</td>
<td>0.95</td>
</tr>
</tbody>
</table>

Status of Russian Oil Ban (as of March)

- **US**: Banned via Biden Executive Order
- **UK**: Gradual 2022 phase-out period
- **EU**: Not yet announced

Source: UN Comtrade
"Self-Sanctioning" Russia

Yale University has created a comprehensive tracker of corporate responses to Russia’s invasion of Ukraine. Of the more than 450 companies globally included in their tracking analysis, over 80% have either fully withdrawn, suspended or scaled back their Russia business.

Number of companies “self-sanctioning” Russia

- **Full Withdrawal** - companies completely halting Russian engagements/exiting Russia
  - Number: 165 (35%)

- **Suspending** - companies temporarily curtailing operations while keeping return options open
  - Number: 186 (40%)

- **Scaling Back** - companies scaling back some business operations while continuing others
  - Number: 53 (11%)

- **Buying Time** - companies postponing future planned investment while continuing substantive business
  - Number: 36 (8%)

- **Digging In** - companies defying demands for exit/reduction of activities
  - Number: 26 (6%)

Source: (1) Yale School of Management. Data as of March 28, 2022.
Investors Incorporating Russia into ESG Agenda

Banks, stock exchanges, clearinghouses and investment funds have made rapid structural changes to remove Russian assets from the world’s financial system architecture.

Stock & Bond Indexes:

- Removing Russian stocks from its indexes
- Removing Russian listings from equity & corporate bond indexes
- Removing Russian equities from benchmark indexes
- Suspended share creation for VanEck Russia ETF (Van Eck is largest ETF investor in Russia)
- Suspended creation of new shares in FTSE Russia ETF
- Removing Russia from all fixed income indexes (including EM, Government, and Corporate indexes)
Investors Incorporating Russia into ESG Agenda

**Investment Funds:**

- **BlackRock:** Halted creation of new shares in MSCI Russia ETF
- **DWS:** Actively managed funds will no longer make new investments in Russian securities

**Rating Agencies:**

- **Fitch Ratings:** Russian sovereign debt downgraded to junk
- **Moody’s:** Russian sovereign debt downgraded to junk
- **S&P Global:** Downgraded Russian sovereign debt further into junk rating
Investors Incorporating Russia into ESG Agenda

Clearing Houses & Exchanges:

- No longer allowing investors to clear trades in ruble-denominated securities
- Clearstream no longer settling domestic trades in Russia, accepting Rubles as settlement currency or settling trades for Russian-linked stocks and bonds
- Suspends trading of firms with strong links to Russia
- Suspended trading of Russian government bonds
3. Economic Implications
Russia’s Significance to Global Economy

Since Crimea in 2014, companies and economies globally have significantly reduced their “direct” counter-party exposure to Russian banks and other entities. According to the BIS, direct global exposure to Russian banks and all other entities today is approximately $30 and $90 bn, respectively (a reasonably low number against the backdrop of an $85 trillion global economy). However, the global economy is inextricably linked to the Russian commodity sector, which is the primary channel of contagion in the current crisis. In fact, 130 countries in the world source at least one commodity or import predominantly in Russia, Ukraine or Belarus.

- **#11** largest economy globally
- **#5** largest economy in Europe
- **#5** in global FX reserves
- **#16** largest exporter globally
- **#5** largest European trading partner
- **#1** source of European energy (40% of Nat Gas, 27% of oil)
- **#1** in natural gas reserves globally
- **#2** in coal reserves globally
- **#8** in oil reserves globally (#3 in production)

*Source: Bank of International Settlements*
Dual Supply Side Shocks for Global Economy

The COVID and Ukraine crises have been dual shocks for the global economy, resulting in sharp downward revisions to global growth, and significantly higher expectations for inflation. Commodity markets are the primary channel of global contagion. While "stagflation" is not the baseline scenario, visibility remains low and risk is heavily weighted to the downside.

2022 World GDP and CPI revisions

Decelerating Global Growth

Growth will likely decelerate in almost every major global economy in 2022, but still remain “above long term trend” in most advanced economies. Visibility remains low, and variability on current forecasts high, with elevated recession risk for Europe in particular, depending on the forward path of the Ukraine crisis and related rise in energy prices.

2022 GDP growth forecasts, y/y

Shorter Economic Cycle Likely

There have been 35 US economic recoveries since 1854, the two longest of which occurred in the last 30 years. More effective central bank inflation policy and improved business management of supply chains and inventory have been important contributors to the length of recent cycles. The current cycle, however, on the back of extraordinary COVID crisis stimulus and rapidly rising inflation, is likely to be much shorter by comparison.

35 US recoveries since 1854

2010s: Longest cycle in history: 129 months

1990s: Second longest cycle in history: 120 months

Current Economic Cycle: 23 months

Yield Curve Signaling Decelerating Growth

Yield curve inversion has historically been the most reliable indicator of US recession, typically with 9-12 months of lead time. However, different parts of the curve signal different messages about policy and the economy. Notably, some have argued that the extraordinary Fed QE purchase program of recent years, combined with a Fed today so far “behind the curve,” has made it more challenging to compare current YC dynamics to prior cycles.

Source: (1-4) Bloomberg. Data as of March 30, 2022. 2s10s inverted intraday on March 29.
The Signaling Power of YC Inversion

A 2018 Fed study showed that, while numerous parts of the yield curve have been highly informative in signaling US recessions over the last 50 years, the 3M-10 year curve inversion has been the most accurate. Another prominent study concluded that inversions preceded 85% of recessions over the past 158 years. However, numerous analysts today believe that extraordinary central bank policy in recent years has reduced the signaling power of YC inversion.

Other Potential Explanations for Recent Yield Curve Inversion

- Distortions in term premia due to years of Fed QE
- Strong global technical demand for USTs
- View that Fed may be “behind the curve” for just a short period
- Short term inflation expectations > longer term
- Believe Fed tightening cycle will be brief
- Long term “neutral” Fed rate expectations low (structural headwinds)
Resilience of the US Economy

With Russia’s economy facing a depression in 2022 (contraction > 10%), and Europe at high risk for recession depending on escalation scenarios, the US economy is likely to be more resilient by comparison. While surging energy prices would be the primary channel of contagion to the US consumer, we would assess the probability of a US recession over the next 12 months at approximately 20-25%.

Resilience of the US Economy

- Relatively closed, insular economy by G20 standards (consumer 70% of GDP, exports only 11%)
- Direct Russia exposure low (energy, trade, counterparty risk)
- Fortified corporate balance sheets (high cash balances, pre-funding, extended maturities)
- Strong consumer balance sheets (US consumer balance sheets rose $28 trn during COVID; deposits increased $4 trn; “excess savings” up $2.5 trn)
- Low unemployment, rising wages
MUFG’s Head of US Macro Strategy, George Goncalves, has provided a useful framework for assessing the change in the US macro outlook, with the preponderance of risk for the US economy now shifting down to scenarios somewhere between a mid-cycle slowdown and recession over the next 18 months. For corporates, decelerating growth, rising input costs (wages, goods), inventory pre-ordering and higher funding costs are likely to contribute to significant margin pressure and a steep deceleration in corporate profits in the year ahead.

<table>
<thead>
<tr>
<th>Macro Scenario</th>
<th>Current Probability Assessment</th>
<th>Prior Probability Assessment</th>
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<tbody>
<tr>
<td>The Boom</td>
<td>0%</td>
<td>65%</td>
</tr>
<tr>
<td>Goldilocks</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>Mid-cycle slowdown</td>
<td>25%</td>
<td>5%</td>
</tr>
<tr>
<td>Stagnation</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Stagflation</td>
<td>20%</td>
<td>5%</td>
</tr>
<tr>
<td>Recession</td>
<td>30%</td>
<td>5%</td>
</tr>
</tbody>
</table>
4. Inflation Implications
Wars are Highly Inflationary Historically

US consumer price index, 1800 - 1950

- **War of 1812** (1812-1815)
- **Civil War** (1861-1865)
- **World War I** (1914-1918)
- **World War II** (1939-1945)

US Inflation at 40 Year Highs, & Rising

Rising energy prices helped push the headline CPI rate up to a 40-year high of 7.9% in February. The Russia – Ukraine war will add further pressure through higher energy, food and core commodity prices, coupled with existing supply chain dislocations, leading to a higher near-term peak in inflation before moderating.

Source: (1-2) Bloomberg. Data as of March 30, 2022. John Authers. Sticky inflation is US CPI all items less food, shelter, energy & used cars & trucks is NSA.
Services Inflation Also Picking Up

The CPI basket is comprised of approximately 60% services, 20% goods and 20% food and energy. While goods inflation continues to surge, services inflation has recently risen to 30 year highs.

CPI inflation, y/y

Source: (1) Bloomberg. Data as of March 30, 2022. Services inflation is CPI services ex energy. Goods inflation is CPI durables.
Inflation Pressures Vary by Sector

US inflation by sector (y/y)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Inflation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used cars and trucks</td>
<td>41%</td>
</tr>
<tr>
<td>Motor fuel</td>
<td>38%</td>
</tr>
<tr>
<td>Energy commodities</td>
<td>38%</td>
</tr>
<tr>
<td>Energy</td>
<td>26%</td>
</tr>
<tr>
<td>Lodging away from home</td>
<td>25%</td>
</tr>
<tr>
<td>Car &amp; truck rental</td>
<td>24%</td>
</tr>
<tr>
<td>Utility gas service</td>
<td>24%</td>
</tr>
<tr>
<td>Furniture &amp; bedding</td>
<td>17%</td>
</tr>
<tr>
<td>Tires</td>
<td>15%</td>
</tr>
<tr>
<td>Meats</td>
<td>14%</td>
</tr>
<tr>
<td>Motor vehicle parts and equipment</td>
<td>14%</td>
</tr>
<tr>
<td>Airline fares</td>
<td>13%</td>
</tr>
<tr>
<td>Energy services</td>
<td>12%</td>
</tr>
<tr>
<td>New trucks</td>
<td>12%</td>
</tr>
<tr>
<td>Vehicle accessories</td>
<td>12%</td>
</tr>
<tr>
<td>Eggs</td>
<td>11%</td>
</tr>
<tr>
<td>Outdoor equip. &amp; supplies</td>
<td>11%</td>
</tr>
<tr>
<td>Milk</td>
<td>11%</td>
</tr>
<tr>
<td>Financial services</td>
<td>10%</td>
</tr>
<tr>
<td>Music instruments &amp; acces.</td>
<td>10%</td>
</tr>
<tr>
<td>Laundry &amp; cleaning services</td>
<td>10%</td>
</tr>
<tr>
<td>Electricity</td>
<td>9%</td>
</tr>
<tr>
<td>Tools, hardware &amp; supplies</td>
<td>9%</td>
</tr>
<tr>
<td>Household furnishings &amp; supplies</td>
<td>9%</td>
</tr>
<tr>
<td>Domestic services</td>
<td>9%</td>
</tr>
<tr>
<td>Food at home</td>
<td>9%</td>
</tr>
<tr>
<td>Cereals &amp; bakery products</td>
<td>8%</td>
</tr>
<tr>
<td>Public transportation</td>
<td>8%</td>
</tr>
<tr>
<td>Fruits and vegetables</td>
<td>8%</td>
</tr>
<tr>
<td>Footwear</td>
<td>7%</td>
</tr>
<tr>
<td>Transportation services</td>
<td>7%</td>
</tr>
<tr>
<td>Apparel</td>
<td>7%</td>
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<tr>
<td>Appliances</td>
<td>7%</td>
</tr>
<tr>
<td>Sporting goods</td>
<td>7%</td>
</tr>
<tr>
<td>Tobacco &amp; smoking products</td>
<td>7%</td>
</tr>
<tr>
<td>Food away from home</td>
<td>7%</td>
</tr>
<tr>
<td>Nonalcoholic beverages</td>
<td>7%</td>
</tr>
<tr>
<td>Moving, storage, freight expense</td>
<td>6%</td>
</tr>
<tr>
<td>Land-line phone services</td>
<td>6%</td>
</tr>
<tr>
<td>Intracity mass transit</td>
<td>5%</td>
</tr>
<tr>
<td>Veterinarian services</td>
<td>5%</td>
</tr>
</tbody>
</table>

## Inflation Pressures Vary by Sector (Cont.)

### US inflation by sector (y/y)

<table>
<thead>
<tr>
<th>Category</th>
<th>Inflation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housekeeping supplies</td>
<td>6%</td>
</tr>
<tr>
<td>Motor vehicle maint. &amp; Repair</td>
<td>6%</td>
</tr>
<tr>
<td>Rent of shelter</td>
<td>5%</td>
</tr>
<tr>
<td>Pets &amp; pet products</td>
<td>5%</td>
</tr>
<tr>
<td>Computers and smart home assistants</td>
<td>5%</td>
</tr>
<tr>
<td>Legal services</td>
<td>5%</td>
</tr>
<tr>
<td>Shelter</td>
<td>5%</td>
</tr>
<tr>
<td>Recreation services</td>
<td>5%</td>
</tr>
<tr>
<td>Motor vehicle insurance</td>
<td>4%</td>
</tr>
<tr>
<td>Owners' equivalent rent</td>
<td>4%</td>
</tr>
<tr>
<td>Services less energy services</td>
<td>4%</td>
</tr>
<tr>
<td>Nursing homes</td>
<td>4%</td>
</tr>
<tr>
<td>Water &amp; sewerage maint.</td>
<td>4%</td>
</tr>
<tr>
<td>Garbage &amp; trash collection</td>
<td>4%</td>
</tr>
<tr>
<td>Jewelry and watches</td>
<td>4%</td>
</tr>
<tr>
<td>Delivery services</td>
<td>4%</td>
</tr>
<tr>
<td>Alcoholic beverages</td>
<td>4%</td>
</tr>
<tr>
<td>Health insurance</td>
<td>4%</td>
</tr>
<tr>
<td>Recreational reading</td>
<td>4%</td>
</tr>
<tr>
<td>Toys</td>
<td>3%</td>
</tr>
<tr>
<td>Medicinal drugs</td>
<td>3%</td>
</tr>
<tr>
<td>Photo equipment &amp; supplies</td>
<td>3%</td>
</tr>
<tr>
<td>Hospital services</td>
<td>3%</td>
</tr>
<tr>
<td>Day care and preschool</td>
<td>3%</td>
</tr>
<tr>
<td>Internet services</td>
<td>3%</td>
</tr>
<tr>
<td>Medical care services</td>
<td>2%</td>
</tr>
<tr>
<td>Professional services</td>
<td>2%</td>
</tr>
<tr>
<td>Funeral expenses</td>
<td>2%</td>
</tr>
<tr>
<td>School tuition</td>
<td>2%</td>
</tr>
<tr>
<td>College tuition and fees</td>
<td>2%</td>
</tr>
<tr>
<td>Educational books</td>
<td>1%</td>
</tr>
<tr>
<td>Physicians' services</td>
<td>1%</td>
</tr>
<tr>
<td>Technical &amp; bus. school tuition</td>
<td>1%</td>
</tr>
<tr>
<td>Personal care products</td>
<td>1%</td>
</tr>
<tr>
<td>TVs</td>
<td>0%</td>
</tr>
<tr>
<td>Wireless phone services</td>
<td>0%</td>
</tr>
<tr>
<td>Audio equipment</td>
<td>0%</td>
</tr>
<tr>
<td>Cosmetics</td>
<td>-1%</td>
</tr>
<tr>
<td>Computer software and accessories</td>
<td>-2%</td>
</tr>
<tr>
<td>Smartphones</td>
<td>-13%</td>
</tr>
</tbody>
</table>

Commodity Prices Surging Higher

2022 YTD performance

**Energy**
- Brent: $114, +47%
- US Natural Gas: $5.45, +46%
- European Natural Gas (TTF): $119, +69%

**Industrial metals**
- Nickel: +52%
- Palladium: +16%
- Steel: 26%

**Agriculture**
- Agriculture Index: +21%
- Wheat: +34%
- Grains: +26%

Largest Buyers of Russian Grain

Russian grain destinations in tons (July 2021 - January 2022)

1. Turkey: 5.8 million
2. Iran: 5.1 million
3. Egypt: 3.4 million
4. Saudi Arabia: 1.2 million
5. Azerbaijan: 0.7 million
6. Nigeria: 0.7 million
7. Libya: 0.5 million
8. Bangladesh: 0.4 million
9. Syria: 0.4 million
10. Sudan: 0.4 million

Energy as % of Total Inflation Basket

By comparison to other large economies (US, UK, Japan, China), Europe’s economy is much more vulnerable to rising energy prices.

Source: (1) Bloomberg.
Near Term Inflation Expectations Rising More Rapidly

While the Fed has abandoned use of the term “transitory,” debt and equity markets are still trading with more optimism of a “soft landing.”

Source: (1-4) Bloomberg. Data as of March 30, 2022.
Wage Inflation Varies by Sector

In February, wages rose at a higher than expected 5.1% y/y. Tight labor markets have pushed wages higher in the post-crisis period, particularly for those in the lower quartile of earners.

Source: (1-10) Bloomberg. Data as of March 30, 2022.
Wage Inflation Varies by Income Level

Hourly wage growth by quartile

5. Supply Chain Implications
Supply Side Dislocations Part 3

#1: COVID Crisis  
(2020 - 2021)

$32 tn of global stimulus
$6 tn of “excess” global savings
Consumer shift to goods over services

#2: Ukraine Crisis  
(2022)

Global commodity price shock
Supply side pricing pressures

#3: China’s COVID Resurgence  
(2022)

Rolling regional shutdowns (HK, Shenzhen, Shanghai)
Supply side production & delivery pressures

Supply side dislocations

- Shipping queues
- Port delays
- Container backlogs
- Warehouse constraints

- Trucking bottlenecks
- Labor shortages
- Rising input costs
- Microchip backlog
China's COVID Quandary

The COVID and Ukraine crises represent back-to-back supply side shocks for the global economy. Recent outbreaks across Asia and China in particular, including China’s restrictions across Shenzhen’s 24 million person population, have exacerbated supply chain and tech sector bottlenecks globally.

• Low natural immunity across population
• Low vaccination rates
• Low vaccine efficacy
• Aging demographics
• Poorly resourced hospital system nationally
Recent Supply Chain Moderation May be Short-Lived

- **ISM delivery times**
  - Graph showing delivery times from Jan-2015 to Feb-2022.
  - Data from Bloomberg.

- **ISM manufacturing order backlogs**
  - Graph showing order backlogs from Jan-2015 to Feb-2022.
  - Data from Bloomberg.

- **ISM manufacturing prices paid**
  - Graph showing prices paid from Jan-2015 to Feb-2022.

- **Baltic dry shipping price index**
  - Graph showing shipping prices from Jan-2015 to Mar-2022.

*Source: (1-4) Bloomberg. Data as of March 30, 2022.*
Recent Supply Chain Moderation May be Short-Lived


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Russia’s Share of Global Commodity Production

Russia’s share of global production by commodity (% of world total)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palladium</td>
<td>45%</td>
</tr>
<tr>
<td>Gas</td>
<td>17%</td>
</tr>
<tr>
<td>Gold</td>
<td>10%</td>
</tr>
<tr>
<td>Oil</td>
<td>10%</td>
</tr>
<tr>
<td>Platinum</td>
<td>10%</td>
</tr>
<tr>
<td>Met-coal</td>
<td>8%</td>
</tr>
<tr>
<td>Nickel</td>
<td>7%</td>
</tr>
<tr>
<td>Aluminum</td>
<td>6%</td>
</tr>
<tr>
<td>Silver</td>
<td>5%</td>
</tr>
<tr>
<td>Iron ore</td>
<td>5%</td>
</tr>
<tr>
<td>Copper</td>
<td>4%</td>
</tr>
<tr>
<td>Thermal coal</td>
<td>4%</td>
</tr>
<tr>
<td>Lead</td>
<td>3%</td>
</tr>
<tr>
<td>Cobalt</td>
<td>3%</td>
</tr>
<tr>
<td>Zinc</td>
<td>2%</td>
</tr>
<tr>
<td>Alumina</td>
<td>2%</td>
</tr>
</tbody>
</table>

Palladium is widely used in the global automobile, electronics, and semiconductor supply chains.

Source: (1) MUFG. Ehsan Khoman, Head of Emerging Markets Research - EMEA. Bloomberg.
Russia-Ukraine represents a supply side shock on top of a supply side shock (COVID) for the global economy. Notably, the time between ordering a microchip and delivery continues to lengthen and is now double its pre-COVID average.

**Gap between ordering a chip and delivery, weeks**

Source: (1) Bloomberg, “Wait Times for Chip Deliveries Grow Again as Shortages Persist” (March 11, 2022).
6. Policy Implications
Central Bank Divergence

Global central bank policy has shifted from broad-based and coordinated easing in response to COVID-19, to sharp divergence as economies globally face myriad challenges managing the fallout from the conflict in Ukraine, decelerating growth, and upward inflation pressures.

### Divergent Central Bank Policy

<table>
<thead>
<tr>
<th>2022 Policy Rate</th>
<th>Balance Sheet</th>
<th>10 Yr Yields</th>
<th>Currency</th>
<th>Inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fed</strong></td>
<td>230bps of hikes priced in (9 hikes)</td>
<td>QT announced</td>
<td>Rising rapidly (2.25% - 2.50%)</td>
<td>Broad strengthening</td>
</tr>
<tr>
<td><strong>ECB</strong></td>
<td>60bps of hikes priced in (ending NIRP)</td>
<td>Tapering purchases, TLTROs maturing in Q3</td>
<td>Rising but still &lt;1% (Germany)</td>
<td>Range bound at weaker levels</td>
</tr>
<tr>
<td><strong>BoJ</strong></td>
<td>No hikes priced</td>
<td>Unlimited QE announced</td>
<td>Likely resistance level at 0.25%</td>
<td>Weakening</td>
</tr>
</tbody>
</table>

Source: (1) MUFG Research.
G10 Currencies During the Ukraine Crisis

The Euro, Sterling and Yen have been the three worst performing G10 currencies since the Ukraine invasion began on February 24.

G10 currencies vs US Dollar Since February 24, 2022

Australia

Norway

New Zealand

Canada

Sweden

Switzerland

Denmark

Euro

British

Japan

Source: (1) Bloomberg. Data as of March 30, 2022. Performance is vs. USD. CNYUSD graphed to show appreciation.
Markets Repricing Fed Hike Path

*Expectations for Fed Tightening in 2022*

Market implied rate hikes, bps

<table>
<thead>
<tr>
<th>Month</th>
<th># of hikes expected in 2022 as of…</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan-2021</td>
<td>0 hikes</td>
</tr>
<tr>
<td>Jul-2021</td>
<td>1.1</td>
</tr>
<tr>
<td>Oct-2021</td>
<td>1.0</td>
</tr>
<tr>
<td>Jan-2022</td>
<td>3.1</td>
</tr>
<tr>
<td>Feb-2022</td>
<td>5.4</td>
</tr>
<tr>
<td>Mar-2022</td>
<td>9.4</td>
</tr>
</tbody>
</table>


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Historic Rise in 2 Year UST Yields in March

With the Fed currently more focused on rising inflation than decelerating growth, 2 year UST yields have had their largest monthly increase in March since 1984.

Source: (1-2) Bloomberg. Data as of March 30, 2022. 2s 10s curve inverted intraday on March 29.

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Quantitative Tightening Moving Forward

MUFG’s Head of US Macro Strategy, George Goncalves, expects the Fed to reduce its balance sheet by $500–600 bn in 2H2022, and by an additional $1.2 trillion in 2023. George also believes that the Fed is unlikely to raise rates as much as markets are currently pricing, as the tightening impact of concurrent Fed balance sheet reduction is likely to be significant. Whereas rate increases have more impact on the short end of the curve, balance sheet reduction may be targeted to have more impact on the long end.

Fed balance sheet total assets, USD tn

![Graph showing the Fed's balance sheet doubled during COVID.](image)

Tightening Cycles Pose Risks for Markets

Monetary policy tightening and credit cycle turns have accounted for nearly half of G7 recessions since 1960. While recession risk remains low near term, policy risk nonetheless remains high, with potentially adverse economic and market consequences at a time when risk asset-valuations are already at late cycle levels.

Factors contributing to 46 recessions in G7 economies since 1960

- Monetary policy tightening: 29
- Burst credit bubble: 19
- Oil price shock: 13
- Burst housing bubble: 13
- Banking crisis: 11
- Tight fiscal policy: 10
- External demand shock: 9
- Exchange rate shock: 8

“It will be challenging to reduce inflation without giving rise to a recession.”
Larry Summers, Former US Treasury Secretary, NEC Director & Harvard President

Source: (1) WSJ. Capital Economics. Factors contributing to 46 recessions in G7 economies since 1960. Bars do not sum to 46 due to multiple factors for specific recessions.
MUFG’s Head of US Macro Strategy, George Goncalves, expects the 2 Year UST to absorb the majority of the Fed’s rate tightening in 2022. Importantly, George’s 2022 forecasts are based on an approach that triangulates three variables given the feedback loops from financial markets in today’s economy: (1) growth; (2) inflation; and (3) financial conditions.

10 year UST forecasts

<table>
<thead>
<tr>
<th>Quarter</th>
<th>MUFG Forecast</th>
<th>Consensus Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2 2022</td>
<td>2.25%</td>
<td>2.16%</td>
</tr>
<tr>
<td>Q3 2022</td>
<td>1.88%</td>
<td>2.22%</td>
</tr>
<tr>
<td>Q4 2022</td>
<td>1.75%</td>
<td>2.30%</td>
</tr>
<tr>
<td>Q1 2023</td>
<td>2.13%</td>
<td>2.40%</td>
</tr>
</tbody>
</table>

7. End of Post Cold War Era
The Post Cold War Era is Over


BERLIN WALL FALLS
November 9, 1989

RUSSIA INVADES UKRAINE
February 24, 2022

Nominal GDP, current USD

US: $23.0 tn
China: $17.7 tn
Japan: $4.9 tn
Germany: $4.2 tn
UK: $3.2 tn
Russia: $1.8tn

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New World Order: Geopolitical

The Russia-Ukraine Crisis is likely to accelerate a “new world order” that began to change a decade ago, one defined by a dilution of hegemonic, unipolar US power, and increased structural rivalry between the West and a China-Russia led bloc in the East.

<table>
<thead>
<tr>
<th>Old World Order (Post-Cold War Era)</th>
<th>New World Order (Multi-Polar Structural Rivalry)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unipolar world</strong></td>
<td><strong>Multi-polar world</strong></td>
</tr>
<tr>
<td>• US hegemonic power</td>
<td>• Axes of power East &amp; West</td>
</tr>
<tr>
<td><strong>The “end of history”</strong></td>
<td><strong>Rising conflict</strong></td>
</tr>
<tr>
<td>• Fall of Berlin Wall</td>
<td>• Between authoritarian regimes and democracies</td>
</tr>
<tr>
<td>• Proliferation of Democracy</td>
<td>• Steady decline in # of democracies since 2006</td>
</tr>
<tr>
<td><strong>The “peace dividend”</strong></td>
<td><strong>Rapidly rising defense spending</strong></td>
</tr>
<tr>
<td>• Especially in Europe</td>
<td>• Especially in Europe</td>
</tr>
<tr>
<td>• Low defense spend to GDP</td>
<td>• Rising defense spend to GDP</td>
</tr>
<tr>
<td>• Formation of the Euro &amp; increased economic integration</td>
<td>• Abandoning of Swiss &amp; Swedish “neutrality”</td>
</tr>
<tr>
<td><strong>Rise of China</strong></td>
<td><strong>US-China “structural rivalry”</strong></td>
</tr>
<tr>
<td>• Symbiotic US-China relationship (across consumption &amp; production, deficits &amp; surpluses, trade &amp; supply chains)</td>
<td>• More confrontational &amp; competitive US-China economic &amp; geopolitical relationship</td>
</tr>
</tbody>
</table>
The Dollar Dominated Global Financial System

Index of international currency usage

5 measures of currency usage

1. Official FX reserves
2. FX transaction volume
3. FX debt instruments outstanding
4. Cross-border deposits
5. Cross-border loans

Source: (1) The Federal Reserve “The International Role of the U.S. Dollar” (October 6, 2021). IMF COFER. BIS Triennial Central Bank Survey of FX and OTC Derivatives Market. Dealogic. Refinitiv. BIS Locational Banking Statistics. Board Staff Calculations. Index is a weighted average of each currency’s share of globally disclosed FX reserves (25% weight), FX transaction volume (25%), FX currency debt issuance (25%), FX and international banking claims (12.5%) and FX international banking liabilities (12.5%).

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# New World Order: Financial & Economic

The Ukraine crisis likely represents a seminal event in the inevitable weakening of the US dollar dominated global financial system that has dominated the global economy since the end of Bretton Woods in 1971. Many of the forces and transitions underway will contribute to higher inflation in the West.

## Old World Order
(Post-Cold War Era)

**Globalization & trade**
- More highly correlated business cycles & risk
- Currency wars / US Dollar strength
- Rising US trade deficits
- Deflationary forces

**Global supply chains**
- **Priority:** low cost & speed
- Low cost EM labor & production capacity
- Offshoring of manufacturing & production

**Deflationary Cycle**
- Structurally low inflation & rates
- Multi-decade bond bull market
- Fed suppression of volatility

## New World Order
(Multi-Polar Structural Rivalry)

**De-globalization & protectionism**
- Less predictable & uncorrelated risk
- Less USD strength
- Declining US trade deficits (over time)
- Inflationary forces

**Regional supply chains / Re-shoring**
- **Priority:** security & resilience
- Unutilized productive EM capacity less available
- Potential “re-industrialization of America”

**More Inflation in the West**
- Supply constrained growth
- Less demand for USTs
- Smaller central bank toolkit
US Dollar Share of Global Trade Settlement

Share of export invoicing

Source: (1) The Federal Reserve “The International Role of the U.S. Dollar” (October 6, 2021). IMF direction of trade; Central Bank of the Republic of China. Average annual currency composition of export invoicing, where data are available. Data extend from 1999 through 2019. Regions are those defined by the IMF.
# New World Order: Financial & Economic

The Ukraine crisis likely represents a seminal event in the inevitable weakening of the US dollar dominated global financial system that has dominated the global economy since the end of Bretton Woods in 1971. Many of the forces and transitions underway will contribute to higher inflation in the West.

## Old World Order
(Post-Cold War Era)

**US Dollar based global financial system**
- USD dominated trade & commodities settlement (petrodollars)
- Currency pegs to USD
- UST as global risk-free asset
- Cheaper US debt
- Power to yield sanctions

**USTs as primary CB FX asset**
- Global FX reserves & EM surpluses recycled into USTs and dollars

## New World Order
(Multi-Polar Structural Rivalry)

**Multi-currency settlement regime**
- Multi-currency trade & commodities settlement
- Weakening of Eurodollar system
- Rising use of commodity-backed currencies in the East
- Increased use of RMB by China
- Increased appeal of IMF SDR reserve based system globally

**Rising demand for “physical” gold**
- Increased CB demand for gold
- Increased CB demand for broader basket of currencies
US Dollar Share of Global FX Reserves

Source: (1) The Federal Reserve “The International Role of the U.S. Dollar” (October 6, 2021). IMF. COFER. Share of globally disclosed FX reserves at current exchange rates. 2021 is Q1 only. Chinese Renminbi is 0 until Q2 2015.

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New World Order: Regulatory

Over the last decade, global governments have become much more involved in the economy following three crises: GFC (2008), COVID (2020) and Russia-Ukraine (2022). History suggests that as governments increase their participation during times of crisis, their role is typically not quick to recede.

<table>
<thead>
<tr>
<th>Old World Order</th>
<th>New World Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Post-Cold War Era)</td>
<td>(Multi-Polar Structural Rivalry)</td>
</tr>
</tbody>
</table>

**Less Government regulation**

Evolution of government activism:
- 1980s-90s deregulation
- Financial crisis bailouts
- Trade war protectionism
- COVID crisis financial support
- Ukraine crisis sanctions

**More government regulation**

Priorities of government activism:
- Financial stability
- Climate change
- Rising inequality (higher taxes)
- Anti-trust scrutiny
- Cross-border scrutiny and sanction regimes

**Lower Tax Regime**

- Lower corporate taxes
- Global tax safe havens
- Carbon & fossil fuel tax deductions

**Higher Tax Regime**

- Rising taxes to fund crisis bailouts, deficits & aging populations
- Global minimum tax
- Declining tax havens
- Carbon taxes

**Fossil-fuel energy dependency**

- National security strategy aligned accordingly

**Energy transition & diversification**

- National security strategy aligned accordingly

**“Investor-centric” corporate strategy**

- Investor as primary constituent
- Maximizing profitability

**“ESG-centric” corporate strategy**

- Investors, regulators, consumers
- Broader range of criteria
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Tom Joyce is a Managing Director and Capital Markets Strategist within MUFG’s global capital markets and investment banking business. Based in New York, Tom heads a team that creates customized analytical content for multi-national S&P 500 companies. His team provides in depth analysis on the impact of economic, political, public policy and regulatory dynamics on the US credit, foreign exchange, rates and commodities markets.

Tom has over 25 years of Investment Banking experience in New York, London, Hong Kong, and San Francisco. Over the last 15 years, Tom created and built the Capital Markets Strategy role, advising corporate C-Suite executives (Boards, CEOs, CFOs, and Treasurers) on the pervasive macro forces driving markets. Tom also presents at dozens of corporate events each year including Board meetings, CEO ExCo sessions, CFO and Treasury off-sites, corporate leadership events and conferences.

Tom’s educational background includes a year of study at Oxford University from 1991 - 1992, a Bachelor of Arts in Political Science from Holy Cross College in 1993, and a MBA from Kellogg Business School, Northwestern University in 2000.

Tom resides in New Canaan, CT with his wife and four sons, where he coaches youth basketball and serves on the Board of Trustees of the New Canaan Library, the Board of the New Canaan Football (Soccer) Club and the Holy Cross College President’s Council.
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Hailey Orr is a Director in MUFG’s Capital Markets Strategy group within the global capital markets and investment banking business. The team provides market based content for corporate clients to assist in strategic decision making. Focus areas include the impact of economic, political, public policy and regulatory dynamics on the US credit, foreign exchange, rates and commodities markets.

Hailey has a decade of Wall Street experience, including three years as a Consumer Sector Specialist in Equity Sales and seven years as a Capital Markets Strategist. Hailey is also a member of MUFG’s Inclusion & Diversity Council and has devoted years to participating in and developing Wall Street recruiting programs.

Hailey graduated with honors from the University of Michigan’s Ross School of Business with a BBA and a minor in International Studies.

In March 2020, Crain’s New York Business Magazine named Hailey one of the “Rising Stars in Banking and Finance”.

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Stephanie has spent over three years as a Capital Markets Strategist. At her prior firm, Stephanie was a part of the Americas Women’s Network Junior Council and was an active member of the University of Michigan recruiting team.

Stephanie graduated with honors from the University of Michigan’s Ross School of Business with a BBA.
MUFG’s Capital Markets Strategy Team

The MUFG Capital Markets Strategy team provides monthly publications and weekly policy notes, presenting to Boards and C-Suite executives, on a broad range of transformative themes driving the FX, rates and credit markets including: the COVID-19 recovery, ESG’s acceleration, tax code policy changes, US-China decoupling, corporate strategy, geopolitical risk and central bank monetary policy.
MUFG’s Capital Markets Strategy Team
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