Highlighted Research

Tariffs

A 5-minute read of what you need to know

Proposed tariff policies could significantly impact the macroeconomic and market outlook. In this Highlighted Research, we curate cross-asset insights on potential market implications.

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See page 15 for analyst certification and important disclosures.

US Tariff Policies: Executive Authority

Higher tariffs to support US manufacturing are a key policy plank of Former President Trump's campaign, having mentioned two possible policies: a 60% tariff on all Chinese imports and a 10% universal tariff on all imports. Other proposals have included a 100% tariff on auto production in Mexico by Chinese automakers. Our analysts point out that "Trump tariffs were not abandoned but enhanced under the Biden administration, who left in place most of Trump's China trade policies, including tariffs, and doubled down with export controls."

Although estimates of the market impacts from proposed tariffs exist, our Global Equity Strategy team indicates that initial effects "would be offset by second and third order effects of their implementation." Our U.S. Economics team also notes that transitioning from a static to a dynamic calculation could significantly alter the results. While the composition of Congress is essential for fiscal and tax policy, tariffs remain front and center due to their potential implementation through Executive Authority.

Executive Authority

Our Government Relations team emphasizes the need to distinguish between actions that can be taken through executive authority and those requiring congressional or legal support. The Executive Branch has considerable scope to impose sanctions through:

- **Section 301** of the Trade Act grants the President authority to investigate and address unfair trade practices by foreign countries, which includes the ability to impose tariffs.
  - This includes investigating unfair trade practices including subsidies, dumping and intellectual property theft.

While **Section 301 is a main tool for investigating and addressing unfair global trade practices,Section 302 provides additional power** to the President on other trade issues.

- **Section 302** includes addressing issues of national security and currency manipulation.
  - Tariffs can be imposed to protect US national security interests and address currency manipulation by foreign governments.
- **Section 232** allows the President to impose tariffs if the Department of Commerce concludes that imports of a particular product(s) threaten U.S. national security. To note, **Trump used this in the first term to put tariffs on steel and aluminum imports**.
  - Our analysts note that 232 will "likely see more use, as national security concerns have increased on everything from biotech to titanium sponge to electric vehicles."

Other available channels for imposing tariffs include:

- **IEEPA**, the International Economic Powers Act, gives the President broad authority to impose tariffs and other measures on countries. The statute is so broad that unlike 201, 232, or 301, it is not limited to specific products or countries.
- **Section 201** allows the President to impose temporary tariffs, if the U.S. International Trade Commission determines that a surge in imports is a substantial cause or threat of serious injury to a U.S. industry.

Congressional Support

Of note, there are some proposed policies which may require legal basis or support of Congress. While the President can implement tariffs under the Sections outlined above, "that authority is not unlimited," and **new trade laws or even significant changes to existing laws likely require congressional support and action**. While scope under Section 301 could be subject to legal challenges, the team points out that the "courts give the President a great deal of freedom to use these authorities." **While there have been several legal challenges to the Trump 301 tariffs over the years, so far the courts have sided with the executive branch.**

Role of USTR

Furthermore, the Office of the United States Trade Representative (USTR) plays a crucial role in Section 301 related activity—conducting investigations and analysis, and making recommendations to the President.

See REPLAY US Policy Issues: International Trade (Michael Feroli | June 27, 2024)

Macroeconomic Impacts

US Growth and Inflation

Michael Feroli, Chief US Economist, points out that while "the Biden administration hasn't been a vocal advocate of free trade—leaving intact the Trump tariffs on Chinese imports and recently selectively increasing tariffs further on some Chinese products—a second Trump administration would be much more protectionist" than a second Democratic administration. At the macro level, higher tariffs would "likely contribute to inflation." Looking to the recent past Feroli notes:

- "The Trump 1.0 tariffs increased the trade-weighted average tariff rate from around 1.5% to just over 3%.
- If this all fell on consumers it would have raised the basket of consumer prices by around 0.3%.
- Evidence from that period suggests that there was less than complete pass-through to consumer prices, suggesting retailers and other businesses swallowed some of the higher tariffs.
- On the other hand, there is also evidence that domestic producers used some of the increase in market power to push through higher prices."

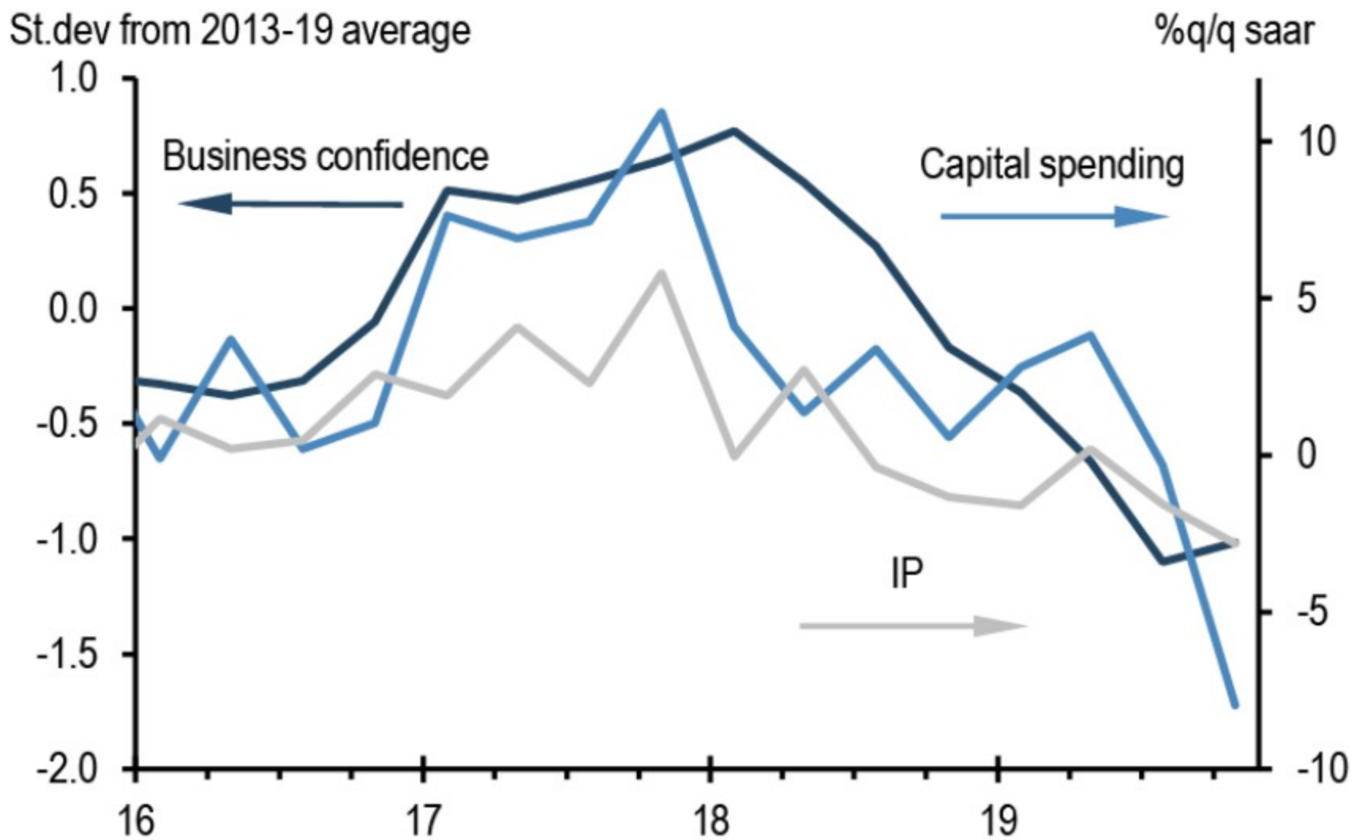
Extrapolating that reasoning with current proposals suggests:

- A "**60% tariff on all Chinese imports** would **raise the price level 1.1%**, while a **10% universal tariff** would **increase the price level by 1.5%**.
- While shifting from a static to a dynamic calculation would likely change the results for the Chinese tariff proposal more dramatically, as it **may be easier to substitute away from China to other low-cost producers** than to substitute away from imported products altogether."

The impacts to US growth are less clear, noting that "**in standard models the economic growth impact of tariffs is surprisingly small**," however this may reflect that "trade models don't capture intangibles like policy uncertainty" with Feroli emphasizing, "significant uncertainty attends to estimates of the impact on growth." This bore out in 2018, with our Global Economics team noting "**large adverse effects to business confidence which led to a sharp slowing in capital spending**."

In the latest GDW, Bruce Kasman, Chief Global Economist, notes that "trade policy is the main channel by which the US election could generate a global common shock." With analysis in the October World Economic Outlook (WEO) modelling the implementation of a "10% rise in US tariffs next year that generates retaliation elsewhere... the combined effects of these shocks are estimated to **depress global GDP 0.7%-pt by 2026 when they are reinforced by a negative shock to business sentiment**."

Figure 1: Global (ex. China) business confidence, investment and IP



Source: National statistical agencies, J.P. Morgan.

Fiscal Implications and Treasury Funding

Jay Barry, Head of Global Rates, notes that with respect to government finances, **tariff revenues would only partially offset a full extension of the Tax Cut and Jobs Act (TCJA)**. While Congressional support would be needed to pass pass a TCJA extension, a red sweep scenario would "probably be the most significant from a funding perspective," noting:

- The net impact of extending TCJA would forego over $4tn in revenue over the next decade, with an additional $600bn in interest expense, **offset in part by ~$2tn in tariff revenue**.
- Potential added upward pressure on the deficit, which briefly captured market participants' attention last fall, could resurface, driving the Treasury curve bearishly steeper.

Any proposal to use tariff revenues to fund an extension of the TCJA is expected to leave "**a net deficit of an <u>additional</u> ~$2.5 trillion over the next decade**" versus baselines. However, Barry notes, overall "the Treasury Department has put itself in a great position with respect to its long-term funding needs" as:

- "Between August of last year and May of this year, sharply increased long-duration auction sizes, with net issuance of Treasury coupons in calendar year 2024 going to be ~$800 billion larger than last year alone.
- If we look at the perspective baseline from the CBO, and the potential outcomes from the presidential election, it seems like the Treasury Department is in very firm footing with respect to its long-term issuance needs through probably the latter part of calendar year 2025."

After that, Barry cautions, “there is a bigger issue which we’ve written about pretty significantly, that in this baseline, **Treasury is underfunded by ~$3.3 trillion in the back half of the 2020s, assuming those baseline budget deficit expectations**. It’s going to require at some point **another series of pretty large increases to auction sizes** but the earliest that we could potentially see that would be next summer or next fall.”

Market Implications

FX

Meera Chandan, Co-head of Global FX Strategy, emphasizes the “**tariff channel is the foremost risk for the FX space**—reflecting both the White House’s discretion over its usage, as well as the **various pass-throughs to FX**—competitiveness adjustments, drags on global growth, etc.” The team is estimating a “**4-6% USD appreciation if universal 10% tariffs were to be introduced**” while the “expanding list of fiscal priorities for both sides could in certain scenarios unlock more USD upside than we had originally envisioned,” noting:

- “The most bullish USD outcome could thus become greater fiscal spending and policies alongside tariffs, which could foster an **intensified backdrop of US exceptionalism**.
- USD does best in a Red Sweep (EUR/USD 1.00-1.02; USD/CNY 7.40), while a Democrat victory should see temporary USD weakening.”

Looking at global FX implications of tariffs and trade conflicts, Arindam Sandilya, Co-Head of Global FX Strategy, highlights:

- **EUR:** Two-sided risks from elections. Downside if negative domestic backdrop worsens on trade confrontation. **Avoiding tariffs should boost the currency on sentiment**, but this won’t change structural drags which eventually should still dominate.
- **CNY:** Straightforward underperformer in trade conflict—but downside may meet resistance from 1) PBoC reaction function, 2) changing elasticities of exports, 3) foreign investor UW across assets. Equally, **PBoC likely will smooth CNY strength if tariffs are avoided**, even as the currency should be aided by seasonal end-4Q/early-1Q exporter USD conversion and **potential greater foreign equity inflows** if the tariff threat does not materialize.
- **CHF:** Top performer in 2019 trade war; anti-cyclical properties amplified by Euro-area-specific vulnerabilities.
- **JPY:** Should take its cue from direction of Fed pricing and global growth impact, rather than broader USD/Asia direction. **Combination of tariffs and Fed easing would result in yen strength as in 2019, in our view.**

While looking at broad USD impacts of Tariffs under various election outcomes:

- **Republican sweep:** Broadly stronger—US exceptionalism, amplified by tariffs and fiscal spending, broad USD strength.
- **Trump with split congress:** Stronger vs. EMU/China-linked, commodity FX—tariff risk weighs on US and more so for ex-US growth.
- **Harris with split congress:** Broadly weaker, temporarily—limited policy impact, but relief on tariffs.
- **Democratic sweep:** Broadly weaker, temporarily, but smaller than in split congress—tariff risk dissipates, but fiscal can ultimately revive modest US exceptionalism.

See US Elections: A Roadmap for FX and Hedges (Meera Chandan, Arindam Sandilya et al. | October 11, 2024)

Figure 2: Scenario analysis of FX impacts

	Republican sweep	Trump w/ split congress	Harris w/ split congress	Dem sweep
Regime	US exceptionalism, amplified by tariffs + fiscal; broad USD strength	Tariff risk weighs on US and more so for ex-US growth; defensive USD smile	Limited policy impact, but relief on tariffs - Temporarily in the middle of the USD smile, short vol	Middle of the dollar smile temporarily as tariff risk dissipates, but fiscal can ultimately revive modest US exceptionalism
USD TWI (JBDNUSD)	7%	3%	-5%	-4%
EUR vs. USD	1.00-1.02	1.05	1.13-1.15	1.12-1.14
SEK	11.50	10.90	9.80	9.90
CNY	7.40	7.30	6.90	6.95
AUD	0.63	0.65	0.70	0.69
JPY	155-160	138-143	140-145	145-150
CAD	1.44	1.42	1.32	1.34
EUR/CHF	0.90	0.89	0.97	0.98
EUR/GBP	0.80	0.82	0.86	0.85
USD	Broadly stronger	Stronger vs. EMU/China-linked, commodity FX	Broadly weaker, temporarily	Broadly weaker, temporarily, but smaller magnitude than in split congress
Relative underperformers	Commodity FX CNH, Cyclical Asia High beta euro bloc, EUR CAD, MXN vs. USD JPY	Commodity FX CNH, Cyclical Asia High beta euro bloc, EUR CAD, MXN vs. USD	USD CHF vs. EUR	USD Funders more vulnerable; CHF vs. EUR JPY vs. USD, crosses
Relative outperformers	USD CHF vs. EUR CAD vs. other high beta	USD Funders more resilient; CHF vs. EUR JPY CAD vs. other high beta	Commodity FX CNH, Cyclical Asia High beta euro bloc, EUR	Commodity FX CNH, Cyclical Asia High beta euro bloc, EUR

Source: J.P. Morgan Global FX Strategy.

Equities

Zooming out, the Global Equity Strategy team notes that "unlike past election cycles, when the debate focused on which set of policies are more positive for equity markets, the current scenarios seem to be more neutral, with the potential for negative outcomes." The team notes that overall:

- "View **'Blue Top' with gridlock** as the most neutral outcome in the short/medium term, as it would limit changes to existing policies passed under the current administration and limit the implementation of new, and possibly volatile ones, though risks remain around unilateral executive and/or agency action.
- **A 'Red Top' scenario**, that raises existing tariffs on China and imposes a universal tariff on all other trading partners would have significant implications on the growth and inflation outlook, and as a result on US equities across sectors/styles."

The team notes that "some of the tariff sensitive stocks are not really pricing in risk of tariffs," while these polices will likely have "significant impacts" on equity markets, especially those companies sensitive to revenue exposure in China. Mislav Matejka, Global Equity Strategist, notes that the bond market reaction will be key,"if yields respond more negatively to the reflationary policies this time around, the equity market could be constrained. This could also be the case if trade is the first policy priority."

US Equity Strategist Kamal Tamboli provides context on current tariffs, adding:

- "The US is not currently fully tariffing China. Based on the different schedules, tariffs stand somewhere between 7.5% to 25% on a little over $300 billion worth of goods. Moreover, there's a number of carve-outs. So for example, iPhones are not currently subject to US tariffs on Chinese imports.
- The 60% tariff proposal is meaningful because it not only presents a material escalation, but it could also mean that more goods come into scope."

On the potential market impact, the team highlights that if former President Trump is elected and he's able to implement much of this agenda, it could be significant as:

- "There is risk of retaliation from China for tariff increases from the US, impacting US corporations that import heavily from China, or are heavily integrated into the Chinese supply chain.
- We've primarily been semiconductor and MAG- 7 led, with narrow leadership and a lot of right-tail momentum crowding. While we've had pullbacks, you could see a more substantial fundamentally led unwind in some of these very popular trades if these tariffs are implemented.
- We know that these areas have been sensitive in the past to incremental news on changes in tariff policies, and we think there will be increasing, not decreasing sensitivity if trade ends up becoming the top policy agenda."

Overall, Tamboli notes, "we think that this is something that the equity market hasn't really fully priced in yet in terms of the risk. If anything, given the way the betting odds and different polling data has moved, markets have been faster to re-price upside than potential downside from broad-based tariffs in Red Sweep or Red Divided Government scenarios."

See Equity Strategy: Regional trades (Mislav Matejka et al. | October 28, 2024)

Credit

Our Credit team notes potential impacts of higher tariffs, with Eric Beinstein, Head of U.S. High Grade Credit Research, citing the "macro and micro implications of proposed policies. Overall we believe the macro impacts/risks are more consequential for credit than the micro." For instance, "**if tariffs lead to higher inflation and therefore higher yields, this could be supportive for spreads, unless it comes with greater UST volatility and fears of fiscal sustainability**." Around relative impacts, the team notes that high tariffs may favor HY over HG:

- "The HG market is heavily weighted towards multi-nationals and 27% of the JULI is non-US companies so **trade policy can be a material factor for HG credit**.
- The HY and LL markets are more domestically focused, so an expectation of higher tariffs may lead to relative outperformance of HY vs HG.
- For context, more than 90% of the JPMorgan High-Yield Bond index consists of Domestic corporates and we estimate that less than 15% of revenues are generated abroad."

With respect to sector impacts, Tarek Hamid, Head of J.P. Morgan's North American Corporate Credit Research, points out that "while we can surmise the general potential impacts of certain policy proposals, the devil is very much in the details as to how a particular piece of legislation could eventually come together and impact specific companies." The team is watching "the **impacts of tariffs on different parts of the retail sector, Tech and commodities, and a pro-domestic production agenda in Energy**," with our sector analysts focused on the "potential for more M&A."

See US Credit Impacts of Trump's Economic Proposals (Eric Beinstein, Tarek Hamid, Kabir Caprihan et al. | July 30, 2024)

Commodities

For Commodities markets, Natasha Kaneva, Head of Commodities Research notes the varied impact of Tariffs as:

- **Gold stands out as a beneficiary** if certain structurally bullish drivers "remain intact" including "concerns of complacency over the rise in fiscal debt, tariffs, and trade retaliations as well as broad 'America First' rhetoric."

- In base metals, "**significant tariff escalation risks undercutting a bullish fundamental copper set up in 2025**," caveating, however, "a Republican majority that prioritizes other growth supportive initiatives first (over Tariffs) could present a runway for further base metals outperformance in 2025."

The Commodities team emphasizes that "**sequencing of policy priorities will be key**," as a "the price trajectory of industrial metals will largely depend on the order of policy initiatives (tax cut extensions, deregulation vs tariffs)," with outcomes being influenced by the composition of Congress.

See Global Commodities: 2024 US Election Watch – Reassessing implications for Commodities under a Red Wave (Natasha Kaneva et al. | July 17, 2024)
Global Commodities: 2024 US Election Watch – Implications for Commodities (Natasha Kaneva et al. | May 7, 2024)

For investors looking to manage exposure to escalating US-China tariffs, see US companies with high direct revenue exposure to China (JPAMCREV <Index>) and US Importers (JPAMUSIM <Index>).

See Global Thematic Strategy: Key Upcoming Elections, Equity Implications, Policy-Linked Stock Ideas (Dubravko Lakos-Bujas et al. | May 7, 2024)

Note: J.P. Morgan Research does not provide research coverage of these basket and investors should not expect continuous analysis or additional reports relating to them.

China Impacts

Jonny Goulden, Head of EM Fixed Income Strategy, and Jahangir Aziz, Head of EM Economic Research, note the "impact of tariff war 2.0 (from 25% to 60% tariff) could be 40% higher than the impact of tariff war 1.0, if only considering the magnitude of tariff increase. In reality, the outcome could be more complicated," as:

- "The **economic impact could be much smaller given that China's share in US imports has declined by one third** and the share of China exports to the US in China's total exports has declined by nearly one fourth, from 2018 to 2023.
- Both direct and indirect impacts could tend to be smaller due to the **weakened bilateral trade relationship**.
- However, if tariff war 2.0 involves a spillover of tariff increases by other trading partners or US tariff increases on goods produced in a third country by Chinese companies, the impact could be more disruptive."

Furthermore, our analysts point out that "neither party is seeking a significant rapprochement with China on trade, which points to additional tariff and non-tariff barriers to trade in the coming years."

2018 Episode

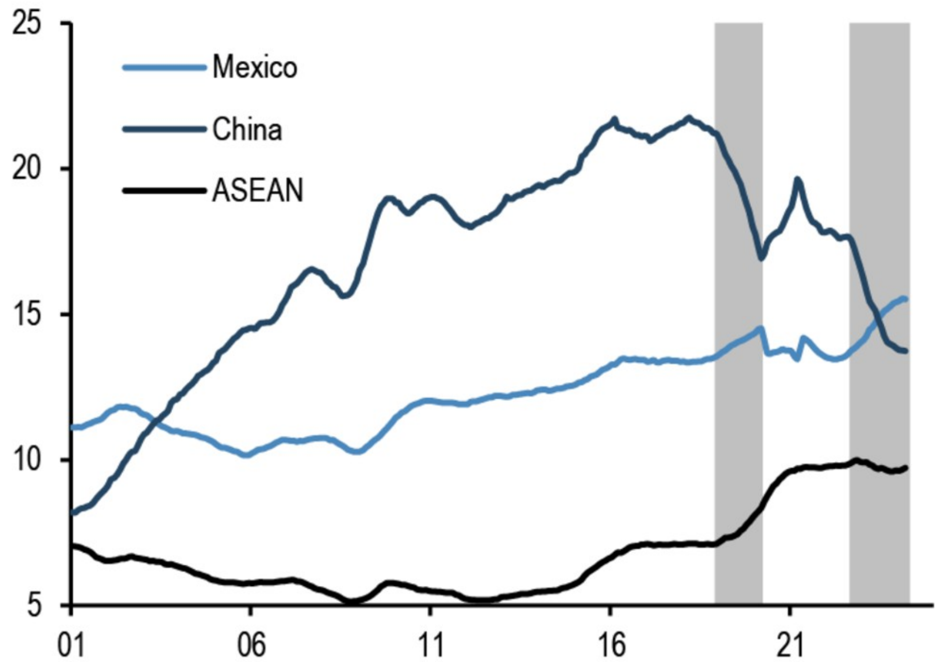
The EM team estimates that the **economic cost of the 2018 US tariffs on the Chinese economy was about 1%-pt of GDP**—with a 0.3%pt direct impact (via export channel) and 0.7%pt indirect impact (via consumption, income and sentiment). In that episode, China's responses included three things:

1. A retaliatory tariff increase on imports from the US (average tariffs increased by 16.2%pts for the US imports of Chinese goods and by 13.1%pts for China imports of US goods).
2. CNY depreciation with a coefficient of around 0.5 (1% CNY depreciation against USD in response to 2% tariff increase).
3. Transhipment or overseas investment in a third country, e.g. in ASEAN or Latam.

Overall, "these measures could still be adopted by the Chinese government if a tariff war 2.0 scenario materializes. In addition, **China may use export controls in strategically important metals** (e.g. rare earth, graphite, etc.) as **potential retaliatory measures**."

Figure 3: US imports by origin

% of total US imports



Source: CEIC, J.P.Morgan.

FX

Outlining the potential impacts to CNY, Patrick Locke, Senior FX Strategist, highlights that "**CNY should still net weaken in the event additional tariffs are imposed**, **but the ex-ante setup is different now vs 2018**" as:

(1) The entry point is different now—the shock value of trade conflict is diminished vs 2018, and China still carries a 20% effective tariff rate on exports to the US.

(2) The tariff-rate regime governing USD/CNY in 2018-2019 has since evolved despite no tariff relief.

(3) Positioning and valuations are more supportive now for CNY, while foreigners have liquidated positions at a near-record pace this year.

Knock-on effects

The team emphasizes that a further rise in US-China trade tensions would likely accelerate supply chain relocations, noting:

- "Alongside the decline in China's exports to G-3 countries, the past years have seen significant gains in exports to Africa, ASEAN and Latam.
- **If a tariff war 2.0 materializes ASEAN countries and Mexico will likely remain key beneficiaries of trade relocation** due to supportive policies, cost competitiveness, industrial developments and linkages to existing manufacturing

hubs.

- India should also benefit but needs to draw on it its large pool of labor to develop its manufacturing sectors."

References

Economics
US: Election news leads to small rise in sentiment (Abiel Reinhart | August 16, 2024)

US: Economic policy implications of the election (Michael Feroli | June 28, 2024)

Politics and monetary independence (Joseph Lupton et al. | August 1, 2024)

Emerging Markets Outlook and Strategy for 2H24 (Luis Oganes, Jonny Goulden, Jahangir Aziz et al. | June 6, 2024)

Rates
Elections – The Fed – US Rates and the Municipal Markets (Peter DeGroot et al. | August 2024)

FX
US Elections: A Roadmap for FX and Hedges (Meera Chandan, Arindam Sandilya et al. | October 11, 2024)

US Elections & FX: Mapping transmission from potential policies to USD (Patrick Locke | February 5, 2024)

FX Markets Weekly: USD down but not out(age) (Meera Chandan et al. | July 19, 2024)

FX Markets Weekly: The Fed, tariffs and other sources of dollar risk premia (Meera Chandan et al. | February 5, 2024)

Equity Strategy
Global Thematic Strategy: Key Upcoming Elections, Equity Implications, Policy-Linked Stock Ideas (Dubravko Lakos-Bujas et al. | May 7, 2024)

Credit
US Credit Impacts of Trump's Economic Proposals (Eric Beinstein, Tarek Hamid, Kabir Caprihan et al. | July 30, 2024)

Commodities
Oil Weekly: Election Trade (Natasha Kaneva, Prateek Kedia et al. | July 30, 2024)

Global Commodities: 2024 US Election Watch – Reassessing Implications for Commodities under a Red Wave (Natasha Kaneva et al. | July 17, 2024)

Global Commodities: 2024 US Election Watch – Implications for Commodities (Natasha Kaneva et al. | May 7, 2024)

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