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**Article**

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AT A GLANCE

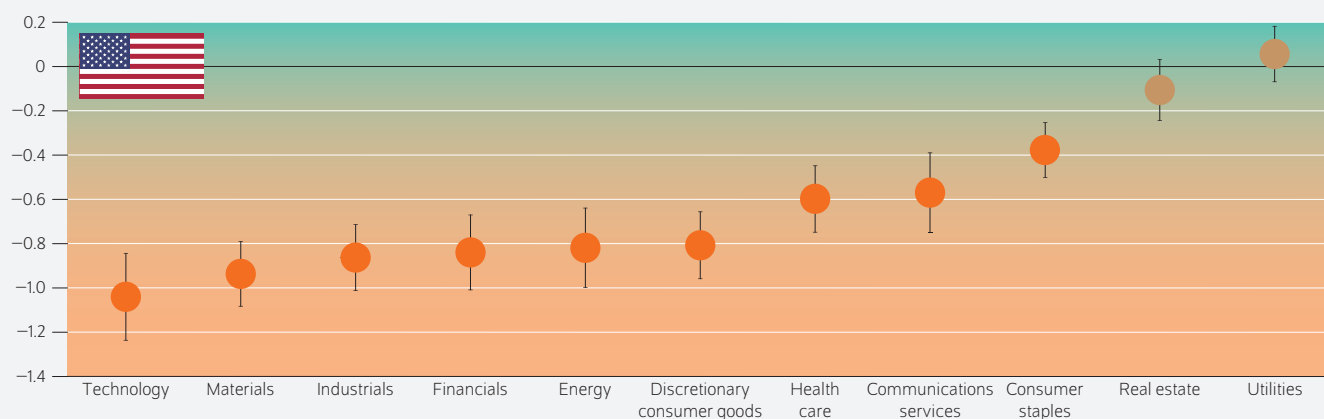
## Restrictive US trade policy has a significantly negative effect on financial markets

By **Lukas Boer, Lukas Menkhoff, and Malte Rieth**

- Using financial market reactions, study analyzes if and to what extent the restrictive US trade policy toward China damages the US and global economies
- Financial market reactions to US trade policy announcements prove the long-lasting damage of a restrictive trade policy
- Losers only: 90 percent of the 500 largest US firms lost significant market value after restrictive trade policy shocks
- Almost all US industries and many other countries are negatively affected by the US measures over a long period
- It is in the US's—and Europe's—interest for the US to return to a rules-based, multilaterally oriented trade policy

### Restrictive US trade policy has a negative effect on almost all industries in the US

Impact responses<sup>1</sup> of S&P sector indices to a restrictive trade policy shock in percent



Sources: Bloomberg; authors' own calculations. 1 On announcement day. Notes: The error bands around the point estimators for each sector represent 99 percent confidence intervals. © DIW Berlin 2021

### FROM THE AUTHORS

*“The economic costs of a restrictive US trade policy are substantial for all involved. Added to this are political distortions. They may not have bothered the last US administration too much, but the current administration should take these negative effects of restrictive trade policies into account and return to a multilateral trade framework.”*

— **Lukas Boer** —

### MEDIA



**Audio Interview** with Lukas Boer (in German)  
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# Restrictive US trade policy has a significantly negative effect on financial markets

By Lukas Boer, Lukas Menkhoff, and Malte Rieth

## ABSTRACT

With its America First strategy, the former US administration turned away from an internationally oriented trade policy. It attempted to assert its interests, especially vis-à-vis China, with bilateral and mostly restrictive measures such as import tariffs. This Weekly Report shows that the costs of such a strategy are immense, at least in the medium-term analysis conducted: Almost all US industries were negatively affected by the US trade policy. This effect can be seen in the forward-looking financial markets, which anticipate the possible effects of tariff changes. Stock prices declined significantly and the US dollar exchange rate rose as a result of the increasing uncertainty. Beyond this, the measures against China also negatively affect the leading stock indices of many other countries. China's retaliatory measures put additional pressure on US companies. As few firms profit in this situation, the rationale for a restrictive trade policy cannot be based in economic gains. While the current administration is still maintaining a restrictive trade policy as of July 2021, this study shows that a broad return to a multilaterally oriented trade policy is in the interest of most market participants.

With its America First strategy, the last US administration fundamentally changed its trade policy, potentially marking a turning point for the international trade order. The United States had tended to expand its international trade and to support tariff dismantling for decades before taking a sharp turn in strategy in 2017.

To some extent, trade policy, especially restrictive tariff policy, serves to enforce the objectives of an administration. However, the last administration ceased operating under the multilateral trade regime. Instead, it attempted to bilaterally assert its advantages as the dominant economic power over other countries to achieve its objectives, such as reducing its massive foreign trade deficit with China.

Although the old administration is no longer in power, the impact of its policy is still ongoing. It is foreseeable that the current administration will not return to a fully open trade policy. During his 2020 presidential campaign, then-candidate Joe Biden made it clear he would continue to take a hard line toward China.<sup>1</sup> Tariffs against China or the EU have not yet been withdrawn by his administration.

It is not yet fully clear what long-term consequences this shift in trade policy will have. Previous analyses building off event studies identify precise effects of what are known as trade policy shocks but concentrate on partial and short-term financial market aspects.<sup>2</sup> Another research approach utilizes classical trade models, which use a macroeconomic perspective but require the assumption of a constant economic structure.<sup>3</sup>

<sup>1</sup> Joseph R. Biden, "Why America Must Lead Again. Rescuing U.S. Foreign Policy After Trump," *Foreign Affairs* (March/April 2020) (available online; accessed on July 19, 2021. This applies to all other online sources in this report unless stated otherwise).

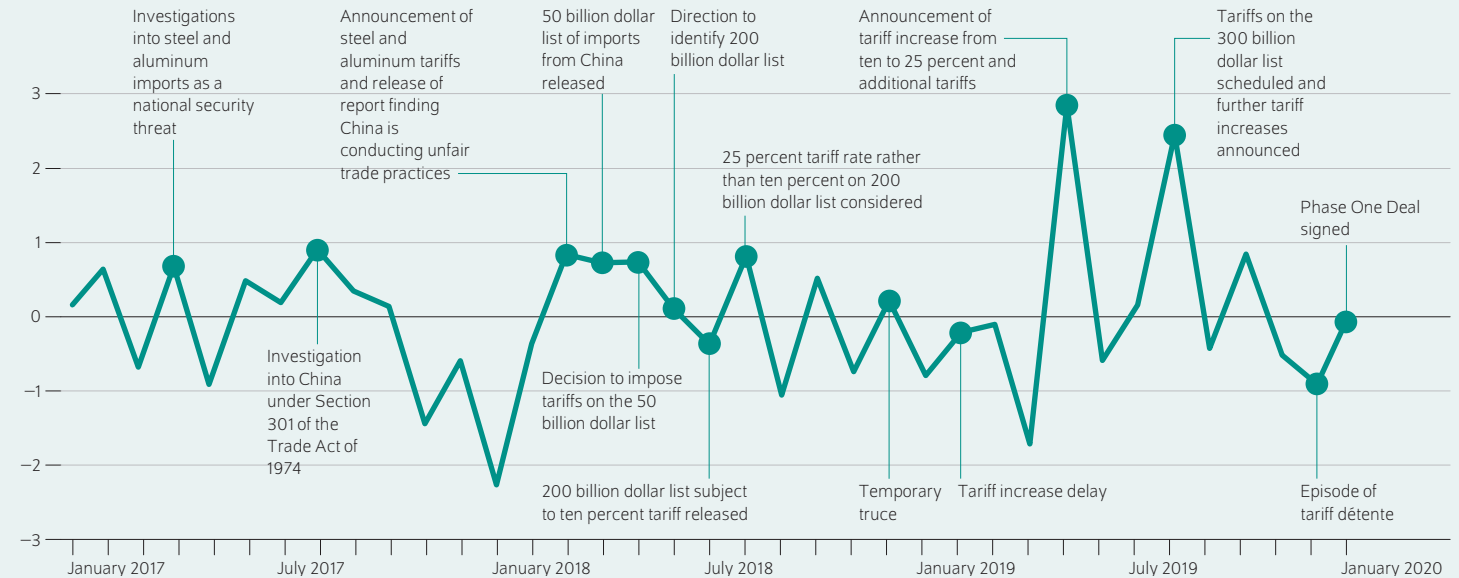
<sup>2</sup> A good example is Peter Egger and Jiaqing Zhu, "The US-China Trade War: An Event Study of Stock-Market Responses," *Economic Policy* 35, no. 103 (2020): 519-559. The research method applied in that study (event study) has a tradition in foreign trade research, cf. Holger Breinlich, "Heterogeneous Firm-level Responses to Trade Liberalizations: A Test Using Stock Price Reactions," *Journal of International Economics* 93, no. 2 (2014): 270-285; Christoph Moser and Andrew K. Rose, "Who Benefits from Regional Trade Agreements? The View from the Stock Market," *European Economic Review* 68 (2014): 31-47.

<sup>3</sup> This type of model is standard in foreign trade research, cf. for example Pablo Fajelbaum et al., "The Return to Protectionism," *Quarterly Journal of Economics* 135, no. 1 (2020): 1-55; Mary Amiti Stephen J. Redding, and David E. Weinstein, "The Impact of the 2018 Tariffs on Prices and Welfare," *Journal of Economic Perspectives* 33, no. 4 (2019): 187-210.

Figure 1

**US trade policy shock series**

Trade shocks on a scale of +3 (very restrictive) to -3 (very expansive)



Notes: The shocks were aggregated on a monthly basis for easier presentation. The events refer to individual days during the months.

Sources: Peterson Institute for International Economics, authors' own calculations.

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The tariff announcements in summer 2019 had the most restrictive effects.

The present report takes a middle path between the two approaches by connecting the precise identification of shocks with a macroeconomic and long-term perspective.<sup>4</sup>

As a result, this report offers three contributions to the trade policy debate. First, a methodologically new model is applied in this context, which allows the precise identification of trade policy shocks. Second, two types of shock effects, uncertainty and level effects, are considered in a unified framework. Third, content differentiated statements are made about the financial markets observed (and thus indirectly about the corresponding firms, industries, and countries as well).

**Most restrictive measures in May and June 2019**

Using an empirical approach, it is initially analyzed how the financial markets reacted to individual trade policy measures. The reactions can be used to measure which expectations about real economic developments (in the longer term as well) market participants associate with trade policy measures and are reflected directly in the prices. For example, if market participants expect tariff increases to hurt the economy as a whole, a wide range of stock indices fall, even though individual companies may well benefit.

**Dataset and model**

To follow this approach, a reliable source containing the relevant economic policy measures or announcements on US trade policy is required. This report uses a such a database compiled by the Peterson Institute for International Economics, an independent research organization based in the United States.<sup>5</sup>

The Peterson Institute database lists the US trade policy measures in chronological order and divides them into six “battles.” This analysis focuses on the second and third battles: *steel and aluminum as national security threats* and *unfair trade practices for technology, intellectual property (IP)*, which largely and partially involve China exclusively.<sup>6</sup> Only newly occurring events are taken into account, such as the announcement of a measure, but not its implementation, unless there is additional (new) information. Between the beginning of 2017 to January 2020, 26 event days, or days with trade policy news, can be identified.

<sup>5</sup> Chad P. Bown and Melinda Kolb, *Trump's Trade War Timeline: An up-to-date Guide* (Peterson Institute for International Economics: 2021) (available online).

<sup>6</sup> While robustness checks still include the smaller battle 1 (*solar panel and washing machine imports injure US industries*), battles 4, 5, and 6, which primarily involve issues with Mexico and the EU or only affect individual firms.

<sup>4</sup> Lukas Boer, Lukas Menkhoff, and Malte Rieth, “The Multifaceted Impact of US Trade Policy on Financial Markets,” *DIW Discussion Paper* no. 1956 (2021) (available online).

## Box

**The empirical model**

The vector autoregressive model (VAR) maps the economic interdependencies between the time series of the selected financial market variables.<sup>1</sup> In this time series model, each variable depends on both its past development and the development of the rest of the variables in the model. Using a regression analysis, the correlation between the variables is estimated simultaneously. For example, one part captures the effect on the US stock index "China trade index" using its own price history as well as the development of US one- and ten-year treasury yields, the US dollar exchange rate, the Russell 2000 stock index, and financial market volatility.

The goal of a structural (SVAR) model is to modify the reduced VAR model by implementing economic restrictions, thus making the results interpretable. In this context, structural means that the economic/financial shocks that are fed into the model are statistically independent of each other, so that, for example, a structural trade policy shock maps the pure (exogenous) influence of a change in trade policy. This also means that no other potential simultaneously occurring shock influences the effect of this shock.

It is not possible to directly modify the VAR model into a structural model (identification); rather, it requires additional information or restrictions. For this, the present study uses heteroskedasticity. This is present when the volatility (fluctuations) in the data (more precisely: in the VAR residuals/unexplained part) is not constant.

For this purpose, the sample is divided into two parts, between which the volatility of the data differs clearly: days without trade policy events (non-announcement days) and days with events recorded and classified by the Peterson Institute (announcement days). On announcement days, the US government announced significant changes in its trade policy towards China. The critical assumption is that the underlying structural trade shock occurs significantly stronger on announcement days than in the rest of the data, so that these days are characterized by higher financial market volatility. All other influences and shocks, such as monetary policy decisions, should not systematically change their volatility on these days compared to the rest of the sample; they should be equally present on average. Thus, since the structural trade policy shock is the only economic influence that changes its magnitude on announcement days, its impact on the variables can be estimated in the SVAR model.

<sup>1</sup> Cf. for a current textbook treatment of the method: Lutz Kilian and Helmut Lütkepohl, *Structural Vector Autoregressive Analysis* (Cambridge University Press: 2017).

Although the trade policy trend is restrictive, this by no means indicates that all 26 events are also restrictive. Reversals of previous actions are sometimes announced, which usually tends to be expansive information.<sup>7</sup>

The more the shock measure in the model swings upward, the more restrictive the trade policy shock. The most restrictive trade policy shocks associated with tariff announcements occurred in May and July 2019. In these months, the USA—after a calmer phase marked by progress in negotiations—unexpectedly announced serious tariff increases (Figure 1).

The empirical model, a structural vector autoregression (SVAR) approach, identifies the effects of a measure using the volatility of financial market prices.<sup>8</sup> The occurrence of a major shock can be recognized by increased volatility on the financial markets on event days compared to other days (Box). The SVAR model captures the effect of US trade policy shocks on government bond yields (short and long term), the effective US dollar exchange rate, uncertainty in the economy (measured using a volatility index, the VIX, which captures fluctuations in the US stock market), and two US stock indices: the Russell 2000, which also captures smaller firms, and a custom-built index of those firms heavily involved in trade with China. The latter is calculated using a database that evaluates financial reports from firms according to key words and phrases such as "trade with China." As a result, 47 of the 500 companies listed in the S&P500, the most important stock index in the US, with a strong trade dependence on China are identified and included in a stock price index (China trade index).<sup>9</sup>

### Consequences of restrictive trade policy shocks: stock markets decline for three to five months

The financial markets in the US generally react to the restrictive trade shocks negatively (Figure 2). The stock prices of firms (Russell 2000 and China trade index) decline significantly by 0.6 to one percent and only recover after 60 to 100 business days, or three to five months. Bond yields decline as well, although only by a few basis points. The US dollar increases markedly in value and the volatility index VIX increases significantly by seven percent for about a month.

The sharp rise in stock market volatility suggests, consistent with predictions from other macro models,<sup>10</sup> that the trade policy shock is primarily an uncertainty shock. The US dollar appreciation suggests that when uncertainty is increasing,

<sup>7</sup> For the complete list and description of these events, see Boer, Menkhoff, and Rieth, "The Multifaceted Impact of US Trade Policy on Financial Markets," 15-17.

<sup>8</sup> The basic idea was developed by Robert Rigobn, "Identification through Heteroskedasticity," *Review of Economics and Statistics* 85 (2003): 777-792. The present report follows the specific application of Jonathan Wright, "What Does Monetary Policy Do to the Long-term Interest Rates at the Zero Lower Bound?" *Economic Journal* 122, no. 564 (2012): 447-466.

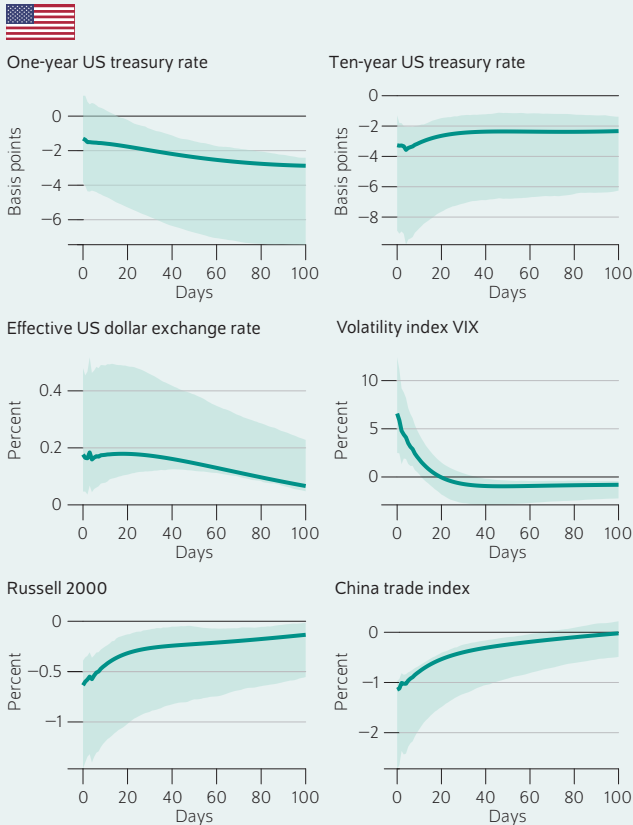
<sup>9</sup> The database was created by Gerhard Hoberg and Katie Moon, "Offshore Activities and Financial vs Operational Hedging," *Journal of Financial Economics* 125, no. 2 (2017): 217-244 (available online).

<sup>10</sup> Cf. Dario Caldara et al., "The Economic Effects of Trade Policy Uncertainty," *Journal of Monetary Economics* 109 (2020): 38-59.

Figure 2

**Effects of a restrictive US trade policy shock on the US financial markets**

In basis points (US treasury rates) and percent



Sources: Bloomberg, authors' own calculations.

Notes: An increase in the US dollar indicates an appreciation. The shock occurs on day 0. The faint areas around the lines show 90 percent confidence intervals.

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The effect of the trade policy shock lasts for up to five months (100 business days), especially in the case of stocks.

the demand for secure currency rises. However, this also increases the price of US exports. Together with the greater cost of imports due to higher tariffs, the increase has a damaging effect on the economy. This affects firms that actively trade with China in particular more than the economy as a whole (Figure 2, China trade index).

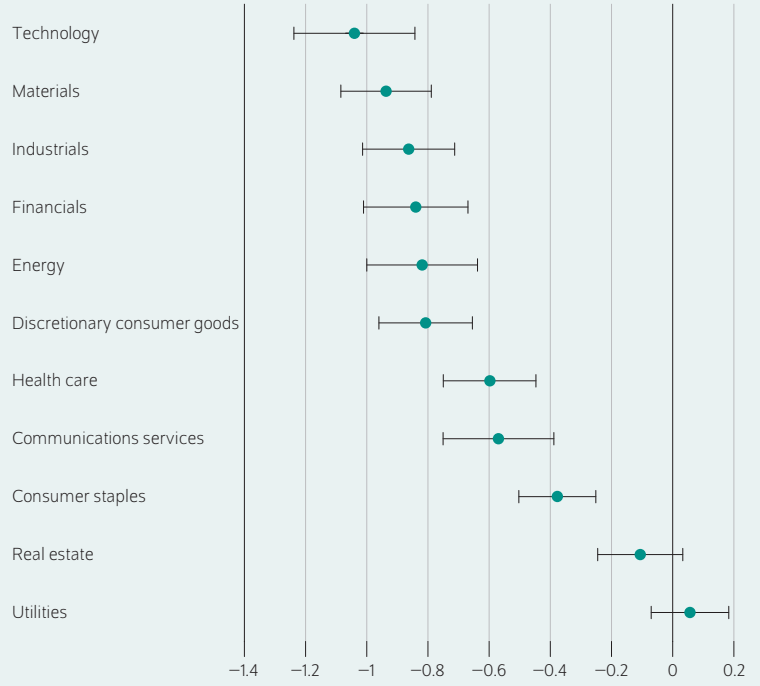
In addition to the dominant uncertainty shock, the US trade policy announcements lead to a further, if also weaker, trade policy shock that occurs simultaneously but results in different economic consequences.<sup>11</sup> It does not increase uncertainty, but rather negatively affects the level of economic activity directly. Thus, the import costs for primary products from China and Chinese consumer goods become more expensive in the US. In total, there are two channels through which

<sup>11</sup> This is shown in a second empirical approach in Boer, Menkhoff, and Rieth, "The Multifaceted Impact of US Trade Policy on Financial Markets," 25-30.

Figure 3

**Impact responses of S&P sector indices to a restrictive trade policy shock on an announcement day**

In percent



Notes: The error bands around the point estimators for each sector represent 99 percent confidence intervals.

Sources: Bloomberg; authors' own calculations.

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Trade policy announcements and measures clearly burden most US industries, especially the technology sector.

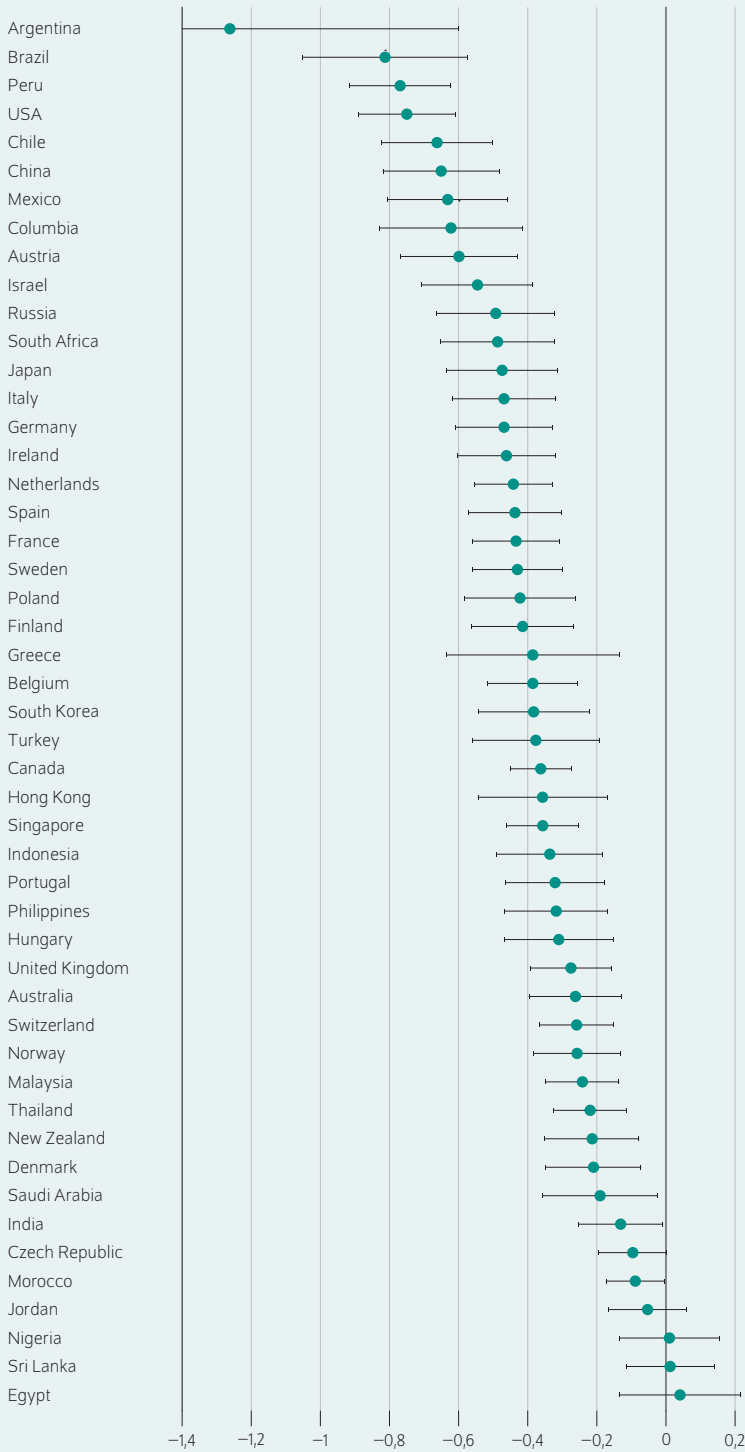
the restriction unfolds: increased uncertainty and a weaker direct level effect.

**Negative consequences for firms, industries, and countries**

The macroeconomic effects are broken down to different segments of the US and global economies in further analyses. In the first step, it is analyzed how heterogeneously the restrictive trade policy shocks impact (the stock prices of) firms. Around 90 percent of the firms in the S&P500 Index, which contains the largest US firms, react significantly negatively. One of the stock prices most affected is that of semiconductor manufacturers.

A closer look at US industries paints a clear picture. Industries with a strong focus on international trade are most affected by the trade shock, such as the technology sector (to which semiconductor manufacturers belong), industrial sector, and financial sector (Figure 3). The stock prices of firms in this sector decline by one percent on average following restrictive US trade policy shocks. On the other hand, industries focused on the domestic economy, such as utilities or the real estate

**Figure 4**  
**Impact responses of 49 national stock indices (MSCI indices) on an announcement day**  
 In percent



Notes: The error bands around the point estimators for each MSCI index represent 99 percent confidence intervals.

Sources: Bloomberg; authors' own calculations.

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In almost all countries observed, stock indices fall in response to a restrictive US trade policy announcement.

industry, are not significantly affected. However, the estimated mean effects are negative for ten of the eleven industries, including nine cases at a statistically significant level.

The overall negative effect is qualitatively similar for other countries. The stock indices of 49 countries observed are mostly significantly negatively affected by a restrictive trade shock. The shock affects Latin American countries most strongly while Europe and Asian countries are less affected (except for China) and Africa is barely affected (Figure 4).<sup>12</sup> This pattern reflects trade linkages with the US, with the indices in Asian countries likely benefiting from expected shifts to China's detriment.

### Retaliatory measures from China have a similarly negative impact as US restrictions

The restrictive US trade policy, which is primarily directed toward China and aims to reduce its exports in the US, did not go without a Chinese response. Therefore, the final step of the analysis investigates the impact of Chinese retaliatory measures in the form of trade restrictions against the US using a list of trade policy events for China by the Peterson Institute. The results of the model show that the restrictive trade policy shocks from the Chinese side have a similar negative effect on financial markets as the US measures and stock prices react even more strongly and sustainably (Figure 5). This leads to the conclusion that market participants likely expect that the conflict between the US and China will continue for a longer period and not lessen. Apparently, (retaliatory) measures by China are at least as damaging to the US economy as the US measures themselves, making the overall effect even more severe.

### Conclusion: Significant economic costs for all involved

The restrictive trade policy of the former US administration has a negative effect in total—both on the globally operating US economy as well as most other economies, as the analysis of financial market reactions has shown.<sup>13</sup> Thus, the rationale behind this policy is not based in economics. It is not even clear whether China will be more negatively affected than the US itself. While China is likely to be more dependent on the US than vice versa, it can act with less political consideration. In any case, the economic costs are significant for all involved. In addition, there are political distortions because the multilateral trade order is being undermined. This may not have bothered the last administration too much, but the current administration should take these negative effects of restrictive trade policies into account.

<sup>12</sup> Similar results for the effects on third countries were found in Pablo Fajelbaum et al., "Global Reallocations in the 2018-2019 Trade War." Slides presented at the NBER Conference, September 2020.

<sup>13</sup> Cf. for further effects of US trade policy, Paul Berenberg-Gossler et al., "Trumps protektionistische Handelspolitik hat ihre Ziele verfehlt," *DIW Wochenbericht* no. 50 (2020): 960-969 (in German; available online).

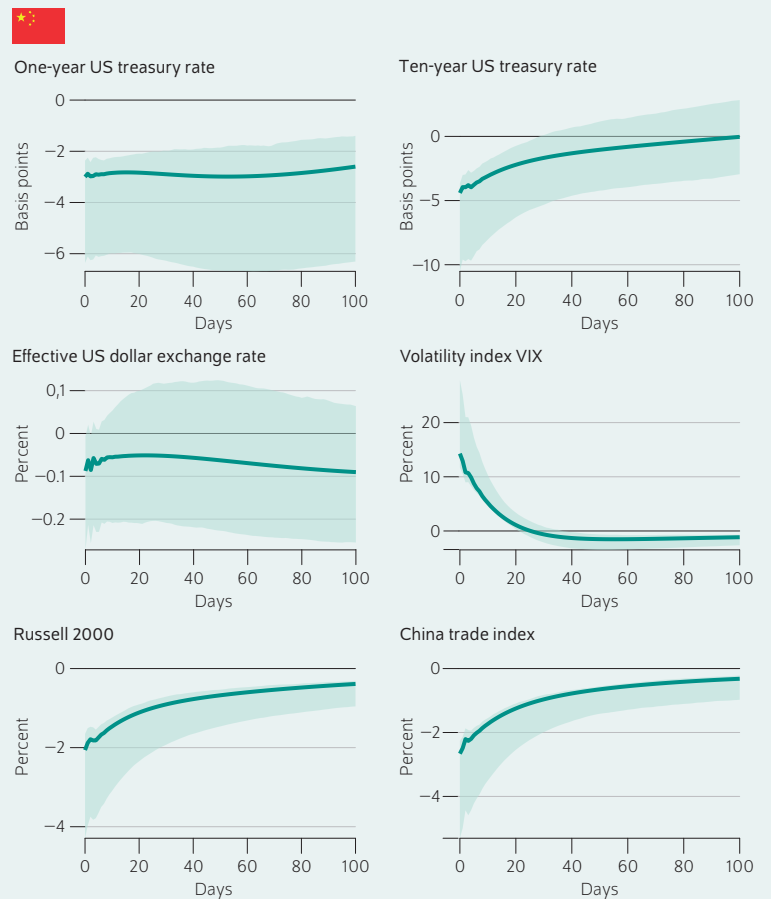
However, it is entirely possible that effects desired from the US perspective occur outside of the chosen modeling approach: For example, many predominantly smaller US mid-market firms, which operate less internationally and are therefore barely exposed to the trade war, are not included in the stock indices considered. Second, the effects shown here may fade in the long run after the US economy makes appropriate adjustments, for example, as domestic firms provide the goods and services that were previously imported from China. And, third, the trade war may be an instrument for other political objectives that a purely economic analysis does not consider.

In any case, the US policy under discussion poses a problem for German and European economic policy: Not only have the previous restrictions already burdened the markets in Europe, but what happens between the US and China may also happen between the US and Europe. Approaches of this nature could already be observed, but the US-EU conflict has been much less intense in nature. Trade conflicts are not in Germany's interest, as the German economy is more strongly integrated into the international division of labor than other European economies. Although much uncertainty has been removed from the market with the new US administration, it is not expected to quickly lift trade barriers against China. However, the administration has made it clear that it wants to rely on international partners, unlike its predecessor. A return to the multilateral trade order could, above all, prevent negative consequences for third countries. Europe should seize this opportunity, but it must act together successfully to have the necessary weight. For in the event of conflict, the US or China would lose access to a very important market: the EU.

Figure 5

**Effects of a restrictive Chinese trade policy shock on US financial markets**

In basis points (US treasury rates) and percent



Notes: A decrease in the US dollar indicates a devaluation. The shock occurs on day 0. The faint areas around the lines represent 90 percent confidence intervals.

Sources: Bloomberg; authors' own calculations.

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The Chinese measures have a similar negative effect on the US financial markets as the US restrictions. In this case, only the US dollar depreciates.

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