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Giving Away Wealth? Trade Effects of the Yuan Devaluation

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The recent devaluation of the Chinese currency as a result of the ongoing trade dispute with the United States also has an impact on Europe. This article looks at the trade effects of a 10-percent and 20-percent Yuan devaluation according to calculations from the ifo Trade Model, based on the assumption of a normal reaction of the Chinese current account. Besides usual trade diversion effects, Germany and Europe also benefit in a second way from the Sino-American trade dispute: the devaluation of the Yuan, which makes Chinese goods cheaper for consumers in Europe. In a realistic scenario, we expect gains in real incomes for the German economy of EUR 413–499 million. Income growth for the rest of the EU (without Germany) would amount to EUR 1.9–2.8 billion. The devaluation goes hand in hand with income losses for the Chinese economy and, at the same time, lowers the costs of the trade dispute for the United States.

The US-China trade conflict, which has been ongoing since the election of Donald Trump as US President, has entered a new phase with the devaluation of the Chinese currency, the Renminbi-Yuan,[1] on 5 August 2019. While the People's Bank of China suggested that the devaluation was the result of ordinary market movements triggered by newly announced US tariffs, President Trump once again accused China of 'currency manipulation' (Xinhua 2019).[2] The devaluation was generally interpreted as a response to the announced US tariffs on all Chinese imports (Bloomberg 2019).

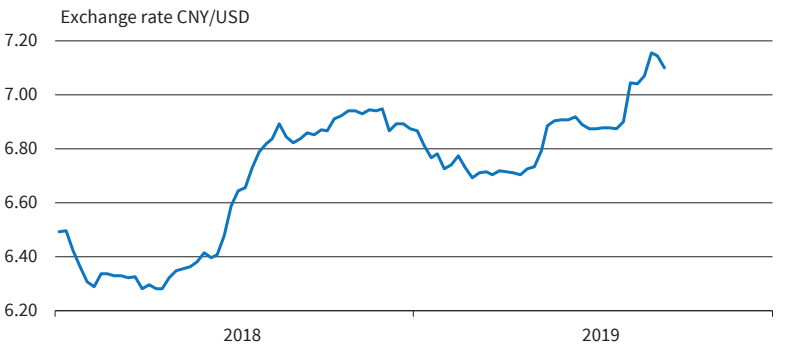
THE YUAN DEVALUATION AS CONTINUATION OF THE TRADE WAR

We will not go any further into currency manipulation below; however, it should be noted that the Yuan has seen three phases of devaluation since the beginning of 2018 (Figure 1): between June and August 2018, in early May 2019, and in the first half of August 2019. The two sharp devaluations in 2019, in particular, were preceded by announcements of new US import duties on Chinese goods, as shown in a comparison with the Peterson Institute's Trade War Timeline (Bown and Kolb 2019). Furthermore, market observers indicate that the Chinese central bank has recently even pushed the Yuan exchange rate up with support operations, which diametrically opposes the undervaluation accusations (WirtschaftsWoche 2019). The International Monetary Fund (IMF) does not see any signals for currency manipulation in the sense of an artificially low exchange rate either (Daniel and Yan 2019).

Figure 2 shows the US bilateral current account positions vis-à-vis China. The high US deficit of around 2 percent of economic output is not only what led to the US trade war; it also reflects the extent to which both sides can retaliate with countermeasures. The US trade deficit in goods of some USD 400 billion in 2018 means that the United States can impose special tariffs on more Chinese goods than vice versa. That is why China is using the devaluation of the Yuan as leverage in the trade dispute: because of the lack of alternatives. With reference to the Prussian military theorist Carl von Clausewitz, the Economist calls this a 'continuation of trade policy by other means' (The Economist 2019). In any case, the current USD/CNY exchange rate of 7.1 is down around 13 percent on the two-year high in spring 2018. This means that additional US duties can be compensated via the exchange rate channel in such a way that Chinese goods do not lose their price competitiveness in US markets despite these tariffs. However, the price for holding on to market share is high, because a devaluation of the Yuan that is directly proportional to US tariffs means that the tariff burden lies entirely with Chinese producers and not with American consumers. Zoller-Rydzek and Felbermayr (2018) also find a higher tariff incidence for China, quantified by a real trade model, whereas Amiti et al. (2019) and Fajgelbaum

Figure 1

CNY/USD Exchange Rate 2018–2019

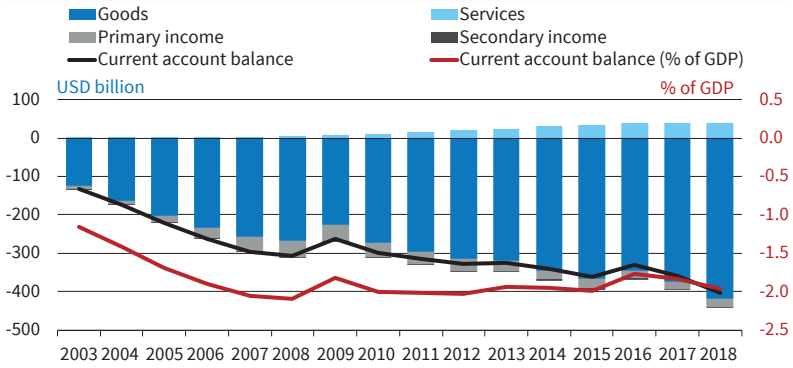


Note: Exchange rate, weekly.
Source: Federal Reserve Bank of St. Louis.

[1] Hereinafter referred to as 'Yuan' for clarity.
[2] See tweet below from 5 August 2019: https://twitter.com/realdonaldtrump/status/1158350120649408513.

Figure 2

US-China Current Account Balance and Sub-balances 2003–2018



Note: Figures in USD billion, red line refers to right ordinate (% of GDP).
Source: US Bureau of Economic Analysis.

et al. (2019) present empirical evidence primarily for rising US consumer prices and hence a domestic tariff incidence. As caveat: all three analyses refer to a period before 2019 or do not take the exchange rate channel into account. Leaving a consideration of welfare economics to one side, the devaluation of the Yuan could cause a further increase of the US trade deficit with China – depending on the respective import demand and export supply elasticities. This unintended side effect of US trade policy is somewhat ironic, since the policy aim is precisely to reduce the bilateral deficit.

The main difference between additional duties and simultaneous currency devaluations is that the latter have an erga omnes effect, thus an effect on all trading partners, while US tariffs apply inter partes, i.e., only to China, in disregard of the most-favored-nation principle enshrined in WTO law. Consequently, China has made its terms of trade worse for the rest of the world. These third-country effects of the Sino-American trade war go beyond the dimension of normal trade diversions and are part of the following considerations and calculations.

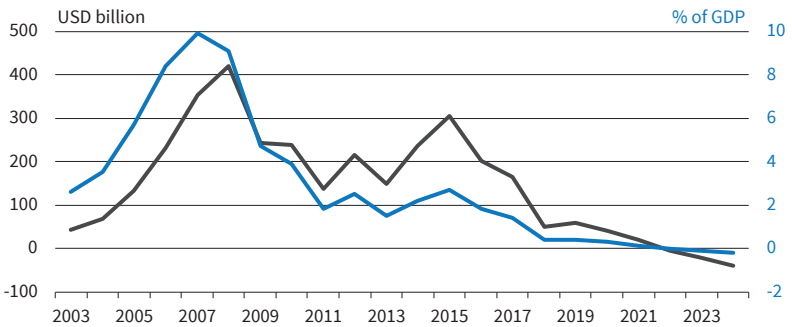
REACTION OF THE CHINESE CURRENT ACCOUNT

The Chinese current account balance has fallen sharply over the past decade (Figure 3). What had been a surplus of 10 percent measured by economic output fell to 0.4 percent in 2018, meaning that it is roughly balanced right now. The IMF even forecasts current account deficits for the near future. It is generally assumed that trade policy (e.g., tariffs) largely has no effect on the current account balance, as it does not change national saving and investment decisions.[3] However, things are somewhat different when it comes to the effects of exchange rate policy. Subject to the Marshall-Lerner condition, for example, a currency devaluation with a balanced current account leads, all else being equal, to an increase in the current account balance (J-Curve Effect). This is also regarded as the 'normal reaction' of the current account (Borchert 1975). Moreover, a current account response to the exchange rate is an empirical fact (Cline 2010; Goldstein and Lardy 2008; Ren et al. 2018), even if the underlying elasticity approach is criticized by theories (McKinnon and Schnabl 2009). Only if a nominal devaluation is accompanied by a real devaluation, there will be a change in the current account. This condition holds in the short term by assuming price stickiness. For this reason, an increase in China's current account is an expected consequence of the devaluation of the Yuan, at least in the short term. In the very case of China, political control of the current account does not seem implausible even on a medium-term basis. Financing projects such as the Belt & Road Initiative calls for permanent current account surpluses, without which no net foreign assets can be built up. What is more, the Chinese government also has the necessary tools at its disposal: capital controls and a high government share with corresponding possibilities for state saving. That is why we will simulate the effects of a medium-term increase in the current account below.

[3] Nevertheless, bilateral current account positions may shift. This distortion is mainly due to an asymmetric customs policy, i.e., when there is discrimination between different trading partners.

Figure 3

China's Current Account Balance 2003–2024



Note: The blue line refers to the right ordinate and the grey line refers to the left ordinate. Figures from 2019 onwards are projections.
Source: IMF World Economic Outlook.

TRADE EFFECTS OF A PERMANENT INCREASE IN CHINESE CURRENT ACCOUNT

With the ifo Trade Model,[4] the effects of an exogenous change in the Chinese current account are quantified in a static general equilibrium setting. The increase in China's current account by 3.25 percent or 6.5 percent of GDP corresponds to a real devaluation of the Yuan of 10 percent (scenario 1a) and 20 percent (scenario 1b), respectively.[5] As the total of all current account balances has to be zero, the current account balances of all other countries will be reduced on a GDP-weighted basis by the same amount in absolute terms as China's current account increases. These scenarios solely simulate the expected devaluation compared to the initial level without further adjustments. Scenarios 2a and 2b extend the expected devaluations by taking into consideration the effects of an escalating tariff war between China and the United States.[6] Scenario 3 serves as a comparison with earlier results and simulates an escalating tariff war between China and the United States without Yuan devaluation.[7]

Table 1 shows the change in real income[8] in the countries and regions concerned. The economic costs of devaluation alone for the Chinese economy amount to EUR 4.2 billion or EUR 8.4 billion, depending on the size of the devaluation. All other countries benefit – on aggregate by EUR 2.4 or 5.4 billion. On balance, the losses exceed the profits, indicating a decline in global production efficiency. The currency devaluation is, therefore, a negative-sum game. It is interesting to note that the United States benefits more from the 10-percent devaluation than the entire rest of the world, including the EU. This changes with a 20-percent devaluation, under which the EU's absolute gains in real income would reach about 85 percent of the US level. The signs of these changes are plausible, as the real exchange ratio between foreign and domestically produced goods deteriorates in the event of a real devaluation to the detriment of China.

As scenario 3 shows, gains in real income materialize for Germany and Europe as long as China and the US impose tariffs only on each other. These result from trade diversions – increased demand for European products in China and the US and increased supply of Chinese and American products in Europe. Scenarios 2a and 2b now combine the effects of devaluation (1a and 1b) with the effects of the tariff war. In this case, the aggregate cost to China of additional tariffs and the devaluation amounts to an income loss of EUR 29.2 billion and EUR 33.7 billion, respectively, while Germany records real income growth of EUR 413 million and EUR 499 million, respectively. Only if the Yuan depreciates by 20 percent the US losses from an escalating tariff war (scenario 3) turn into a welfare gain. Although the 10-percent Yuan devaluation causes the US income loss to crumble, it remains negative.

With regard to trade relations, it can be seen that a devaluation of the Yuan – whether brought about consciously or unconsciously – together with the corresponding consequences for the Chinese current account will not lead to any increase in welfare in China. Indeed, the opposite is true, as making exports cheaper means a transfer of wealth to other countries. In contrast to a trade dispute conducted solely through tariffs, in which retaliating with counter-tariffs is the dominant strategy in response to unilaterally imposed tariffs, there are no positive effects associated with a currency devaluation or an increase in the current account balance. The transfer of wealth to the rest of the world associated with this reduces the costs of the trade conflict for the US and increases the benefits for non-participating third countries such as the EU.

Another motive for the devaluation could be to maintain the level of production and thus also employment in China. As a frictionless model that assumes full employment, the ifo Trade Model cannot simulate employment effects. However, contrary to the widespread opinion that current account sur-

[4] For a detailed description of the model – see Aichele et al. (2016); Caliendo and Parro (2015).
[5] This corresponds to the average current account exchange rate elasticities of Cline (2010); and Goldstein and Lardy (2008).
[6] 25 percent protective tariff on US imports from China, worth USD 250 billion, + 10-percent protective tariff on US imports from China, worth USD 300 billion. China responds with countermeasures and introduces a 10-percent protective tariff on US goods – see Felbermayr and Steininger (2019) for further simulations.
[7] See ifo press release of 13 August 2019, https://www.ifo.de/en/node/44814. There are minor differences in the underlying GDP data. It has been updated for this paper.
[8] Defined as the total of domestic value added, customs revenue, and international transfers.

Table 1
Changes in Real Income, Different Scenarios (in EUR Million)

	Yuan devaluation		Yuan devaluation + US-China tariff war		US-China tariff war
	1a	1b	2a	2b	3
China	– 4,235	– 8,440	29,267	– 33,786	– 24,621
Germany	15	147	413	499	348
Rest of the EU	505	1,520	1,944	2,816	1,404
Rest of the world	461	2,208	5,675	6,513	5,130
United States	1,418	1,969	397	476	– 1,593

Note: Real income is the sum of aggregated domestic value added, customs revenue, and international transfers. Scenario 1a/1b simulate a 10-percent/20-percent Yuan devaluation, scenario 2a/2b simulate an additional escalating tariff war, and scenario 3 solely simulates a tariff war between the United States and China without devaluation.

Source: ifo simulations and World Bank (2019).

pluses, all else being equal, lead to higher employment, Braml et al. (2018) empirically find a negative correlation between employment and the current account balance.[9]

CONCLUSION

As shown, Germany and the EU benefit from an escalating trade conflict between the United States and China not only in the form of trade diversion effects, but also by a devaluation of the Yuan. The trade conflict undoubtedly causes economic harm due to increased uncertainty and political risks. However economic gains may still arise due to such welfare transfers.[10] The exchange rate channel, which was approximated in this paper by the increase in China's current account surplus, and through which Chinese products become more favorable for German consumers and producers, more than outweighs dampening effects on demand due to the rise in prices of German and European products in China.

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[9] The correlation in the estimated model with country-specific effects even points in the opposite direction, thus showing that unemployment decreases with the current account balance.

[10] The simulations do not include an estimate of the increase in uncertainties and political risks that the devaluation of the Yuan brings about.