Presidential Cycles and Exchange Rates*

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Abstract

This paper shows that US presidential cycles can predict dollar-based exchange rate returns. Armed with nearly 40 years of data and a large cross-section of currency pairs, we document an average US dollar appreciation during Democratic presidential terms and an average US dollar depreciation during Republican presidential mandates. The difference in these average exchange rate returns is larger than 5% per annum and is not driven by cross-country interest rate differentials, inflation differentials, and pre-existing economic conditions. Moreover, we find that exchange rate returns increase with lower tariff rates, are higher for the peripheral countries of a trade network, and are higher for countries with higher interest rates. We interpret these findings as compensation for global trade policy uncertainty within a model of exchange rate determination with constrained financiers.

Keywords: Political Cycles, Foreign Exchange, Currency Risk Premia, Trade Policy.
JEL Classification: E44, D72, F13, F31, G15, G20, P16.

"The US election has the potential to be a significant market mover"

— Financial Times, September 28, 2020

1 Introduction

Exchange rates are notoriously difficult to forecast and there is limited empirical support for traditional models based on economic fundamentals. The forecasting power of these models is generally poorer than a simple random walk process (e.g., Meese and Rogoff, 1983; Engel and West, 2005). But exchange rates are affected by much more than just interest rates and inflation, their dynamics is extremely complex and usually puzzling (e.g., Engel, 2016), and unexpected exchange rate shifts often happen around elections, referendum, and other political events. The connection between politics and foreign exchange markets, however, is not well understood and the empirical evidence remains scant being political factors not easily measurable. Not surprisingly, financial economists and practitioners are often caught off-guard when exchange rates are hit by major political events as *political information* may not be processed as efficiently as *economic information* (e.g., Roberts, 1990; Freeman et al., 2000).

In this paper, we study the relationship between exchange rates and US presidential cycles. On the one hand, the selection of the US president is a major political event that attracts massive global interest since the new president can reshape the foreign policies of the US, a country that is undoubtedly central to international trade and capital flows. On the other hand, US presidential elections are periodically scheduled and this regularity makes US political cycles uncontroversially easy to determine. Specifically, a presidential cycle starts when a political party gains victory at the presidential election and ends when the candidate of a different political party wins the White House. To preview our results based on nearly 40 years of data, we find that the US dollar is systematically stronger during Democratic presidential mandates than Republican presidencies relative to a large cross-section of developed and liquid emerging market currency pairs. On average, the US dollar appreciates by 4.31% per annum during Democratic presidential terms and depreciates by

1.25% when the US president is a Republican. The difference in average exchange rate returns (the return difference, henceforth) between Democratic and Republican presidential cycles is larger than 5% per annum, a figure that is both statistically significant and economically large.

A large body of the early literature examines the role of US presidential cycles for macroeconomic outlook and concludes that output growth is slower during Republican administrations whereas inflation rate is higher under Democratic presidencies (e.g., Alesina and Rosenthal, 1995; Alesina et al., 1997; Blinder and Watson, 2016). In contrast, only a few recent papers have studied the relationship between US presidential cycles and the performance of financial markets (e.g., Santa-Clara and Valkanov, 2003; Brogaard et al., 2019; Pástor and Veronesi, 2020). In particular, Santa-Clara and Valkanov (2003) is the first paper to document a higher excess return for US stock markets under Democratic than Republican presidencies, a stylized fact described as the 'Presidential Puzzle' due to the lack of plausible empirical explanations. Pástor and Veronesi (2020), moreover, attempt to rationalize this finding using a theoretical model that incorporates US tax policy and time-varying risk aversion. Brogaard et al. (2019), in addition, study the impact of global political uncertainty measured using US election cycles on global asset prices and uncover a strong negative empirical relationship. Liu and Shaliastovich (2017), finally, focus on US government policy approval arising from US presidential or congressional ratings and find a strong relationship with fluctuations in dollar exchange rates.

We build and contribute to this recent literature by studying the relationship between US presidential cycles and exchange rate returns. We interpret our empirical findings within a model of exchange rate determination in the spirit of Gabaix and Maggiori (2015), in which financiers have a limited risk-bearing capacity to intermediate the global demand for currencies. In particular, we demonstrate that the limit on financiers' risk-bearing capacity arises from the uncertainty in the trade policies worldwide. In our model, both the level and volatility of tariffs can influence the exchange rate determination. We argue that the risk of US presidential cycles propagates internationally by generating a cycle of trade uncertainty worldwide. Using this framework, where an increase in the tariff uncertainty leads to more financial disruptions which limit further the financiers' risk-bearing capacity, we show that an increase in tariff uncertainty regarding trade policy leads to a US dollar depreciation against foreign currencies under a high-tariff regime. When the tariff uncertainty becomes higher, households expect the net exports to rise, thanks to the trade policy protecting the domestic production sector. To absorb these global imbalances, financiers must hold foreign currencies while selling US dollars, thus demanding a premium that matches our findings, i.e., a US dollar depreciation (appreciation) against foreign currencies under Republican (Democrat) presidents.

We also check empirically whether foreign political cycles can generate sizable exchange rate return differences. We generally find that foreign political cycles are statistically insignificant but the sign of the policy coefficients can be cross-sectionally inconsistent, potentially due to the irregularity and endogeneity of the election day. Therefore, it is difficult to reach a conclusion that the conventional bipartisan hypothesis applied to foreign countries can play any role in our analysis. Only US presidential cycles generate consistent and significant exchange rate return differences. These results are not confined to developed currencies but further extend to a range of liquid emerging market currencies, are not offset by the cross-country interest rate and inflation differentials, and are unrelated to traditional variables used to proxy for the US business cycle fluctuations such as the term spread, default spread, relative interest rate, and log dividend-price ratio (e.g., Santa-Clara and Valkanov, 2003). Next, we investigate a possible explanation that rationalizes the causes of the observed exchange rate return difference. Trade policy is a natural candidate in the international context and the US president plays a special role compared to other presidents or prime ministers in foreign countries. There is some evidence that the US president can bypass congress to impose a tariff on imports, thus justifying our focus solely on the presidential cycle rather on congressional characteristics.

In our analysis, we consider international trade relations as part of a trade network because a shock to the trade volume of a country might also indirectly affect the trade volume of other countries. We observe the trade network effect in the data. If international trade is a critical factor driving the exchange rate return differences, we should then find a stronger effect on the peripheral countries, which are likely to benefit from free-trade US administrations and suffer from protectionist US governments. To provide more direct evidence on the trade channel, we further analyze the influence of trade tariffs on the dynamics of exchange rates. We show that exchange rate return differences become statistically insignificant after the inclusion of tariff variables, although the quantities remain similar to the univariate regression. We thus argue that the degree of protectionism, commonly measured by tariff levels, is essential to understand the US presidential cycle for exchange rates.

On the risk dimension of foreign exchange markets, we design a test to establish the relations between trade uncertainty and financial risk. We examine the implied volatility movement of foreign exchange rates around the major events of trade uncertainty as well as trade deals. We find strong evidence indicating that higher volatilities (approximately 0.916% higher per annum with the deep out-of-money put option) in currency markets are associated with trade uncertainty. Also, we show that the rise in volatility becomes quantitatively smaller with the at-the-money and call options. The role of trade events is thus implied to be more relevant for downside risk in currency markets. Note that these results are not driven by the existing trade-related factors, such as openness, network centrality, and country size, alone. Nevertheless, we demonstrate that peripheral countries who rely heavily on trades with the US would face higher financial risks when high uncertainty occurs to their trade activities.

In short, our contribution can be summarized in three dimensions. First, we establish a connection between the US presidential cycle and exchange rates. We demonstrate that Democrats-Republicans presidential cycles, irrespective of foreign political cycles, contribute to an economically sizeable return difference for a large cross-section of currency pairs. Second, we rule out the possibility that the exchange rate return difference can be attributed to pre-election economic conditions. Finally, we propose trade policy as a plausible explanation, which we then verify in the data and further rationalize in a theoretical model. We show that trade centrality amplifies the exchange rate return difference.

Related Literature. The return difference is well known in the US stock market. Santa-Clara and Valkanov (2003) ruled out some potential explanations and documented this phenomenon as 'presidential puzzle'. They did not find significant relations between stock returns and congressional variables while similar findings were reported by Blinder and Watson (2016) over economic growth and congressional variables. The model in Pástor and Veronesi (2020) focused on the imposed tax policy under the Democratic and Republican presidents. They rationalized the return difference in the US stock market by providing an explanation of fiscal policy and time-varying risk premia. The influence of political uncertainty on the risk premia was well-explored with the US data. Pástor and Veronesi (2013) proposed a general equilibrium model to rationalize the price dynamics responding to political news.

Our paper is also related to the bipartisan models (e.g., Hibbs, 1977) and the political real business cycle (e.g., Nordhaus, 1975), in which Democrats prioritize growth over inflation and unemployment while Republicans favor the opposite. Alesina and Roubini (1992) investigated 18 OECD economies to document the long-run bipartisan differences in inflation and the temporary bipartisan differences in output and unemployment. On the contrary, Blinder and Watson (2016) documented the bipartisan difference in the US economic growth. Hence, it remains inconclusive whether the bipartisan hypothesis is an important factor to understand the international stock and currency market.

Lohmann and O'Halloran (1994) showed empirical evidence of lower tariff under a Democratic president. They also showed a similar finding under a unified government where the President is in the same party as the House and Senate majority. Recently, Fajgelbaum et al. (2019) and Fetzer and Schwarz (2020) investigated the economic losses due to the trade war raised by President Trump's administration via a specific dimension of the retaliation tariff enacted by the US trade partners. Our paper complements theirs by documenting that the tariff rate is an important factor to explain also the financial returns in a longer sample. On the other hand, Liu and Shaliastovich (2017) argued the relations between the policy approval and currency risk premium. They showed a higher rate of policy approval predicts higher economic growth and lower currency risk premium. Our paper echoes theirs by relating the US trade policy and international asset prices. We further propose the US trade policy as a potential explanation for the return difference in the international stock markets.

Moreover, the influence of political uncertainty on the foreign exchange market was discussed in a few papers. Bachman (1992) offered an information-based explanation, showing that the forward exchange premium is mitigated after general elections in several industrial countries. With a focus on the exchange rate volatility, Lobo and Tufte (1998) analyzed the bipartisan effect in a sample of four countries. As for the study of international stock returns, our paper is related but different from the work by Brogaard et al. (2019). They studied the impact of political uncertainty on the international asset prices but the focus was to show the negative influences from the pre-election uncertainty rather than to understand the policy choice throughout the presidential terms. It is an extension of the single-country study reported in Kelly et al. (2016), which uses option data to verify the link between political uncertainty and risk premia. Our goal is beyond this type of event study which treats election as an exogenous shock. We aim to explain the political-economic fluctuations in the risk premia of the stock and foreign exchange markets.

The trade centrality measure we used is similar to the eigenvector centrality in network literature (e.g., Bonacich and Lloyd, 2001; Jackson, 2010). Richmond (2019) used trade network centrality to rationalize the economic source for the deviation from Uncovered Interest Parity. Instead, our tests based on the network centrality further validate the role of trade integration in explaining the return difference. Rossi et al. (2018) used additional centrality measures to test the fund performance. We also include these measures in our analysis for the sake of robustness.

The remaining of the paper is organized as follows. Section 2 describes our data sources. Section 3 presents the empirical analysis to document the spillovers of US presidential cycles to foreign exchange rates. Then, we formulate a model of exchange rate determination on trade policy uncertainty in Section 4 for the return difference before concluding in Section 5. A separate Internet Appendix provides additional robustness tests and supporting analysis.

2 Data and Preliminary Analysis

This section describes the main data employed in the empirical analysis and provides some preliminary results.

2.1 Data on Exchange Rates

Data on the daily spot and one-month forward exchange rates relative to the US dollar are sourced from Barclays Bank International and WM Reuters via Datastream. The empirical analysis employs monthly observations that we obtain by sampling end-of-month exchange rates between October 1983 and October 2020. We focus on a sample that includes the currencies of developed countries as well as the currencies of major emerging economies, i.e., Australia, Belgium, Brazil, Canada, Czech Republic, Denmark, Euro Area, France, Germany, Hungary, Italy, Japan, Mexico, Netherlands, New Zealand, Norway, Poland, Singapore, South Africa, South Korea, Sweden, Switzerland, Taiwan, Turkey, and the United Kingdom. After the introduction of the euro in January 1999, we drop Belgium, France, Germany, Italy, and the Netherlands from the sample. The sample starts with 9 currencies at the beginning of the sample in 1983 and ends with 20 currencies at the end of the sample in 2020.

Exchange rates are expressed in units of US dollars per unit of foreign currency so that an increase in the exchange rate indicates an appreciation of the foreign currency or equivalently a depreciation of the US dollar. We define spot and forward exchange rates at time t in logs as s_t and f_t, respectively. Monthly exchange rate returns from buying a unit of foreign currency in at time t while reversing the position at time $t+1$, both in the spot market, are denoted as $\Delta s_{t+1} = s_{t+1} - s_t$. Similarly, monthly excess returns from buying a unit of foreign currency in the forward market at time t and then selling it in the spot market at time $t+1$ are computed as $rx_{t+1} = s_{t+1} - f_t$. We also construct real exchange rate returns between months t and $t+1$ as $\Delta q_{t+1} = \Delta s_{t+1} + \pi^*_{t+1} - \pi_{t+1}$, where π_{t+1} and π^*_{t+1} are the inflation rates for the US and the foreign country, respectively, between months t and $t+1$. We collect monthly observations on year-on-year inflation rates from Datastream and suitable scale them to proxy for π_{t+1} and π^*_{t+1}.

2.2 Data on Political Variables

Data on the US presidential cycles are hand collected and span, respectively, six Republican presidential terms and four Democratic presidential terms. The latter includes the presidencies of Bill Clinton and Barack Obama whereas the former comprises the presidencies of Ronald Reagan, George H.W. Bush, Gorge W. Bush, and Donald Trump. Each cycle starts in November when the US presidential election takes place and ends four years after in October. Based on these data, we define DP_t, a monthly time series of a Democratic dummy variable, that takes on the value of one during a Democratic presidential cycle and zero under a Republican presidential cycle. For example, under the presidential terms of Barack Obama, DP_t is set equal to one between November 2008 and October 2016. Overall, our sample combines 192 months of Democratic presidential terms (or 43.1% of all months) and 253 months of Republican presidential terms for a total of 445 months.

We also collect data on the election cycles of other major economies, which we use to define control dummy variables. We focus on the members of the G7 countries, i.e., Canada, France, Germany, Italy, Japan, and the United Kingdom, and broadly categorize the winning party (or ruling coalition) in each country either as a center-left or center-right political party. In particular, we classify the Liberal Party as center-left and the Conservative Party as center-right in Canada; the Social Democratic Party as center-left and the CDU/CSU as center-right in Germany; the Socialist Party and En Marche! as center-left, and the Republicans, Rally for the Republic, and UMP as center-right in France; the Labour Party as center-left and the Tory Party as center-right in the United Kingdom; the Pentapartito, Olive Tree, Union, Democratic Party, and the coalition Democratic Party, Five Star Movement, and Free and Equal as center-left, and the Pole of Freedom, House of Freedom, People of Freedom, and the coalition Five Star Movement and Lega as center-right in Italy; the Democratic as center-left and the Liberal Democratic as center-right in Japan. For each country, we then define C_t, a monthly time series of a control dummy, that is equal to one when the winning party (or the ruling coalition) is leaning towards the center-left and zero otherwise. Each cycle starts when we observe new elections or a swing in the ruling coalition. As an example, take the last general election cycle in Italy. We first assign a value of zero to our dummy between March 2018 and August 2019 and then switch to one starting from September 2019.

TABLE 1 ABOUT HERE

In Figure 1, we summarize the percentage number of times that a dummy variable is equal to one or zero. In Canada, the dummy is equal to one in 50.3% of all months, thus indicating an equal split between center-left and center-right. France and Italy, moreover, are leaning towards the center-left as the dummy equals one in 54.2% and 64.0% of all months, respectively. On the contrary, Germany, Japan, and the UK are drifting towards the center-right since the dummy amounts to one in 18.9%, 15.1%, and 35.1% of all months, respectively.

2.3 Data on Currency Options

We collect daily over-the-counter option implied volatilities on exchange rates vis-à-vis the US dollar from JP Morgan and Bloomberg between January 1996 and October 2020. The sample includes 20 countries, i.e., Australia, Brazil, Canada, Czech Republic, Denmark, Euro Area, Hungary, Japan, Mexico, New Zealand, Norway, Poland, Singapore, South Africa, South Korea, Sweden, Switzerland, Taiwan, Turkey, and the United Kingdom. We start with nine countries at the beginning of the sample in 1996 and end with 20 currencies at the end of the sample in 2020. Currency options are quoted in terms of Garman and Kohlhagen (1983) implied volatilities at fixed deltas (at-the-money, 10 delta call and put, and 25 delta call and put options) and fixed maturities. We focus on the following maturities: 1 week, 1 month, 3 months, 6 months, 12 months, and 24 months.

2.4 Data on Trade Variables

We collect data on bilateral imports and exports from the International Monetary Fund's Direction of Trade Statistics (DOTS) as well as data on GDP from the International Monetary Fund's World Economic Outlook (WEO) database. Data are expressed in US dollars and range at a yearly frequency between 1983 and 2019. Similar to the options data, the sample includes 19 countries as Taiwanese data is unavailable.

Also, two measures of tariff data are collected from the World Bank database. First, the Most Favored Nation (MFN) tariff is the weighted-average across the imported products for each country, which is available at a yearly frequency from the year 1988. Second, we also collect the data on customs and other import duties, which is expressed in US dollars and available at a yearly frequency from 1972.

2.5 Data on US Macroeconomic Variables

We also collect data on a variety of US macroeconomic variables that we use to proxy for business cycle fluctuations akin to Santa-Clara and Valkanov (2003). This set of variables included the log dividend-price ratio LDP_t, the term spread TSP_t between the ten-year Treasury constant maturity rate and the three-month Treasury bill rate, the default spread DFS_t between yields of BAA-rated and AAA-rated corporate bonds, and the relative interest rate RR_t computed as three-month Treasury bill rate in deviation of its one-year moving average. For all these data, we obtain end-of-month data by All these data are monthly and The dividend-price ratio is available from Robert Shiller's website whereas the other data are obtained from the FRED database maintained by the Federal Reserve Bank of St. Louis.

3 Main Findings: Democrats versus Republicans

This section shows that exchange rate returns comove with the US presidential cycles. Using a large cross-section of currency pairs, we document that the US dollar tends to appreciate during Democratic presidential terms and depreciate under Republican presidential terms. The difference in dollar-based exchange rate returns between Democratic and Republican presidencies is statistically significant, can be attributed neither to interest rate differential nor to the inflation differential, and is not driven by fluctuations in US business cycle variables. IN contrast, this difference can rationalized using trade policies and tariff uncertainty.

3.1 Exchange Rate Return Performance

We establish our findings by first presenting summary statistics of country-level monthly exchange rate returns. Table 1 reports the means and standard deviations in percentage per annum for the full sample that ranges between October 1983 and October 2020 as well as Democratic and Republic presidential terms. The former subsample is denoted as DP whereas the latter is referred to as RP.

TABLE 1 ABOUT HERE

The first two columns of Table 1 refer to the full sample, which includes 445 months. Recall that exchange rates are defined as units of US dollar per unit of foreign currency and a negative return indicates an appreciation of the dollar. Out of 25 currency pairs, 14 currency pairs have experienced depreciation and 11 currency pairs have gone through an appreciation against the dollar. With a few exceptions, mainly concentrated around emerging market economies like Brazil, Mexico, Turkey, and South Africa, there is no clear pattern on whether the US dollar has on average appreciated or depreciated against foreign currency pairs during our sample. We further add means and standard deviations of an equally-weighted basket (EWR) and a GDP-weighted basket (VWR) and get to the same conclusion. The EWR basket displays an average exchange rate return that is slightly negative (-1.15% per annum) whereas the VWR basket shows an average exchange rate return that is indistinguishable from zero (-0.05% per annum). The exchange rate volatility, moreover, evolves around 12% for individual currency pairs and is slightly above 8% for the currency baskets.

The next two columns of Table 1, under the heading of DP, report the summary statistics for Democratic presidential terms, a subsample that includes 192 months. With the single exception of the Japanese yen, the US dollar has on average appreciated against all other currency pairs during Democratic presidential terms. This stylized fact is further confirmed when currency pairs are grouped together. The EWR basket exhibits an average US dollar appreciation of 4.31% per annum, which is economically sizeable and three percentage points larger than the corresponding figure reported for the full sample. We uncover similar results for the VWR basket, i.e., an average US dollar appreciation of 3.12% per annum that is three percentage points larger than the corresponding full-sample statistic. The columns under the heading of RP, in contrast, denote the Republican presidential terms, a subsample that is slightly larger and comprises 253 months. We find that, under Republican presidents, the US dollar has on average depreciated against 19 out of 25 currency pairs in our sample. The cross-country baskets, moreover, point towards the same conclusion since the EWR and VWR basket display an average US dollar depreciation of 1.25% and 2.29% per annum, respectively. These results, taken together, suggest that the US dollar on average appreciates under Democratic presidents and depreciates under Republican presidents.

FIGURE 2 ABOUT HERE

In the last two columns of Table 1, we show the mean and standard deviation differences between Democratic and Republican presidential terms. Except for the Brazilian real, the mean difference is always negative and evolves around −5.54% per annum for the developed currency pairs (i.e., the first 15 of the list) and −6.25% per annum for emerging market currency pairs (i.e., the last 10 of the list). These findings can be further visualized in the bar chart reported in Figure 2, which also shows that there is more cross-country variation for emerging market currencies than developed currencies. The mean differences for currency baskets, moreover, are virtually identical since EWR displays a mean difference of −5.56% per annum while VWR exhibits a mean difference of −5.42% per annum. Finally, while the exchange rate volatility is on average lower under Democratic presidential terms than under Republican presidential terms, its difference is economically small and slightly larger than 0.50% in absolute terms.

Overall, this first set of results documents a striking regularity that characterizes dollar-based exchange rate returns: the US dollar on average appreciates during Democratic presidential terms and depreciates during Republican presidential terms. We thus complement the work of Santa-Clara and Valkanov (2003) and Pástor and Veronesi (2020), who show that the average US stock market excess return is higher under Democratic than Republican presidencies.

3.2 The Role of Interest Rates

The findings reported in the previous section beg the question of whether our results are driven and, to some extent, offset by cross-country interest rate differentials. We run two different exercises to verify this legitimate concern. In the first exercise, we first replace the country-level exchange rate returns with country-level currency excess returns and then compute summary statistics for the full sample as well as Democratic and Republican presidential cycles.

Table 2 about here

We present our results in Table 2 and uncover no substantial difference relative to our core results. In particular, the mean differences between Democratic and Republican presidential terms reveal that our findings remain robust to the inclusion of the interest rate differential in 22 out of 25 currency pairs. Except for three emerging market currencies, i.e., the Brazilian real, Mexican peso, and South Korean won, the mean difference is always negative and moves around −6.15% per annum for the developed currency pairs and −3.24% per annum for emerging market currency pairs. These results suggest that for developed currencies there is virtually no difference on average between exchange rate returns and currency excess returns. For emerging market currencies, however, local interest rates are slightly higher on average under Democratic presidents than Republican presidents. A plausible explanation is that Central Banks in emerging market countries are likely to respond to local currency depreciation by raising short-term local interest rates. This consideration, however, mildly affects our overall results as the EWR and VWR baskets continue to exhibit an economically large mean difference of about −4.37% and −5.05% per annum, respectively.

Figure 3 about here

In the second exercise, we calculate the exchange rate returns of a pseudo trading strategy that naïvely buys the US dollar while shorting an equally-weighted basket of foreign currencies under a Democratic White House and sells the US dollar while investing in an equally-weighted basket of foreign currencies under a Republican White House. We then compare the exchange rate returns of this pseudo strategy, labeled as the 'dollar cycle', with the exchange rate returns of the 'dollar carry' of Lustig et al. (2014) and Verdelhan (2018). The latter is an investment strategy that exploits the time-series variation in the average US interest rate difference relative to the foreign countries. It takes a long position in an equally-weighted basket of foreign currencies while selling the US dollar whenever the average foreign short-term interest rate is above the short-term US interest rate and sells an equally-weighted basket of foreign currencies while going long the dollar whenever the short-term US interest rate is higher than the average foreign short-term interest rate. We plot the cumulative exchange rate returns of these two strategies in Figure 3 and their time-series behaviors look remarkably different: the 'dollar cycle' yields an average exchange rate return of 2.6% per annum whereas the 'dollar carry' produces an average exchange rate return of −0.4% per annum. These figures coupled with a return correlation that is as low as 1% suggest that the interest rate differential is unlikely to be a primary driver of our core results.[1]

The 'dollar cycle' has predicted the average exchange rate return considerably well between its inception and late 2008. It has then struggled during the global financial crisis that followed the Lehman Brothers collapse before turning on a positive drift again between mid-2011 and early 2018. At that time, the Tax Reform passed by the Trump administration introduced an incentive for US firms to repatriate their offshore cash holdings and likely acted as a major source of demand for the US dollar.[2] The more recent COVID-19 outbreak beginning in the late March of 2020 and the associated flight-to-safety behavior of global investors can further explain the recent US dollar appreciation and the resulting negative

[1]The comparison is based on exchange rate returns solely to verify whether our core results are driven by the interest rate differential. In terms of profitability, the strategies are largely comparable as the 'dollar cycle' generates an average currency excess return of 2.4% per annum whereas the 'dollar carry' delivers an average currency excess return of 2.1% per annum. Ranking these strategies in terms of profitability, however, is beyond the scope of this exercise.

[2]Since there were a few tax-related bills passed around the same period, we clarify by referring the Tax Reform to the *Tax Cuts and Jobs Act*, passed with no support from the Democratic Party and signed by the President in December 2017. This bill affects the US international businesses as well as the US citizens living and working abroad. Furthermore, the US dollar also rose after President Bush offered a tax holiday on repatriated earnings in 2004 with the *Homeland Investment Act*.

performance of our pseudo trading strategy. The 'dollar carry trade', in contrast, has predicted the average exchange rate return reasonably well at the beginning of the sample before weakening its predictive power since the early '90s.

Figure 4 about here

We also construct both strategies using GDP-weighted baskets of foreign currencies but results remain qualitatively similar albeit with a marginally higher sample return correlation of about 7%. Cumulative exchange rate returns are displayed in Figure 4. Overall, it seems that interest rates are unlikely to be the main determinant of our results.

3.3 The Role of Inflation Rates

We also check whether our findings can be attributed to cross-country inflation rate differentials. To shed light on this question, we carry out two different exercises similar to those presented in the previous section. In the first exercise, we first replace the country-level nominal exchange rate returns with country-level real exchange rate returns and then present summary statistics for the full sample as well as Democratic and Republican presidential mandates.

Table 3 about here

We show our results in Table 3 and find that the mean difference between Democratic and Republican presidential terms remain negative for 21 out 25 currency pairs. Excluding four emerging market currencies, i.e., the Brazilian real, Mexican peso, South Korean won, and Turkish lira, the mean differences between Democratic and Republican presidential terms are always negative. On average, it is about -5.75% per annum for the group of developed currencies and -4% per annum for both developed and emerging market currency pairs. Also, the EWR and VWR baskets display a mean difference of about -3.62% and -4.56%

per annum, respectively. These results thus suggest an average US dollar appreciation in real terms under a Democratic White House.

We also compare the exchange rate returns of our 'dollar cycle' pseudo strategy with the exchange rate returns of a 'dollar value' strategy that exploits the time-series variation in the average inflation rate difference between the US and the foreign countries in the spirit of Asness et al. (2013). It takes a long position in an equally-weighted basket of foreign currencies while selling the US dollar whenever the US inflation rate is above the average foreign inflation rate and sells an equally-weighted basket of foreign currencies while investing the dollar whenever the average foreign inflation rate is higher than the US inflation rate. We plot the cumulative exchange rate returns of the 'dollar value' strategy in Figure 3. This strategy delivers an average exchange rate return of -0.7% per annum and displays a return correlation of -12% with the 'dollar cycle' strategy. To sum up, the inflation differential is unlikely to fully offset the presidential cycle that characterizes dollar-based exchange rate returns.

3.4 Testing for the Presidential Cycle

We now carry a statistical assessment of the relationship between exchange rate returns and the US presidential cycle akin to Santa-Clara and Valkanov (2003), Specifically, we run regressions based on the following specification

$$\Delta s_{i,t+1} = \alpha + \beta \, DP_t + \varepsilon_t, \tag{1}$$

where $\Delta s_{i,t+1}$ is the exchange rate return for the currency i relative to the US dollar between months t and $t+1$, and DP_t is a presidential dummy variable that takes on the value of one (zero) during a Democratic (Republican) presidential terms assumed to be known at the start of the presidential cycle. We run both pooled and panel regressions with time-invariant currency fixed-effects. Under the null hypothesis that the presidential cycle does not affect exchange rate returns, we should obtain that $\beta = 0$. Differently, β will measure the mean exchange rate return difference between Democratic and Republican presidential mandates. Put differently, while α quantifies the average exchange rate return under a Republican White

House, the sum of α and β delivers the average exchange rate return under a Democratic presidential term.

Table 4 about here

We report estimates of α and β obtained via least-squares in Table 4 with standard errors clustered by currency and time (calendar date) dimension in parentheses. Panel A presents pooled regression estimates and documents a positive but statistically insignificant estimate of α (≈ 1.65 with a clustered standard error of 1.85) coupled with a negative and statistically significant estimate of β (≈ -5.93 with a standard error of 2.66). These estimates, given our definition of exchange rates, imply a statistically significant yet economically large appreciation of the US dollar ($\approx 4.28\%$ per annum) under Democratic presidential cycles and a statistically insignificant yet economically small depreciation of the US dollar ($\approx 1.65\%$ per annum) under Republican presidential terms. In Panel B, moreover, we absorb time-invariant unobserved currency characteristics but results are equivalent. In particular, the estimate of α (≈ 1.46 with a standard error of 1.71) is positive and statistically insignificant whereas the estimate of β (≈ -5.53 with a standard error of 2.60) is negative and statistically significant. Taken together, these estimates signify a statistically significant yet economically large appreciation of the US dollar ($\approx 4.07\%$ per annum) under Democratic presidencies and a statistically insignificant yet economically small depreciation of the US dollar ($\approx 1.46\%$ per annum) under Republican presidencies.

We also check whether our estimates are driven by the inclusion of a particular currency pair in our analysis. To this end, we sequentially remove one currency pair at a time before re-estimating the regressions implied by Equation (1). These estimates are reported in Table 4 but the results remain qualitatively similar, i.e., all estimates of α are positive but statistically insignificant whereas all estimates of β are negative and statistically significant regardless of whether we employ pooled or panel regression methods. In terms of economic value, on average, the US dollar appreciates the most during Democratic presidential terms when we drop the Japanese yen and the least when we exclude the Turkish lira. Our pooled (panel) regression estimates imply an average US dollar appreciation of about 4.52% (4.31%) per annum in the former case and an average US dollar appreciation of about 3.35% (3.25%)

per annum in the latter case. To sum up, we find that the relationship between exchange rate returns and the US presidential cycle is not only economically important but also statistically significant.

3.5 Controlling for Local Political Cycles

In the previous section, we have established the existence of a statistically significant difference in exchange rate returns between Democratic and Republican presidencies. We now investigate whether our results are correlated with local political cycles. For this exercise, we take the election cycles of the G7 countries into account and augment Equation (1) as follows

$$\Delta s_{i,t+1} = \alpha + \beta \, DP_t + \gamma \, CL_t + \varepsilon_t, \tag{2}$$

where CL_t is the control dummy variable that equals one when the winning party (or coalition) in the foreign country is leaning towards the center-left political spectrum and zero when the winning party (or coalition) has a center-right political agenda. The control dummy is defined for Canada, France, Germany, Italy, Japan, and the UK. A critical aspect of this exercise is that general elections in countries like Canada, Italy, Japan, and the UK may take place at irregular intervals and be endogenously driven by opportunistic political behavior (e.g., Goto et al., 2020).

Table 5 about here

Table 5 presents pooled regression estimates of α, β, and γ with standard errors (in parentheses) by currency and time dimension. We find that our core results are not affected local political cycles and estimates of β are in line with those reported in Table 4. For example, when CL_t captures the political cycle in Germany, the estimate of α ($\approx$ 1.12 with a standard error of 2.12) and γ ($\approx$ 2.06 with a standard error of 2.71) are both positive but statistically insignificant whereas the estimate of β is negative and statistically insignificant (≈ -5.68 with a standard error of 2.71). In Table A.1 in the Internet Appendix, we report panel regression estimates with time-invariant currency fixed effects but find no qualitative difference to our results. To sum up, adding control dummy variables that summarize local political cycles has a negligible impact on the correlation between exchange rate returns and the US presidential cycle.

3.6 The Role of Business Cycle Fluctuations

Political variables are often associated with business cycle fluctuations (e.g., Alesina et al., 1997; Drazen, 2000) and our findings may simply capture comovements between exchange rate returns and variations in the economic activity. If this is the case, the statistical significance recorded in the previous section should then weaken when variables that proxy for business cycle fluctuations in the US are taken into account. To test this hypothesis, we follow Santa-Clara and Valkanov (2003) and run predictive regressions based on the following specification

$$\Delta s_{i,t+1} = \alpha + \beta \, DP_t + \gamma' \, X_t + \varepsilon_t, \tag{3}$$

where X_t denotes a set of predetermined macroeconomic variables, generally associated with the US business cycle, such as the term spread TSP_t, the default spread DSP_t, the relative interest rate RR_t, and the log dividend-price ratio LDP_t. If the political dummy variable only reflects information stemming from business cycle fluctuations, we should then observe a statistically insignificant and economically small estimate of β.

Table 6 about here

We report pooled regression estimates of α, β, and γ with standard errors (in parentheses) clustered by currency and time dimension in Table 6. In these regressions, all control variables are demeaned so that the coefficient estimates associated with DP_t are directly comparable with those reported in Table 4. Panel A presents different specifications based on control variables lagged by one month. The magnitude and the statistical significance of the β estimates, however, remain very similar to those without control variables, suggesting that the presidential dummy variable has an explanatory power for expected exchange rate returns that is largely orthogonal to proxies for US business cycle fluctuations. For example, specification (5) pulls all control variables together and produces a negative and statistically significant estimate of β (≈ -6.24 with a standard error of 2.80) that implies an average US dollar appreciation of 4.12% per annum under a Democratic president.

In Panels B through D, we verify the robustness of our results by increasing the lag of the control variables between three months and one year relative to the exchange rate returns. Overall, no significant difference is detected in our results. In Panel D, for example, we lag the control variable in X_t by one year. Specification (5) then yields a negative and statistically significant estimate of β (≈ -6.61 with a standard error of 2.75) that translates into an average US dollar appreciation of 4.65% per annum under a Democratic president. To conclude, similar to the evidence reported in Santa-Clara and Valkanov (2003), the results in Table 6 indicate that the correlation between exchange rate returns and political variables cannot be attributed to an indirect relation between business cycle fluctuations and presidential mandates.

3.7 The Role of Tariff

Since the bipartisan trade policy could be an intuitive direction to explore the stylized fact, we investigate if the tariff can explain the cross-country variations of exchange rate returns. Trade policy is a widely-studied dimension in the political-economic literature (Gardner and Kimbrough, 1989; Lohmann and O'Halloran, 1994) of which the bipartisan phenomenon was documented. In this paper, we take one step further to document the political-economic influence on the Foreign Exchange markets.

Using spot rate returns as the dependent variable, we run the following panel regression

$$\Delta s_{i,t+1} = \alpha + \beta_1 DP_{i,t} + \beta_2 \text{Tariff}_{i,t} + \beta_3 DP_{i,t} \times \text{Tariff}_{i,t} + \varepsilon_t, \tag{4}$$

with the constant terms absorbed by the time-invariant currency fixed effect. In addition to the political variable 'DP', which is a dummy variable, taking value one when the US president is from the Democratic Party and zero otherwise, we include three different tariff measures to capture the variation of trade policy in each country. Due to globalization, the tariffs over time generally exhibits downward trends around the world in our sample period. Therefore, we must remove the time trends in all our tariff measures in order to isolate the contamination from the globalization effect.

Now we explain in detail each of the tariff measures. The first measure is 'duties/import' which is obtained from dividing the customs and import duties by total imports at the country level. We construct this measure following the political-economic literature (Lohmann and O'Halloran, 1994). In Table 7, we find a significantly positive β_2 (≈ 0.014 with a standard error of 0.004), which implies a weaker US dollar when the average tariff per dollar of imports is higher. The interaction term between the tariff and the political dummy informs us of the different impact when the US president is from the Democratic Party. While β_2 captures the correlation between the tariff and exchange rate returns under a Republican president, the $\beta_2 + \beta_3$ indicates the influence of trade policy under a Democrat White House. The significantly negative β_3 (≈ -0.024 with a standard error of 0.009) indicates a stronger US dollar. After we control for the tariffs, the coefficient of the political variable β_1 becomes insignificant statistically (≈ -5.392 with a standard error of 3.823) when employing the panel regression with the currency fixed effect. In economic terms, this tariff exercise still demonstrates a sizable appreciation of the US dollar under the Democratic Presidencies. The fact, that the political variable lost its significance after we control for the tariff measures, further highlights the indispensable role of trade policy in explaining the dollar cycle.

Table 7 about here

The second measure is 'duties/tax' which is directly available from the World Bank's database. Since the import duties are a type of tax from a fiscal point of view, it is intuitive why the World Bank selects the national tax revenue to standardize the import duties. Since there exists an obvious difference in tax regimes between developed and emerging countries, the variation of 'duties/tax' does not necessarily reflect any meaningful implications relative to trade policy. Hence, this second tariff measure is noisier than the first one. As expected, we find insignificant results.[3] It is also worth noting that the signs of β_2 and β_3 remain aligned

[3]The tax policy is beyond the scope of this paper as Pástor and Veronesi (2020) has already studied this dimension in the context of the US stock market returns.

with the first tariff measure.

The third tariff measure is named 'MFN tariff'. It is the Most Favored Nation Tariff with which all the member countries of the World Trade Organization must comply. Since this third tariff measure simply serves as an upper bound of tariff rates for all countries in our sample, there was not much time variation in it. Hence, we treat the MFN tariff only as a control variable in our panel regression analysis. In Table 7, we find that controlling for the MFN tariff does not alter the previously discussed results and the MFN coefficient is statistically insignificant.

3.8 Testing for the Trade Uncertainty

We would also like to explore the role of trade uncertainty in the foreign exchange markets. Following the spirit of Kelly et al. (2016), we investigate the behavior of foreign exchange option around the exogenous trade events, which we combine the hand-collect events of trade deals with the events of trade uncertainty provided by Caldara et al. (2020). While the trade uncertainty might result in higher volatility in foreign exchange markets, the events of trade deals are likely to reduce it. We apply a negative sign to the following measure constructed from the implied volatility whenever we have the trade deal-related events. Table 8 presents a list of trade events used in this section.

TABLE 8 ABOUT HERE

For each event occurring at time t, we calculate the implied volatility difference, denoted as IVD_t, of one-week window as $IV_t - (IV_{t-3} + IV_{t+3})/2$ where IV_t is the implied volatility at time t. We run a panel regression as below

$$IVD_{i,t+1} = \alpha + \beta \text{Size}_{i,t} + \gamma \text{Distance}_i + \varepsilon_t, \tag{5}$$

where 'Size' represents the GDP of each country recaled by the total GDP of all 19 countries in our sample and 'Distance' is measured in thousand kilometer between the capital of each country to the US capital, Washington DC. These are two trade-related variables capturing the gravity effect. We hope to isolate the effect due to the trade uncertainty from the slow-moving (almost time-invariant), trade-driven influences by controlling for these country-specific characteristics. On the other hand, there is no need to control for the currency fixed effect in this regression analysis, because taking the difference when we construct the IVD_t allows us to remove the country specific effects. Instead, we control for the maturity fixed effect since the option of closer maturity, e.g., 1 week, 1 month and 3 months, may exhibit stronger reaction to trade events than that of maturity longer than 6 months.

Table 9 about here

The results of panel regression are presented in Tables 9. We find the constant term α in (5) is positively significant. Therefore, we document a significant rise of implied volatility ($\approx 0.843\%$ with a standard error of 0.186%) around the trade events with the deep out-of-money option. This quantity is economically sizable and comparable to Kelly et al. (2016), who studied the stock market options. Despite that αs are shown to be significant for both put and call options, we show that the size of α decreases monotonically in the moneyness of foreign exchange options. For instance, α remains significant with the deep out-of-money call option ($\approx 0.580\%$ with a standard error of 0.130%). It implies that trade uncertainty is closely related to the downside risk in the currency markets.

We find γ insignificant while the β is statistically significant only with certain types of option, echoing the relevance documented in the international finance literature (Hassan, 2013). The size coefficients exhibit a positive sign for all types of options. However, they lose significance with the put options. For instance, the β for the deep out-of-money put option is ≈ 0.032 with a standard error of 0.047, while it is found to be ≈ 0.078 with a standard error of 0.039 for the call option. This finding reinforces the link between trade uncertainty and downside risk in the currency markets. The size coefficients β lose their significance with the put options. The interpretation for the positive β is that the large country is more exposed to the trade uncertainty in a bullish market than in a bearish one.

In order to reaffirm that our results are not driven by a specific trade uncertainty event, we run a series of panel regressions described as the following. In each regression, we exclude one specific trade event. Then, we report the median estimates in Table 10 from within this series of panel regressions. Note that the significance of independent variables are determined by the median t-statistics.

The median results presented in Table 10 are qualitatively and quantitatively similar to those in Table 9. We also find a significant rise of implied volatility ($\approx$ 0.861% with a standard error of 0.190%) around the trade events with the deep out-of-money option, while the α remains significant with the deep out-of-money call option ($\approx$ 0.591% with a standard error of 0.132%). To sum up, we find higher exchange rate risks associated with the trade uncertainty, and such effects are asymmetric in bullish and bearish markets.

TABLE 10 ABOUT HERE

3.9 The Link between Trade Uncertainty and Financial Risks

To complete the empirical analysis, we examine the relationships between the trade uncertainty and the international currency markets. From the trade events documented by Caldara et al. (2020) and our hand-collected data, the trade uncertainty measure spikes often during the Republican Presidency. We would like to know from a regression analysis that how much of the partisan difference in foreign exchange returns can explained by the trade-related variables.

Using spot rate returns as the dependent variable, we run the following pooled regression

$$\Delta s_{i,t+1} = \alpha + \beta_1 \text{DP}_t + \beta_2 \text{Imports}_t + \beta_3 \text{TU}_t + \beta_4 \text{TU}_t \times \text{Imports}_t + \gamma' X_{i,t} + \varepsilon_t, \qquad (6)$$

where 'Imports' indicate the growth of the US imports, 'TU' represents the Trade Uncertainty, and '$X_{i,t}$' is a set of control variables, including the growth of Foreign Trades, and the change of the US Fiscal Policy. Specifically, the Trade Uncertainty is the sum of trade events listed in Table 8 for each month t.

The results of pooled regression (6) are presented in Table 11. Since we cannot control for the monthly fixed effects, we include a number of control variables to capture the time-series and cross-sectional variations in our analysis. We find that the coefficient β_1 for the Democrat Party remains negative ($\approx -5.888\%$ with a standard error of 3.077%), but the significance is weaker than the baseline regression (1). This implies that the trade-related control variables contain some information related to the political party of US presidents.

TABLE 11 ABOUT HERE

The coefficient β_2 for the US Imports is found to be significantly positive ($\approx 7.514\%$ with a standard error of 2.231%), implying that stronger demand for international trade by the US is associated with an appreciation (depreciation) of foreign currencies (US dollars). When interacting with the Trade Uncertainty, the coefficient β_4 is significantly positive ($\approx 25.899\%$ with a standard error of 11.412%), implying that Trade Uncertainty further depreciates the US dollars when the US Imports are high. In short, we find not only trade volume but also trade uncertainty can explain the variations in the foreign exchange returns difference due to the change of political party in the White House.

3.10 The Role of General Economic Uncertainty

Next, we further expand our analysis to distinguish the general economic uncertainty from the specific trade uncertainty. We argue that the economy-wide uncertainty independent of trade, such as 2008 Financial Crisis, is likely to have impacts on the return dynamics in the currency markets. The implied volatility of the foreign exchange option serves as our measure for the General Uncertainty. We expect to find a different effect from the more specific Trade Uncertainty measure used also in the regressions (5) and (6).

Using spot rate returns as the dependent variable, we run the following pooled regression

$$\begin{aligned}\Delta s_{i,t+1} = \alpha &+ \beta_1 \mathrm{DP}_t + \beta_2 \text{General Uncertainty}_t + \beta_3 \mathrm{TU}_t + \beta_4 \mathrm{TU}_t \times \mathrm{DP}_t \\ &+ \beta_5 \text{General Uncertainty}_t \times \mathrm{TU}_t + \beta_6 \text{General Uncertainty}_t \times \mathrm{DP}_t \\ &+ \beta_7 \text{General Uncertainty}_t \times \mathrm{TU}_t \times \mathrm{DP}_t + \gamma' X_{i,t} + \varepsilon_t, \end{aligned} \quad (7)$$

where 'DP' is the Democrat Party and 'TU' represents the Trade Uncertainty. As in the previous regression, $X_{i,t}$ is a set of control variables, including the growth of Foreign Trades, and the change of the US Fiscal Policy. To capture the 'General Uncertainty', we use the end-of-month change of implied volatility of foreign exchange options. It is the analogue of the VIX index in the stock market, which is widely used as a proxy for uncertainty (Bloom, 2009; Bekaert et al., 2013).

Table 12 about here

Table 12 reports the results of the pooled regression (7). There are two important findings in this exercise. First, the Democrat Party dummy becomes insignificant, implying that the economy-wide uncertainty can replace the political variable to explain the partisan return difference in the foreign exchange spot rates. Second, Trade Uncertainty has a positive coefficient even though it remains insignificant. However, it is worth noting that the coefficient for Trade Uncertainty has the same sign as the interaction term with the US Imports ($\approx 11.005\%$ with a standard error of 5.069%). When the US Imports are large, high Trade Uncertainty is associated with the appreciation (depreciation) of foreign currencies (US dollars). This is aligned with a trade channel that currency appreciation discourages the export for the foreign countries. In addition, weaker US dollars are associated with the Republican presidency. This exercise sheds some light on the role of Trade Uncertainty on the foreign exchange returns.

The change of implied volatility is a proxy for General Uncertainty, whose coefficient is significantly negative ($\approx -3.020\%$ with a standard error of 0.806%). When the General Uncertainty is high, we document a phenomenon of flight to safety where the US dollars appreciate. In addition, the negative coefficients for the interaction terms demonstrate that Trade Uncertainty and Democrat Presidency reinforce the degree of flight to safety.

Although we only report the findings using the put options, the results for the at-the-money option and the call options are consistent in signs and generally weaker in the significance. For the robustness checks, we also employ alternative uncertainty measures available in the literature. For instance, in regressions (5) and (6) of Table 12, we use the economy policy uncertainty (Baker et al., 2016) and the macroeconomic uncertainty (Jurado et al., 2015) to capture the General Uncertainty and the results remain qualitatively unchanged.

4 Theoretical Framework

In this section, we present a model of exchange rate determination in imperfect financial markets in the spirit of Gabaix and Maggiori (2015) to rationalize our empirical findings. Motivated by the implication of the results from the implied volatilities in the foreign exchange market, we assume that the investors are uncertain about the future stance of trade policy. We show that the uncertainty embedded in trade events will affect the degree of financial risk-bearing capacity through the variation of future imports.

4.1 Model

Consider a discrete-time model that lasts for two periods $t = 0, 1$. The economy consists of two countries, each populated by a continuum of households who produce and trade goods in an international market for goods and invest with financiers in risk-free bonds in their domestic currencies. There is a unit mass of global financiers who intermediate the capital flows resulting from the household's decision and specifically they absorb the currency imbalances at a certain level of premium. Without loss of generality, we refer to the domestic country like the US and its currency as the US dollar while the foreign country as Japan whose currency is the Japanese yen.

The intermediation is imperfect because the financiers have limited capacity to commit, leading to a downward-sloping demand curve for risk-taking by financiers. The equilibrium is achieved by a relative price, i.e. exchange rate, in an international financial market. Essentially, the adjustment of the exchange rate clears the demand and supply of capital denominated in both currencies. In this sense, the exchange rate is determined financially in an imperfect capital market.

In the following, we describe each of the model's players, their optimization problems, and analyze the resulting equilibrium.

4.1.1 Households

We assume that the maximization problem of households is similar across the countries. Hence, we only explain the details of the domestic households for the sake of brevity. The households need to solve an intertemporal consumption problem under the assumption of a logarithm utility function. In each period, the consumption is represented by a bundle of three elements: nontradable goods, domestic tradable goods, and foreign tradable goods. We adapt the Cobb-Douglas function to aggregate the three different goods. Note that the nontradable goods serve as the numéraire in each country so its price equals 1 in domestic currency.

The goods markets are frictionless. The tradable goods can be purchased across the border while the nontradable goods can only be purchased by domestic households. The concept of *risk-free* security here refers to a financial asset paying one unit of nontradable goods in all states of the world. The discount factor in each country is simply the reciprocal of the return on the domestic bonds. Selecting the consumption allocation between nontradable goods, and domestic and foreign tradable goods, the households maximize their utility subject to the market-clearing conditions for all goods which equate the total values of the production with consumption. We assume the production of both tradable and nontradable goods is exogenous. As for the price of tradable, foreign goods, the US government charges a tariff rate τ_t at time t as a percentage of the foreign goods value.

The first-order condition relevant for the tradable goods pins down the pre-tax value of US imports:

$$\lambda_t p_{F,t}(1+\tau_t)C_{F,t} = \iota_t, \tag{8}$$

where $C_{F,t}$ is the US consumption of Japanese tradable goods and $p_{F,t}$ is its price. By construction, ι_t is a non-negative and stochastic preference parameter which can also be interpreted as the elasticity parameter for the tradable goods in the Cobb-Douglas function. To make the model most tractable, we set the shadow price of total production $\lambda_t = 1$ in the US (similarly, $\lambda_t^* = 1$ in Japan). This assumption neutralizes the intertemporal variation in household marginal utility, which is not at the core of this paper. As a result, the the US dollar value of after-tax US imports is: $\iota_t/(1+\tau_t)$.

Japanese households have a similar maximization problem, in which we use stars to indicate the variables of foreign (Japanese) quantities and prices. The relevant first-order condition for the US-produced goods consumed by the Japanese yields $p^*_{H,t}(1+\tau_t^*)C^*_{H,t} = \xi_t$, where $C^*_{H,t}$ is the Japanese consumption of US tradable goods, $p^*_{H,t}$ is its price, τ_t^* is the tariff rate imposed by Japanese government and ξ_t is the pre-tax value of Japanese imports, i.e. US exports.

The exchange rate e_t represents the strength of the Japanese yen and is defined as the number of US dollars per unit of yen. Consequently, an increase in e_t implies a US dollar depreciation. This is aligned with our empirical analysis. Now, the US dollar value of US exports is denoted as $\xi_t e_t$. Then, net exports denominated in US dollars are then obtained as

$$NX_t = e_t\xi_t/(1+\tau_t^*) - \iota_t/(1+\tau_t). \tag{9}$$

When the financial market is complete, the exchange rate determination completely depends on the international market for tradable goods. Since the goods market is frictionless, the trade balance would be 0, leading to the equilibrium exchange rate as $e_t = \frac{\iota_t/(1+\tau_t)}{\xi_t/(1+\tau_t^*)}$. To further simplify the model, we consider a new measure to capture the tariff differential between domestic and foreign countries and dub it as *global tariff uncertainty*, which is treated as an exogenous variable following a normal distribution

$$\Pi_t = \frac{(1+\tau_t^*)}{(1+\tau_t)} \sim N(\mu_\Pi, \sigma_\Pi^2). \tag{10}$$

For simplicity, we assume that, in the long run, the expected tariff rates across countries are equal $\mathbb{E}\tau_t^* = \mathbb{E}\tau_t$, implying $\mu_\Pi = 1$. The variance of Π_t accounts for the tariff uncertainties in both domestic and foreign countries as well as the correlation between the two if applicable. In good times, the closure of a trade deal implies both countries would agree to reduce the tariff rates. Alternatively, in bad times, trade wars induce retaliatory tariffs between the two countries. Therefore, the tariff correlation is most likely positive as the tariffs tend to retain the same sign in both good and bad states of the economy. Additionally, whether to have trade deals or trade wars could well be influenced by partisan ideology and thus political decisions.

4.1.2 Financiers

In the case where the global financial markets are imbalanced, there exists an excess supply of the US dollar versus Japanese yen, or vice versa, resulting from trade flows. The financiers are randomly selected from the households of two countries to manage the financial firms. We assume that each financier maximizes the expected value of her firm subject to a credit constraint: $\max V_0 = \mathbb{E}_0\left[\beta\left(R - R^*\frac{e_1}{e_0}\right)\right] q_0 \quad \text{s.t.} \quad V_0 \geq \Gamma q_0^2/e_0$, where q_0 is the US dollar value of dollar-denominated bonds and the valuation component in the squared bracket corresponds to the households' currency trading. The credit constraint in a similar spirit as *limited commitment* from the literature[4] is of the form denominated in Japanese yen. Here we follow closely the specification in Maggiori (2017), Gabaix and Maggiori (2015), and Gertler and Kiyotaki (2010):

$$\frac{V_0}{e_0} \leq \left|\frac{q_0}{e_0}\right| \left(\Gamma \left|\frac{q_0}{e_0}\right|\right) = \Gamma\left(\frac{q_0}{e_0}\right)^2, \tag{11}$$

[4]See among others Caballero and Krishnamurthy (2001), Kiyotaki and Moore (1997), and Hart and Moore (1994).

where Γ in the first round bracket indicates the portion of dollar-denominated bond value which might be diverted by the financiers. If the financiers divert the funds they intermediate, their firms are unwound and the households can only recover the residual value of financial firms $1 - \Gamma \left| \frac{q_0}{e_0} \right|$, where $\Gamma = \gamma V(e_1)$ with $\gamma \geq 0$ captures the role of limited *risk-bearing capacity* in the financial sector. This formulation highlights the idea that financiers' outside option increase in the size of their balance sheet and also in the volatility of exchange rate and tariff rate.

Similar to Gabaix and Maggiori (2015), the optimal value for the financier to loan dollar-denominated bonds is solved to be $q_0 = \frac{1}{\Gamma}\mathbb{E}\left[e_0 - e_1 \frac{R^*}{R}\right]$. Integrating this demand function over the unit mass of financiers, we obtain the aggregate demands for dollar-denominated bonds is

$$Q_0 = \frac{1}{\Gamma}\mathbb{E}\left[e_0 - e_1 \frac{R^*}{R}\right]. \tag{12}$$

4.1.3 Equilibrium Exchange Rate

The key questions of the model are the demand function of financiers Q_0 and the following market-clearing conditions for the dollar-yen currency market for $t = 0, 1$

$$\xi_0 e_0 - \iota_0 \Pi_0 + Q_0 = 0, \tag{13}$$

$$\xi_1 e_1 - \iota_1 \Pi_1 - R Q_0 = 0. \tag{14}$$

The demand for US dollars versus Japanese yen must be cleared in each period. From Equations (13) and (14), we can find two components in the US dollar versus the Japanese yen demand: $\xi_t e_t - \iota_t \Pi_t$ from the US net exports and RQ_0 from financiers. Throughout the paper, we simplify our model by assuming $\xi_t = 1$ for $t = 0, 1$. Consequently, ι_t and ι_t^* can be interpreted as *relative* imports.

For simplicity, we first consider the scenario of equal interest rates across countries $R = R^* = 1$. We will generalize this assumption later. At $t = 0$, there is no tariff uncertainty so $\Pi_0 = 1$ can simplify our derivation.

Proposition 1. *With the financiers' demand function (12) and the financial market-clearing* *conditions (13) and (14), we can derive the equilibrium exchange rates as*

$$e_0 = \frac{\mathbb{E}(\Pi_1 \iota_1) + (1+\Gamma)\iota_0}{2+\Gamma} \tag{15}$$

$$e_1 = \{\Pi_1 \iota_1\} + \frac{\iota_0 + (1+\Gamma)\mathbb{E}(\Pi_1 \iota_1)}{2+\Gamma} \tag{16}$$

This set of results is similar to Gabaix and Maggiori (2015) except for the tariff uncertainty Π_1 attached to the expected imports ι_1 in Equations (15) and (16). Note that the first term in Equation (16) represents the innovation component of the variable within the braces, i.e. $\{X\} \equiv X - \mathbb{E}(X)$. Hence, the equilibrium exchange rate would depend not only on the import and its innovation, but also on the trade uncertainty Π_1.

Lemma 1. *Assume that the expected imports are independent of tariff uncertainty. From the equilibrium exchange rate in Equation (16), we can rewrite the specification of risk-bearing capacity which depends on individual risk aversion, a variation of expected imports, and tariff uncertainty. Also, financial uncertainty increases with tariff uncertainty.*

$$\Gamma = \gamma(V(e_1)) = \gamma\left(V(\iota_1) + \sigma_\Pi^2 \mathbb{E}(\iota_1)^2\right) \tag{17}$$

$$\frac{\partial \Gamma}{\partial \sigma_\Pi^2} = \gamma \mathbb{E}(\iota_1)^2 > 0 \tag{18}$$

It is possible that the imports are not completely independent of the tariff uncertainty. As a result, it would raise a concern of overestimation or underestimation of financiers' risk-bearing capacity in Lemma 1. However, both positive and negative correlations seem likely to occur in reality. For instance, higher uncertainty in the trade policy worldwide will cause the shrinkage of exports, where larger relative import leads to a positive correlation. Alternatively, the motivation of raising the tariff uncertainty is often to discourage the imports in order to protect the domestic production sector. Therefore, the correlation would be negative if the policy in place is effective.

It is intuitive to summarize that the tariff uncertainty discourages both imports and exports, but it remains an empirical question to determine whether the influence is stronger on imports or exports. From a theoretical stance, we keep the assumption of zero correlation for preserving the maximal tractability of our model.

4.1.4 US Net Exports and its Presidential Cycle

To further understand the effect of Γ, we denote the US net exports[5] by the end of period 0 as

$$N_0^+ = e_0 - \iota_0 = \frac{\mathbb{E}(\Pi_1 \iota_1) - \iota_0}{2 + \Gamma}. \tag{19}$$

We focus only on the US. presidential cycle due to a lack of empirical evidence on the influence of foreign presidential cycles. In the presence of trade uncertainty, $\Pi_1 > 1$ introduces a deviation from the frictionless trade market, implying $N_0^+ > 0$. Higher uncertainty in trade tends to occur when the ideology of government is more protectionism. In the case of the US, it would be Republican rather than the Democratic party. Similarly, a negative $N_0^+ < 0$ should be associated with the periods under the Democrat presidents.

Proposition 2. *With the expression of net exports in Equation (19), we can simplify the partial derivative of the exchange rate at $t = 0$ with respect to the risk-bearing capacity as*

$$\frac{\partial e_0}{\partial \Gamma} = \frac{\iota_0 - \mathbb{E}(\Pi_1 \iota_1)}{(2 + \Gamma)^2} = -\frac{N_0^+}{2 + \Gamma}. \tag{20}$$

Under Republican presidents, $N_0^+ > 0$ implies that the Japanese yen at $t = 0$ is undervalued and financiers are having a long position of the Japanese yen and a short position of the US dollar. For financiers to bear this financial uncertainty, they demand compensation: the Japanese should appreciate and the US dollar should depreciate at time $t = 1$.

Note that we can also take partial derivative of exchange rate return $\Delta e_1 = (e_1 - e_0)/e_0$ with respect to financial disruption Γ. The implication is equivalent to Proposition 2. Build on Proposition 2, we can investigate further the influence of trade policy on the exchange rate dynamic. Here, we provide two relevant extensions. First, to illustrate the influence of tariff uncertainty, we take partial differentiation of exchange rate with respect to the

[5] This term is dubbed as net foreign asset position in Gabaix and Maggiori (2015). In their model, a positive $N_0^+ > 0$ is associated with a net external creditor country and a negative $N_0^+ < 0$ is referring to a net debtor country. Our model proposes a different interpretation of N_0^+.

volatility of the relative tariff $\frac{\partial e_0}{\partial \sigma_\Pi^2} = \frac{\partial e_0}{\partial \Gamma}\frac{\partial \Gamma}{\partial \sigma_\Pi^2}$. Combining Proposition 2 with Lemma 1, we obtain the sign of the partial derivative as $-\text{sign}(N_0^+)$. The tariff uncertainty leads to a US dollar depreciation under Republican presidents and the opposite under Democrat presidents. Secondly, inspired by the phenomenon of tariff walls during a trade war, we assume that tariff uncertainty increases in the level of cross-country average of tariff rates, i.e. $\frac{\partial \sigma_\Pi^2}{\partial \tau_1} > 0$. Therefore, the sign of partial derivative $\frac{\partial e_0}{\partial \tau_1} = \frac{\partial e_0}{\partial \sigma_\Pi^2}\frac{\partial \sigma_\Pi^2}{\partial \tau_1}$ can be obtained as $-\text{sign}(N_0^+)$, which generates similar implications as the first extension. In short, our model predicts that both higher tariff levels and higher trade uncertainty lead to the US dollar depreciation under Republican presidents.

4.1.5 Currency Profitability

In the basic model, the unequal interest rates arise from different rates of time preferences. We now generalize the assumption of $R = R^* = 1$ in Proposition 1 to consider $R \neq R^*$. Without loss of generality, consider Japanese households are more impatient than the US households and therefore the Japanese consumers value today's consumption more than the US consumers, implying $R < R^*$. Therefore, the US dollar serves as 'funding' currency and yen as 'investment' currency. The return of this strategy can be calculated as $\mathbb{E}(R^c) = \frac{R^*}{R}\frac{e_1}{e_0} - 1$.

Proposition 3. *Assume $\xi_t = 1$ and $R \neq R^*$. The expected currency return is:*

$$\mathbb{E}(R^c) = \Gamma \frac{\frac{R^*}{R}\mathbb{E}(\Pi_1 \iota_1) - \iota_0}{\frac{R^*}{R}\mathbb{E}(\Pi_1 \iota_1) + (R^* + \Gamma)\iota_0}. \tag{21}$$

The strategy is more profitable (i) when the return differential $\frac{R^*}{R}$ is larger, implying foreign household is much more impatient than domestic household; (ii) when the funding country is having smaller net exports than its historical average; (iii) when finance disruption is more serious, which could result from higher uncertainty in trade policy or higher level of tariff rate; (iv) when the tariff uncertainty Π_1 is higher; (v) when the US Presidents belong to the Republican party rather than Democrat party.

5 Conclusions

We study the relationship between exchange rate returns and US presidential cycles. Empirically, we document an average US dollar appreciation of 4.31% per annum during Democratic presidencies but a depreciation of 1.25% per annum during Republican presidential terms. The difference between these average exchange rate returns amounts to 5.56% per annum, which is both economically and statistically significant. Several possible explanations, including interest rate differentials, inflation rate differentials, real business cycles, and foreign political cycles, have been ruled out.

As a further investigation, we study the role of the trade policy implemented by the US presidents. We first show high tariffs and US dollar depreciation are correlated. Then, we find that trade uncertainty can be translated into risks for foreign exchange markets. These findings are not driven by country-specific, trade-related characteristics such as trade openness, network centrality and country size. Additionally, we extend the exchange rate determination model of Gabaix and Maggiori (2015) to rationalize the empirical findings. In this model, uncertainty arising from trade policy leads to financial disruptions due to the limited risk-bearing capacity of financiers who intermediate the global demand for currencies. The model prediction of higher volatilities in exchange rate matches our empirical findings. Future works can extend our results to better understand the US presidential cycle in foreign exchange markets. For instance, investigating the characteristics of political institution such Congress or Parliament would provide an additional dimension of cross-country variations.

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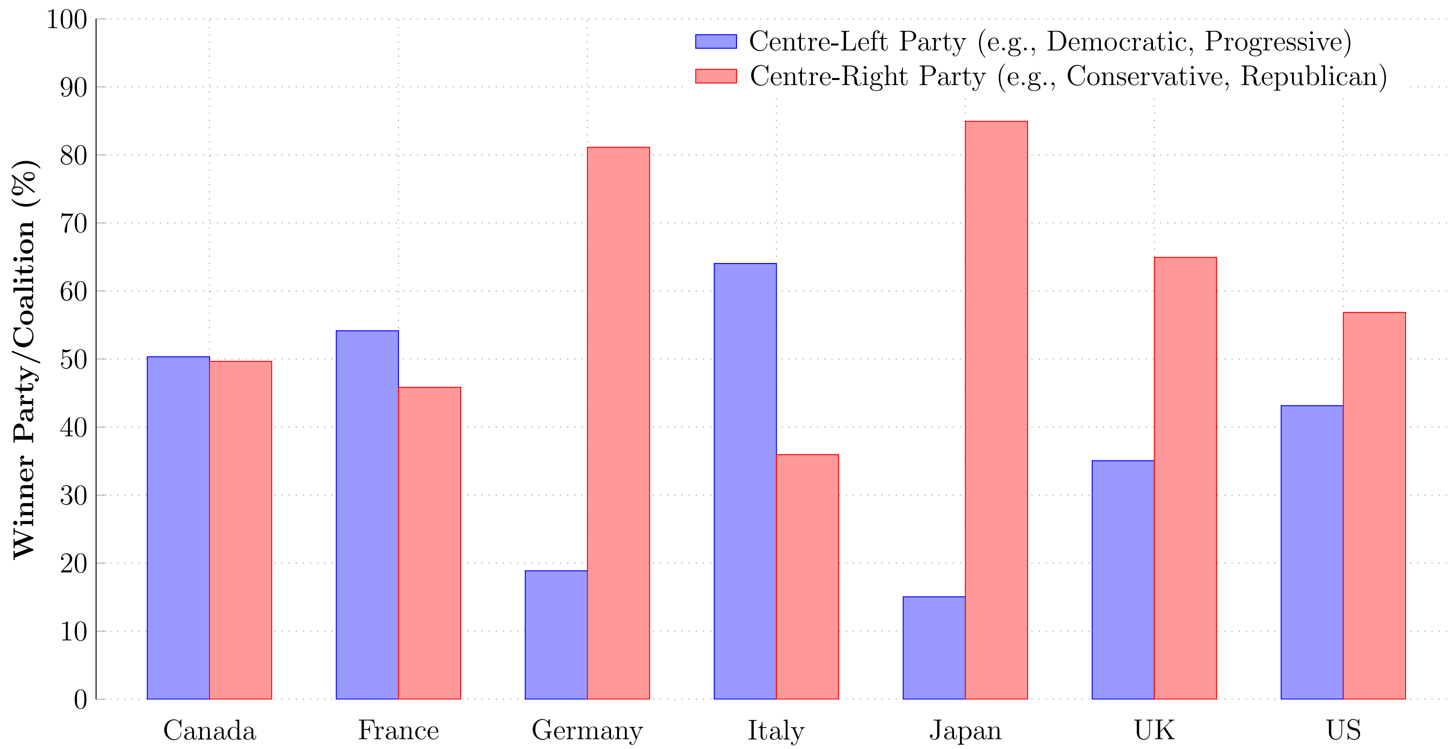

Figure 1. Political Cycles of G7 Countries

This figure displays the political cycle in each of the G7 country. The sample runs from October 1983 to October 2020.

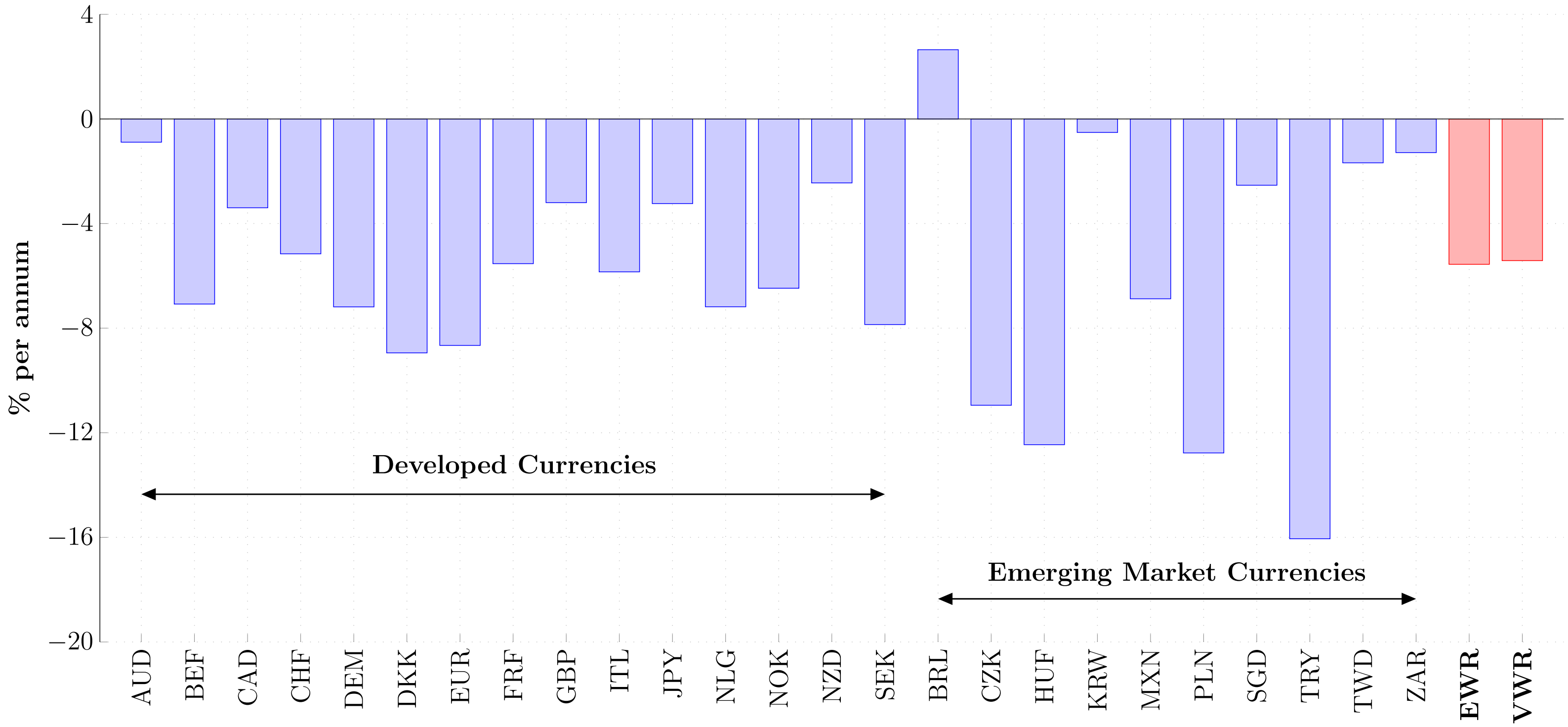

Figure 2. US Political Cycles and Exchange Rate Returns

This figure displays the difference in average exchange rate returns in percentage per annum between Democratic and Republican presidential terms. EWR is a basked of equally-weighted returns whereas VWR is a basked of GDP-weighted returns. Exchange rates are defined as units of US dollars per unit of foreign currency such that a negative (positive) return denotes US dollar appreciation (depreciation). A presidential cycle starts in November when the elections take place and ends four years after in October. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 25 developed and emerging currencies. Exchange rates are from Datastream whereas GDP data are from the World Economic Outlook Database.

Figure 3. Cumulative Exchange Rate Returns: Equally-weighted

This figure displays the cumulative exchange rate return for dollar-based trading strategies. The dollar cycle is a pseudo strategy that buys (sells) the US dollar and sells (buys) an equally-weighted basket of foreign currencies during Democratic (Republican) presidential terms. The dollar carry is a strategy that buys (sells) the US dollar and sells (buys) an equally-weighted basket of foreign currencies whenever the short-term US interest rate is above the average foreign short-term interest rate. The dollar value is a strategy that buys (sells) the US dollar and sells (buys) an equally-weighted basket of foreign currencies whenever the US inflation rate is below the average foreign inflation rate. Exchange rates are defined as units of US dollars per unit of foreign currency such that a negative (positive) return denotes US dollar appreciation (depreciation). A presidential cycle starts in November when the elections take place and ends four years after in October. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 25 developed and emerging currencies. Data on year-on-year inflation rates and exchange rates are from Datastream. Interest rate differentials are implied from spot and forward exchange rates.

Figure 4. Cumulative Exchange Rate Returns: GDP-weighted

This figure displays the cumulative exchange rate return for dollar-based trading strategies. The dollar cycle is a pseudo strategy that buys (sells) the US dollar and sells (buys) a GDP-weighted basket of foreign currencies during Democratic (Republican) presidential terms. The dollar carry is a strategy that buys (sells) the US dollar and sells (buys) a GDP-weighted basket of foreign currencies whenever the short-term US interest rate is above the average foreign short-term interest rate. The dollar value is a strategy that buys (sells) the US dollar and sells (buys) a GDP-weighted basket of foreign currencies whenever the US inflation rate is below the average foreign inflation rate. Exchange rates are defined as units of US dollars per unit of foreign currency such that a negative (positive) return denotes US dollar appreciation (depreciation). A presidential cycle starts in November when the elections take place and ends four years after in October. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 25 developed and emerging currencies. Data on year-on-year inflation rates and exchange rates are from Datastream whereas annual GDP data are from the World Economic Outlook Database. Interest rate differentials are implied from spot and forward exchange rates.

Table 1. Summary Statistics: Exchange Rate Returns

This table presents means and standard deviations in percentage per annum of country-level nominal exchange rate returns. FULL refers to the full sample, DP denotes the Democratic Presidential terms, and RP indicates the Republican Presidential terms. DP-RP is the corresponding difference between means and standard deviations. EWR is a basked of equally-weighted returns whereas VWR is a basked of GDP-weighted returns. Exchange rates are defined as units of US dollars per unit of foreign currency such that a negative (positive) return denotes US dollar appreciation (depreciation). A presidential cycle starts in November when the elections take place and ends four years after in October. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 25 developed and emerging currencies. Exchange rates are from Datastream whereas GDP data are from the World Economic Outlook Database.

	FULL		DP		RP		DP – RP	
	mean	std	mean	std	mean	std	mean_{dif}	std_{dif}
AUD	−0.45	11.71	−0.94	11.40	−0.05	11.98	−0.89	−0.58
BEF	2.90	11.62	−1.30	9.24	5.78	12.97	−7.08	−3.73
CAD	−0.02	7.42	−1.91	7.65	1.49	7.21	−3.40	0.45
CHF	2.29	11.21	−0.63	11.26	4.52	11.14	−5.16	0.12
DEM	3.01	11.75	−1.25	9.30	5.93	13.14	−7.19	−3.84
DKK	1.59	10.33	−3.36	10.02	5.58	10.46	−8.95	−0.44
EUR	−0.04	9.61	−4.80	10.57	3.86	8.62	−8.66	1.95
FRF	2.37	11.20	−0.91	9.06	4.62	12.46	−5.53	−3.40
GBP	−0.39	10.03	−2.21	8.55	0.99	11.02	−3.20	−2.47
ITL	−0.21	11.33	−3.68	9.12	2.17	12.61	−5.85	−3.49
JPY	2.18	10.77	0.34	11.66	3.58	10.06	−3.24	1.60
NLG	2.97	11.68	−1.29	9.32	5.89	13.02	−7.18	−3.70
NOK	−0.14	11.14	−3.72	10.65	2.75	11.48	−6.47	−0.83
NZD	0.92	12.15	−0.44	12.31	2.01	12.03	−2.45	0.27
SEK	0.02	11.01	−4.33	11.59	3.54	10.43	−7.86	1.16
BRL	−4.72	17.93	−3.25	16.46	−5.90	19.08	2.65	−2.61
CZK	0.69	11.50	−4.08	11.77	6.86	10.93	−10.95	0.83
HUF	−4.25	12.58	−9.82	12.83	2.64	12.01	−12.46	0.82
KRW	−1.27	13.65	−1.50	16.75	−0.98	8.42	−0.51	8.33
MXN	−7.17	14.21	−10.25	16.29	−3.37	11.08	−6.88	5.20
PLN	−2.93	12.42	−8.54	12.54	4.23	11.98	−12.77	0.56
SGD	1.30	5.42	−0.10	6.27	2.43	4.61	−2.53	1.66
TRY	−18.54	15.19	−25.65	10.90	−9.59	19.02	−16.05	−8.13
TWD	−0.27	5.19	−1.02	5.79	0.66	4.34	−1.68	1.44
ZAR	−7.10	15.40	−7.83	12.75	−6.55	17.17	−1.29	−4.42
EWR	−1.15	8.18	−4.31	7.82	1.25	8.40	−5.56	−0.58
VWR	−0.05	8.23	−3.12	7.79	2.29	8.50	−5.42	−0.71

Table 2. Summary Statistics: Currency Excess Returns

This table presents means and standard deviations in percentage per annum of country-level currency excess returns. FULL refers to the full sample, DP denotes the Democratic Presidential terms, and RP indicates the Republican Presidential terms. DP-RP is the corresponding difference between means and standard deviations. EWR is a basked of equally-weighted returns whereas VWR is a basked of GDP-weighted returns. Exchange rates (i.e., spot and one-month forward) are defined as units of US dollars per unit of foreign currency such that a negative (positive) return denotes US dollar appreciation (depreciation). A presidential cycle starts in November when the elections take place and ends four years after in October. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 25 developed and emerging currencies. Exchange rates are from Datastream whereas GDP data are from the World Economic Outlook Database.

	FULL		DP		RP		DP – RP	
	mean	std	mean	std	mean	std	mean_{dif}	std_{dif}
AUD	2.29	11.78	0.94	11.45	3.37	12.06	–2.43	–0.61
BEF	3.59	11.67	–1.41	9.25	7.01	13.02	–8.42	–3.77
CAD	0.51	7.45	–1.81	7.66	2.39	7.25	–4.19	0.41
CHF	0.39	11.23	–2.21	11.25	2.36	11.20	–4.56	0.06
DEM	2.03	11.73	–1.49	9.23	4.45	13.17	–5.94	–3.94
DKK	1.99	10.39	–3.00	10.06	6.02	10.53	–9.02	–0.47
EUR	–0.73	9.66	–5.35	10.60	3.06	8.69	–8.41	1.91
FRF	3.85	11.24	–0.32	9.02	6.71	12.51	–7.03	–3.49
GBP	0.96	10.10	–1.65	8.55	2.96	11.12	–4.61	–2.57
ITL	3.74	11.30	–0.17	8.83	6.54	12.76	–6.71	–3.92
JPY	–0.22	10.83	–1.93	11.67	1.09	10.15	–3.03	1.52
NLG	2.22	11.72	–1.73	9.23	4.93	13.14	–6.66	–3.92
NOK	1.70	11.16	–2.58	10.61	5.15	11.52	–7.73	–0.91
NZD	4.65	12.33	1.88	12.31	6.89	12.33	–5.02	–0.01
SEK	1.03	11.06	–3.67	11.59	4.82	10.51	–8.49	1.07
BRL	4.02	15.81	4.11	16.00	3.92	15.70	0.19	0.30
CZK	1.20	12.08	–3.86	13.01	6.19	10.95	–10.05	2.06
HUF	2.16	13.36	–1.91	14.44	5.90	12.24	–7.80	2.21
KRW	1.56	10.80	2.76	13.46	0.65	8.33	2.11	5.13
MXN	2.73	11.15	3.20	11.19	2.26	11.16	0.93	0.03
PLN	3.03	12.94	–0.96	13.64	7.07	12.12	–8.04	1.51
SGD	0.27	5.44	–0.72	6.29	1.08	4.64	–1.80	1.65
TRY	6.99	15.36	4.08	9.63	10.15	19.78	–6.07	–10.15
TWD	–1.17	5.31	–1.45	6.16	–0.90	4.32	–0.54	1.85
ZAR	0.35	15.36	–0.43	12.80	0.94	17.09	–1.37	–4.29
EWR	1.61	8.27	–0.86	7.89	3.50	8.53	–4.37	–0.64
VWR	0.55	8.35	–2.32	7.94	2.74	8.61	–5.05	–0.67

Table 3. Summary Statistics: Real Exchange Rate Returns

This table presents means and standard deviations in percentage per annum of country-level real exchange rate returns. FULL refers to the full sample, DP denotes the Democratic Presidential terms, and RP indicates the Republican Presidential terms. DP-RP is the corresponding difference between means and standard deviations. EWR is a basked of equally-weighted returns whereas VWR is a basked of GDP-weighted returns. Exchange rates are defined as units of US dollars per unit of foreign currency such that a negative (positive) return denotes US dollar appreciation (depreciation). A presidential cycle starts in November when the elections take place and ends four years after in October. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 25 developed and emerging currencies. Exchange rates are from Datastream whereas annual GDP data are from the World Economic Outlook Database.

	FULL		DP		RP		DP – RP	
	mean	std	mean	std	mean	std	$mean_{dif}$	std_{dif}
AUD	0.25	11.77	–0.73	11.45	1.03	12.04	–1.76	–0.58
BEF	2.19	11.63	–1.95	9.26	5.02	12.99	–6.97	–3.73
CAD	–0.30	7.45	–2.34	7.68	1.34	7.25	–3.68	0.43
CHF	0.92	11.24	–2.09	11.30	3.21	11.17	–5.31	0.13
DEM	1.91	11.76	–1.57	9.31	4.30	13.18	–5.87	–3.87
DKK	1.14	10.38	–3.59	10.07	4.95	10.51	–8.54	–0.44
EUR	–0.52	9.66	–5.15	10.64	3.28	8.66	–8.43	1.99
FRF	2.01	11.23	–1.88	9.08	4.68	12.47	–6.57	–3.39
GBP	–0.15	10.07	–2.06	8.59	1.31	11.06	–3.36	–2.47
ITL	1.97	11.36	–2.54	9.14	5.06	12.62	–7.59	–3.48
JPY	0.16	10.78	–1.31	11.65	1.28	10.08	–2.59	1.57
NLG	1.58	11.68	–1.58	9.37	3.74	13.04	–5.32	–3.67
NOK	0.08	11.18	–3.57	10.68	3.02	11.52	–6.60	–0.84
NZD	1.73	12.31	–0.73	12.36	3.71	12.27	–4.44	0.09
SEK	–0.12	11.08	–5.23	11.63	4.01	10.49	–9.24	1.15
BRL	–0.68	17.99	1.63	16.45	–2.54	19.18	4.17	–2.73
CZK	2.49	11.57	–1.07	11.95	7.09	10.96	–8.16	0.99
HUF	1.05	12.55	–2.19	12.83	5.06	12.16	–7.25	0.67
KRW	–0.59	13.67	–0.23	16.77	–1.03	8.43	0.81	8.34
MXN	–1.04	14.34	–0.83	16.53	–1.30	11.10	0.47	5.43
PLN	1.63	12.41	–0.45	12.70	4.29	12.03	–4.74	0.67
SGD	0.23	5.46	–0.31	6.34	0.67	4.64	–0.98	1.70
TRY	6.25	15.06	8.57	10.22	3.33	19.54	5.24	–9.32
TWD	–1.23	5.22	–1.48	5.83	–0.91	4.38	–0.58	1.46
ZAR	–1.67	15.51	–3.13	12.87	–0.55	17.27	–2.58	–4.40
EWR	0.46	8.20	–1.59	7.85	2.03	8.44	–3.62	–0.59
VWR	–0.03	8.24	–2.61	7.82	1.95	8.52	–4.56	–0.71

Table 4. Exchange Rate Returns and Presidential Cycles

This table presents estimates of nominal exchange rate returns regressed on a dummy variable DP that takes on the value of one (zero) during Democratic (Republican) Presidential terms in the US. Exchange rates are defined as units of US dollars per unit of foreign currency such that a negative (positive) return denotes US dollar appreciation (depreciation). A presidential cycle starts in November when the elections take place and ends four years after in October. Panel A presents estimates from pooled regressions whereas Panel B from panel regressions with currency fixed effects. Standard errors (in parentheses) are clustered by currency and time (calendar month) dimension. The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1% respectively. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 25 developed and emerging currencies. Exchange rates are from Datastream.

	Panel A: Pooled Regressions						Panel B: Fixed Effects Regressions					
	α		DP		R^2 (%)	N	α		DP		R^2 (%)	N
All Countries	1.645	(1.845)	−5.928**	(2.660)	0.535	8,460	1.456	(1.711)	−5.525**	(2.599)	0.016	8,460
Remove AUD	1.740	(1.869)	−6.193**	(2.662)	0.584	8,030	1.543	(1.718)	−5.774**	(2.596)	1.701	8,030
Remove BEF	1.543	(1.828)	−5.883**	(2.655)	0.527	8,278	1.359	(1.693)	−5.491**	(2.597)	1.596	8,278
Remove CAD	1.653	(1.906)	−6.058**	(2.726)	0.542	8,030	1.457	(1.759)	−5.639**	(2.662)	1.623	8,030
Remove CHF	1.474	(1.845)	−5.943**	(2.660)	0.536	8,016	1.287	(1.706)	−5.545**	(2.596)	1.617	8,016
Remove DEM	1.539	(1.828)	−5.880**	(2.655)	0.527	8,278	1.355	(1.693)	−5.489**	(2.596)	1.595	8,278
Remove DKK	1.425	(1.829)	−5.755**	(2.644)	0.499	8,030	1.230	(1.692)	−5.341**	(2.580)	1.586	8,030
Remove EUR	1.571	(1.858)	−5.839**	(2.656)	0.514	8,198	1.377	(1.715)	−5.424**	(2.590)	1.600	8,198
Remove FRF	1.571	(1.832)	−5.919**	(2.658)	0.533	8,278	1.386	(1.695)	−5.524**	(2.599)	1.605	8,278
Remove GBP	1.683	(1.856)	−6.072**	(2.693)	0.554	8,016	1.486	(1.707)	−5.653**	(2.632)	1.658	8,016
Remove ITL	1.632	(1.837)	−5.927**	(2.665)	0.534	8,278	1.440	(1.698)	−5.518**	(2.607)	1.620	8,278
Remove JPY	1.530	(1.898)	−6.049**	(2.735)	0.553	8,016	1.343	(1.756)	−5.651**	(2.674)	1.631	8,016
Remove NLG	1.540	(1.828)	−5.880**	(2.655)	0.527	8,278	1.356	(1.693)	−5.489**	(2.597)	1.595	8,278
Remove NOK	1.583	(1.835)	−5.895**	(2.645)	0.527	8,030	1.385	(1.686)	−5.474**	(2.579)	1.640	8,030
Remove NZD	1.624	(1.872)	−6.103**	(2.661)	0.570	8,030	1.430	(1.722)	−5.690**	(2.595)	1.681	8,030
Remove SEK	1.539	(1.839)	−5.820**	(2.645)	0.513	8,030	1.341	(1.692)	−5.399**	(2.577)	1.625	8,030
Remove BRL	1.894	(1.838)	−6.209**	(2.634)	0.614	8,200	1.695	(1.707)	−5.785**	(2.567)	1.728	8,200
Remove CZK	1.472	(1.841)	−5.765**	(2.644)	0.505	8,130	1.258	(1.701)	−5.305**	(2.572)	1.599	8,130
Remove HUF	1.612	(1.841)	−5.635**	(2.622)	0.486	8,138	1.432	(1.688)	−5.249**	(2.555)	1.585	8,138
Remove KRW	1.732	(1.874)	−6.146**	(2.676)	0.583	8,138	1.535	(1.734)	−5.724**	(2.613)	1.702	8,138
Remove MXN	1.811	(1.863)	−5.813**	(2.708)	0.525	8,138	1.651	(1.730)	−5.471**	(2.640)	1.574	8,138
Remove PLN	1.559	(1.841)	−5.635**	(2.621)	0.486	8,132	1.372	(1.689)	−5.232**	(2.553)	1.598	8,132
Remove SGD	1.601	(1.910)	−6.097**	(2.724)	0.544	8,030	1.407	(1.764)	−5.685**	(2.661)	1.600	8,030
Remove TRY	1.982	(1.826)	−5.337**	(2.608)	0.448	8,164	1.891	(1.706)	−5.142**	(2.578)	0.911	8,164
Remove TWD	1.677	(1.890)	−6.114**	(2.722)	0.551	8,138	1.474	(1.752)	−5.678**	(2.658)	1.616	8,138
Remove ZAR	2.131	(1.781)	−6.234**	(2.649)	0.618	8,016	1.908	(1.698)	−5.759**	(2.587)	1.644	8,016

Table 5. Controlling for Local Political Cycles

This table presents estimates, for pooled regressions, of nominal exchange rate returns regressed on a dummy variable DP that takes on the value of one (zero) during Democratic (Republican) Presidential terms in the US and/or a dummy variable FC that takes on the value of one (zero) during Centre-Left (Centre-Right) Political terms in major foreign countries like Canada, France, Germany, Italy, Japan, and the UK. Exchange rates are defined as units of US dollars per unit of foreign currency such that a negative (positive) return denotes US dollar appreciation (depreciation). A presidential cycle starts in November when the elections take place and ends four years after in October. Standard errors (in parentheses) are clustered by currency and time (calendar month) dimension. The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1% respectively. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 25 developed and emerging currencies. Exchange rates are from Datastream.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
DP	−5.928**							−5.916**	−6.007**	−5.679**	−5.981**	−8.477**	−5.830**	−8.103**
	(2.660)							(2.663)	(2.622)	(2.708)	(2.638)	(2.902)	(2.684)	(3.321)
Canada		−1.943						−1.907						−2.845
		(2.745)						(2.726)						(3.100)
France			0.405						−0.515					3.184
			(2.649)						(2.566)					(4.707)
Germany				3.135						2.055				5.168
				(2.699)						(2.713)				(4.456)
Italy					−1.722						−1.897			2.053
					(2.749)						(2.739)			(3.785)
Japan						1.870						7.263*		10.709**
						(3.782)						(4.170)		(5.044)
UK							1.580						0.919	3.685
							(2.620)						(2.609)	(5.210)
α	1.645	−0.100	−1.336	−1.754	−0.073	−1.440	−1.723	2.652	1.941	1.120	2.836	1.645	1.255	−2.856
	(1.845)	(2.276)	(2.055)	(1.719)	(2.342)	(1.565)	(1.880)	(2.503)	(2.268)	(2.124)	(2.462)	(1.845)	(2.233)	(5.669)
R^2 (%)	0.535	0.057	0.003	0.096	0.043	0.029	0.036	0.567	0.516	0.552	0.564	0.856	0.524	1.112
N	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460

Table 6. Controlling for US Business Cycle Fluctuations

This table presents pooled regression estimates of nominal exchange rate returns regressed on a dummy variable DP that takes on the value of one (zero) during Democratic (Republican) Presidential terms in the US while controlling for the term spread (TSP), default spread (DSP), relative interest rate (RR), and the log dividend-price ratio (LDP). Exchange rates are defined as units of US dollars per unit of foreign currency such that a negative (positive) return denotes US dollar appreciation (depreciation). The control variables are demeaned and lagged relative to the exchange rate returns. A presidential cycle starts in November when the elections take place and ends four years after in October. Standard errors (in parentheses) are clustered by currency and time (calendar month) dimension. The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1% respectively. Exchange rate returns are expressed in percentage per annum. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 25 developed and emerging currencies. Exchange rates are from Datastream, the dividend-price ratio is from Robert Shiller's website, and the other data are from the FRED database.

	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
	Panel A: Controls lagged by one month					Panel B: Controls lagged by three months				
DP	−6.222**	−5.571**	−5.677**	−5.399**	−6.244**	−6.436**	−5.433**	−5.657**	−5.546**	−6.513**
	(2.675)	(2.743)	(2.684)	(2.650)	(2.802)	(2.659)	(2.693)	(2.684)	(2.633)	(2.711)
TSP	1.348				1.087	1.690				1.321
	(1.172)				(1.255)	(1.180)				(1.254)
DSP		−5.595			−5.424		−7.766			−8.810
		(5.922)			(6.250)		(5.255)			(5.515)
RR			−0.878		1.948			−1.180		2.946
			(2.049)		(2.072)			(2.009)		(1.970)
LDP				4.328	2.750				3.448	−0.460
				(4.127)	(4.425)				(4.056)	(4.448)
α	1.873	1.571	1.565	1.567	2.129	1.982	1.461	1.554	1.606	2.040
	(1.858)	(1.842)	(1.795)	(1.804)	(1.894)	(1.860)	(1.843)	(1.812)	(1.809)	(1.919)
R^2 (%)	0.675	0.854	0.553	0.652	1.039	0.753	1.118	0.570	0.610	1.345
N	9,348	8,960	9,348	9,348	8,960	9,348	8,924	9,348	9,348	8,924

(continued)

Table 6. Controlling for US Business Cycle Fluctuations *(continued)*

	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
	Panel C: Controls lagged by six months					Panel D: Controls lagged by one year				
DP	−6.495**	−5.436**	−5.612**	−5.576**	−6.053**	−6.995**	−5.391**	−6.028**	−5.730**	−6.605**
	(2.674)	(2.631)	(2.649)	(2.614)	(2.674)	(2.679)	(2.669)	(2.642)	(2.625)	(2.749)
TSP	1.456				0.804	2.245				1.790
	(1.196)				(1.340)	(1.152)				(1.321)
DSP		−9.285			−9.962		−5.181			−4.011
		(3.618)			(3.861)		(3.341)			(3.697)
RR			−2.364		1.898			−1.747		−0.365
			(2.484)		(2.686)			(2.221)		(2.683)
LDP				3.882	−0.202				3.190	−0.943
				(3.894)	(4.349)				(3.710)	(4.368)
α	1.992	1.437	1.549	1.632	1.770	2.227	1.249	1.766	1.682	1.956
	(1.881)	(1.822)	(1.806)	(1.814)	(1.927)	(1.832)	(1.837)	(1.843)	(1.823)	(1.999)
R^2 (%)	0.693	1.377	0.682	0.634	1.449	0.902	0.741	0.618	0.606	0.923
N	9,348	8,870	9,348	9,348	8,870	9,348	8,762	9,348	9,348	8,762

Table 7. Tariff Regressions

This table presents pooled and panel regressions estimates of nominal exchange rate returns regressed on a dummy variable DP that takes on the value of one (zero) during Democratic (Republican) Presidential terms in the US and three different of trade tariff measures. The set of independent variables includes duties standardized by national tax revenues, the Most Favored Nation (MFN) tariff, and duties standardized by national imports. All tariff measures are de-trended. Each specification of panel regression includes a currency fixed effect. Standard errors (in parentheses) are clustered by currency and year dimension. The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1% respectively. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 19 developed and emerging currencies. Exchange rates are from Datastream and the tariff data are from the World Bank.

	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
	Panel A: Pooled Regressions					Panel B: Panel Regressions				
DP	−8.148**	−6.501	−8.139**	−6.570	−6.523	−5.608	−5.351	−5.586	−5.441	−5.392
	(3.610)	(3.833)	(3.623)	(3.901)	(3.841)	(3.281)	(3.800)	(3.283)	(3.851)	(3.823)
duties/imports	0.014***	0.015***			0.014***	0.015***	0.015***			0.014***
	(0.003)	(0.004)			(0.004)	(0.003)	(0.004)			(0.004)
DP × duties/imports	−0.024***	−0.022**			−0.023**	−0.024***	−0.023**			−0.024**
	(0.007)	(0.009)			(0.010)	(0.007)	(0.009)			(0.009)
duties/tax			0.627	0.976	0.578			0.970	1.701	0.800
			(0.583)	(2.431)	(1.316)			(0.709)	(2.391)	(1.122)
DP × duties/tax			−1.122	−1.067				−1.849	−1.848	
			(1.389)	(2.877)				(1.335)	(2.869)	
MFN tariff		−0.393		−0.450	−0.388		−0.450		−0.506*	−0.443
		(0.588)		(0.265)	(0.592)		(0.511)		(0.243)	(0.516)
α	2.719	1.562	2.712	1.596	1.578	1.507	0.921	1.490	0.977	0.949
	(2.460)	(2.570)	(2.494)	(2.647)	(2.576)	(2.171)	(2.542)	(2.217)	(2.607)	(2.542)
R^2 (%)	0.939	0.655	0.868	0.574	0.661	2.315	1.893	2.259	1.822	1.905
N	4,530	3,429	4,530	3,429	3,429	4,530	3,429	4,530	3,429	3,429

Table 8. List of Trade Events

This table presents a list of 41 global trade events from the year of 1983 to 2020. The first 8 events are used in the monthly analysis, therefore the dates are specified as 'YYYYMM00'. The rest of 33 events are also used in the daily analysis in which dates are important and specified as 'YYYYMMDD' instead. The superscripts † indicates the trade deal events that reduce the uncertainty.

No.	Date	Trade Uncertainty (Deal) Event
1	19850900	Protectionist legislation talks
2	19870400	Trade sanctions on Japan (anti-dumping)
3	19880200	Presidential campaign - oil import fee discussions
4	19921100	Trade war with Europe over farm subsidies
5	19930200	Oil import fee discussed; Clinton takes office
6	19931100	Congress passes NAFTA
7	19941100	Uncertainty in Senate over passing GATT
8	19950600	Tariff threat on Japanese autos
9	19991130	Seattle Protests WTO
10	20011211	China becomes WTO member†
11	20020320	Bush's Steel tariff takes effect
12	20031103	WTO Penalizes steel tariffs†
13	20060320	2006/333/EC EU vs. USA over common wheat†
14	20061012	Softwood Lumber Agreement takes effect†
15	20070103	EU rules for quotas taking effect
16	20070222	2007/444/EC with Canada over common wheat†
17	20080401	India, China, Vietnam and Egypt impose export ban on rice
18	20080626	EU extends the suspension on cereal tariff†
19	20081027	EU reintroduces tariff on cereal taking effect
20	20140924	Canada-European Trade Agreement (CETA) negotiation concludes†
21	20150507	Brexit - announcement
22	20151012	Softwood Lumber Agreement extended one year†
23	20151217	EU Referendum Act, Brexit†
24	20160204	Trans-Pacific Partnership (TPP) Agreement singed†
25	20160222	Official EU referendum announced
26	20160624	Brexit referendum result
27	20161012	Softwood agreement expires
28	20161031	CETA signed†
29	20170103	Tariff threat on Mexico; Trump takes office
30	20170123	US withdrawal from TPP
31	20170126	Threat to Mexico 20% import tariff
32	20170420	Trump signs for the steel investigation
33	20170703	Republican tax plan - import tax debate
34	20170921	CETA enters into forces†
35	20180122	Tariff on washing machine and solar panel B
36	20180529	Trump announces Chinese tariff
37	20180702	Tariffs on Chinese goods take effect
38	20190531	Trump threat Mexico with 5% import tax
39	20200318	US imposes tariff on wine food aircraft parts taking effect
40	20200324	Vietnam and Serbia restriction on rice export
41	20200401	Russia restriction on rice export

Table 9. Implied Volatility and Trade Events: Panel Regressions

This table presents estimates, for maturity fixed effects panel regression, of foreign exchange options' implied volatility differences centred around selected trade events. The implied volatility differences are based on a window of one week (i.e., three days before and another three days after the trade event) for maturities ranging between one week and two years. 10δ Put (10δ Call) denotes the implied volatility of a deep out-of-the-money option that gives the right to sell (buy) a unit of foreign currency in exchange of US dollars whereas 25δ Put (25δ Call) refers to the implied volatility of an out-of-the-money option that gives the right to sell (buy) a unit of foreign currency in exchange of US dollars. ATM indicates the implied volatility of a delta-neutral straddle, commonly referred to as at-the-money. The set of independent variables includes country size and distance, where the size of each country is rescaled by the total GDP of all countries in our sample, and the distance is expressed in thousand kilometres between the US capital and the Foreign country's capital. Standard errors (in parentheses) are clustered by currency and maturity dimension. The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1% respectively. The sample consists of monthly observations between January 1996 and May 2020 for a cross-section of 19 developed and emerging currencies. Foreign exchange options' implied volatility data are from JP Morgan and Bloomberg. GDP data are from the World Economic Outlook Database and distance data are hand collected.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	10δ Put		25δ Put		ATM		25δ Call		10δ Call	
Country Size	0.028	0.032	0.037	0.045	0.053**	0.062	0.071**	0.080*	0.072**	0.078*
	(0.024)	(0.047)	(0.021)	(0.040)	(0.021)	(0.037)	(0.024)	(0.036)	(0.029)	(0.039)
Distance		−0.002		−0.004		−0.005		−0.005		−0.004
		(0.022)		(0.020)		(0.017)		(0.016)		(0.016)
α	0.824***	0.843***	0.716***	0.752***	0.632***	0.674***	0.565***	0.607***	0.549***	0.580***
	(0.063)	(0.186)	(0.051)	(0.168)	(0.042)	(0.150)	(0.040)	(0.136)	(0.042)	(0.130)
R^2 (%)	1.800	1.800	2.400	2.400	3.000	3.000	3.100	3.100	2.900	2.900
N	4266	4266	4268	4268	4268	4268	4268	4268	4268	4268

Table 10. Implied Volatility and Trade Events: Median Statistics

This table presents pool and panel regression estimates of foreign exchange options' implied volatility differences centred around selected trade events. For each column, the reported statistics are the median of 33 regressions in which one trade event is removed at a time. The implied volatility differences are based on a window of one week (i.e., three days before and another three days after the trade event) for maturities ranging between one week and two years. 10δ Put (10δ Call) denotes the implied volatility of a deep out-of-the-money option that gives the right to sell (buy) a unit of foreign currency in exchange of US dollars whereas 25δ Put (25δ Call) refers to the implied volatility of an out-of-the-money option that gives the right to sell (buy) a unit of foreign currency in exchange of US dollars. ATM indicates the implied volatility of a delta-neutral straddle, commonly referred to as at-the-money. The set of independent variables includes country size and distance where the size of each country is rescaled by the total GDP of all countries in our sample, and the distance is expressed in thousand kilometres between the US capital and the Foreign country's capital. Standard errors (in parentheses) are clustered by currency and maturity dimension. The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1% respectively, according to the median of t-statistics. The sample consists of monthly observations between January 1996 and May 2020 for a cross-section of 19 developed and emerging currencies. Foreign exchange options' implied volatility data are from JP Morgan and Bloomberg. GDP data are from the World Economic Outlook Database and distance data are hand collected.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	10δ Put		25δ Put		ATM		25δ Call		10δ Call	
Country Size	0.034	0.034	0.034	0.034	0.035	0.035	0.036	0.036	0.036	0.036
	(0.038)	(0.048)	(0.038)	(0.048)	(0.038)	(0.048)	(0.037)	(0.048)	(0.037)	(0.048)
Distance	−0.002	−0.002	−0.002	−0.002	−0.002	−0.002	−0.003	−0.003	−0.003	−0.003
	(0.022)	(0.023)	(0.022)	(0.023)	(0.022)	(0.023)	(0.022)	(0.023)	(0.022)	(0.023)
α	0.861***	0.861***	0.768***	0.768***	0.687***	0.687***	0.618***	0.618***	0.591***	0.591***
	(0.244)	(0.190)	(0.230)	(0.172)	(0.215)	(0.153)	(0.198)	(0.139)	(0.189)	(0.132)
R^2 (%)	0.008	1.830	0.020	2.404	0.046	3.036	0.086	3.182	0.083	2.946
N	4133	4133	4135	4135	4135	4135	4135	4135	4135	4135
Maturity FE	N	Y	N	Y	N	Y	N	Y	N	Y

Table 11. Trade Uncertainty Index and the US Imports

This table presents pooled regressions estimates of nominal exchange rate returns regressed on a dummy variable DP that takes on the value of one (zero) during Democratic (Republican) Presidential terms in the US and a trade uncertainty index, which is the sum of trade uncertainty events interacting with a sign variable that takes on the value of positive (negative) one with the trade-uncertainty (-deal) event. The set of independent variables includes the US Imports standardized by the US GDP, the Foreign Trades standardized by the national GDPs, and the US Fiscal Policy which are the US tax revenues standardized by the US GDP. All trade measures are the monthly simple difference. Standard errors (in parentheses) are clustered by currency and year dimension. The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1% respectively. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 19 developed and emerging currencies. Exchange rates are from Datastream, the US data are from the FRED and the trade data are from the International Monetary Fund.

	(1)	(2)	(3)
DP	−5.888*	−5.985*	−6.589**
	(3.077)	(3.053)	(2.918)
US Imports	10.148***	10.075***	7.514***
	(2.420)	(2.429)	(2.231)
Foreign Trades	−1.141*	−1.153	−1.074*
	(0.665)	(0.675)	(0.584)
US Fiscal Policy	−1.221	−1.401	−0.949
	(2.417)	(2.424)	(2.449)
Trade Uncertainty		−3.915	−1.353
		(5.357)	(3.852)
Trade Uncertainty × US Imports			25.899**
			(11.412)
α	1.357	1.554	1.957
	(2.082)	(2.006)	(1.884)
R^2 (%)	0.017	0.018	0.027
N	8,225	8,225	8,225

Table 12. Implied Volatilities and Trade Uncertainty Index

This table presents pooled regressions estimates of nominal exchange rate returns regressed on a dummy variable DP that takes on the value of one (zero) during Democratic (Republican) Presidential terms in the US and a trade uncertainty index, which is the sum of trade uncertainty events interacting with a sign variable that takes on the value of positive (negative) one with the trade-uncertainty (-deal) event. The monthly change of currency implied volatility $\Delta IVOL$ with one-month maturity in regressions (1) to (4). General economic uncertainty measures replacing $\Delta IVOL$ are the policy uncertainty by Baker et al. (2015) and the macro uncertainty by Ludvigson et al. (2015) in regressions (5) and (6), respectively. The US Imports, the Foreign Trades, and the US Fiscal Policy are controled in all regressions. All uncertainty measures are the monthly simple difference. Standard errors (in parentheses) are clustered by currency and year dimension. The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1% respectively. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 19 developed and emerging currencies. Foreign exchange options' implied volatility data are from JP Morgan and Bloomberg. Exchange rates are from Datastream, the US data are from the FRED and the trade data are from the International Monetary Fund.

	10δ Put		25δ Put		Policy	Macro
	(1)	(2)	(3)	(4)	(5)	(6)
DP	−4.959	−4.831	−4.884	−4.719	−6.867**	−7.640***
	(3.043)	(3.073)	(3.044)	(3.070)	(3.090)	(2.627)
Trade Uncertainty	1.082	1.188	0.929	0.929	1.270	2.527
	(4.681)	(4.849)	(4.672)	(4.797)	(6.441)	(4.087)
Trade Uncertainty × US Imports	11.005**		12.559**			
	(5.069)		(5.021)			
Δ IVOL	−3.020***	−1.670**	−3.272***	−1.772**	−0.014	−167.578
	(0.806)	(0.717)	(0.881)	(0.835)	(0.046)	(106.504)
Δ IVOL × Trade Uncertainty		−1.778***		−2.342***	−0.121**	−89.025**
		(0.471)		(0.520)	(0.053)	(41.562)
Δ IVOL × DP		−2.404*		−2.530	0.019	−395.374***
		(1.285)		(1.499)	(0.074)	(125.272)
Trade Uncertainty × DP		−2.294		−1.924	−12.251	−12.010
		(11.131)		(11.255)	(8.718)	(9.094)
Triple Interactions		4.200*		4.843*	0.410***	576.488
		(2.238)		(2.418)	(0.088)	(589.400)
α	1.901	1.617	1.872	1.604	2.265	2.153
	(2.185)	(2.245)	(2.184)	(2.236)	(2.010)	(1.814)
R^2 (%)	0.096	0.105	0.091	0.098	0.026	0.043
N	3,929	3,929	3,925	3,925	8,114	8,225

Internet Appendix to

“Presidential Cycles and Exchange Rates”

(not for publication)

Abstract

We present supplementary results not included in the main body of the paper.

Table A.1. Controlling for Local Political Cycles: Panel Regressions

This table presents estimates, for currency fixed effects panel regressions, of nominal exchange rate returns regressed on a dummy variable DP that takes on the value of one (zero) during Democratic (Republican) Presidential terms in the US and/or a dummy variable FC that takes on the value of one (zero) during Centre-Left (Centre-Right) Political terms in major foreign countries like Canada, France, Germany, Italy, Japan, and the UK. Exchange rates are defined as units of US dollars per unit of foreign currency such that a negative (positive) return denotes US dollar appreciation (depreciation). An US presidential cycle starts in November when the elections take place and ends four years after in October. Standard errors (in parentheses) are clustered by currency and time (calendar month) dimension. The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1% respectively. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 25 developed and emerging currencies. Exchange rates are from Datastream.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
DP	−5.525**							−5.538**	−5.137*	−5.717**	−5.286**	−5.555**	−8.014**	−7.466**
	(2.599)							(2.601)	(2.633)	(2.585)	(2.604)	(2.584)	(2.838)	(3.294)
Canada		−1.308						−1.364						−2.525
		(2.712)						(2.698)						(3.063)
France			4.007						2.916					4.913
			(2.753)						(2.756)					(4.443)
Germany				−0.628						−1.428				2.980
				(2.565)						(2.512)				(4.681)
Italy					2.636						1.901			4.224
					(2.655)						(2.633)			(5.278)
Japan						−2.691						−2.758		1.190
						(2.713)						(2.715)		(3.810)
UK							2.032						7.087*	10.001*
							(3.771)						(4.166)	(5.049)
α	1.456	−0.437	−1.926	−0.816	−2.118	0.523	−1.466	2.187	0.696	2.265	0.633	3.166	1.457	−2.725
	(1.711)	(2.203)	(1.451)	(1.877)	(1.599)	(2.245)	(1.329)	(2.476)	(1.969)	(2.220)	(2.043)	(2.442)	(1.711)	(5.683)
R^2 (%)	1.599	1.165	1.291	1.145	1.234	1.239	1.174	1.323	1.374	1.325	1.344	1.401	1.624	1.885
N	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460	8,460

Table A.2. Controlling for US Business Cycle Fluctuations: Panel Regressions

This table presents panel regression estimates of nominal exchange rate returns regressed on a dummy variable DP that takes on the value of one (zero) during Democratic (Republican) Presidential terms in the US while controlling for the term spread (TSP), default spread (DSP), relative interest rate (RR), and the log dividend-price ratio (LDP). Exchange rates are defined as units of US dollars per unit of foreign currency such that a negative (positive) return denotes US dollar appreciation (depreciation). The control variables are demeaned and lagged relative to the exchange rate returns. A presidential cycle starts in November when the elections take place and ends four years after in October. Each specification includes a currency fixed effect. Standard errors (in parentheses) are clustered by currency and time (calendar month) dimension. The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1% respectively. Exchange rate returns are expressed in percentage per annum. The sample consists of monthly observations between October 1983 and October 2020 for a cross-section of 25 developed and emerging currencies. Exchange rates are from Datastream, the dividend-price ratio is from Robert Shiller's website, and the other data are from the FRED database.

	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
	Panel A: Controls lagged by one month					Panel B: Controls lagged by three months				
DP	−5.836**	−5.288*	−5.336**	−5.261**	−6.157**	−6.047**	−5.175*	−5.313**	−5.382**	−6.404**
	(2.615)	(2.709)	(2.635)	(2.634)	(2.779)	(2.593)	(2.661)	(2.633)	(2.611)	(2.678)
TSP	1.176				1.124	1.521				1.379
	(1.168)				(1.250)	(1.176)				(1.249)
DSP		−5.898			−6.487		−8.060			−10.101
		(5.944)			(6.274)		(5.281)			(5.551)
RR			−0.770		2.243			−1.073		3.285
			(2.060)		(2.090)			(2.015)		(1.986)
LDP				2.726	0.088				1.716	−3.735
				(4.170)	(4.141)				(4.053)	(4.223)
α	1.685	1.436	1.406	1.452	1.926	1.794	1.338	1.393	1.475	1.786
	(1.761)	(1.769)	(1.691)	(1.713)	(1.848)	(1.765)	(1.773)	(1.706)	(1.715)	(1.861)
R^2 (%)	1.380	1.599	1.288	1.313	1.737	1.449	1.879	1.303	1.289	2.154
N	9,348	8,960	9,348	9,348	8,960	9,348	8,924	9,348	9,348	8,924

(continued)

Table A.2. Controlling for US Business Cycle Fluctuations: Panel Regressions *(continued)*

	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
	Panel C: Controls lagged by six months					Panel D: Controls lagged by one year				
DP	−6.083**	−5.209**	−5.264**	−5.382**	−5.879**	−6.590**	−5.198**	−5.660**	−5.478**	−6.297**
	(2.604)	(2.605)	(2.596)	(2.588)	(2.638)	(2.600)	(2.648)	(2.587)	(2.588)	(2.707)
TSP	1.283				0.858	2.079				1.831
	(1.195)				(1.341)	(1.136)				(1.327)
DSP		−9.529			−11.142		−5.295			−4.858
		(3.621)			(3.903)		(3.349)			(3.772)
RR			−2.264		2.204			−1.596		−0.116
			(2.489)		(2.721)			(2.237)		(2.718)
LDP				2.251	−3.333				1.458	−3.439
				(3.804)	(4.227)				(3.563)	(4.320)
α	1.794	1.328	1.386	1.491	1.481	2.035	1.154	1.590	1.511	1.611
	(1.788)	(1.769)	(1.704)	(1.722)	(1.891)	(1.748)	(1.783)	(1.742)	(1.726)	(1.950)
R^2 (%)	1.395	2.121	1.409	1.302	2.236	1.585	1.443	1.343	1.286	1.643
N	9,348	8,870	9,348	9,348	8,870	9,348	8,762	9,348	9,348	8,762

Table A.3. Implied Volatility and Trade Events: Panel Regressions

his table presents panel regression estimates of foreign exchange options' implied volatility differences centred around selected trade events. The implied volatility differences are based on a window of one week (i.e., three days before and another three days after the trade event) for maturities ranging between one week and two years. 10δ Put (10δ Call) denotes the implied volatility of a deep out-of-the-money option that gives the right to sell (buy) a unit of foreign currency in exchange of US dollars whereas 25δ Put (25δ Call) refers to the implied volatility of an out-of-the-money option that gives the right to sell (buy) a unit of foreign currency in exchange of US dollars. ATM indicates the implied volatility of a delta-neutral straddle, commonly referred to as at-the-money. The set of independent variables includes a measure of trade centrality, trade openness, and country size. Each specification includes a maturity fixed effect. Standard errors (in parentheses) are clustered by currency and maturity dimension. The superscripts *, **, and *** indicate statistical significance at 10%, 5%, and 1% respectively. The sample consists of monthly observations between January 1996 and January October 2020 for a cross-section of 19 developed and emerging currencies. Foreign exchange options' implied volatility data are from JP Morgan and Bloomberg. Data on bilateral exports and imports are from the Direction of Trade Statistics (DOTS) of International Monetary Fund, and gross domestic product is from the International Financial Statistics Database.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	10δ Put		25δ Put		ATM		25δ Call		10δ Call	
centrality × openness	−0.112**	−0.112**	−0.091**	−0.091**	−0.067**	−0.067**	−0.046	−0.046	−0.033	−0.033
	(0.050)	(0.052)	(0.042)	(0.043)	(0.033)	(0.034)	(0.029)	(0.029)	(0.031)	(0.031)
centrality	0.517	0.576	0.305	0.346	0.056	0.078	−0.142	−0.136	−0.273	−0.282
	(0.726)	(0.764)	(0.606)	(0.635)	(0.494)	(0.517)	(0.461)	(0.485)	(0.491)	(0.520)
openness	0.004	0.004	0.003	0.003	0.001	0.001	0.000	0.000	−0.001	−0.001
	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
country size		−0.130		−0.089		−0.048		−0.013		0.019
		(0.131)		(0.129)		(0.135)		(0.146)		(0.168)
α	0.915***	0.926***	0.854***	0.860***	0.813***	0.817***	0.769***	0.770***	0.757***	0.755***
	(0.148)	(0.149)	(0.135)	(0.134)	(0.129)	(0.127)	(0.138)	(0.133)	(0.153)	(0.146)
R^2 (%)	4.123	4.122	5.018	4.991	5.679	5.628	5.420	5.357	4.538	4.475
N	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,478