

# PRESIDENTIAL CYCLES AND EXCHANGE RATES

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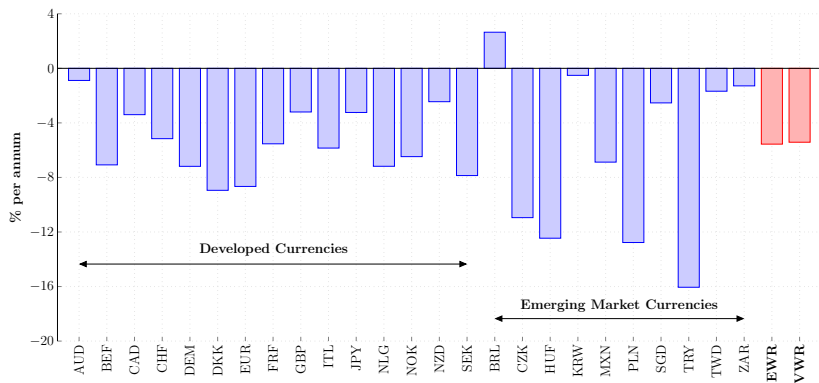
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# INTRODUCTION



- On average, the US dollar appreciates by 4.31% per annum during Democratic Presidencies and depreciates by 1.25% during Republican ones.
- The return difference of 5.56% is based on a sample that runs between October 1983 and October 2020 and uses up to 25 currency pairs.

## PREVIEW OF THE PAPER

A **presidential cycle** characterizes the dynamics of the US dollar

- On average, the US dollar **appreciates under Democratic Presidents** and **depreciates under Republican Presidents**.
- Neither cross-country interest/inflation rate differentials nor US business cycle fluctuations fully explain our findings.
- Similar to the phenomenon documented and studied by Santa-Clara & Valkanov (2003) and Pastor & Veronesi (2020) for the US stock market.

Trade policy as a **plausible explanation**

- Trade policy events comove with FX returns and implied vols.
- Trade policy events can explain a large fraction of FX return differences.
- A model of trade frictions and financiers with limited risk-bearing capacity based on Gabaix & Maggiori (2015) can rationalize our findings.

## Presidential cycles and political uncertainty

- **US and international stock markets** (e.g., Santa-Clara & Valkanov 2003; Brogaard, Dai, Ngo & Zhang 2019; Kelly, Pastor & Veronesi 2016; Pastor & Veronesi 2020),
- **Economic impact** (e.g., Nordhaus 1975; Alesina & Roubini 1992; Alesina, Rosenthal & Cohen 1997; Blinder & Watson 2016),
- **Foreign exchange markets** (e.g., Bachman 1992; Lobo & Tufte 1998; Liu & Shaliastovich 2017; Ashour, Rakowski & Sarkar, 2019; de Boer, Eichler & Rövekamp 2021; Chen, Da, Huang & Wang 2021).

## Trade policy and uncertainty

- **Trade protectionism** (e.g., Lohmann & O'Halloran 1994; Milner & Judkins 2004; Fajgelbaum, Goldberg, Kennedy & Khandelwal 2019; Fetzer & Schwarz 2020),
- **Trade policy and tariffs** (e.g., Epstein & O'Halloran 1996; Milner & Judkins 2004; Irwin 2019; Caldara, Iacoviello, Molligo, Prestipino & Raffo, 2020).

## **Financial economic variables** (for 25 countries)

- Spot and forward exchange rates from Datastream: 1983:10–2020:10,
- Year-on-year inflation rates from Datastream: 1983:10–2020:10,
- Business cycle variables from FRED and Shiller's website: 1983:10–2020:10,
- GDP data from the IMF's World Economic Outlook, 1982–2019,
- FX option implied vols from JP Morgan and Bloomberg: 1996:01–2020:10.

## **Political variables** (only for major countries)

- Democratic (DP) dummy for the US,
- Center-left (CL) dummies for the other G7's members.

## **Trade variables** (for 25 countries)

- US imports and tax revenues from the FRED,
- Imports and Exports to the US from the IMF's Direction of Trade Statistics,
- Most favored nation (MFN) tariff from the World Bank,
- Customs and import duties from the World Bank.

## SUMMARY STATISTICS

	Full Sample		Democrats (DP)		Republicans (RP)		DP - RP	
	mean	std	mean	std	mean	std	mean <sub>dif</sub>	std <sub>dif</sub>
<b>Exchange Rate Returns</b>								
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
<b>Currency Excess Returns</b>								
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
<b>Real Exchange Rate Returns</b>								
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

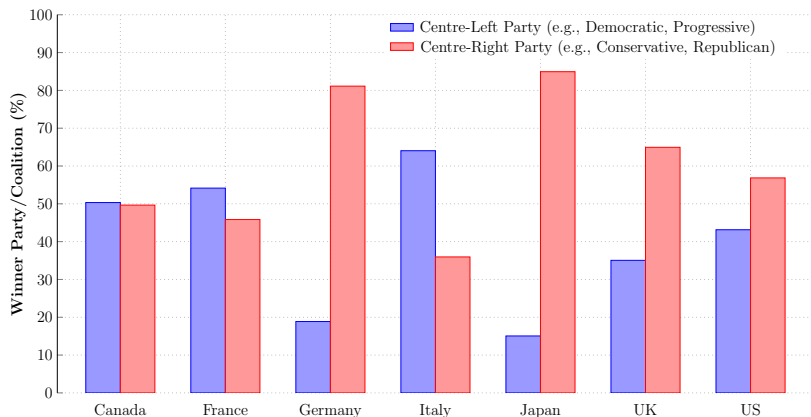
Exchange rates defined as units of US dollar per unit of foreign currency.

- Stronger (weaker) US dollar under Democrats (Republicans),
- Results robust to interest rate differentials and inflation rate differentials.

## PRESIDENTIAL CYCLES

Elected presidents (or coalitions) between centre-left and centre-right parties,

- **Democratic dummy** ( $DP_t$ ): November of year  $t$  to October of year  $t + 4$ ,
- **Centre-Left dummy** ( $CL_{i,t}$ ): Irregular length and distribution.



## MAIN FINDINGS I: FOREIGN POLITICAL CYCLES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>DP</i>	-5.928** (2.660)	-5.916** (2.663)	-6.007** (2.622)	-5.679** (2.708)	-5.981** (2.638)	-8.477*** (2.902)	-5.830** (2.684)	-8.103** (3.321)
Canada		-1.907 (2.726)						-2.845 (3.100)
France			-0.515 (2.566)					3.184 (4.707)
Germany				2.055 (2.713)				5.168 (4.456)
Italy					-1.897 (2.739)			2.053 (3.785)
Japan						7.263* (4.170)		10.709** (5.044)
UK							0.919 (2.609)	3.685 (5.210)
$\alpha$	1.645 (1.845)	2.652 (2.503)	1.941 (2.268)	1.120 (2.124)	2.836 (2.462)	1.645 (1.845)	1.255 (2.233)	-2.856 (5.669)

Standard errors clustered by currency and time dimension

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

- $\Delta s_{i,t+1}$   $\rightarrow$  exchange rate return for currency  $i$ ,
- $\beta$   $\rightarrow$  FX return difference between Democrats and Republicans.



## MAIN FINDINGS II: US REAL BUSINESS CYCLES

	(1)	(2)	(3)	(4)	(5)
<i>DP</i>	-6.222** (2.675)	-5.571** (2.743)	-5.677** (2.684)	-5.399** (2.650)	-6.244** (2.802)
Term Spread	1.348 (1.172)				1.087 (1.255)
Default Spread		-5.595 (5.922)			-5.424 (6.250)
Relative Rate			-0.878 (2.049)		1.948 (2.072)
Dividend Yield				4.328 (4.127)	2.750 (4.425)
$\alpha$	1.873 (1.858)	1.571 (1.842)	1.565 (1.795)	1.567 (1.804)	2.129 (1.894)

Standard errors clustered by currency and time dimension

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

- $X_t$   $\rightarrow$  proxies for US business cycle fluctuations,
- Results are robust to using  $X_{t-3}$ ,  $X_{t-6}$ , and  $X_{t-12}$ .

## DOLLAR CYCLE 1: A PSEUDO TRADING STRATEGY



- **Dollar Cycle:** Long (short) the US dollar and short (long) a basket of foreign currencies under Democratic (Republican) presidencies.
- **Dollar Carry:** Long (short) the US dollar and short (long) a basket of foreign currencies with higher (lower) US interest rates.
- **Dollar Value:** Long (short) the US dollar and short (long) a basket of foreign currencies with higher (lower) US inflation rates.

## DOLLAR CYCLE 2: GDP-WEIGHTED FOREIGN CURRENCIES



- The baskets of foreign currencies are weighted by GDP of each country.
- **Dollar cycle**'s performance is robust to the case of equal-weighted basket.
- **Dollar carry** and **Dollar value**'s behavior diverges from the strategies of equal-weighted basket.

## TRADE POLICY: TARIFFS

Lohmann & O'Halloran (1994)

- Lower (higher) US tariff under Democrats (Republicans),
- Positive correlation between the tariff and unemployment rate.

### Independent variables

- Trade Tariffs: Customs and import duties as % of imports,
- Federal Tax and Import are expressed as % of the GDP.

### What do we find?

- a positive relation between tariffs and foreign exchange returns;
- *DP* loses power after including tariffs.

# TRADE TARIFFS AND EXCHANGE RATES

	(1)	(2)	(3)	(4)	(5)
<i>DP</i>	-5.608*	-5.755**	-5.821*	-5.603*	-5.114
	(2.786)	(2.757)	(2.975)	(2.806)	(3.023)
<i>Trade Tariffs</i>	0.015***		0.015***	0.014***	0.014***
	(0.004)		(0.004)	(0.004)	(0.004)
<i>DP × Trade Tariffs</i>	-0.024***		-0.025***	-0.023***	-0.022***
	(0.003)		(0.004)	(0.004)	(0.004)
<i>US Federal Tax</i>		0.214	0.246		0.291
		(0.401)	(0.416)		(0.418)
<i>DP × US Federal Tax</i>		-0.031	-0.081		-1.570
		(1.054)	(1.113)		(1.128)
<i>US Import</i>				1.355*	1.884**
				(0.757)	(0.740)
$\alpha$	1.507	1.591	1.625	1.003	0.938
	(1.857)	(1.715)	(1.873)	(1.908)	(1.950)

$$\Delta s_{i,t+1} = \alpha + \beta_1 DP_t + \beta_2 Tariffs_{i,t} + \beta_3 DP_t \times Tariffs_{i,t} + \gamma' X_{i,t} + \varepsilon_t$$

- $\beta_2$  → impact of tariffs under **Republicans**,
- $\beta_3$  → relative impact of tariffs under **Democrats**.

## Trade Policy Events

- Trade dispute: Trump signs for the steel investigation in 2017.
- Trade deal: China becomes WTO member in 2001.
- Trade policy disputes (deals) take value of 1 (-1).

Options capture market expectations about future FX changes.

- Implied volatility (IV) of at-the-money, 10-delta, and 25-delta options,
- Maturity between 1 week and 2 years.

We build on the work of Kelly, Pastor & Veronesi (2016).

- Identify trade policy events taking place on day  $t$ ,
- Take IV differences for each currency  $i$  and maturity  $\ell$  over a week as

$$IVD_{i\ell,t} = IV_{i\ell,t} - \frac{IV_{i\ell,t-3} + IV_{i\ell,t+3}}{2}.$$

## TRADE POLICY EVENTS AND CURRENCY OPTIONS

	10 $\delta$ Put	25 $\delta$ Put	ATM	25 $\delta$ Call	10 $\delta$ Call
Country Size	0.032 (0.047)	0.045 (0.040)	0.062 (0.037)	0.080* (0.036)	0.078* (0.039)
Distance	-0.002 (0.022)	-0.004 (0.020)	-0.005 (0.017)	-0.005 (0.016)	-0.004 (0.016)
$\alpha$	<b>0.843***</b> (0.186)	<b>0.752***</b> (0.168)	<b>0.674***</b> (0.150)	<b>0.607***</b> (0.136)	<b>0.580***</b> (0.130)

Standard errors clustered by currency and maturity dimension

$$IVD_{i\ell,t} = \alpha + \beta X'_{i,t} + \varepsilon_t,$$

where  $X'_{i,t}$  contain the gravity factor such as Country Size and Distance.

- $\alpha$   $\longrightarrow$  impact arising from events of trade policy events.
- The country size also matters but only when the bullish market is expected.

## EXCHANGE RATE DETERMINATION MODEL

A simple extension of the model developed by Gabaix & Maggiori (2015).

### Imperfect goods market:

- Households consume a basket of nontradable and tradable goods,
- Tradable goods are produced either in domestic or foreign countries,
- Consider a *global* measure for trade policy events

$$\pi_t = \frac{1 + \tau_t^*}{1 + \tau_t} \sim N(1, \sigma_\pi^2).$$

### Imperfect financial market:

- Financiers absorb the excess supply of currency from households,
- Limited risk-bearing capacity results from credit constraints.

$$\max V_0 = \mathbb{E}_0 \left[ \beta \left( R - R^* \frac{e_1}{e_0} \right) \right] q_0 \quad \text{s.t.} \quad V_0 \geq \Gamma q_0^2 / e_0.$$



## EQUILIBRIUM AND IMPLICATIONS

The equilibrium exchange rates  $e_0, e_1$  are solved as functions of

- Trade variables: Trade policy events ( $\Pi$ ), net imports ( $l_0, l_1$ ),
- Financial variable: Financier's risk-bearing capacity ( $\Gamma$ ).

### Key model predictions:

- $\frac{\partial \Gamma}{\partial \sigma_{\Pi}^2} = \gamma \mathbb{E}(l_1)^2 > 0 \implies$  More trade policy events are associated with rising financial disruptions.
- $\text{sign}\left(\frac{\partial e_0}{\partial \sigma_{\Pi}^2}\right) = -\text{sign}(\text{Cov}[\Pi_1, \mathbb{E}(l_1)]) \implies$  Dollar depreciates (appreciates) when more trade policy disputes (deals) occur with higher expected US imports.

## CONCLUDING REMARKS

*“The US election has the potential to be a significant market mover.”*

**Financial Times, September 28, 2020**

- On average, the US dollar significantly **appreciates** (**depreciates**) against foreign currencies under **Democratic** (**Republican**) presidencies.
- We demonstrate that **trade policy** worldwide plays an important role in explaining this return difference.
- A theoretical model of trade friction is developed to rationalize the trade policy channel.